

**FOCUS IN SPOKEN ENGLISH**

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## DECLARATION

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## ABSTRACT

The thesis comprises a number of linked investigations into the phonetic realisation of information focus in non-localized accents of Standard British English. Chapter 1 consists of a review of recent approaches to the description of information focus in English, highlighting the issues which have motivated these investigations. In Chapter 2, an attempt is made to provide independent motivation for a system of focus in English, on the basis of the behaviour of naive native speakers. Description of the phonological systems and structures which realise the semantic system of focus in English constitutes the central goal of the remainder of the study. A first pass at such a description is made in Chapter 2, using an experimental approach supported by instrumental phonetic records. In Chapter 3, this is modified in the light of a detailed consideration of the role of contextual factors in the interpretation of focus, as a result of which it is possible to articulate the relationship between focus (realised phonologically) and context in a non-circular way. A number of strategies are proposed to account for the way in which speakers and listeners manipulate focus. In Chapter 4, an exhaustive phonological analysis is made of a corpus of utterances representing the distinctions in information focus that have been considered in the literature. A number of contextually defined 'focus types' are hypothesised, and substantiated on the basis of careful analysis of their phonetic correlates. At the same time, a number of grammatical factors, identified in Chapter 1, are taken into consideration. The results of this analysis are considered in detail in Chapter 5, and accentual systems and structures are established which link focus categories to phonetic exponents of pitch, loudness, tempo and duration. In Chapter 6 there is a discussion of the methodology that has been adopted in the preceding chapters, making reference to other phonological approaches to focus and intonation.



## INTRODUCTION

### Relation to Other Work

The research reported here is intended as a contribution to the phonological description of English, and specifically of non-localized varieties of Standard British English. The aspect of spoken English with which it is concerned has generally been considered in the context of studies of 'intonation' (a term which is generally avoided here, for reasons given in Chapter 6). The phonological approach used derives from Firthian prosodic analysis (Firth 1948, 1957), according to which phonological statement is concerned with relating functional categories (lexical, grammatical, semantic or interactive) to their phonetic exponents, by way of mediating phonological structures and systems.

In certain respects this research constitutes a development of part of the description of English intonation presented by Halliday (1967b). The concepts of information focus and information structure were used by Halliday to motivate the intonational systems of 'tonicity' and 'tonality'. However, there are shortcomings in his account, identified by Brown, Currie and Kenworthy (1980) and in Chapter 1 below, which necessitate a reappraisal. The present study thus resembles the work of Brazil (1975; 1978) and Brown, Currie and Kenworthy (1980) in as much as it seeks to revise Halliday's original description, although these three post-Hallidayan studies differ radically from one another in the approaches they adopt. In the present study, for instance, experimentally elicited material is used, in order to control for contextual and other variables. In this respect it shares something with approaches to 'focus' and 'sentence accent' which have concentrated on the study of selected sentence types under defined contextual conditions (Chafe 1970; Schmerling 1976; Ladd 1980; Gussenhoven 1984). However, those studies are predicated on the assumption that there is such a thing as a 'sentence accent' which can be identified without reference to considerations of focus, whereas in the present study it is argued that such an assumption is based on a false

premise: here, accentual systems are derived inductively from a corpus of spoken material in which focus variables have been controlled independently. The resulting phonological account of focus is linked explicitly to grammatical factors, such as the grammatical structure of the sentence and the form classes of the grammatical constituents it contains (drawing on Ladd's notion of an 'accentability hierarchy'). The description is therefore complementary to broader accounts of focus in English, such as that of Werth (1983), phonological aspects of which would require modification in the light of the present findings.

The phonological principles underlying the present study derive from the work of J.R.Firth, his associates at the School of Oriental and African Studies in the 1940's and 1950's, and their students. This approach, often referred to as "Prosodic Analysis" (Palmer 1970), has been applied in the main to the phonological description of lexis and grammar in non-European languages: little published work has appeared on English, and relatively little on intonational systems other than as adjuncts to the phonology of grammar. In this study, an attempt is made to apply some of the techniques used by prosodic phonologists when describing tonal systems associated with lexis and grammar, to the description of accentual systems associated with the semantic system of focus. Fundamental to the prosodic approach is the willingness to identify as many phonological structures and systems as are required to handle the functional categories that have been established. It is thus 'multistructural' and 'polysystemic'. In the present study, this position is apparent in the decision to treat the semantic system of focus separately, without any attempt to present a monosystemic phonology of 'English intonation' which includes other semantic systems. A further characteristic of the prosodic approach has been the concern with phonetic detail in setting up phonological systems and in stating the exponents of terms in systems, evident here in a readiness to consider a wide range of phonetic features as candidate exponents of focus.

### Terminology

A further characteristic of Firth's approach to linguistic description is



the concern to differentiate between linguistic levels, and to have a terminology that is appropriate to each. In the context of the present study, there are certain key terms which recur in discussions of focus, such as those reviewed in Chapter 1, which are not always used in exactly the same way by different scholars. Although their meaning for a particular writer will be explained at the appropriate point, it may be useful to provide at the outset the framework of linguistic levels within which these terms are defined for the purposes of the present study. In a comprehensive account of Focus in English, it is necessary to recognise each of the levels set out below, and to establish a separate set of terms to describe each.

**CONTEXT.** It is necessary to refer to anaphoric relations between items in the sentence/utterance under consideration and items in the preceding linguistic (and possibly non-linguistic) context. For this, the terms 'given', 'new' and 'contrastive' are used. 'Given' is used to refer to a semantic variable in the current sentence which occurs in the context. (What counts as the context is defined at the appropriate point). 'New' is used to refer to a semantic variable which does not occur in the context. 'Contrastive' refers to a semantic variable which is the only 'new' variable in the sentence. Any variable in a sentence can be classified as given, new, or contrastive on the basis of other variables which are present in the context, and only on that basis (i.e. it cannot be so classified on phonological or syntactic grounds).

**SEMANTICS.** 'Focus' is used to refer to a hypothesised semantic system of English, which may relate to contextual factors (see above), grammatical and phonological factors (see below), but which is distinct from these. It is assumed in the present study that the semantic system of focus relates to the awareness of naive native speakers that some parts of an utterance are relatively 'more important' than others (see Chapter 2).

**SYNTAX.** Traditional terminology is used to refer to syntactic categories and constructions which may be involved in the description of 'focus', e.g. 'indefinite noun phrase'.

PHONOLOGY. Such terms as 'accent', 'tone', 'nucleus', 'tonic', 'stress', 'tone group/unit' refer to phonological constructs which may be set up to articulate the exponency of Focus and/or other systems of semantics, grammar and discourse. The term 'prominence' is used in a phonological sense in Chapter 2.

PHONETICS. Phonetic exponents of such phonological constructs can be described in terms of auditory or articulatory phonetic theory, by reference to parameters such as pitch, loudness, tempo, duration, phonation type, manner of articulation etc. They may also be described in the terms of acoustic and/or physiological phonetic theory, but this is not attempted in the present study.

### Findings

In Chapter 1 it is argued that a satisfactory account of focus has to be free of circularity: semantic categories or systems of focus have to be motivated independently of their phonetic exponents if the latter are to be identified at all. The results of the experiment reported in Chapter 2 indicate that English speakers employ a semantic system of focus with four terms, which have specifiable phonetic exponents of pitch, loudness, tempo and duration. This system was set up on the basis of responses to decontextualised utterances, and is modified in Chapter 3, where the effect of context on the interpretation of phonetic cues to focus is investigated. A number of strategies are proposed to account for the way in which speakers and listeners manipulate focus in the light of contextual information, and the analysis indicates a distinction between 'anaphoric' and 'news' (i.e. non-anaphoric) sentences in terms of phonetically realised focus structure. As the result of a detailed analysis of 245 utterances in Chapter 4, and in the light of the findings of earlier chapters, accentual systems and structures are set up in Chapter 5 which link independently motivated focus categories to phonetic exponents of pitch, loudness, tempo and duration. Grammatical factors, such as the grammatical structure of the sentence in question and the form classes of its constituents, are taken into account in these systems.

## Applications

The orientation of the present study is descriptive rather than applied. Nevertheless, it is hoped that the findings will have useful applications. Firstly, the formal statements of phonological systems which relate empirically derived focus grades to relatively detailed statements of phonetic exponency may be of interest to those working on speech synthesis by rule and machine recognition of speech. Secondly, the accentual systems described here may (after further investigation as outlined in Chapter 6) be incorporated into materials for teaching English as a foreign language. The author's interest in focus originated in attempts to teach 'English intonation' to foreign learners, which led to dissatisfaction with the semantic basis of the materials then available for teaching intonation. A description such as the one presented here, which relates phonetics directly to empirically derived categories of meaning, may prove more accessible to student and teacher; it may also prove helpful to the speech therapist working with patients with acquired phonological disabilities. Finally, any improvement in the observational and descriptive adequacy of linguists' accounts of focus and prosodic systems should lead to better hypotheses about how these systems can be learned by children, and thus to a better understanding of normal phonological development and developmental phonological disability.



## CHAPTER ONE

### LINGUISTIC APPROACHES TO FOCUS

#### 1.1. Generative Approaches to Focus

##### 1.1.1. Introduction

This chapter presents a review of work on information focus which is broadly divisible into two approaches. The first falls within the framework of transformational grammar, and attempts to incorporate focus within the grammatical components (of semantics, syntax and phonology) which have been set up on independent grounds to account for other, better understood areas of the language. Thus focus is defined in terms of the sentence, which is the domain of independently motivated syntactic rules and also of at least one phonological rule (the Nuclear Stress Rule). In the second approach, a distinct level of information structure is set up with its own units (e.g. by Halliday 1967a) which correspond to units of phonological structure but are formulated independently of syntactic units. The difference is indicative of a more general theoretical divergence: within the generative paradigm, simplicity and economy are highly valued criteria in the evaluation of a description, and so there is a reluctance to increase the descriptive apparatus unless all else fails; whereas linguists of the other persuasion are likely to value observational adequacy of the description more highly, being unwilling to sacrifice what seems an appropriate analysis of a range of linguistic data on the grounds that it does not fit into an independently motivated descriptive apparatus.

Nevertheless, both approaches are concerned with essentially the same linguistic material, in that they attempt to articulate the relationship between two phenomena that have been assumed to be connected. The first is a semantic system (focus), but one which differs from other semantic systems in English in that it is not realised in orthodox morphosyntactic

ways (unlike 'plurality', for instance). The second is a combination of phonetic events which have been given phonological status in constructs such as 'sentence stress', 'tonic', 'nuclear tone' etc.

The two phenomena under consideration have largely separate histories within generative grammar. Semantic focus was used by Chomsky (1971) and Jackendoff (1972) to argue against the representation of all semantic information in the deep structure and in favour of surface structure rules of semantic interpretation. In this formulation, focus is realised by sentence stress, which is assigned by a phonological rule to the last stressable syllable in the sentence (Chomsky and Halle 1968), though no account is offered of 'contrastive' stress and other exceptions. This approach may be contrasted with that of Chafe (1970), who presents the fullest account of information structure within what can broadly be termed a generative semantic model, involving two base-generated semantic notions ('new information' and 'contrastive') which are assigned their own phonetic exponents at the surface. Despite this difference, both these approaches share the assumption that semantic focus (or new information) is regularly realised by a single phonological exponent. The need to have a single exponent of focus that is independently identifiable is forced on Jackendoff by his own definition of focus:

"As working definitions, we will use focus of a sentence to denote the information in the sentence that is assumed by the speaker not to be shared by him and the hearer, and presupposition of a sentence to denote the information in the sentence that is assumed by the speaker to be shared by him and the hearer." (Jackendoff 1972, p.230)

It is clear that by this definition, the 'focus' cannot be identified on contextual grounds, since it is not necessarily contextually 'new': it is merely 'assumed' to be new to the hearer. Short of asking the speaker what his assumptions were, the only way in which the focus of a sentence can be identified is if it has an a priori identifiable exponent at the syntactic or phonological levels.

### 1.1.2. Clefts and Focus

Jackendoff considers the possibility that the syntactic transformation 'clefting' is the criterion for focus assignment:

" ... it is inherent in the meaning of the cleft construction that the focus must be included in the main clause. Thus a choice of focus outside of NP1 (i.e. the clefted NP) would be semantically inconsistent; this is reflected in the unacceptability of main stress anywhere in the complement S..." (p.239)

One type of cleft identified by Prince (1978), the Stressed Focus It-cleft, lends support to the view that clefting is associated with focus, in that it functions to mark clearly what is new and what is old information. This is done by reversing the normal order (given precedes new), placing the new information in the earlier 'it' clause (Prince 1978, p.897). According to Prince, the function of it-clefting of this type is to mark one element as focussed, by putting it in the 'it' clause, and the other element as given or known but not the theme of that particular stretch of discourse.

However, Prince's discussion of the various functions of cleft sentences in discourse shows that Jackendoff's statement, quoted above, tells only part of the story. Prince identifies a use of the it-cleft structure in which the complement does receive 'stress'. This is her Informative-Presupposition type, in which the 'that' clause contains new information. According to Prince:

"Informative-presupposition it-clefts are formally and unambiguously identifiable. First, they have normally (vs. weakly) stressed that-clauses. Second, they generally have a short and anaphoric focus, which, in my data, is either a (subject) NP or an adverbial ..."  
(p.899)

Unfortunately, it is difficult to evaluate the first criterion, since most of Prince's examples of this type are from written texts: the type seems particularly common in written language. Even those examples that originate



from spoken material were almost all obtained from written transcripts. Nevertheless, if Prince's phonological assumptions about the pronunciation of such sentences in spoken discourse are correct, then Jackendoff's view of clefts needs to be modified, as has been suggested by Werth (1983, p.253ff). He shows, from naturally occurring data, that when a cleft construction is used, there is often a second contrast in the complement S as well as a contrast in the main clause. (This also, incidentally, casts doubt on Jackendoff's claim about "the unacceptability of main stress anywhere in the complement S").

### 1.1.3. Focus and Sentence Stress

In fact, Jackendoff argues that stress, rather than clefting, is the criterion for focus assignment, by showing that certain constituents capable of receiving focus (verbs, prefixes, quantifiers ) cannot be clefted. Having concluded that stress is the unique criterion for identifying focus, Jackendoff introduced a syntactic marker F which can be made use of by semantic and phonological rules. With regard to the semantic rule:

"The semantic material associated with surface structure nodes dominated by F is the Focus of the sentence." (p.240)

there is an interesting consequence: although F is only relevant for surface structure and phonology, it is nevertheless necessary to have some way of tracing the history of this associated semantic material through the derivation, if identification of the focussed material is to be possible in e.g. passive sentences with focus on the VP. The implication is that although focus assignment is (for Jackendoff) a surface structure and phonological operation, focussed material has to be identified at the deepest level of semantic structure. In this respect the interpretive view of focus is not radically different from that of Chafe (see below).

Jackendoff's treatment of the phonology of focus is founded on the Nuclear Stress Rule of Chomsky and Halle (1968), though he makes an attempt to

incorporate some intonational features into his account of multiple focus. For single focus, he finds it sufficient to restate the NSR and add an 'Emphatic Stress Rule', whereby the primary stressed syllable of the focus constituent receives 'emphatic stress' (p.241). He suggests a refinement of this to account for the observation that the narrower a focussed constituent is, the more prominent it is in terms of stress. This might be accounted for by postulating that "all stresses dominated by F are exempted from weakening on successive cycles, preserving their strength relative to F, but ending up with higher stress relative to the rest of the sentence than would otherwise be the case." (p.242). This modification is in accordance with the principle of the phonological cycle, which is fundamental to the stress rules of Chomsky and Halle (1968). The one case which Jackendoff mentions as falling outside the scope of this rule is that of sentences like:

S1.1 I'm talking about affirmation, not confirmation.

in which syllables which "never receive [primary] stress" receive emphatic stress. He claims:

"In most examples of this type, the contrast being made is phonological rather than semantic, in that the speaker is trying to correct the hearer's impression of what words were just said." (p242)

No evidence is advanced to support this claim. It could be argued that this type of sentence occurs just as frequently in cases where a direct semantic contrast is made between words which belong to a restricted semantic set and which are formally similar:

S1.2 We import raw materials and export consumer goods.

S1.3 When I first read Wuthering Heights I loved it, but when I reread it I was disappointed.

Jackendoff prefers to treat such sentences as:

"...ungrammatical but necessary to say sometimes (sic) and hence derivatively generated by a temporary weakening on the conditions of the Emphatic Stress Rule." (p.242)

overlooking the similarity between sentences such as S1.2 and S1.3 on the one hand, and on the other such sentences as S1.4 where a semantic variable is similarly 'backgrounded', because given in the context, but where the stress falls on a more obviously 'stressable' syllable:

S1.4 A: Hasn't the faculty voted on that yet?

B: It's coming up at the faculty meeting.

In this example (from Ladd (1980), p.88) the first of the two semantic variables in the compound noun "faculty meeting" is given in the context, and as a result the stress is shifted off the normal 'primary stress' syllable of the compound ("fac-") onto the most stressable syllable of the word that constitutes the other semantic variable, i.e. the first syllable of "meeting". As Ladd indicates, Ss 1.1-1.4 all exemplify the same phenomenon, which is essentially a semantic process of 'backgrounding' of given variables.

What these sentences show is that lexical stress assignment rules cannot be strictly 'ordered' before Focus stress assignment rules, since the latter can violate the former, as in S1.2 and 1.3. A further argument against the cyclic ordering of sentence (i.e. focus) stress after lexical stress assignment is presented by Schmerling (1976, p.26ff), who supports Bolinger's view that lexical stress is potential, but not invariably realised in utterance. The evidence she cites involves post-nuclear 'tails', where the potential lexically stressed syllable is not realised with any more phonetic prominence than potentially unstressed syllables. Thus in the following examples, which she cites from Bolinger, the lexical stress on the first syllable of "compost" is realised in S1.5, where it is in nuclear position, but not in S1.6, where the word occurs in the post-nuclear tail:

S1.5 What did you do with that compost?



S1.6 What did you do with that compost?

Schmerling takes this as evidence that:

"Sentence stress assignment is something which is logically prior to word-stress assignment - the opposite of the cyclic point of view."

Similar sentences were investigated instrumentally by Faure, Hirst and Chafcouloff (1980), who found that listeners could not distinguish between pairs such as "greenhouse" and "green house" in post-nuclear tails, indicating that lexical stress information is not available to listeners at this place in structure, and thus supporting Schmerling's view. However, Faure et al. did apparently find durational differences between such pairs in this place in structure, even though listeners were apparently unable to make linguistic use of these differences (see Nolan (1984) for fuller discussion of these findings). There is thus an 'ordering paradox': the findings of Faure et al. indicate that the speaker assigns lexical stress even when it has no functional value, supporting the traditional generative view that lexical stress is logically prior to focus stress, whereas examples such as S1.1 - S1.3 suggest the opposite. Within the account presented in Chapters 4 and 5 of this study, the problem does not arise since both are regarded as applying simultaneously: the 'problem' only arises within a phonological theory that relies on the notion of sequentially ordered rules. This view has been adopted by Selkirk (1984):

"... stress, or rhythmic prominence, is ... not involved in the representation of prominence differences relevant to focus." (p.251)

Her arguments in support of this view are internal to generative theory, and it is hard to tell what empirical consequences, in terms of phonetic 'output', are predicted by her account.

For Jackendoff, the scope of focus is the phrase which contains the sentence stress (p.230). It is thus crucial to his account that sentence stress should clearly indicate the semantic material that is focussed, by

specifying the syntactic domain of F. Chomsky summarizes the position clearly:

"Rules of phonological interpretation assign an intonational contour to surface structures. Certain phrases of the surface structure may be marked, by grammatical structures of a poorly understood sort, as receiving expressive or contrastive stress, and these markings also affect the rules of phonological interpretation. If no such processes have applied, the rules assign the normal intonation. In any event, phrases that contain the intonation centre may be interpreted as focus of an utterance, the conditions perhaps being somewhat different and more restrictive where the intonation centre involves expressive or contrastive stress...." (1970, p.99)

The two main assumptions which underlie this approach have been subjected to extensive criticism by Bolinger (1972), Schmerling (1976) and Ladd (1980). Chomsky and Jackendoff assume that nuclear stress assignment is a post-syntactic rule operating on surface structure. The aspects of surface structure that are crucially involved are firstly the constituent structure of the utterance (Schmerling 1976), for the NSR assigns primary stress to the rightmost primary-stressed vowel in a major constituent; and secondly, the category status of individual words and morphemes - for example, pronominals cannot receive primary stress. The other important assumption is that there is such a thing as the 'normal intonation' of an utterance, to which these rules apply, and by implication 'abnormal' intonations which have to be handled by different grammatical processes.

The consequences of a syntactic formulation of sentence stress appear most clearly in Bresnan (1971). Bresnan attempts to account for some regular cases in which the sentence stress does not fall on the rightmost lexical item in the constituent:

S1.7 George has plans to leave.

as opposed to:

S1.8 George has plans to leave.

and also:

S1.9 George found someone he'd like you to meet.

as against:

S1.10 George found a friend he'd like you to meet.

The first pair illustrate the importance of constituent structure. Bresnan postulates for (1.7) an underlying direct object for 'leave' which is deleted in the course of the syntactic derivation, after it has had the effect of reducing the stress on 'leave'. Because the NSR is applied cyclically, there will be a heavy stress on 'plans' in the topmost S, and this remains, giving S1.7 as output. Thus the rule is applied cyclically, and the domain of the cycle is determined syntactically. The second pair of examples demonstrates the importance of category membership: in S1.8 'someone' is not assigned primary stress because it is pronominal.

#### 1.1.4. Non-syntactic Accounts of Sentence Stress

Comprehensive arguments against Bresnan's account are given by Schmerling (1976). They are summarized here with emphasis on their relevance to the description of focus. Schmerling's objections to Bresnan's position fall into three categories: syntactic, semantic and pragmatic. Of the syntactic objections, one is relevant to the present study, since it touches on the interaction of indefiniteness and focus discussed in a later section. On the basis of examples such as S1.9 and S1.10, Bresnan claims that anaphoric NPs do not receive primary stress but relativised NPs do. This difference leads Bresnan to treat the two types of NP in different ways. However, Schmerling points out (p.32) that the behaviour of relativised NPs is very similar to that of definite NPs and anaphoric NPs in a number of syntactic contexts in which they differ from indefinite NPs. For example, in so-called 'Tough'-movement constructions, indefinite NPs cannot be moved:



S1.11 \* A class was impossible to lecture to.

but relativised NPs can be:

S1.12 A class that was impossible to lecture to was the bane of my first year's teaching.

Also, indefinite antecedents cannot be followed by indefinite anaphors:

S1.13 I talked yesterday with an insurance salesman. \* A salesman/One tried to sell me an annuity.

but only by definite anaphors:

S1.14 The salesman/He tried to sell me an annuity.

which thus resemble the relative:

S1.15 I talked yesterday with an insurance salesman who tried to sell me an annuity.

So apart from the dubious claim that anaphoric NPs cannot be stressed, there is no motivation for handling relativised NPs and anaphoric NPs separately.

The semantic counterargument to Bresnan's position is presented by Bolinger (1972), according to whom the stress pattern of S1.7 results from the semantic lightness of the verb 'leave' in this linguistic context: the speaker has selected a verb which is fairly predictable because he does not wish to focus on the verb as informationally important, and so the verb has attenuated stress. Accent (as Bolinger terms it) is not predictable from the syntax, but results from the speaker's intentions with regard to information focus. While she too rejects the Bresnan account, Schmerling (1976) argues that predictability in Bolinger's sense is not always a reliable guide to accent placement, preferring a formulation according to

which both topic and comment are stressed more than verb. Her argument is based on a number of sentence pairs which in her interpretation contradict Bolinger's notion of relative predictability. The first pair incidentally, constitute her only non-invented data:

S1.16 Johnson died.

S1.17 Truman died.

The context for S1.16 is that Johnson had not been in the news and was presumed to be well, so the news of his death came out of the blue; whilst the context for S1.17 is that Truman, an old man, had been ill for some time and his recovery was unlikely. According to Schmerling, Bolinger's theory predicts the reverse stress patterns: the mention of Truman should have suggested death so "died" should not have been stressed since there was no need to focus on that part of the message. On the other hand, in S1.16, the mention of Johnson should not have suggested death, so "died" should have been stressed as new information. Schmerling's interpretation is open to some objections: if Johnson had not been in the news, nothing was contextually predicatable, so the speaker needs to bring Johnson to the hearer's attention. Furthermore, when ex-public figures are mentioned out of the blue on news broadcasts, it is often to announce their death, and so it could be argued that a mention of dying is to some degree predictable from the mention of Johnson. Consider a less predictable verb:

S1.18 Johnson's been canonized.

The single accent on "Johnson" seems somewhat incongruous in an out-of-the-blue context: it is perhaps more likely that there will be accents on both noun and verb, since the pieces of information they represent are equally and mutually unpredictable. As for S1.17, the very fact that Truman had recently been in the news surely implies that he is 'given', in the sense of being part of speaker's and hearer's shared current knowledge, and so mention of Truman was predictable (or at least, more predictable than mention of Johnson). The new information that the listener is interested in is what happened to Truman - presumably one of a restricted number of

possible alternatives, which thus have contrastive value:

S1.19 Truman recovered / is still critical / underwent surgery / died.

Schmerling's other examples are open to similar objections. She claims that the verb is unpredictable in the S1.20 and S1.21:

S1.20 I'm not going to be able to make it today - the car blew up.

S1.21 My watch stopped. Do you know what time it is?

But here too the semantic content of the verb is highly predictable, as can be seen when it is replaced by less predictable verbs:

S1.22 The car blew away.

S1.23 My watch's on fire.

In S1.22 and S1.23, the stress pattern is again incongruous, because the predicate is informationally as important as the subject.

Schmerling's solution is to abandon Bolinger's notion of informational predictability in favour of a formulation in terms of topic and comment:

"What I am calling the topic in each of these cases is then a kind of 'old information': it is something the speaker can assume to be, in a sense, on the addressee's mind, or immediately inferable from the total context."

This is in fact the view which was taken above to defend Bolinger's notion of predictability against Schmerling's criticisms: the point being that the only difference between Bolinger and Schmerling here is on the domain over which semantic predictability operates. A more substantive difference involves the extent to which each is prepared to make deterministic rules about accent placement. Bolinger does not think it is possible to make such rules, since the speaker, in his view, is ultimately free to put the accent

wherever he likes. He simply points out the factors which can be involved in accent placement: information focus, reflected by the choice of semantically heavy or light verbs, together with rhythmic factors to do with the phonological weight of the verb. Schmerling seems to argue that it is possible to set up categories of topic and comment which can be defined independently of stress, i.e. from the discourse or situational context. The categories 'topic' and 'comment' can then be used in the formulation of sentence stress placement rules:

"Principle IV: In a topic-comment utterance, stress both the topic and the comment." (p.94)

which interacts with phonological principles such as:

"Principle III: Given a sequence of stresses which are equal and greater than other stresses within the intonational unit, the last such stress will be more prominent than the others." (p.86)

The resulting set of principles seems to fill the void left by the rejected Nuclear Stress and Focus/Presupposition rules, in that they attempt to predict the stress contour of an utterance by reference not to syntax but to pragmatic and discourse principles, to the output of which phonological principles will apply. However, the discussion of examples S1.16 - S1.23 has shown that it is extremely difficult to draw generally acceptable inferences about topic-comment structure from one's knowledge of the language and the immediate context, linguistic and non-linguistic: the temptation to which Schmerling succumbs is to interpret the context to fit in with her account of stress contours, which is why her argument is really circular: topic-comment structure, which is used to define stress placement, is in fact covertly defined by reference to stress placement. If the aim is to account for the phonological phenomena variously referred to as sentence stress, accent, phonological prominence etc. by reference to concepts of information focus and distribution, it is first necessary to set up a system of information focus and distribution which is motivated independently of the phonological phenomena to be accounted for, i.e. in terms of discourse structure, semantics, syntax or some other non-



phonological criteria. The present study is centrally concerned with this issue.

One reaction to problems encountered in relating focus to contextual and pragmatic factors has been to concentrate on formal aspects of the description of focus and stress. Culicover and Rochemont (1983) claim to present an analysis that "with certain well-defined exceptions, formally characterizes the association of primary stress and focus in English sentences" (p.163). They adopt a strong 'autonomous systems' approach, whereby focus is identified <sup>m</sup> the syntactic component, interpreted in the pragmatic component, and related to 'stress' in the phonological component:

"This is not to say that stress, focus and context are unrelated, but rather that the generalizations concerning each are independently specified. Through such autonomy, the various related phenomena will become better understood." (p.123)

Culicover and Rochemont assert that there is such a thing as 'focus' that can somehow be abstracted from its particular meanings, although they offer no justification for this (p.151). This 'focus' is then subject to a variety of interpretations, according to context. Thus there is no 'contrastive' stress, but merely a contrastive interpretation of focus.

Despite careful elaboration of model-internal formal devices to handle the relationship between stress and focus, Culicover and Rochemont do not offer any empirical evidence to support their claim that "contrastive stress ... does not exist as such" (p.152). Nor is their definition of 'contrastive focus' amenable to verification, since it is defined entirely in terms of speakers' intentions and beliefs, which are inaccessible to linguistic research. It is perhaps as a consequence of this that they feel it is "undesirable" to try to generate stress patterns on the basis of context.

## 1.2. Chafe's Semantic Approach to Focus

### 1.2.1. 'Old' and 'New' Information in Chafe (1970)

In the light of the apparent failure of generative syntactic and pragmatic approaches to provide a coherent, non-circular account of focus and accent placement, it is relevant to consider an attempt to do the same in terms of base-generated semantic units. Chafe (1970) makes out a case for incorporating focus in the underlying semantic structure of the sentence and for tracing focus through the semantic and syntactic derivation to the phonological component. The result is that 'focus' is not restricted in its exponency to one particular realisation, i.e. main stress: it is expressed by case relations and word ordering as well as by phonological prominence. Chafe makes two major points in favour of his treatment of 'focus' (which he considers under the two categories 'new' and 'contrastive'). Firstly, if we accept the ordering of rules as a way of formulating constraints within the language, the assignment of the 'new' inflection necessarily precedes that of the 'definite' inflection. Secondly, it is possible to construct a least marked distribution of focus on the basis of a hierarchy of cases, and to interpret various syntactic movement rules as ways of reordering new and old information. If Chafe's arguments are accepted, it is necessary to accept that there are semantic constraints on the distribution of focus.

Chafe restricts himself to the sentence in his account of semantic structure. This is a significant limitation with regard to focus, since a comprehensive account of focus will require consideration of the linguistic and non-linguistic context. The advantage of a sentence based approach is that it allows us to progress from the better understood to the less well understood: recourse is made to the comparatively little-understood field of discourse structure only after explanations have been exhausted at the level of sentence structure. Chafe's procedure is to build up the semantic structure of a sentence by formulating ordered rules, analogous to the ordered rules encountered more frequently in syntax and phonology.

Chafe suggests that in surface structure, old information is generally



associated with subject position, and new information with higher pitch and amplitude (p.213). This is not always the case, but in his view happens frequently enough to be taken "as a basis for the description of exceptions to it". It enables Chafe to explain the anomalous nature of S1.24 and S1.25 as the consequence of a violation of constraints on the distribution of new and old information:

S1.24 \* A box is empty

S1.25 \* (Sm) boxes are empty

where only "empty" has phonological prominence, and where the selection of "a box" and "boxes" is made from the universe of all boxes, not from a known restricted subset of that universe. In his discussion of the semantic inflection of the noun (Chapter 14) and the verb (Chapter 13), Chafe argues for the following semantic inflections:

a) non-definite vs. definite, for nouns

to account for the difference between S1.26 and S1.27:

S1.26 An elephant stepped on my car.

S1.27 The elephant stepped on my car.

The difference in meaning is that in S1.27 "the speaker believes that he can assume, for whatever reason, that the identity of the elephant is known not only to himself but to the hearer as well" (p.187). The surface manifestation of definiteness is the definite article. The second inflection relevant here is:

b) generic vs. non-generic

which is invoked by Chafe to distinguish between the two interpretations of sentences such as :

## S1.28 A bird sings

which can be either a report of an instantaneous action (non-generic) or a description of the species (generic). For Chafe, generic or non-generic is a property not of the noun but of the 'verb' (i.e. the predicate). Verbs are inflected as relative or non-relative (p.170); relative 'verbs' such as "wide" in "The road is wide" must be inflected as generic if they are also 'state' verbs; and if a verb is generic, its accompanying noun must be inflected as generic if it has not already been inflected as definite (p.189). To return to S1.24: the noun is non-definite, as there is no definite article; it is also non-generic, since the 'verb' "empty" is a non-relative state and is thus automatically inflected for non-generic. In terms of Chafe's semantic categories, the unacceptability of S1.24 and S1.25 can be expressed as follows:

Non-definite, non-generic nouns must be inflected for 'new'.

To formalise this constraint, Chafe has to modify the rule which optionally specifies a noun as definite. He adds the condition that the rule becomes obligatory if the noun is not 'new' and the verb is not 'generic', blocking the co-occurrence of non-definite, non-generic and non-new. The implication is that a noun is inflected for 'new' before the application of the rule which inflects for 'definite'.

The next problem is to determine whether a noun is 'new' or not. Before this is addressed, here is Chafe's own explanation of the anomalous nature of S1.24 and S1.25:

"If we accept, then, that the nouns are neither definite nor generic, how can we explain the fact that these sentences are unnatural? To put the question the other way round, why does a noun which conveys old information have to be either definite or generic? Old information means that the concept is already familiar to the hearer (or at least that the speaker assumes that to be the case). This familiarity is consistent with a definite noun, where the speaker assumes that the hearer knows the identity of the box, or with a generic noun (as in

'A box is a container', where the entire class of boxes can justifiably be assumed to be a familiar concept to anyone who is a speaker of the language. In the non-definite, non-generic case, however, as in [S1.24 and S1.25], the speaker assumes that the hearer does not know which box or boxes is being talked about. He is introducing this particular subset of boxes for the first time. The concept therefore must be new information. The trouble with sentences [S1.24 and S1.25] is that they treat something which has to be new information as if it were old information by placing it first in the surface structure and giving it low pitch." (p.214)

Chafe interprets this constraint as obtaining between 'new information', 'non-generic' and 'non-definite'. The concept of 'new information' is not formulated in a completely satisfactory manner by Chafe, as will be seen, although it is not in fact necessary to refer to 'new' in this constraint. It is sufficient to state that non-definite, non-generic nouns must be assigned phonological prominence; or, in interpretive terms, a non-definite noun that is not phonologically prominent must be interpreted as generic (n.b. the converse does not hold: a generic noun may or may not be phonologically prominent). This constraint needs to be incorporated into any account of focus which seeks to relate semantic features to phonological exponents. Indeed, it differs from similar constraints that have been proposed, in that it admits of no exception. Compare, for example, the treatment of pronouns, which are phonologically non-prominent in their normal anaphoric use, but can be prominent when referring to a non-conventional antecedent (Wells and Local 1983, p.707) or when used deictically.

### 1.2.2. Markedness in Chafe (1970)

Chafe's constraint is one of the few constraints on phonological prominence that can be stated without recourse to the concept of 'markedness', a concept which he relies on heavily in the remainder of his account of information structure. It is a concept which is invoked frequently in accounts of focus and intonation, particularly with reference to an

'unmarked', 'neutral' or 'normal' intonation or stress patterns. Although the concept of markedness is problematic, as will be seen in the next section, Chafe assumes without discussion that the reader will understand what is meant by the term. It is introduced briefly:

"An assumption that will be basic to the remarks which follow is that there is one 'least marked' distribution of new and old information in a sentence. It will be assumed that other distributions are also possible but that they are in some way more marked." (p.214)

There follows a quite detailed account of the least marked distribution of information in the sentence, in terms of the semantic and case relations of its nouns. Chafe makes the following claims for the 'least marked' distribution (underlining = high pitch and loudness; {} = 'new'):

i) Where the sentence contains only a verb root, this will be new:

S1.29 It's {raining}.

ii) When one noun root only is present, it is not new:

S1.30 The box is {empty}.

iii) A locative noun root is always new:

S1.31 The box is {under the table}.

iv) A patient noun root is new if the sentence also has an agent or beneficiary noun:

S1.32 David {emptied the box}.

S1.33 Lisa {received a picture}.

v) A beneficiary noun root is new if the sentence also has an agent noun:



S1.34 David {gave Lisa a picture}.

Chafe then turns to passive verbs, claiming that one of the two main functions of the passive is to alter the assignment of new information within the sentence, without apparently making the distribution of information any more 'marked' (p.220). For instance, Rule (iv) above does not apply to passive sentences such as S1.35:

S1.34 The picture was given to {Lisa}.

The rule must be replaced by another, stating that " a beneficiary noun root may be specified as new if its attached to a passive verb". A similar emendation is needed for Rule (v), to account for S1.36:

S1.36 Lisa was given the {picture}.

where the new rule is: " a patient noun root must be specified as new if it is attached to a passive verb which is also accompanied by a beneficiary noun root that is not so specified." What Chafe wants to do, then, is to show that various post-semantic processes (i.e. syntactic movement rules) are used by the speaker as a means of preserving unmarked distribution of information.

Chafe then briefly discusses some examples of what he considers to be "more marked" distributions of 'new'. These fall into two classes. The first consists of sentences in which all the noun roots, as well as the verb root, contain new information:

S1.37 {The box is empty}.

S1.38 {David emptied the box}.

Such sentences seem to correspond to what Schmerling (1976) calls 'news' sentences, "where the speaker assumes no particular expectations with regard to the information content on the part of his audience" (p.81).



The second class of marked sentences includes those in which more than one noun root contains old information:

S1.39 David {emptied} the box.

(following a sentence such as 'David came upon a box'). Chafe proposes to account for such sentences by assuming that information is first distributed in the unmarked way, and that there is an optional rule, (formalised like an alpha rule in phonology) to reverse the markings for 'new'. This is clearly an ad hoc device, reflecting the fact that such sentences cannot be given a principled description without consideration of the context. Such sentences would normally undergo pronominalisation, as Chafe points out:

S1.40 David came across a box. He {emptied} it.

Chafe does not mention another class of sentences which presumably have 'marked' distribution of information, namely those in which the verb root is not specified as new. An example is the surface realisation identical to 1.32 above:

S1.32 David emptied the box.

where the sentence is a response not to the question "What did David do?" but to the question "What did David empty?". Unlike the two types of marked distribution discussed by Chafe, in this type the marked structure is phonologically identical to the unmarked structure. According to Chafe:

"Surface structure verbs are not given high pitch even though they do reflect new information." (p.216).

However, other linguists have suggested that where the distinction has to be made, other phonetic factors come into play, such as pitch lowering and tempo (c.f. Halliday 1967a, p.208). Empirical evidence that bears on this issue is discussed in Chapter 5 below.

### 1.2.3. 'Contrastive' according to Chafe (1970)

Chafe makes a qualitative distinction between marked and unmarked distribution of 'new' on the one hand, and 'contrastive' sentences on the other. In S1.32, he accepts that there is an ambiguity of surface form, but for him the ambiguity is between the answer to "What did David do?" and the answer to S1.41:

S1.41 Did David empty the box or the suitcase?

to which S1.32 is a 'contrastive' answer. By 'contrastive', Chafe means:

"...the lexical unit specified as new (signalled in the surface structure by the high pitch) can be understood as if it were selected from a list of alternatives which might have occurred in its place. The speaker is saying that this lexical unit is the correct one, taken from an implicit set of possible alternatives." (p.224)

There is no a priori reason to set up a 'contrastive' category in the semantic description of English. As Bolinger (1961) points out, "in a broad sense, every semantic peak is contrastive". To justify a special 'contrastive' inflection, independent linguistic motivation is required. Commonly, a combination of discourse and phonetic criteria is used. In terms of discourse, an item can be said to be contrastive if it belongs to a restricted set, another member of which is given or referred to in the preceding context. This seems to represent Chafe's view, just quoted. At the same time, it has been recognised that it is not always possible to locate another member of the set in the discourse: it may be 'implied'. What is important, according to Chafe (1976), is not the actual presence of another member of the set, but the speaker's assumption that the addressee is aware of the particular restricted set at the particular moment of speaking. It is therefore impossible to identify an item as contrastive on discourse evidence: mind-reading abilities are required (c.f. Bolinger 1972). For this reason Chafe has recourse to phonetic criteria, which leads to an immediate difficulty as he has already claimed that S1.32 is

ambiguous between contrastive and new interpretations. However, he attempts to refute Bolinger's statement (1961) that "as far as we can tell from the behaviour of pitch, nothing is uniquely contrastive", by finding a difference in pitch pattern in multiple-focus sentences of the kind:

S1.42 They elected Alice president.

according to context. The 'new' context would be:

S1.43 What happened at the meeting?

after which, according to Chafe, the pitch on "Alice" falls only slightly, whilst after S1.44, a contrastive context, it would fall steeply:

S1.44 They elected Henry treasurer ...

He adds, without illustration:

"...it is also true that the high pitch on a contrastive focus is often higher than on a simple new information item (and the stress stronger)." (Chafe 1976, p.36)

Chafe's claims about the phonetic exponency of 'contrastive' in his crucial 'double contrastive' structure are hard to verify, since the structure is, as Yule (1980) points out, a rare one in most ordinary forms of discourse. The claim about the relative pitch height of new and contrastive items is more amenable to empirical investigation, and is taken up in Chapter 2 of the present study. As it stands, however, the case that Chafe makes for a separate 'contrastive' category is not convincing, since for his semantic criterion he is forced to fall back on unverifiable psychological claims, whilst his phonetic criteria are not supported by evidence.



### 1.3. Markedness and Normal Stress

#### 1.3.1. Markedness in the Description of Focus

Some important but unstated assumptions about markedness underlie the treatment of new information and contrastiveness in Chafe (1970), and in other discussions of focus and intonation. In this section some general aspects of markedness theory will be discussed, followed by a critical appraisal of Chafe's use of the concept; finally it will be argued that the notion of 'normal stress' or normal intonation' is covertly based on a similar, and also inappropriate, concept of markedness.

As is well known, the concept of markedness originated with Trubetskoj, as a way of characterising binary phonological oppositions, such as pairs of consonant phonemes differing only in voicing, by reference to the 'neutralization' of one member of the pair in certain phonological environments (e.g. final consonant devoicing in German). The unmarked member of the pair is the one that appears in those positions where the opposition between the two members is not found. It did not take long for this concept to be extended to other levels of linguistic description, and beyond, notably by Jakobson (cf. Jakobson and Waugh (1979), p.90). The appeal of markedness is that it provides, or appears to provide, a justification for taking one term in an opposition as more fundamental than the other, and thus for explaining the latter as a systematic deviation from the former. In lexical semantics, for instance, it has been used to describe the relationship between pairs such as 'lion-lioness', where 'lion' is unmarked since in some environments it can refer to both sexes, whilst 'lioness' cannot. In general, the distributionally marked item (here 'lioness') is also formally marked by having some formal element (here, the suffix) which the unmarked member lacks (Lyons 1977, p.306). In the syntax and semantics of the verb, markedness has been used to characterize the relationship between verbal aspects, using similar criteria (Comrie 1976, p.111ff): the unmarked aspect may under certain circumstances have the meaning of the marked category, whilst the reverse is impossible. Thus in Russian, the imperfective aspect may on certain occasions have perfective meaning, whereas the perfective never has



imperfective meaning. However, as Comrie points out, this particular example raises a problem: although by the neutralization criterion the imperfective is unmarked, the perfective in fact occurs more frequently in the language, and relative frequency is another criterion that has been used to establish markedness values, the more frequent term being unmarked (Greenberg 1966).

Thus a variety of criteria, including frequency and formal marking, have been used to decide which term in an opposition is marked, and these criteria may conflict. This being the case, the concept would seem to be of doubtful descriptive value. For Trubetskoy, however, there was only one criterion:

"I emphasize that unmarked and marked members of an opposition exist only in the case of neutralizable oppositions. Only in such cases does the distinction between unmarked and marked members of an opposition have an objective phonological existence. Only in this case is it possible to determine the feature of a phonological opposition with complete objectivity and without the assistance of extralinguistic means of investigation. If a phonological opposition is constant, the relationship between its members may sometimes be thought of as a relationship between marked and unmarked. However, this remains only a logical or psychological fact, but it is not a phonological fact."  
(Trubetskoy 1936, quoted in Hyman 1975).

Trubetskoy's strictures are pertinent to the study of focus and its phonological exponency, since they indicate that there is linguistic justification for talking of an unmarked distribution of information, or of an unmarked intonation pattern, only if the criterion of neutralisation can be applied.

The sentences which Chafe takes to be unmarked share a number of features: each has always and only one non-new root, which is always a noun, if it has a noun at all; this noun root is always in subject position in the surface structure; and the last element in the sentence carries phonological prominence (see S1.29 - S1.36 above). Although Chafe claims

that this last fact is not related to any syntactic criteria but solely to the presence of new information (p.216), he still does not explain why he selected these particular sentences as being unmarked: the covert assumption seems to be that in the unmarked case, phonological prominence will fall on the last word. This coincides with the traditional view, embodied in the Nuclear Stress Rule and rejected by Schmerling (1976). She argues that what linguists have meant by 'normal intonation' (for which rules such as NSR are supposed to account) is the intonation of citation forms, which are in fact marginal rather than 'normal' uses of language. Their marginality arises from the fact that they are, by definition, uttered out of context, and are thus divorced from any real linguistic meaning the sentence might have in ordinary use. Schmerling then discusses the possibility of saving the notion of normal intonation by defining it as the intonation used when the sentence is uttered in a neutral context, but rejects the idea that there is such a thing as a neutral context: even such apparently simple sentences as S1.16 and S1.17 were uttered, out of the blue, with different intonations because of the subtly different contexts that existed when they were uttered:

S1.16 Johnson died.

S1.17 Truman died.

To reformulate Schmerling's view in terms of the present discussion of markedness: there is no justification for setting up as the unmarked or least marked case those sentences which have the accent on the final word, because there is no such thing as a neutral discourse context in which neutralization of the possible alternations of accent placement might be found, and so the neutralization criterion cannot be applied. However, it has already been shown that Schmerling's alternative formulation of accent placement, in terms of topic and comment, cannot be maintained. In order to retrieve what therefore appears to be a completely negative position, the possibility that a 'news' context can function as a 'neutral discourse context' will be discussed in 1.3.5. below.

The other assumption underlying Chafe's choice of unmarked sentences is the

location of the non-new noun root in surface-structure subject position. This presumably reflects the view that an 'unmarked' discourse proceeds as follows: in any sequence of sentences S1 S2 S3 ..., the focus of S1 becomes the presupposition of S2, the focus of S2 becomes the presupposition of S3, etc., and the presupposition occupies subject position. The unmarked case thus represents a congruence of three linguistic levels (c.f. Daneš 1967 and discussion below). On the syntactic level, the order is SVO; on the discourse level, topic/presupposition precedes comment/focus; and on the phonological level, the main stress is on the comment/focus. According to Chafe's conception of markedness, this congruence must be maintained, whatever the semantic relations within the sentence. Thus passive sentences can be unmarked, as long as they do not upset this congruence, as in S1.35 and S1.36:

S1.35 The picture was given to {Lisa}.

S1.36 Lisa was given the {picture}.

However, in order to justify the allocation of markedness values, it is necessary to show that the criterion of neutralization is met, at each of the three levels. At the syntactic level, there are good grounds for considering SVO as the unmarked word order in English. For example, the distinction between S1.32 and S1.45 is neutralized in some syntactic environments, giving an SVO structure in the embedded clause, as in S1.46, but not the OSV structure of S1.47:

S1.32 David emptied the box.

S1.45 The box David emptied (...not the bin).

S1.46 Mary said that David emptied the box.

S1.47 \* Mary said that the box David emptied.

SVO can therefore be taken to be a less marked order than OSV in English.



At the semantic level, it is more difficult to argue that topic-comment is the unmarked order, since for an important class of sentences, i.e. 'Existential' structures, the reverse is the case. In S1.48, it is possible for either "box" or "table" to bear the main stress and thus (according to Chafe) to constitute the comment:

S1.48 There's a box under the table.

However, the possibility of stressing "table" is only open to the speaker when he and the listener share prior knowledge of a subset of boxes, whereas with the stress on "box" the speaker can intend either 'one of a known subset' or 'one of the universe of all boxes'. (Some empirical evidence relevant to this claim is discussed in Chapter 5). In Existential structures, then, the unmarked order is comment-topic.

At the phonological level, it is not possible to argue for an unmarked location of sentence stress, since there is no neutralization environment (see discussion of Schmerling in the previous section). Chafe associates 'main stress' with comment/focus/new, with the implication that the comment will be sentence-final because the main stress is. As there is no reliable way of identifying topic and comment from the discourse context without reference to phonological features, and as there is no 'unmarked' location of main stress, there are no grounds for setting up an 'unmarked' order of information distribution, at least within Chafe's frame of reference.

### 1.3.2. Markedness in Guéron (1980)

In the context of a discussion of PP-extraposition, Guéron (1980) makes interesting use of the concept of markedness in relation to focus. She identifies as the best diagnostics for focus firstly intonation, and secondly her own rules for marking focus on logical form. These rules are:

- a) Mark the last argument in the c-command domain of the verb, 'Focus of S'.



b) Mark the VP 'Focus of S.

The motivation for the rules is to formulate constraints on PP-extrapolation, which are not relevant here. What is of interest is that Guéron needs to distinguish between two different logical forms to explain the (usual) unacceptability of S1.49:

S1.49 A man died from India.

as against acceptable sentences S1.50-52.

S1.50 A man from India died.

S1.51 A man appeared from India.

S1.52 A man from India appeared.

She argues that two kinds of sentence must be distinguished: predications, such as S1.50, and presentation sentences, such as S1.51 and S1.52. She defines them as follows:

"Predication: The subject refers to an individual or object (or set of these) whose existence in the world of discourse is presupposed: thematic subject. The VP describes a property of the thematic subject.

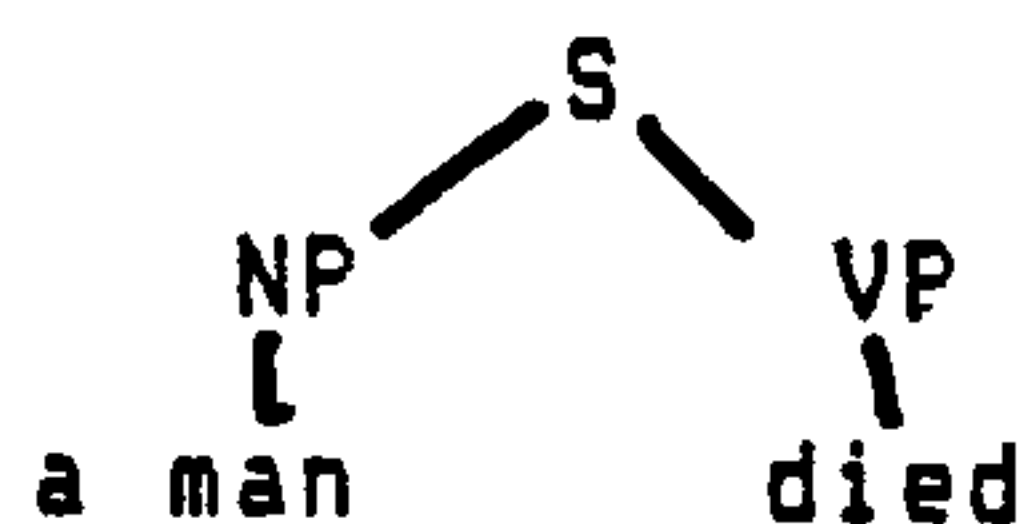
Presentation S: The VP denotes, essentially, the appearance of the subject in the world of the discourse." (p.653)

The difference between the two sentence types in logical form results in a different assignment of 'logical' focus by the rules above. To take the simplest examples of each type:

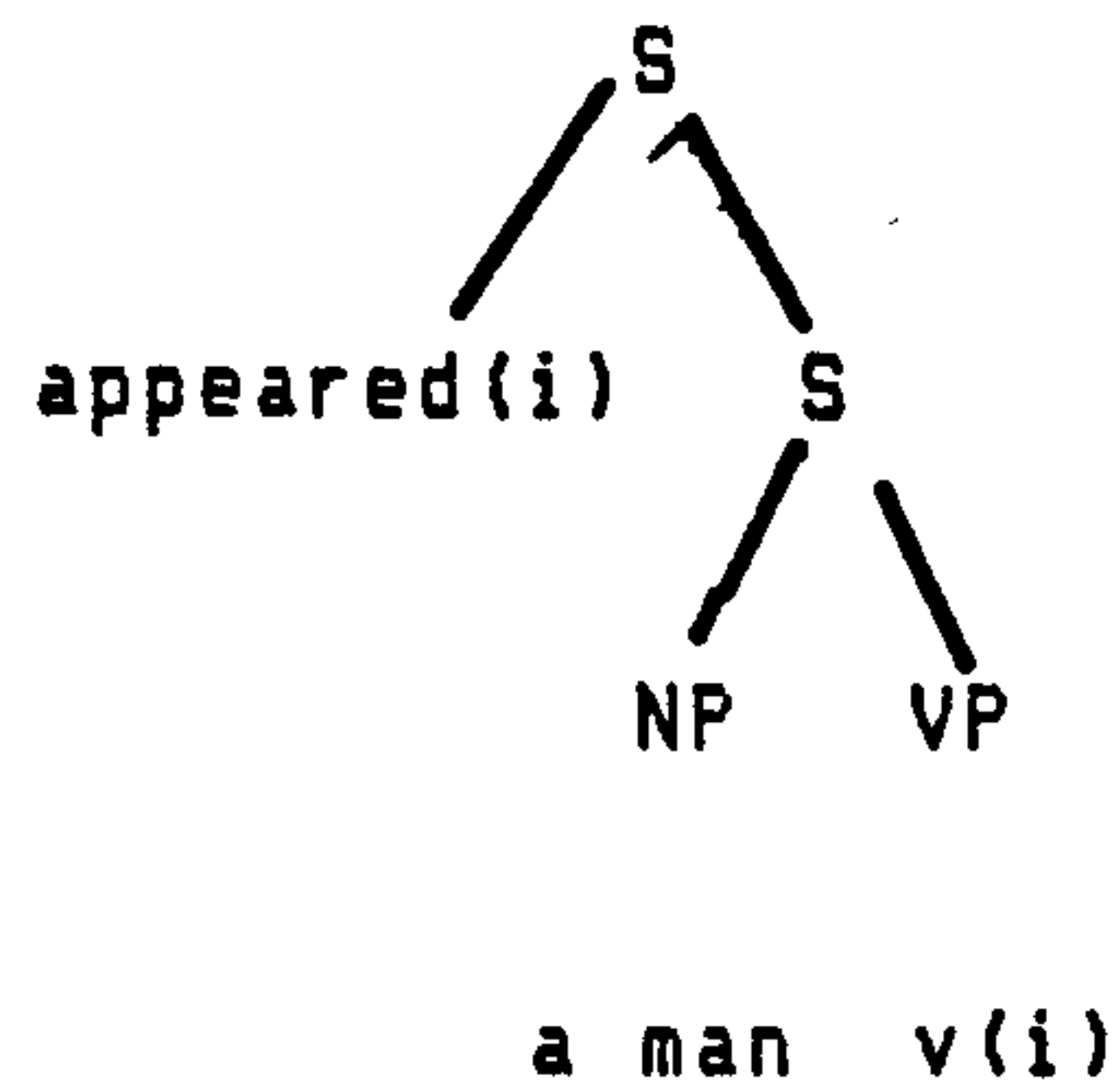
S1.53 A man died.

S1.54 A man appeared.

S1.53 is a predication, with the logical form:



so the logical focus is assigned to "died", which is the last argument in the c-command domain of the verb. S1.54 is a presentation S, with the logical form:



so the logical focus is assigned to 'a man', the last argument in the c-command domain of the verb.

As mentioned above, Guéron's criterion for identifying focus is the combination of sentence stress and logical focus as assigned by her rule. She argues that sentence stress alone is not enough, because it cannot distinguish 'contrastive' stress from 'normal' stress. Her claim that focus can be identified from the semantic structure of the sentence is a new departure within the generative framework, since it allows the Nuclear Stress Rule to be abandoned: unmarked focus is when logical focus, assigned by the rules given, coincides with phonological focus (main stress) which is assigned freely. This results in an unmarked focus for predications on the final VP constituent, like Chafe's unmarked sentences; whilst for presentation sentences, "the subject is the (unmarked) focus" (p.659). Guéron then argues that marked instances of focus, where sentence stress does not coincide with logical focus, will be interpreted either as contrastive, or as "backgrounding" the logical focus because the latter is redundant in the context, as in S1.55:

S1.55: The sun was shining.

where "sun" has phonological focus and "shining" has logical focus. This would handle Bolinger's counterexamples to the NSR, discussed above (Bolinger 1972).

Guéron's analysis has a potential contribution to make to the description of focus and its phonological exponency. If the distinction between Predications and Presentation sentences can be accepted, a strong claim can be made in relation to focus: if the focus of a sentence is unmarked for that sentence type (i.e. logical focus and phonological prominence coincide), then focus has the discourse function of introducing new information; but if focus is marked for the sentence type in question, it has to be interpreted either as indicating a contrast or as an instance of semantic backgrounding.

In order to accept the twofold division of Predication and Presentation S, independent motivation for setting up the two classes of sentence is required. In this context it may be recalled that Schmerling (1976) posits a comparable distinction, between 'News' sentences, "where the speaker assumes no particular expectations with regard to the information content on the part of his audience" (p.81), and 'topic-comment' sentences, which "seem intuitively to be 'about' the subject of the sentence rather than an entire event or state of affairs; that is, in uttering such a sentence, the speaker brings up some topic and says something about it - makes a comment." (p.93). She accounts for the phonology of each sentence type separately, invoking for 'News' sentences the principle:

"The verb receives lower stress than the subject and the direct object, if there is one; in other words, predicates receive lower stress than their arguments, irrespective of their linear position in surface structure". (p.82)

and for topic-comment sentences:

"In a topic-comment utterance, stress both the topic and the comment".

the output of which is subject to a further phonological principle:

"Given a sequence of stresses which are equal and greater than other stresses within the intonational unit, the last such stress will be more prominent than the others." (p.86)

Schmerling's principles indicate a distinction similar to Guéron's: in 'News' and Presentation sentences, the verb is not stressed, even at the end of the sentence, while in 'Topic-comment' and Predication sentences the verb is stressed when sentence-final. It was seen earlier that Schmerling attempts to define her categories (topic and comment) in terms of discourse, but is unable to do so without circularity since her definition in the final analysis depends upon stress.

Within Guéron's framework, the prospects are more promising, as it is only necessary to account for the unmarked cases. To account for a large class of the Presentation type, it is sufficient to specify that a sentence having an attenuated "there" construction is Presentation, as in S1.56 and S1.57:

S1.56 There's a box under the table.

S1.57 There occurred a serious accident.

More problematic are the sentences discussed by Guéron in which the surface structure is identical to that of Predication sentences, for example with a simple SV structure. There is a potential difficulty in distinguishing between an unmarked Presentation S, such as S1.54, and a Predication that is marked for backgrounding, such as S1.55:

S1.54 A man appeared.

S1.55 The sun was shining.



One test for the classification of sentences into one type or the other is whether or not it is possible to extrapose a prepositional phrase or other postmodifier from the subject NP. Guéron argues that this can only happen with Presentation Ss, a view also taken by Kirkwood (1979), whose examples are given below. Thus S1.56 - S1.58 are all acceptable, but not S1.59, where there is extraposition of the postmodifier of the subject, indicating that 'launch' marks a sentence as Presentation (Kirkwood's Existential):

S1.56 A drive for 10000 new student homes has been launched.

S1.57 A plan to build a new oil refinery in the North East has been abandoned.

S1.58 A drive has been launched for 10000 new student homes.

S1.59 \* A plan has been abandoned to build a new oil refinery in the North East.

On the basis of the test of postmodifier extraposition, it may prove possible to classify English verbs as Presentation verbs or Predication verbs. In this case Guéron's formulation of unmarked and marked focus structures will be unambiguous, since Presentation sentences will be lexically identifiable. Within this framework, sentences which Schmerling found problematic for generative accounts, such as S1.16 and S1.20 would be Predication sentences with 'marked' focus:

S1.16 Johnson died.

S1.20 I'm not going to be able to make it today. The car blew up.

The focussed items would be interpreted, according to Guéron, either as contrastive or as backgrounded. The 'backgrounding' interpretation accords with the conclusions reached about these sentences in the earlier discussion, where, following Bolinger (1972), it was suggested that the semantic content of the verb is to some extent presupposed either by extralinguistic context or by the meaning of the subject. Nevertheless, in the

absence of a motivated distinction in discourse terms between 'contrastive' and 'backgrounding', such structures as these are in theory ambiguous between the two interpretations. The possibility that 'backgrounding' and 'contrastive' interpretations may in fact be distinguished phonologically is investigated in Chapter 4 below.

A related problem arises with regard to unmarked focus. In a sentence such as S1.61, the disjunction of logical focus (on "window") from phonological focus gives a marked structure which is therefore open to a contrastive interpretation:

S1.61 Someone's broken the window.

However, it is possible to find such a sentence in a context which implies contrast on the item which is unmarked for focus, as in S1.62:

S1.62 A: Someone's broken the patio door.

B: Someone's broken the window.

Guéron's framework implies that contrastive and non-contrastive interpretations are ambiguous in such cases. Once again, it is possible that a phonological distinction is made, and this is investigated in later chapters

### 1.3.3. 'Dominance' in Erteschik-Shir and Lappin (1983)

These issues have been taken up by Erteschik-Shir and Lappin (1983). In their framework, there are two rules of sentence stress (p.424):

**Sentence Stress Rule:** Place primary stress on the Dominant constituent of the sentence.

**Contrastive Stress Rule:** Place primary stress on one or more constituents of the sentence.

It follows from this formulation that many constituents fall within the domain of both rules. There is thus the possibility of ambiguity between a 'contrastive' and a 'Dominance' reading of a stressed constituent (p.440). Erteschik-Shir and Lappin argue that in their framework it is not necessary (indeed, not possible) to posit context-independent unmarked stress patterns, and then to consider 'contrastive' stress as the marked case. Instead, they claim to be able to identify what they call 'restrictive' stress as contrastive on the basis of discourse context. Restrictive stress (which includes contrastive stress) correlates with a special type of Dominance ((ii) below). Dominance is defined in the following way:

"DOM: A constituent  $c$ , of a sentence  $S$ , is dominant in  $S$  if and only if the speaker intends to direct the attention of his/her hearer(s) to the intension of  $c$ , by uttering  $S$ ." (p.420)

"DOM: (ii) A set  $\mathcal{A}$  which the speaker specifies by means of his/her utterance of the sentence  $S$  is Dominant, if the constituents of  $S$  corresponding to members of  $\mathcal{A}$  (or the members of  $n$ -tuples contained in  $\mathcal{A}$ ) are marked [+Conjunction], [+Disjunction], or [+Contrast]. (p.445)

Contrastive stress is explained as follows:

"When a speaker assigns contrastive stress to an expression, for example, he/she wishes to focus his/her hearer's attention not on the expression (i.e. its intension) as such, but on the fact that he/she is identifying the item associated with this expression as the member of a unit set which he/she is picking out in opposition to its contrast set." (p.444)

Erteschik-Shir and Lappin's approach is attractive in that attempts to avoid the difficulties inherent in the notions of 'normal stress' and markedness, and to relate stress patterns and their interpretation to observable features of the text and context. The main problem lies in the notion of Dominance, which is central to their argument. They suggest that the Dominant part of the sentence is somewhat different to the notions of

focus, new information, comment etc. used by other scholars. It is intended to incorporate and formalise various aspects of these concepts, and also that of the semantic 'richness' of certain lexical items, invoked by Bolinger: e.g. the verb in "topics to elucidate" is Dominant, whereas the verb in "topics to cover" is not (p.430).

The usefulness of Dominance depends crucially on the possibility of identifying the potentially Dominant parts of the sentence. To do so, Erteschik-Shir and Lappin propose a number of tests. For instance, they claim that in "John gave a book to Mary", 'Mary' can be dominant as it can be subjected to a lie test: "That's a lie. She wasn't at home". This response is said to be impossible for the sentence "John gave Mary a book", thus indicating that 'Mary' cannot be dominant. The acceptability judgment here, and in their other examples, is questionable, especially in the absence of any information about accentuation. If Dominance is to have a central role in the description of accentual patterns, it is necessary to arrive at more satisfactory ways of independently identifying the dominant constituent. e.g. in terms of lexis or syntax.

#### 1.3.4. Accentuation in Ladd (1980)

These issues are also considered by Ladd (1980). Like Guéron, he argues against the traditional view that identifies all instances of non-normal stress as contrastive; instead, he subsumes contrastive stress under the notion of 'narrow focus'. In a sentence, the speaker can choose to focus on a domain that can range from maximally broad (the whole sentence) through to maximally narrow (a single word, or even a single bound morpheme (p.87); c.f. discussion above). Narrow focus is used when the speaker decides, for contextual or other reasons, not to focus on a part or parts of the sentence, and therefore shifts the accent off that part (if it would otherwise have been accented). This is deaccenting; and the accent which results is known as the default accent. According to Ladd:

"'Contrastive stress' is nothing more than accent placement that signals narrow focus, and narrow focus can be used for reasons other than explicit contrast." (p.79)



At the same time, Ladd recognises that explicit contrast is probably associated with additional phonetic features, but assigns these to an intonational system which is distinct from the system of accent placement:

"My analysis thus separates the accentual and intonational aspects of 'contrastive stress'. Narrow focus is signalled solely by the location of the accent; various intonational characteristics such as greater volume and widened pitch range can also be used to signal what might be called 'emphasis'. It is quite possible to have narrow focus without emphatic intonational cues, and equally possible to have emphatic intonational cues without narrow focus.... But it is quite true that the two frequently occur together, especially if a narrow focus is intended on an item which would receive 'normal stress' anyway ...." (p.213 fn.3).

According to Ladd, then, the following sentence will have different phonetic realisations in response to each of the two contexts given, although both will have the accent (sentence stress) on the first syllable of "window":

S1.63 Someone's broken the window.

(i) It's cold in here. (NEUTRAL context)

(ii) Am I right in thinking someone's broken the patio door?  
(CONTRASTIVE context)

This hypothesis is tested in Chapter 4 below, by comparing the realisation of the same (textual) sentence in response to different contextual cues of this kind.

Ladd also considers the cases which within Guéron's framework would be marked structures. He hypothesises that the prominence on an item (a) which results from semantic backgrounding and attendant phonological deaccenting of another item (b), will differ phonetically from the prominence

associated with item (a) in a context where it is explicitly contrastive. Thus there should be phonetic differences in the pronunciation of 1.64 in response to the contextual cues given, though again it is predicted that the location of the accent or sentence stress will be the same:

S1.64 Someone's broken the window.

(iii) Just show John the new window in the front room, will you?  
(BACKGROUNDING/DEACCENTING of "the window".)

(iv) Someone's opened the window, have they? (CONTRAST on "broken")

A comprehensive attempt to resolve some of the problems raised in earlier sections is made by Ladd (1980, Ch4), within a framework of three related concepts: deaccenting, default accent and the accentability hierarchy. Drawing on Bolinger's notion of 'backgrounding' (also invoked by Guéron), he argues that if an item, which in another context would have been accented, is semantically given, it will be deaccented, and the accent of the sentence will fall on another item, by default. Because he is concerned with the phonological detail of accent placement, and because he considers a wider range of focus contexts than Guéron, Chafe and most other scholars, Ladd tries to be more explicit about the semantic and phonological mechanisms that he proposes. In particular, he needs to state:

i) the contextual conditions under which an item will be backgrounded/deaccented;

ii) the 'normal' placement of the accent (i.e. when (i) does not apply);

iii) where the accent will fall in cases of deaccenting.

In respect of (i), he considers many of the examples already discussed in the present chapter, emphasizing the anaphoric function of deaccenting (c.f. Werth 1983): an item is deaccented when it is coreferential with one in the preceding context, or when the speaker wishes to relate it to the

preceding context. Since the latter condition is a matter of the speaker's intention rather than linguistic conditioning, Ladd seems to side with Bolinger in opposition to those (such as Schmerling) who attempt a more 'deterministic' formulation of accent placement.

Ladd's treatment of (ii) and (iii) involves the concept of an accentability hierarchy. This is seen as an improvement on the traditional view that accentability is explicable in terms of a simple, binary classification of words into 'lexical' and 'grammatical' (or 'content' and 'function') (Ladd 1980 p.85). According to his "focus rule" (p.85):

"Accent goes on the most accentable syllable of the focus constituent."

What constitutes "the most accentable syllable" is determined by "the interaction of position in the constituent and some poorly understood hierarchy of parts of speech" (p.85). Ladd does not explore the detail of this proposal, although he argues, on the basis of a few invented examples, that nouns are higher in the hierarchy than verbs (following Gunter 1966), indefinite nouns more accentable than definite (c.f. discussion of Chafe 1970, above), and proper names and locatives apparently less accentable, generally, although this seems to depend on context (p.92). Ladd discusses the hierarchy largely with reference to neutral contexts, which have traditionally been associated with a 'normal' intonation pattern, in an attempt to rescue some notion of normal accentuation, since without such a notion it makes no sense to talk of an item being 'deaccented'. Empirical evidence for or against such an accentability hierarchy can be gathered by eliciting sentences when uttered in a 'neutral' discourse context, where no items are contextually given, and seeing whether there are any recurrent associations between accent location and part of speech. This is done in Chapter 4 below.

More specific claims for the accentability hierarchy have been advanced by Wells and Local (1983), who studied the opposite contextual condition (also discussed by Ladd), where all items are 'given' and therefore have to be defocussed (backgrounded). In such cases, the default accent inevitably

falls on an item that is 'given'. They argue that the accentability hierarchy applies here, as it were in reverse, those items lowest on the hierarchy being most able to take the default accent. Their formulation takes the form of four constraints, three of which are relevant here:

i) An item cannot receive the accent if there is an antecedent that is coreferential with or identical in sense to it (but see (iv));

iii) If there is no 'new' item, the accent has to fall on a non-new item;

iv) There is an acceptability hierarchy for non-new items receiving accent: coreferential items receive accent less readily than items with identical sense. (Verbs can be identical in sense but not in reference, and as such are more likely to be accented)." (p.712)

The 'reverse' hierarchy can be tested by examining the pronunciation of sentences in a contextual condition where all the items contained in the sentence are 'given', as in Ladd's example:

S1.65 A: Has John read Slaughterhouse Five?

B: No, John doesn't read books.

This is investigated in Chapter 4 below.



## 1.4. Halliday's Approach to Information Focus

### 1.4.1. English Intonation

In a series of publications in the nineteen sixties, Halliday proposed an account of the information structure of English in terms of phonological systems of intonation, which has occupied an important place in subsequent discussions of English intonation and focus. In his description of English intonation, which is intended to account for much more than merely information focus, Halliday sets up three intonational systems: tonality, tonicity and tone (Halliday 1967b). Tonality represents choices about the number and location of tone group boundaries; tonicity involves the choice of location for the main pitch movement of the tone group; and tone involves choices of pitch movement from a restricted system, obligatorily at tonic position and optionally at the pretonic. This hierarchy of structures and systems is motivated phonologically: using them, Halliday is able to systematize those distinctions that are realized by intonation in the grammar. To do this, he has recourse to the concept of markedness: he postulates unmarked relationships between phonological units and independently motivated grammatical units. Markedness values vary according to the syntactic structure of the grammatical unit, but in most cases, for instance, one tone group per clause is the unmarked case. Unmarked tonicity occurs when the tonic is placed on the last lexical item in the tone group. Combining the two unmarked cases results in a tonic on the last lexical item of the clause. The use of markedness allows Halliday to account for other patterns by reference to the unmarked forms. Other patterns may still be described as unmarked, if they belong to a syntactic type which has a different unmarked term, such as S1.66, where the unmarked term has two clauses to one tone group:

S1.66 //4 ^ I /didn't /come because he /told me //

where the meaning is "It wasn't because he told me that I came". (See Halliday 1967b for transcriptional conventions). Alternatively, a pattern may be described as 'marked', as in S1.67, where there is more than one

tone group per clause:

S1.67 // I saw John // I yesterday //

or where the tonic does not fall on the final lexical item:

S1.68 // I saw John yesterday // (Halliday 1967b, p.38)

Some of the distinctions realised by intonation in Halliday's account are grammatical in a traditional sense (i.e. syntactic, belonging to Halliday's 'transitivity'). For example, S1.69 and S1.70 have different syntactic constituent structures:

S1.69 // he carved and painted statues //

S1.70 // he carved // and painted statues //

This is not always the case, however. The distinction between the marked structures S1.67 and S1.68 and the unmarked structure S1.71 is not one of constituent structure:

S1.71 // I saw John yesterday //

Here, the distinctions belong to the 'theme' part of Halliday's grammar, involving what Halliday calls information distribution and information focus.

The scholars whose work has been discussed so far have all associated focus in English with phonetic prominence. Halliday makes stronger claims: firstly, the unique function of the systems of tonality and tonicity is to realise the systems of information focus and distribution; and secondly, these phonological systems are the unique exponents of the information systems. The following quotations illustrate Halliday's position:

"... the tone group is a phonological unit that functions as realisation of information structure; ...it is coextensive, within

limits determined by the rhythm, with the information unit."

"The system of information focus specifies the structure of the tone group, determining the number and location of the tonic components. Each point of information focus is realised as a tonic component..." (1967a, p.203).

Thus Halliday is proposing systems of information distribution and focus which are isomorphic with the systems of tonality and tonicity respectively.

As their names suggest, tonality and tonicity are dependent on the prior definition of tone for their own definition: the location of the tone defines tonicity, and the permissible sequences of tones are a major factor in the definition of the tone group. At the same time, the system of tone is not involved in the exponency of information systems: tone serves primarily as an exponent of the system of mood (1967b, p.24). It therefore seems as if the phonological systems which are said to realise information systems in fact derive from a descriptively prerequisite phonological system which itself has been set up without any reference to considerations of information structure. The fact that the tone system is at once crucial to the exponency of information systems, because tonality and tonicity depend upon it, and at the same time almost completely free from any direct involvement in the 'information' part of the grammar, is of some importance in assessing the adequacy of Halliday's account of information focus and distribution. It points to the fact that his 'information' systems are not motivated independently of their phonetic realisation. Whereas the phonological systems of tonality and tonicity draw crucially upon the system of tone, which is defined independently in terms of other (better understood) parts of the grammar, there is no independent definition, at the grammatical level, of a system of 'information' from which the systems of information focus and information distribution can be derived.

#### 1.4.2. Information Structure



Halliday does not discuss his concept of 'information' per se, but proceeds directly to discussion of the information unit:

"Any text in spoken English is organized into what may be called 'information units'" (1967a, p.200)

He proposes that this organization is quite distinct from organization according to syntactic constituent structure:

"...the distribution of information specifies a distinct constituent structure on a different plane; this information structure is then mapped on to the constituent structure as specified in terms of sentences, clauses and so forth, neither determining the other."  
(1967a, p.200)

However, there is little semantic motivation for identifying as 'information units' those portions of the text identified phonologically as tone groups, since it transpires that they have little unity with regard to the distribution of given and new information. One information unit may consist of new information only (unmarked tonicity); or of one new element plus any number of given elements, with the new element occurring at any place in the unit (unmarked or marked tonicity); or it may consist of two new elements, the first more important than the second, the rest of the unit being given (compound tone). In a manner which seems arbitrary from the point of view of information distribution (though not, perhaps, intonation), other possible combinations are not permitted in a single information unit: it is not possible to have an information unit where there are two new elements, the first less important than the second; or two new elements of equal importance; or more than two new elements as well as given elements. In Halliday's description, such types of information distribution all require further information units, but the motivation for this lies in the constraints set up by the intonation systems on permissible sequences of tones within the tone group, rather than on constraints on the sequencing of given and new information. Halliday claims:



"The distribution into information units represents the speaker's blocking out of the message into quanta of information, or message blocks." (1967a, p.202)

Yet it is difficult to see in what sense S1.72 can be said to differ from S1.73 and S1.74 in number of message blocks:

S1.72: //4 John's //1 a painter //

S1.73: //1 John's a painter //

S1.74: //13 John's a painter //

Halliday's identification of the information unit with the tone group makes for an uneconomical description of information structure, since information structure is introduced as a separate level of linguistic organization without independent motivation. It is theoretically more parsimonious to take as the unit of information structure a syntactic unit, such as the clause or sentence, which is the domain of other semantic and syntactic systems, as is done in the work of the generative linguists discussed earlier in this chapter.

Halliday's concept of information is based on the idea that an utterance can be divided into 'new' and 'given': it must contain new information (except in the case of exact repetition) and may also contain given information. This division is effected by the system of information focus, whereby the location of the tonic realises the point of information focus in the information unit. Halliday's claim that new information is signalled by tonicity makes for a neat description, but is not in fact verifiable, since Halliday's definition of 'new' and 'given' does not permit their identification from discourse context alone, without reference to tonicity. He strongly suggests that there are non-phonological, discourse factors which help to identify new and given. For instance, anaphoric items are generally 'given', though can be 'new' when stressed, in which case they belong to a special type of 'new' information, namely 'contrastive', "as contrary to some predicted or stated alternative" (1967a, p.206). As in

Chafe's account, however, there is no clear textual or contextual criterion for distinguishing between 'contrastive' and 'non-contrastive new'. 'New', on the other hand, is characterised as being non-predictable from the discourse, but unfortunately there is no way of establishing whether or not something is predictable. It is simple enough to identify a lexical item as new when it has not occurred previously in the discourse; or to identify a different speech function as representing new information, e.g. question instead of statement, even when the lexical content is unchanged; or to identify a word as contrastive when it belongs to a restricted lexical set and another member of that set has just occurred in the discourse. However, it frequently happens that a textually new item is treated phonologically as given, i.e. it does not have tonic prominence. Conversely, a closed-set item may receive tonic prominence, even when no other member of that set has occurred: the context seems to be implied (cf. Yule 1980 for this distinction). Ultimately, for Halliday there can be no objective test for 'new' and 'given' - it is up to the speaker:

"The constituent specified as new is that which the speaker marks out as non-derivable information, either cumulative to or contrastive with what has preceded; the given is offered as recoverable anaphorically or situationally. These are options on the part of the speaker, not determined by the textual or situational environment; what is new is in the last resort what the speaker chooses to present as new, and predictions from the discourse have only a high probability of being fulfilled." (1967a, p.211)

A further weakness of Halliday's account of information structure concerns his emphasis on the the role of the speaker, at the expense of the hearer. Halliday does not allow for the fact that what the hearer interprets as new may differ from what the speaker chooses to present as new. If the hearer finds that what has been signalled phonologically as new (by the speaker) contradicts his interpretation of the context (i.e. because it is contextually given), he may prefer to follow the context rather than the phonetic cues, considering the speaker to have made a 'slip of the tonic'. This possibility is investigated in Chapter 3 below.

The ultimately vacuous formulation of 'given' and 'new' information that Halliday is forced to accept results in part from his decision to treat given and new information quite separately from theme and rheme. He distinguishes the two levels of description in a number of ways. They relate to different structural units: given and new to the information unit/tone group, theme and rheme to the clause. They are defined as having exponents at different levels: new and given are realised directly at the phonological level, by the system of tonicity, whereas theme and rheme are realised by word order:

"The theme is assigned initial position in the clause, and all that follows is the rheme." (1967a, p.212)

They also differ in semantic function:

"The difference can perhaps be best summarized by the observation that, while 'given' means 'what you were talking about' (or 'what I was talking about before '), 'theme' means 'what I am talking about' (or 'what I am talking about now'); and as any student of rhetoric knows, the two do not necessarily coincide." (1967a, p.212)

The distinction may not be as clear as this quotation suggests. It has been suggested that 'given' does not in fact mean 'what you (or I) were talking about' so much as 'what I, the speaker, present as what you or I were talking about': the choice of theme and the choice of 'given' are overlapping speaker-options, difficult to distinguish at the semantic level. The distinction between 'theme' and 'given' remains necessary, since there are sentences in which everything is new yet which have a theme, in the sense that the theme is the thing about which something is being said (Daneš 1974). At the same time, there is no motivation for defining the theme in syntactic terms: just as there is no independent motivation for equating new information with tonic placement, so there is no independent motivation for maintaining that the first position in the clause is invariably associated with 'what is being talked about'. If the theme is defined structurally in this way, it becomes more difficult to express the

interaction between word order and phonological structuring of information (c.f. Firbas 1974, p.24): regular cooccurrences between the two levels will inevitably appear casual. This is an undesirable state of affairs, since there appear to be constraints obtaining between phonological and syntactic/ semantic levels with regard to focus. It is therefore desirable to have a theoretical framework that permits such an interaction of levels.

### 1.4.3. Markedness

To express the regular correspondances that obtain between information structure and theme-rheme organization, Halliday again has recourse to markedness, markedness values being dependent on the mood of the clause. Thus in declaratives the unmarked theme is the subject (c.f. Chafe's unmarked 'non-new'), whilst in WH-questions the unmarked theme is the WH word. Marked themes can be selected by altering word-order, as in 1.45, which was discussed earlier:

S1.45 The box David emptied.

Like Chafe, Halliday sees passivisation as preserving the unmarked order: the theme is still the surface structure subject, in spite of the restructuring of semantic relations. Thus the regularities of co-occurrence between theme and given, rheme and new, are captured by a pattern of unmarked sequences. In declaratives, for instance, unmarked tonicity results in a tonic on the last lexical item, which is thus identified as new; unmarked theme identifies the subject as theme; there will therefore be a coincidence of theme with given and rheme with new.

It was argued earlier in this chapter that the criterion of neutralization should be applicable if markedness is to be employed as a descriptive device. Halliday implies that something like neutralization is involved in his distinction between unmarked and marked information focus (1967a, p.208), insofar as in cases of unmarked focus, where the tonic is on the final lexical item, the domain of 'new' is not specified precisely: the tonic assigns new to the tonic-bearing word but does not assign new or



given to the remainder of the information unit, part or all of which may also be new. In the marked case, on the other hand, where the tonic does not fall on the last lexical item, the word bearing the tonic is new (and possibly also the remainder of the phrase of which that word is the head), while the rest of the information unit is given. The distinction between 'new' and 'given' is thus neutralized, for everything preceding the tonic word, when the tonic is on the last lexical item.

This neutralization is open to question. It requires that 'broad focus' information units, where everything is new, have the same phonetic realisation as narrow focus units. This is an empirical issue, which has already been raised and will be discussed further in Chapter 5. In order to investigate the matter, it is necessary to identify a 'neutral' context under which the broad focus realisation will occur. Halliday has recourse to the reading of citation forms:

"It may seem a little farfetched to suggest that //John painted the shed// has unmarked focus on 'shed' while //John was the one who painted the shed// has unmarked focus on 'John'; but this does reflect the way in which the speaker will tend to read out these two sentences if they are presented to him in written form without context." (1967a, p.227)

As Schmerling (1976) shows, however, such citation readings are highly marginal uses of the language. It is preferable to elicit broad focus utterances in a more natural interactive situation, as a 'news report' (c.f. Chapter 4 below). In fact, Halliday himself predicts a rhythmic distinction between the two focus types (1967a, p.207). This does not undermine the neutralization argument for him, since this only depends on tonicity being neutralized, i.e. the two focus types both result in the tonic on the last lexical item: whether there is a phonetic distinction before the tonic does not affect the issue. However, this presupposes that the construct 'tonic' is motivated independently of the semantic distinction under consideration. Since the main function of the tonic is to realise the system of information focus, no such independent motivation is available, with the consequent collapse of the argument for invoking

markedness, based on neutralisation, to express the relationship between theme-rheme and given-new.

#### 1.4.4. Biuniqueness

In this section, certain flaws in Halliday's approach to information structure have been identified, relating to the use of markedness and the formulation of the key concepts of given, new, theme and rheme. These flaws can be traced back to his fundamental assumption that there is a biunique relationship between elements of information structure and elements of intonational structure. It has been shown that this assumption leads to circularity in the definition of information structure and thus to an inadequate description. Moreover, apart from simplicity, there is no theoretical justification for assuming biuniqueness. Daneš (1967) makes this point in general terms, in his discussion of the interrelationship between intonation and word order:

"Studying word order, one should always bear in mind two very important facts. First, the order of elements is a linguistic device ... which operates on different linguistic levels and which will be employed for various intralinguistic functions. Second, the intralinguistic functions employ a set of systemic devices, and there is, in a given language, no biunique mapping of the set of devices into the set of functions; this means that to each function a subset of complementary devices is assigned, and vice versa." (Daneš 1967, p.217)

Halliday, however, maps 'new information' onto 'tonic', and 'theme' onto 'first element in the clause'. If, following Chafe, the semantic distinction of 'new' versus 'given' (or [+focus] versus [-focus]) is regarded as fundamentally of the same order as more traditionally recognised distinctions such as 'singular' versus 'plural', it is to be expected that the semantic system of focus, like those of number etc., will be realised by a variety of exponents, some of which may overlap with the exponents of other semantic systems. In the case of number, for instance,

the system has grammatical exponents of suffixation on the noun, terms in the pronoun system, suffixation on the verb (3rd person singular versus plural, present simple tense), as well as suppletion in some nouns (e.g. 'mouse' - 'mice'); and some of these exponents are shared by other semantic systems, e.g. the noun suffixes, which also serve as exponents of 'possessive'. Whilst this fact about linguistic organisation is universally accepted at the level of segmental phonology and morphology, it seems to have been assumed that the same does not apply to distinctions realised by prosodic systems for grammatical units larger than the single lexical item. Not only Halliday but also the generative linguists whose work was discussed earlier in this chapter favour a monosystemic model in which the semantic system of information focus is realised uniquely by tonicity/sentence stress, and in which the unique function of tonicity/sentence stress is to realise focus. By analogy with segmental phonology, however, it might be expected that phonetic exponents, such as pitch, or even phonological exponents, such as tonicity or stress, might be involved in the realisation of more than one function. Some implications of this possibility for the study of semantic systems and their phonological exponents are considered in Chapter 6 below. Conversely, the system of information focus might be realised not only by pitch, but also by other prosodic parameters, e.g. loudness, duration, tempo etc.) and/or by non-prosodic means, such as word-order. The latter possibility is allowed for in the investigation of phonetic correlates of focus reported in Chapter 2 below, and also in the phonological study of focus types in Chapter 4.

### 1.5. Functional Sentence Perspective

Some of the problems identified in Halliday's approach which relate to the interaction of levels are avoided in the framework known as Functional Sentence Perspective (FSP), developed by linguists of the Prague school. Expositions of FSP particularly relevant to the present discussion are to be found in the writings of Daneš (1960, 1967, 1974), Firbas (1972, 1974) and Svoboda (1974). Firbas (1972) proposes that every utterance has a communicative dynamism (CD) distributed over its elements, by means of which communication is advanced. CD covers the various kinds of information



focus discussed in the work already reviewed in this chapter, i.e. 'focus', 'non-focus', 'contrastive' etc.; but no upper limit is specified for the degrees of CD possible in an utterance. The number of degrees recognised by the analyst, whilst being in part dependent on the complexity of the sentence, is a function of the delicacy of the analysis (Firbas 1974, p.25). Within this framework, 'contrast' can be regarded as a particular type of information focus, rather than a quite separate phenomenon as Chafe proposes (Firbas 1972, p.78). The concept of CD allows for the interaction of the two aspects of information structure - the contextually independent and the contextually dependent - that Halliday prefers to view as distinct systems (theme/rheme and information structure respectively). To an extent it is indeed useful to examine each aspect separately: it has already been noted that the theme (defined by Firbas as the element carrying the lowest degree of CD in the sentence, i.e. in terms of the information system rather than in syntactic terms as Halliday defined it) is not necessarily contextually given. At the same time, Daneš (1974, p.111) points out that the two aspects cannot ultimately be kept apart, since 'new' can mean not just 'not already mentioned' but also a new theme-rheme relationship between elements that have already been mentioned. This conception of 'new' is reflected in the analysis presented in Chapter 3 below.

Whilst upholding the essential unity of information focussing phenomena at the semantic level, the FSP approach allows for the realisation of CD by the interplay of different linguistic levels. Firbas states:

"I define FSP as the distribution of various degrees of CD over the elements within a sentence, the distribution being effected by an interplay (co-operation) of the semantic and grammatical structures of the sentence under conditions created by a certain kind of contextual dependence." (Firbas 1972, p.82)

Firbas's exemplification of this principle is open to a number of criticisms. Firstly, the basis for his typology of sentences is unclear (c.f. discussion of Guéron's work above). Secondly, he adopts Gimson's (1962) four degrees of accentual prominence as the phonological exponents of degrees of informational prominence without showing that Gimson's



accentual system is in fact warranted by the distribution of informational prominence (see Chapters 2 and 4 below). Nevertheless, the underlying principle is sound, in that the units of structure are 'communicative' ones, namely distributional fields provided by grammatical structures (sentence or attributive clause). The functional patterning of phonological prominence is stated in terms of an 'information' unit (the distributional field) rather than a phonological unit such as the tone group, as is apparent from the fact that there can be more than one nucleus in a distributional field. This is clear in the following statement:

"...if two or more nuclei occur within a distributional field, the one occurring last will be functionally weightiest." (Firbas 1972, p.86)

The interplay of phonological prominence with word order in the realisation of information structure is discussed by Daneš (1967), who manages to avoid the vacuous formulation of markedness espoused by Chafe and Halliday. This is done by setting up three levels of organisation for the utterance, each of which has a basic order:

TABLE 1.1

Grammatical:	Subject	Verb	Object
Semantic:	Agent	Action	Goal
Thematic/contextual	Topic	Comment	

Daneš anticipates Guéron in proposing that marked structures result when the underlying semantic structure of the sentence is altered, and that the best account is achieved if we assume two basic sentence-types, equivalent to those proposed earlier in this chapter, which differ in their underlying semantic order: the Predication sentence has the order given in Table 1.1, while the Presentation/Existential sentence has the reverse order (Daneš 1967, p.219ff). 'Marked' sentences occur when the order of elements on the three levels does not coincide completely: there is a 'conflict of levels'. This conflict may be resolved by a variety of means: tonic placement, inversion of elements, or selection of a different syntactic pattern. The

last two devices presuppose Daneš's distinction between word order which is fixed, in the sense that a change in word order results in a sentence with a different meaning or an ungrammatical sentence, and word order which is usual, where the elements may be inverted without changing the propositional meaning of the whole; in the latter case, the resulting sentence is said to be marked, because less usual. In the case of 'usual' word order, the changes are stimulated by non-grammatical considerations, (i.e. thematic, contextual) whereas with fixed word order, changes may also result from grammatical considerations. Thus in the case of 'usual' word order, a conflict of levels may be resolved by inverting the elements in the sentence. This option is more widely available in languages like Russian, but 1.45 exemplifies from English:

S1.45 The box David emptied, not the case.

In the case of 'fixed' word order, a different syntactic pattern may be selected to resolve the conflict, e.g. the passive in English. The remaining device for resolving conflicts is sentence intonation, i.e. (for Daneš) the location of the centre of the terminal intonation contour, and/or the choice of a 'special' contour. For Daneš, the centre of the terminal intonation contour (Halliday's 'tonic') always indicates the 'comment' of the sentence (except in special cases where both topic and comment are marked in this way) (Daneš 1967, p.208). Thus in spoken English, when a case arises where comment precedes topic (as a result of the relatively fixed word order of English), the conflict is resolved by tonic placement, which indicates that the topic-comment structure is at odds with the semantic and syntactic structures. S1.75 provides an example:

S1.73 I saw John.

S	V	O
Ag	Ac	Goal
C	Topic	

In relation to the discussion of markedness earlier in this chapter, it may be noted that Daneš invokes markedness in his treatment of word-order - a procedure that was earlier shown to be legitimate since the criterion of

neutralisation can be met. On the other hand, he does not need to invoke markedness in his treatment of intonation, since tonic placement in English is free with regard to syntactic and phonological structure, being determined at the thematic-contextual level: the tonic always falls on the comment. Nevertheless, there still remains the problem of circularity regarding the definition of comment and tonic: it is by no means clear that either construct can be motivated independently of the other, at least in English.

#### 1.6. Prince's Taxonomy of Given and New Information

In the studies discussed so far, there is a general agreement that the distinction between 'given' (or 'old') and 'new' information is one which is relevant to the accentuation of utterances. A careful study of the various notions involved in this distinction is provided by Prince (1981), who formulates "the basic problem" in the following terms:

"From the point of view of a speaker/writer, what kinds of assumptions about the hearer/reader have a bearing on the form of the text being produced, where that form is not uniquely determined by the "objective" information that the speaker/writer is attempting to convey? From the point of view of the hearer/reader, what inferences will s/he draw on the basis of the particular form chosen?" (p.233)

The solution to the problem may be seen as having three parts: a taxonomy of linguistic forms, both morphological and syntactic; a taxonomy of the values of Assumed Familiarity; and an account of the correlation between the two. Prince states that the first part has been provided by structural and transformational linguistics "at least for forms that are identifiable on the level of the sentence or less". Prince herself attempts to supply the second part, which is prerequisite for the third. She presents a taxonomy that constitutes a refinement of earlier approaches. In place of a binary given-new distinction, she makes a primary division into three: 'New', 'Evoked', and 'Inferable'. The last category covers discourse entities which are textually new but whose presence in the discourse can be

inferred from another item already present, e.g. "the door" is inferrable from the prior mention of "house". Each category has subdivisions. For instance, New can be either 'Brand New' or 'Unused', the latter covering cases where the speaker assumes that the listener knows what is being referred to but is not currently thinking about it. The 'Evoked' category is divided into entities evoked from the text and those evoked from the non-linguistic situation.

Such a taxonomy is useful when considering the status of entities in the discourse, and provides a useful starting point for hypotheses about relations between form and function. However, it is not at all clear how the 'forms' can be identified without reference to their functions, as Prince's three-part programme implies. In the same vein, Brown and Yule (1983, p.187) point out that the form of the expression used is the basis on which the functional classification is made. Krejsper (1985, p.87) argues strongly, with particular reference to generative interpretations of accentuation, that 'content' cannot be identified without reference to the 'form' that it takes. In a detailed discussion of accentuation and information structure, deriving from but critical of Functional Sentence Perspective, Krejsper emphasizes the centrality of accentuation in the formulation of information structure: accentuation has its own meaning, and it makes no sense to present as sentences strings where accentuation is omitted.



## CHAPTER 2

### PHONETIC CUES FOR THE PERCEPTION OF FOCUS

#### 2.1 Introduction

In this chapter, an attempt is made to provide an empirical basis for the definition of focus, in terms of its semantic 'reality' for native speakers and its phonological and/or syntactic exponents in the grammar of English. It was argued in Chapter 1 that without such a basis, formulations of focus are circular, and thus ultimately vacuous. To achieve this goal, it is important to prejudge neither the semantic categories that will emerge, nor the phonetic exponents that they may have, since there is no a priori way of knowing what these will turn out to be. This axiom is not generally adhered to in studies of semantic systems, such as focus, which are deemed to be realised by 'intonation': there is a tendency to concentrate on pitch to the exclusion of other phonetic parameters, and the semantic categories used are often asserted by the analyst, rather than argued for on the basis of the behaviour of native speakers (see Chapter 6 below for discussion).

In the experiment reported here, it is hypothesised that there is a focus system in English that speakers operate with. An attempt is made to determine what categories of focus are meaningful for them, and to determine the linguistic correlates of those categories. What these correlates might be is not prejudged by having recourse to phonological systems that are set up independently of the focus system. Instead, a wide range of potentially relevant features is considered. The experimental hypothesis is that some or all of a specified set of linguistic features are associated with perceived focus, and that those features correlate systematically with terms in the focus system.

## 2.2. Method

### 2.2.1. Experimental Design

In order to obtain spontaneously uttered sentences which contained a variety of locations and degrees of focus, whilst maintaining some control over other syntactic and intonational variables, a technique devised by Currie (1978) was used. Three native speakers of British English took part in a game (two females, in their twenties, one male in his thirties, all speaking non-localized varieties). Each had to study a list of characters from a story, and a list of the principal actions in the story, presented in random order, and attempt to work out what happened. The player was allowed to ask the experimenter questions, to which the latter would only reply "yes" or "no".

From the three conversations thus recorded, 23 sentences were selected, removed from their original context, and, following two practice sentences, were presented in random order to the experimental subjects, 30 undergraduates in their first term at the Department of Language, University of York (Appendix 2.1, 2.2 ). The subjects received the following (written) instructions:

" On your tape you will here 25 sentences, separated by a short pause. The same sentences are printed on the sheet in front of you. Listen to each sentence once only and draw a line under the part which, in your view, the speaker is focussing on a particularly important, e.g. "Did the princess kill the soldier?" If you think two elements are equally important, put a line under each, e.g. "Did the princess kill the soldier?" If you think two elements are important but one is more important than the other, use numbers to indicate this: 1 = most important; 2 = less important; 3 = less important still. Use as many numbers as you require, e.g. "Did the princess kill the soldier?"

1

2

### 2.2.2. Selection of Data

The following criteria were used when selecting data for analysis:

- 1) All are polar questions. This is so that irrelevant syntactic and intonational variation is excluded, making inter-sentence comparison in terms of focus more reliable.
- 2) Almost half the sentences are cleft constructions (11/23). This is to test whether clefting functions as an exponent of focus (c.f. discussion in Chapter 1).
- 3) A number of the sentences are 'contrastive' in terms of the context. The notion of contrastivity was discussed in Chapter 1, where it was suggested that it would be of interest to determine whether there is justification, on the basis of its linguistic exponents, for treating 'contrastive' as a distinct category in the system of focus rather, or whether it is in fact indistinguishable from other types of 'new' focus. As was also pointed out in Chapter 1, there are problems in defining what constitutes a contrastive context, although it is clearly essential to be able to define contrast in contextual terms if its linguistic exponents (phonological and/ or syntactic) are to be identified without circularity of statement. For the purpose of the present experiment, it was therefore decided to define contrast strictly, on the grounds that if items defined according to such strict contextual criteria were found to correlate with a distinct set of exponents, it could be argued that the occurrence of that set of exponents on an item marks the item as being 'contrastive' for the speaker, even though the overt contextual condition is absent. In such a way, it would be possible to argue from a contextual definition of contrast to a definition in terms of exponency, which is not susceptible to the objection of circularity. The strict contextual definition is as follows:

A sentence is contrastive if it is identical in semantic content to the sentence immediately preceding, except for the replacement of one semantic variable by a new item.



Thus in the following sequence, the second sentence qualifies as contrastive:

Did the witch steal the tinderbox?

No.

Did the princess steal the tinderbox? or

Was it the princess who stole the tinderbox?

By this definition, 7/23 sentences were contrastive.

4) Other criteria used in choosing sentences were: the sentence must be free from interfering noise and be clearly audible, for the purposes of instrumental analysis; all three speakers should be represented; the sentences should represent varying degrees of syntactic complexity and of length.

It will be noted that the sentence is taken as the domain for the investigation of focus, rather than, say, the tone group. This is because the sentence can be readily defined in terms of syntactic criteria which are not crucially involved in focus, whereas the tone group has traditionally been defined at least partially in terms of tonic placement, and the tonic is crucially involved in focus (see Chapter 1). It will also be noted that the 23 sentences were presented to the subjects out of context. It is clear that contextual features play a vital role in determining the placement of focus by the speaker, and also, though this is at present even less well understood, in determining how the listener interprets the focus structure of a sentence. If we wish to examine the interaction between sentence and discourse context with a view to discovering general principles that relate the two, we must first establish whether there are any linguistic features whose presence indicates focus to the listener regardless of discourse context. It will then be possible to investigate how, and under what circumstances, discourse factors can affect the interpretation of these sentence-internal features, so that the listener assigns focus to a different item (see Chapter 3). The procedure in this first experiment (referred to henceforth as Experiment 1) was therefore to use sentences uttered spontaneously in a meaningful context,



so that the speaker would be subject to contextual influences, but to present the data out of context to the listener, who would therefore be wholly reliant on sentence-internal features when assigning focus.

## 2.3 Analysis

### 2.3.1. Focus Assignment

The 30 subjects had no apparent difficulties in assigning focus according to the instructions. All subjects made use of a unique focus category (i.e. one constituent focussed, the rest of the sentence not focussed); all subjects also employed a distinction between primary and secondary focus (in addition to no focus); 24/30 subjects used equal focus; 15/30 subjects made use of a tertiary focus category. The following scale was used to score the amount of focus assigned to each constituent by the subjects: primary focus = 3; secondary focus = 2; tertiary focus = 1; no focus = 0. The scores for each focussed constituent in each sentence were then totalled, and the focussed constituents sorted into groups according to the number of points they had been assigned. Six groups were used, on the grounds that the subjects' responses seemed to reflect a readiness to perceive several different types of focussed constituent: those which bear the only focus in the sentence; those which clearly bear the primary focus, though other constituents in the sentence bear lesser degrees of focus; those for which the attribution of primary focus is not clear; those which receive secondary focus but are not clearly distinguished from the primary constituent; those which are clearly given secondary focus; and those which receive tertiary focus. Constituents were allocated to groups as follows:

Group 1: unique/primary focus: at least 70 points clear of the next focussed constituent;

Group 2: clear primary focus: 35-70 points clear of the next focussed constituent;

Group 3: unclear primary: 1-35 points clear of next focussed constituent;

Group 4: unclear secondary: 1-35 points below primary focussed constituent;

Group 5: clear secondary: 35-70 below primary focussed constituent;

Group 6: tertiary focus (or lower): below two other focussed constituents, while receiving at least 20 points.

All constituents receiving less than 20 points were classified as zero focus. This preliminary grouping is inevitably somewhat arbitrary, but it was hoped that the criteria would be sufficiently broad to reveal any general differences between different degrees of focus with regard to the distribution of the specified linguistic features.

### 2.3.2. Linguistic Features

Each focus constituent was analysed in terms of linguistic features whose presence, it was hypothesized, might be associated with focus. The first five are features of pitch:

(1) PITCH PEAK. It has been suggested (Currie 1978) that maximum pitch height is one of the phonetic manifestations of tonic prominence, which in turn has been associated with information focus (Halliday 1967a, p.203; c.f. Chapter 1 above). This is supported by the experimental findings of Eady, Cooper, Klouda, Mueller and Lotts (1986). Pitch Peak is here defined as the highest point of the pitch contour of the sentence. The possibility of there being two or more perceptually equivalent pitch peaks, displaying similar F0's on the instrumental record, is not disallowed.

(2) MAXIMUM PITCH RANGE. Currie (1978) mentions maximum pitch range as one of the phonetic features that linguists have associated with tonic prominence. The feature is defined here as the range of pitch spanned by the focus constituent (not just the pitch range of the kinetic

tone). Focus constituents, derived from subjects' underlining in the experiment, are taken as the domain of pitch range because the focus constituent is the stretch of material whose perceived prominence is thought most likely to be relevant to focus judgments.

(3) PITCH OBTRUSION (a). This is defined as a step up or down in pitch immediately preceding the focus constituent, such that the previous direction of the pitch contour is interrupted. This seems intuitively to be a potential means of marking a constituent as perceptually prominent, thence focussed. Bolinger associates pitch prominence with information focus, defining prominence as "a rapid and relatively wide departure from a smooth or undulating contour (1958, p.112).

(4) PITCH OBTRUSION (b). This is defined as a step up or down in pitch immediately following the focussed constituent, such that the previous direction of the pitch contour is interrupted. The comment on (3) applies equally here. This feature was found to cooccur with contrastive stress by Cooper, Eady and Mueller (1985).

(5) KINETIC TONE. Pitch movement has been associated by many linguists, e.g. Bolinger (1958), and Halliday (1967b) in his definition of the tonic as exponent of information focus. In this experiment, two questions were asked: firstly, are particular tones associated with focus in general or with particular grades of focus; and secondly, is the distinction between kinetic and level tone relevant to focus?

Pitch features were allocated to focus constituents by auditory analysis in conjunction with instrumental analysis using a Frokjaer-Jensen pitch-meter, from which kymograph tracings were obtained. For the purposes of this investigation, it was reasonable to assume that  $F_0$  correlates reliably with perceived pitch, since the experiment is concerned not with precise and absolute correspondences between particular  $F_0$ 's and particular perceived pitches, but with the relative pitch height and pitch movement of constituents, in relation to the rest of the sentence. Using this method of instrumental analysis, it is not always possible to obtain a clear reading



of pitch for each syllable, particularly when it is unstressed and spoken at speed. The consequences of this are not serious for the present study, as there is invariably at least one syllable per constituent for which a clear reading can be obtained.

(6) LOUDNESS PEAK. This is the third of the phonetic maxima used by Currie (1978) in her experiments. Loudness has been associated with stress and, by extension, with focus, particularly in the American concept of 'sentence-stress'. The loudness peak is defined here as the highest point on the intensity curve obtained by playing the recorded sentence through a Frokjaer-Jensen intensity meter.

(7) CRESCENDO. This is defined here as a step up in perceived loudness from the constituent preceding the focus constituent to the focus constituent.

(8) DECRESCENDO. This is defined as a step down in perceived loudness from the focus constituent to the constituent following.

Features (7) and (8), like feature (6), were chosen on the basis of a hypothesis that perceived prominence resulting from the relative loudness of the focus constituent might be a cue to the perception of focus. Evidence supporting the role of intensity as a correlate of accent is reviewed by Beckman and Pierrehumbert (1986). As with pitch, the loudness features were allocated to focus constituents by means of auditory analysis in conjunction with instrumental readings.

The remaining phonetic features belong to the temporal parameter of the utterance. These were assigned on the basis of auditory analysis alone.

(9) PRECEDING PAUSE. This is defined as a perceptible pause immediately before the head of the focus constituent.

(10) FOLLOWING PAUSE. As (9), after the focus constituent.

(11) DRAWL. This is defined as abnormal sustention of a syllable or



syllables within the focus constituent.

(12) PRECEDING DRAWL. As (11), but on the syllable immediately preceding the focus constituent.

(13) FOLLOWING DRAWL. As (12), but on the syllable immediately following the focus constituent.

It seems a plausible hypothesis that the presence of these features might serve to mark off a part of the utterance as prominent. This is not to deny that these features may also serve as exponents of other systems, e.g. hesitation, as Crystal observes with regard to 'drawled' (Crystal 1969, p.154).

(14) PRECEDING ALLEGRO. This is defined as increased tempo, relative to the speaker's norm, on the stretch of utterance immediately preceding the focus constituent.

(15) FOLLOWING ALLEGRO. (As (14), immediately following the focus constituent.

(16) ALLEGRO. As (14) and (15), but on the focus constituent.

These features were selected on the basis of the hypothesis that parts of the utterance spoken at a faster rate than normal might be interpreted as being relatively less prominent, and thence less focussed (Feature (16)), whereas a constituent might be perceived as prominent, and by extension focussed, if adjacent constituents are uttered at a faster rate (Features (14) and (15)).

Research reported by Weismer and Ingrisano (1979) indicates the potential relevance of tempo features to the perception of focus. They had subjects read the sentence 'Bob hit the big dog' in a non-emphatic way, and then with each word (except the article) emphasized in turn. At normal conversational rate, they found that the duration of a word increased when emphasized (cf the feature Drawl above). They also found a tendency, though less

consistent, for later words to be reduced in duration following an emphasized word early in the utterance (cf Following Allegro). Eady, Cooper, Klouda, Mueller and Lotts (1986), in a similar experiment, found durational increases over the whole of the focussed constituent (p.241), and also noted a tendency for speakers to pause before the focussed constituent (cf Preceding Pause).

Finally, one syntactic feature was considered:

(17) CLEFTING. The data elicitation procedure had been devised in the hope of eliciting both cleft and non-cleft sentences containing varying degrees of focus, with a view to determining whether the clefting of a constituent serves as a focussing device and if so, whether it interacts systematically with other means of realising focus.

## 2.4 Results

### 2.4.1 Occurrence of Features by Focus Group

Table 2.1 presents, for each focus group 1-6, the proportion of constituents in that group which bear the feature (+) and which do not bear it (-), the proportion being presented as a figure out of 10 in order to make comparison easier between the groups, which contain different numbers of constituents. For example, for feature (1), we see that in Group 1 (unique focus), containing six constituents, the proportion bearing the pitch peak is 8.4 to 1.6, whilst in Group 6 (tertiary focus) the proportion is 4 to 6. The purpose of Table 2.1 is to indicate firstly those features which cooccur regularly with focus, irrespective of the 'amount' of focus involved, and secondly those features whose occurrence varies systematically with the amount of focus involved.

TABLE 21

Feature	1 Pitch Peak		2 Max. Pitch Range		3 Pitch Obtrusion (a)		
	+	-	+	-	+	-	M
1 (n=6)	8.4	1.6	10.0	0	5.0	5.0	1.5
2 (n=8)	6.3	3.7	8.7	1.3	6.3	3.7	0.6
3 (n=9)	7.7	2.3	7.7	2.3	7.7	2.3	1.9
4 (n=10)	2.0	8.0	5.0	5.0	7.0	3.0	0.7
5 (n=7)	0	10.0	4.3	5.7	7.1	2.9	0.7
6 (n=5)	4.0	6.0	2.5	7.5	6.0	4.0	0.6

Feature	4 Pitch Obtrusion (b)			5(a) Tone Type					5(b) Kinetic vs Level	
	+	-	M	\	/	^	∨	—	Kinetic	Level
1	8.3	1.7	2.9	6.7	3.3	0	0	0	10.0	0
2	2.9	7.1	0.3	10.0	0	0	0	0	10.0	0
3	7.5	2.5	0.5	6.7	1.1	1.1	1.1	0	10.0	0
4	8.3	1.7	1.4	8.0	0	0	1.0	1.0	9.0	1.0
5	4.0	6.0	0.4	4.4	0	0	2.8	2.8	7.2	2.8
6	5.0	5.0	0.5	8.0	0	0	2.0	0	10.0	0

Feature	6 Loudness Peak		7 Crescendo			8 Decrescendo		
	+	-	+	-	M	+	-	M
1	10.0	0	10.0	0	+5.0	10.0	0	-8.5
2	5.0	5.0	5.0	5.0	+0.5	7.1	2.9	-3.6
3	5.5	4.5	6.6	3.4	+1.6	8.7	1.3	-4.5
4	0	10.0	3.0	7.0	-1.1	8.3	1.7	-2.6
5	0	10.0	5.7	4.3	-0.2	10.0	0	-1.8
6	0	10.0	0	10.0	-3.2	7.5	2.5	-1.0

Feature	9 Preceding Pause		10 Following Pause		11 Drawl	
	+	-	+	-	+	-
1	3.4	6.6	1.6	8.4	3.4	6.6
2	0	10.0	2.8	7.2	4.3	5.7
3	4.5	5.5	1.3	8.7	1.2	8.8
4	0	10.0	0	10.0	1.0	9.0
5	1.5	8.5	2.0	8.0	0	10.0
6	0	10.0	0	10.0	0	10.0

Feature	12 Preceding Drawl		13 Following Drawl		14 Preceding Allegro	
	+	-	+	-	+	-
1	3.4	6.6	0	10.0	1.6	8.4
2	0	10.0	0	10.0	0	10.0
3	1.2	8.8	0	10.0	1.2	8.8
4	1.0	9.0	0	10.0	1.0	9.0
5	1.5	8.5	0	10.0	1.5	8.5
6	0	10.0	0	10.0	0	10.0

Feature	15 Following Allegro		16 Allegro		17 Cleft	
	+	-	+	-	+	-
1	5.0	5.0	1.6	8.4	3.3	6.7
2	1.5	8.5	0	10.0	6.3	3.7
3	0	10.0	1.2	8.8	3.3	6.7
4	0	10.0	2.0	8.0	1.0	9.0
5	2.0	8.0	0	10.0	0	10.0
6	0	10.0	2.0	8.0	0	10.0

(1) Although PITCH PEAK coincides frequently with unique and primary focus (Groups 1-3), it is not an invariable cue. There is also a relatively high occurrence in Group 6. Moreover, there are 15 instances of pitch peak on a zero focus item (this group is not included in Table 2.1). In fact, out of 36 instances of PITCH PEAK recorded, 17 occur with unique or primary focus constituents and 19 with secondary, tertiary or zero focus. The implication is that PITCH PEAK does not function solely to realise the main focus.

(2) MAXIMUM PITCH RANGE presents a more regular and systematic correlation with degrees of focus, as represented by the focus groups, with the proportion falling gradually through the groups. There are 11 instances of this feature in the zero focus group. Out of a total of 40 occurrences, 20 are in the top three groups. Once again, the feature cannot be associated uniquely with the realisation of main focus, but the relationship appears systematic.

(3) and (4). Both PITCH OBTRUSION features cooccur frequently with focus in all groups. There is no obvious systematic variation between groups, except in the mean amount of obtrusion (column M). (The units used in column M are steps in the calibrated scale of the pitch meter.)

(5) KINETIC TONE cooccurs very regularly with focus, non-kinetic (level) tones only appearing in very small proportions in the lower groups, though very frequently in the zero focus group (39/78). It does not appear that distinctions between different focus grades are realised by kinetic tone, as the distribution of the various tone types seems to be random.

(6) Table 2.1 indicates that unique focus (Group 1) invariably cooccurs with LOUDNESS PEAK, and that non-primary focus never does (Groups 4-6), apart from 7 instances in the zero focus group. Generally, LOUDNESS PEAK is the most reliable cue to primary/unique focus.

(7) Unique focus cooccurs with CRESCENDO, and tertiary focus with a drop in loudness, onto the focus constituent. However, there are also 26 instances of CRESCENDO in the zero focus group. The figures for the mean in column M (given in units of the calibrated scale of the intensity meter) suggest



more persuasively a systematic relationship between focus and the loudness of the preceding constituent.

(8) There is a high cooccurrence of DECRESCENDO with focus in all groups, which suggests that this may be a reliable cue to the presence of focus. This is reinforced by the figures for the mean, which decrease fairly regularly through the groups. However, there are 23 instances of DECRESCENDO in the zero focus group, which suggests that this may be to do with a general tendency for English sentences to decrease in loudness as they progress.

(9) and (10). There is a tendency for PAUSE adjacent to the focus constituent to cooccur with the higher, rather than the lower, groups, but the proportion is small for each feature.

(11), (12) and (13). Feature (13) FOLLOWING DRAWL does not cooccur at all with focus and so can be discounted. DRAWL and PRECEDING DRAWL, like the PAUSE features, tend to occur with primary and unique focus, rather than the lower groups, but again the proportion is small.

(14), (15) and (16). The number of focus constituents affected by each of the ALLEGRO features is small. It is noteworthy, however, that in the zero focus group there are no instances of PRECEDING ALLEGRO, only one of FOLLOWING ALLEGRO, and 22 of ALLEGRO, which suggests that although these features occur relatively infrequently, when they do occur they influence the perception of focus.

## 2.4.2. Feature Groupings

Table 2.1 shows that some features cooccur regularly with focus in all groups (e.g. (5), (8)), or their cooccurrence varies systematically with amount of focus (e.g. (2), (6)). In the case of other features, however, the number of occasions on which the particular feature occurs is too small for that feature to be regarded as a plausible diagnostic for focus. For this reason, in Table 2.2 certain related features belonging to the same phonetic parameter are combined in order to create composite features whose distribution is proportionately wider, and which therefore offer a potentially more reliable correlation with focus in the analysis that follows. For example, (14), (15), and (16) all relate to the use of fast tempo in part of the utterance, and thus form a natural group. Similarly, (9), (10), (11) and (12) all relate to the use of slow tempo and pausing.

TABLE 2.2

Distribution of composite features in focus groups.

Feature	3/4 Pitch Obtrusion			9/10/11/12 Pause/Drawl			14/15/16 Tempo Prominence		
	+	-	M	+	-	M	+	0	-
Group 1	8.3	1.7	2.0	6.7	3.3	1.2	6.6	1.7	1.7
2	6.3	3.7	0.6	6.3	3.7	0.6	1.3	8.7	0
3	8.8	1.2	0.9	4.5	5.5	0.8	2.3	6.6	1.1
4	5.0	5.0	0.5	2.0	8.0	0.2	1.0	7.0	2.0
5	5.7	4.3	0.6	2.9	7.1	0.4	2.9	7.1	0
6	10.0	0	1.0	0	10.0	0	0	8.0	2.0

At this point it is convenient to restructure the original grouping of the data for analysis. Firstly, it will be recalled that for the purpose of selecting sentences for analysis, an ad hoc definition of contrastivity was used: a sentence is contrastive if it is identical to the sentence immediately preceding, except for the replacement of one semantic variable by a new item. It is interesting to note that of the seven contrastive

constituents thus defined that were included in the analysis, five are in Group 1 and the remainder in Group 2. This means that only one Group 1 constituent is not contrastive, by this very strict definition. There is therefore some justification for designating the top focus group 'Contrastive'. Secondly, although the focus constituents were sorted into six groups plus the zero group for the purpose of analysis, it will be recalled that the subjects themselves made use of four grades: unique, primary, secondary, zero, with half the subjects using a further, tertiary grade. In the light of this behaviour, it is interesting to note that in Table 2.1, the distinction between Groups 2 and 3 (both primary focus) and the distinction between Groups 4 and 5 (both secondary focus) are not made as regularly as the other distinctions between adjacent groups: see e.g. Features 1,3,4,6,7,8. As the next step in the attempt to set up linguistically valid categories of focus, it was therefore decided to combine Groups 2 and 3 into one category 'Primary Focus', and likewise Groups 4 and 5 into one category 'Secondary Focus', for the subsequent analysis.

#### 2.4.3. Correlation of Features with Perceived Focus

Once it had been established that a number of phonetic features cooccur with perceived focus, statistical tests were carried out to determine which of these features, and which combinations of features, correlate best with focus. The advantage of such tests is that they enable us to identify those features which are significant for the perception of focus because they occur only with focussed items and because their cooccurrence varies systematically with the degree of perceived focus, as opposed to those features which cooccur with focus but also cooccur with unfocussed constituents, i.e. whose association with perceived focus is not criterial.

TABLE 3

Correlation coefficients: Features and feature combinations against focus

Dimension	Features	Item	Group
Pitch	1 Pitch peak	0.240	0.368
	2 Max. Pitch Range	0.562	<u>0.592</u>
	3/4 Pitch Obtrusion	0.319	0.254
	5 Kinetic Tone	0.449	0.394
	1+2+3/4+5	0.565	0.575
	1+2	0.485	0.579
	2+5	<u>0.590</u>	0.575
	2+3/4	0.538	0.515
	3/4+5	0.476	0.401
	2+3/4+5	0.583	0.543
	Loudness	6 Loudness Peak	0.295
7 Crescendo		0.017	0.230
8 Decrescendo		0.470	0.363
6+7+8		0.344	0.455
6+7		0.157	0.367
6+8		<u>0.475</u>	<u>0.484</u>
7+8		0.322	0.395
Tempo	9/10/11/12 Pause/Drawl	0.249	0.308
	14/15/16 Tempo Marking	0.230	0.399
	9/10/11/12 + 14/15/16	<u>0.301</u>	<u>0.454</u>
Mixed	1+2+6	0.483	0.612
	2+6+14/15/16	0.487	0.647
	2+5+6+8+9/10/11/12+14/15/16	0.569	0.674
	1+2+5+6+8+9/10/11/12+14/15/16	<u>0.592</u>	<u>0.679</u>
	1+2+6+8+9/10/11/12+14/15/16	0.552	0.666
	1+2+6+8	0.581	0.645

Note: N=123      Significance at 5%: 0.174



Table 2.3 presents two sets of correlation coefficients. The ITEM column represents the correlation of the specified features with all the constituents analysed in the data (45 focus plus 78 non-focus), ranked in order of focus using the raw score of focus points assigned by the subjects, within the focus grades established above. The GROUP column represents the correlation of the features with the focus groups only (4 focus groups plus 1 non-focus group); here, no account is taken of variation within each group. Table 2.3 calls for some comment. Firstly, of the three phonetic parameters of pitch, loudness and tempo that were considered, it is pitch features that in general correlate best with focus; and of the pitch features involved, MAXIMUM PITCH RANGE and KINETIC TONE give the best correlation. In the loudness parameter, LOUDNESS PEAK and DECRESCENDO correlate best with focus, with CRESCENDO correlating quite poorly. In the tempo parameter, the combination of all tempo, pause and drawl features correlates better than the individual features PAUSE/DRAWL and TEMPO MARKING. Turning to the mixed sets of features, it can be seen that these generally correlate much better than the separate phonetic parameters, especially with the proposed focus groups, which are our chief interest. It is evident that the most satisfactory statement of the exponency of focus categories can be obtained only by reference to systems of pitch, loudness and tempo in combination.

#### 2.4.4. Clefts and Focus

The single non-phonetic feature investigated is the CLEFT construction. If syntactic clefting serves as a device to mark a constituent as focussed, it might be thought that there will be correspondingly less phonetic marking of focus. It is therefore interesting to compare cleft with non-cleft constituents in each focus group (where both occur), to see whether the syntactic difference is associated with any marked difference in the distribution of phonetic features. Table 2.4 shows the mean number of phonetic focus features, taken from the set of mixed features that shows the best correlation in Table 2.3, for cleft vs. non-cleft constituents.

TABLE 2.4

<u>Group</u>	<u>Cleft</u>	<u>Non-cleft</u>
Contrastive	6.0	6.0
Primary	4.8	4.3
Secondary	3.0	2.6

Table 2.4 indicates that cleft constituents are no less marked for focus phonetically than their non-cleft equivalents - if anything, they are slightly more marked. It can be concluded that clefting is not in a commutational relationship with the phonetic features that indicate focus. This finding can be taken in conjunction with the observations of Prince (1978) and Werth (1983) that on some occasions the complement clause of the cleft structure contains the focussed material, suggesting that the discourse function of clefting is not primarily to focus the clefted constituent. There therefore seems to be some justification for stating the system of focus in English at the phonological level.

## 2.5. Discussion

### 2.5.1. Focus and Prominence Systems

The purpose of phonological statement is to link phonetic events to categories established at other linguistic levels, e.g. lexical and grammatical: "... it is by means of the silent and unpronounceable abstractions of phonology that one can relate the ever changing phonetic detail of the speech stream to the grammatical statement" (Carnochan 1960). In the present analysis, evidence has been presented which indicates that focus should be treated as such a category: the native speaker subjects made use of the notion in the experimental task, and it is reasonable to assume that they do something very similar in everyday linguistic interaction. All subjects had recourse to a category of unique

focus and to a distinction between primary and secondary focus. It is therefore appropriate to set up a four-term semantic system of focus:

1. CONTRASTIVE (unique focus)
2. MAIN (primary focus)
3. SUBSIDIARY (secondary and tertiary focus)
4. ZERO (no focus)

Phonetic analysis indicated that the following seven features are involved in the perception of focus:

- PITCH PEAK (P1)
- MAXIMUM PITCH RANGE (P2)
- KINETIC TONE (P3)
- LOUDNESS PEAK (L1)
- DECRESCENDO (L2)
- TEMPO MARKING (T1)
- PAUSE/DRAWL (T2)

(Features will be referred to by the symbols in brackets.)

The mean number of these features occurring in each of the four focus grades is as follows:

1.CONTRASTIVE	6.0
2.MAIN	4.5
3.SUBSIDIARY	2.4
4.ZERO	1.4

A phonological system of Prominence can be established, corresponding to the four focus grades:

CONTRASTIVE	Maximal Prominence
MAIN	Major Prominence
SUBSIDIARY	Minor Prominence
ZERO	Minimal Prominence

The phonetic exponents of the Prominence system are as follows:

Maximal P1; P2; P3; L1; L2; T1 or T2.  
 Major P3; L2; P1 and/or P2; one of L1, T1, T2.  
 Minor P3; L2.  
 Minimal P3 or L2 or none.

The claim of the present statement is that any constituent bearing a specified configuration of phonetic events will be susceptible to interpretation by the listener as belonging to the appropriate focus category. (S2.16) and (S2.13) below illustrate the case where the focus categories, as established on the basis of the experimental subjects' responses, are matched exactly by the corresponding phonological categories, established on the basis of the phonetic exponents listed above. (In the examples that follow, the experimentally-derived focus category of the constituent is given above the orthographic transcription, the zero category being indicated by a blank; the phonological prominence category of the constituent is given below the transcription, the minimal category being indicated by a blank; and below that, the phonetic exponents.)

(S2.16)

	CONTRAST:					
did	the queen	ask	the soldier	to bring	the tinderbox	
	MAXIMAL					
0	P1,P2,P3	0	L2	P3	L2	
	L1,L2,T2					

(S2.13)

	MAIN		SUBSIDIARY		SUBSIDIARY	
did	the lady-in-waiting	follow	the princess	to the soldier's door		
	MAJOR		MINOR		MINOR	
P3	P1,P3,L1,L2,T2		P1,P3,		P3,T2	
	L1,T2				P2,P3,L2	



## 2.5.2 Multiple Functions of Phonetic Features

The great majority of the experimental sentences (19/23) contain at least one constituent that is, in terms of the focus system, phonologically overspecified: in these cases, the phonetic features of the constituent in question locate it in a phonological category that corresponds to a higher focus category than the one to which it has been assigned on the basis of the experimental subjects' responses. Far from being problematic for the present analysis, which claims only that the presence of a specified configuration of features render a constituent susceptible to interpretation as belonging to the corresponding focus category, this result is what one would expect, since it is clear that the phonetic features serving as exponents of focus in the present system may also have other functions in English. Some of these possible functions will now be considered.

In the nineteen sentences mentioned, there are 32 constituents that are phonologically overspecified. Of these, 27 are overspecified by just one grade, i.e. MAIN focus receives MAXIMAL prominence, SUBSIDIARY focus receives MAJOR prominence, or ZERO focus receives MINOR prominence. Of the five constituents that are overspecified by more than one grade, three occur in sentence-initial position. (S2.5) is an example:

(S2.5)

ISUBSIDIARY		MAIN			
was it		the soldier		who cut	
		the witch's		head off	
MAJOR		MINOR		MAJOR	
P1,P3,		P1,P3,L2		0	
				P2,P3,L2,T2	
L1,L2				L2	

In the three sentences in question, the considerable phonetic prominence of the sentence-initial verb does not elicit any focus attribution from the experimental subjects. This suggests that some of the phonetic features

which have here been assigned to the Focus/Prominence system may also be used to mark sentence beginnings, presumably under certain contextual conditions which remain to be specified. In this respect, the distribution of certain phonetic features, assigned here to the exponents of MAXIMAL and MAJOR prominence, is suggestive. PITCH PEAK occurs with fifteen constituents belonging to the ZERO focus category; ten of these are sentence-initial verbs. LOUDNESS PEAK occurs on eight constituents in the ZERO focus group, seven of which are sentence-initial verbs. MAXIMUM PITCH RANGE occurs on eleven constituents in the ZERO focus group, one of which is a sentence-initial verb. The distribution suggests that PITCH PEAK and LOUDNESS PEAK, but not MAXIMUM PITCH RANGE, are involved in a system operating at sentence-initial position which is distinct from focus. This in turn implies that if the speaker wishes to mark a sentence-initial verb as focussed, (i.e. to question the polarity of the sentence) he may have to use a configuration of phonetic features that differs from the configuration he would use at other places in the sentence. It is therefore necessary to admit the possibility that the phonology of focus is polysystemic in respect of the place of the focus constituent in the sentence. The role of high pitch and loudness at the beginning of sentences has been commented on by a number of researchers (e.g. French and Local 1986; Couper-Kuhlen 1986).

Experimental support for this is provided by Cooper, Eady and Mueller (1985), who had subjects read a sentence with contrastive stress on the first word, and then the same sentence with contrastive stress on a later word. They found no significant difference in F0 between the different versions:

"This indicates that the F0 peak on the initial key word of a sentence is relatively constant, regardless of whether the word is emphasized. This finding suggests that, when speakers place contrastive stress on a sentence initial word, they do so by increasing its duration and not its fundamental frequency. This pattern stands in contrast to other key-word locations." (p.2147)

Of the 32 phonologically overspecified constituents in the corpus of 23 sentences, 11 are sentence-final: thus in almost half the experimental sentences, the final constituent has more phonetic prominence than its focus grade warrants. Furthermore, only five sentences have MINIMAL prominence on the final constituent: all the remaining eighteen sentences have the feature KINETIC TONE, and seven have MAXIMUM PITCH RANGE, whereas only one has PITCH PEAK and none has LOUDNESS PEAK. There is an association of pitch-movement features with sentence-final position which, in conjunction with the frequent phonological overspecification in this position, suggests that the function of pitch movement at the end of sentence is primarily delimitative. The suggestions made in this and the preceding paragraph as to the delimitative function of phonetic features must remain tentative, since it is only the focus function that has been investigated systematically in the present study (see Chapter 6).

Kruyt (1985) had Dutch subjects read 'News-bulletin' sentences, and examined the resulting accentual patterns. She found that potentially accentable words were more likely to be accented in initial and final position in the sentence than in medial position (p.68). She notes that similar observations for English have been made by other investigators, and suggests that a delimitative function is involved:

"Obviously, speakers generally tend to mark the extremes of units on different levels by accenting the initial and final accentable item and often not accenting what comes in between. They may sometimes do so for reasons of rhythm. However, the relation with constituent boundaries points to a more substantial reason, viz. to mark the beginning and end of coherent groups of words, and in doing so, to signal to the listener which communicative units the utterance consists of." (p.79)

Although Kruyt did not directly investigate the phonetic correlates of perceived focus, her findings indicate that phonetic prominence has a delimitative function that is at least in part independent of its focussing function.



Should further research bear out these suggestions about the focussing and delimitative systems, there are no theoretical objections within the theory of phonology espoused here (Firthian prosodic analysis), to a statement in which there is partial overlap of exponents between different systems:

"The use made of the phonic material in the phonetic description of exponents does not require that the phonic details variously allotted should be mutually exclusive....There can be no question of 'residue' in the phonic material after any particular abstraction for a particular purpose has been made. All the phonic material is still available for further abstractions for a different order in separate analyses." (Firth 1957, p.15)

17 of the 32 phonologically overspecified constituents are neither initial nor final in the sentence. Of these seventeen, only three are cases where MAIN focus is overspecified by MAXIMAL prominence, and they are of particular interest with regard to the notion of contrastive focus. It will be recalled that for the initial investigation of the semantic notion of contrastivity, a strict, though ad hoc, definition was used: a constituent in a sentence was designated contrastive if the sentence was semantically identical to the immediately preceding sentence except for the semantic variable expressed by that constituent. Subsequently it was noted that in the top focus group, which had been determined on the basis of intra-sentence difference in number of focus points assigned to constituents, five out of the six constituents in the group were contrastive by the original definition. This top group was labelled 'Contrastive' on the basis of the strong correlation between contextual contrastivity and the phonetic features characterising Group 1. It is therefore of interest to note that the two constituents which are contrastive by the original contextual definition but which appear in Group 2 (Main Focus) rather than Group 1, are in fact two of the three instances in the corpus where a Main Focus constituent is phonologically overspecified, i.e. Maximal. In both sentences, (S2.10) and (S2.11), the most focussed constituent received very nearly the maximum number of focus points possible (89/90 and 87/90 respectively) but did not fall into Group 1 because another constituent in



the sentence was also assigned a significant number of focus points. The two sentences thus support the hypothesis that a constituent can be clearly marked by the speaker as contrastive and yet not be the only focussed constituent in the sentence: other constituents may also be focussed, as with "the crosses" in (S2.10) and "crosses" in (S2.11). There is thus persuasive evidence that Maximal Prominence, as defined here, is the exponent of semantic contrast.

(S2.10)

		MAIN		SUBSIDIARY		
was	it	the shoemaker's boy	who	put	the crosses	on all the doors in the town
		MAXIMAL		MINOR		
P1, P3		P1, P2, P3, L1, L2, T2		P3		P3, L2
						L2

(S2.11)

		MAIN		SUBSID		
was	it	the lady-in-waiting	who	put	crosses	on all the doors in the town
		MAXIMAL		MINOR		
P1		P1, P2, P3, L1, L2, T2		0		P3, L2
						P3

### 2.5.3. Focus, Prominence and Grammar

In the remaining case where a Main Focus constituent is phonologically overspecified in the way just described, the constituent is not contrastive by the contextual definition, nor did it receive a particularly high number of focus points (52/90). Furthermore, there are fourteen other phonologically overspecified medial constituents in the corpus which cannot easily be accounted for by contrastivity or by delimitative systems. Still more problematic for the present analysis are the eight constituents in the corpus whose focus grade is phonologically underspecified, i.e. when a constituent is assigned a focus grade by the experimental subjects but is not accompanied by the minimum configuration of phonetic features that,

according to this analysis, must be present for that degree of focus to be assigned. Although the present analysis is clearly inadequate in this respect, it is likely that further refinement will enable some of these exceptions to be accounted for. In the discussion of phonological overspecification, it was suggested that the analysis might be helped by a polysystemic framework, in which constituents in sentence-initial, sentence-final and medial positions may all require different exponency statements. In a similar vein, some cases of phonological underspecification may be accounted for within a polysystemic statement of Prominence according to which different classes of syntactic constituent are associated with slightly different phonetic exponents. Some of the most obvious cases of phonological underspecification suggest that this may be so. For example, there are only 2/23 sentences in which the most focussed item is a verb (rather than a noun phrase), and in both cases this constituent has fewer than the predicted number of features:

(S2.18)

```

                | CONTRAST |
was | the witch | helping | the soldier
    |           | MAJOR   |
P1,P3| P1      | P2,P3,L1 | L2
                | L2,T1  |

```

(S2.20)

```

                | MAIN   | SUBSIDIARY |
was | the king | asked | by the soldier | if he could smoke one last pipe
    | MINOR  | MINOR  | MINOR      | MINOR
L1,L2|P1,P3,L2|P2,P3,T2| L2,T1      | P2,L2

|           |
|before he was hanged|
|           |
| L2       |

```

It is possible that if a verb is to be interpreted as having a certain focus grade, it will be phonetically less prominent than a noun phrase. This seems plausible, since there are likely to be more noun phrases than verbs in a sentence in competition for focus assignment: a relatively slight departure from phonetic expectation could be enough to signal that the verb has some prominence. This is certainly the impression gained from listening to (S2.18) and (S2.20), and also (S2.14), where, by feature counting, the subject noun phrase is grossly overspecified in terms of focus. The auditory impression, however, is that the verb "tie" is just as prominent as "the lady-in-waiting", as if the prominent verb were 'attracting' focus off the preceding NP:

(S2.14)

		SUBSID	SUBSIDIARY		MAIN	
did	the lady-in-waiting	tie	is a leaking bag of flour	onto	the princess	
	MAXIMAL	MINOR			MINOR	
0	P1,P2,P3,L1,L2,T2	P3,L2	L2		P3,L2	

A further plausible explanation for some of the problematic cases is that there is a trading relationship between delimitative systems and the focus system: if certain features are made use of by a delimitative system (e.g. PITCH PEAK or LOUDNESS PEAK at the beginning of the sentence) they will not be available as unambiguous cues to focus. Thus in (S2.18) above, the PITCH PEAK feature is associated with the initial auxiliary but not with the focussed constituent. The same is true of LOUDNESS PEAK in (S2.20) above and (S2.03). The latter is particularly interesting example, since the main focus constituent is not specified as having Major Prominence, as it lacks one of the three features LOUDNESS PEAK, TEMPO PROMINENCE and PAUSE/DRAWL. At the same time, it has both major pitch features (P1 and P2) even though only one is required for Major Prominence:

(S2.03)

	MAIN			SUBSIDIARY				
	was it		the princess		who married		the soldier	
MINOR		MINOR			MINOR			
P3,L1,L2		P1,P2,P3,L2		0		P3,L2		

#### 2.5.4. Conclusions

The first conclusion that can be drawn from the experiment described here is that native English speakers respond in a systematic fashion when giving judgments as to focus (defined as 'relative importance') under experimental conditions. There is no reason to think that they do not operate with a similar notion in everyday language use. The experimental responses indicate that speakers regularly operate with up to four degrees or grades of focus, thus providing psycholinguistic justification for establishing a four-term focus system for English.

Secondly, it has been shown that focus in English is realised phonologically: the comparison of cleft with non-cleft sentences indicates that syntactic structure is not crucially involved in the interpretation of focus.

Thirdly, it is argued that the semantic system of focus is realised by a four-term phonological system of prominence, the exponents of which are features of pitch, loudness and tempo. If a constituent is to be interpreted by the listener as having a particular grade of focus, that constituent will be marked by a specified configuration of phonetic features serving as the exponents of the corresponding phonological category. The inclusion of four terms in the prominence system is worthy of comment, since previous descriptions have tended to posit no more than three functionally relevant grades of accentuation at the sentence level: contrastive, main and unaccented. The results of Experiment 1 indicate that a further grade, subsidiary focus / minor prominence, is required, to reflect perceived patterns of information structure. In this context, it is



interesting to note that in similar work on Dutch accentuation, Kruyt advanced arguments in favour of recognizing a 'half-accent', phonetically intermediate between [+accent] and [-accent], to account for production and perception of accentual patterns on 'given' constituents, which can have either no accent or the half accent. (Kruyt 1985, p.91; p.103).

Fourthly, a constituent can be identified as 'contrastive' on purely phonological grounds. This is theoretically advantageous, since a satisfactory definition of contrast in contextual terms has hitherto proved elusive, and the 'mentalistic' definitions which have been used have been shown to be circular (see Chapter 1).

Fifthly, mismatches between focus grade and phonological prominence grade might be accounted for by further refinement of the present description, specifically by hypothesizing:

- i) phonological systems of sentence delimitation, and trading relationships between these systems and the focus/prominence system;
- ii) that the phonology of focus is polysystemic, with different phonological systems being stated for different syntactic classes (e.g. noun phrases and verbs).

## CHAPTER 3

### THE INTERPRETATION OF FOCUS IN CONTEXT

#### 3.1 Introduction

In the experimental study reported in Chapter 2, it was shown that native English speakers responded systematically to certain phonetic features as exponents of focus, when asked to indicate the relative importance of parts of decontextualised utterances. That experiment was motivated by the hypothesis that listeners' responses to decontextualised utterances would bear a regular and stable relationship to their behaviour in normal linguistic intercourse, the latter being the linguist's ultimate object of study. In order to proceed from the better to the less well understood, it was necessary to begin with features referable to the linguistic unit of the sentence by eliminating variables arising from the linguistic and non-linguistic context which might have affected the listeners' responses in unidentifiable ways.

Once the sentence-internal focus features have been described, the next step is to investigate whether the same features are used by listeners when they hear sentences in a linguistic context, or whether, and to what extent, they operate with different criteria when assigning relative importance to the various parts of the utterance. As has just been mentioned, Experiment 1 was based on the assumption of a relationship between listeners' assignment of focus to decontextualised sentences and their assignment of focus in natural spoken discourse. This assumption is compatible with the received view that in English perceived phonetic prominence is associated with informational importance (see Chapter 1); and it seems to be supported by the responses of the listeners in Experiment 1, who had no apparent difficulty in assigning degrees of relative importance to items in a decontextualised utterance: the task did

not seem to be meaningless to them. Nevertheless, such a relationship - between phonetic and informational prominence - is not logically necessary, and the possibility remains that the behaviour of the subjects in Experiment 1 bears no relationship to listeners' behaviour in normal linguistic situations.

The relationship between the information structure of a sentence and what precedes and follows that sentence could take a number of forms:

A) The information structure of the utterance is determined exclusively by the preceding context, linguistic and nonlinguistic.

In this case, if a lexical item occurring in a speaker's utterance, contains a semantic variable that is new to the discourse, then the speaker is bound to present the lexical item as new, and so the listener will interpret it as new (and vice versa for given items). If it were found that new items are associated with phonetic prominence, and that given items are not, the predictability, from the lexico-grammatical text, of what is new or given would mean that such phonetic marking of newness and givenness is redundant, comparable to the English 3rd person singular present simple tense affix, which is semantically redundant due to the obligatory presence of the 3rd person subject. This hypothesis about spoken discourse finds support in the fact that we are able to interpret the information structure of written English texts, with very few prosodic cues to help us. If it were borne out, it would suggest a close resemblance between spoken and written English. The view that there is a high degree of predictability of 'tune' from 'text' (though not complete) has characterised many generative approaches (see Chapter 1).

B) Although the listener responds consistently to storable features of the utterance in terms of information focus, the speaker's structuring of the utterance is not predictable in any way from the preceding context, but is determined entirely by the speaker's moment-by-moment assessment of the listener's information requirements.

Here, the freedom the speaker enjoys in assigning focus (and so

prominence) is directly comparable to his freedom to select lexical items: although there may be strong expectations, from the context, as to which word a speaker will select, he is ultimately always free to go against them. Because the speaker's structuring of information is not predictable from context, the listener has no reason to take context into account when interpreting the information structure of the utterance, and so bases his interpretation exclusively on the internal structure of the utterance: he assumes that the speaker has done all the work necessary to make his meaning transparent. Halliday's position seems close to this (see Chapter 1), and Brazil adopts it explicitly:

"The incidence of prominence represents the speaker's assessment of the information load carried by elements of his discourse."  
(1978,p.55)

If B) were the case, subjects' responses in Experiment 1 would exactly reflect their assignment of focus in normal listening situations, where context is present. The phonological statement made in Chapter 2 would therefore presumably be valid for normal discourse.

C) Somewhere intermediate between A) and B).

This is the position that has been adopted by almost all investigators, to differing degrees. For example, generative linguists have adopted A) for 'normal' contexts, but have a 'contrastive' or 'emphatic' category for those cases which do not fit, i.e. those focus patterns which are not predictable from the text (see Chapter 1). This is clearly an ad hoc solution (Wells and Local 1983), and the use of invented examples makes this category look more orderly than it really is. The Hallidayan tradition also subscribes to C), though with the opposite emphasis: although information structure is ultimately the speaker's choice (as in B)), we can observe regularities obtaining between the information structure of utterances and their context, and these regularities can be stated. For instance, new items tend to be phonologically prominent, and given items non-prominent. Thus Brown and Yule (1983,p.189):



"It is certainly the case, as Halliday has always insisted, that information status is determined, not by the structure of discourse but by the speaker. It is also certainly the case that there are no 'rules' for the specification of 'new' or 'given' information by the speaker. There are, however, regularities... which permit us to make statements like 'speakers usually introduce new entities with indefinite referring expressions and with intonational prominence' or 'speakers usually refer to current given entities with attenuated syntactic and phonological forms.' We must suppose that it is the exploitation of these regularities in the contexts of discourse which allows us to assess the information status attributed to an entity by speakers and writers."

According to C) one would expect that in most cases there would be a congruence between (a) the information status of an item in the context (i.e. new, given etc.), (b) speaker's marking of that item (phonologically and/or syntactically) and (c) listener's interpretation of the information structure of the utterance. However, because the predictability of information status from context is not total (the speaker having some freedom in assigning information structure), the syntactic and/or phonological marking of items as new or given is no longer redundant. On the contrary, it is crucial, in marking the information status of items when this is not as the context would predict. One might therefore expect that, as for B), the speaker would make the information structure of his utterance transparent, using phonological and/or syntactic resources, and that listener would interpret it accordingly.

If C) were the case, it would mean that the information system contains a margin of useful redundancy lacking in A) and B). There is redundancy in the sense that in most, though not all, cases the listener would be able to glean the information structure of the utterance from two sources: (a) the preceding context and semantic content of the utterance and (b) the internal phonological and syntactic structure of the utterance. This redundancy would be useful in two ways. Firstly, it reduces the possibility of misconstrual by the listener of the speaker's intention with regard to information structure, arising from a speech error (cf Cutler 1980, Section

3 & 4 for examples of this type of error). If the speaker makes a slip of prominence, the listener may nevertheless be able to make sense of the utterance by referring to the preceding context (as would always be possible if A) were true). Secondly, the fact that this redundancy is not total allows the speaker to assign an information structure which is not predictable from the context, should he so wish (as would always be possible if B) were true). This freedom is comparable to what is found at the lexical level: a collocational relationship between lexical items is normally respected, but speakers can always violate it (poets make a practice of it). These two advantages of C) are, however, in potential conflict: in a case where the speaker's specification of information structure does not match contextual expectations, how does the listener know whether the speaker's behaviour represents a speech error or a deliberate choice? Unless the listener has some strategy for deciding between these two possibilities, the advantages of C) are lost, and its flexibility becomes a potential source of confusion. For the system to work, one would expect to find within it constraints on the circumstances under which the speaker is permitted to violate contextual expectations: the listener can only interpret such a mismatch as a deliberate choice by the speaker under definable conditions, which could be phonological, contextual, syntactic, etc. An observationally adequate description of information structure would need to specify these conditions.

## 3.2 Method

### 3.2.1 Experimental Hypotheses

Experiment 2 was designed to investigate the issues outlined above. This was done by replicating Experiment 1, with the difference that subjects heard the test sentences in their original context, and had the complete text of the conversations in front of them, on which to indicate their focus assignments. Specifically, the following hypotheses were tested:

- (1) In general, listeners with context use the same features (those

identified in Chapter 2) as did listeners without context, when assigning focus.

(2) Cases of disparity (if any) between the two groups of listeners are referable to the context, i.e. listeners with context perceive the phonological prominence grade assigned by the speaker to that item as signalling an inappropriate focus grade for the context. In assigning focus to the item, the listeners with context therefore interpret the phonetic information in the light of contextual information. Hypothesis (2) has three parts, which together would account for all cases of disparity between the two groups: .

(i) Listeners without context regularly assign a focus grade that is closer to the actually occurring phonological prominence grade, than do listeners with context.

(ii) Listeners with context will assign a lower focus grade to a contextually given item than listeners without context, in cases where listeners without context assigned the focus grade corresponding to the phonological prominence of the item.

(iii) Listeners with context will assign a higher focus grade to a contextually new item than listeners without context, in cases where listeners without context assigned the focus grade corresponding to the phonological prominence of the item.

Hypothesis (2) thus embodies the claim that listeners are able to interpret the phonologically specified degree of focus in the light of available contextual information.

### 3.2.2 Experimental Design

Experiment 2 took the form of a replication of the focus assignment part of Experiment 1, using the same 23 test sentences. In Experiment 1, the

sentences had been played in random order, with nothing of their original linguistic context available to the listener, and subjects had been presented with a transcript of the text sentences in the same (random) order. In Experiment 2, the dialogues were played in their entirety, and a full orthographic transcription was provided. Subjects were required to stop the tape after each test sentence and assign focus just as in Experiment 1. (See Appendix 3.1 for instructions and transcripts.) The subjects were 12 students at the University of York, all native speakers of British English, without any training in English intonation analysis.

### 3.3 Analysis

As in Experiment 1, subjects had no apparent difficulty with the task. All subjects made use of a unique focus category (i.e. one constituent focussed, the remainder of the sentence not focussed); all subjects also employed a distinction between primary and secondary focus, in addition to zero focus; nine subjects used equal focus, and nine made use of a tertiary focus category. Their behaviour thus corresponds closely to that of Experiment 1 subjects, the only notable discrepancy being a possibly greater willingness to employ a tertiary focus category (75% of subjects in Experiment 2, as against 50% in Experiment 1). The amount of focus assigned was then scored exactly as in Experiment 1, and the scores totalled for each focus constituent in each sentence. These totals were then converted to a percentage, as were the totals from Experiment 1, for comparative purposes.

In Chapter 2, four focus grades were set up on the basis of subjects' assignment of focus in conjunction with phonetic correlates:

Contrastive: at least 70 points (=77%) clear of next focussed constituent.

Main: the highest focus in the sentence, but less than 77% clear of the next.



Subsidiary More than 22% of maximum possible focus score, but not the highest focus in the sentence.

Zero: less than 22% of the maximum possible score.

The Experiment 2 scores for each focussed constituent were classified using the same scale, to make comparison possible between the two subject groups and thereby test the experimental hypotheses. The 23 test sentences, together with the focus assignments of each experimental group and phonological prominence grades as established in Chapter 2, are presented in Appendix 3.2.

### 3.4 Results

#### 3.4.1 Hypothesis 1

Of the 122 focus constituents identified in Experiment 1, 21 (=17%) were assigned to a different grade of focus in Experiment 2. In order to test Hypothesis (1) - that there is a general agreement between subjects in the two conditions about the allocation of focus to constituents - two statistical tests were used. A Paired Samples t-test was carried out to test the null hypothesis that there is no statistically significant difference between the focus scores given by subjects under the two experimental conditions (Woods, Fletcher and Hughes 1986, p.184). The result,  $t = 0.61$ , is not significant at the 10% level ( $n=122$  focus constituents), indicating that the null hypothesis is to be accepted. This reflects a high degree of agreement across the two conditions, strongly supporting Hypothesis (1) and the view that in most cases the internal (phonological) structure of the utterance itself is sufficient to communicate to the listener the information structure of the sentence. This result would seem to support position (B) outlined earlier, rather than (A): if Experiment 2 subjects had been relying on contextual information exclusively when assigning focus, a significant difference between the two subject groups would be anticipated.

However, a more sensitive test, which considers not the overall behaviour of subjects under the two conditions so much as their treatment of particular focus constituents, suggests that there is a significant difference between the two conditions. Using a correlated samples t-test (Woods, Fletcher and Hughes p.187), an investigation was made of the null hypothesis that under the two conditions subjects gave the same focus score for the same constituents. Here,  $t=2$ , which is significant at the 5% level, indicating that the null hypothesis is to be rejected in favour of the hypothesis that subjects treated particular focus constituents differently according to the different experimental conditions. This result makes it difficult to accept (B): instead, the pattern of responses in the two experimental conditions would favour position (C), if it can be shown that the 21 instances of discrepancy are not random, but represent cases where Experiment 2 subjects have in fact reinterpreted the phonetic information in the utterance in accordance with the contextual information available to them. Such a finding would indicate that in normal linguistic commerce, listeners make use of both sentence-internal and contextual features in assigning information structure to an utterance. For this, we turn to the second hypothesis.

### 3.4.2 Hypothesis 2

Hypothesis 2(i) - that Experiment 1 subjects, who lacked contextual information, would assign focus grades that correspond more closely to the phonological prominence of the constituent than would Experiment 2 subjects - was supported by 11 of the 21 instances of mismatch between the two groups. In 10 of these 11 cases, Experiment 1 subjects assigned the focus grade corresponding to the degree of phonological prominence displayed by the constituent, whereas Experiment 2 subjects assigned a focus grade that is higher or lower than what is predicted by the prominence grade. In the remaining (eleventh) case, Experiment 1 subjects' focus assignment does not correspond exactly to the degree of phonological prominence; but Experiment 2 subjects' assignment corresponds even less well. The details are set out in Table 3.1. Note that in deviating from the phonologically specified focus grade, Experiment 2 subjects may raise or lower the focus grade.

TABLE 3.1

<u>Sentence</u>	<u>Constituent</u>	<u>Prominence</u>	<u>Ex.1</u>	<u>Ex.2</u>	<u>Shift</u>
5	"the soldier"	minor	subsidiary	main	up
5	"the witch's"	major	main	subsidiary	down
6	"the soldier"	minimal	zero	subsidiary	up
8	"the witch"	maximal	contrastive	main	down
14	"tie"	minor	subsidiary	zero	down
16	"the soldier"	minimal	zero	subsidiary	up
20	"by the soldier"	minor	subsidiary	zero	down
21	"did"	minimal	zero	subsidiary	up
22	"by the soldier"	minor	subsidiary	zero	down
22	"if he could smoke one last pipe"	minimal	zero	subsidiary	up

TABLE 3.2

<u>Sentence</u>	<u>Constituent</u>	<u>Prominence</u>	<u>Ex.1</u>	<u>Ex.2</u>	<u>Shift</u>
6	"what he'd spent"	minor	zero(17%)	subsidiary(22%)	up
8	"on the soldier's door"	minor	zero(9%)	subsidiary(28%)	up
15	"on the chest of gold"	minor	zero(16%)	subsidiary(22%)	up
20	"the king"	minor	zero(21%)	subsidiary(28%)	up
20	"if he could smoke one last pipe"	minor	zero(17%)	subsidiary(22%)	up
21	"the princess"	minor	zero(20%)	subsidiary(55%)	up
23	"to the soldier's house"	minor	zero(20%)	subsidiary(39%)	up
23	"while she was asleep"	minor	zero(17%)	subsidiary(25%)	up
11	"the lady-in-waiting"	maximal	main(97%)	contrastive(100%)	up
14	"the lady-in-waiting"	maximal	zero(20%)	subsidiary(44%)	up

TABLE 3.3

<u>Sentence</u>	<u>Constituent</u>	<u>Prominence</u>	<u>Ex.1</u>	<u>Ex.2</u>
1	"all the gold"	major	subsidiary	zero
5	"the witch's"	major	main	subsidiary
8	"the witch"	maximal	contrastive	main
14	"tie"	minor	subsidiary	zero
20	"by the soldier"	minor	subsidiary	zero
22	"by the soldier"	minor	subsidiary	zero

TABLE 3.4

<u>Sentence</u>	<u>Constituent</u>	<u>Prominence</u>	<u>Ex.1</u>	<u>Ex.2</u>
5	"the soldier"	minor	subsidiary	main
6	"what he'd spent"	minor	zero	subsidiary
6	"the soldier"	minimal	zero	subsidiary
8	"on the soldier's door"	minor	zero	subsidiary
11	"the lady-in-waiting"	maximal	main	contrast
14	"the lady-in-waiting"	maximal	zero	subsidiary
15	"on the chest of gold"	minor	zero	subsidiary
16	"the soldier"	minimal	zero	subsidiary
20	"the king"	minor	zero	subsidiary
20	"if he could smoke one last pipe"	minor	zero	subsidiary
21	"the princess"	minor	zero	subsidiary
21	"did"	minimal	zero	subsidiary
22	"if he could smoke one last pipe"	minimal	zero	subsidiary
23	"to the soldier's house"	minor	zero	subsidiary
23	"while she was asleep"	minor	zero	subsidiary



The remaining 10/21 constituents assigned a different focus grade by the two groups appear to contradict hypothesis 2(i). In these cases, Experiment 2 subjects, with context available to them, chose a focus grade that was a better match for the phonological prominence of the constituent than had their Experiment 1 counterparts. The ten constituents in question are presented in Table 3.2.

It can be observed that the constituents in Table 3.2 form a single analytic set, being held together by common features in a way that would not be predicted by chance. Firstly, in all cases the constituent is assigned a higher focus grade by Experiment 2 subjects; (contrast Table 3.1, where some are higher, others lower). Secondly, in 9/10 cases, a constituent given ZERO focus by Experiment 1 subjects is given SUBSIDIARY focus by Experiment 2 subjects. Thirdly, in 8/10 cases the constituent has MINOR prominence as defined in Chapter 2. Although this set of exceptions indicates a weakness in the focus/prominence system set up in Chapter 2, and thus undermines the position that focus is signalled phonetically, the overall correctness of this position is supported by the fact that it accounts for 92% of the data (i.e. 101 cases where both experimental groups behave in the same way, and 11/21 of the cases where they differ). Furthermore, in all instances of disparity between the two experimental groups, the difference is of one focus grade only, indicating that the effect of context on listener's interpretation of phonetic cues to focus is essentially one of 'fine-tuning'.

The uniformity of the set of exceptions suggests a problem of detail in the formulation of the focus system, rather than a general weakness in the hypothesis. The specific problem seems to involve the distinction between ZERO and SUBSIDIARY focus, for in the first eight items in Table 3.2 the constituent in question was assigned some focus by Experiment 1 subjects, (between 9% and 21%) though not enough to place it in the SUBSIDIARY category. Thus there appears to be a difficulty in establishing the lowest focus categories in relation to their phonetic exponents (i.e. in determining what exactly signals a constituent as having a low degree of focus, as opposed to none at all). It is to be hoped that further investigations on these lines, with a wider data base, will resolve the

problem.

Hypotheses 2(ii) and 2(iii) concern the specific effects of contextual information on focus assignment, for those cases about which the two sets of listeners differ in the degree of focus they assign. The relevant constituents are the twenty one listed in Tables 3.1 and 3.2. Hypothesis 2(ii) suggested that Experiment 2 listeners might assign a lower (but never a higher) focus grade than Experiment 1 listeners to a constituent that is 'given' in the context. To check the validity of the hypothesis, it is necessary to examine the context of those constituents to which Experiment 2 listeners assigned a lower focus grade, to see if the constituents are in fact 'given'. The relevant constituents are presented in Table 3.3.

For the purpose of this analysis, a constituent is defined as 'given' if it occurs in the speaker's immediately prior turn, and as 'new' if it does not. Since this operational definition is much more stringent than the usual definitions of these terms, it requires some justification. Firstly, it has the virtue of ease of implementation, since each constituent can be categorised unambiguously. Secondly, it is not implausible as a criterion for participants in this highly structured interaction, where what is at issue is the identification of correct agents and actions from a limited set of candidates. By this criterion, the constituents in S20 and S22 confirm the hypothesis. In S20 "by the soldier" is given, and is assigned less focus by Experiment 2 listeners. The same goes for "by the soldier" in S22. S8 can perhaps be taken as supporting the hypothesis too, since "the witch" is not contrastive in contextual terms (i.e. it is not the only new item in the sentence); Experiment 2 listeners assigned MAIN focus rather than CONTRASTIVE assigned by Experiment 1 listeners, thus fitting it better to the context. S1, on the other hand, presents a counterexample: although "all the gold" is assigned less focus by Experiment 2 subjects, it is not given. The same applies to "the witch's" in S5. S14 is a further counterexample: here it is the verb "tie" which has less focus in Experiment 2, but again it is not given. The support for Hypothesis 2(ii) is not, therefore, very convincing.

According to Hypothesis 2(iii), Experiment 2 listeners may assign a higher (but never a lower) focus grade to contextually new items, than did Experiment 1 listeners. The fifteen cases where Experiment 2 listeners assigned a higher focus grade are presented in Table 3.4. Ten of the fifteen constituents support the hypothesis: Experiment 2 listeners assign a higher focus grade than did Experiment 1 listeners to a constituent which does not occur in the prior turn. In eight of these cases, a new item to which Experiment 1 listeners had assigned ZERO focus receives SUBSIDIARY focus in Experiment 2 (see Sentences 6,8,20,21,22,23.). In S5, "the soldier" receives MAIN rather than SUBSIDIARY focus; and in S11, "the lady-in-waiting" receives CONTRASTIVE rather than MAIN focus, in line with the context, since it is the only new item in the sentence. The remaining five instances do not support the hypothesis: the constituent is given a higher focus grade by Experiment 2 listeners, even though it is contextually given. It is difficult to make much of the prominent auxiliary "did" in S21; but in the other four cases, there is clear violation of the predicted pattern.

This investigation of the role of contextual factors in accounting for the different responses of the two experimental groups has suggested that contextual newness/givenness is significant in the majority of cases (3/6 in 2(i), 10/15 in 2(ii)). However, the 8/21 cases that run counter to the hypotheses indicate a weakness in the view that where listeners disregard phonetic cues to focus, they do so solely in the light of their knowledge of the given/new status of the constituent in question.

### 3.5 NEW sentences

If listeners do not refer only to phonetic cues and their knowledge of the given/new status of an item when assigning focus, what else can they refer to? Some insight into this question may be gained if we turn our attention from the listener to the speaker. In a context-driven account of focus (= Position A above), the speaker marks as focussed that part of the sentence that is new, and as unfocussed the part that is given. An examination of



the experimental sentences in this light reveals that a number of them do not have the predicted focus structure either for Experiment 1 or for Experiment 2 listeners:

S1: The subject "the soldier" is given, but has MAIN focus for both groups of listeners; phonologically, it has MAJOR prominence. There is SUBSIDIARY focus on part of the predicate, which is new.

S12: The subject "the huge dog" is again given, and again has MAIN focus for both groups, and MAJOR prominence. The predicate is again new, and has SUBSIDIARY focus, with MAJOR prominence.

S13: The subject "the lady-in-waiting" is given; it has MAIN focus for both groups, and MAJOR prominence. The predicate is new, has SUBSIDIARY focus and MINOR prominence.

S9: The subject "the soldier" is given, has MAIN focus from both groups and MAJOR prominence. Part of the predicate has SUBSIDIARY focus and MINOR prominence.

S3: The subject "the princess" is given (by ellipsis), has MAIN focus and MAJOR prominence. The direct object is also given, having SUBSIDIARY focus and MINOR prominence.

The interest of these five sentences lies firstly in the consistency with which Experiment 2 listeners apparently disregard the contextual status of items when assigning focus; secondly, in the fact that the speaker too appears to disregard contextual factors, when assigning prominence; and thirdly, in the uniform pattern shown by the sentences: the given subject has MAJOR prominence and MAIN focus; the predicate, or part of it, which is new in four cases, receives SUBSIDIARY focus, having MINOR or MAJOR prominence.

It is of particular interest that the focus structure (though not the prominence pattern) of these five sentences is shared by another analytically coherent set of sentences in the data: those which contain no



given items at all. These sentences - 2,5,8,10,21 - all have the same focus pattern for Experiment 2 listeners, and this is the same focus pattern as is shared by the sentences just discussed, namely MAIN focus on the subject and SUBSIDIARY focus on the predicate. There is only one completely 'new' sentence in the data (S19) which does not have this focus pattern.

The analytical coherence of the latter group of sentences suggests that listeners and speakers may be operating with a category of NEW sentence, to which listeners assign the focus structure: MAIN on subject, SUBSIDIARY on predicate. If this is the case, the listener must have ways of identifying a sentence he hears as belonging to the NEW category. An obvious hypothesis would be that in NEW sentences, the focus structure of MAIN:SUBSIDIARY is signalled phonologically, by the prominence system, i.e. MAJOR:MINOR. This approximates to Schmerling's claim (1976) when she defines her category of 'News' sentences as ones where "predicates receive lower stress than their arguments" (see Chapter 1 above). However, it is not borne out by the NEW sentences in the present data, which have the following prominence patterns:

	Subject	Predicate
S2	MAJOR	MAJOR
S5	MINOR	MAJOR
S8	MAXIMAL	MINIMAL
S10	MAXIMAL	MINOR
S21	MAXIMAL	MINOR

The lack of congruence between focus and prominence here suggests that listeners simply attend to contextual information in identifying these sentences as NEW: if a sentence contains no 'given' items, the listener treats it as a NEW sentence and assigns MAIN:SUBSIDIARY focus, without regard to phonetic information.

Such a strategy could not, of course, be invoked for those sentences which seem to belong to the NEW category by virtue of their assigned focus structure (MAIN:SUBSIDIARY) but which contain a given element, i.e. the sentences discussed at the beginning of this section. Here, at least, we

might expect the listener to have recourse to phonetic information; and indeed it was noted in that discussion that in each sentence the given item has MAJOR prominence, where MINIMAL, or at most MINOR, prominence would be expected if speaker and listener were using the focus/prominence system of Chapter 2.

### 3.6 Focus Strategies

#### 3.6.1 Focus strategies for the listener

It can be surmised from the foregoing analysis that the listener operates with three principal strategies when interpreting the focus structure of a sentence:

- 1) If no item in the current sentence is given, interpret it as a NEW sentence, assigning MAIN focus to the subject and SUBSIDIARY to the predicate, irrespective of phonetic marking.

This strategy is compatible with Experiment 2 results for Ss 2,5,8,10,21, but is violated by S19, which has no given items but a SUBSIDIARY:MAIN focus structure. However, Experiment 2 listeners assigned a high focus score to both items: 69% on subject and 80% on predicate. Listeners seem to identify both items as having a large amount of focus, as is the case in the other NEW sentences, but with a shift in the relative importance of the two. It would be interesting to examine a larger sample to find out whether this difference corresponded to a difference in syntactic structure: most of the NEW sentences that conform to the strategy are clefts, whereas S19 is not.

- 2) If an item in the current sentence is given but has MAJOR prominence, interpret it as a NEW sentence, assigning MAIN focus to the subject and SUBSIDIARY focus to the predicate.

This is compatible with Experiment 2 results for Ss 1,3,7,9,12,13.

3) If one or more items in the current sentence is given but does not have MAJOR prominence, interpret it as an ANAPHORIC sentence, assigning focus to all elements of the sentence in accordance with the focus/prominence system of Chapter 2.

This should account for Experiment 2 results for the remaining eleven sentences (4,6,11,14,15,16,17,18,20,22,23). In fact, it accounts for all but thirteen of the fifty-six focus constituents in these eleven sentences (=23%), of which four occur in one sentence (S14) where no constituent has focus matching its phonological prominence. Of the thirteen cases that do not support the hypothesis, four involve verbs (see p.80 above); and eight (including one verb) represent a mismatch involving ZERO/SUBSIDIARY focus and MINIMAL/ MINOR prominence (see 'Results' above).

### 3.6.2 Focus Strategies for the Speaker

On the basis of the findings presented here, strategies can be deduced not only for the listener, but also for the speaker when assigning a focus structure to the sentence he is going to produce. To a large extent, though not entirely, this involves viewing the listener's strategies in reverse. The following strategies can be surmised:

- 1) If none of the lexical content selected for the sentence is given, the speaker does not implement the prominence system.

The speaker's initial choice is whether to produce a NEW sentence or an ANAPHORIC sentence. If he selects lexical content which does not relate to the prior turn, then the sentence is by definition NEW, so there is no call to mark it as such prosodically. This explains the diversity of different prosodic patterns on these sentences in the data. Presumably the prosodic pattern produced for such sentences will derive from choices made in the other systems which have pitch, loudness, tempo etc. among their phonetic exponents: grammatical, delimitative and attitudinal systems, for instance.

- 2) If one of the selected lexical items is given, but the speaker

wishes to make the sentence NEW rather than ANAPHORIC, he assigns MAJOR prominence to the given item.

This is the speaker's equivalent of listener's strategy (2). If, on the other hand, the speaker wishes to relate a given lexical item he has selected to its prior occurrence, he enters the ANAPHORIC system:

3) If the speaker wants the sentence to be ANAPHORIC, and if all lexical items except one are given, he assigns MAXIMAL prominence to the single new item.

This strategy is attested by Ss 4,11,15,16,17,18, the sentences in which there is only one new item. In all except S18, the single new item receives MAXIMAL prominence. (In S18, it has MAJOR prominence: again, the item is a verb (c.f Chapter 2). In all six sentences the single new item is assigned the highest focus grade, CONTRASTIVE. Furthermore, it is only such single new items which receive MAXIMAL prominence and CONTRASTIVE focus, in the ANAPHORIC data set. As it stands, this distribution suggests that MAXIMAL phonological prominence is redundant: the listener can identify the CONTRASTIVE status of an item by the fact that it is the only new item in the sentence, without recourse to phonetic cues. In this respect the ANAPHORIC sentences containing CONTRASTIVE focus are comparable to the NEW sentences of Strategy 1, which are identifiable as NEW by their lexical content rather than by their prominence pattern. However, the two sets of sentences differ markedly with regard to internal phonetic consistency: whereas those sentences that are lexically identifiable as NEW display a wide range of different prominence patterns, ANAPHORIC sentences containing CONTRASTIVE focus form a phonologically homogeneous group, all having MAXIMAL prominence on the new item. This phonological consistency suggests that phonological prominence may not be redundant in this part of the system: in a larger and more 'natural' data sample we might expect to find speakers assigning MAXIMAL prominence to items which are not the only new element in the sentence, and listeners interpreting them as CONTRASTIVE, since the system as described here has this potential.



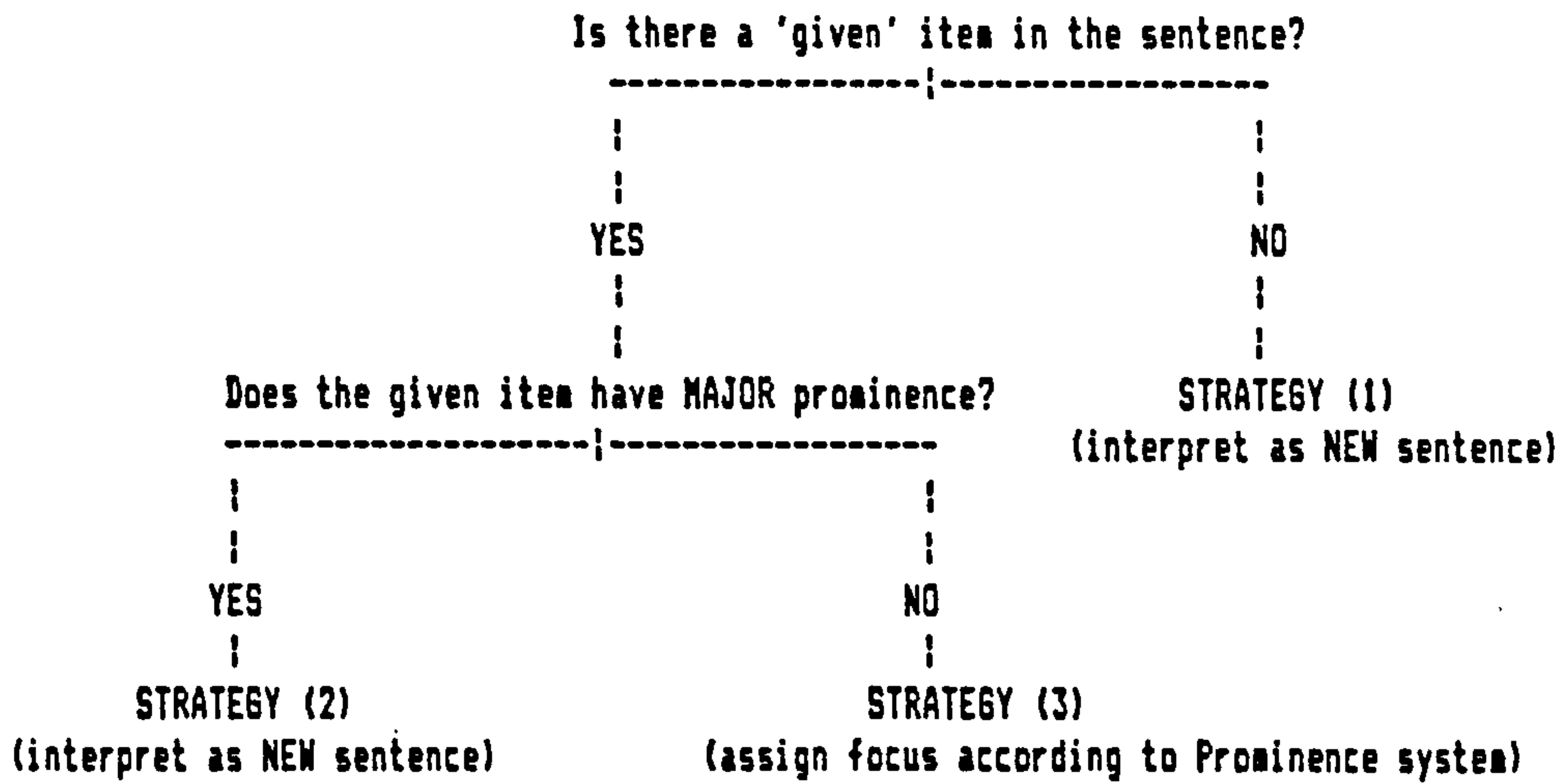
4) Having implemented Strategy (3), the speaker assigns prominence ad lib to the given items.

The data clearly indicates that the CONTRASTIVE status of one item in the sentence does not preclude some degree of focus on given items. Thus in S11, "crosses" is given but receives MINOR prominence and is assigned SUBSIDIARY focus. Further examples are "the chest of gold" in S15 and "the soldier" in S16.

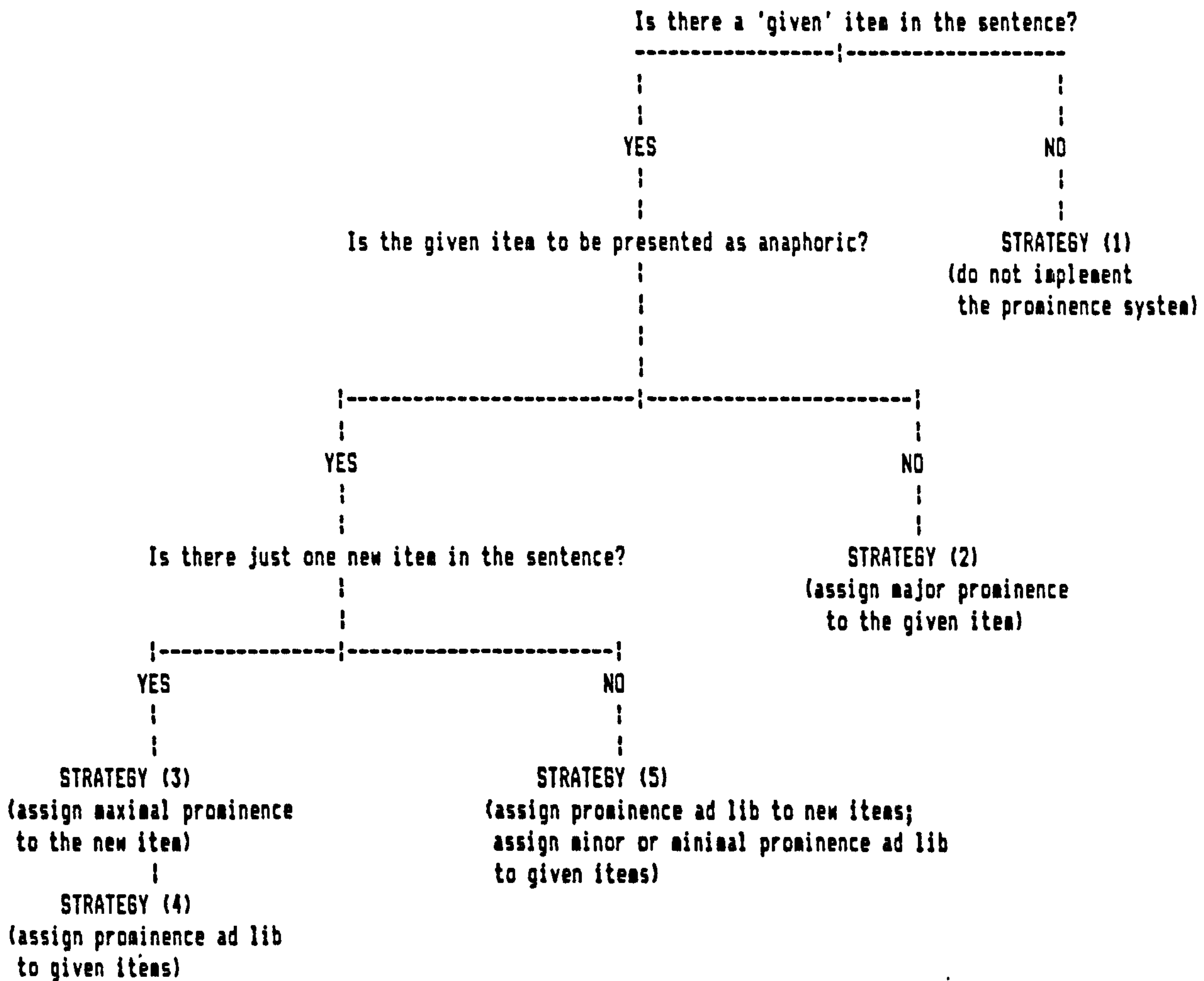
5) If an ANAPHORIC sentence contains more than one new item, assign phonological prominence ad lib to the new items; assign MINOR or MINIMAL prominence ad lib to the given items.

The relevant data for this strategy are Ss 6,14,20,22,23. S20 illustrates well the freedom that the speaker has in assigning prominence in order to convey focus: "the king", which is the subject and is new, has MINOR prominence and receives SUBSIDIARY focus (Experiment 2); whereas "asked", which is also new, has MAJOR prominence and MAIN focus; "the soldier", which is given, receives MINIMAL prominence and ZERO focus. As far as can be determined from the present data, when the speaker is in this part of the ANAPHORIC system, he is free to assign focus as he pleases, without reference to contextual factors, except that MAJOR prominence is disbarred on given items as it would make the sentence NEW, and MAXIMAL prominence does not occur on new items (as has already been discussed).

**FIGURE 3.1: Listener's Strategies**



**FIGURE 3.2: Speaker's Strategies**



### 3.7 Discussion

The strategies proposed above and presented graphically in Figures 1 and 2, accord well with focus assignment by listeners in the 'with-context' condition of Experiment 2. This analysis demonstrates that in spite of a great deal of phonetic diversity at certain points (e.g. in the contextually NEW sentences) the data is susceptible to coherent interpretation. This was made possible only by admitting the third of the three positions outlined at the beginning of the chapter, that is by admitting the role of both phonetic information and contextual information in the listener's interpretation of focus. There is no obvious reason why listeners should not employ a very similar set of strategies in normal conversation: it would be interesting to test this hypothesis by running an experiment along the lines of Experiment 2 but using natural conversational data, to see if the same strategies are used.

One possible difficulty, already mentioned, is the definition of 'new' and 'given': a more extensive domain than 'speaker's immediately prior turn' would probably be required. It will be recalled that a strict, somewhat crude definition was used: a constituent was said to be 'given' if it occurred in the speaker's immediately prior turn, and to be 'new' if it did not. A very similar definition was used by Terken (1985) in an investigation of factors determining accentuation in Dutch. Terken concludes from his first experiment:

"Thus, it appears the mere 'mention in the previous utterance' is not the only factor affecting the presence or absence of an accent on a referring expression, but that other factors play a part as well."  
(p.21)

Terken found that a 'given' expression was more likely to be accented if its referent had not been the only referent mentioned in the previous turn. In general, Terken concludes that "speakers are not easily inclined to treat information as Given". This tallies with the finding reported above for Experiment 2, where 'given' items could be assigned Major or Minor prominence, as well as the anticipated Minimal prominence.

A similar result was obtained by Kruyt (1985), though using a slightly different approach. She synthetically manipulated the pitch contour of an utterance so that its constituents varied in accentuation. She then had subjects match the resulting 'utterances' with the most appropriate question from a set that varied in the amount of information they shared with the test sentence. As she expected, Kruyt found that accented items were matched to the 'new' context. However, the reverse was not always the case: although unaccented items were often matched to the 'given' condition, accented items were also frequently construed as 'given', especially if a referent was repeated by a different word than the one used for introducing the referent. (p.103)

With regard to the perception of focus, and the Listener's Strategies given in Figure 3.1 above, Terken (1985) also investigated the functions of accentuation in language processing. In a reaction time experiment, he found that accented 'new' items were processed faster than unaccented 'new' items, and that unaccented 'given' items were processed faster than accented 'given' items. This suggests that when there is a mismatch between the prominence grade implied by the phonetic signal and the focus grade implied by the context, a heavier processing load is placed on the listener, who, according to the strategies proposed here, has to come up with a less obvious interpretation of the speaker's intention, e.g. using Listener's Strategy 2 to interpret a 'given' item with Major prominence as a signal that the utterance is to be treated as NEW.

One striking conclusion that can be drawn from Experiment 2 is that in certain contexts intonation appears to be meaningless, at least with regard to focus: in the case of sentences in which all items are new, a wide range of prominence patterns was found, but in each case listeners assigned the same MAIN:SUBSIDIARY structure. In other environments, however, the prominence system is crucial: to mark as NEW a sentence containing a given item; and to signal the relative focus values of items in an ANAPHORIC sentence.

More striking still is the simplicity of the strategies that have been



identified. Phonetic salience is used, in what could be described as an iconic manner, to cancel the listener's contextually-derived expectations that an item is to be regarded as anaphoric (in speaker's strategy 2); and to signal the relative informational importance of elements within the utterance (in speaker's strategies 3,4 and 5). At the same time, these phonologically rather simple systems have to key in to many other phonological and grammatical systems of English. How this might be achieved is explored in Chapter 4, which investigates some of the grammatical, semantic and accentual factors that focus interacts with.

## CHAPTER 4

### A PHONOLOGICAL ANALYSIS OF FOCUS

#### 4.1 Introduction

A number of suggestions about focus and its relation to certain phonological constructs (such as 'sentence stress' or 'accent' or 'nuclear tone') were made in Chapter 1; these were arrived at on the basis of linguistic argumentation, and represent what can be salvaged from proposals put forward in the studies reviewed in that chapter. In Chapters 2 and 3, experimental results were presented which led to quite specific claims about the phonetic correlates of focus and about the operation of the focus system by speakers and hearers. It is not possible, at this juncture, to integrate the two types of input into a single account of focus: whilst the proposals of Chapter 1 are all couched in terms of phonological categories (accent etc.) which have been assumed a priori, the phonological categories in Chapters 2 and 3 have been established solely to account for the focus behaviour of speakers and hearers. The two types of input into the descriptive statement are not reconcilable, because the phonological categories referred to in the literature, and in Chapter 1, may relate not only to the focus system, but also to other semantic and interactive systems, in particular systems of sentence delimitation and of attitudinal emphasis (see Chapter 6 for further discussion). The aim of the present chapter is to provide an empirical basis for the evaluation (in Chapter 5) of the hypotheses presented in Chapter 1 and for the account of focus to be presented in Chapter 5. The hypotheses to be investigated, deriving from the arguments presented in Chapter 1, are as follows:

- (1) There is phonological motivation for subcategorising sentences into two types, PRESENTATION and PREDICATION, since they are treated differently by speakers under the same focus conditions.

(2) The prominence associated with (contextually defined) CONTRASTIVE (or maximally narrow) focus is phonologically distinct from that associated with (contextually defined) NEUTRAL focus.

(3) The prominence associated with (contextually defined) CONTRASTIVE (or maximally narrow) focus is phonologically distinct from that associated with narrow focus resulting from the deaccenting (semantic backgrounding) of an item or items in the sentence, and resulting default accent placement.

(4) Indefinite non-generic NPs which are not members of a specified subset, are always focussed, and therefore phonologically prominent.

(5) Grammatical constituents are ordered in an accentability hierarchy.

(6) In cases of deaccenting, the accent may shift rightwards or leftwards, in accordance with the principle that accent goes on the most accentable constituent of the focus constituent.

It is important to note that a number of the hypotheses crucially require the ability, on the part of the investigator, to identify 'the accent' in any utterance. Indeed, the whole theory of deaccenting, default accent and the accentability hierarchy advanced by Ladd to account for focus in English assumes that listeners can identify accent. For this position to be tenable, evidence is required to show that speakers and hearers operate with a system of sentence accent that can be motivated independently of the semantic system of focus that is being investigated in these hypotheses. Without such evidence, the theory of focus and deaccenting embodied in these hypotheses is circular, for the reasons discussed in Chapter 1: focus will only be definable in terms of its phonological realisation i.e. the sentence accent, and the sentence accent can only be identified by reference to focus. The assumption made by Ladd is that the system of sentence stress or accent is motivated phonetically: listeners can unambiguously detect the most prominent syllable of the sentence, and this is the syllable that signals the location of the sentence stress. This

position is open to a number of objections. Firstly, according to generally accepted criteria of phonological analysis, the fact that listeners can identify a phonetic item is no guarantee that the item has systemic status: e.g. complex pitch movements in English, such as fall-rise-fall, can be identified phonetically but would probably not be treated as an independent term in a tone system (cf Halliday 1967, p.16). Secondly, no objective evidence has been presented to support the view that listeners can invariably identify a single most prominent syllable; indeed, Currie's findings strongly suggest the opposite. (Currie 1978; Brown et al 1980, Ch.5). Thirdly, no detailed suggestions have been made about what constitutes the phonetic exponency of accent, within the view espoused by Ladd that accent is signalled by rhythmic prominence. If concrete proposals were available, it would be possible to identify the putative accented syllable from the phonetician's impressionistic and/or instrumental records, and then test the hypotheses by seeing how the accent thus identified relates to 'focus' defined textually. In the absence of such concrete proposals, the analyst is forced to rely on intuition, with all the problems that entails. This is not to say that no suggestions at all have been forthcoming: Ladd (1980, Ch.2) makes some, for instance that cues for prominence may be located elsewhere than on the prominent item itself. The evidence he marshalls is used mainly, however, to argue for the superiority of the rhythmic view of sentence accent, as opposed to the pitch accent view; he does not go on to spell out in any detail what, phonetically, constitutes rhythmic prominence.

In the present analysis, the view is taken that the phonological construct 'accent' is only warranted if it can be shown to be necessary as a mediating category between a linguistic system (focus for example) and the phonetic exponents of that system. The theoretical basis for this view is discussed in Chapter 6.



## 4.2 Material

### 4.2.1 Test Sentences

The material which forms the basis of the analysis presented in this chapter was elicited from seven native English speakers. Each was given a sheet of 45 numbered sentences, and was instructed to read aloud each sentence in turn after hearing the appropriate cue on the tape. Subjects' responses were recorded on audio tape. On the tape that subjects heard were recorded 45 cue sentences, each preceded by the number of the corresponding response sentence on the subject's sheet. Cue sentences were read by the investigator, using what would generally be considered to be neutral patterns of pitch, loudness and tempo for standard (RP) English, i.e. with unmarked tonicity, tonality and tone within Halliday's framework (1967b).

The 45 sentences to be read out consisted in fact of just 13 textually different sentences, each occurring at least twice. The sentences were designed to contain the variables being examined in the experimental hypotheses. Two were putative PRESENTATION sentences (4.1 & 4.2), of different syntactic construction:

(4.1) There's a man in the lobby.

(4.2) A man appeared.

(4.3), (4.4) and (4.5) exemplify the type of (intransitive) sentence that has been claimed to have inherent (rather than contextually induced) semantic backgrounding, and thus deaccenting:

(4.3) Macmillan's died.

(4.4) The car's broken down.

(4.5) The sun was shining.

(4.6), (4.7) and (4.8) represent the type of transitive sentence which in

'neutral' context would be expected to have the accent on the last lexical item:

(4.6) Someone's broken the window.

(4.7) He doesn't read books.

(4.8) They said it would be hot today.

(4.9) is a similar structure, but here the last lexical item is a compound noun, which permits the testing of Hypothesis 6:

(4.9) It's coming up at the faculty meeting.

Many of the sentences closely resemble ones that have been used in the literature to support particular arguments about focus and accent placement, by Ladd (1980), Schmerling (1976) and Guéron (1980). However, the source of their data appears to be either informal observation or else their own intuitions about how the sentences would be pronounced under specified contextual conditions. It was hoped that the elicitation of identical or very similar sentences from naive informants would provide a data base that would make possible a more objective assessment of these writers' proposals.

#### 4.2.2. Cue Sentences

The cue sentences that subjects heard on the tape were designed to represent a range of different types of focus context (referred to henceforth as 'focus types') which, according to the experimental hypotheses, should elicit a corresponding range of different prosodic patterns:

(a) NEWS: the cue sentence does not contain any items in the test sentence, so there is no motive for deaccenting or contrastive focus. Under this condition one would expect to find the 'neutral' prosodic

pattern. (Hypotheses 1,2,5)

(b) FINAL CONTRAST (FC): the cue contains all the items in the test sentence except the last. It is expected that the last item in the sentence will therefore have contrastive focus. (Hypothesis 2)

(c) NON-FINAL CONTRAST (NFC): the cue contains all the items in the test sentence but one, which is not sentence final. It is expected that this item will have contrastive focus. (Hypotheses 2,3)

(d) PARTIAL BACKGROUNDING (PB): the cue contains one item (or more) that also occurs in the test sentence, this item being the one that, according to the literature, receives the accent in a 'normal intonation' reading. It is predicted that here the accent will be shifted onto some other item which is not given. (Hypotheses 3,5,6). In Sentences 6 and 8, the backgrounded word is the final word in the test sentence (PBf), whereas in Sentences 1,4,5 and 9 a non-final word is backgrounded (PBn).

(e) TOTAL BACKGROUNDING: the cue contains all the items that occur in the test sentence. It is predicted that the accent will not fall as in (a), but on another item as dictated by the 'accentability hierarchy' (Hypothesis 5)

It was not possible for every test sentence to be elicited under all five conditions, since for some of the sentences it was not possible to devise a plausible cue for some of the conditions. Cues for test sentences used in the analysis are listed in Appendix 4.1.

Each of the focus types just listed serves as a 'frame' for phonological analysis, into which the different grammatical/semantic structures represented by Sentences 1 - 9 are 'inserted'. (c.f. Sharp 1954). Any consistent difference between the pronunciations of different 'inserenda' (i.e. different textual sentences) within the same 'frame' can thus be attributed to the inherent structural properties of the textual sentences themselves. If these differences cannot be attributed to segmental

phonological differences between the sentences in question, then they must be attributed to grammatical or sentential semantic differences. (Hypotheses 1,4,5,6).

#### 4.2.3. Procedure

The sentences and corresponding cues were presented to informants in a pseudo-randomised order which ensured that the same sentence did not occur twice in succession; this was to prevent the creation of unforeseen 'contrastive' contexts. Two informants were recorded in the recording studio of the Department of Language, the remaining five in the Department's language laboratory. Informants were requested not to stop or rewind the tape during the session. After completing the reading task, five of the informants were asked to listen to their recorded responses, together with the cues, and to evaluate each response for appropriateness on a seven point scale.

The informants, who had no apparent difficulty with the task, were all native speakers of English who normally speak a variety that is standard for England in terms of grammar and lexis. Some have a slight regional accent, reflecting place of origin, which included Liverpool, Greater Manchester, Thirsk (North Yorkshire), Derby and the Home Counties. Possible effects of regional accent were born in mind throughout the analysis described below, but it was not possible to identify any individual informant as behaving in a markedly different manner from the others. It is to be expected that marked regional accents will differ from one another both phonologically and phonetically, in 'prosodic' as in 'segmental' respects (Knowles 1974; Jarman and Cruttenden 1976; Brown, Currie and Kenworthy 1980). However, insofar as the speech of all seven informants is amenable to analysis in terms of the same phonological structures and systems, the statement presented at the end of this chapter can be taken as valid for the standard accent of British English as spoken in England. Five of the seven informants were female; all were aged between 18 and 30, and were students at the University of York. None had training in English phonetics.



### 4.3 Analysis

#### 4.3.1. Preliminaries

For the purposes of phonological analysis it was decided to restrict the study to nine of the original thirteen test sentences, viz. (4.1) to (4.9) above. This was necessitated by the amount of time required for transcription and analysis. The nine sentences selected are all declaratives, and of a comparable degree of syntactic complexity; only (4.8) contains a subordinate clause. This restriction meant that 35 utterances per informant out of 45 recorded, were analysed, giving a corpus of 245 utterances. It is this corpus which constitutes the material for the following phonological analysis.

An impressionistic phonetic record of the 245 utterances was then prepared, and is reproduced without modification or regularisation in Appendix 4.2. The main focus of transcription was on those phonetic features often termed 'prosodic' or 'suprasegmental', namely pitch, loudness, rhythm and tempo (including pause) since these had been identified as relevant to focus in Chapter 2; nevertheless, attention was also paid to 'segmental' features since there is no a priori reason why they should not be implicated in the phonetic realisation of focus types.

It is axiomatic for phonological analysis that neither functional (e.g. lexical, grammatical, interactive) categories nor phonological categories (e.g. 'fall', 'rise', 'accent') can be assumed a priori; they must be arrived at inductively by analysis of the phonic material. For this reason, the phonologist's null hypothesis is that any phonetic distinction that he has recorded constitutes a potential phonological opposition and must be considered as such in the analysis. There can be no question of 'discarding' phonic material before the analysis. The concomitant of this axiom is that the phonologist must assume, provisionally, that phonetic identity represents phonological identity: if two speakers produce what can reasonably be viewed as phonetically identical utterances, or if one speaker produces identical utterances on different occasions, the null

assumption must be that the utterances have the same phonological function. This assumption is only provisional, since it may become apparent, when utterances are systematically linked to their contexts of situation, that two phonetically identical stretches are not in fact phonologically identical, but that the opposition between the two has been suspended in a particular context (which may be phonological or grammatical) e.g. "These are the cats" vs. "These are the cat's". Such instances can only be identified at a relatively late stage in the analysis, when phonological systems have already been established; in order to reach that stage, it is necessary to work with the null assumption of identity.

The present approach to the phonological analysis of focus may appear radical in attempting, as far as possible, to start from first principles, rather than to draw heavily on previous analyses of related phenomena. The main justification for such a procedure is that previous analyses have not formulated the task in the same way: they have not specifically tried to make a phonological description of focus, but have attempted a more generalized, monosystemic account of English intonation. It was thought that too much reliance on such descriptions in the course of the analysis might obscure what is phonetically specific to focus.

#### 4.3.2 Stage 1: Grouping of phonetically equivalent utterances

The first task of analysis is, then, to group together those utterances that the phonologist will treat as phonetically identical (Appendix 4.3). This was done using two procedures. Firstly, instances of the same textual sentence pronounced with the same pitch contour were grouped together. Secondly, instances of different textual sentences pronounced with the same pitch contour were also grouped together. This second procedure immediately raises the question of what is meant by phonetic identity. Clearly, if two sentences differ by as little as one syllable (ie one sentence has one fewer syllables than the other) they cannot be said to have identical pitch contours. In the present analysis, the following criterion was used:

In the case where two sentences differ in number of syllables, if the

'extra' syllables can be discounted in the longer sentence with the result that the two sentences now have an identical pitch contour in the phonetic record, then the two utterances in question can be considered phonetically equivalent.

Example: Tune 05: Ss 2,3,5,6,9. (nb the discounted syllables must be ones which do not deviate in pitch direction from the syllables that precede and follow). It will be noted that in the steps of analysis just outlined, similarity or difference was assessed on the basis of pitch only; no reference has been made to the other non-segmental phonetic features that were transcribed. This was a practical necessity: in order to begin to group the material under consideration a manageable phonetic criterion had to be adopted. If all prosodic features had been considered at this stage it is likely that there would be very nearly as many putative phonological patterns as there are utterances - which would not advance the analysis very far. Pitch was selected as criterial in preference to loudness or tempo because the results of Experiment 1 had suggested that pitch is the most important phonetic parameter in the focus system. For this reason, the phonetic patterns (of pitch) identified in these first stages of the analysis are designated TUNES - a term which reflects the fact that pitch is the analytically relevant phonetic parameter, and the fact that the pattern is being treated at this stage as an indivisible whole. After Stages (1) and (2) of the analysis, it proved possible to group the 245 utterances into 54 different tunes (see Appendix 4.3.).

Each tune was then subclassified, where relevant, according to the loudness parameter, which after pitch had seemed the most important phonetic parameter in the focus system as established in Experiment 1. Those examples of a particular tune which have a single loudness peak are distinguished from those that have two equal loudness peaks and from those which have three or more equal loudness peaks. These are shown as (i), (ii) and (iii) respectively in Appendix 4.3. The introduction of the loudness parameter increased the number of recognisably distinct PATTERNS to 96.



#### 4.3.3 Stage 2: Textual difference

At the outset, the null assumption was made that any phonetic difference may prove to be phonological, so at this stage there is the prospect of 96 terms in the phonological system. It is now necessary to determine which (if any) of the 96 patterns are to be considered phonologically equivalent. The first step is to take each patterns in turn and discover which other patterns it may be phonologically equivalent to. This can only be done by first identifying the patterns it cannot be phonologically equivalent to. To this end, the following criterion was invoked:

Two patterns cannot be equivalent if they both occur with the same textual sentence.

In such a case, the phonetic difference between the two patterns cannot be accounted for by reference to their lexical phonological structure, and so the two patterns cannot be in complementary distribution with lexical phonological structure as the conditioning factor. It should be noted that if two patterns do occur with the same sentence, the possibility still remains that they are free variants of one phonological category, but this can only be established by reference to the focus categories themselves: see Stage 6 below.

#### 4.3.4 Stage 3: Functional Identity

Stage 3 does not logically follow Stage 2, but is complementary to it: a note is made of all the patterns that occur with each focus type. The aim at this stage is to group together those patterns which are candidates for phonological identity on functional grounds, all the patterns in the group being used to realise the same meaning.



#### 4.3.5 Stage 4: Phonetic and Functional Identity.

In the analytical steps taken so far, both phonetic and functional criteria have been invoked, but independently. At Stage 4, the two criteria are compared: an inspection is made of those pairs of patterns identified at Stage 3 as candidates for phonological identity on functional grounds, to see whether they meet the phonetic criterion for identity of Stage 2. If such a pair of tunes is in fact disbarred by Stage 2, then it is assumed, again provisionally, that the two patterns are after all phonologically distinct. Thus primacy is given to phonetic criteria over functional criteria at this stage. This is because, as has already been mentioned, the focus types used in the experiment cannot be assumed a priori to be ones with which speakers operate: the functional categories have to be warranted by the phonological analysis itself. This would not be possible if the hypothetical categories were used to sort the phonic material in the first place. Nevertheless, it is important to entertain the possibility that pairs of tunes that are not identical by phonetic criteria may still function in the same way in the focus system. Such pairs are considered at Stage 6.

#### 4.3.6 Stage 5: Complementary Distribution

Consideration is now given to pairs of patterns whose members qualify as candidates for phonological identity according to both criteria invoked so far. The next criterion is that of lexical phonological structure:

Two patterns can be deemed to be phonologically identical if the phonetic differences between them can be plausibly accounted for by differences in the lexical phonological structure of the sentences involved.

This is essentially an extension of the criterion used to establish the tunes at Stage 1. Then it was simply difference in the number of syllables that was invoked. However, it is not unreasonable to assume (along with most previous studies of English intonation) that what is phonologically,

i.e. in terms of its function, a single pitch pattern is realised in different ways on two different sentences if:

- a) the lexically accented syllables occur at different places in the two sentences; and/or
- b) the syllable on which pitch movement is centred is phonologically short in one word, and long in the other.

The kinds of difference that might be anticipated can be illustrated by reference to (S4) and (S5). Both have the same number of syllables, but differ in the number and location of lexically accented syllables:

(S4) the 'cars 'broken 'down

(S5) the 'sun was 'shining

If in both sentences pitch prominence were given to the last lexically accented syllable, one might expect its realisation to be different, since in (S4) it is the last syllable of the sentence, whereas in (S5) another syllable follows. For example, a rising pitch contour might be realised as an on-syllable glide on "down", but as two level pitches stepping up on "shining" (\_-), as O'Connor and Arnold suggest (1973, pp 8 - 10). This consideration led to the formulation of Criterion (a):

(a) two patterns may be identified as being in complementary distribution if the sentence/s with which one occurs differ from the sentence/s with which the other occurs with respect to the presence of lexically unaccented syllables between a locus of pitch prominence and either the next lexical accent syllable or the end of the sentence.

The application of this criterion can be illustrated from Patterns 20i and 26i. The two patterns are used with the same focus type (Final Contrast) but with different textual sentences (S3 and S5 respectively), thus meeting the criteria for the previous stages. Pattern 20i is represented by 4:S3/FC:PS/44, where there is a rising-falling pitch movement distributed over the last syllable of the utterance and reaching the base of the

speaker's normal range; this forms the monosyllabic word "died". Pattern 26i is represented by 4:S5/FC:AG/43. Here there is a rising-falling pitch movement on "shine", the penultimate syllable, which does not reach the base of the speaker's range; however, the final syllable of the utterance, "-ing", has a low level pitch. This phonetic difference between the two utterances can therefore be attributed to the presence or absence of a lexically unaccented syllable following the final lexically accented syllable, and the two patterns can thus be regarded as being in complementary distribution.

The second phonological criterion concerns phonological vowel length:

(b) Two patterns may be identified as being in complementary distribution if the sentences with which one occurs differ from the sentences with which the other occurs with respect to the intrinsic phonological vowel length of the nucleus of the syllable which constitutes the locus of pitch prominence.

It has been noted in descriptions of English intonation that the phonetic realisation of phonological nuclear tones may vary in accordance with the segmental structure of the syllable which carries the tone. Gimson observes this in his discussion of the falling nucleus (1970, p.268-9):

"The falling glide is most perceptible when it takes place on a syllable containing a long vowel or diphthong or a voiced continuant ....When a fall occurs on a syllable containing a short vowel with its limits formed by fortis, voiceless consonants (especially the stops /p,t,k/), the glide, particularly of a low fall, is so rapid that it is not easily perceptible, or may be realised merely as a low level pitch in relation to a preceding higher pitch.... Again, when syllables follow the nucleus - the tail - the fall may be realized as the juxtaposition of relatively high pitch on the nuclear syllable and low pitches on the syllables of the tail...."

Gimson makes similar observations about the realisation of the other nuclear tones that he recognizes. For instance:



"The falling-rising nucleus. - The fall and rise may be confined within one syllable, the glide beginning at about mid-level and ending at the same level (or slightly above or below); in the case of a short syllable, the dip in pitch is made extremely rapidly and may be realized as an instant of 'creaky' voice or even of cessation of voice...." (p.270)

Such observations suggest that some of the patterns identified in this analysis may prove to be in complementary distribution, the phonetic differences being conditioned by the type of syllable that constitutes a locus of pitch prominence in the pattern. In the test sentences, there are in fact only three syllables which turn up as loci of prominence and which are short in Gimson's terms, namely "books" in S7, "hot" in S8 and the first syllable of "faculty" in S9. All the other syllables which constitute loci of pitch prominence either contain a phonologically long vowel (or diphthong), or are closed by a lenis consonant. It was therefore decided that for the application of Criterion (b), a 'short' syllable would be deemed to be any syllable containing a phonologically short vowel, without reference to the limiting consonants. The application of this criterion is illustrated by Patterns 8i and 34i. An example of Pattern 8i is 4:S5/TB:PW/39: the highest and loudest syllable is that belonging to the monosyllabic word "was", which has a phonologically short vowel and is realised here with a high level pitch. Pattern 34i is exemplified by 4:S6/TB:AG/42: the loudest and most pitch-prominent syllable is the first (i.e. the lexically accented) syllable of "broken", which has a phonologically long vowel, and is realised here with a rising-falling pitch movement. The two pitch patterns can therefore be said to be in complementary distribution.

A further criterion for complementary distribution of patterns involves the parameter of loudness. It seems plausible that where an utterance is realised with a pattern of 'equal loudness' peaks (as opposed to a single loudness peak), the number of loudness peaks may be dependent upon the lexical phonological structure of the sentence: if the sentence has only two lexically accented syllables, as in "The 'sun was 'shining" one might



expect it to be realised with only two loudness peaks, whereas a sentence containing more than two lexically accented syllables may have correspondingly more loudness peaks, as in " 'someone's 'broken the 'window". The following criterion was therefore applied:

Two patterns differing in number of loudness peaks may be identified as being in complementary distribution if the sentences they occur with differ in the number of lexically accented syllables they contain, and there is a loudness peak corresponding to each such syllable.

The application of this criterion is illustrated by Patterns 7iii and 15ii. An example of 7iii is 4:S4/NEWS:TK/26, where in the realisation of the sentence "the car's broken down" there are equal loudness peaks on "car's", "broke-" and "down". An example of 15ii is 4:S1/NEWS:TK/15, where in the realisation of the sentence "there's a man in the lobby" there are equal loudness peaks on "man" and "lob-". The two patterns can therefore be viewed as being in complementary distribution with respect to the difference in number of loudness peaks.

#### 4.3.7 Stage 6: Free Variation

So far, the analysis has grouped patterns according to criteria of complementary distribution. A further possibility was raised at the end of the discussion of Stage 2, namely that two patterns which occur with the same textual sentence may in fact be free variants, the phonetic difference between the two patterns not signalling a phonological contrast. For two patterns to be candidate free variants, it is necessary to show (a) that the phonetic difference between them is not conditioned by phonological environment and (b) that they are never associated with different meanings. These two conditions are met by any pair of patterns that satisfies the following criterion:

- (a) If a pattern occurs with one textual sentence only and in only one

focus type, it may be treated as a free variant of another pattern which occurs with the same sentence and the same focus type.

The application of this criterion can be illustrated by Patterns 01ii, 01iii, 03i, and 03ii, all of which occur only with S4/NEWS. They can all therefore be regarded as variants of 03iii, which occurs with S4/NEWS and also with S4/PB.

It may be noted that in some instances a pattern is, by this criterion, a candidate variant of more than one other pattern. In such cases, the criterion of phonetic similarity is invoked:

(b) If a pattern is a candidate free variant of more than one other pattern, it is assigned to the one it is most similar to in pitch and loudness.

The application of this criterion can be illustrated by Patterns 25i and 22i. Pattern 25i is only found with S1/FC; in fact, the only instance is 4;S1/FC:PS/35. It is characterised by a single loudness peak on the lexical accented syllable of the final word, "lobby"; and a high level pitch peak on the same syllable, which is reached by a stepped ascending pattern over the preceding syllables, and which is followed by low level pitch on the second syllable of "lobby". The two patterns to which it could be assigned as a free variant on functional grounds are 22i, exemplified by 4;S1/FC:TC/35 and 48ii, exemplified by 4;S1/FC:AG/35 (21i is analysed as a free variant of 22i). Pattern 48ii has two loudness peaks, a narrow fall on "man" and a falling-rising pitch movement on "lobby", whereas 22i has a single loudness peak on the first syllable of "lobby", a level pitch peak on that syllable which is preceded by a level sequence and which is followed by a low level pitch on the final syllable of "lobby". Phonetically 25i thus seems to have more in common with 22i than it does with 48ii.

#### 4.3.8 Stage 7: Creation of Phonological Chains

The analysis so far has involved applying distributional criteria to the original 245 utterances with the aim of grouping them into phonologically coherent sets. The seventh stage involves the actual creation of these sets, or 'chains' (Sharp 1954), by drawing on the distributional information obtained at Stages 1 to 6. The procedure for creating these chains can be illustrated by reference to Chain A. Fourteen patterns are grouped together in this chain. Some of these group together by virtue of being in phonological complementary distribution (Stage 5), e.g. Patterns 2a, 5a, 1a, 13a, whereas others group together by virtue of being in free variation (Stage 6), e.g. 2a, 14a, 9c, 14b. Thus chains are created by establishing networks of phonologically related patterns. These chains are listed in Appendix 4.4.

An analytical problem arises in the creation of the chains, when a pattern could be allocated to more than one chain. This can be illustrated by reference to Pattern 22iii (e.g. 4:S4/PB:AG/38) which can be assigned to Chain D as a conditioned variant of Pattern 19iii, (e.g. 4:S9/PB:AG/08) or to Chain I as a free variant of Pattern 16ii (e.g. 4:S4/PB:MM/38). Such problems were resolved by appealing to functional criteria: in Chain D there is only one token of 'partial backgrounding', the chain consisting almost exclusively of 'News' tokens; whereas Chain I consists almost exclusively of tokens of 'partial backgrounding'. Since Pattern 19iii consists of tokens of 'partial backgrounding', it is therefore assigned to Chain I.

A number of the smaller chains listed in Appendix 4.4 can be regarded as variants of other chains, by extending the distributional criteria employed at Stage 6. For example, Chain M consists of two tokens, one of S2/NEWS and the other of S2/NFC. Both of these sentence/focus-type combinations are also represented in Chain C (in Pattern 2ii). Chain M can thus be regarded as a variant of Chain C, and combined with it. As a result of applying this criterion, the inventory of chains can be reduced to the eight listed in Appendix 4.5, where they are labelled with roman numerals.

#### 4.3.9 Stage 8: Grammatical Conditioning

At this point grammatical criteria can be introduced into the phonological analysis. Hypotheses 1 and 4, set out at the beginning of the chapter, claim that assignment of focus may in part be conditioned by the grammatical structure of the sentence involved. This issue is treated in more detail in Chapter 5; but as a preliminary it is necessary to establish whether grammatical structure irrespective of focus can affect the pitch contour of a sentence. It is conceivable, for instance, that all transitive sentences are always realised in a different way, phonetically, from intransitive sentences, and that this phonetic difference is not conditioned by focus context. To see if this is indeed the case, we can apply the following criterion:

If two grammatical structures never occur with the same phonological chain, they can be considered to be in complementary distribution.

If this were found to be true, then it would be necessary to treat the grammatical structures concerned as being tonally marked, as in a tone language. This is not in fact the case, since all textual sentences occur with Chain VII. However, further inspection reveals that no two textual sentences are in fact identical with respect to the chains they cooccur with, suggesting that all nine textual sentences are distinct with respect to the prosodic realisation of focus, even though their phonetic exponents may frequently overlap. The cooccurrence of phonological chains with textual sentences is presented in Table 4.1.



TABLE 4.1

Occurrence of Chains by Sentence

<u>Sentence</u>	<u>Chains</u>
S1	I II VI VII VIII
S2	I II III V VII
S3	I II V VII
S4	I III VI VII
S5	I II III V VI VII
S6	I II III IV VI VII
S7	I II IV V VI VII
S8	II VII
S9	I II IV VI VII VIII

It is theoretically possible that some of the differences between sentences with respect to the phonological chains that they cooccur with are attributable to the fact that the number and kind of focus types elicited for each textual sentence varied to some extent. However, inspection of the relevant cases showed that the differences listed in Table 4.1 were not in fact attributable to this factor. At this stage of the analysis it therefore seems as if the different sentence structures represented by the nine textual sentences elicited represent nine different phonological categories. From an analytical point of view, these can be compared to the phonological categories that Sharp set up for disyllabic nouns in Chaga in that there is some overlap of phonetic exponents between categories, yet the set of exponents of one category is distinct from the set of exponents of any other category (Sharp 1954). It remains to be seen whether these phonological differences can be attributed to storable grammatical or semantic properties of the sentences (see Chapter 5).

#### 4.3.10 Stage 9: Correlation of Phonological Chain and Focus Type

The analysis up to this point has resulted in a set of eight phonological 'chains', based on consideration of phonetic parameters of pitch and loudness in conjunction with distributional criteria of complementary distribution and free variation. It has also been established (in Stage 8) that the phonetic realisation of focus differs according to sentence structure, although the specific conditioning factors have not yet been identified. The next step is to investigate whether the rudimentary phonological system represented by the eight 'chains' does in fact serve to differentiate between focus types. The cooccurrence of chain with focus type is presented in Table 4.2, which indicates that the chains provide for some differentiation between focus types, but that this differentiation is not absolute. For example, Final Contrast is clearly differentiated from the other focus types, as it occurs almost exclusively with one chain, VII, which is not found to any great extent with any other focus type. On the other hand, some chains contain tokens of a number of different focus types: for instance, Chain II includes tokens of News, Non-final Contrast, Total Backgrounding and Partial Backgrounding.

TABLE 4.2

#### Occurrence of Chains by Focus Type

Focus Type	Chains
NEWS	(I) II III IV (VII) VIII
NFC	I II (III) (V)
TB	II V
PBf	II
PBn	VI
FC	(VI) VII

Key: Where a chain is in parentheses, there are not more than 3 tokens of that focus type. Where a chain does not appear, there is not more than one token of that focus type.

It could be argued that this failure by the phonological system to distinguish between focus types indicates that the focus types used in the experiment are not in fact ones with which speakers operate, and so should be reformulated. Before that position is accepted, an alternative possibility has to be explored: that although focus types are not always differentiated by loudness and pitch, other phonetic parameters, notably tempo and duration, may serve to distinguish them in such cases. This suggestion is supported by the findings of Experiment 1, reported in Chapter 2, where tempo and durational features were seen to play a part in listeners' perception of focus.

#### 4.3.11 Stage 10: Distribution of Tempo and Loudness Features

In the analysis of the role of tempo and durational features, use was made of a single category of 'tempo prominence', in such a way that any constituent could be identified from the transcription as having, or not having, tempo prominence. The phonetic correlates of this category include tempo and durational features, corresponding to the features of "Tempo Marking" and "Pause/Drawl" described in Chapter 2: if a constituent is marked by one or more of features (9)-(12), (14), (15) listed in Chapter 2 (p58) it is said to have 'tempo prominence'. The phonetic correlates of this putative phonological category are varied, as Experiment 1 had indicated that the pause/drawl features and the tempo marking features are probably variant ways of marking prominence, rather than distinct terms in a system of oppositions (cf exponents of Maximal and Major Prominence, p.75). This is plausible, since it is clearly impossible to mark a constituent as prominent by means of a preceding 'allegro' stretch, if there is only one syllable preceding the focussed constituent: an example would be S2 "A man appeared", with focus on "man". Conversely, it is conceivable that phonologically short syllables, such as "hot" in S8, may not be susceptible to syllabic sustention ("drawl") to the extent that is possible with phonologically long syllables such as the lexically accented syllable of "broken" in S6. Transcriptional decisions as to whether or not a particular constituent in an utterance should be notated as having tempo

and durational features of this kind were facilitated by the fact that the experiment provided a number of different tokens of the same textual sentence for each speaker, thus making intraspeaker comparison possible.

The occurrence of Tempo Prominence is recorded for each token in Appendix 4.5. In order to determine whether tempo prominence does in fact keep apart the different focus types when loudness and pitch fail to do so, it is necessary to examine in turn those chains which, according to Table 4.2, occur with more than one focus type. That focus types may indeed be differentiated in this way can be illustrated from a brief consideration of two chains:

Chain II. NFC is distinguished quite regularly from the other focus types by virtue of having a single point of tempo prominence non-finally (14/16) (coinciding in fact with the lexically accented syllable of the contrasted item). The other focus types are more likely to have no tempo prominent constituents (TB:8/13; PB:10/15; NEWS:7/16). It can also be noted that only with NEWS do we find tempo prominence on the final item (5/16). It is also important to note that within a particular chain, the loudness parameter may also serve to distinguish focus types: for instance, in Chain II NEWS tokens regularly have two equal loudness peaks (12/16) whereas with the other focus types there is a clear preference for a single, non-final loudness peak. It seems, however, that neither tempo nor loudness serve to distinguish clearly between PB and TB.

Chain V. Here, the three tokens of NFC are kept apart from the TB tokens by a combination of loudness and tempo prominence: NFC tokens tend to have tempo prominence and a single loudness peak on the contrasted item, whereas the TB tokens have no tempo prominent constituents, and tend to have multiple loudness peaks.

The fact that tempo and loudness prominence serve to differentiate focus types that might otherwise not be differentiated indicates that the hypothesised focus types used in this analysis have some validity for native speakers. It also demonstrates that a comprehensive account of the phonology of focus types must refer not only to pitch but also to loudness



and tempo in its exponency statement.

Further evidence that tempo prominence serves to differentiate between focus types is presented in Table 4.3, which gives the percentage of tokens having tempo prominence for each focus type. It may be noted that the Contrast types regularly have a single point of tempo prominence, whereas the News and Total Backgrounding types most often have no points of tempo prominence.

TABLE 4.3

Proportion of Tempo Features per Focus Type (%)

Tempo Prominence Points:	ZERO	I/NF	I/F	TWO	THREE
Focus Types					
NEWS	46.87	17.18	23.43	10.93	1.56
TOTAL BACKGROUNDING	64.28	25.00	3.57	7.14	0.00
PARTIAL BACKGROUNDING: L	66.66	33.33	0.00	0.00	0.00
NON-FINAL CONTRAST	26.98	68.25	3.17	1.58	0.00
PARTIAL BACKGROUNDING: R	18.51	0.00	48.14	33.33	0.00
FINAL CONTRAST	4.76	0.00	88.09	7.14	0.00

Table 4.4 presents comparable figures for the loudness parameter. Again, Non-final Contrast tokens are regularly marked by a single peak; however, it is interesting to note that this is less true of the Final Contrast type. Conversely, The NEWS type generally has multiple peaks of equal loudness.

TABLE 4.4

Proportion of Loudness Peaks per Focus Type (%)

Loudness Peaks Focus Types	ONE	TWO	THREE
NEWS	20.31	60.93	18.75
TOTAL BACKGROUNDING	60.71	21.42	17.85
PARTIAL BACKGROUNDING: L	60.00	33.33	6.66
NON-FINAL CONTRAST	79.36	15.87	4.76
PARTIAL BACKGROUNDING: R	26.92	42.30	30.76
FINAL CONTRAST	54.76	42.85	2.38

#### 4.3.12 Stage 11: Phonetic Realisation of Focus Types

Since it has been established that the focus types used in the experiment are in fact differentiated by speakers, and that this is done by means of differences in pitch, loudness and tempo (at least), it is legitimate to set up phonological structures and systems to relate the system of focus types to its phonetic exponents. In order to obtain a clear picture of the specific phonetic features that are involved in making these distinctions, a summary is provided of the phonetic realisations of each focus type (Appendix 4.6). Each focus type is realised by one or more contonations having phonetic correlates of loudness, tempo and pitch - the pitch and loudness contour being derived from one (or more) of the eight chains listed in Appendix 4.5. The phonetic correlates of each contonation are stated in words, and there is also a schematic representation of each. The term 'contonation' is used following Firth: "The terms "contonation and "contonational" are intended to refer to "intonational" and prosodic patterns abstracted from and correlated closely with formally established grammatical structures, colligations, and collocations." (quoted in Sharp 1954, fn.5; see also Chapter 6 below).

It will be observed that some of the contonations established in Appendix

4.6 include tokens from more than one 'chain' (e.g. NEWS 1). In such instances, primacy has been given in the analysis to semantic function and phonetic similarity over phonological distribution: tokens which were assigned to different phonological categories (chains) on the basis of distributional evidence at Stages 1 - 6 are brought together if (a) they realise the same focus type and (b) they share a number of phonetic characteristics. The justification for this procedure lies in the fact that the earlier phonological analysis validated in general terms the focus types that had been used in the experiment, in that it showed that subjects differentiated the focus types phonetically. This being so, it is legitimate to modify the detail of that earlier analysis in order to highlight the phonetic and functional coherence displayed by each focus type.

Conversely, in a few instances tokens of the same focus type that according to the earlier stages of the analysis belong to a single chain are here allocated to more than one contonation. An example is to be found in NEWS, where Contonations 1 and 4 both contain tokens from Chain VIII. The justification for separating out two patterns which have been shown to be phonologically assignable to a single category lies in two related facts: firstly, the patterns are phonetically rather different, in that Tune 43 has a final falling-rising pitch whereas 52 and 53 have a final falling pitch; and secondly, 43 is shared by tokens of other focus types, a fact which needs to be considered when the phonological system is established (see below).

#### 4.4 Phonological Statement

##### 4.4.1 Criteria Features

From Appendix 4.6 it is possible to identify those phonetic distinctions that are criterial in differentiating between focus types:

(a) Number of P's: in the description of the contonations it was found

convenient to talk of points of pitch prominence (P). Contonations differ in the number of P's they contain, which ranges from one (e.g. NFC 1) to three (e.g. NEWS 1).

(b) Location of P's: this varies from contonation to contonation. For example, in NFC, P is located on the lexically accented syllable of the (only) new word, whereas in PBf it is on the lexically accented syllable of the lexical head preceding the backgrounded word. The structural descriptions that are invoked in Appendix 4.6 to describe the location of P's are very varied, and incorporate semantic and syntactic, as well as phonological, criteria. For this reason, the discussion of P location is deferred to Chapter 5, where the phonological description is integrated with the other levels. It can be noted, however, that all P's share the property of being located on the 'lexically accented' syllable of the word in question: this concept is discussed below.

(c) The pitch height of a P relative to the preceding syllable(s). This is illustrated by the difference between NFC 1 and TB4.

(d) The relative pitch heights of P1 and P2, e.g. NEWS 1 and PB (of non-final word) 1.

(e) Pitch movement at P2: / ; \ ; \ / ; \_ \_ .

(f) Pitch movement at P (i.e. when there is only one P): \ ; \ / .

(g) Number of (equal) loudness peaks: one or more than one. (e.g. NFC 2 and NEWS 3).

(h) Number of points of tempo prominence: zero, one or two (e.g. NFC 2 and TB 1).

#### 4.4.2 Structures: line and accent unit

The phonological oppositions identified by the foregoing analysis can be



most economically captured by establishing the structures and systems outlined below.

With reference to the highly restricted data base used here, the basic structural unit required for the description of the system of focus types is, at the grammatical level, the sentence, since no responses extended beyond a single sentence. The corresponding structural unit at the phonological level will be termed the "line", and need not be considered further at this point, since in the experimental data no problems arise in delimiting or identifying this unit. Its descriptive status is discussed in Chapter 6.

Within the line, elements of structure termed "accent units" are recognised. In the present data, a line consists of minimally two and maximally four accent units: there is always a "Final" and at least one "Pre-final" accent unit.

Each accent unit comprises minimally one syllable which forms its 'centre' (or 'focus'/'focal point' in the phonological sense of Allen (1951, p.86); the accent may have extent over syllables preceding and/or following its centre. The centre will henceforth be notated as [A].

Where it is located on a polysyllabic word, [A] invariably coincides with the lexically accented syllable of the word. Full discussion of lexical accent in English is beyond the scope of this study, where the following account is assumed:

- (a) A phonological property of every polysyllabic English word is its lexical accent pattern, which is invariant. The phonetic realisation of this pattern is variable, being affected by such factors as the phonological environment of the word in the particular utterance (as in the "thirteen men" phenomenon), the type of focus assigned to the word and its focus environment (as described in this study), the role of the word in realising delimitation of the line (see Chapter 6), and affective considerations. There may also be phonetic differences between words having the same lexical accent pattern, due to

differences in the segmental structure of the words. This lexical accent pattern can be said to be 'centred' on a particular syllable (referred to hitherto as "the lexically accented syllable") and to have extent over the entire word. This 'centre' corresponds to what is normally described as the stressed syllable of the word (in citation form), or to the primary stressed syllable in words which are also said to have a secondary stress. In most environments it is perceived by native speakers as being phonetically the most prominent syllable of the word.

(b) Monosyllabic words cannot, by definition, have a lexical accent pattern. They may, however, be realised with varying degrees of phonetic prominence according to considerations of focus and line delimitation.

Accent unit centres are identified principally on phonetic grounds. The accent unit centre is the locus of one or more of the following: pitch movement, loudness prominence and tempo prominence (realised either by sustention of the syllable itself or by an allegro stretch preceding the word in which [A] appears). A syllable having such features is identified as an accent centre irrespective of grammatical considerations. However, a further convention is adopted, whereby every lexically accented syllable (of a polysyllabic word) and every lexical monosyllable ('lexical' = noun, lexical verb, adjective, adverb) is considered to be an accent centre. In the large majority of instances, such syllables also display some of the criterial phonetic features just mentioned, and are thus phonetically distinguishable from lexically unaccented syllables in polysyllabic words and from grammatical monosyllables. This constitutes additional phonological support for regarding the syllables mentioned as accent centres even when they lack the requisite phonetic features, although the primary motivation for this decision is that it facilitates the articulation of the relationship between focus categories and their phonological exponents (see Chapter 5).

Accent unit boundaries are defined as follows:

An accent unit begins one syllable before its centre providing that syllable is not itself the centre of the preceding accent unit.

An accent unit thus consists of the syllable before [A], the [A] syllable itself, and all syllables following [A] up to but not including the syllable before the next [A]. The justification for this location of accent unit boundaries is that in some contonations an on-syllable rising-falling pitch is functionally equivalent to an on-syllable falling pitch preceded by a step up from the preceding syllable (e.g. NFC 1, FC 1). It is therefore appropriate to assign the preceding syllable to the accent unit that follows it. (Further research is needed to establish whether unaccented syllables prior to this syllable should also be included in the following accent unit). The functional role of the post-[A] syllable(s) is less clear from the present analysis, but it will be seen in Chapter 5 that the generation of well-formed output is facilitated if at least the immediate post-[A] syllable is included in the specification of the accent.

In the following examples, line boundaries are notated //, and accent unit boundaries /. Accent unit centres are underlined. (The typographical conventions are derived from Halliday (1967b); it must be stressed, however, that their use here is quite different from Halliday's).

Examples:

FC 1: //a man /appeared//

NFC 1: //some/one's broken /the window//

#### 4.4.3 Accentual Systems

In order to provide an observationally adequate description of the phonetic patterns observed in the corpus and of the phonological oppositions which they realise, it is necessary to set up accentual systems comprising different but overlapping sets of terms, which operate at the two places in structure (Pre-final Accent Unit and Final Accent Unit). These are set out

in Table 4.5. The labelling of accents in Table 4.5 derives from the analysis presented in Chapter 2, and its use in the present context will be explained in Chapter 5. For the purposes of the analysis presented so far in this chapter, the labels are of no special significance: it is sufficient simply to note that twelve pre-final and twelve final accents have to be recognised in order to capture the phonological oppositions between contonations identified in Appendix 4.6 and at the same time to provide a phonetically explicit statement of how these oppositions are realised. The phonetic exponency of each accent can be derived from Table 4.5, where accents are located on a matrix of phonetic features. The phonetic specification of these features is as follows:

P1: F: In Final Accent Unit: falling pitch on [A], to base of speaker's normal range.

In Pre-final Accent Unit: falling pitch on [A], not necessarily to base of speaker's normal range.

R: Rising pitch on [A].

FR: Falling-rising pitch on [A] (Final Accent Unit only).

LV: Level pitch on [A].

P2u: Step up in pitch from pre-[A] syllable to [A], or rising-falling pitch on [A].

P2d: Step down in pitch from [A] to following syllable, or, where [A] has falling pitch, following syllable is not higher than end of fall on [A].

P3: [A] is syllable with highest (or equal highest) pitch in the line.

L: [A] is the loudest, or equal loudest, syllable in the line.



T: [A] has tempo prominences: either syllabic sustention of [A], or allegro over syllables immediately before word containing [A], or both.

TABLE 4.5

## ACCENTUAL SYSTEMS

	P1	P2u	P2d	P3	L	T
<b>PREFINAL</b>						
Max1	+	+	+	F	+	+
Maj1	-	+	+	F	+	+
Maj2	0	+	+	F	+	-
Maj3	0	+	+	F	-	+
Maj4	0	-	+	F	+	+
Maj5	+	+	-	F	+	+
Mnr1	0	-	0	F	+	-
Mnr2	0	+	0	F	-	+
Mnr3	0	+	-	F	+	-
Mnr4	-	-	0	R	+	-
Mnl1	0	-	-	LV	0	-
Mnl2	0	0	+	LV	0	-
<b>FINAL</b>						
Max1	+	+	+	F	+	+
Maj1	-	+	+	F	+	+
Maj2	0	+	+	F	+	-
Maj3	0	+	+	F	-	+
Maj4	0	-	+	F	+	+
Maj5	0	0	0	FR	+	+
Mnr1	0	-	+	F	+	-
Mnr2	0	-	+	F	-	+
Mnr3	0	0	0	FR	+	-
Mnr4	0	0	0	R	+	0
Mnl1	-	-	-	LV	0	0
Mnl2	-	-	-	R	-	-

Keys: +: obligatorily present; -: obligatorily absent; 0: optional.

Max.: Maximal; Maj.: Major; Mnr: Minor; Mnl: Minimal.

#### 4.4.4 Output Constraints

In addition to the two accentual systems, it is necessary to posit a small number of phonological 'rules', or constraints on output, which operate upon certain accents under specified conditions.

It was noted in conjunction with Appendix 4.6 that some constraints could be observed on the type of pitch movements found under certain phonological conditions ('Constraints on on-syllable pitch type'). These mainly involved the occurrence of level pitch in specified environments, where elsewhere falling pitch is found. This appears to be at odds with the systems of accents presented in Table 4.5, where it will be noted that the opposition between falling and level pitch is taken to be phonologically significant: level pitch occurs with one subset of accents (those labelled 'Minimal'), and falling pitch occurs with a different subset (the majority of those labelled Maximal, Major and Minor). The accentual system as presented in Table 4.5 does not therefore give an accurate representation of the phonetic data, for level pitch may in fact cooccur with clusters of phonetic features elsewhere associated with Maximal and Major accents; and conversely falling pitch may cooccur with features elsewhere associated with Minimal accents. It therefore appears that the phonological status of the level vs. falling pitch opposition is in doubt. However, the phonological function of this opposition is maintained if a small number of output constraints are formulated which specify the phonological conditions under which a level pitch can occur at [A] in a Maximal or Major Accent and a falling pitch can occur at [A] in a Minimal Accent. The constraints can be stated formally as follows:

**ADJACENT ACCENT CONSTRAINT:** where two accent centres are directly adjacent, the first has level pitch, if it constitutes a loudness peak (L) and has pitch obtrusion (P2u and P2d).

The constraint can be expressed in the following formula:

F > Lv / \_\_\_\_\_ [A]  
          [A]  
          [+L]  
          [+Pu]  
          [+Pd]

The constraint is exemplified by tokens of the following Sentence/Focus Type combinations: S4:NFC, S7:NFC, S5:TB, S7:TB (see Appendix 4.2).

Example:

S4:NFC:AG //MAX1 the car's /MNL1 brok- /MNL1 -en down//

where "car" has level pitch. (In phonological transcriptions, the accent reference is placed at the head of the relevant accent unit).

S7:NFC:TC //MNL1 he does- /MAX1 -n't read / MNL2 books//

where "read" has level pitch.

S5:TB:MC //MNL1 the sun /MAJ2 was /MNL1 shining//

where "was" has level pitch.

**SHORT SYLLABLE CONSTRAINT:** where a Pre-final Accent Centre is located on a syllable having a short-vowel nucleus, it has level pitch, if it constitutes a loudness peak (L) and has pitch obtrusion (P2u and P2d). (Optional).



The constraint can be expressed in the following formula:

$$F > LV / \text{-----} S [A]$$

[A]  
[+short]  
[+L]  
[+Pu]  
[+Pd]

The constraint is exemplified by tokens of the following: S8:NFC, S8:PB, S2:NFC, S3:NFC.

Examples:

S8:PB:MC //MAJ2 theysaid it would /MAJ1 be hot /MNL2 today //

where "said" and "hot" both have level pitch.

S2:NFC:PS //MAJ2 a man /MNL1 appeared //

where "man" has level pitch.

LONG VOWEL ALTERNATION: where [A] is located on a syllable with a long-vowel nucleus, it may be realised with narrow falling pitch, whatever other features are present. (Optional)

This can be expressed in the following formula:

$$LV > F / \text{-----}$$

[+narrow]    [+long]

This is intended to formalize the observation that a narrow falling pitch movement frequently occurs on accent centres with long-vowel nuclei which would otherwise be classified as 'Minimal' accents on phonetic grounds and which are functionally equivalent to short-vowel nuclei with level pitch.

It is exemplified in many different contonations, some of which are illustrated below.

S2:NFC:PS //MAJ2 a man /MNL1 appeared //

where there is narrow falling pitch on the second syllable of "appeared".

S4:NFC:AG //MAX1 the car's /MNL1 brok- /MNL1 -en down //

where there is narrow falling pitch on "down".

S6:FC:MC //MAJ2 gone- /MNL1 -one's broken /MAX1 the window //

where there is narrow falling pitch on the first syllable of "broken".

CHECKED FALL CONSTRAINT: where [A] is the final syllable in the line, an accent with falling-rising pitch may be realised with narrow falling pitch from high to mid. (Optional)

This may be formalised as follows:

FR > F / \_\_\_\_\_// (Optional)  
[high to mid] [A]

This constraint is invoked to account for the limited occurrence of final falling pitch movement ending above the base of the range, which is found only with some tokens of S2:FC.

Example:

S2:FC:AG //MNL2 a man /MAJ6 appeared //

where the second syllable of "appeared" has narrow falling pitch, from high to mid. The motivation for identifying this 'checked' fall with the fall-rise accent rather than with an accent that is elsewhere realised with a fall to base is that in the FC type, tokens with final checked fall and

tokens with high fall to base are found with S2, whereas in other sentences (S1 and S7) the high fall is again found, together with tokens having final fall-rise. Furthermore, there is a phonetic similarity between fall-rise tokens and checked fall tokens, in that the preceding syllables are all at the same pitch height as the onset of pitch movement on [A] i.e. they are [-P2u], whereas most of the tokens with a final fall to base have a step up to [A], i.e. are [+P2u].

Several major topics related to the phonological systems and structures described here have not yet been addressed. These include: syntagmatic constraints on the selection of accents; the specification of the location of accent centres; and the relationship between this description and the account of focus presented in Chapters 2 and 3. All these topics crucially involve the interaction of phonology with other levels of description, i.e. syntax and semantics, and will be considered in Chapter 5.

## CHAPTER 5

### TOWARDS AN INTEGRATED ACCOUNT OF FOCUS AND ACCENT

#### 5.1 Accentual Systems and Focus

##### 5.1.1 Comparison of Findings from Experiments 1 and 3

In Chapters 2 and 3 a phonological system was described which accounts for listeners' behaviour in assigning focus (construed as relative importance) to utterances. That account rests on a sound empirical basis, in so far as the semantic categories it refers to are derived from the observed behaviour of native speakers and listeners. It also has the objective support that instrumental phonetic records provide. However, the phonological system itself is rather inexplicit, as little detail is presented with regard to the mapping of the phonetic exponents of phonological prominence onto the texts with which they cooccur. It would therefore be difficult, on the basis of that account alone, to 'generate' phonetically well-formed output. On the other hand, the phonological systems described in Chapter 4 are quite detailed with regard to phonetic exponency, and as such could provide a basis for generating well-formed output. However, they are not supported at the phonetic level by instrumental records, since the preparation and interpretation of these would have been prohibitively time-consuming given the amount of material required for the phonological analysis: such records can only supplement the phonetician's impressionistic record, and to prepare both was not logistically feasible. Furthermore, the 'focus types' referred to in Chapter 4 are linguists' constructs, defined in terms of the structure of texts and contexts, rather than participants' categories derived from the observed behaviour of naive native speakers: no experiment investigating listeners' judgements of relative 'importance' was carried out using the 245 utterances that constituted the raw material of the phonological analysis.



Given the methodological differences between the two studies and the resulting difference in the type of phonological statement that can be derived from them, it is useful to identify points where legitimate comparison can be made, in order to determine whether the studies do in fact offer a coherent picture of the phonetics of focus. One such point of comparison is to be found between the non-final 'contrast' focus type of Chapter 4 and the 'Contrastive' focus grade of Chapter 2. Comparison is legitimate here, since in Chapter 2 the 'Contrastive' grade was defined by reference not only to subjects' behaviour in the experiment, but also, initially, by reference to textual criteria identical to those used in Chapter 4. In the phonological statement in Chapter 2, the phonetic exponents of the phonological category (Maximal Prominence) that realises Contrastive focus are: pitch peak, maximum pitch range, kinetic tone, loudness peak, decrescendo, and either tempo marking or pause/drawl (see Chapter 2 for definition of these features). In the phonological statement in Chapter 4, Appendix 4.6 shows that Non-Final Contrast is realised with an accent centred on the lexically accented syllable of the contrasted word (Max1 in Table 4.5). This syllable is invariably the highest in pitch ('pitch peak'); the accent unit in question has the 'maximum pitch range' as defined in Chapter 2, since the pitch range extends from the accent centre to two syllables before the accent centre of the final accent unit, at or near the base of the range; and the accent centre generally has 'kinetic tone' (n=38/59 in Contonations 1 and 2). This syllable is also the 'loudness peak', (79% in Table 4.4) and therefore necessarily has the feature 'decrescendo'. It also has either 'tempo marking' or 'pause/drawl' (which together are treated as exponents of 'tempo prominence' in Chapter 4) in 68% of instances (Table 4.3).

The close match between the findings of the two studies with regard to the phonetic realisation of 'Contrastive' focus strongly indicates that the behaviour of the informants in the Chapter 4 study should be given the same interpretation as was given, on the basis of listeners' responses, to the behaviour of the informants in Chapters 2 and 3: namely, the speaker realises a (contextually-defined) 'focus type', such as "Contrast", as a string of focus constituents, each of which is assigned a 'grade' from the four-term semantic system of focus; each focus grade is then realised by

the corresponding term in the phonological system of Prominence which in Chapter 4 is given detailed specification in the Pre-final and Final Accentual Systems (Table 4.5). This interpretation of the findings of Chapter 4 is developed in detail below.

### 5.1.2 Accentual Systems as Exponents of Focus Grades

In this section the terms of the Accentual Systems set out in Table 4.5 are assigned on phonetic grounds to the four terms of the Prominence System set out in Chapter 2. The phonetic criteria used are derived from the sets of features stated for the exponency of the Prominence System in Chapter 2, and are intended to replicate as closely as possible the feature specifications used in that analysis.

Definitions of phonetic prominence:

PITCH: (1) [A] is the highest (or equal highest) syllable in the pitch contour of the sentence (cf P1 in Chapters 2 and 4).

(2) stepping-up to [A] and either fall on [A] or stepping-down from [A] (the presence of these features would indicate that the constituent may have 'maximum pitch range' as defined in Chapter 2). (cf P2u and P2d in Chapter 4, and P2 in Chapter 2).

(3) kinetic pitch on [A] (c.f. P3 'kinetic tone' in Chapters 2 and 4).

LOUDNESS: a loudness peak, as defined for [L] in Chapter 4, on [A]. (This is equivalent to 'loudness peak' in Chapter 2. It entails 'decrecendo', but not vice versa; the feature 'decrecendo' was not incorporated in the analysis in Chapter 4.)

TEMPO: tempo prominence as defined for [T] in Chapter 4, centred on [A]. (This is equivalent to the two features 'tempo marking' and 'pause/drawl' in Chapter 2.)

Criteria for allocating Accents to Prominence Categories:

MAXIMAL: all five of the above features are present.

MAJOR: at least three features, including Pitch (3).

MINOR: Pitch (3) and one other feature.

MINIMAL: No features or Pitch (3) or Loudness.

The allocation of Accents to Prominence categories is incorporated in Table 4.5, where accents are labelled Maximal, Major, Minor or Minimal in accordance with these criteria.

The main point of divergence between the criteria used in establishing the original prominence categories (in Chapter 2) and those used in assigning accents to those categories involves feature P3 (Kinetic Pitch). In Chapter 2, this feature is assigned to constituents on the basis of the phonetic record, and so a syllable that has P3 literally has moving, rather than level, pitch. However, in order to establish the phonological systems of Chapter 4, it was necessary to recognise that although level pitch generally correlated with semantically non-prominent items, there were circumstances under which it could occur with items having a high level of focus. Such occurrences were described in terms of three 'output constraints' specifying the environments under which the relationship between kinetic/level pitch and degree of focus, as predicted by the study in Chapter 2, is reversed. In this regard, the systems posited in Chapter 4 thus represent a revision of that proposed in Chapter 2: the criterial feature for the top three prominence grades is a phonological 'kinetic tone', which may under specified conditions be realised phonetically as level pitch. Conversely, the criterial feature for Minimal prominence is a phonological level tone, which may, under the conditions stated for Long Vowel Alternation, be realised with falling pitch. The distributional patterns noted in connection with the constraints suggest that level pitch is not 'inherently' less phonetically salient than kinetic pitch: the



salience of a level syllable depends on what other phonetic features are present.

It may be the case that difficulties with regard to the analysis of level pitch, as outlined here, arise from the particular approach to the phonetic analysis used for Experiment 3, viz. treating the pitch contour of each syllable separately. However, there is no obvious alternative procedure available which does not prejudge the issue as to what constitute structurally significant features of pitch.

In line with the suggestions presented at the beginning of this chapter, it is now possible to present each of the contonations associated with the various focus types (Appendix 4.6) as a sequence of Accents, each corresponding to one of the four terms in the Prominence system. The most frequently occurring accent combinations for each focus type are displayed schematically in Table 5.1; the relevant information for each token is given in the phonological transcriptions of Appendix 4.2.

Each Accent Unit can now be assigned a Focus Grade in accordance with the term in the Prominence system that its accent corresponds to. For example, an accent unit having Maximal prominence can be interpreted as having Contrastive focus, whereas one with Minor prominence will be interpreted as having Subsidiary focus. Semantic interpretation of the accents in this way enables the accent systems set up in Chapter 4 to be integrated with the systems and strategies set out in Chapters 2 and 3, into a unified account of the phonology and semantics of focus.



TABLE 5.1

## Focus Types as Sequences of Accent Units

NFC:1	(a)	//(Minimal 1,2)	/ Maximal 1	/ Minimal 1 //
	(b)	//(Minimal 1,2)	/ Major 2,4	/ Minimal 1 //
NFC:2		//(Minimal 1,2)	/ Maximal 1	/ Minimal 2 //
PBf:1	(a)	//(Minimal 2)	/ Major 2,1	/ Minimal 2 //
	(b)	//(Minimal 2)	/ Major 2,1	/ Minor 4 //
TB:1	(a)	// Minimal 1,2	/ Major 2,1,4	/ Minor 4 //
	(b)	// Minimal 1,2	/ Major 2,1,4	/ Minimal 2 //
TB:2	(a)	// Minimal 1,2	/ Major 2	/ Minor 1 //
	(b)	// Minimal 1,2	/ Major 2	/ Minimal 1 //
TB:3		// Minimal 1,2	/ Major 5	/ Minimal 1,2 //
TB:4		// Minimal 1	/ Maximal 1	/ Minimal 1 //
TB:5		// Major 2	/ Minimal 2	/ Minor 1 //
TB:6			// Minor 1	/ Minor 3 //
FC:1			// Minimal 1,2	/ Maximal 1 //
FC:2			// Minimal 1	/ Major 4 //
FC:3			// Minimal 1,2	/ Major 5 //
PBn:1			// Major 2,1, Max.1	/ Major 2,1,4, Max.1 //
PBn:2			// Minimal 1,2	/ Major 4 //
PBn:3			// Major 2	/ Minor 3 //
NEWS:1			// Maj 2,4,5, Mnl 1,2	/ Maj 1,2,4, Mnl 1 //
NEWS:2			//Maximal 1	/ Minimal 1 //
NEWS:3			//Maj 2,1,5, Minor 1,3	/ Minor 4, Minimal 2 //
NEWS:4			//Max 1, Maj 2, Mnr 1, Mnl 1	/ Maj 5, Mnr 3 //

Note: Where alternative accents are given for two accent units in a contonation, all permutations are attested (e.g. News:1). Where two separate sequences are given (marked (a) and (b)), only those combinations are attested for the contonation in question (e.g. NFC:1).

TABLE 5.2

Focus Types as Sequences of Focus Units

NFC:1	(a)	(Zero)	Contrastive	Zero
	(b)	(Zero)	Main	Zero
NFC:2		(Zero)	Contrastive	Zero
PBf:1	(a)	(Zero)	Main	Subsidiary
	(b)	(Zero)	Main	Zero
TB:1	(a)	Zero	Main	Subsidiary
	(b)	Zero	Main	Zero
TB:2	(a)	Zero	Main	Subsidiary
	(b)	Zero	Main	Zero
TB:3		Zero	Main	Zero
TB:4		Zero	Contrastive	Zero
TB:5		Main	Zero	Subsidiary
TB:6			Subsidiary	Subsidiary
FC:1			Zero	Contrastive
FC:2			Zero	Main
FC:3			Zero	Main
PBn:1			Main, Contrastive	Main, Contrastive
PBn:2			Zero	Main
PBn:3			Main	Subsidiary
NEWS:1			Main, Zero	Main, Zero
NEWS:2			Contrastive	Zero
NEWS:3			Main, Subsidiary	Subsidiary, Zero
NEWS:4			all	Main, Subsidiary

Note: Where alternative focus grades are given for two focus units in a contonation, all permutations are attested (e.g. News 1). Where two separate sequences are given, marked (a) and (b), only those combinations of focus grade are attested (e.g. NFC:1).

### 5.1.3 Focus Types as Sequences of Focus Units

On the basis of Table 5.2, each of the contextually-defined focus types used in Chapter 4 can be described in terms of focus constituents and focus grades.

#### CONTRAST (Final and Non-final):

The Contrast types are characterised by "Contrastive" focus grade on the focus unit corresponding to the single new word in the sentence, which may be preceded by a "Zero" focus unit. In the case of the single new word being non-final, there may be "Subsidiary" focus on the final focus unit (NFC:2).

#### PARTIAL BACKGROUNDING (Final and Non-final):

These types are characterised in general by having a lower focus grade on the focus unit corresponding to the 'backgrounded' word than on the adjacent focus unit. The exception is PBn:3, which has a minor accent in final position. PBf:1 and PBn:1, which include a high proportion of all backgrounding tokens (35/39), are differentiated from the Contrast types, by virtue of the fact that in the Backgrounding types there is smaller difference in focus grade between the adjacent focus units (Main/Subsidiary in PBf1; Main/Contrast in PBn1); whereas in the Contrast types the difference is in general between Contrastive and Zero or Subsidiary. This again suggests that interpretation of the focus status of a particular unit is dependent not only on the phonetic characteristics of that unit itself, but also on its phonetic prominence compared to that of the other units in the sentence. Thus Hypothesis 3 investigated in Chapter 4 can be accepted as being generally true, if it is interpreted as meaning that the two focus types are differentiated by the prominence patterns of the entire utterance, rather than by an opposition at one place in structure only:

Hypothesis 3: The prominence associated with (contextually defined) CONTRASTIVE focus is phonologically distinct from that associated with

narrow focus resulting from the deaccenting (semantic backgrounding) of an item or items in the sentence, and resulting default accent placement.

This finding also accords with results presented by Cullen (1983), who elicited the same textual sentences under a variety of conditions: 'contrastive' (i.e. the informant was required to correct an inaccurate assertion); as a response to a WH-question, where the only 'new' word in the response was the answer to the question; and as responses to WH-questions where the response contained varying 'intermediate' amounts of new material. The second condition thus corresponds approximately to the Partial Backgrounding of a non-final word, used in Chapter 4 (though see below for further discussion). Listeners then had to identify, from a list of options, the correct context when played recordings of the (decontextualised) responses. Cullen found that the 'correction' results were significantly better than the 'answer' results:

"This suggests that there is a fundamental difference in the two cases in the degree of stress. The distinction is produced by speakers and is functionally perceptible to listeners. This requires that the global non-normal [stress] class should be subdivided (at least) into contrastive stress and what we might call slot filling stress to give recognition to the two phonetically distinct types." (p.53).

#### TOTAL BACKGROUNDING:

This type displays a heterogeneous set of sequences, some of which overlap with those of other focus types (PBf, NFC, NEWS). The distinctive characteristics of this focus type only become apparent when the precise location of the Accent/Focus Centre is taken into account. This question is discussed below, in connection with Hypotheses 5 and 6 (5.2.2).



## NEWS:

As with Total Backgrounding, there is some overlap between News sequences and those of other focus types (e.g. News:3 and PBf:1b). On the other hand, one of the important News contonations (News:1, with 36/63 tokens) is generally differentiated from all other types, by having equal focus grades in the two highest units, e.g. !!Main!Main!|. This finding supports Hypothesis 2, since the 'News' type is consistently differentiated from the 'Contrast' types:

Hypothesis 2: The prominence associated with (contextually defined) CONTRASTIVE focus is phonologically distinct from that associated with (contextually defined) NEUTRAL focus.

## 5.2 Focus Unit and Focus Centre

### 5.2.1 Structure of the Focus Unit

In order to articulate more formally the relationship between the phonological and the semantic (focus) levels of this description, it is necessary to define focus-semantic structures corresponding to the phonological structures 'line' and 'accent unit' that were defined in Chapter 4, since the latter function as exponents of the former. For present purposes, the structure at the focus-semantic level which corresponds to the phonological 'line' can be taken to be the sentence, as traditionally understood, since the focus systems presented so far all have the sentence as the domain of descriptive statement.

It has been necessary to recognise constituents of the sentence at the focus-semantic level, referred to as focus units, representing the elements of structure at which the focus systems operate. The prime warrant for establishing the focus unit is to be found in the behaviour of listeners in Experiments 1 and 2: listeners underlined parts of the written text which they considered to have varying degrees of relative importance, and these

can be taken to correspond to the units that speakers and hearers operate with when signalling and interpreting the focus structure of utterances. The minimal extent of a focus unit can be taken to be a single semantic variable, such as "helping" in (2:18):

(2:18) !!Z was the witch !C HELPING !Z the soldier!!

The optimal extent of a focus unit would in theory be the whole sentence: a "News" sentence, where nothing is given in the context, could theoretically be realised as a single focus unit (though the instructions given to subjects in Experiments 1 and 2 did not encourage them to mark a sentence as a single focus unit). This issue is considered in 5.3 below.

In order to articulate the relationship between focus units and accent units, and also to describe the distribution of focus in relation to grammar and context, it is useful to regard all focus units except those with Zero focus as having a focus centre. The definition of 'focus centre' depends upon the concept of the focus hierarchy, according to which the potential of a word to be focussed is in part determined by the grammatical category to which it belongs. This concept is discussed and defined in 5.3 below. The focus centre is defined as the highest word in the focus hierarchy within the focus unit. Focus unit boundaries are defined as occurring immediately after a focus centre. This definition reflects the fact that in general the head of an English phrase is phrase-final, and that the focus centre coincides with the head of the phrase that its focus unit is coextensive with. In the case where a focus unit follows a focus unit that has no centre (i.e. where the earlier focus unit has Zero focus), the later focus unit starts immediately after the lexical category word preceding its focus centre. Examples are given below, in a semantic notation which uses the following conventions:

!! = sentence boundary; ! = focus unit boundary; UPPER CASE = focus centre; focus grade is indicated by letter at beginning of focus unit: C = Contrastive; M = Main; S = Subsidiary; Z = Zero.

In order to give a clearer picture of focus structure in the semantic

transcription of sentences, a further convention is adopted, whereby adjacent Zero Focus units are combined into a single Zero focus unit. This has no theoretical implications.

S6:FC !!Z someone's broken !C the WINDOW!!

Verb + particle combinations are treated as a single compound word for the purposes of focus centre and unit boundary placement:

S4:FC !!Z the car's !C BROKEN DOWN!!

The phonological realisation of focus centre and focus unit is assured by means of the following convention:

The lexically accented syllable of a Focus Centre constitutes an Accent Centre.

Thus the two sentences given might be realised phonologically as follows:

S6:FC //Mn12 some/Mn11 one's broken /Max1 the window//  
(c.f. TC and MM tokens)

S4:FC //Mn11 the car's /Mn11 brok/Max1 -en down//  
(c.f. MC and AG tokens).

It will be observed firstly that there are more accent units than focus units, due to the convention combining adjacent Zero focus units, and secondly that focus unit boundaries may fall at a different place from accent unit boundaries. Such disparities follow from the definitions of the two different units, and do not result in ambiguity of focus structure: once focus centres have been identified via the accent centres, the listener knows the number, sequential order and centres of focus units, and is able to locate focus unit boundaries by applying the convention that boundaries occur immediately after focus centres, together with its rider relating to Zero focus units.

### 5.2.2 Focus Centre Placement

It was observed in Chapter 4 that one of the factors which had to be specified when describing the phonetic realisation of focus types was the location of the Accent Centre. In Appendix 4.6, the conditions influencing its location were described in an ad hoc manner, using phonological, syntactic semantic and surface linear-order criteria. In this section, a more coherent statement of the conditions will be attempted, using syntactic and semantic categories only, by drawing on the notion of the Accentability Hierarchy that was discussed in Chapter 1 and incorporated explicitly in Hypotheses 4, 5 and 6, and implicitly in Hypothesis 1.

The basis for a formulation of accent placement in semantic/syntactic terms has been established in previous sections of this chapter, where the relationship between accent and focus was articulated formally by means of the constructs 'Focus Centre' and 'Focus Unit' and rules which map them onto 'Accent Centre' and 'Accent Unit'. Within this framework, conditions on the placement of the accent centre within the line, as in Chapter 4, can be reformulated as conditions on the placement of the focus centre within the sentence. Since the location of the accent centre is involved in semantic differentiation, viz. between different focus types, and thus reflects a semantic choice by the speaker, it is clearly appropriate to formulate the conditions on accent placement in semantic terms, as conditions on focus centre placement. The placement of focus centres, both within the focus unit and within the sentence as a whole, will now be considered for each focus type in turn.

### 5.2.3 Contrast

The three contonations identified for the Final Contrast focus type each consist of a final focus unit with one or more prefinal focus units. The question of focus centre placement does not arise for the prefinal units, since they have Zero focus and thus, by definition, no focus centre. In the final focus unit, the focus centre is always located on the 'contrasted'



word, i.e. the word that represents the only new semantic variable differentiating response from cue:

C: someone's broken the patio door

R: !!Z someone's broken !C the WINDOW!!

In the case of the Non-final Contrast focus type, the two contonations identified each consist of three focus units. In both, the Initial and Final focus units have Zero focus, thus no focus centre, and in the Pre-final unit the focus centre is on the 'contrasted' word.

The following rules can be stated for the Contrast focus types:

1. 'new' > Contrastive
2. 'given' > Zero

#### 5.2.4 Partial Backgrounding

The focus type in which sentence-final semantic variables in the response are presupposed in the cue is represented by a single contonation (PBf:1) consisting of three focus units. In all but one tokens (S8:MC), the Initial focus unit has Zero focus, therefore no focus centre. The Final focus unit consists of the words representing the backgrounded variables: "the window" in S6 and "hot to-day" in S8 (with two exceptions, discussed below). This unit has Subsidiary or Zero focus. The Prefinal unit, which has Main focus, consists of IF has BROKEN! in S6 and the phrase !IF they SAID! in S8. In S8 the focus centre is on the verb rather than the pronoun, which would accord with a notion of a 'focussability hierarchy' in which verbs are more readily focussed than proforms. Similarly, in S6 the focus centre is on the lexical verb rather than the auxiliary (see 5.3 below). The notion of a hierarchy is also relevant to the question of focus placement within the sentence, and the resultant division of the sentence into focus units. The following pattern is attested for S6:

S6:PB :IZ someone's IM BROKEN IZ the window!!

but not (b), which also achieves the backgrounding of the presupposed variable:

S6:PB \*IM SOMEONE's IZ broken the window!!

On the basis of this evidence, it could be argued that in this focus type focus is on the rightmost non-presupposed word; or alternatively that focus is on the 'highest' word in the focussability hierarchy, in which verbs are more focussable than pronouns. Further relevant data is provided by SB:

C: Wow, some weather, this. Doesn't feel like it'll cool off till tomorrow.

R: They said it would be hot today.

In this example, due to Ladd (1980, p.81), the backgrounded variables correspond to "the weather is hot today", and Ladd suggests that the accent will therefore be on "said", a placement which could be accounted for by either of the explanations just mentioned. Ladd's prediction is born out by four of the seven tokens elicited, which have the following focus structure:

SB:PB :IM they SAID IZ it would be hot today!!

The remaining three tokens have the following structures:

SB:PB:PW: :IZ they said IM it WOULD IZ be hot today!!

SB:PB:TC: :IZ they said IM it would be HOT IS TODAY!!

SB:PB:MC: :IM they SAID IM it would be HOT IZ today!!

The PW token conflicts with the two alternative explanations offered above, since the highest focus is centred on a grammatical category word, low in the focussability hierarchy, and not even on the rightmost one ("be"). This

token resembles a number of Total Backgrounding tokens (see below). The TC and MC tokens are problematic for a more fundamental reason: here, the highest focus is centred on one of the presupposed variables ("hot"), thus calling into question the very notion that presupposed items will be backgrounded and deaccented. However, when asked to assess their performance for acceptability, TC and MC gave themselves 1/6 and 0/6 respectively, whereas the other three informants who did this gave 5 or 6/6. It therefore seems legitimate to consider the TC and MC tokens as erroneous for this focus type.

Apart from the three tokens just mentioned, the PBf focus type can be accounted for by the following rules:

1. 'new' > Main / \_\_\_\_\_ ! ['given'] !!
2. Focus centre is on highest 'new' word in focussability hierarchy.
3. 'given' > Subsidiary or Zero / ['new'] !\_\_\_\_\_ !!
4. 'new' > Zero / !! \_\_\_\_\_ ! ['new']

Of cases where the backgrounded variables are non-final in the sentence, 21/28 occur with contonation PBn:1, which generally has two focus units, the Final unit having the highest or equal highest focus. In the Prefinal unit, the focus centre is on the (only) lexical category item, which itself represents the presupposed semantic variable:

S1: C: Is there someone to take my luggage upstairs?

R: !!M there's a MAN IC in the LOBBY!!

S4: C: Let's go for a run in the car.

R: !!M the CAR's IC broken DOWN!!

S5: C: Describe the sun that morning.

R: !!M the SUN IC was SHINING!!

S9, which is also represented in PBN:1, differs from the above three sentences in two respects. Firstly, there is non-presupposed material both before and after the presupposed item: "coming up" and "meeting" are new, while "it" (referring to the "that") and "faculty" are presupposed. Four accent units can be identified, with three corresponding Focus units:

S9: C: Hasn't the faculty voted on that yet?

R: // it's com/-ing up at / the facul- / -ty meeting //

!!F it's coming UP !F/Z at the faculty IC MEETING !!

The 'new' information in the initial focus unit has Main focus. The remaining focus units, corresponding to the given (backgrounded) + new sequence "at the faculty meeting", show a similar pattern to the corresponding sequence in Ss 1,4 and 5 (Focus + Contrastive), though in some tokens of S9 the backgrounded item has Zero focus. This might be explained either as focus 'subordination' induced by the preceding 'new' unit, or as a particular feature of compound words: further data is needed.

The PBN tokens discussed so far can be accounted for by the following rules, which generate a typical PBN pattern:

1. 'new' > Contrastive / \_\_\_\_\_ !!

2. 'new' > Main / \_\_\_\_\_ !['given']!

3. 'given' > Main / \_\_\_\_\_ !['new']!!

4. Focus Centre is on highest word in focussability hierarchy.

PBN:2 differs from PBN:1 in having Zero focus at the Prefinal focus unit, i.e. Rule 3 above is replaced by:

3(b). 'given' > Zero / \_\_\_\_\_ !['new']!!

PBN:3 resembles PBN:1 in having Focus at the Prefinal focus unit. However, the accent at the Final unit only has minor prominence according to the



criteria used, and so the Final focus unit has Subsidiary focus. This clearly deviates from the pattern for the rest of the Partial Backgrounding types, since the highest focus is on the backgrounded item, and will be discussed separately (see 5.6 below).

### 5.2.5 Total Backgrounding

In contonation TB:1, the highest focus grade is on the Prefinal focus unit, the Final unit having Subsidiary focus. This pattern could be formulated in similar terms to those used for Partial Backgrounding:

1. Assign a Focus Centre to the last lexical category word.
2. Assign a Focus Centre to the penultimate lexical category word.
3. Assign Main focus to the Prefinal unit.
4. Assign Subsidiary or Zero focus to the Final unit.

This formulation accounts for the following attested TB:1 structures:

S1: I had an appointment with a Mr Smith in the lobby but I can't see him anywhere.

!!Z there's IM a MAN IS in the LOBBY !!

S6: I wish someone would break that horrible window in the front room, then we could have a nice new one put in.

!!Z someone's IM BROKEN IS the WINDOW !!

S7: Has Mark read Lord of the Rings yet?

!!Z he doesn't IM READ IS BOOKS !!

This description also accounts for Focus centre placement in TB:3, TB:4 and TB:6, the differences between the four contonations being in focus grade or exponent, rather than Focus centre location:

TB:3 !!Z someone's IC BROKEN IZ the window !!

TB:4 !!Z someone's IM BROKEN IZ the window !!

TB:6 !!Z there's IM a MAN IS in the LOBBY !!

However, difficulties arise when accounting for the six tokens in TB:2, and also one TB:1 token. TB:2 consists entirely of S5 tokens, having the following focus structure:

S5: If the sun had been shining I'd have felt a lot happier.  
!!Z the sun IM WAS IS,2 SHINING I

Given such a structure, TB:2 conflicts with Rule 2, which assigns a focus centre to the penultimate lexical category word, and predicts the following, unattested, structure:

S5: \*!IM the SUN IS was SHINING !!

A further counterexample to Rule 2 is provided by one token of S1:

S1:TK !IM there IS IS a man in the LOBBY!

These suggest the following revision to Rule 2:

2': Assign a focus centre to the auxiliary.

Rule 2' accounts for the S5 tokens, and explains S1:TK. The fact that the remaining S1 tokens, and all the S6 tokens, do not have a focus centre on the auxiliary can be plausibly accounted for by the fact that the printed version of the sentences used by informants had contracted auxiliary forms (which was thought desirable in order to encourage a colloquial reading for the other focus types). Informants may therefore have thought that to use the full form of the auxiliary might constitute an infringement of their instructions. Rule 2' predicts that speakers will use the full form of the

auxiliary, creating a syllabic nucleus which can carry an accent centre and thus mark the auxiliary as a focus centre. According to the revised rule, in the absence of the experimentally induced constraint that has been mentioned, the following structure is predicted for S6:

S6: !!Z someone !M HAS !Z broken !S the WINDOW !!

which, on the basis of the present author's intuitions, seems a likely reading: further empirical investigation is therefore indicated. The revised rule also predicts that the structure attested in S1:TK would be the preferred structure if the constraint mentioned were absent.

However, the revised rule runs into difficulties with S7:

S7: Has Mark read Lord of the Rings yet?

!!Z he doesn't !M READ !S BOOKS !!

The auxiliary is not a focus centre, whereas the rule predicts the unattested (and intuitively implausible):

S7: \* !!M he DOESn't !Z read !S BOOKS!!

The unacceptability of the asterisked structure seems to be related to the nature of the cue, since intuitively it seems more likely as a response to the following:

S7: If Mark didn't read so many books, his eyesight wouldn't be so bad.

It is at present unclear how this semantic distinction should be formulated. Similar examples are discussed by Gussenhoven (1983 p.45ff). He refers to the focus type described here as "Total Backgrounding" as one where there is "polarity focus", i.e. the speaker is focussing on the affirmative-negative polarity of the sentence (cf. also Wells and Local 1983, p.710). In addition, it is not "counter-assertive" (equivalent to our "Contrastive"), but rather "counter-presuppositional". His claim for

this focus type is:

"Nucleus Carriers are (i) the penultimate verb phrase element (modal auxiliary, grammatical auxiliary, lexical item), unless there is only one item, in which case that is the Nucleus Carrier; (ii) prepositions; and (iii) the verbal to-particle." (p.51).

However, this formulation clearly fails to account for the attested S7 structure, which has the focus centre on the final verb phrase element, even though there is an earlier auxiliary. Nor apparently does it account for his own very similar example (126) (p.54):

A: Have you seen Brideshead Revisited?

B: I don't WATCH television.

In order to capture the distinction noted above, it will be necessary to introduce a further semantic/pragmatic differentiation, which may possibly refer to the 'distance' between the presupposition being contradicted and the response itself: in the S7 cue-response pair used in the experiment, "books" is not explicitly mentioned, and so an inference has to be made from "Lord of the Rings" to "books". This is also true of "Brideshead Revisited" and "television" in Gussenhoven's example. On the other hand, in the alternative cue suggested for S7, and the alternative cues given by Gussenhoven, all of which result in a preferred focus centre ("nucleus carrier") on the auxiliary, these words actually occur, and so do not have to be inferred. The responses might thus be viewed as more nearly "counter-assertive" (more similar to the "Contrast" focus type used in Chapter 4).

Further evidence for such a distinction is provided by the S1 tokens mentioned earlier. It was noted that in the majority of cases the pre-final focus centre occurred on "man", which was assumed, when the cue sentences were devised, to be presupposed by "a Mr Smith":

S1: I had an appointment with a Mr Smith in the lobby but I can't see him anywhere.

!IZ there's IM a MAN IS in the LOBBY !I



It was suggested that informants would by preference have accented the auxiliary, but were constrained by the printed format. However, it is noteworthy that no tokens have an accent centre on the preposition "in", which according to Gussenhoven would be the best candidate for "Nucleus Carrier" in such a context. An alternative interpretation, in line with the account just suggested for S7, would be that the pre-final focus centre, and the highest focus, can occur on a presupposed lexical category word, in cases where there is "inferential distance" between cue and response: in S1, the inference being that Mr Smith is a man.

The second rule of focus centre assignment for Total Backgrounding could then be reformulated:

2a) Where there is no inferential distance between context and response, assign a focus centre to the auxiliary (if there is one); (or to a preposition or to-particle, following Gussenhoven (1983) and Wells and Local (1983), although the present study offers no evidence for this);

2b) Where there is inferential distance between context and response, assign a focus centre to the lexical head of the penultimate major phrasal category.

2a) accounts for S5; and for S6, assuming that the auxiliary would have been accented (under normal circumstances). 2b) accounts for S7 and S1 (except for S1:TK). It must be emphasized that these formulations are highly tentative, due in part to the considerable problems involved in obtaining reliable data against which to test hypotheses relating to this particular focus type. The material obtained in the present study has revealed a diversity of patterns which are not susceptible to straightforward interpretations of the kind that have been advanced on the basis of invented examples and unsystematic observations, e.g. by Gussenhoven (1983) and Wells and Local (1983). It is of interest in this respect that in his own experimental study, Gussenhoven records having had considerable difficulty in obtaining precisely this type of data (p. 160).

The implication is that such phenomena are best studied in recordings of naturally occurring talk rather than in invented examples or in the controlled data used in the present study and by Gussenhoven.

In this respect it is interesting to consider Terken's finding for Dutch (1985, p.22), that a 'given' expression is twice as likely to be accented when the preceding turn contains more than one referent. In such a sequence, the speaker of the second turn has, in theory, more than one item to 'background', and so his turn is quite similar to the 'total backgrounding' condition. It is therefore worthy of note that speakers tend to place the accent on a given referring expression, rather than on a semantically 'empty' word such as a preposition or auxiliary. This may merely indicate a difference between English and Dutch: the issue could be resolved by running Terken's experiment with English subjects.

#### 5.2.6 "News" and the Focus System

The "News" focus type differs in several important respects from the other focus types considered above. In Chapter 3 it was suggested that News utterances do not share the prominence/focus system that operates with the other focus types. This was argued for on the basis of the distribution of phonetic features in conjunction with listeners' judgements of focus. It was further suggested that the peculiarity of News utterances could be related to the fact that in all the other utterance types, focus has an anaphoric function, showing that a particular semantic variable is, or is not, to be treated as anaphorically related to a similar or identical item in the context (in this study, specifically in the prior turn); whereas in the News utterances, anaphora is not at issue, since by definition the utterance contains no lexical items that are similar or identical to ones in the context. If this view is correct, a possible consequence would be that the patterns of phonetic prominence in News utterances are determined not at all by focus considerations, but solely by the interplay of other systems (delimitative, affective, grammatical etc.). It would therefore be predicted that the News responses in the Chapter 4 data will not be amenable to analysis within the focus/prominence system, because they will

display unsystematic overlap with other focus types, and thus will not be kept phonologically distinct. According to this prediction, Hypothesis 2 would not, then, be supported:

Hypothesis (2): The prominence associated with (contextually defined) CONTRASTIVE (or maximally narrow) focus is phonologically distinct from that associated with (contextually defined) NEUTRAL focus.

This issue is taken up further when the conditioning of focus accents is considered (see 5.4.4 below).

### 5.3 Grammatical Factors in Focus Assignment

#### 5.3.1 Grammatical Categories

The News focus type is particularly important for the evaluation of a number of the experimental hypotheses, relating to semantic and grammatical conditioning of accent/focus placement. Examination of the phonological and focus transcriptions of each News token reveals even less uniformity in the prominence and focus patterns associated with the News focus type than is suggested by the schematic summaries in Tables 5.1 and 5.2. These transcriptions, found in Appendix 4.2, permit the evaluation of Hypothesis 1:

Hypothesis 1: There is phonological motivation for subcategorising sentences into two types, PRESENTATION and PREDICATION, since they are treated differently by speakers under the same focus conditions.

The hypothesis is not supported: the focus patterns of all 14 'Presentation' tokens (i.e. S1 and S2) are also found with 'Predication' tokens (S3 - S9), indicating the two semantic sentence-types cannot be distinguished by their focus patterns. This does not preclude the possibility, that Presentation and Predication sentences are distinguished at the level of phonological realisation of focus pattern (see 5.4.3 below).

The News focus type provides the neutral focus context required for testing Hypothesis 4:

Hypothesis 4: Indefinite non-generic NPs which are not members of a specified subset, are always focussed, and therefore phonologically prominent.

The sentences relevant to this hypothesis are S1, S2 and S7, which respectively include the indefinite NPs "a man", "a man" and "books". In S1, "a man" is a focus centre in 6/7 tokens, and is the (single) highest focus grade in the sentence in those six tokens. In S2, "a man" is a focus centre in 5/7 tokens, the single highest focus grade in 2/7 and equal highest grade in 4/7. In S7, "books" is a focus centre in all seven tokens, and has the single highest focus grade in all but one. The hypothesis is generally supported: indefinite NPs are focussed (with the corresponding prominence accent) in 18/21 tokens. However, it is noteworthy that the hypothesis finds least support from the intransitive sentence, S2, where the indefinite NP is in non-final position. This suggests that the semantic basis of this hypothesis, derived from Chafe's arguments (see Chapter 1, Section 1.3), is somewhat suspect: it may perhaps be the linear position of the NP (in S7) or the choice of a special syntactic structure (in S1) that ensures that the indefinite NP has the highest focus grade in the sentence.

### 5.3.2 The Focus Hierarchy

Such considerations are also relevant to the evaluation of Hypothesis 5:

Hypothesis 5: grammatical constituents are ordered in an accentability hierarchy.

The News focus type provides the main testing round for the notion of a focussability/accentability hierarchy, since it is only in this focus type that no items in the response are anaphorically relatable to items in the context: the phonetic realisation of members of each lexical category can



therefore be taken to reflect the intrinsic potential for focus, and thus phonological prominence, of that category. The information relevant to the evaluation of the hypothesis is set out in Appendix 4.2, which contains the focus transcriptions of all News tokens. Inspection of News tokens of all nine sentences reveals that certain categories never form focus centres: these include prepositions (but excluding verb particles), articles, pronouns (including "someone") and auxiliary verbs. Scrutiny of the tokens of each sentence in turn indicates which of the categories that constitute focus centres have the highest focus grade. This information is set out in Table 5.3 below.

TABLE 5.3

S1:	Indefinite NP >/= Definite NP
S2:	Indefinite NP = Lexical V
S3:	Definite NP = Lexical V
S4:	Definite NP > Lexical V
S5:	Definite NP = Lexical V
S6:	Definite NP >/= Lexical V
S7:	Indefinite NP > Lexical V
S8:	Adjective >/= Lexical V
	Adjective >/= Adverbial
	Adverbial = Lexical V
S9:	Definite NP >/= Lexical V

Key: > : "has a higher focus grade than"

= : "has the same focus grade as"

On the basis of Table 5.3, the following hierarchy of focussability can be proposed, where a category will, in the News context, have a higher focus grade than those below it:

## FOCUS HIERARCHY:

Indefinite NP

Definite NP; Adjective

Lexical Verb; Adverb

Auxiliary; preposition; pronoun; article.

As it stands, the hierarchy fails to account for account for S2, S3 and S5, in which the lexical verb does not have a lower focus grade than the noun. The three sentences in question are all verb-final intransitive sentences, suggesting that the hierarchy is subject to the following linear order condition:

Where a lexical verb is sentence-final, Lexical V = NP in focussability.

This modification to the hierarchy finds support in the notion that in English the end of the sentence is the preferred position for focus (Quirk, Greenbaum, Leech and Svartvik 1972), whilst running counter to the claims of Schmerling and others that in a 'news' context, such sentences will have higher stress/focus on the noun (see Chapter 1 above). However, S4, which is also intransitive, shows the pattern predicted by Schmerling, rather than the one shared by the other three intransitive sentences. There is no well motivated explanation for this anomaly at present, though it might be speculated that the 'intrinsic' accentual pattern of intransitive sentences is modified in S4, under the influence of affective prosodic features conveying the speaker's sense of personal dismay (not apparent in S3, where the unfortunate event is less personal).

In conclusion, it is proposed that in the News focus type, the relative prominence of words in the utterance is determined by the focus hierarchy and "final verb condition" stated above. The place of a lexical category in the hierarchy can be taken to reflect the intrinsic information value of (members of) that category, in relation to the other categories in the hierarchy. In the News focus type, no item in the sentence is 'given', i.e. anaphorically relatable to other items in the context, and so the entire

content of the sentence is 'new', and therefore focussed. It is suggested that under these conditions, the skeletal prosodic shape of the utterance is determined by accent centres assigned according to the focus hierarchy and final verb condition. In the News context, the speaker obviously does not have to give a clear phonological indication of the focus status of different words within the sentence, since the intrinsic focus value of lexical categories will be part of the listener's knowledge of English. It is therefore to be expected that there will be little specific phonological marking of internal focus structure in the News tokens. This expectation is born out by the wide range of different focus/prominence patterns found, even between tokens of one sentence, in the News focus type (see Appendix 4.2). Furthermore, it might be anticipated that the role of other prosodic systems, e.g. affective or interactive, will be correspondingly more evident in the News type than in the other focus types, where the demands of the anaphoric focus system may limit the phonetic resources available to those other systems.

Evidence for the focus hierarchy deriving from focus centre placement in the Total Backgrounding focus type has been discussed in an earlier section of the chapter. It was hypothesised in Chapter 1 that in cases of Total Backgrounding, the highest focus/prominence would be on the lowest item in the hierarchy, since this carries the least information value. This hypothesis was not convincingly supported by the data, since it was found that the lexical verb frequently had the highest focus. Nevertheless, even lexical verbs are not at the top of the hierarchy, so the fact that they are accented in preference to nouns may be taken as partial confirmation of the validity of the hierarchy.

The hierarchy was also invoked in accounting for focus centre placement with the Partial Backgrounding focus type, which is relevant to the assessment of Hypothesis 6:

Hypothesis 6: In cases of deaccenting, the accent may shift rightwards or leftwards, in accordance with the principle that accent goes on the most accentable constituent of the focus unit.



This hypothesis can be evaluated on the basis of S9:PB tokens. It is predicted that the final focus centre will not fall on the first syllable of "faculty", which is the lexically accented syllable of the compound noun "faculty meeting", because "faculty" is given in the cue:

C: Hasn't the faculty voted on that yet?

R: It's coming up at the faculty meeting.

The prediction is born out in all tokens: the final accent, centred on the first syllable of "meeting", is always of higher prominence level than the accent centred on the first syllable of "faculty". In terms of the hypothesis, this may be interpreted as follows: the unmarked ('News') location of the focus centre in the phrase "at the faculty meeting" is the highest word in the focussability hierarchy, which is the compound noun "faculty meeting", the accent centre being on "fac-" since this is the lexically accented syllable. However, this compound is made up of two semantic variables, and in the PB context the first of these ("faculty") is backgrounded. The next highest word in the hierarchy is "meeting", which is a noun and thus higher than a preposition or article (see Table 5.4), and so this becomes a focus unit in its own right, with a Major accent centred on its lexically accented syllable, as in the following example:

MC: //Mn11 it's com-/Maj2 -ing up at /Mn12 the facul-/Maj3 -ty meeting//

!IM it's COMING UP !Z at the faculty IM MEETING !!

Kruyt (1985, p.56ff) provides relevant data on the accentability of different word-classes, for Dutch. Her data suggests that, at least in the case of verbs, it is not simply the grammatical category that determines accentability, but also semantic content: verbs with a 'disagreeable' connotation are more likely to be accented than verbs which lack this connotation (p.61). This finding appears to run counter to the observation made for English, that 'disagreeable' verbs tend not to be accented in intransitive sentences (Allerton and Cruttenden 1979). Kruyt concludes that accentability is a property of individual words, rather than determined by word class, although there is a strong statistical relation



between accentability and word class. This she attributes to the differing informational content of different word classes (p.77).

## 5.4 Conditioning of Focus Accents

### 5.4.1 Introduction

The exposition of the accentual systems has to this point been concerned with differentiation in placement of focus/accent centres and with differentiation in the sequence of focus/prominence grades selected. It has been shown how these aspects of the accentual system relate to differences in focus type and in grammatical category. There was also some discussion in Chapter 4 of certain 'low-level' phonological aspects of the system, relating to the distribution of level and falling pitch, which resulted in the formulation of a set of phonological conditions that have been incorporated into the accentual systems. In order to complete the description of the accentual system and the evaluation of the hypotheses under consideration, it is necessary to consider the factors which determine the speaker's selection of a particular accent from those available for the focus/prominence grade chosen. For example, what causes a speaker to choose the Major 2 accent rather than the Major 4 accent in Prefinal position, or Minimal 2 (i.e. rising) rather than Minimal 1 (level) in Final position?

Selection of accents may be conditioned at three different levels. Firstly, at the focus-semantic level, the choice of accent may correlate with the focus type of the utterance: for example, it might be found that Minimal 2 (Final) is used only with one focus type (e.g. Non-final Contrast), whereas Minimal 1 (Final) is used with all focus types. Secondly, at the grammatical level, choice of accent may correlate with the grammatical structure with which it cooccurs: for example, it might be found that a particular accent or subset of accents is used with sentence-final adverbials. Thirdly, at the phonological level, choice of accent at one place in structure (e.g. Pre-final) may be conditioned by choice of accent

at a different place (e.g. Final), or by the number of accent units in the line. These three possibilities are now considered.

#### 5.4.2 Focus-semantic Conditioning of Accents

It can be seen in Table 5.2 above that in a number of cases one focus structure (i.e. a particular sequence of focus grades) is shared by contonations representing different focus types, thus raising the possibility of ambiguity between the focus types concerned. It remains to be seen whether this ambiguity is genuine, or whether the focus types are in fact distinguished at the level of phonological exponency, through the selection of consistently different accents. The relevant information is presented in Table 5.1 above. Potentially ambiguous prominence structures will be considered in turn.

// (Minimal ) / Major / Minimal //

This is found with a large number of different contonations: NFC:1b, PBf:1b, TB:1b, TB:2b, TB:3, NEWS:1, NEWS:3. TB:3 is differentiated from the others, since it alone has 'Major 5' Pre-final. The remaining contonations fall into two groups: PBf:1b, TB:1b and NEWS:3 all potentially share the structure // Major 2,1 / Minimal 2// (i.e. with a rising final accent); whereas TB:2b, NFC:1b and NEWS:1 potentially share the structure //Major 2,4 / Minimal 1//. There is thus a potential for ambiguity among the members of each of these groups, though not across groups, in respect of phonological exponents. They may, however, be disambiguated by having different focus centre locations (see 5.2 above).

//(Minimal) / Maximal / Minimal //

Four contonations share this prominence structure: NFC:1a, NFC:2, TB:4, NEWS:2. NFC:2 is distinguished from the others by having a final rising accent, 'Minimal 2'. There is potential for ambiguity between the other three, though again this may be resolved by the conventions for focus centre placement. It may also be noted that in terms of numbers of tokens,

TB:4 and NEWS:2 are relatively unimportant compared to the contonations found with those focus types.

// Minimal / Major / Minor //

Five contonations share this prominence structure: PBf:1a, TB:1a, TB:2a, NEWS:3, NEWS:4. NEWS:4 is distinguished from the others by having a final falling-rising accent, 'Minor 3', as is TB:2a by having a final falling accent, 'Minor 1'. There is a potential ambiguity among the remaining three, which may all have the structures // Major 2,1 / Minor 4//, with a final rising accent, although once again there may be differences arising from focus centre placement.

// Minor / Minor //

There is potential ambiguity between NEWS:4 and TB:6 with the structure // Minor 1 / Minor 3//, (though it may be noted that TB:6 is represented by one token only).

//Minimal / Major //

This structure is shared by FC:2, FC:3, PBn:2, NEWS:1. FC:3 differs from the others in having final 'Major 5', a falling-rising accent, but there is potential ambiguity between the other three, with the structure //Minimal 1 / Major 4 //.

// Major / Major //

This structure is shared by PBn:1, NEWS:1 and NEWS:4. NEWS:4 differs from the other two in having final 'Major 4', but there is a potential ambiguity between PBn:1 and NEWS:1, with the structures //Major 2 / Major 2,1 //.

#### 5.4.3 Grammatical Conditioning of Accents

Evidence that grammatical factors are affecting accent choice is found when

two grammatically different sentences uttered under the same focus conditions have the same focus/prominence structure but differ in the accents selected as exponents. Firstly, focus types having more than one contonation were examined, to see if the different contonations co-occurred with correspondingly different grammatical structures. Secondly, those contonations were examined in which, according to Table 5.1., speakers have a choice of accent for a particular place in structure, to see if the choice of accent is determined by grammatical factors. The findings of this investigation are summarised below according to the grammatical structures/categories which are apparently implicated in choice of accent. The relevant information about the distribution of sentences in relation to contonations is given in Table 4.5.

#### EXISTENTIAL 'THERE'

This grammatical structure is found in S1 only. There are two indications that the structure may be prosodically marked. Firstly, the FC:2 contonation has five of the seven S1 tokens but no tokens of any other sentence. This contonation differs from the more frequently used FC:1 in having no step up in pitch to the final accent centre. This preference for using Final 'Major 4' to realise Final Contrast can therefore be regarded as a phonological property of the 'there' construction. The same is true of the use of Final 'Major 5' and 'Minor 3' in the News focus type: six of the seven S1 tokens are found with the News:4 contonation, which has these final accents and which does not occur with any other sentence. It therefore appears that the 'There' construction is distinguished from the other grammatical structures tested in that it takes a final falling-rising accent in the 'News' focus type. This finding suggests that Hypothesis 1 is supported with regard to one of the two types of 'Presentation' sentences i.e. those having the Existential 'There' construction: there is no evidence, however, that the other type, represented by S2, is phonologically distinct from other intransitive sentences (Ss 3,4,5). The phonological findings reported above indicate a formulation in syntactic terms, rather than the semantic terms of Hypothesis 1:

Hypothesis 1: There is phonological motivation for subcategorising



sentences into two types, PRESENTATION and PREDICATION, since they are treated differently by speakers under the same focus conditions.

The revised formulation is that the Existential 'There' construction is prosodically distinct from other constructions, since it is pronounced differently under identical focus conditions. The preference for a syntactic formulation of prosodic differences between sentence types, over a semantic formulation, is supported by the findings below on intransitive sentences and transitive sentences, which are readily characterised in syntactic terms.

#### ADVERBIAL (FINAL)

S8 is the only sentence ending with an Adverbial. There are two pieces of evidence that this grammatical category is marked prosodically in that it requires a rising accent under certain conditions. Firstly, S8 is the only sentence which does not occur with the NFC:1 contonation, which ends with a low level accent: all S8 tokens occur with NFC:2, which ends with a rising accent. Secondly, all S8:NEWS tokens occur with the NEWS:3 contonation, which is characterised by final rising accents - a distribution it shares with S3 only. The suggestion that the final adverbial invariably takes a rising accent finds further support in the fact that the PB tokens of S8 also all end in a rising accent, though this is in fact the case with all PBf tokens.

#### VERB-FINAL INTRANSITIVE

Of the 28 NFC tokens of verb-final intransitive sentences (Ss 2,3,4,5), only one occurs with NFC 2, whereas all the other sentences are represented in that contonation. This suggests a condition whereby a final rising accent does not occur on a sentence-final verb. It is supported by the fact that the only verb-final intransitive sentence tested under the Total Backgrounding condition (S5) occurs not with the final-rise contonation TB:1 (except for 1 token), but with TB:2, in which it is the only sentence

represented. It is not, however, supported in the News focus type, since both S3 and S5 (though not S2 and S4) are found with NEWS:3, which ends with a rising accent. This may possibly indicate that the News focus type has to be regarded separately from the other focus types in some respects.

#### NOUN-FINAL TRANSITIVE

In the News focus type, S6 and S7 only occur with NEWS:1, which has falling accents in final position. This suggests that where a sentence ends with an direct object NP, a falling accent is selected for the accent unit corresponding to that NP.

#### INDEFINITE NP

In the Final Contrast focus type, the only three sentences that occur with a final falling-rising accent (FC:3) are the only sentences which contain an indefinite NP (Ss 1,2,7). It is possible that the occurrence of the falling-rising accent is conditioned by the semantic difference that this creates between these three sentences and the others tested in this focus type. When a response contains an indefinite NP, the fact that it contains only one semantic variable different from the cue does not mean that the response contradicts the assertion of the cue. The cues and responses in question are as follows:

S1: There's a man in the lift.  
There's a man in the lobby.

S2: A man vanished, you say.  
A man appeared.

S7: John gets through a lot of magazines.  
Yes, but he doesn't read books.

In each case, the assertion contained in the response does not preclude the

possibility that the assertion contained in the cue is also true. For example, the fact that there's a man in the lift does not preclude the fact that there's a man in the lobby. By contrast, in the following cue-response sets, the truth of the response precludes the truth of the cue (or, in the case of S3, supersedes it):

S3: I hear Macmillan's been taken ill  
Macmillan's died.

S4: The car's working fine, isn't it?  
The car's broken down.

S5: I'm pretty sure the sun was hidden by a cloud.  
The sun was shining.

S6: Am I right in thinking someone's broken the patio door?  
Someone's broken the window.

The difference between the two sets of sentences is attributable to the fact that in the first set, the assertion is predicated of an indefinite NP: when this indefinite NP is repeated in the response, it is not necessarily the case that the two NPs are identical in reference, even though they are identical in sense. The respondent can suggest that both assertions are true and thus avoid contradicting the prior speaker. It is suggested that the falling-rising accent may have this function (among others).

#### 5.4.4 Phonological Conditioning of Accents

In the accent systems set out in Table 4.5, most prominence categories at each place in structure are represented by more than one accent. In the discussion of grammatical and focus-semantic conditioning, it was suggested that some of these alternatives have phonological value, either in distinguishing focus types or in marking particular grammatical categories

or structures. It will have been noted that in all these cases, the oppositions are between accents having different pitch directions: falling, rising or falling-rising. The different falling and level accents were not found to be in functional opposition to each other in this way, and so it is necessary to investigate the possibility that they are variants of a single term in the phonological system. For instance, it may be found that Final Major accents 1,2,3 and 4 are variants of a single Major prominence accent that is in opposition to one other Major prominence accent (Major 5, which has falling-rising pitch) as well as to the accents that are exponents of the other three prominence categories. If this were found to be the case, the number of terms in the phonological systems of accent could be reduced. Unfortunately it is not possible, on the basis of the present data, to present detailed statements of phonological conditioning of the kind that would be required to warrant such a modification to the accent systems. For such a statement it is necessary to have material in which other phonological variables are strictly controlled, e.g. number of syllables in the accent unit, phonological length of accent centre syllables etc. In a future study, such material could be elicited and analysed. The sentences elicited for the analysis in Chapter 4 were devised with semantic and grammatical variables, rather than to provide phonologically comparable utterances of the kind required for the type of statement under discussion. Indeed, it was impossible to know which phonological factors were relevant until the analysis in Chapters 4 and 5 was complete. Nevertheless, it is possible on the basis of the present data to offer some observations and suggestions as to the kinds of phonological conditioning that may be involved. These may provide a starting point for future research.

#### FINAL MAJOR (falling pitch).

In the News focus type, the following distribution of (falling) Major accents is found in final position :

Maj1	Ss 4,6,7,9
Maj2	Ss 5,6,9



Maj4 has no step up to [A] from the pre-[A] syllable ([-P2u]). It is therefore not surprising, perhaps, to find it in final focus units which are directly preceded by another focus centre, without any intervening 'grammatical' words: "man appeared" and "read books". It is likely that a focus centre will be pitch prominent, and so there is less likelihood of the pitch dropping down after the prefinal focus/accent centre only to jump up again to the final focus/accent centre. Such pitch change seems to occur more freely when there are intervening grammatical words between the two focus centres, such as 'was' in S5:

!! the SUN !was SHINING!!

Although the evidence is by no means conclusive, it seems phonetically plausible in general that an accent that is [-P2u], (i.e. Prefinal Maj4, Mnr1, Mnl1, Final Maj4, Mnr1, Mnr2, Mnl1) is likely to occur when there is little or no intervening material between its accent centre and the preceding accent centre.

#### NFC:1b

It was noted earlier that this contonation overlaps potentially with other contonations, and thus indicates that the accent system is not functioning to keep the Contrast focus type distinct. In fact, most of the tokens found with NFC1b, i.e. with a Major rather than a maximal accent on the contrasted word, are from S3 and S5. In both sentences, the accent centre syllable of the contrasted word is phonologically short ("Macmillan" and "the sun"), and is the second syllable in the line. It may therefore be difficult for the speaker to mark this accent unit as tempo prominent: there is not enough preceding material to achieve an allegro stretch before the accent centre, and the phonologically short vowels are perhaps difficult to extend. For these reasons, it may be legitimate to regard the opposition found elsewhere between Maximal and Major accents as suspended under the phonological conditions specified.

In conclusion, it should be noted that those Major accents that lack loudness prominence (Maj3, prefinal and final) occur so rarely that they will almost certainly come to be regarded as variants of another accent, possibly conditioned by one of the other prosodic systems, e.g 'affective'. In order to substantiate this hypothesis, further research is needed on the phonetic correlates of affects.

## 5.5 Broad and Narrow Focus

### 5.5.1 Ambiguities among Focus Types

In 5.4.2, it was seen that several prominence structures remained potentially ambiguous as to the focus type represented, even when differences in phonological realisation had been taken into account. As has been indicated already, some of these theoretical ambiguities may not in fact arise due to the differences between focus types in conventions for focus centre placement. In other cases, it was noted that one of the contonations involved in the potential ambiguity was, at least on numerical grounds, relatively insignificant. Nevertheless, any potential ambiguity between focus types points to a shortcoming in the accentual systems that have been proposed, since it was demonstrated in Chapter 4 that for the most part focus types are kept distinct by phonetic means, and the accent systems are deficient to the extent to which they fail to reflect that fact. That those ambiguities which do occur tend to involve the News focus type is indicated by the fact that in all eight instances of potential ambiguity noted in the section on Focus-semantic conditioning, a News contonation is involved. This indicated that Hypothesis 2 cannot be accepted without reservation (see 5.2.6). Rather, it can be taken as further evidence in support of the view expressed at the end of Chapter 3, that the News focus type needs to be treated separately from the other, anaphoric focus types.

### 5.2.2 Two Experiments on Broad and Narrow Focus

The potential ambiguity of 'News'-type utterances, having optimally broad focus, and narrow focus (i.e. anaphoric) utterances has been investigated in two experimental studies, (Cullen 1983; Gussenhoven 1984). Their findings suggest that in many instances listeners are unable to differentiate between broad and narrow focus structures, when the greatest phonetic prominence coincides with the final lexical item. For reasons that will become apparent, it is not possible to make a direct comparison between the results of the two experiments mentioned and the findings of the present study, which indicate a more complex picture: there is some potential for ambiguity between 'News' and other focus types, although in general 'News' utterances are phonologically distinct. Nevertheless, the experimental findings merit careful consideration, since they constitute counterevidence to any account of focus which claims that the various types of focus are consistently differentiated phonologically.

In Cullen's experiment, listeners had to identify the correct context for a sentence which had been spoken as an answer to a WH-question which had queried the final constituent only (i.e. which in Hallidayan terms would have focus on the last lexical item, the sentence having a given-new structure.) The listener had to choose what he thought was the correct context for the sentence heard, from a list of questions that included the correct context question plus four incorrect questions. One of these represented a 'News'-type question of the "what happened?" variety, while the others queried different domains of the response, up to and including the last lexical item. Cullen found that listeners made mistakes much more often on this task than on a similar task where the queried item was non-final, which indicates that sentence-final position is particularly problematic. Moreover, in the sentence-final task itself she found that the most common mistake was to choose the "neutral" question: see Table 5.1 (Cullen's Table 2), where (e) is the neutral question. Cullen concluded "that stress in a normal position [in the sentence] will probably be ambiguous in its information content." (p.55)

TABLE 5.4

(reproduced from Cullen (1983), p.54: Table 2)

A. Utterances with stress in non-normal positions

Right answer	Wrong answers				Item
	b	c	d	e	
a	b	c	d	e	
69	4	0	0	7	A-6
65	0	0	7	7	B-1
76	0	0	2	2	B-3
76	2	0	1	0	B-7
59	19	0	1	1	B-5
43	3	4	36	3	A-7
44	35	0	0	1	B-4
44	34	1	1	0	A-3
18	2	7	51	2	A-G

B. Utterances with stress in 'normal' position

Right answer	Wrong answers				Item
	b	c	d	e	
a	b	c	d	e	
36	1	42	0	1	A-8
25	0	9	20	25	A-1
44	2	2	16	16	A-2
24	0	17	5	33	A-4
59	1	1	5	13	A-5
48	5	0	4	29	A-9
65	1	0	13	1	B-6



In a similar experiment, Gussenhoven (1984) elicited question-answer dyads in which the answer was (textually) constant. One of the questions was of the 'news' type, presupposing nothing of the answer, whereas the other presupposed everything in the response except the final lexical item, as in the following :

Answer: I share a flat.

Question (a): Do you live by yourself?

Question (b): I hate sharing things, don't you?

For each (textual) answer, listeners were played four dyads consisting of (a) 'correct' and (b) 'incorrect' question-answer sequences, the incorrect sequence being one where Question (a) was followed by a response to Question (b), and vice versa. Listeners had to decide which were correct. Gussenhoven hypothesised that listeners would have difficulty with answers such as the example given, where the final lexical item is the syntactic object (a semantic 'argument'), but not with answers where the final lexical item is a syntactic adverbial (semantic 'condition'), as in:

He teaches in Ghana.

In the context of this discussion, it is the first ('argument') structure that is most relevant since this is the one for which, according to the hypothesis and the results of the experiment, the two focus types are not differentiated phonologically. Gussenhoven found that there was a statistically significant difference between the number of correct scores for the two structures, with correct contexts in the 'condition' structure being identified better than in the 'argument' structure. For the latter, there were slightly over 50% correct responses, and for the former what appears to be approximately 65%, judging from his Figure 2. This is interpreted as indicating that for the 'argument' structure (though not for the 'condition' structure), the two focus types are not phonologically distinct (Gussenhoven 1983 p.154).

### 5.5.3 Discussion

The phonological statement arising from the analysis in Chapter 4 indicates that the 'News' focus type is consistently differentiated from the 'Partial Backgrounding' focus type, when a non-final item is backgrounded and the highest degree of phonological prominence is on the final focus constituent. The relevant contonations are News:1 and PBn1 (see Tables 5.2 and 5.4). Unfortunately this finding cannot be compared directly to those of Gussenhoven and Cullen, because of two differences in the data base. Firstly, the examples in Chapter 4 of 'narrow' focus on the final focus constituent are found with sentences which do not have a sentence-final 'argument', i.e. S1, S4, and S5: two are intransitive, with verb or verb particle in final position, while the third (S1) has a final prepositional phrase:

S1: there's a man in the lobby

S4: the car's broken down

S5: the sun was shining

Such sentences are clearly not comparable to Gussenhoven's 'argument' structure, and it may well be that the difference between his findings and those of the present study are attributable to these differences in syntactic-semantic structure. In order to compare directly, it would be necessary to have tokens of S6 and S7 as responses to cues which presuppose all but the final lexical item, such as the following:

S6: What exactly has been broken?

Someone's broken the window.

S7: What is it he doesn't read?

He doesn't read books.

Comparable data with 'narrow' final focus is of course available from the Final Contrast focus type. However, this cannot be used for the present

purpose, since it has been shown by Cullen (see above) and in the present study that the Contrast types are anyway phonologically distinct from the non-contrastive, narrow focus types.

Although this discussion must remain inconclusive, the following observations about the experiments reported above have some bearing on the point at issue. Firstly, Gussenhoven in his experiment was selective about the data he presented to listeners, on phonetic/phonological grounds: for the 'argument' structure, he selected responses which:

"...did not display a clear step up in pitch on [-focus] Predicates, or clearly lack a step-up in pitch on [+focus] Predicates." (p.161).

It seems that the application of this criterion was intended to bias listeners against the experimental hypothesis, the argument being that if all the 'news'-type responses (i.e. [focus] on the predicate, according to Gussenhoven) have pitch obtrusion on the predicate, and even so listeners confuse them with 'backgrounding'-type responses, (i.e. [-focus] on the predicate), then listeners cannot be reacting to phonetic prominence as a marker of focus. This will be further supported if all the [-focus] predicates have low pitch. The criterion applied by Gussenhoven when selecting the experimental data clearly derives from the view that if anything were to signal focus on the predicate, it would be an upstep in pitch to that predicate. However, the present study indicates that the difference between these two focus types is not in fact located at the pre-final accent unit, but later: the difference between News:1 and PBN:1 is that in the latter contonation there is a step up in pitch to the second accent centre, but no such step up in News:1. Both contonations have a step up to the first accent centre. It may therefore be the case that by excluding data in this way Gussenhoven was in fact biasing listeners in favour of his hypothesis: if they had heard [-focus] Predicates with high pitch, they might have made a correct identification, in cases where this was followed by a step down and then a step up to the final accented syllable. This is a relatively minor point, which would probably not have affected his results greatly, yet it highlights the more general point that in the quest for the phonetic correlates of focus categories, it can be



misleading to restrict one's phonetic observations to the focus constituent that is of immediate interest: its phonological exponent may in fact be located some distance away, as, in this case, at the following accent unit. The same phenomenon in the field of lexical tone is fully described by Sharp in his Chaga study (1954):

"Numerous instances will be observed where it is on the pitch of a frame-syllable [i.e. of another word in the utterance (WW)] rather than on the pitch feature of any noun itself that the differentiation of one pattern from another depends." (p.312)

One of the differences between Gussenhoven's experiment and that of Cullen is that in the former, listeners were presented with a binary choice, reflecting the hypothesised distinction [+/- focus] on the predicate, whereas in the task set by Cullen, listeners had to choose from five potential contexts. These included not only the correct, i.e. maximally narrow, context and the maximally broad context traditionally associated with 'normal stress'/'neutral intonation', but also three contexts presupposing different intermediate focus domains, (b), (c) and (d) on Table 5.4 above. As Cullen points out, although listeners make quite a lot of mistakes when the 'stress' is in 'normal' (i.e. final) position, the mistake does not invariably involve choice of the 'maximally 'broad' option. In fact, there are 144 wrong answers on the intermediate domains (b,c,d), as opposed to 118 on the maximally broad domain (e); and on none of the test sentences was the maximally broad context chosen more often than (correct or incorrect) 'narrow domain' contexts. Listeners are therefore more likely to give a 'narrow focus' interpretation to the 'maximally narrow focus' stimulus, than a 'maximally broad focus' interpretation. This indicates that the listener's difficulty lies not so much in differentiating 'news' (i.e. maximally broad focus) from maximally narrow focus, (which Gussenhoven's results might suggest), as in differentiating between degrees of narrow focus.

A final comment regarding the naturalness of stimuli used applies equally to all three studies discussed here. In order to obtain textually identical stimuli under different focus conditions for the listening tasks,



Gussenhoven and Cullen were both obliged to prevent informants using normal ellipsis and verbal anaphora in narrow focus contexts. Thus Gussenhoven required informants to reply in the following manner:

Q: What does he teach?

A: He teaches linguistics.

rather than the more natural:

A: Linguistics.

Cullen was obliged to constrain informants in the same way:

"Informants were asked not to use pro forms, or deletions, so that information structure would have to be marked (almost) entirely by intonation, and so that I would have comparable versions of the same sentence elicited with different questions or assertions." (p50)

In the present study too, informants were prevented from using such natural devices. For instance, responses such as the following were used for "Partial Backgrounding":

C: Let's go for a run in the car.

R: The car's broken down.

rather than the more natural:

R: It's broken down.

It is perhaps not surprising to find some ambiguity in the realisation of the two focus types, given that informants were required to produce, for one of the focus types, tokens which are almost certainly untypical of their normal language use: one might expect the phonological systems of the language not to differentiate clearly between two items, when they rarely come up for comparison because one of them rarely occurs under normal linguistic circumstances.

## 5.6 Fall-rise Contours in the Focus Accent Systems

Falling-rising pitch contours have been a source of great interest to students of English intonation, with regard to their phonological status and their semantic/pragmatic interpretation. In tonal descriptions of English intonation, a fall-rise tone is generally attributed a high degree of linguistic importance (e.g. Brazil 1975;1978; Gussenhoven 1984). The phonological and semantic issues are linked: do the meanings attributed to falling-rising contours form a semantically coherent category? and if not, is there just one 'phonological fall-rise', or are there two phonologically distinct contours with similar, and perhaps partially overlapping, phonetic exponents? Proponents of the latter view include Halliday (1967; 1970), and Sharp (1958), who consider in some detail the phonetic similarities and differences between two different patterns. The contribution of the present study to these questions is mainly negative: it is apparent from the distribution of pitch contours according to focus types (Table 5.1) that fall-rise contours, whether spread over the utterance or on the final syllable(s), are not used consistently to signal oppositions within the focus system as established here. Such contours occur in the data, but their occurrence is relatable to particular grammatical structures in the text, rather than to the focus context of the utterance (see 5.4.3 above: Final Adverbial; Existential 'There'; Indefinite NP).

However, there is some doubt about the appropriateness of the prominence criteria set out at the beginning of the chapter, when applied to accents having on-syllable falling-rising pitch. This relates to the earlier discussion of focus centre placement in the P<sub>Bn</sub>3 contonation, where it was noted that the final focus unit has a lower prominence accent than the prefinal unit, thus deviating from the formulation for focus placement derived from the other P<sub>Bn</sub> contonations. One explanation of this anomaly is that the prominence of the final accent in P<sub>Bn</sub>3, which has falling-rising pitch, is being undervalued. The accent is assigned to Minor prominence on the basis of the criteria derived from Chapter 2; but these criteria make no distinction, as far as degree of prominence is concerned, between

different types of pitch movement. It could be argued that a complex pitch movement such as an on-syllable fall-rise is inherently more salient than a simple rise or fall. Such a view finds support from the fact that another complex pitch movement, the rise-fall, was identified on functional grounds with two prominence features: the on-syllable rise-fall was found to be a variant of a simple fall preceded by a step up from the syllable before. On these grounds, it is suggested that the two accents in Table 4.5 that have falling-rising pitch (Final Maj5 and Mnr3) are 'promoted' to the next prominence category (i.e. Maj5 becomes Max2, and Mnr3 becomes Maj5). This results in the following modifications to Tables 5.1 and 5.2:

```
TB:6      //Minor 1 / Major 5// = !!S!M!!
FC:3      //Minor 1,2 / Maximal 2// = !!Z!C!!
PBn:3     //Major 2 / Major 5 // = !!M!M!!
News:4    //Max1,Maj2,Mnr1,Mn1 / Max2,Maj5 // = !!a!l!C,M!!
```

It can be seen that the proposed change has the advantage not only of bringing PBn3 into line with the other PBn contonations, but also of putting FC3 in the prominence category that corresponds to Contrastive focus. Although for expository reasons this amendment has not been incorporated into the present statement, it may be in future work.

## CHAPTER 6

### FOCUS AND PHONOLOGY

#### 6.1 Summary of Findings

The findings of the studies reported in preceding chapters are summarized below, as a prelude to a discussion of methodological and theoretical issues in the study of focus and phonology:

(1) Naive native speakers of English readily identify up to four grades of focus when listening to spoken sentences (Chapter 2).

(2) This identification is made primarily on the basis of phonetic features (Chapter 2), in conjunction with contextual information (Chapter 3). The interplay of the two can be described in terms of 'focus strategies' for listener and speaker, which constitute algorithms for the interpretation of the focus structure of utterances (Chapter 3).

(3) The identification of focus grades is made on the basis of phonetic features of pitch, loudness, tempo and duration, in specific combinations (Chapter 2).

(4) A number of different focus types, as defined in contextual terms, have phonetically distinct realisations (Chapters 2, 4).

(5) The phonetic realisation of some focus types ('News' and 'Backgrounding') is dependent in part upon the syntactic constituency of the sentence (Chapters 1,4,5). This can be described in terms of a 'focussability hierarchy' (Chapter 5).

(6) The phonetic exponency of focus in English can be stated in terms



of mediating accentual systems operating at places within the structure here referred to as the line. Accents are mapped onto focus units established within the sentence, by means of explicit formal mechanisms (Chapters 4,5).

Superficially, the present description resembles other descriptions of English intonation which identify sequences of accent units, rather than a single sentence accent or nuclear tone upon which other aspects of intonational patterning are dependent (c.f. Hultzén 1964; Nolan 1984). However, the methodological assumptions and procedures of the present study, which are discussed in the next section, make direct comparison difficult.

## 6.2 Methodological Issues in the Study of Intonation

### 6.2.1 Functions of Intonation

The phonetic and functional aspects of English that form the subject matter of the present study have generally been investigated under the heading of "intonation" - a term in general use to refer to the patterning of pitch in languages to convey meaning other than lexical or morphological (for reviews, see Crystal 1969; Gibbon 1976; Ladd 1980; Couper-Kuhlen 1986; Cruttenden 1986). As long ago as 1954, Firth implied that there was scope for confusion if the term were not used with some care:

"In pursuance of my theory of levels of analysis first outlined in 'The Techniques of Semantics', TPS, 1935 (see especially p.52 for intonation), I suggest that the general word 'intonation' be used as at present to refer to the 'tunes', 'contours', or relative pitch patterns considered as some sort of 'music' or speech melody to which pieces or sentences are, so to speak, 'sung'. D.Jones, Ida Ward and others use such expressions as 'falling intonation', 'rising intonation', 'Tune 1', and 'Tune 2'. These 'tunes' have sometimes been loosely associated with other classifications of the text, such as emphatic and unemphatic, interrogation and affirmation. In accordance

with this view, attempts have been made from time to time to relate 'sentence intonation' to syllable tones, word tones, 'basic' tones, 'inherent' tones, and other types of lexical tone pattern. The terms 'contonation' and 'contonational' are intended to refer to 'intonational' and prosodic patterns abstracted from and correlated closely with formally established grammatical structures, colligations and collocations." (quoted in Sharp 1954, p.318, fn.5)

In the present study, the term 'contonation' has been used in a limited sense, as a label for the particular prosodic patterns associated with focus types (Appendix 4.6). However, Firth suggested that 'contonation' could be used as a term to define the whole area of phonology that is concerned with the relation between prosodic patterns and structures that have been established at other linguistic levels, i.e. to cover much of what is commonly referred to under 'intonation'. 'Intonation' could be used for the description of the prosodic patterns of a language at a phonetic level, whereas contonation would be used for the description of the phonologically relevant aspects of prosodic patterning within the language.

It is unfortunate that the term 'contonation' (or an equivalent) has not gained general currency, for without clear recognition of the distinction Firth makes between contonation and intonation, there is a temptation to produce a monosystemic description in which an attempt is made to include the different functions conveyed by pitch patterning (and other prosodic patterns) within a single 'intonation system'. However, it may be noted that the term does not appear to have been used widely even among Firth's colleagues, and when it was, may have been used in different senses by different practitioners (J.Carnochan, R.K.Sprigg: personal communications). For these reasons, it is not proposed here that the term itself should be resurrected in this sense. That notwithstanding, the distinction Firth made is still of great importance to phonologists concerned with 'intonation'.

That pitch patterning in English is involved in the realisation of a number of different linguistic functions is evident from the varied approaches taken by analysts towards the statement of intonational function. Halliday, for instance, seeks to describe formal contrasts of intonation by reference

to grammar (broadly construed) whereas Brazil (1975;1978) refers not to grammar but to discourse function (e.g. 'referring' vs. 'proclaiming' functions); and O'Connor and Arnold (1973) concentrate on the differences in attitude conveyed by intonational systems. A useful guide to proposed functions of intonation is provided by Brown, Currie and Kenworthy (1980, Ch.2; cf. Couper-Kuhlen 1986):

- 1) Affective meaning or attitude
- 2) Interactional structure
- 3) Topic structure
- 4) Information structure
- 5) Speech function or illocutionary force

Even from this brief review of the suggested functions of intonation, it is clear that the range of meanings conveyed by intonation is extremely wide. This in itself is indicative of the complexity of the task of describing intonational meaning - a task which has attracted a good deal of attention from linguists in recent years (see especially Ladd 1980).

A consequence of the variety of meanings or functions realised by intonation, and of the fact that different analysts have chosen to concentrate on different functions, is that it is extremely difficult to evaluate the resulting descriptions. For example, it is not clear what criteria could be invoked to support a claim that the account of English intonation presented by Crystal (1969) is of a higher level of observational or descriptive adequacy than that of O'Connor and Arnold (1973), or that of Halliday (1967b): although all three present descriptions of 'English intonation', they cannot be compared as phonological descriptions since they lack a shared view of what the functions are that the intonational systems are to realise.

#### 6.2.2 Problems in Recent Studies of Intonation

The diverse views of intonational function that underpin the various phonological descriptions of English intonation mentioned, and the

resulting difficulty in evaluating these descriptions, are a direct consequence of a failure to adhere to basic principles of phonological analysis. It is axiomatic in phonological analysis that systems and structures are to be established on the basis of a regular correlation between an observed difference in meaning and an observed phonetic difference. The phonologist observes that "pin" and "bin" have different but consistent meanings for the members of the speech community, and that they are consistently differentiated phonetically at the onset of the syllable; on the basis of these two parallel observations he can establish a phonological opposition between /p/ and /b/. The study of prosodic features (such as pitch) in relation to meaning clearly falls within the domain of phonological analysis, phonology being that level of linguistic analysis at which categories established at other levels (lexical, grammatical etc.) are related to their phonetic exponents. It is therefore somewhat surprising to note that those linguists who have proposed accounts of 'the English intonation system' have not, in general, adhered to this axiom. This failure is apparent both at the level of function/meaning and at the level of phonetic exponency.

At the phonetic level, the first shortcoming could be described as an overly selective handling of the phonic material. This can be seen in the extent to which certain phonic events are deemed, at the outset, unimportant and are excluded from descriptive statement. Typical is the tendency to simply assume that pitch has a functional primacy and independence and accordingly to confine one's observations solely to pitch phenomena. For example, Brazil (1975, 1978) and Brown, Currie and Kenworthy (1980) adopt this approach. Brazil (1975) writes that his working assumption has been that "relative pitch is the defining factor (...) with other variables having an ancillary status and possibly providing the analyst with secondary criteria." Similarly, Brown et al. (1980) limit their analysis to pitch phenomena. They write: "Amplitude peaks correspond very regularly with  $F_0$  peaks, therefore amplitude is not discussed as a separate parameter." (p.53 fn.); little is said about other phonetic parameters. This a priori phonetic selectivity is comparable to that of a phonologist studying lexical systems who decides that he will confine his observations to place of articulation, disregarding degree of stricture,



phonation, nasality and other 'variables'.

Such decisions can only be made when the phonologist is already familiar with the fundamental properties of the system he is looking at. It may be safe to ignore pitch patterning when studying some aspects of English lexical systems, because much careful work already done on this area of English phonology has not shown pitch to be relevant here. With respect to intonation, it could be argued that our knowledge, even of English, is still rudimentary, as a result of unwarranted methodological assumptions in many of the relevant investigations.

A different approach to the phonic material is evident in Crystal's work (Crystal 1969), where many detailed phonetic observations of prosodic features are made; these observations are then organised into systems according to phonetic criteria, giving "prosodic systems" of tone, pitch range, pause, loudness, tempo etc. (p.177). The 'intonation system' results from the interaction of these systems (p.195). Such a procedure is comparable to that of a phonologist investigating lexical systems who recognises that lip-position, tongue-position, degree of articulatory stricture and state of glottis are all involved in signalling lexical meaning, and therefore sets up a 'tongue place system', a 'labial system', a 'stricture system' and a 'phonation system' for the language; he then goes on to describe the lexical phonological system as a system made up of features drawn from these systems. This clearly constitutes a more comprehensive approach to the phonic material.

However, Crystal's handling of functional/semantic categories is less satisfactory. As was mentioned above, phonological analysis involves the correlation of phonetic events with recurrent distinctions in meaning that have been established for the linguistic community in question. It is therefore necessary to establish functional (lexical, grammatical etc.) categories for that community, before the phonological systems that realise those categories can be stated. In the case of lexical meaning, the matter appears to be relatively simple: informants will generally agree that 'pin' has a different meaning from 'bin', and will be able to explain and/or demonstrate the difference for the phonologist's benefit. In the case of

those types of meaning that are thought to be realised by "prosodic systems and intonation in English" (see list above), it is more difficult to establish what the relevant categories are. Some intonational contrasts can be correlated with grammatical categories, as is shown extensively by Halliday (1967b); but most analysts feel that the relationship between intonation and grammar is "casual not causal" as Bolinger put it, and Halliday himself was obliged to devise a special, otherwise unmotivated system of information structure and focus to account for his observations about the placing of tone unit boundaries and tonic syllables (see Chapter 1 above).

The difficulty in establishing the categories of meaning that prosodic features realise has led virtually all analysts to depend heavily on their intuitions as native English speakers when setting up prosodic and intonational systems. If this is not in fact the case, they are curiously reluctant to warrant the functional categories they propose from the behaviour of naive native speakers. Exceptionally, Brown et al. admit to the difficulty with reference to their proposed category "sub-topic", in 'Topic structure' listed above (1980, p.27). Crystal acknowledges the need to refer to native speakers other than the analyst:

"Prosodic features are not as rigidly or discretely definable as segmental phonemes ... but the criterion for establishing them is similar. Only those features are recognised which are judged to be significant, i.e. contrastive; namely, those whose omission from an utterance would cause a linguistically untrained group of native English speakers to state that the utterance was 'different' in meaning from the original - though this would by no means involve them in stating where the difference lies, or what meaning should be attributed to either utterance." (1969, p.127)

Notwithstanding, the various prosodic systems that Crystal sets up are apparently based, to a very large extent, on his own judgements as to what constitutes a significant contrast and, what is more, his own decision as to "where the difference lies" and "what meaning should be attributed to either utterance". One consequence of this procedure is that he establishes

a multiplicity of prosodically realised contrasts, and is therefore obliged to 'grade' them on a scale of linguistic importance, thereby replacing the categorial classification of meaning that is traditional in lexical and grammatical semantics and phonology by a scalar classification for intonational semantics and phonology. This is achieved by using a method whereby native speakers are required to repeat sentences they hear; those prosodic contrasts that are most readily retained in the repetition are adjudged to belong to the most important systems (Crystal 1969, p.203). Such a procedure has not, to our knowledge, been employed in other areas of phonology, eg. lexical. The equivalent procedure for a lexical phonological analysis would be to ask informants to repeat a word (e.g. a polysyllabic item such as "secretary"); those phonetic features that were most often retained would be adjudged to belong to the most important systems. Whilst such experiments would be of some interest from a psycholinguistic perspective, they are foreign to the concerns of the descriptive phonologist, whose aim is to establish structure and system and state their phonetic exponency.

Resort to such techniques arises from the commonly held view that intonation is not amenable to the traditional techniques of phonological analysis. Nolan (1984) makes the point that in "segmental phonetics" the question of whether two different phonetic events or patterns are phonologically equivalent or are in opposition is resolved by seeing whether they differentiate meaning or not. However, he rejects this approach to intonation:

"But even in principle, let alone in practice, it is doubtful whether criteria of meaning can be brought to bear in a parallel fashion in intonation analysis. The lack of discreteness of intonational meaning, and function, is too well commented to need outlining here. Other methodologies need to be explored for establishing the status of questionable contrasts .... One such method might be to require subjects to imitate utterances as closely as they can...." (p.10)

This counsel of despair is unwarranted, since it is born of an approach to phonological analysis which is essentially the wrong way round. Instead of



assigning a (specific) meaning to an observed phonetic contrast, as Nolan and Crystal wish to do, the phonologist, traditionally, would start from the contrast in meaning, which he has inferred from his observations of the behaviour of naive native speakers, and record the phonetic differences that correlate with that difference in meaning. Such an approach to phonological analysis is well exemplified by phonologists of the Firthian school, for instance in Sharp's account of tonal properties of Chaga nouns, already referred to in Chapter 4 above (Sharp 1954), and in Sprigg's treatment of pitch and other phonetic features in the Tibetan nominal phrase (Sprigg 1955). This is the approach that has been followed in the present study, and in related research on the delimitative function, discussed later in this chapter. Firstly, a meaning/ function is identified, and then the phonetic features that accompany it are recorded in maximal detail, using impressionistic phonetic transcription and instrumental techniques (where appropriate). On the basis of these observations, a phonological statement can be made.

It is in this respect that the present study differs from work of a similar nature by Kruyt (1985) and Terken (1985). In their studies of Dutch, these authors are concerned to identify the functions and distribution of 'accents', as established by previous work on Dutch intonation (Kruyt 1985, p.10). Their procedure results in a number of interesting findings, some of which have been discussed earlier in this study. There is, however, a fundamental difference between their work and the present study. In this investigation, the aim has been to establish accentual systems by correlating functional categories (of focus) with phonetic exponents. In the Dutch studies, the accentual system is given, and the aim is to identify its functions (cf 4.1 above). The latter approach assumes that 'accents' can be established on phonetic and perceptual grounds, without reference to function. One problem that arises from such a view of phonology is the one encountered by Kruyt (p.91), who found, when describing the distribution of accents on 'given' and 'new' referents, that accents on 'given' referents often had a smaller pitch movement than those on 'new' referents, yet were still identifiable as being distinct from unaccented words. The accentual system she was using only allowed for a binary opposition, [+/- accent]. Kruyt points out that this finding could



entail a revision of "the grammar of Dutch intonation". In the present context, it is noteworthy that the revision is stimulated by attention to function as well as form, indicating that the two need to be considered together when establishing accentual systems. It would therefore seem logical to consider function as well as form when embarking on the description, rather than at a late stage.

### 6.3 The Domain of Focus-accent Systems

#### 6.3.1 Identifying Intonational Domains

In Chapters 4 and 5 above, it was noted that a statement of the phonology of focus can only be made if the phonological domain of focus has been identified, for it is within this domain that accentual systems operate: it was necessary to refer to two different accentual systems - pre-final and final - and so it is clearly essential to be able to define independently the domain within which an accent unit is either final or not. It was pointed out that for the purposes of the present study, this issue is not of critical importance, since the material under analysis consisted of speakers' turns, each of which was realised as a single sentence at the grammatical level of description. The domain of investigation could thus be defined grammatically. However, the problem would become of prime importance if an attempt were made to apply the analysis to more natural, less controlled speech material, in which there is less regular congruence between interactive category (the speaker's turn) and grammatical category (the sentence).

The difficulty in defining the domains relevant to the statement of intonational systems has not gone unrecognised. Most analysts have defined the domain in terms of the exponents of the systems that they set up to operate at that domain. Thus for Crystal (1969, p.205), definition of tone unit boundaries depends on the prior assumption that there is a nucleus (nuclear pitch movement) which can be recognised independently, on phonetic grounds:

"The presence of a nucleus is what accounts for our intuition of 'completeness' at the end of the unit: if it is omitted, the auditory effect is one of 'being cut short'." (p.207)

The result within Crystal's descriptive system is a relatively short tone unit (average of five words, most often coextensive with a single element of clause structure: p.260). The shortness of the tone unit, and its correlation with a grammatically incomplete unit, strongly suggest that, more often than not, a complete conversational turn will consist of more than one tone unit. If this is in fact the case, it is not at all clear how the child learning English could ever arrive at the "intuition of 'completeness'", and thus how he could ever come to identify particular pitch features as 'nuclear' as opposed to non-nuclear. Without some basis for making such a categorisation of phonetic events, it is not possible for the intonation system to be inferred from the data available to the child. Equally, it is not possible, using Crystal's criteria, for a linguist to work out the intonation system of a foreign language or dialect, unless he has recourse to the intuitions of a native-speaker informant about the categorisation of pitch and other features. It can thus be seen that the success of Crystal's descriptive approach hinges crucially on the linguist's ability to access reliable intuitions about phonetic facts from native informants; and that as a description it does not offer a basis for hypotheses as to how a native speaker could acquire the intonation system from the input available to him.

Once again, the descriptive methods and expectations of intonational phonology are thought to differ from those traditional in lexical phonology. In lexical phonology, it is generally possible to correlate phonologically significant phonetic distinctions with observable differences in the behaviour of native speakers: their reactions to "Show me the bin" and "Show me the pin" will be different, and so the analytical decision to set up a phonological opposition between /p/ and /b/ can be warranted from observed behaviour, without reliance on intuitive phonetic judgments.

The problems involved in defining the domain of intonational systems have

been discussed by Brown, Currie and Kenworthy (1980, Ch.3), who point out that the phonetic cues posited by analysts such as Crystal and Halliday cannot always be identified reliably. Their analytical solution is to take speaker's pauses as the boundaries of the units whose pitch characteristics they wish to investigate. This avoids the problem of circularity that arises when pitch features are taken as criterial for boundary identification, and thus enables the authors to set up a phonological system of pitch that is independently motivated. This tonal system is held to realise a number of semantic systems, including the marking of given/new, contrast/emphasis, and also, optionally, to delimit syntactic units (p.158). However, the "pause-defined unit" is, from a phonological standpoint, an ad hoc solution, since there is no evidence to show that pauses, in themselves, have any independent phonological significance for speakers: it is not shown, for instance, that they regularly cooccur with boundaries at other levels of description, i.e. syntactic or interactive. For this reason, their description too fails to reach the level of adequacy of indicating how the child is able to infer the tonal system on the basis of the phonetic and behavioural input available to him.

In order to avoid this objection and to arrive at a description of 'intonation' which makes it possible to envisage how intonation systems are learnable by children, it is necessary to take as the candidate domain neither a purely phonetic construct (such as Brown et al.'s "pause-defined unit"), nor a phonological construct that is defined in terms of the systems that operate within it (such as Crystal's tone-unit or Halliday's tone group), but a phonological unit that is motivated independently of the focus system. In order to motivate such a unit, it is necessary to consider a function/meaning, other than focus, which can be inferred from the behaviour of native speakers, and which might plausibly turn out to be realised by a phonological unit within which prosodic systems of focus could operate. The problem is directly comparable to that of defining the domain of phonological systems in the phonology of lexis and grammar, as addressed, for instance, by Sprigg in his account of tonal systems in the Tibetan noun (Sprigg 1955). Sprigg states the tonal system in terms of the word (p.125ff), but in order to do so he first has to define the word according to phonetic criteria other than those involved in the exponency



of the tonal system (p.113ff). Only after the domain of the phonological system has been defined independently in this way, and the phonological system itself has been stated, is it possible to regard the terms of the phonological system as themselves contributing to the delimitation of the domain. Thus at the end of his detailed statement of the non-tonal phonetic exponents of word delimitation, Sprigg adds:

"The theory that sets up the word and applies the tonal system to it receives further support from the feature sometimes described as vowel harmony, and from the tonal system itself: the exponents of the terms of these two prosodic systems characterize syllables within the limits of the word but not beyond those limits, and may most profitably be stated with reference to the word." (Sprigg 1955, p.121)

Similarly, in the case of focus accent systems, it may ultimately be convenient to regard exponents of terms in the final and pre-final accentual systems as contributing to the delimitation of the domain within which they operate (the line); but these systems cannot be used in the first instance to establish that domain, without falling into the trap of circularity of statement found in the definitions of the tone unit or tone group by Halliday, Crystal and others. A way of establishing the domain of focus-accent systems in a non-circular manner is outlined in the next section.



### 6.3.2 Turn Delimitation and the Line

One candidate function of prosodic features in English is to handle the exchange of speaking turns. It is self-evident that the ability to manage the exchange of speaking turns is part of a speaker's knowledge of a language. General mechanisms of turn-taking have been outlined by Sacks, Schegloff and Jefferson (1974); but there are clearly language-, dialect- and accent-specific factors involved in the ways in which conversationalists convey that they have finished a speaking turn, are continuing the current turn, or claiming a new turn.

There is no a priori reason to assume that prosodic features are centrally involved in the handling of turn exchange: Sacks et al. do not refer to them, and most descriptions of English intonation do not consider its turn-signalling functions explicitly. Brazil (1978, p.33) suggests that there may be a relationship between "discourse units" and his "pitch sequences", but the discourse units in question are topic units (called "transactions") which are bigger than speaker turns (Coulthard and Brazil 1979, p.46). Brazil does not in fact account for any aspects of prosodic patterning in terms of speaker's intention to signal turn completion: the exchange of turns presumably 'falls out' from the interaction of the phonological systems of key, termination and tone which were established by reference to other functional criteria. Brown, Currie and Kenworthy (1980) do include turn exchange in their list of intonational functions, under "interactive structure", asserting that speaker's choice of pitch direction on the final stressed syllable of a pause defined unit indicates whether or not the speaker intends to continue his turn (p.24); although in the final statement of their intonational system, it appears that the choice of tone determines continuation of topic rather than of turn (p.190), and the presence or absence of a tone on the last stressed syllable of the pause-defined unit belongs to an optional system of syntactic delimitation (p.158), rather than turn delimitation. In suggesting that prosodic features are involved in an optional system of syntactic delimitation, Brown et al. follow Trubetskoy's lead:

"...each language possesses specific, phonological means that signal

the presence or absence of sentence, word or morpheme boundary at a specific point in the sound continuum. But these are only ancillary devices." (Trubetskoj 1969).

Local, Wells and Sebba (1985), by contrast, propose that the domain of those delimitative features sometimes associated with the sentence is not in fact the sentence itself but the turn - an interactive unit - and that in conversation the sentence is delimited just in the case where it is coextensive with the turn. The 'optional' nature of sentence delimitation can then be accounted for by the facts that one sentence may constitute a turn, but a turn may consist of more than one sentence.

Although there is no a priori reason to assume that turn delimitation is realised prosodically, there is a distinct theoretical advantage in treating turn delimitation as a candidate function of prosodic features: it is a relatively straightforward matter to identify turn exchanges in conversation; and having identified them, the analyst can identify recurrent linguistic features which accompany them and show the relevance they have for participants in the conversation. Techniques for identifying the phonetic features specifically associated with the delimitation of speakers' turns have been developed in studies of two very different varieties of English. At no point do these techniques require an appeal to the intuitions of the native speaker.

Local, Wells and Sebba (1985) investigated turn delimitation in London Jamaican. The delimitation of speaker turns ending in declarative structures was studied in two conversations involving teenage Afro-Caribbeans born and living in London. Examination of turn endings 'in the clear' (i.e. not overlapping with next speaker's turn) revealed that the following phonetic features routinely accompanied turn endings:

- 1) narrow falling pitch movement to the bottom of the speaker's normal pitch range on the final syllable, with accompanying creaky phonation,
- 2) the starting point of this pitch movement is never higher than the preceding syllable,

3) absence of decrescendo on the final syllable, in spite of frequent decrescendo over the preceding portion of utterance, leading to an impression of resurgence of loudness,

4) absence of greater dynamic pitch movement earlier in the utterance.

The authors were also able to show that these features are oriented to as exponents of potential turn completion, even when the current speaker in fact continues speaking after they occur. The delimitative role of these features is further attested by the fact that syntactic completion points that are not accompanied by the features are not treated by either current speaker or co-participant as interactively complete.

Local, Kelly and Wells (1986) developed this type of analysis in an investigation of turn delimitation in Tyneside English, again using audio recording of conversational talk. Here, two classes of turn ending were identified. Each is characterised by a cluster of phonetic features which do not occur, as a cluster, elsewhere in the course of turns. Listed below are the features accompanying Class 1 turns, which includes 83% of turn exchanges in the clear:

1) a general slowing down in tempo to the end of the turn, the minimal and usual domain being the last two rhythmic feet;

2) a sudden increase and decrease in loudness during the ictus syllable of the last foot of the turn;

3) appreciable duration on the ictus syllable of the last foot of the turn (whatever the phonological length of the vowel);

4) centralised quality in the vowel(s) of the last foot of the turn;

5) a pitch step-up at the end of the turn, which is usually greater than any other pitch step-up in the turn and which always attains a higher point than any other step-up in the turn. (The pitch patterning



associated with this type of turn ending has to be further subclassified, with respect to the rhythmic structure of the final two feet of the turn.)

It is implicit in the findings of the two turn-delimitation studies that in each variety an accentual system operates to delimit spaces of talk as phonological and potentially interactional entities. These accentual systems are phonological, since they relate phonetic exponents (of pitch, loudness, tempo and other phonetic parameters) to the functional category of turn delimitation. It is proposed that the phonological structure at which the delimitative accent system operates be referred to as the 'line' (J.Kelly, personal communication).

A comparable investigation of turn-delimitation in the standard variety of English used in the present study of focus has not yet been carried out. If such an investigation resulted in the setting up of the 'line' as a phonological entity for this variety too, then it would be theoretically advantageous to take the line as the domain of focus-accent systems, since the line would have independent phonological motivation. Once the phonetic exponents of the line have been established, it will be possible to use the focus-accent systems proposed in this study (duly modified) for the analysis of naturally occurring talk, without falling into the trap of circularity that has beset other attempts to describe the 'intonation' of English.

## 6.4 Conclusions

### 6.4.1 Warranting Phonological Categories

It has been argued in the previous section that the study of turn-delimitation and its phonetic exponents is a descriptive prerequisite for a definitive statement of the phonology of focus in English. There is also a theoretical sense in which these two functions are connected. It will be recalled that according to Firth, intonation - the pitch patterning of a language or variety - is to be distinguished from contonation, which deals



with how linguistic functions are realised by prosodic patterns. Focus and turn-delimitation are two such functions, for which contonational patterns can be stated. The study of contonation is clearly a phonological matter (unlike the study of 'intonation'), and for this reason great emphasis has been placed, both in the present study of focus and in the work on turn-delimitation referred to above, on the need to adhere to fundamental principles of phonological analysis.

The first principle is that as far as possible, phonetic parameters should not be omitted from consideration as candidate exponents of the linguistic function under investigation. As a result of adhering to this view, it has been possible to show that features of pitch, loudness, tempo and duration are involved in the exponency of the focus accent systems of English, in specific configurations. Similarly, in the studies of turn-delimitation in Tyneside English and London Jamaican, features of pitch, loudness, rhythm, tempo and vowel quality were identified as exponents of delimitative systems. On the basis of these findings, it can be concluded that there is little phonological interest in studying the patterning of a single phonetic parameter (e.g. pitch) in relation to linguistic function, at least in English - although such a study may be of some interest from a purely phonetic perspective, i.e. at the level of 'intonation'.

Clearly, it is not possible to consider every phonetic detail to an equal degree, and the analyst is inevitably influenced by his knowledge, past experience and the theories of others to give more attention to some aspects of the phonetic material than to others (cf Kelly and Local, in press). The principle stated above represents a counsel of perfection which, although unattainable, at least guards the analyst against unwarranted a priori selectivity.

The second principle is that the linguistic functions or categories for which phonological systems are set up should be warrantable by reference to the behaviour of naive native speakers, and not derived from the unsupported intuitions of the analyst. This principle is most rigorously adhered to in the two turn-delimitation studies, where it is shown how participants in the talk orient to specified phonetic features as markers

of turn completion. The analytical techniques used in those studies derive from procedures developed within the ethnomethodological discipline of Conversation Analysis, which is concerned with categories which can be shown, exclusively from analysis of the conversation itself, to be relevant to participants in that conversation (c.f. Atkinson and Heritage 1984).

In the studies of focus reported in the present work, such evidence has not been presented. This type of evidence is only available to the analyst dealing with conversational material, whereas the present study uses material which has been elicited under more or less artificial conditions. One reason for this methodological choice is that instances of 'focus' are much less readily identifiable in conversations than are instances of turn completion. A further, related reason is that it would be extremely difficult to identify the interplay of grammatical, contextual and phonological variables in the exponency of focus (as has been done in the present study) if the material for analysis were drawn from conversations, in which none of these variables could be systematically controlled. It was therefore decided to use a more 'experimental' methodology, in which use is made of the intuitions of native speakers (Chapters 2 and 3). Nevertheless, the use of intuitive judgement differs crucially from the practice of many other investigators of intonation, in two ways. Firstly, as far as possible the analyst's own intuitions are not used in coming to decisions about the significance of particular phonetic events: the semantic basis for the focus systems derives from the carefully elicited judgements of some forty native English speakers. Secondly, the intuitive judgements which were used were judgements about meaning, not about linguistic form: subjects were asked to indicate the parts of the sentence they felt to be "important" - not to judge the acceptability or grammaticality of linguistic forms (as is common practice in generative grammar), nor to identify linguistic forms such as 'the tonic' (as in Currie's experiments). For these reasons, there is less risk of the analysis being vitiated by interference from subjects' conscious metaphonetic and metalinguistic concepts, and some likelihood that subjects respond in a way which tallies with their unconscious orientation, in naturally occurring talk, to the notion that some parts of the message are relatively more important than others.

So although the approach to information focus described here, being 'experimental', differs considerably from the approach used to describe the phonology of turn delimitation, the two approaches share a fundamental principle which distinguishes them from much current work in the field of intonation: the descriptive statements derive from explicit empirical studies whose methods and data allow for replication by other analysts. In this respect they differ from many of the other studies already mentioned, in which the analytical categories, particularly the functional categories, are derived from the native speaker intuitions of the analyst rather than from the observed behaviour of naive native speakers. For instance, Eady, Cooper, Klouda, Mueller and Lotts (1986), investigating the acoustic characteristics of focus, had subjects read sentences under different focus conditions. However, it was the analysts themselves who assessed whether the subjects had conveyed narrow focus as opposed to neutral focus in an appropriate way (p.236). The sentences for acoustic analysis were selected on the basis of that assessment. There is thus a likelihood that the authors' preconceptions about the phonetic correlates of focus influenced the selection of material for analysis. This is even more probable in the study by Liberman and Pierrehumbert (1984), who acted as two of the four subjects in their experiments, in which they elicited pitch contours under various conditions of focus and emphasis. This is a dubious procedure, since it is quite possible that their production of the test sentences would be influenced by their knowledge of the purpose of the experiments.

#### 6.4.2 Limitations of the Study

The account of focus presented here has to be evaluated in the light of some obvious limitations of the study. Firstly, as was discussed in the previous section, the material from which the analysis derives is not naturally occurring talk, but a facsimile of conversational interchanges. For the experiments reported in Chapters 2 and 3, the material used derived from a game in which part of the informant's utterance may have been read, and for the analysis in Chapters 4 and 5 all the material was read aloud. This artificiality was necessary in order to control potential variables involved in the realisation of focus; but in any further study of focus it



will be necessary to check the validity of the categories and systems set up here by seeing if they can be applied satisfactorily to naturally occurring talk:

"A theory derives its usefulness and validity from the aggregate of experience to which it must continually refer in renewal of connection." (Firth 1957, p.1)

A second, related limitation is that, for the most part, and especially in the analysis presented in Chapters 4 and 5, the 'discourses' which constitute the domain of distribution of focus consist of exchanges of two adjacent turns. This is clearly an artificial limitation, since in natural talk the focus structure of the current turn may be influenced by the occurrence of items in the discourse preceding the immediately prior turn. Once again, the limitation was a methodological necessity if variables were to be controlled, and is justifiable on that score. It is interesting to note that much of the early work on conversational structure carried out within Conversation Analysis was concerned with 'adjacency pairs', and that this approach stresses the relationships that hold between adjacent turns:

"... it is a general finding within conversation analytic studies that talk analyzably proceeds on a turn-by-turn basis and that 'generally, a turn's talk will be heard as directed to a prior turn's talk, unless special techniques are used to locate some other talk to which it is directed' (Sacks, Schegloff and Jefferson 1974, p.728). Moreover, given that each next turn at talk is heard as directed to the prior, its producer will generally be heard to display an analysis, understanding or appreciation of the prior turn's talk that is exhibited in his or her responsive treatment of it." (Heritage and Atkinson 1984, p.7)

There would therefore appear to be some justification for concentrating in the first instance on adjacent turns, in the description of focus.

Thirdly, there is a syntactic limitation on the present study. The material used in Chapters 2 and 3 consists entirely of polar interrogative



sentences, whereas in Chapter 4 the test sentences are all declarative. The generalisation across these two data sets, made at the beginning of Chapter 5, may therefore not be entirely justified. Once again, this limitation resulted from the constraints of the methodology adopted, and it will almost certainly be necessary to modify the focus-accent systems in the light of any subsequent studies of focus in particular sentence-types. In this context, it may be noted that the marking of a sentence as question or statement is a further candidate function of prosodic features in its own right, one which has already been shown to be susceptible to the techniques of sequencing analysis used in the turn-delimitation studies (Local 1986). When more studies of this type have been carried out, treating the various candidate functions of prosodic features, it will be possible to modify the present statement of focus accordingly.

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APPENDIX 2.1.

Test Sentences for Experiment 1 (in Reference Number order). Recordings on Side A (010) of audio tape. Informant is identified by letter preceding sentence (M,C or D).

- 2.1 (M) was it the soldier who spent all the gold from the chest
- 2.2 (M) was it the witch who tied a leaking bag of flour onto the princess
- 2.3 (M) was it the princess who married the soldier
- 2.4 (M) was it the witch killed the king and the queen
- 2.5 (M) was it the soldier who cut the witch's head off
- 2.6 (M) was it the dog who bought the soldier more gold to replace where...what he'd spent
- 2.7 (M) was it the huge dog that brought the princess to the soldier's house
- 2.8 (M) was it the witch who put a cross on the soldier's door
- 2.9 (C) was it the soldier who asked if he could smoke one last pipe before he was hanged
- 2.10 (C) was it the shoemaker's boy who put crosses on all the doors in the town
- 2.11 (C) was it the lady-in-waiting who put crosses on all the doors in the town
- 2.12 (M) was the huge dog sitting on the chest of gold
- 2.13 (D) did the lady-in-waiting follow the princess to the soldier's door
- 2.14 (D) did the the lady-in-waiting tie a leaking bag of flour onto the princess
- 2.15 (D) was the huge dog sitting on the chest of gold
- 2.16 (D) did the queen ask the soldier to bring the tinderbox
- 2.17 (D) did the princess tell the soldier how to deal with the dog
- 2.18 (C) was the witch helping the soldier
- 2.19 (C) was the chest of gold in the prison
- 2.20 (M) was the king asked by the soldier if he could smoke one last pipe before he was hanged
- 2.21 (D) did the lady-in-waiting bring the princess to the soldier's house while she was asleep
- 2.22 (D) was the shoemaker's boy asked by the soldier if he could smoke one last pipe before he was hanged
- 2.23 (C) did the lady-in-waiting bring the princess to the soldier's house while she was asleep

APPENDIX 2.2

Order of Presentation of Test Sentences in Experiment 1.

Group 1:

1. Was it the king who spent all the gold from the chest (control)
2. Did the dog appear when the soldier accidentally struck the tinderbox (control)
3. Did the lady in waiting tie a leaking bag of flour onto the princess
4. Was it the soldier who cut the witch's head off
5. Was it the lady in waiting who put crosses on all the doors in the town
6. Was it the soldier who asked if he could smoke one last pipe before he was hanged
7. Was the king asked by the soldier if he could smoke one last pipe before he was hanged
8. Did the queen ask the soldier to bring the tinderbox
9. Was the shoemaker's boy asked by the soldier if he could smoke one last pipe before he was hanged
10. Was the huge dog sitting on the chest of gold
11. Was it the witch who put a cross on the soldier's door
12. Was it the huge dog that brought the princess to the soldier's house.
13. Was the witch helping the soldier
14. Was it the witch who tied a leaking bag of flour onto the princess
15. Was the chest of gold in the prison
16. Was it the witch who killed the king and the queen
17. Did the lady in waiting follow the princess to the soldier's door
18. Was the huge dog sitting on the chest of gold
19. Was it the soldier who spent all the gold from the chest
20. Was it the shoemaker's boy who put crosses on all the doors in the town
21. Was it the huge dog who brought the soldier more gold to replace what he'd spent
22. Did the princess tell the soldier how to deal with the dog
23. Was it the princess who married the soldier
24. Did the lady in waiting bring the princess to the soldier's house while she was asleep
25. Did the lady in waiting bring the princess to the soldier's house while she was asleep

Group 2:

1. Was it the king who spent all the gold from the chest
2. Did the dog appear when the soldier accidentally struck the tinderbox
3. Did the lady in waiting bring the princess to the soldier's house while she was  
asleep
4. Did the lady in waiting bring the princess to the soldier's house while she was  
asleep
5. Was it the princess who married the soldier
6. Did the princess tell the soldier how to deal with the dog.
7. Was it the huge dog who brought the soldier more gold to replace what he'd spent
8. Was it the shoemaker's boy who put crosses on all the doors in the town
9. Was it the soldier who spent all the gold from the chest
10. Was the huge dog sitting on the chest of gold
11. Did the lady in waiting follow the princess to the soldier's door
12. Was it the witch who killed the king and the queen
13. Was the chest of gold in the prison
14. Was it the witch who tied a leaking bag of flour onto the princess
15. Was the witch helping the soldier
16. Was it the huge dog that brought the princess to the soldier's house
17. Was it the witch who put a cross on the soldier's door
18. Was the huge dog sitting on the chest of gold
19. Was the shoemaker's boy asked by the soldier if he could smoke one last pipe  
before he was hanged
20. Did the queen ask the soldier to bring the tinderbox
21. Was the king asked by the soldier if he could smoke one last pipe before he was  
hanged
22. Was it the soldier who asked if he could smoke one last pipe before he was hanged
23. Was it the lady in waiting who put crosses on all the doors in the town
24. Was it the soldier who cut the witch's head off
25. Did the lady in waiting tie a leaking bag of flour onto the princess



## Instructions and transcripts for Experiment 2.

Experiment 2: Instructions

You have in front of you the transcript of three conversations, which you will hear on the tape in succession.

In the left-hand margin, you will see a + alongside certain sentences. Start the tape.

When you have heard the first sentence marked +, stop the tape.

Indicate, by underlining, the item or items in that sentence which in your opinion the speaker is focussing on as particularly important.

If you feel that the speaker is focussing on more than one item in the sentence, please try to rank the items in order of importance, by putting (1) under the most important, (2) under the next most important, and so on. You may use as many numbers as you wish.

You may also mark items as having equal importance, by giving them the same number.

Examples:

Was the witch sitting on the chest of gold?

1

2

This shows that in your view, the speaker focusses on 'the witch' as the most important item, but also gives some importance to 'the chest of gold'.

Was the witch sitting on the chest of gold?

This shows that only 'the witch' is important.

Was the witch sitting on the chest of gold?

This shows that the two marked items are of equal importance.

Please don't spend long over each sentence: first impressions are just as interesting as well-considered judgements.

Please don't rewind the tape to listen to sentences a second time.

You are of course free to use any information, linguistic or contextual, that is available to you, when deciding on the importance of items.

The conversations are taken from a game, in which the player was presented with a list of the principal actions of a story and a list of the characters. The player had to work out the story, by asking questions which could only be answered with 'yes' or 'no'.

Dialogue 1 (Tape: Side A: 075)

M: Did the princess appear when the soldier accidentally struck the tinderbox?

B: No

M: Was it the huge dog?

B: Yes

+ M: Yes, right, so... Was the huge dog sitting on the chest of gold?

B: Yes

M: Yes.. Did the huge dog tell the soldier where he could find the chest of gold?

B: No

M: No. Was it the soldier that got the chest of... the gold from the chest in the tree?

B: Yes

+ M: Yes. Was the king asked by the soldier if he could smoke one last pipe before he was hanged?

B: Yes

+ M: Was it the soldier who spent all the gold from the chest?

B: Yes

M: And was the princess asked by the soldier in prison to bring the magic tinderbox?

B: No

M: Was the lady-in-waiting asked?

B: No

M: Was the shoemaker's boy asked?

B: Yes

+ M: Oh dear, I've done those. Was the witch... was it the witch who tied a leaking bag of flour onto the princess?

B: No

M: Was it the soldier?

B: No

+ M: Was it the princess who married the soldier?

B: Right

M: Was it the soldier who killed the king and the queen?

Dialogue 1 (continued)

- B: No
- + M: Was it the witch killed the king and the queen
- B: No
- M: Was it the huge dog?
- B: Yes
- + M: Was it the soldier who cut the witch's head off?
- B: Yes
- + M: Was it the huge dog who brought the soldier more gold to replace what he'd spent?
- B: Yes
- M: Was it the witch...no...
- + Was it the huge dog that brought the princess to the soldier's house?
- B: Yes
- + M: Was it the witch who put a cross on the soldier's door?
- B: No
- M: Was it the princess?
- B: No
- M: Was it the king?
- B: No
- M: Was it the shoemaker's boy?
- B: No
- M: Oh dear. Was it the queen?
- B: No
- M: Was it the lady-in-waiting?

Dialogue 2 (Tape: Side A: 160)

D: OK. Can we begin?

B: Yes

D: Is there any time limit?

B: I'll stop after five minutes.

D: Is there any limit to the number of questions I can ask?

B: No

D: OK. Are all the dramatis personae involved in the story?

B: Yes, to a greater or lesser extent.

D: Is the shoemaker's boy a goodie or a baddie...sorry, is the shoemaker's boy a goodie?

B: Yes.

D: Is the lady-in-waiting a baddie?

B: Yes

+ D: Did the lady-in-waiting follow the princess to the soldier's door?

B: Yes

+ D: Did the lady-in waiting tie a leaking bag of flour onto the princess?

B: No

D: Was the witch sitting on the chest of gold?

B: No

+ D: Was the huge dog sitting on the chest of gold?

B: Yes

+ D: Did the lady-in-waiting bring the princess to the soldier's house while she was asleep?

B: No

D: Did the shoemaker's boy?

B: No

D: Did the dog?

B: Yes

D: Did the soldier spend all the gold from the chest?

B: Yes

D: Did the princess put all the crosses...put crosses on all the doors in the town?

B: No

D: Did the shoemaker's boy?

B: No

D: Did the lady-in-waiting put a cross on the soldier's door?

B: Yes

D: Did the king ask the soldier to bring the tinderbox?

B: No

+ D: Did the queen ask the soldier to bring the tinderbox?

B: No

D: Did the lady-in-waiting ask the soldier to bring the tinderbox?

B: No

D: Did the soldier cut the witch's head off? . .

B: Yes

D: Did the princess marry the soldier?

B: Yes

D: Did the witch tell the soldier where he could find the chest of gold?

B: Yes

D: Did the dog kill the king and the queen?

B: Yes

D: Did the shoemaker's boy tell the soldier how to deal with the dog?

B: No



Dialogue 2 (continued)

+ D: Did the princess tell the soldier how to deal with the dog?

B: No

D: Was the soldier chosen to be the new king?

B: Yes

D: Did the soldier get the gold from the chest in the tree?

B: Yes

D: Did the witch appear when the soldier accidentally struck the tinderbox?

B: No

D: Did the huge dog appear when the soldier accidentally struck the tinderbox?

B: Yes

D: Did the princess ask the soldier to bring the tinderbox?

B: No

+ D: Was the shoemaker's boy asked by the soldier if he could smoke one last pipe before he was hanged?

B: No

D: He shouldn't have been.

Dialogue 3 (Tape: Side A: 270)

- C: Was the witch in league with the soldier?  
B: Er...
- + C: Was the witch helping the soldier?
- B: She helped him at one stage.  
C: Ah. The witch didn't help him all the time.  
B: No  
C: Did the witch help him all the time?  
B: No  
C: Was the soldier in prison when he asked...  
+ Was it the soldier who asked if he could smoke one last pipe  
before he was hanged?
- B: Yes  
C: Was the soldier in prison...  
+ Was the chest of gold in the prison?  
B: No  
B: No  
C: Was the tinderbox in the prison?  
B: Eventually, I suppose.  
C: Did the witch tie a leaking bag of flour onto the princess?  
B: No  
+ C: Did the lady-in-waiting bring the princess to the soldier's house  
while she was asleep?
- B: No  
C: Did the witch bring the princess to the soldier's house?  
B: No  
C: Did the huge dog bring the princess to the soldier's house  
while she was asleep?  
B: Yes. She was asleep
- + C: Was it the shoemaker's boy who put crosses on all the doors in  
the town?  
B: No  
C: So was it the witch?  
B: No  
C: Was it the princess?  
B: No  
+ C: Was it the lady-in-waiting who put crosses on all the doors  
in the town?  
B: No

APPENDIX 3.2

Prominence and Focus Structure of Test Sentences

Key

S1: sentence reference number

| : boundary of focus constituent, derived from subjects' responses

MAXIMAL;MAJOR;MINOR: degree of phonological prominence of the focus constituent. MINIMAL prominence is represented by blank entry.

E1: Focus grade assigned by Experiment 1 subjects.

E2: Focus grade assigned by Experiment 2 subjects.

CONTRASTIVE;MAIN;SUBSIDIARY: focus grade assigned to the focus constituent. ZERO focus is represented by a blank entry.

S1 was it|the soldier|who spent|all the gold|from the chest|

	MAJOR		MAJOR		MINOR	
E1	MAIN		SUBSID		SUBSID	
E2	MAIN				SUBSID	

S2 was it|the witch|who tied|a leaking bag of flour|onto the princess|

	MAJOR		MAJOR		MAJOR	
E1	MAIN		SUBSIDIARY		SUBSIDIARY	
E2	MAIN		SUBSIDIARY		SUBSIDIARY	

S3 was it|the princess|who married|the soldier|

	MINOR	MAJOR/MINOR		MINOR	
E1		MAIN		SUBSIDIARY	
E2		MAIN		SUBSIDIARY	

S4 was it|the witch|killed|the king and the queen|

	MAXIMAL		MINOR	
E1	CONTRAST			
E2	CONTRAST			

S5 was it|the soldier|who cut|the witch's|head off|

	MAJOR		MINOR		MAJOR	
E1	SUBSIDIARY				MAIN	
E2	MAIN				SUBSID	

S6 was it|the dog|who brought|the soldier|more gold|to replace|what he'd spent|

	MAJOR		MINOR		MAJOR		MINOR	
E1	MAIN				SUBSID			
E2	MAIN		SUBSIDIARY		SUBSID			

S7 was it|the huge dog|that brought|the princess|to the soldier's house|

	MAJOR				MINOR	
	MAIN		SUBSIDIARY		SUBSIDIARY	
	MAIN		SUBSIDIARY		SUBSIDIARY	

S8 was it|the witch|who put a cross|on the soldier's door|

	MAXIMAL		MINOR		MINOR	
E1	CONTRAST					
E2	MAIN				SUBSIDIARY	

S9 was it the soldier who asked if he could smoke one last pipe before he was hanged!  
 MAJOR | MAJOR | | MINOR | |  
 E1 | MAIN | | SUBSIDIARY | |  
 E2 | MAIN | | SUBSIDIARY | |

S10 was it the shoemaker's boy who put the crosses on all the doors in the town!  
 | MAXIMAL | | MINOR | |  
 E1 | MAIN | | SUBSIDIARY | |  
 E2 | MAIN | | SUBSIDIARY | |

S11 was it the lady-in-waiting who put crosses on all the doors in the town!  
 | MAXIMAL | | MINOR | |  
 E1 | MAIN | | SUBSIDIARY | |  
 E2 | CONTRASTIVE | | SUBSIDIARY | |

S12 was it the huge dog sitting on the chest of gold!  
 M'R: MAJOR | | MAJOR | |  
 E1 | MAIN | | SUBSIDIARY | |  
 E2 | MAIN | | SUBSIDIARY | |

S13 did it the lady-in-waiting follow the princess to the soldier's door!  
 | MAJOR | MINOR | MINOR | MINOR | |  
 E1 | MAIN | SUBSIDIARY | SUBSIDIARY | SUBSIDIARY | |  
 E2 | MAIN | SUBSIDIARY | SUBSIDIARY | SUBSIDIARY | |

S14 did it the lady-in-waiting tie a leaking bag of flour onto the princess!  
 | MAXIMAL | M'R: | | MINOR | |  
 E1 | | SUBSIDIARY | SUBSIDIARY | MAIN | |  
 E2 | SUBSIDIARY | | SUBSIDIARY | MAIN | |

S15 was it the huge dog sitting on the chest of gold!  
 | MAXIMAL | | MINOR | |  
 E1 | CONTRASTIVE | | | |  
 E2 | CONTRASTIVE | | SUBSIDIARY | |

S16 did it the queen ask the soldier to bring the tinderbox!  
 | MAXIMAL | | | |  
 E1 | CONTRASTIVE | | | |  
 E2 | CONTRASTIVE | SUBSIDIARY | | |

S17 did it the princess tell the soldier how to deal with the dog!  
 | MAXIMAL | MINOR | | MINOR | |  
 E1 | CONTRASTIVE | | | |  
 E2 | CONTRASTIVE | | | |

S18 was the witch helping the soldier  
 | MAJOR | | | |  
 E1 | CONTRASTIVE | | | |  
 E2 | CONTRASTIVE | | | |

S19 was it the chest of gold in the prison!  
 MAJ: MINOR | MINOR | |  
 E1 | SUBSIDIARY | MAIN | |  
 E2 | SUBSIDIARY | MAIN | |



S20 was!the king!asked!by the soldier!if he could saoke one last pipe!before he was hanged!  
 ! MINOR !MINOR! MINOR ! MINOR !  
 E1 ! !MAIN ! SUBSIDIARY !  
 E2 ! SUBSID !MAIN ! SUBSIDIARY !

S21 did!the lady-in-waiting!bring!the princess!to the soldier's house!while she was asleep!  
 ! MAXIMAL ! ! MINOR ! MINOR !  
 E1 ! MAIN ! ! SUBSIDIARY ! SUBSIDIARY !  
 E2 SUB! MAIN ! ! SUBSIDIARY ! SUBSIDIARY ! SUBSIDIARY !

S22 was!the shoemaker's boy!asked!by the soldier!if he could saoke one last pipe!before he was hanged!  
 ! MAJOR ! ! MINOR ! MINOR !  
 E1 ! MAIN ! ! SUBSIDIARY !  
 E2 ! MAIN ! ! SUBSIDIARY !

S23 did!the lady-in-waiting!bring!the princess!to the soldier's house!while she was asleep!  
 ! MAJOR ! ! MINOR ! MINOR ! MINOR !  
 E1 ! MAIN ! ! SUBSIDIARY !  
 E2 ! MAIN ! ! SUBSIDIARY ! SUBSIDIARY ! SUBSIDIARY !

## APPENDIX 4.1

### Cues and Responses in Order of Presentation

1. So that's the doctor you mentioned, is it?  
No. That's the teacher I was telling you about.
2. Am I right in thinking someone's broken the patio door?  
Someone's broken the window.
3. I gather the forecast is pretty miserable.  
They said it would be hot today.
4. There's a girl in the lobby.  
There's a man in the lobby.
5. Were you looking forward to someone else mowing the lawn?  
No. I was afraid someone else would do it.
6. So John doesn't write books. Well, neither do lots of academics.  
He doesn't read books.
7. I had an appointment with a Mr Smith in the lobby, but I can't see him anywhere.  
There's a man in the lobby.
8. Hasn't the faculty voted on that yet?  
It's coming up at the faculty meeting.
9. Didn't you say your bike wasn't working?  
The car's broken down.
10. Gosh, I've never been in a school staffroom before.  
That's the teacher I was telling you about.
11. I can speak six dialects of English.  
How many languages can you speak?
12. Have you heard the forecast?  
They said it would be hot today.
13. It's cold in here.  
Someone's broken the window.
14. What a lovely party!  
That's the teacher I was telling you about.
15. Is there someone to take my luggage upstairs?  
There's a man in the lobby.
16. Has Mark read Lord of the Rings?  
He doesn't read books.

17. As Mary stepped out into the garden, the moon was shining up above her, casting a poetic light all around.  
The sun was shining.
18. Can you see anything?  
There's a man in the lobby.
19. Wow, some weather this. It doesn't feel like it'll cool off before tomorrow.  
They said it would be hot today.
20. Someone's opened the window, have they?  
Someone's broken the window.
21. A man vanished, you say.  
A man appeared.
22. Why do you despise Bob so?  
He doesn't read books.
23. I read in the paper some ex-Tory prime minister's kicked the bucket, Douglas Home I think.  
Macmillan's died.
24. Ugh. I can't imagine what it would be like to be a dentist.  
I'm awfully glad there are people who want to be dentists.
25. What happened next?  
A man appeared.
26. Why won't you be able to make it?  
The car's broken down.
27. Just show John the new window in the front room, will you?  
Someone's broken the window.
28. Like most linguists, I have a technical knowledge of a fair range of languages.  
How many languages do you speak?
29. John gets through a lot of magazines.  
He doesn't read books.
30. This is the new Miss World. Ask her anything you want.  
How many languages do you speak?
31. Any news about the new course?  
It's coming up at the faculty meeting.
32. John's washed your car.  
Oh dear. I was afraid someone else would do it.
33. And then a woman appeared, right?  
A man appeared.
34. Was there anything interesting on the news?  
Macmillan's died.

35. I think there's a man in the lift.  
There's a man in the lobby.
36. What was it like?  
The sun was shining.
37. Is the project coming up at the senate meeting?  
No. It's coming up at the faculty meeting.
38. Let's go for a run in the car.  
The car's broken down.
39. Of course, if the sun had been shining I'd have felt a lot happier.  
The sun was shining.
40. Fred's washed your car.  
Good. I was afraid someone else would do it.
41. The car's working fine, isn't it?  
The car's broken down.
42. I wish someone would break that horrible window in the bathroom, then we could have a nice new one put in.  
Someone's broken the window.
43. I'm pretty sure the sun was hidden by a cloud.  
The sun was shining.
44. I hear Macmillan's been taken ill or something.  
Macmillan's died.
45. Describe the sun that morning.  
The sun was shining.



## APPENDIX 4.2.

### Record of Utterances Analysed in Chapter 4

#### Key:

Line 1: Reference number and orthographic transcription of the sentence.

Line 2: Initials of informant; presentation number (see Appendix 4.1.); contextual condition; score given when speaker assessed performance for appropriateness, on a scale 1-6. (n.b. not for TK and PM).

Line 3: Cue to which the utterance is the response.

Line 4: Broad impressionistic transcription of 'segmental' parameters.

Line 5: Impressionistic transcription of pitch, by syllable. Staves represent limits of speaker's normal pitch range.

Line 6: Impressionistic transcription of rhythm of the utterance, by syllable.

Line 7: Impressionistic transcription of tempo and other features of the utterance. Parentheses mark the domain of the feature noted.

Line 8: Impressionistic transcription of relative loudness of syllables, using four levels: pp = very quiet; p = quiet; f = loud; ff = very loud.

Line 9: Phonological transcription in terms of accent systems established in Chapters 4 and 5: see p.134ff for conventions. Relevant phonological constraints follow the transcription, and are preceded by a number indicating the accent unit to which they apply, e.g. (2) SSC = the short syllable constraint applies in the second accent unit.

Line 10: Focus transcription in terms of the focus system established in Chapter 5. See p.152 for conventions.

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: TK/18 CONDITION: news  
CUE: Can you see anything?

3: ʒɛzəm:anɪn ʒəlɒbɪ

— — — — —  
— — — — —  
— — — — —

p p p f p p f p

//Max1 there's a man in /Mnr3 the lobby// (1) SSC  
!IC there's a MAN IS in the LOBBY !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: TC/18 CONDITION: news S.A.:5  
CUE: can you see anything?

ʒəz əmanɪn ʒəlɒbɪ

— — — — —  
— — — — —  
— — — — —

pp pp f pp pp p p

//Mnr1 there's a man in /Mn12 the lobby //  
!IS there's a MAN !Z in the lobby !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: MC/18 CONDITION: news S.A.:6  
CUE: can you see anything?

ʒɛzəmanɪn ʒəlɒbɪ

— — — — —  
— — — — —  
— — — — —

pp pp f pp pp f p

//Mnr1 there's a man in /Mnr3 the lobby //  
!IS there's a MAN IS in the LOBBY !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: MM/18 CONDITION: news S.A.:6  
CUE: Can you see anything?

၁၉၃၁၂၂:၂၂၂၂၂၂၂၂

— — \ — — —

၁ ၁ —: ၁ ၁ ၁ ၁

PP PP F PP PP PP

//Max1 there's a man in /Mn11 the lobby //  
!!C there's a MAN iZ in the lobby !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: AG/18 CONDITION: news S.A.:6  
CUE: Can you see anything?

၁၃၃၁၂၂:၂၂၂၂၂၂၂၂

— — \ — — \ /

၁ ၁ —: ၁ ၁ — —

PP PP F PP PP F PP

//Max1 there's a man in /Mnr3 the lobby //  
!!C there's a MAN iS in the LOBBY !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: PS/18 CONDITION: news S.A.:6  
CUE: Can you see anything?

၁၃၃၁၂၂၂၂ ၃၃၃၃၃၃၃၃

— — \ — — \

၁ ၁ — ၁ ၁ ၁ — —

PP PP F PP PP F P

//Maj2 there's a man in /Maj5 the lobby //  
!!M there's a MAN iM in the LOBBY !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: PW/18 CONDITION: news  
CUE: Can you see anything?

ðɛz ə mæn ɪn ðə lɒbɪz

— — — — —  
Zallegro — — — — —  
— — — — —

p p f p p ff p

//Mn12 there's a man in /Maj5 the lobby //  
!IZ there's a man iM in the LOBBY !





TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: MM/04 CONDITION: non-final contrast S.A.:6  
CUE: there's a girl in the lobby

ðɛzə mən ɪn ðə lɒbi

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u u - : u u - -  
-----  
pp pp f pp pp pp  
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//Max1 there's a man in /Mn11 the lobby //  
!IC there's a MAN !Z in the lobby !I

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: AG/04 CONDITION: non-final contrast S.A.:4  
CUE: there's a girl in the lobby

ðɛzə mən ɪn ðə lɒbi

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- - ^ - - -  
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u u - : u u - -  
-----  
pp pp f pp pp pp  
-----

//Max1 there's a man in /Mn11 the lobby //  
!IC there's a MAN !Z in the lobby !I

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: PS/04 CONDITION: non-final contrast S.A.:5  
CUE: there's a girl in the lobby

ðɛzə mən ɪn ðə lɒbi

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- - / - - - -  
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u u - u u u - u  
-----  
pp pp ff pp p p p p  
-----

//Maj2 there's a man in /Mn11 the lobby //  
!IH there's a MAN !Z in the lobby !I

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: PW/04 CONDITION: non-final contrast  
CUE: there's a girl in the lobby

ʒɛzə m:ənɪnðəlobi  
- - \ - - -  
- - - - -  
u u - : u u u u  
e e ff p p p p

//MaxI there's a man in /MnI the lobby //  
!!C there's a MAN IZ in the lobby !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: TK/07 CONDITION: total backgrounding  
CUE: I had an appointment with a Mr Smith in the lobby but I can't see him anywhere

ðɛz m: ? ðɛ d ɪ z mæn ɪn ðə lɒbi

- - - / - - - - /

- - - - - - - - -

f p p ff p p p p p p

//Maj2 there is /Mn12 a man in /Mn12 the lobby //  
!!M there IS I a man in the lobby !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: TC/07 CONDITION: total backgrounding S.A.:5  
CUE: I had an appointment with a Mr Smith in the lobby but I can't see him anywhere

ðɛz mæn ɪn ðə lɒbi

\ - \ - - - /

- : - - - - -

ff pp f pp pp f p

//Max1 there's /Mn11 a man in /Mn12 the lobby //  
!!C THERE IZ 's a man in the lobby !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: MC/07 CONDITION: total backgrounding S.A.:5  
CUE: I had an appointment with a Mr Smith in the lobby but I can't see him anywhere

ðɛz mæn ɪn ðə lɒbi

- - \ - - \ /

u u - - - - -

pp pp f pp pp f p

//Mnr1 there's a man in /Mnr3 the lobby //  
!!S there's a MAN IS in the LOBBY !!



TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: MM/07 CONDITION: total backgrounding S.A.:3  
CUE: I had an appointaent with a Mr Smith in the lobby but I can't see him anywhere

θεε:z:amanznθəlobz

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-: u - u - u u

f pp f pp pp p pp

//Maj1 there's /Maj2 a man in /Mn12 the lobby //  
!!M THERE IM 's a MAN IZ in the lobby !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: A6/07 CONDITION: total backgrounding S.A.:6  
CUE: I had an appointment with a Mr Smith in the lobby but I can't see him anywhere

θəzəmanznθəlobz

- - \ - - / -

u u - u - u - u

pp pp f pp pp p pp

//Mn1 there's a man in /Mn12 the lobby //  
!!S there's a MAN IZ in the lobby !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: PS/07 CONDITION: total backgrounding S.A.:0  
CUE: I had an appointaent with a Mr Smith in the lobby but I can't see him anywhere

θεεzəmanznθəlobz

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u u - u u - u

pp pp ff p p pp

//Maj2 there's a man in /Mn11 the lobby //  
!!M there's a MAN IZ in the lobby !!

TEST SENTENCE: S1: there's a man in the lobby

INFORMANT/TEST NO.: PW/07 CONDITION: total backgrounding

CUE: I had an appointment with a Mr Smith in the lobby but I can't see him anywhere

ðɛzəmənzɪnθəlobi?

- - \ - - / -

u u - u - - -

p p f p p p p

//Maj2 there's a man in /Mn12 the lobby //

!!M there's a MAN IZ in the lobby !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: TK/15 CONDITION: partial backgrounding  
CUE: Is there someone to take my luggage upstairs?

ᄁᄁ 2 2 man in ᄁᄁ lobby

- - \ - - \ -

u u - u u - -

p p f p p f p

//Mnr1 there's a man in /Maj1 the lobby //  
!!S there's a MAN IN in the LOBBY !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: TC/15 CONDITION: partial backgrounding S.A.:4  
CUE: Is there someone to take my luggage upstairs?

ᄁᄁ 2 2 man in ᄁᄁ lobby

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u u - u u - u

pp pp ff pp pp fp

//Maj2 there's a man in /Mn12 the lobby //  
!IM there's a MAN IZ in the LOBBY !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: MC/15 CONDITION: partial backgrounding S.A.:5  
CUE: Is there someone to take my luggage upstairs?

ᄁᄁ 2 2 man in ᄁᄁ lobby

- - \ - - \ /

u u - u u - u

pp pp f pp pp fpp

//Maj2 there's a man in /Mnr3 the lobby //  
!IM there's a MAN IS in the LOBBY !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: MM/15 CONDITION: partial backgrounding S.A.:5  
CUE: Is there someone to take my luggage upstairs?

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pp pp f pp pp f p

//Maj1 there's a man in /Maj2 the lobby //  
!IC there's a MAN !M in the LOBBY !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: AG/15 CONDITION: partial backgrounding S.A.:3  
CUE: Is there someone to take my luggage upstairs?

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— — — — — —  
pp pp f pp pp f p

//Maj2 there's a man in /Maj2 the lobby //  
!IM there's a MAN !M in the LOBBY !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: PS/15 CONDITION: partial backgrounding S.A.:6  
CUE: Is there someone to take my luggage upstairs?

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— — \ — — \ —  
— — — — — —  
pp p ff pp pp f p

//Maj2 there's a man in /Mn11 the lobby //  
!IM there's a MAN !Z in the lobby !!



TEST SENTENCE: Si: there's a man in the lobby  
INFORMANT/TEST NO.: PW/15 CONDITION: partial backgrounding  
CUE: Is there someone to take my luggage upstairs?

ḏḏ 22 man ɪndʌlɒbɪ  
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/ - / - - / -  
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<leut u - - u - - u - ->  
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ff p f p p f p  
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//Max! there's /Mn11 man //Maj3 in the lobby //  
!!C THERE IZ 's a man !!M in the LOBBY !!



TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: MM/35 CONDITION: final contrast S.A.:6  
CUE: I think there's a man in the lift

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— — \ — — \  
Z a l l e s s o  
u u — u u — u  
PP PP F PP PP FP

//Maj2 there's a man in /Maj5 the lobby //  
!IM there's a MAN !M in the LOBBY !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: AG/35 CONDITION: final contrast S.A.:3  
CUE: I think there's a man in the lift

၁၂၃၄၅၆၇၈၉၁၀၁၁

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u u — u u — —  
PP PP F PP PP FP

//Mn11 there's a man in /Maj5 the lobby //  
!IZ there's a man !M in the LOBBY !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: PS/35 CONDITION: final contrast S.A.:6  
CUE: I think there's a man in the lift

၁၁၂၃၄၅၆၇၈၉၁၀၁၁

— — — — —  
u u — u u — —  
PP PP F PP PP FF F

//Mn12 there's a man in /Max1 the lobby //  
!IZ there's a man !C in the LOBBY !!

TEST SENTENCE: S1: there's a man in the lobby  
INFORMANT/TEST NO.: PW/35 CONDITION: final contrast  
CUE: I think there's a man in the lift

ðe zə mən ɪn ðə lɒbɪ

zə lɒbɪ

p p f p p ff f

//Mn11 there's a man in /Maj4 the lobby // (2:SSC)  
!IZ there's a man IM in the LOBBY !!



TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: TK/25 CONDITION: news  
CUE: What happened next?

3::manəpɪəd

- \ - \

<leɪtə - ɪ - : >

l f pp f pp

//Maj2 a man /Maj4 appeared //  
!!M a MAN !M APPEARED !!

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: TC/25 CONDITION: news S.A.:5  
CUE: What happened next?

əma:nəpɪəd

- - -

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pp ff pp f

//Max1 a man /Mn12 appeared //  
!!C a MAN !Z APPEARED !!

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: MC/25 CONDITION: news S.A.:5  
CUE: What happened next?

əmanəpɪəd

- / - /

ɪ - ɪ -

pp f pp f

//? a man /Mnr4 appeared // (1) outside system  
!!?S a MAN !S APPEARED !!

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: MM/25 CONDITION: news S.A.:6  
CUE: What happened next?

amənəpɪəd

— — —  
— — —

u —: u —

pp f pp f

//Maj5 a man /Mn1 appeared // (1) SSC  
!!M a MAN !Z appeared!!

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: AG/25 CONDITION: news S.A.:5  
CUE: What happened next?

ə? amənəpɪəd

— — —

u — u —

p f p f

//Mn1 a man /Mn1 appeared //  
!!Z a man !Z appeared!!

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: PS/25 CONDITION: news S.A.:6  
CUE: What happened next?

amənəpɪəd

— — —

u — u —:

pp f pp f

//Mn12 a man /Maj4 appeared //  
!!Z a man !M APPEARED !!

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: PW/25 CONDITION: news  
CUE: What happened next?

a man appeared

- / - \

u - u - :

pp f pp f → pp

//Maj2 a man /Maj4 appeared // (1) SSC  
!!M a MAN IM APPEARED !!

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: TK/33 CONDITION: non-final contrast  
CUE: And then a woman appeared, right?

əmənəpɪəd                      əmənəpɪəd  
-----  
- / - -                      - ^ - -  
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u - u -                      u - u -  
-----  
p f p f                      p ff p i

//Maj2 a man /Maj4 appeared//  
!!M a MAN !M APPEARED !!

//Maj2 a man /Mn1 appeared // (2) LVA  
!!M a MAN !Z appeared !!

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: TC/33 CONDITION: non-final contrast S.A.:6  
CUE: And then a woman appeared, right?

c ɜmə:nəpɪəd  
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- - -                      - - -  
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u u - : u - :  
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pɪ ff p f

//Max1 a man /Mn1 appeared // (1) SSC (2) LVA  
!!C a MAN !Z appeared !!

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: NC/33 CONDITION: non-final contrast S.A.:5  
CUE: And then a woman appeared, right?

əmə:nəpɪəd  
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- / -                      - -  
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u - u -  
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pɪ f p f

(Does not conform to focus-accent systems)



TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: MM/33 CONDITION: non-final contrast S.A.:5  
CUE: And then a woman appeared, right?

əmə:nəpi:əd

— — — —

u —: u —:

pp f pp f

//Max1 a man /Mn11 appeared //  
!IC a MAN IZ appeared !I

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: AG/33 CONDITION: non-final contrast S.A.:4  
CUE: And then a woman appeared, right?

əmə:nəpi:əd

— — — —

u —: u —

pp f pp f

//Max1 a man /Mn11 appeared // (2) LVA  
!IC a MAN IZ appeared !I

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: PS/33 CONDITION: non-final contrast S.A.:6  
CUE: And then a woman appeared, right?

əmə:nəpi:əd

— —

<staccab u —: >

pp ff pp f

//Maj2 a man /Mn11 appeared // (1) SSC (2) LVA  
!IM a MAN IZ appeared !I

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: PW/33 CONDITION: non-final contrast  
CUE: And then a woman appeared, right?

ə mən ə pɪəd

- \ -

u - : u - :

p ff p fɔp

//Max1 a man /Mn12 appeared //  
!IC a MAN !Z appeared !I

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: TK/21 CONDITION: final contrast  
CUE: A man vanished, you say.

əmanəprəd

- - - \

<alɪsə> - - :

p f p ff

//Mn12 a man /Max1 appeared //  
!IZ a man IC APPEARED !!

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: TC/21 CONDITION: final contrast S.A.:5  
CUE: A man vanished, you say.

əmanəprəd

- - - \

u - : u - :

pp f p f

//Maj4 a man /Maj5 appeared // (1) SSC (2) CFC  
!IM a MAN IM APPEARED !!

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: MC/21 CONDITION: final contrast S.A.:1  
CUE: A man vanished, you say.

əmanəprəd

- - - \

<poɪ.əlɪsə> - - :

pp p pp f

//Mn11 a man /Maj5 appeared // (2) CFC  
!IZ a man IM APPEARED !!

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: MM/21 CONDITION: final contrast S.A.:6  
CUE: A man vanished, you say.

a man ə pɪəd

- - - \

u - u - :

pp p pp ff

//Mn11 a man /Max1 appeared //  
!IZ a man !C APPEARED !I

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: AG/21 CONDITION: final contrast S.A.:4  
CUE: A man vanished, you say.

a man ə pɪəd

- - - \

u - u - :

p f p f

//Mn11 a man /Maj5 appeared // (2) CFC  
!IZ a man !M APPEARED !I

TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: PS/21 CONDITION: final contrast S.A.:6  
CUE: A man vanished, you say.

a man ə p<sup>h</sup>ɪəd

- - - \

u - u - :

pp f pp p

//Mn11 a man /Maj3 appeared //  
!IS a MAN !M APPEARED !I



TEST SENTENCE: S2: a man appeared  
INFORMANT/TEST NO.: PW/21 CONDITION: final contrast  
CUE: A man vanished, you say.

a man ə pɪəd

- - - |

zə lɒs ə - :

p f p ff

//Mn| a man /Max| appeared //  
||Z a man |C APPEARED ||

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: TK/34 CONDITION: news  
CUE: Was there anything interesting on the news?

makmilanzdɔɪd

- - - /

u - - -

p f pp fp

//? Macmill /Mnr1 -an's died //  
!!? MACHILLAN IS 's DIED !!

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: TC/34 CONDITION: news S.A.:6  
CUE: Was there anything interesting on the news?

mə?milanzdɔɪd

- - - /

u - u -

pp f pp f

//Maj2 Macmill /Mnr4 -an's died // (1) SSC  
!!M MACHILLAN IS 's DIED !!

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: MC/34 CONDITION: news S.A.:1  
CUE: Was there anything interesting on the news?

mə?milanzdɔɪd

- - - /

u - u - :

p f p f

//Mn1 Macmill /Mnr4 -an's died //  
!!Z Macmillan IS 's DIED !!

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: MM/34 CONDITION: news S.A.:6  
CUE: Was there anything interesting on the news?

m ə k ' m i l n z d a i d

- / - /  
v - v - :  
P F P F

//Maj2 Macmill /Mnr4 -an's died //  
!!M MACMILLAN IS 's DIED !!

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: AG/34 CONDITION: news S.A.:5  
CUE: Was there anything interesting on the news?

m ə ʒ m i l n z d a i d

- - - /  
v - v - :  
P F P F

//Mnl1 Macmill /Mnr4 -an's died //  
!!Z Macmillan IS 's DIED !!

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: PS/34 CONDITION: news S.A.:6  
CUE: Was there anything interesting on the news?

m ə ʒ m i l n z d a i : d

- /  
v - v - :  
PP F PP P

//Maj2 Macmill /Mnr2 -an's died //  
!!M MACMILLAN IS 's DIED !!

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: PW/34 CONDITION: news  
CUE: Was there anything interesting on the news?

m 2 k m i l a n z d a i d

- \ - /  
- - - - :

p f p f

//Maj2 Macmill /Mnr4 -an's died //  
IIM MACHILLAN IS 's DIED II



TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: TK/23 CONDITION: non-final contrast  
CUE: I read in the paper some ex-Tory Prime Minister's kicked the bucket, Douglas-Home I think

makmilanzdaid

— — — —

u — — —

p ff pp p

//Maj2 Macmill /Mn1 -an's died // (1) SSC  
!IM MACMILLAN IZ 's died !I

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: TC/23 CONDITION: non-final contrast S.A.:1  
CUE: I read in the paper some ex-Tory Prime Minister's kicked the bucket, Douglas-Home I think

[mæ?milan:sdaid

< leuf

pp ff pp p

//Max1 Macmill /Mn1 -an's died // (1) SSC (2) LVA  
!IC MACMILLAN IZ 's died !I

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: MC/23 CONDITION: non-final contrast S.A.:0  
CUE: I read in the paper some ex-Tory Prime Minister's kicked the bucket, Douglas-Home I think

ma?milijan. ma?milanzdaid

— — — — — —

u — u — u — u —

p ff pp ff f p p

//Maj2 Macmill /Mn1 -an's died // (2) LVA  
!IM MACMILLAN IZ 's died !I

TEST SENTENCE: S3: Macmillan's died

INFORMANT/TEST NO.: MM/23 CONDITION: non-final contrast S.A.:6

CUE: I read in the paper some ex-Tory Prime Minister's kicked the bucket, Douglas-Home I think

m ə m i l n z d a i d

— — — —  
— — — —  
— — — —  
p p — f p f

//Maj2 Macmill /Mn11 -an's died //  
!!M MACMILLAN !Z 's died !!

TEST SENTENCE: S3: Macmillan's died

INFORMANT/TEST NO.: AG/23 CONDITION: non-final contrast S.A.:5

CUE: I read in the paper some ex-Tory Prime Minister's kicked the bucket, Douglas-Home I think

m ə m i l n z d a i d

— — — —  
— — — —  
— — — —  
f ff f ?

//Mnr1 Macmill /Mn11 -an's died //  
!!S MACMILLAN !Z 's died !!

TEST SENTENCE: S3: Macmillan's died

INFORMANT/TEST NO.: PS/23 CONDITION: non-final contrast S.A.:6

CUE: I read in the paper some ex-Tory Prime Minister's kicked the bucket, Douglas-Home I think

m ə m i l n z d a i d

— — — —  
— — — —  
— — — —  
p p ff p p f

//Maj2 Macmill /Mn11 -an's died // (2) LVA  
!!M MACMILLAN !Z 's died !!

TEST SENTENCE: S3: Macmillan's died

INFORMANT/TEST NO.: PW/23 CONDITION: non-final contrast

CUE: I read in the paper some ex-Tory Prime Minister's kicked the bucket, Douglas-Hoare I think

makmilanzdard

- ˘

- -

- - ˘ -

p f pp p

//Maj2 Macmill /Mnll -an's died //

!!M MACMILLAN IZ 's died !!

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: TK/44 CONDITION: final contrast  
CUE: I hear Macmillan's been taken ill or something

məzmɪlənzdɑ:d

— — — ^  
<allegro — — — —> —:

f pp pp ff

//Mn11 Macmill /Max1 -an's died //  
!IZ Macmillan IC 's DIED !I

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: TC/44 CONDITION: final contrast S.A.:6  
CUE: I hear Macmillan's been taken ill or something

məzmɪlɔːsdɑ:d

— — — ^  
< poco allegro — — — —> —:

p f p f

//Mn12 Macmill /Maj4 -an's died //  
!IZ Macmillan IM 's DIED !I

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: MC/44 CONDITION: final contrast S.C.:4  
CUE: I hear Macmillan's been taken ill or something

məzmɪlənzdɑ:d

— — — ^  
— — — — —:

pp f p ff

//Mn12 Macmill /Max1 -an's died //  
!IZ Macmillan IC 's DIED !I



TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: MM/44 CONDITION: final contrast S.C.:5  
CUE: I hear Macmillan's been taken ill or something

məmilɪnzda:ɪd

— — — ^  
< əlɪsə — — — > — — — :  
— — — — —

pp p pp f

//Mn11 Macmill /Max1 -an's died //  
!IZ Macmillan IC 's DIED !I

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: AG/44 CONDITION: final contrast S.C.:5  
CUE: I hear Macmillan's been taken ill or something

mɔ̃zmilɪnzda:ɪd

— — — ^  
< pɔ̃ əlɪsə — — — > — — — :  
— — — — —

pp p pp f

//Mn11 Macmill /Max1 -an's died //  
!IZ Macmillan IC 's DIED !I

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: PS/44 CONDITION: final contrast S.C.:6  
CUE: I hear Macmillan's been taken ill or something

mɔ̃zmilɪnzda:ɪd

— — — ^  
u — u — — :  
— — — — —

pp p pp ff

//Mn12 Macmill /Max1 -an's died //  
!IZ Macmillan IC 's DIED !I

TEST SENTENCE: S3: Macmillan's died  
INFORMANT/TEST NO.: PW/44 CONDITION: final contrast  
CUE: I hear Macmillan's been taken ill or something

mákmilənzdəɪd

— — —  
< a l e s n — — — >

p pp pp ff

//Mn11 Macmill /Maj4 -an's died //  
!IZ Macmillan !M 's DIED !I

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: TK/26 CONDITION: news  
CUE: Why won't you be able to make it?

ʔkɑ:zbrɔkəndaʊn

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< t e n t e >  
u —: —: u —:  
f f p p f

//Max1 the car's /Mn12 brok- /Maj1 -en down // (1) AAC  
!IC the CAR IM 's BROKEN DOWN !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: TC/26 CONDITION: news S.A.:6  
CUE: Why won't you be able to make it?

ðə kɑ:zbrɔkɪndaʊn

— — — — —  
u —: — u —  
p p f p p p

//Maj4 the car's /Mn11 brok- /Mn11 -en down // (1) AAC  
!IM the CAR IZ 's broken down !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: MC/26 CONDITION: news S.A.:6  
CUE: Why won't you be able to make it?

ðə kɑ:zbrɔkɪndaʊn

— \ — — — —  
< a l i e s e >  
u —: — u —  
p p f f p p f

//Max1 the car's /Mn12 brok- /Mnr4 -en down //  
!IC the CAR IS 's BROKEN DOWN !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: MM/26 CONDITION: news S.A.:6  
CUE: Why won't you be able to make it?

ʒə kɑ:z brɒkɪdaʊn

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ˌ - : - ˌ - :

pp f f pp f

//Max1 the car's /Mn11 brok- /Mn11 -en down // (1) AAC  
!IC the CAR IZ 's broken down !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: AG/26 CONDITION: news S.A.:5  
CUE: Why won't you be able to make it?

ʒə kɑ:z brɒkɪdaʊn

- - - - -

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pp f f pp p

//Max1 the car's /Mn12 brok- /Mn11 -en down // (1) AAC  
!IC the CAR IZ 's broken down !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: PS/26 CONDITION: news S.A.:6  
CUE: Why won't you be able to make it?

ʒə kɑ:z brɒkɪdaʊn

- ˘ - ˘ - ˘

ˌ - : - ˌ - :

pp f p pp p

//Max1 the car's /Mn11 brok- /Mn11 -en down // (2) LVA (3) LVA  
!IC the CAR IZ 's broken down !



TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: PW/26 CONDITION: news  
CUE: Why won't you be able to make it?

ðə kɑ:zbrɒkəndaʊn

- - - - -

u - - - -

pp f p pp f

//Maj4 the car's /Mn12 brok- /Mn11 -en down //  
!IM the CAR IZ 's broken down !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: TK/09 CONDITION: non-final contrast  
CUE: Didn't you say your bike wasn't working?

noðaka:z brokəndaən  
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- - - - -  
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- - - - -  
-----  
f pp ff p pp p

//Maj4 the car's /Mn12 brok- /Mn11 -en down // (1) AAC  
!IM the CAR IZ 's broken down !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: TC/09 CONDITION: non-final contrast S.A.:5  
CUE: Didn't you say your bike wasn't working?

noə. ðaka:z broəkɨdaən  
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ff l pp f f→p pp f

//Max1 the car's /Mn11 brok- /Mn11 -en down // (1) AAC (2) LVA (3) LVA  
!IC the CAR IZ 's broken down !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: MC/09 CONDITION: non-final contrast S.A.:6  
CUE: Didn't you say your bike wasn't working?

noə. ðka:z broəkɨdaən  
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/ - - \ - \  
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- : - : - - - :  
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p f p pp p

//Max1 the car's /Mn12 brok- /Mn11 -en down // (1) AAC (2) LVA (3) LVA  
!IC the CAR IZ 's broken down !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: MM/09 CONDITION: non-final contrast S.A.:6  
CUE: Didn't you say your bike wasn't working?

noəʔəkɑ:zbrɔkɪndaʊn

ˌ ˈ ˈ ˌ ˈ ˌ

ˌ ˌ ˌ : ˌ ˌ ˌ :

f p p f p p p

//Maj4 the car's /Mn12 brok- /Mnr3 -en down // (1) AAC (2) LVA  
!IC the CAR IS 's BROKEN DOWN !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: AG/09 CONDITION: non-final contrast S.A.:5  
CUE: Didn't you say your bike wasn't working?

noə:ʔəkɑ:zbrɔkɪndaʊn

ˌ ˈ ˈ ˈ ˈ ˌ

ˌ : ˌ ˌ : ˌ ˌ ˌ :

p p p f p p p

//Max1 the car's /Mn12 brok- /Mn11 -en down // (1) AAC (3) LVA  
!IC the CAR 'Z 's broken down !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: PS/09 CONDITION: non-final contrast S.A.:6  
CUE: Didn't you say your bike wasn't working?

noəʔəkɑ:zbrɔkɪndaʊn

ˌ ˈ ˈ ˌ ˈ ˌ

ˌ : ˌ ˌ : ˌ ˌ ˌ :

f p p ff f p p p

//Max1 the car's /Mn12 brok- /Mn11 -en down // (1) AAC (2) LVA (3) LVA  
!IC the CAR 'Z 's broken down !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: PW/09 CONDITION: non-final contrast  
CUE: Didn't you say your bike wasn't working?

no? ɔ̃ ka:zbrokəndaən

— — — — —  
— — — — —  
— — — — —  
— — — — —

pp ff p ff p

//Maj4 the car's /Mn11 brok- /Mn11 -en down // (2) LVA (3) LVA  
!M the CAR IZ 's broken down !



TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: TK/38 CONDITION: partial backgrounding  
CUE: Let's go for a run in the car

ka:z brokəndaʊn

— — — \

— — ʊ —

f f pp f

//Mn1 the car's /Mn2 brok- /Maj2 -en down //  
!IZ the car IM 's BROKEN DOWN !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: TC/38 CONDITION: partial backgrounding S.A.:6  
CUE: Let's go for a run in the car

ʔ ka:z brokəndaʊn

— — — ^  
— ʊ — : <allegro> — ʊ — ::

f p pp f

//Max1 the car's /Mn2 brok- /Maj1 -en down // (1) AAC  
!IC the CAR IM 's BROKEN DOWN !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: MC/38 CONDITION: partial backgrounding S.A.:2  
CUE: Let's go for a run in the car

ʔ ka:z brokəndaʊn

— — — —

ʊ — : — ʊ — :

f f pp f

//Max1 the car's /Mn2 brok- /Mn1 -en down // (1) AAC  
!IC the CAR IZ 's broken down !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: MM/38 CONDITION: partial backgrounding S.A.:6  
CUE: Let's go for a run in the car

ʔə kɑ:z brɒkɪdaʊn

˘            -            -            \  
˘            -:            -            ˘            -:  
f            p            pp            f

//Max1 the car's /Mn12 brok- /Max1 -en down //  
!IC the CAR IC 's BROKEN DOWN !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: AG/38 CONDITION: partial backgrounding S.A.:4  
CUE: Let's go for a run in the car

ʔə kɑ:z brɒkɪdaʊn

-            -            -            -            \  
˘            -:            -            ˘            -:  
pp            f            f            pp            f

//Max1 the car's /Mn12 brok- /Max1 -en down // (1) AAC  
!IC the CAR IC 's BROKEN DOWN !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: P5/38 CONDITION: partial backgrounding S.A.:6  
CUE: Let's go for a run in the car

ʔə kɑ:z brɒkɪdaʊn

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˘            -:            -            ˘            -:  
pp            f            p            pp            f

//Max1 the car's /Mn11 brok- /Max1 -en down //  
!IC the CAR IC 's BROKEN DOWN !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: PW/38 CONDITION: partial backgrounding  
CUE: Let's go for a run in the car

ðəka:zbrəkəndaʊn

- ˌ - - ˌ

ˌ - : - ˌ - :

pp f f pp f

//Max1 the car's /Mn12 brok- /Maj4 -en down //  
!IC the CAR IM 's BROKEN DOWN !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: TK/41 CONDITION: final contrast  
CUE: The car's working fine, isn't it?

noʔ ʔaka:zbrokəndaən

\ - \ - \

-: u - - u -:

pp f p pp f

//Mn11 the car's /Mn12 brok- /Max1 -en down // (1) LVA (2) LVA  
!IZ the car IC 's BROKEN DOWN !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: TC/41 CONDITION: final contrast S.A.:5  
CUE: The car's working fine, isn't it?

noə: ʔka:zbroəkɨdaən

\ - - - \

-: -: - u -:

f pp f p pp f

//Maj1 the car's /Mn11 brok- /Max1 -en down // (1) AAC  
!IM the CAR IC 's BROKEN DOWN !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: MC/41 CONDITION: final contrast S.C.:5  
CUE: The car's working fine, isn't it?

noə:: ʔkazbroəkɨdaən

/ - - - 7

-: : u - u u -:

f pp p' pp' pp' p'

//Mn11 the car's /Mn11 brok- /Max1 -en down //  
!IZ the car IC 's BROKEN DOWN !



TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: MM/41 CONDITION: final contrast S.A.:4  
CUE: The car's working fine, isn't it?

noə: ʒka:z brook<sup>h</sup>ɪdaən

/ - ʌ - - \

-: ʌ - ʌ ʌ -:

f pp f p pp f

//Maj2 the car's /Mn11 brok- /Max1 -en down //  
!IM the CAR IC 's BROKEN DOWN !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: AG/41 CONDITION: final contrast S.A.:6  
CUE: The car's working fine, isn't it?

noə ʒka:z brook<sup>h</sup>ɪdaən

/ - - - \

-: -: - ʌ -:

f pp f p pp f

//Mn11 the car's /Mn11 brok- /Max1 -en down //  
!IZ the car IC 's BROKEN DOWN !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: PS/41 CONDITION: final contrast S.A.:6  
CUE: The car's working fine, isn't it?

noə: ʒka:z brook<sup>h</sup>ɪdaən

\ - - - \

- - ʌ -: - ʌ -:

f pp f p pp f

//Maj1 the car's /Mn12 brok- /Max1 -en down // (1) AAC  
!IM the CAR IC 's BROKEN DOWN !

TEST SENTENCE: S4: the car's broken down  
INFORMANT/TEST NO.: PW/41 CONDITION: final contrast  
CUE: The car's working fine, isn't it?

noðəka:zbrəkəndaʊn

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L poco alləsn >  
- u - : - u - :

f pp f p pp ff

//Mn12 the car's /Mn12 brok- /Max1 -en down // (1) LVA (2) LVA  
!Z the car IC 's BROKEN DOWN !

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: TK/36 CONDITION: news  
CUE: What was it like?

၎: ၵကမာ၃၁ကၣ်ၣ် ၵိ: ၵကမာ၃၁ကၣ်ၣ်

~ ~ ~ ~ ~  
<1euh ~ ~ ~ > <drəu ~ ~ ~ >  
f pp f pp pp f pp f pp

//Max1 sun /Mnr1 was shining // //Mnr3 the sun /Mnr4 was shining //  
!!C the SUN !S was SHINING !! !!S the SUN !!S was SHINING !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: TC/36 CONDITION: news S.A.:5  
CUE: What was it like?

ၵိၵကမာ၃၁ကၣ်ၣ်

~ ~ ~ ~ ~  
~ ~ ~ ~ ~  
pp f p f p

//Maj2 the sun /Maj2 was shining //  
!!M the SUN !!M was SHINING !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: MC/36 CONDITION: news S.A.:6  
CUE: What was it like?

ၵိၵကမာ၃၁ကၣ်ၣ်

~ ~ ~ ~ ~  
~ ~ ~ ~ ~  
pp ff pp f p

//? the sun /? was shining //  
(does not conform to focus-accent systems)

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: MM/36 CONDITION: news S.A.:3  
CUE: What was it like?

ʔ h ə s ə n w ə s ʃ aɪ n ɪ ŋ  
- \ - \ -  
˘ - ˘ - ˘  
p p f p p f p

//Maj2 the sun /Maj2 was shining //  
!!M the SUN !!M was SHINING !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: AG/36 CONDITION: news S.A.:4  
CUE: What was it like?

ð ə s ə n w ə s ʃ aɪ n ɪ ŋ  
- \ - \ -  
˘ - ˘ - ˘  
p p f p p f p

//Mnr1 the sun /Mnr4 was shining //  
!!S the SUN !!S was SHINING !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: PS/36 CONDITION: news S.A.:5  
CUE: What was it like?

ð ə s ə n w ə s ʃ aɪ n ɪ ŋ  
- - - \ -  
˘ - ˘ - ˘  
p f p f p

//Mnl1 the sun /Mnl1 was shining // (2) LVA  
!!Z the sun !!Z was shining !!



TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: PW/36 CONDITION: news  
CUE: What was it like?

၁၁၀၀၀၀၀၀၀၀၀၀၀၀

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u - u - : u

pp f pp f pp

//Mnr1 the sun /Mnr4 was shining //  
!IS the SUN !IS was SHINING !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: TK/45 CONDITION: partial backgrounding  
CUE: Describe the sun that morning

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pp p pp f pp

//Mn12 the sun /Mn1 was shining //  
!!Z the sun !!C was SHINING !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: TC/45 CONDITION: partial backgrounding S.A.:4  
CUE: Describe the sun that morning

၁၁၁၁၁၁၁၁

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၁ - - - ၁

pp f pp f pp

//Maj2 the sun /Maj2 was shining //  
!!M the SUN !!M was SHINING !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: MC/45 CONDITION: partial backgrounding S.A.:2  
CUE: Describe the sun that morning

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၁ - - - ၁

၁ - - - ၁

pp f pp f pp

//Maj2 the sun /Maj2 was shining //  
!!M the SUN !!M was SHINING !!







TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: TK/39 CONDITION: total backgrounding  
CUE: Of course, if the sun'd been shining I'd've felt much happier

၁၁၂၃၄၅၆၇၈၉

- 1 1 / -

<ပုဂံကေတု - - - >

PP P F P PP

//Mn12 the sun /Maj2 was /Mn12 shining //  
!IZ the sun !IM WAS !IZ shining !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: TC/39 CONDITION: total backgrounding S.A.:6  
CUE: Of course, if the sun'd been shining I'd've felt much happier

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u - - - u

PP F FF F PP

//Mn11 the sun /Maj2 was /Mn11 shining // (2) AAC (3) LVA  
!IZ the sun !IM WAS !IZ shining !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: MC/39 CONDITION: total backgrounding S.A.:6  
CUE: Of course, if the sun'd been shining I'd've felt much happier

၁၁၂၃၄၅၆၇၈၉

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u - - - u

PP FF FF F P

//Mn12 the sun /Maj2 was /Mn11 shining // (2) AAC (3) LVA  
!IZ the sun !IM WAS !IZ shining !!



TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: PW/39 CONDITION: total backgrounding  
CUE: Of course, if the sun'd been shining I'd've felt much happier

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pp p ff p pp

//Mn11 the sun /Maj2 was /Mn11 shining // (2) AAC (3) LVA  
!IZ the sun !IM WAS !IZ shining !I

TEST SENTENCE: S5: the sun was shining  
 INFORMANT/TEST NO.: TK/17 CONDITION: non-final contrast  
 CUE: As Mary stepped out into the garden, the moon was shining up above her...

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 < ပုၣ် ဝဲၣ် >  
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PP FF PP F PP

//Mnr1 the sun /Mnl1 was shining //  
 !IS the SUN !IZ was shining !I

TEST SENTENCE: S5: the sun was shining  
 INFORMANT/TEST NO.: TC/17 CONDITION: non-final contrast S.A.:6  
 CUE: As Mary stepped out into the garden, the moon was shining up above her...

ဝဲၣ် အုၣ် ဝဲၣ် အုၣ်

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PP FF PP F PP

//Max1 the sun /Mnl1 was shining // (2) LVA  
 !IC the SUN !IZ was shining !I

TEST SENTENCE: S5: the sun was shining  
 INFORMANT/TEST NO.: MC/17 CONDITION: non-final contrast S.A.:3  
 CUE: As Mary stepped out into the garden, the moon was shining up above her...

ဝဲၣ် အုၣ် ဝဲၣ် အုၣ်

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 < ဝဲၣ် >  
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PP FF PP F PP

//Maj2 the sun /Mnl1 was shining // (2) LVA  
 !IM the SUN !IZ was shining !I



TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: MM/17 CONDITION: non-final contrast S.A.:6  
CUE: As Mary stepped out into the garden, the moon was shining up above her...

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< ၂၀၂၈ ၂၀၂၈ ၂၀၂၈ >

pe ff p f p

//Maj2 the sun /Mn11 was shining // (2) LVA  
!!M the SUN !!Z was shining !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: AG/17 CONDITION: non-final contrast S.A.:5  
CUE: As Mary stepped out into the garden, the moon was shining up above her...

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pe ff p f pe

//Maj2 the sun /Mn11 was shining // (2) LVA  
!!M the SUN !!Z was shining !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: PS/17 CONDITION: non-final contrast S.A.:5  
CUE: As Mary stepped out into the garden, the moon was shining up above her...

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p ff p f p

//Maj2 the sun /Mn11 was shining // (2) LVA  
!!M the SUN !!Z was shining !!

TEST SENTENCE: S5: the sun was shining

INFORMANT/TEST NO.: PW/17 CONDITION: non-final contrast

CUE: As Mary stepped out into the garden, the moon was shining up above her...

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pp ff pp p pp

//Maj2 the sun /Mn11 was shining // (2) LVA  
!1M the SUN !1Z was shining !1

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: TK/43 CONDITION: final contrast  
CUE: I'm pretty sure the sun was hidden by a cloud

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PP F PP FF PP

//Mn12 the sun /? was shining //  
(does not conform to focus-accent systems)

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: TC/43 CONDITION: final contrast S.A.:6  
CUE: I'm pretty sure the sun was hidden by a cloud

Әә снүәзәҫәиң

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< allegro > — — — —

P F PP F P

//Mn11 the sun /Max1 was shining //  
!!Z the sun !!C was SHINING !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: MC/43 CONDITION: final contrast S.A.:4  
CUE: I'm pretty sure the sun was hidden by a cloud

Әә снүәзәҫәиң

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— — — —  
< poco allegro > — — — —

PP F PP F P

//Mn12 the sun /Max1 was shining //  
!!Z the sun !!C was SHINING !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: MM/43 CONDITION: final contrast S.A.:6  
CUE: I'm pretty sure the sun was hidden by a cloud

ḡsãwəʃ:ar:nɪ:ŋ

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— <ḡsãwəʃ:ar:nɪ:ŋ> — — —

f p p ff f

//Mn12 the sun /Max1 was shining //  
!IZ the sun !IC was SHINING !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: AG/43 CONDITION: final contrast S.A.:6  
CUE: I'm pretty sure the sun was hidden by a cloud

ḡasnwəʃ:ar:nɪ:ŋ

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p p f p p ff p

//Mn12 the sun /Max1 was shining //  
!IZ the sun !IC was SHINING !!

TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: PS/43 CONDITION: final contrast S.A.:6  
CUE: I'm pretty sure the sun was hidden by a cloud

ḡasnwəʃ:ar:nɪ:ŋ

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p p f p p ff p

//Mn11 the sun /Max1 was shining //  
!IZ the sun !IC was SHINING !!



TEST SENTENCE: S5: the sun was shining  
INFORMANT/TEST NO.: PW/43 CONDITION: final contrast  
CUE: I'm pretty sure the sun was hidden by a cloud

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pp f pp ff pp

//Mn12 the sun /Maj2 was shining //  
!!2 the sun !!M was SHINING !!





TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: PW/13 CONDITION: news  
CUE: It's cold in here.

sãwãuzbrokãuðãwãudoã

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< pãrããllããã >

F P P P P P P F P

//Mn12 some- /Mn11 -one's broken /Mnr1 the window //  
!IZ someone !Z 's broken !S the WINDOW !I



TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: TK/02 CONDITION: final contrast  
CUE: Am I right in thinking someone's broken the patio door?

σ̄ λ̄ γ̄ ω̄ λ̄ η̄ ζ̄ β̄ ρ̄ ω̄ κ̄ η̄ θ̄ ω̄ λ̄ η̄ δ̄ ω̄ ω̄

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P PP P PP PP F P

//Mn12 some- /Mn12 -one's broken /Max1 the window //  
!IZ someone IZ 's broken IC the WINDOW !!

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: TC/02 CONDITION: final contrast S.A.:4  
CUE: Am I right in thinking someone's broken the patio door?

σ̄ λ̄ μ̄ ω̄ λ̄ η̄ ζ̄ β̄ ρ̄ ω̄ κ̄ η̄ θ̄ ω̄ λ̄ η̄ δ̄ ω̄ ω̄

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F PP P PP PP F P

//Mn12 some- /Mn11 -one's broken /Max1 the window //  
!IZ someone IZ 's broken IC the WINDOW !!

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: MC/02 CONDITION: final contrast S.A.:4  
CUE: Am I right in thinking someone's broken the patio door?

σ̄ λ̄ μ̄ ω̄ λ̄ η̄ ζ̄ β̄ ρ̄ ω̄ κ̄ η̄ θ̄ ω̄ λ̄ η̄ δ̄ ω̄ ω̄ :

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— — — — — / \  
— — — — — / \  
— — — — — / \  
F PP P PP PP F F

//Maj2 some- /Mn12 -one's broken /Max1 the window // (2) LVA (3) SSC  
!IM SOMEONE IZ 's broken IC the WINDOW !!

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: MM/02 CONDITION: final contrast S.A.:6  
CUE: Am I right in thinking someone's broken the patio door?

sāwāsbroakāḥāwīndōw

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/ alleyn — — — — —  
— — — — —

F PP P PP PP F P

//Mn12 some- /Mn11 -one's broken /Max1 the window // (3) SSC  
!IZ someone !Z 's broken !C the WINDOW !I

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: AG/02 CONDITION: final contrast S.A.:3  
CUE: Am I right in thinking someone's broken the patio door?

noa samwanbroakāḥāwīndōw

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/ puca alleyn — — — — —  
— — — — —

P PP F PP PP F P

//Mn11 some- /Mn11 -one's broken /Max1 the window // (2) LVA (3) SSC  
!IZ someone !Z 's broken !C the WINDOW !I

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: PS/02 CONDITION: final contrast S.A.:2  
CUE: Am I right in thinking someone's broken the patio door?

samwanbroakāḥāwīndōw

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— — — — —  
— — — — —

F P P PP PP F P

//Maj2 some- /Mn11 -one's broken /Maj2 the window // (1) SSC  
!IM SOMEONE !Z 's broken !M the WINDOW !I

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: PW/02 CONDITION: final contrast  
CUE: Am I right in thinking someone's broken the patio door?

Sāwān2 brokənðəwɪndə

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p p p pp pp ff p  
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//Mn1 some- /Mn2 -one's brokən /Max1 the wɪndə //  
!Z someone !Z 's broken !C the WINDOW !!

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: TK/27 CONDITION: partial backgrounding  
CUE: Just show John the new window in the front room will you?

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P P ' F P P F F

//Mn12 some- /? -one's broken /Mnr1 the window //  
(Does not conform to focus-accent systems)

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: TC/27 CONDITION: partial backgrounding S.A.:5  
CUE: Just show John the new window in the front room will you?

s̄m̄wān̄z h̄rook̄ȳθ̄aw̄nd̄ōw

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P P F PP PP P F

//Mn12 some- /Maj2 -one's broken /Mnr4 the window //  
!!Z someone !M 's BROKEN !S the WINDOW !!

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: MC/27 CONDITION: partial backgrounding S.A.:5  
CUE: Just show John the new window in the front room will you?

s̄m̄wān̄z h̄rook̄ȳθ̄aw̄nd̄ōw

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P P F PP PP P P

//Mn12 some- /Maj2 -one's broken /Mn11 the window //  
!!Z someone !M 's BROKEN !Z the window !!

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: MM/27 CONDITION: partial backgrounding S.A.:5  
CUE: Just show John the new window in the front room will you?



σ̃λωλ̃ησbroαkη̃θ̃αωzηδοα

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P PP F PP PP F ?

//Mn12 some- /Maj2 -one's broken /Mnr4 the window //  
!IZ someone IM 's BROKEN IS the WINDOW !!

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: AG/27 CONDITION: partial backgrounding S.A.:6  
CUE: Just show John the new window in the front room will you?

σλmωλ̃ησbroαkη̃θ̃αωzηδοα

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— — — — —  
P P F PP PP P P

//Mn11 some- /Maj2 -one's broken /Mn11 the window //  
!IZ someone IM 's BROKEN IZ the window !!

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: PS/27 CONDITION: partial backgrounding S.A.:5  
CUE: Just show John the new window in the front room will you?

σλmωλ̃ηzbroαkη̃θ̃αωzηδοα

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— — — — —  
F P FF PP PP P P

//Mn12 some- /Maj2 -one's broken /Mn12 the window //  
!IZ someone IM 's BROKEN IZ the window !!



TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: TK/42 CONDITION: total backgrounding  
CUE: I wish someone would break that horrible window in the front room.....

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//Mn11 some- /Max1 -one's broken /Mn11 the window //  
!IZ someone !C 's BROKEN !Z the window !I

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: TC/42 CONDITION: total backgrounding S.A.:6  
CUE: I wish someone would break that horrible window in the front room.....

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//Mn12 some- /Mnr1 -one's broken /Mn12 the window //  
!IZ someone !S 's BROKEN !Z the window !I

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: MC/42 CONDITION: total backgrounding S.A.:2  
CUE: I wish someone would break that horrible window in the front room.....

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//Mn11 some- /Maj5 -one's broken /Mn11 the window //  
!IZ someone !M 's BROKEN !Z the window !I





TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: PW/42 CONDITION: total backgrounding  
CUE: I wish someone would break that horrible window in the front room.....

samwanz bro:kɪ dʒawɪndə

< creaks >

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P P ff PP PP P P

//Mnll some- /Maxl -one's broken /Mnll the window //  
!IZ someone IC 's BROKEN !Z the window !I



TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: MM/20 CONDITION: non-final contrast S.A.:6  
CUE: Someone's opened the window have they?

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P P fF PP PP P P

//Mn12 some- /Maj1 -one's broken /Mn12 the window //  
!IZ someone IC 's BROKEN !Z the window !I

TEST SENTENCE: S6 someone's broken the window  
INFORMANT/TEST NO.: AG/20 CONDITION: non-final contrast S.A.:5  
CUE: Someone's opened the window have they?

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P PP F PP PP P P

//Mn12 some- /Maj2 -one's broken /Mn12 the window //  
!IZ someone IM 's BROKEN !Z the window !I

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: PS/20 CONDITION: non-final contrast S.A.:6  
CUE: Someone's opened the window have they?

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F P fF PP P P P

//Mn11 some- /Maj2 -one's broken /Mn11 the window //  
!IZ someone IM 's BROKEN !Z the window !I

TEST SENTENCE: S6: someone's broken the window  
INFORMANT/TEST NO.: PW/20 CONDITION: non-final contrast  
CUE: Someone's opened the window have they?

sãŋwanzbro:kyðawindoo

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p p f p p p p

//Mnll some- /Maj4 -one's broken /Mnll the window //  
!IZ someone !M 's BROKEN !Z the window !I



TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: TK/22 CONDITION: news  
CUE: Why do you despise Bob so?

hi2: dɔnzɪrɪdbəks:ɛ

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p . p p p f  
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//Mn12 he does- /Mn11 -n't read /Maj4 books //  
!IZ he doesn't read !M BOOKS !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: TC/22 CONDITION: news S.A.:6  
CUE: Why do you despise Bob so?

hɔnzɪrɪdbə:ks

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p p f p p p f  
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//Mnr3 he does- /Mn12 -n't read /Maj1 books //  
!IS he doesn't !Z read !M BOOKS !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: MC/22 CONDITION: news S.A.:6  
CUE: Why do you despise Bob so?

hɔnzɪrɪdbəks:əʃ

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p p f p p p f  
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//Mnr1 he does- /Mn11 -n't read /Max1 books //  
!IS he doesn't !Z read !C BOOKS !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: MM/22 CONDITION: news S.A.:6  
CUE: Why do you despise Bob so?

hɪd nɪz ɪrɪd bəʊks

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pp f pp p f

//Mn12 he does- /Mn12 -n't read /Maj4 books //  
!IZ he doesn't read !M BOOKS !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: AG/22 CONDITION: news S.A.:6  
CUE: Why do you despise Bob so?

hɪd nɪz ɪrɪd bəʊks

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v — v — —:

p f pp f f

//Mn12 he does- /Maj5 -n't read /Maj4 books // (2) AAC  
!IZ he doesn't !M READ !M BOOKS !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: PS/22 CONDITION: news S.A.:5  
CUE: Why do you despise Bob so?

hɪd nɪz ɪrɪd bəʊks

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v — v — —:

pp f pp p f

//Mn12 he does- /Mn12 -n't read /Maj4 books //  
!IZ he doesn't read !M BOOKS !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: PW/22 CONDITION: news  
CUE: Why do you despise Bob so?

hidn2n2ridboks

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pp p pp p f

//Mn12 he does- /Mn11 -n't read /Maj1 books //  
!!Z he doesn't read IN BOOKS !!

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: TK/29 CONDITION: final contrast  
CUE: John gets through a lot of magazines

je: s b x t h i d a z n r i d b o k s

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ff p p p p p f

//Mn12 he does- /Mn11 -n't read /Maj5 books //  
!IZ he doesn't read IM BOOKS !!

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: TC/29 CONDITION: final contrast S.A.:6  
CUE: John gets through a lot of magazines

je: s b a t i d a z n r i d b o k s

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Zallos

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ff pp pp f pp f ff

//Mn11 he does- /Mn11 -n't read /Maj5 books //  
!IZ he doesn't read IM BOOKS !!

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: MC/29 CONDITION: final contrast S.A.:4  
CUE: John gets through a lot of magazines

je: b a t i d a z n r i d b o k s

✓ - - - - ✓

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ff pp pp f pp p f

//Mn12 he does- /Mn11 -n't read /Max1 books //  
!IZ he doesn't read IC BOOKS !!



TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: MM/29 CONDITION: final contrast S.A.:6  
CUE: John gets through a lot of magazines

je::sbatidgɪridbɔ:kʰs

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ff pp pp f pp p f

//Mn12 he does- /Mn11 -n't read /Maj5 books //  
!IZ he doesn't read !M BOOKS !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: AG/29 CONDITION: final contrast S.A.:6  
CUE: John gets through a lot of magazines

je:sbatɪdɔzɪridbɔ:kʰs

✓ - - - - ✓  
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ff pp pp f pp p f

//Mn12 he does- /Mn11 -n't read /Maj5 books //  
!IZ he doesn't read !M BOOKS !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: PS/29 CONDITION: final contrast S.A.:6  
CUE: John gets through a lot of magazines

je:sbatɪdazɪridbɔ:kʰs

✓ - - - - ✓  
<allops>  
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ff pp pp f pp f f

//Mn12 he does- /Mn11 -n't read /Maj5 books //  
!IZ he doesn't read !M BOOKS !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: PW/29 CONDITION: final contrast  
CUE: John gets through a lot of magazines

jɛsbɔɹɪdɹi:dbə:kɪ

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f p p p p p p f

//Mnɪ he does- /Mnɪ -n't read /Majl books //  
!Z he doesn't read !N BOOKS !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: TK/16 CONDITION: total backgrounding  
CUE: Has Mark read "Lord of the Rings"?

hɪdʌzɪrɪdbʊks

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pɪ f pɪ f p

//Maj2 he does- /Maj2 -n't read /Mn11 books // (1) SSC (2) AAC  
!IM he DOESN'T !M READ !Z books !!

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: TC/16 CONDITION: total backgrounding TUNE:  
INFORMANT/TEST NO.: TC/16 CONDITION: total backgrounding S.A.:6  
CUE: Has Mark read "Lord of the Rings"?

hɪdʌzɪrɪdbʊks

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pɪ f pɪ ff f

//Mn12 he does- /Maj2 -n't read /Mn12 books // (2) AAC  
!IZ he doesn't !M READ !Z books !!

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: MC/16 CONDITION: total backgrounding S.A.:6  
CUE: Has Mark read "Lord of the Rings"?

hɪdʌzɪrɪdbʊks

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pɪ f pɪ f f

//Maj2 he does- /Mn11 -n't read /Maj4 books // (1) SSC  
!IM he DOESN'T !Z read !M BOOKS !!

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: MM/16 CONDITION: total backgrounding S.A.:6  
CUE: Has Mark read "Lord of the Rings"?

hi·dnzuri·dbə:kʰs

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f p pp f f

//Max1 he /Mn12 does- /Max1 -n't read /Mnr4 books / (1) AAC  
!IC HE IZ doesn't IC READ IS BOOKS !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: AG/16 CONDITION: total backgrounding S.A.:5  
CUE: Has Mark read "Lord of the Rings"?

hɛdnzɪrɪdbəks

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pp p pp f p

//Mn12 he does- /Maj2 -n't read /Mn12 books //  
!IZ he doesn't IM READ IZ books !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: PS/16 CONDITION: total backgrounding S.A.:6  
CUE: Has Mark read "Lord of the Rings"?

hɛdnzɪrɪ·dbə·ks

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pp f pp f f

//Mn12 he does- /Max1 -n't read /Mnr4 books // (2) AAC  
!IZ he doesn't IC READ IS BOOKS !I



TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: PW/16 CONDITION: total backgrounding  
CUE: Has Mark read "Lord of the Rings"?

hidnɪrɪd bəks

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p f p p f f

//Maj2 he does /Mn1 -n't read /Mnr1 books // (1) SSC  
!!M he DOESN'T !Z read !S BOOKS !!

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: TK/06 CONDITION: non-final contrast  
CUE: So John doesn't write books. Well neither do lots of academics.

hidnɔri:dɔ:boʊks

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p p p p p f

//Mn12 he does- /Maj3 -n't read /Mnr1 books // (2) AAC  
!IZ he doesn't IM READ IS BOOKS !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: TC/06 CONDITION: non-final contrast S.A.:6  
CUE: So John doesn't write books. Well neither do lots of academics.

hidnɔri:dɔ:boʊks

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p f p p f f f

//Mn12 he does- /Max1 -n't read /Mn12 books // (2) AAC  
!IZ he doesn't IC READ IZ books !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: MC/06 CONDITION: non-final contrast S.A.:6  
CUE: So John doesn't write books. Well neither do lots of academics.

hidnɔri:dɔ:boʊks

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p f p p f f f

//Mn12 he does- /Max1 -n't read /Mn12 books // (2) AAC  
!IZ he doesn't IC READ IZ books !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: MM/06 CONDITION: non-final contrast S.A.:6  
CUE: So John doesn't write books. Well neither do lots of academics.

hɪdʌzɪri:dbə:ks

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pp ppp f f

//Mn12 he does- /Max1 -n't read /Mnr4 books // (2) AAC  
!IZ he doesn't IC READ IS BOOKS !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: AG/06 CONDITION: non-final contrast S.A.:6  
CUE: So John doesn't write books. Well neither do lots of academics.

hɪðəsyri:dbə:ks

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p p pp f p

//Mn12 he does- /Max1 -n't read /Mn11 books // (2) AAC  
!IZ he doesn't IC READ IZ books !I

TEST SENTENCE: S7: he doesn't read books  
INFORMANT/TEST NO.: PS/06 CONDITION: non-final contrast S.C.:6  
CUE: So John doesn't write books. Well neither do lots of academics.

hɪdʌzɪri:dbə:ks

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p f pp ff f

//Mn12 he does- /Max1 -n't read /Mn11 books // (2) AAC  
!IZ he doesn't IC READ IZ books !I

TEST SENTENCE: S7: he doesn't read books

INFORMANT/TEST NO.: PW/06 CONDITION: non-final contrast

CUE: So John doesn't write books. Well neither do lots of academics.

hidʌzɪri:dbʌks

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pp p pp ff f

//Mn11 he does /Maj3 -n't read /Mn11 books // (2) AAC

!12 he doesn't !M READ !Z books !1



TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: TK/12 CONDITION: news  
CUE: Have you heard the forecast?

ðɛsɛdɪz wɔz bɪ hɒt tədeɪ

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v - v v v - v -  
pp f pp pp pp f pp p

//Mn12 they said it would /Mnr1 be hot /Mn12 today //  
!IZ they said !S it would be HOT !Z today !I

TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: TC/12 CONDITION: news S.A.:5  
CUE: Have you heard the forecast?

ðɛsɛdɪz bɪ hɒt tədeɪ

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v - v v v - v -  
p f p pp f p f

//Mn12 they said it'd /Maj1 be hot /Mnr4 today //  
!IM they said !M it would be HOT !S TODAY !I

TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: MC/12 CONDITION: news S.A.:2  
CUE: Have you heard the forecast?

ðɛsɛdɪz wɔz bɪ hɒt tədeɪ

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- - - - -  
v - v v v - v -  
p ff p p pp f pp f

//Maj4 they said it would /Mnr2 be hot /Mnr2 today //  
!IM they SAID !S it would be HOT !S TODAY !I

TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: MM/12 CONDITION: news S.A.:6  
CUE: Have you heard the forecast?

ðesɛdɪz wɔd bɪ hɒt ɪt ɔdeɪ

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pp f pp pp pp p pp f

//Mnr1 they said it would /Mn12 be hot /Mnr4 today //  
!IS they SAID IZ it would be hot !S TODAY !!

TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: AG/12 CONDITION: news S.A.:5  
CUE: Have you heard the forecast?

ðɪsɛdɪz wɔd bɪ hɒt ɪt ɔdeɪ

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u - u u u - : u -

pp f pp pp pp f pp p

//Mnr1 they said it would /Maj5 be hot /Mn12 today // (2) SSC  
!IS they SAID IM it would be HOT IZ today!!

TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: PS/12 CONDITION: news S.A.:6  
CUE: Have you heard the forecast?

ðɪsɛdɪz wɔd bɪ hɒt ɪt ɔdeɪ

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u - u u u - : u -

pp f pp pp pp f pp p

//Mn12 they said it would /Max1 be hot /Mn12 today // (2) SSC  
!IZ they said IC it would be HOT IZ today!!

TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: PW/12 CONDITION: news  
CUE: Have you heard the forecast?

ðe s e d ɪ z w ɒ d : ɪ z w ɒ d b i h ɒ t t ɔ d eɪ

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//Mn12 they said /Maj2 it would /Mn12 be hot /Mnr4 today //  
!iZ they said !M it WOULD !Z be hot !S TODAY !:

TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: TK/19 CONDITION: partial backgrounding  
CUE: Wow, some weather, this. It doesn't feel like it'll cool off before tomorrow

ðɪs:ɛdɪz wɒdbɪhɒtədeɪ

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pp ff pp pp pp f pp p

//Maj1 they said it would /Maj1 be hot /Maj1 today //  
!!C they SAID !Z it would be hot today!!

TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: TC/19 CONDITION: partial backgrounding S.A.:1  
CUE: Wow, some weather, this. It doesn't feel like it'll cool off before tomorrow

ðesɛdɪz wɒbɪhɒtədeɪ

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Caligro u - > - u -

pp f pp pp f pp f

//Maj2 they said it would /Maj1 be hot /Maj4 today // (2) SSC  
!!Z they said !M it would be HOT !S TODAY !!

TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: MC/19 CONDITION: partial backgrounding S.A.:0  
CUE: Wow, some weather, this. It doesn't feel like it'll cool off before tomorrow

ðesɛdɪz wɒdbɪh:ɒtədeɪ

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Zpoco u - u - u - u - >

pp f pp pp pp f pp p

//Maj2 they said it would /Maj1 be hot /Maj2 today // (1) SSC (2) SSC  
!!M they SAID !M it would be HOT !Z today !!



TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: MM/19 CONDITION: partial backgrounding S.A.:5  
CUE: Wow, some weather, this. It doesn't feel like it'll cool off before tomorrow

ðesɛdɪ?wɔdɪhɔ?tʰɔdɪ

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u - u u u - - -

PP F PP PP PP P PP P

//Maj2 they said it would /Mn12 be hot /Mn12 today //  
!!M they SAID IZ it would be hot today!!

TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: AG/19 CONDITION: partial backgrounding S.A.:6  
CUE: Wow, some weather, this. It doesn't feel like it'll cool off before tomorrow

ðɪsɛdɪ?wɔɪ?bɪhɔ?tʰɔdɪ

- / - - - - /

u - u - u - u -

PP F PP P PP P PP F

//Maj2 they said it would /Mn11 be hot /Mnr4 today // (1) SSC  
!!M they SAID IZ it would be hot IS TODAY !!

TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: PS/19 CONDITION: partial backgrounding S.A.:6  
CUE: Wow, some weather, this. It doesn't feel like it'll cool off before tomorrow

ðɪsɛɪwɔβɪhɔ?tʰɔdɪ

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P FF PP PP PP F PP F

//Maj2 they said it would /Mn12 be hot /Mnr4 today //  
!!M they SAID IZ it would be hot IS TODAY !!





TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: MM/03 CONDITION: non-final contrast S.A.:5  
CUE: I gather the forecast is pretty miserable.

no: ʤesɛdɪz wɔ̃? bɪ hɔ? tʰɔdɪz

∨ - - - - - /  
-: ʤesɛdɪz wɔ̃? bɪ hɔ? tʰɔdɪz

f pɪ f pɪ pɪ pɪ f pɪ f

//Mn12 they said it would /Max1 be hot /Mnr4 today // (2) SSC  
!iZ they said iC it would be HOT !S TODAY !i

TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: AG/03 CONDITION: non-final contrast S.A.:5  
CUE: I gather the forecast is pretty miserable.

no: ʤesɛdɪz wɔ̃? bɪ hɔ? tʰɔdɪz

∨ - - - - - /  
-: ʤesɛdɪz wɔ̃? bɪ hɔ? tʰɔdɪz

f pɪ f pɪ pɪ pɪ f pɪ f

//Mn12 they said it would /Max1 be hot /Mnr4 today // (2) SSC  
!iZ they said iC it would be HOT !S TODAY !i

TEST SENTENCE: S8: they said it would be hot today  
INFORMANT/TEST NO.: PS/03 CONDITION: non-final contrast S.A.:5  
CUE: I gather the forecast is pretty miserable.

no: ʤesɛdɪ wɔ̃ bɪ hɔ? tʰɔdɪz

∨ - - - - - /  
-: ʤesɛdɪ wɔ̃ bɪ hɔ? tʰɔdɪz

f pɪ f pɪ pɪ pɪ f pɪ p

//Mn11 they said it would /Max1 be hot /Mn12 today // (2) SSC  
!iZ they said iC it would be HOT !Z today !i







TEST SENTENCE: S9: it's coming up at the faculty meeting  
INFORMANT/TEST NO.: MM/31 CONDITION: news S.A.:6  
CUE: Any news about the new course?

zsknmɨŋpəzəfak!tɨmi.tɨŋ

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pp f pp f pp pp f pppp fpe

//Maj2 it's coming up at /Maj2 the facul- /Mn11 -ty meeting // (1) SSC  
!iM it's COMING UP !M at the FACULTY meeting !!

TEST SENTENCE: S9: it's coming up at the faculty meeting  
INFORMANT/TEST NO.: AG/31 CONDITION: news S.A.:5  
CUE: Any news about the new course?

ztskA mɨŋpəzəfak!tɨmi.tɨŋ

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u — u — u — u — u — u

pp p pp pp pp pp f pp pp p p

//Mn12 it's coming up at /Mnr1 the facul- /Mn11 -ty meeting //  
!iZ it's coming up !S at the FACULTY meeting !!

TEST SENTENCE: S9: it's coming up at the faculty meeting  
INFORMANT/TEST NO.: PS/31 CONDITION: news S.A.:5  
CUE: Any news about the new course?

ztskA mɨŋpəzəfak!tɨmitɨŋ

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u — — — u u — u u — u

pp f pp f pp pp p pp pp p p

//Mn12 it's com- /Maj2 -ing up at /Mn11 the facul- /Mn11 -ty meeting // 920 SSC  
!iM it's COMING UP !Z at the faculty meeting !!

TEST SENTENCE: S9: it's coming up at the faculty meeting

INFORMANT/TEST NO.: PW/31 CONDITION: news

CUE: Any news about the new course?

ɪtskɒmɪŋəpʌzətəfækəltiːmiːtɪŋ

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pp f pp pp pp pp f pp pp p pp

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//Mn12 it's coming up at /Maj2 the facul- /Mn11 -ty meeting //

!IZ it's coming up !M at the FACULTY meeting !!





TEST SENTENCE: S9: it's coming up at the faculty meeting  
INFORMANT/TEST NO.: NM/37 CONDITION: non-final contrast S.A.:6  
CUE: Is the project coming up at the senate meeting?

noo: zskamuzapata fak'itimitu

Handwritten phonetic transcription on a four-line grid. The first line contains a series of dashes and a checkmark. The second line contains a checkmark and a series of dashes. The third line contains a series of dashes and a checkmark. The fourth line contains a series of dashes and a checkmark. Below the grid is a sequence of phonetic symbols: f p ff pp rr rr ff rr ff p

//Mn1 it's coming up at /Max1 the facul- /Mn1 -ty meeting // (3) LVA  
!IS it's COMING UP IC at the FACULTY meeting !!

TEST SENTENCE: S9: it's coming up at the faculty meeting  
INFORMANT/TEST NO.: AG/37 CONDITION: non-final contrast S.A.:5  
CUE: Is the project coming up at the senate meeting?

noo: zskamuzapata fak'itimitu

Handwritten phonetic transcription on a four-line grid. The first line contains a checkmark and a series of dashes. The second line contains a checkmark and a series of dashes. The third line contains a series of dashes and a checkmark. The fourth line contains a series of dashes and a checkmark. Below the grid is a sequence of phonetic symbols: ff pp f pp pp pp ff pp pp p pp

//Mn1 it's coming up at /Max1 the facul- /Mn1 -ty meeting // (3) LVA  
!IZ it's coming up IC at the FACULTY meeting !!

TEST SENTENCE: S9: it's coming up at the faculty meeting  
INFORMANT/TEST NO.: PS/37 CONDITION: non-final contrast S.A.:6  
CUE: Is the project coming up at the senate meeting?

noo: zskamuzapata fak'itimitu

Handwritten phonetic transcription on a four-line grid. The first line contains a checkmark and a series of dashes. The second line contains a checkmark and a series of dashes. The third line contains a series of dashes and a checkmark. The fourth line contains a series of dashes and a checkmark. Below the grid is a sequence of phonetic symbols: ff pp f pp p pp pp f pp pp p pp

//Mn1 it's coming up at /Maj2 the facul- /Mn1 -ty meeting // (2) SSC (3) LVA  
!IZ it's coming up IM at the FACULTY meeting !!



TEST SENTENCE: S9: it's coming up at the faculty meeting  
INFORMANT/TEST NO.: TK/08 CONDITION: partial backgrounding  
CUE: Hasn't the faculty voted on that yet?

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F P F PP F PP PP F PP PP F P

//Mn12 it's com- /Maj2 -ing up at /Mn12 the facul- /Maj1 -ty meeting // (2) SSC  
!IM it's COMING UP !Z at the faculty !M MEETING!!

TEST SENTENCE: S9: it's coming up at the faculty meeting  
INFORMANT/TEST NO.: TC/08 CONDITION: partial backgrounding S.A.:6  
CUE: Hasn't the faculty voted on that yet?

ဒဲးကံးကံးကံးဒဲးဒဲးဆက္ကံးကံး

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PP FF PP P PP PP F PP PP F PP

//Maj1 it's coming up at /Mn12 the facul- /Maj3 -ty meeting //  
!IM it's COMING UP !Z at the faculty !M MEETING!!

TEST SENTENCE: S9: it's coming up at the faculty meeting  
INFORMANT/TEST NO.: MC/08 CONDITION: partial backgrounding S.A.:4  
CUE: Hasn't the faculty voted on that yet?

ဒဲးကံးကံးကံးဒဲးဒဲးဆက္ကံးကံး

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P F PP F PP PP F PP PP P PP

//Mn11 it's com /Maj2 -ing up at /Mn12 the facul- /Maj3 -ty meeting //  
!IM it's COMING UP !Z at the faculty !M MEETING!!



TEST SENTENCE: S9: it's coming up at the faculty meeting  
INFORMANT/TEST NO.: MM/08 CONDITION: partial backgrounding S.A.:5  
CUE: Hasn't the faculty voted on that yet?

itskλmɪnλpəzəfakɪtɪmi:tiŋ

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pp f pp f ppp f ppp f p

//Maj2 it's com /Mnr3 -ing up at /Maj2 the facul- /Maj1 -ty meeting //  
!!M it's COMING UP IM at the FACULTY IM MEETING!!

TEST SENTENCE: S9: it's coming up at the faculty meeting  
INFORMANT/TEST NO.: AG/08 CONDITION: partial backgrounding S.A.:5  
CUE: Hasn't the faculty voted on that yet?

itskλmɪnλpəzəfakɪtɪmi:tiŋ

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u - u - - - u u - u

pp f ppp pp f ppp f p

//Maj2 it's coming up at /Mnr3 the facul- /Max1 -ty meeting //  
!!M it's COMING UP IS at the FACULTY IC MEETING!!

TEST SENTENCE: S9: it's coming up at the faculty meeting  
INFORMANT/TEST NO.: PS/08 CONDITION: partial backgrounding S.A.:5  
CUE: Hasn't the faculty voted on that yet?

itskλmɪnλpəzəfakɪtɪmi:tiŋ

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pp f pp f ppp p ppp p p p

//Maj2 it's com /Max1 -ing up at /Mn11 the facul- /Maj3 -ty meeting //  
!!M it's COMING IC UP IZ at the faculty IM MEETING!!

TEST SENTENCE: S9: it's coming up at the faculty meeting  
INFORMANT/TEST NO.: PW/08 CONDITION: partial backgrounding  
CUE: Hasn't the faculty voted on that yet?

itskominəpətəfakəltimi:tiŋ

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pp f pp p pp pp f ppp ff pp

//Mn12 it's coming up at /Mn12 the facul- /Maj4 -ty meeting //  
!12 it's coming up !2 at the faculty !M MEETING!!

APPENDIX 4.3.

TUNES/PATTERNS

01i	MM	S1 NEWS	06ii	MM	S7 NEWS	14i	TK	S2 NFC (b)
							TC	S3 NFC
01ii	PW	S4 NEWS					PW	S4 NFC
			07i	TK	S7 NEWS		MC	S5 NFC
01iii	MC	S4 NEWS					MM	S5 NFC
			07ii	PW	S6 NEWS		TK	S5 NFC
02i	TK	S4 NFC					PW	S5 NFC
	MC	S4 NFC	07iii	TK	S4 NEWS		TC	S9 NFC
	AG	S4 NFC		PW	S7 TB		MC	S9 NFC
	PS	S4 NFC		TK	S9 PB		AG	S9 NFC
				MC	S9 PB			
02ii	MM	S2 NEWS				14ii	PS	S9 NFC
	AG	S2 NEWS	08i	TC	S2 NFC		MM	S9 NFC
	PS	S2 NEWS		PS	S2 NFC			
	MM	S2 NFC		PS	S3 NEWS	15i	PS	S1 PB
	MM	S8 NEWS		TC	S5 TB		AG	S5 PB
				PW	S5 TB			
03i	TC	S4 NEWS		PW	S7 NFC	15ii	TK	S1 PB
	PS	S4 NEWS					MM	S1 PB
			08ii	MC	S5 TB		AG	S1 PB
03ii	AG	S4 NEWS		AG	S5 TB		MM	S5 PB
				PS	S5 TB		TC	S5 PB
03iii	MM	S4 NEWS					MC	S5 PB
	MC	S4 PB	08iii	MM	S5 TB			
						15iii	TK	S6 NEWS
04ii	TK	S7 TB	09iii	TC	S4 NFC			
						16i	TK	S2 FC
05i	TC	S2 NEWS					MM	S5 FC
	AG	S2 NFC	10i	AG	S1 NFC		TK	S6 FC
	MC	S3 NFC		PS	S3 NFC		PS	S6 TB
	TC	S5 NFC		AG	S5 NFC		MC	S8 NEWS
	PS	S5 NFC		PW	S6 NFC			
	AG	S9 NEWS	11i	MC	S7 NFC	16ii	PS	S4 PB
				AG	S7 NFC		MM	S4 PB
05ii	TK	S2 NEWS		PS	S7 NFC		MM	S4 FC
	TK	S2 NFC (a)					TC	S6 FC
	TK	S5 NEWS	12i	TC	S1 NFC		MM	S6 FC
	MM	S5 NEWS		MC	S1 NFC		PS	S6 FC
	PS	S5 NEWS		TK	S3 NFC		PS	S9 PB
	TC	S5 NEWS		PW	S3 NFC			
	MM	S6 NEWS		PW	S6 TB	16iii	MM	S9 PB
	TK	S9 NEWS						
	PW	S9 NEWS	13i	MM	S1 NFC	17ii	PS	S7 NEWS
				PS	S1 NFC			
05iii	MC	S6 NEWS		PW	S1 NFC	17iii	AG	S7 NEWS
	MM	S9 NEWS		PS	S1 TB		MC	S7 TB
				PS	S6 NFC			
				PW	S9 NFC	18i	PW	S7 FC
06i	PW	S5 PB						
	TK	S7 NFC				18ii	TC	S4 PB
			13ii	MM	S3 NFC	18iii	PW	S4 PB

19i	PW	S4 FC					
	PW	S6 FC	29i	MM	S3 FC	39i	TC S6 PB
	PS	S2 FC*					MM S6 PB
	TC	S9 PB	30i	PW	S3 FC		TK S8 NEWS
19ii	TK	S4 FC	30ii	TC	S3 FC	40i	TK S6 NFC
	TC	S4 FC					TC S6 NFC
	PS	S4 FC	31ii	TK	S3 NEWS		MC S6 NFC
	MC	S5 FC		TK	S6 PB		MM S6 NFC
	MC	S6 FC	32i	AG	S3 NFC		AG S6 NFC
	AG	S6 FC		MC	S6 TB		
	MC	S7 FC	32ii	PW	S2 NEWS	41i	TC S7 TB
	MC	S7 NEWS		MC	S2 NFC		AG S7 TB
19iii	TC	S6 NEWS	32iii	MC	S2 NFC		PW S8 NFC
	AG	S6 NEWS					
	AG	S9 PB	33iii	PS	S6 NEWS	41ii	AG S8 NEWS
20i	PS	S3 FC	34i	TK	S6 TB		PS S8 NEWS
21i	PW	S1 FC		AG	S6 TB		MC S8 PB
22i	TK	S1 FC	35ii	TC	S7 NEWS		TC S8 NFC
	TC	S1 FC					MC S8 NFC
	MC	S1 FC	36i	TC	S1 NEWS	41iii	PS S8 NFC
	PS	S5 PB		TK	S1 NFC		MM S7 TB
22iii	TK	S4 PB		AG	S1 TB		TC S8 NEWS
	AG	S4 PB		TK	S8 PB		TC S8 PB
23i	PW	S9 PB	37i	TK	S1 TB		AG S8 NFC
24i	PW	S2 FC		PW	S1 TB	42i	MM S8 NFC
	MM	S2 FC		TC	S1 TB		TC S7 NFC
25i	PS	S1 FC		TC	S1 PB		PW S8 PB
25ii	PS	S5 FC		PW	S2 NFC		TK S8 NFC
	TC	S5 FC		PS	S8 PB	42ii	MM S7 NFC
26i	TK	S5 FC		MM	S8 PB		
	PW	S5 FC	37ii	MM	S1 TB	42iii	PS S7 TB
	AG	S5 FC		TC	S3 NEWS		
26ii	MC	S4 FC		AG	S3 NEWS	43i	PW S1 NEWS
	AG	S4 FC		PW	S3 NEWS		
27i	TK	S5 PB		MM	S3 NEWS	43ii	TK S1 NEWS
	PW	S7 NEWS		AG	S8 PB		MC S1 NEWS
28i	TK	S3 FC	37iii	PW	S8 NEWS		AG S1 NEWS
	AG	S3 FC					PS S1 NEWS
	MC	S3 FC	38ii	AG	S5 NEWS		MC S1 TB
				PW	S5 NEWS	44i	MC S1 PB
			39i	MM	S6 TB		
				PS	S6 PB	44ii	MC S2 NEWS
				MC	S6 PB		
				AG	S6 PB	45i	MC S3 NEWS
				TK	S9 NFC		TK S5 NEWS (b)



46i	TC	S6 TB
47i	MC	S2 FC
47ii	TC	S2 FC
	AG	S2 FC
48ii	MM	S1 FC
	AG	S1 FC
48iii	PS	S7 FC
49i	TK	S7 FC
	TC	S7 FC
49ii	MM	S7 FC
	AG	S7 FC
50i	MM	S4 NFC
51i	TK	S5 TB
52ii	MC	S9 NEWS
53i	TC	S9 NEWS
53ii	PS	S9 NEWS
54i	PW	S6 PB

APPENDIX 4.4

CHAINS

<u>A</u>			<u>B</u>								
01i	MM	S1 NEWS	14i	TK	S2 NFC (b)	04ii	TK	S7 TB	40i	TK	S6 NFC
				TC	S3 NFC					TC	S6 NFC
02i	TK	S4 NFC		PW	S4 NFC	36i	TC	S1 NEWS		MC	S6 NFC
	MC	S4 NFC		MC	S5 NFC		TK	S1 NFC		MM	S6 NFC
	AG	S4 NFC		MM	S5 NFC		AG	S1 TB		AG	S6 NFC
	PS	S4 NFC		TK	S5 NFC		TK	S8 PB			
				PW	S5 NFC						
05i	TC	S2 NEWS		TC	S9 NFC	37i	TK	S1 TB	41i	TC	S7 TB
	AG	S2 NFC		MC	S9 NFC		PW	S1 TB		AG	S7 TB
	MC	S3 NFC		AG	S9 NFC		TC	S1 TB		PW	S8 NFC
	TC	S5 NFC					TC	S1 PB			
	PS	S5 NFC	14ii	PS	S9 NFC		PW	S2 NFC	41ii	AG	S8 NEWS
	AG	S9 NEWS		MM	S9 NFC		PS	S8 PB		PS	S8 NEWS
							MM	S8 PB		MC	S8 PB
09iii	TC	S4 NFC	32i	AG	S3 NFC	37ii	MM	S1 TB		TC	S8 NFC
				MC	S6 TB		TC	S3 NEWS		MC	S8 NFC
							AG	S3 NEWS		PS	S8 NFC
10i	AG	S1 NFC	34i	TK	S6 TB		PW	S3 NEWS	42i	TC	S7 NFC
	PS	S3 NFC		AG	S6 TB		MM	S3 NEWS		PW	S8 PB
	AG	S5 NFC					AG	S8 PB		TK	S8 NFC
	PW	S6 NFC	50i	MM	S4 NFC						
11i	MC	S7 NFC				37iii	PW	S8 NEWS	42ii	MM	S7 NFC
	AG	S7 NFC									
	PS	S7 NFC				38ii	AG	S5 NEWS	44i	MC	S5 NEWS
							PW	S5 NEWS			
12i	TC	S1 NFC							46i	TC	S6 TB
	MC	S1 NFC				39i	MM	S6 TB			
	TK	S3 NFC					PS	S6 PB	51i	TK	S5 TB
	PW	S3 NFC					MC	S6 PB			
	PW	S6 TB					AG	S6 PB	54i	PW	S6 PB
							TK	S9 NFC			
13i	MM	S1 NFC									
	PS	S1 NFC				39ii	TC	S6 PB			
	PW	S1 NFC					MM	S6 PB			
	PS	S1 TB					TK	S8 NEWS			
	PS	S6 NFC									
	PW	S9 NFC									
13ii	MM	S3 NFC									

<u>C</u>			<u>E</u>			<u>I</u>			<u>J</u>		
01ii	PW	S4 NEWS	06i	PW	S5 PB	07iii	TK	S4 NEWS	16i	TK	S2 FC
				TK	S7 NFC		PW	S7 TB		MM	S5 FC
01iii	MC	S4 NEWS					TK	S9 PB		TK	S6 FC
			23i	PW	S9 PB		MC	S9 PB		PS	S6 TB
02ii	MM	S2 NEWS								MC	S8 NEWS
	AG	S2 NEWS				15ii	TK	S1 PB			
	PS	S2 NEWS	<u>E</u>				MM	S1 PB	18i	PW	S7 FC
	MM	S2 NFC					AG	S1 PB			
	MM	S8 NEWS					MM	S5 PB	19ii	TK	S4 FC
03i	TC	S4 NEWS	07i	TK	S7 NEWS		TC	S5 PB		TC	S4 FC
	PS	S4 NEWS					MC	S5 PB		PS	S4 FC
03ii	AG	S4 NEWS	27i	TK	S5 PB					MC	S5 FC
				PW	S7 NEWS	16ii				MC	S6 FC
03iii	MM	S4 NEWS					PS	S4 PB		AG	S6 FC
	MC	S4 PB	<u>G</u>				MM	S4 PB		MC	S7 FC
05ii	TK	S2 NEWS					MM	S4 FC		MC	S7 NEWS
	TK	S2 NFC (a)	04ii	TK	S7 TB		TC	S6 FC			
	TK	S5 NEWS					MM	S6 FC			
	MM	S5 NEWS					PS	S6 FC	20i	PS	S3 FC
	PS	S5 NEWS					PS	S9 PB			
	TC	S5 NEWS							21i	PW	S1 FC
	MM	S6 NEWS									
	TK	S9 NEWS									
	PW	S9 NEWS									
07ii	PW	S6 NEWS	08i	MC	S5 TB						
				AG	S5 TB						
				PS	S5 TB						
<u>D</u>											
05iii	MC	S6 NEWS	08iii	MM	S5 TB						
	MM	S9 NEWS									
06ii	MM	S7 NEWS	<u>H</u>								
15iii	TK	S6 NEWS									
17ii	PS	S7 NEWS	15i	PS	S1 PB						
				AG	S5 PB						
17iii	AG	S7 NEWS									
	MC	S7 TB									
19iii	TC	S6 NEWS									
	AG	S6 NEWS									
	AG	S9 PB									
33iii	PS	S6 NEWS									
35ii	TC	S7 NEWS									

K

19i PW S4 FC  
 PW S6 FC  
 PS S2 FC\*  
 TC S9 PB

L

31ii TK S3 NEWS  
 TK S6 PB

M

32ii PW S2 NEWS  
 MC S2 NFC

N

41iii MM S7 TB  
 TC S8 NEWS  
 TC S8 PB  
 AG S8 NFC  
 MM S8 NFC

42iii PS S7 TB

O

43i PW S1 NEWS

43ii TK S1 NEWS  
 MC S1 NEWS  
 AG S1 NEWS  
 PS S1 NEWS  
 MC S1 TB  
 MC S1 PB

52ii MC S9 NEWS

53i TC S9 NEWS

53ii PS S9 NEWS

P

44ii MC S2 NEWS

Q

45ii MC S3 NEWS  
 TK S5 NEWS (b)

R

47i MC S2 FC

47ii TC S2 FC  
 AG S2 FC

Key: \* = loudness peak not on contrasted item;



APPENDIX 4.5

CHAIN

Tempo

I

01i	MM	S1 NEWS	0	14i	TK	S2 NFC(b)	0
					TC	S3 NFC	1/nf
02i	TK	S4 NFC	1/nf		PW	S4 NFC	1/nf
	MC	S4 NFC	1/nf		MC	S5 NFC	0
	AG	S4 NFC	1/nf		MM	S5 NFC	0
	PS	S4 NFC	1/nf		TK	S5 NFC	0
					PW	S5 NFC	1/nf
05i	TC	S2 NEWS	0		TC	S9 NFC	1/nf
	AG	S2 NFC	1/nf		MC	S9 NFC	1/nf
	MC	S3 NFC	0		AG	S9 NFC	1/nf
	TC	S5 NFC	1/nf				
	PS	S5 NFC	0	14i	PS	S9 NFC	0
	AG	S9 NEWS	1/nf		MM	S9 NFC	1/nf
09iii	TC	S4 NFC	1/nf	32i	AG	S3 NFC	0
					MC	S6 TB	1/nf
10i	AG	S1 NFC	1/nf				
	PS	S3 NFC	0	34i	TK	S6 TB	1/nf
	AG	S5 NFC	0		AG	S6 TB	1/nf
	PW	S6 NFC	1/nf				
				50i	MM	S4 NFC	1/nf
11i	MC	S7 NFC	1/nf				
	AG	S7 NFC	1/nf				
	PS	S7 NFC	1/nf				
12i	TC	S1 NFC	1/nf				
	MC	S1 NFC	1/nf				
	TK	S3 NFC	0				
	PW	S3 NFC	0				
	PW	S6 TB	1/nf				
	PS	S6 TB	1/nf				
13i	MM	S1 NFC	1/nf				
	PS	S1 NFC	1/nf				
	PW	S1 NFC	1/nf				
	PS	S1 TB	0				
	PS	S6 NFC	0				
	PW	S9 NFC	1/nf				
13ii	MM	S3 NFC	1/f				

II

04ii	TK	S7 TB	0	41ii	AG	S8 NEWS	1/nf
					PS	S8 NEWS	1/nf
31ii	TK	S3 NEWS	0		MC	S8 PB	0
	TK	S6 PB	1/nf		TC	S8 NFC	1/nf
					MC	S8 NFC	0
36i	TC	S1 NEWS	0		PS	S8 NFC	1/nf
	TK	S1 NFC	1/nf				
	AG	S1 TB	0	41iii	MM	S7 TB	2
	TK	S8 PB	1/nf		TC	S8 NEWS	1/nf
					TC	S8 PB	1/nf
37i	TK	S1 TB	0		AG	S8 NFC	1/nf
	PW	S1 TB	0		MM	S8 NFC	1/nf
	TC	S1 TB	1/nf				
	TC	S1 PB	0	42iii	PS	S7 TB	2
	PW	S2 NFC	1/nf				
	PS	S8 PB	0	42i	TC	S7 NFC	1/nf
	MM	S8 PB	0		PW	S8 PB	0
					TK	S8 NFC	0
37ii	MM	S1 TB	0				
	TC	S3 NEWS	1/f	42ii	MM	S7 NFC	1/nf
	AG	S3 NEWS	0				
	PW	S3 NEWS	1/f	44i	MC	S5 NEWS	2
	MM	S3 NEWS	1/f				
	AG	S8 PB	0	45ii	MC	S3 NEWS	1/f
					TK	S5 NEWS(b)	0
37iii	PW	S8 NEWS	0				
				46i	TC	S6 TB	0
38ii	AG	S5 NEWS	0				
	PW	S5 NEWS	1/f	51i	TK	S5 TB	0
39i	MM	S6 TB	1/nf	54i	PW	S6 PB	1/nf
	PS	S6 PB	0				
	MC	S6 PB	0				
	AG	S6 PB	0				
	TK	S9 NFC	1/nf				
39ii	TC	S6 PB	0				
	MM	S6 PB	1/nf				
	TK	S8 NEWS	0				
40i	TK	S6 NFC	1/nf				
	TC	S6 NFC	1/nf				
	MC	S6 NFC	1/nf				
	MM	S6 NFC	1/nf				
	AG	S6 NFC	0				
41i	TC	S7 TB	1/nf				
	AG	S7 TB	0				
	PW	S8 NFC	1/nf				

III

01ii	PW	S4 NEWS	1/nf
01iii	MC	S4 NEWS	1/nf
02ii	MM	S2 NEWS	1/nf
	AG	S2 NEWS	1/nf
	PS	S2 NEWS	1/f
	MM	S2 NFC	2
	MM	S8 NEWS	0
03i	TC	S4 NEWS	1/nf
	PS	S4 NEWS	2
03ii	AG	S4 NEWS	2
03iii	MM	S4 NEWS	2
	MC	S4 PB	2
05ii	TK	S2 NEWS	1/f
	TK	S2 NFC(a)	1/f
	TK	S5 NEWS(a)	0
	MM	S5 NEWS	2
	PS	S5 NEWS	0
	TC	S5 NEWS	0
	MM	S6 NEWS	0
	TK	S9 NEWS	1/f
	FW	S9 NEWS	0
07ii	PW	S6 NEWS	0
32ii	PW	S2 NEWS	1/f
	MC	S2 NFC	1/nf
44ii	MC	S2 NEWS	0

V

0Bi	TC	S2 NFC	1/nf
	PS	S2 NFC	0
	PS	S3 NEWS	1/nf
	TC	S5 TB	0
	PW	S5 TB	0
	PW	S7 NFC	1/nf
0Bii	MC	S5 TB	0
	AG	S5 TB	0
	PS	S5 TB	0
0Biii	MM	S5 TB	0

IV

05iii	MC	S6 NEWS	0
	MM	S9 NEWS	0
06ii	MM	S7 NEWS	1/f
15iii	TK	S6 NEWS	0
17ii	PS	S7 NEWS	2
17iii	AG	S7 NEWS	2
	MC	S7 TB	1/f
19iii	TC	S6 NEWS	1/f
	AG	S6 NEWS	0
	AG	S9 PB	1/f
33iii	PS	S6 NEWS	0
35ii	TC	S7 NEWS	1/f

VI

06i	PW	S5 PB	1/f
	TK	S7 NFC*	1/nf
23i	PW	S9 PB	1/f
07iii	TK	S4 NEWS	3
	PW	S7 TB	0
	TK	S9 PB	1/f
	MC	S9 PB	1/f
15i	PS	S1 PB	0
	AG	S5 PB	1/f
15ii	TK	S1 PB	1/f
	MM	S1 PB	2
	AG	S1 PB	0
	MM	S5 PB	2
	TC	S5 PB	0
	MC	S5 PB	0
16ii	PS	S4 PB	2
	MM	S4 PB	2
	MM	S4 FC	1/f
	TC	S6 FC	1/f
	MM	S6 FC	1/f
	PS	S6 FC	0
	PS	S9 PB	2
16iii	MM	S9 PB	1/f
18ii	TC	S4 PB	2
18iii	PW	S4 PB	2
22iii	TK	S4 PB	0
	AG	S4 PB	2



VII

07i	TK	S7 NEWS	0
27i	TK	S5 PB	1/f
	PW	S7 NEWS	0
16i	TK	S2 FC	1/f+
	MM	S5 FC	1/f
	TK	S6 FC	1/f+
	MC	S8 NEWS	0
18i	PW	S7 FC	1/f
19i	PW	S4 FC	1/f+
	PW	S6 FC	1/f+
	PS	S2 FC*	1/f
	TC	S9 PB	1/f
19ii	TK	S4 FC	1/f
	TC	S4 FC	2
	PS	S4 FC	2
	MC	S5 FC	1/f+
	MC	S6 FC	1/f+
	AG	S6 FC	1/f
	MC	S7 FC	1/f
	MC	S7 NEWS	1/f
20i	PS	S3 FC	1/f
21i	PW	S1 FC	1/f+
22i	TK	S1 FC	1/f
	TC	S1 FC	1/f
	MC	S1 FC	1/f+
	PS	S5 PB	1/f
24i	PW	S2 FC	1/f+
	MM	S2 FC	1/f+
25i	PS	S1 FC	1/f
25ii	PS	S5 FC	1/f
	TC	S5 FC	1/f
26i	TK	S5 FC	1/f
	PW	S5 FC	0
	AG	S5 FC	1/f
26ii	MC	S4 FC	1/f
	AG	S4 FC	2

28i	TK	S3 FC	1/f+
	AG	S3 FC	1/f+
	MC	S3 FC	1/f
29i	MM	S3 FC	1/f+
30i	PW	S3 FC	1/f
30ii	TC	S3 FC	1/f+
47i	MC	S2 FC	1/f+
47ii	TC	S2 FC	2
	AG	S2 FC	1/f
48ii	MM	S1 FC	1/f
	AG	S1 FC	0
48iii	PS	S7 FC	1/f
49i	TK	S7 FC	1/f
	TC	S7 FC	1/f
49ii	MM	S7 FC	1/f
	AG	S7 FC	1/f

VIII

43i	PW	S1 NEWS	1/f
43ii	TK	S1 NEWS	1/nf
	MC	S1 NEWS	0
	AG	S1 NEWS	1/nf
	PS	S1 NEWS	0
	MC	S1 TB	0
	MC	S1 PB	0
52ii	MC	S9 NEWS	0
53i	TC	S9 NEWS	0
53ii	PS	S9 NEWS	0

## APPENDIX 4.6

### Phonetic Realisation of Focus Types

#### NON-FINAL CONTRAST

Contonation 1: (Chains I & V) n=43

Sentences represented: 1 2 3 4 5 6 7 9

**LOUDNESS:** single peak, on the lexically accented syllable of the new word. (n=39)

**TEMPO:** tempo prominence on the new word only (n=27); or no tempo prominence.

**PITCH:** a) falling (n=21), level (n=14), rising-falling (n=5) or rising (n=3) on the lexically accented syllable of the new word (henceforth referred to as P);

b) step up to P from preceding syllable, or on-syllable rise on P above preceding syllable (n=39)

c) syllables following P descend progressively to base of range (n=25); or fall to base on P, with following syllables low level (n=9); or step down to base from P to next syllable (n=8).

Schematic Representation:

```
          P
        i  \  i  i
       i--i  i- i
          L
         (T)
```

Constraints on on-syllable pitch type:

a) If P is immediately followed by another lexically accented syllable, as in S7 'he doesn't read books', then P has level or rising pitch.

b) If P is a phonologically short syllable (Abercrombie 1964), then P has a level, falling or rising-falling pitch.

c) If P is phonologically non-short, then P has falling pitch, unless (a) applies.

## NON-FINAL CONTRAST

Contonation 2: (Chain II) n=16

Sentences represented: 1 2 6 7 8 9

LOUDNESS: a single peak on the lexically accented syllable of the new word (n=10); or two equal peaks, on the lexically accented syllables of the new word and of the last word in the sentence (n=6).

TEMPO: tempo prominence on the new word (n=14).

PITCH: a) falling (n=9) or level (n=7) pitch on the lexically accented syllable (P) of the new word;

b) step up to P from preceding syllable (n=15);

c) step down from P to following syllable: when P is level, n=7; when P is falling, n=5.

d) low rising pitch (not reaching the height of the apex of P), on the lexically accented syllable of the last word in the sentence (n=16).

Schematic representation:

```
      F
     | | \ | |
     |--| | /|
           L (L)
           T
```

Constraints on on-syllable pitch type:

a) If P is immediately followed by another lexically accented syllable, as in S7 'he doesn't read books', then P has level or rising pitch.

b) If P is a phonologically short syllable (Abercrombie 1964), then P generally has level pitch.

c) If P is phonologically non-short, then P has falling pitch, unless (a) applies.

The following tokens do not conform with the contonations identified:

TK/S2/NFC(a) MM/S2/NFC MC/S2/NFC TK/S7/NFC

FINAL CONTRAST

Contonation 1: (Chains VI:Pattern 16ii, & VII:Patterns 07-19 & 24-30) n=34

Sentences represented: all tested (i.e. 1-7)

**LOUDNESS:** two equal peaks, on the lexically accented syllable of the new word, and on the lexically accented syllable of the first potential focus constituent of the sentence (e.g. on the first syllable of "someone" in S6: "someone's broken the window") (n=21); or a single peak on the lexically accented syllable of the new word (n=13).

**TEMPO:** tempo prominence on the new word only (n=29); this is sometimes realised by 'drawl' and 'allegro' features simultaneously (n=12).

**PITCH:** (a) pitch on the lexically accented syllable of the new word (P2) falling to base of range (n=17), rising-falling to base (n=11), or level, stepping down to base on following unaccented syllable (n=6).

(b) step up to P from preceding syllable (n=24); or apex of rising-falling pitch on P is above preceding syllable (n=10).

(c) no earlier pitch-prominent syllable (n=19); or pitch prominence on earlier syllable constituting a loudness peak (P1) (n=15).

Schematic representation:



Constraint on on-syllable pitch type:

Where the new word is disyllabic with lexical accent on the first syllable, the pattern is generally mid-high level on the first syllable, followed by a step down to a low level, or to a low fall where the second syllable is long. Example: S6 "window".



## FINAL CONTRAST

Contonation 2: (Chain VII: Patterns 20-22) n=5

Sentences represented: 1

LOUDNESS: single loudness peak on the lexically accented syllable of the new word (n=5)

TEMPO: tempo prominence on the new word only (n=5)

PITCH: (a) pitch on the lexically accented syllable of the new word (P) level, stepping down to base on following unaccented syllable (n=4).

(b) all preceding syllables same height as P (n=4)

Schematic representation:

```
      P
     | | |
    |--| |
     | | |
      L
      T
```

Constraint on on-syllable pitch type:

Where the new word is disyllabic with lexical accent on the first syllable, the pattern is generally mid-high level on the first syllable, followed by a step down to a low level. Examples: S1 "lobby".

Contonation 3: (Chain VII: Patterns 47-49) n=10

Sentences represented: 1 2 7

LOUDNESS: multiple loudness peaks (n=7)

TEMPO: tempo prominence on the new word only (n=8)

PITCH: (a) pitch on lexically accented syllable of the new word (P) is falling-rising (n=7), or falling high-to-mid (n=3)

(b) preceding syllables same height as P (n=10)

Schematic representation:

```
      P
     | | |
    |--| \ / |
     | | |
      L L
      T
```

Constraint on on-syllable pitch type:

The high-to-mid fall only occurs when there is no following unaccented syllable. Example: S2 "appeared".

PARTIAL BACKGROUNDING of a NON-FINAL WORD

Contonation 1: (Chains IV & VI) n=21

Sentences represented: all tested (i.e. 1 4 5 9)

**LOUDNESS:** two equal peaks, on the lexically accented syllable of the backgrounded word (P1) and on the lexically accented syllable of the last word in the sentence (P2) (n=10); or three equal peaks, the third being on any other lexically accented syllable (n=7); or a single peak on P2 (n=4).

**TEMPO:** two tempo prominence points, on P1 and P2 (n=8); or prominence on P2 only (n=8); or no tempo prominence (n=5).

**PITCH:** (a) pitch on P2 falling to base (n=16), rising falling (n=1) or level/narrow fall followed by step down to base (n=4);

(b) step up to P2 from preceding syllable (n=18);

(c) pitch on P1 is falling, not to base (n=15) or level (n=3);

(d) P2 is not higher than P1 (n=21).

Schematic representation:

P1 P2  
i \\_ i \ i  
i \_ i \ i  
L L  
(T) T

PARTIAL BACKGROUNDING of a NON-FINAL WORD

Sentences represented: S5 S9

Contonation 2: (Chain VII) n=3

LOUDNESS: . single peak on lexically accented syllable of final word (P2) (n=2); or on lexically accented syllable of an earlier word (n=1).

TEMPO: tempo prominence on P2 only (n=3).

PITCH: (a) narrow fall or level pitch on P2, stepping down to base on following unaccented syllable (n=3)

(b) step up to P, with no earlier pitch peak (n=2).

Schematic representation:

```
      P
     / \
    /   \
   /     \
  /       \
 /         \
/           \
L           T
```

Constraint on on-syllable pitch type:

Where the new word is disyllabic with lexical accent on a phonologically long first syllable, there is a narrow fall on the first syllable, followed by a step down to a low level. Examples: S5 "shining".

Contonation 3: (Chain VIII) n=1

Sentence represented: S1

LOUDNESS: two equal peaks, on the lexically accented syllable of the backgrounded word (P1) and on the lexically accented syllable of the last word in the sentence (P2) (n=1).

TEMPO: no tempo prominence.

PITCH: (a) falling-rising pitch movement on P2;

(b) step up to P2 from preceding syllable;

(c) falling pitch on P1;

(d) P1 and P2 are the same height.

Schematic representation:

```
      P1 P2
     / \ / \
    /   \ /   \
   /     \ /     \
  /       \ /       \
 /         \ /         \
L           L
```

PARTIAL BACKGROUNDING of the FINAL WORD

Contonation 1 (Chain II) n=14

Sentences represented: all tested (i.e. 6 8)

LOUDNESS: a single peak on the lexically accented syllable of the lexical head that immediately precedes the backgrounded word (P1) (n=8; or equal peaks on P1 and the lexically accented syllable of the backgrounded word (P2) and/or of an earlier word (n=6).

TEMPO: no tempo prominence (n=9; or prominence on P1 only (n=5).

PITCH: a) falling (n=7), level (n=3) or rising-falling n=2 pitch on P1  
b) step up to P1 from preceding syllable (n=13), or rising-falling pitch on P1 extends above preceding syllable (n=2);  
c) low rising pitch (n=11) or non-low level pitch (n=2) on P2.

Schematic representation:

```
      P
      | \ | |
      |--| | /|
           L (L)
           (T)
```

Constraints on on-syllable pitch type:

- a) If P1 is a phonologically short syllable, then it has level pitch.
- b) If P1 is phonologically non-short, then it generally has falling or rising-falling pitch (n=9).



TOTAL BACKGROUNDING

Contonation 1: (Chain II) n=13

Sentences represented: all tested (i.e. 1 5 6 7)

**LOUDNESS:** single loudness peak on the lexically accented syllable of a non-final word (P1) (n=9); or multiple peaks, on P1 and other lexically accented syllables (n=4).

**TEMPO:** no tempo prominence (n=8); or prominence on P1 only (n=3); or on P1 and last word in the sentence (P2) (n=2).

**PITCH:** a) falling (n=5), level (n=4), rising (n=2) or rising-falling (n=2) pitch on P1

b) step up to P1 from preceding syllable (n=8), or rising-falling pitch on P1 extends above preceding syllable (n=2);

c) low rising pitch on P2 (n=12).

Schematic representation:

```
          P1 P2
          |  | \ |  |
          |--|  | / |
              L (L)
              (T)(T)
```

Constraints on on-syllable pitch type:

a) If P1 is immediately followed by another lexically accented syllable, as in S7 'he doesn't read books', then P1 has level or rising pitch.

b) If the environment for (a) is not present, then P1 does not have a level pitch.



TOTAL BACKGROUNDING

Contonation 4: (Chain 1) n=3

Sentence represented: 6

LOUDNESS: single peak on the lexically accented syllable of the penultimate lexical head (P)

TEMPO: tempo prominence on P.

PITCH: (a) pitch falling to base on P;  
(b) following syllables low level.  
(c) no step up to P (n=2)

Schematic Representation: 

```
          P
        |---| | |
        |---| \ |
          L
          T
```

Contonation 5: (Chain IV) n=1

Sentence represented: 7

LOUDNESS: equal peaks on lexically accented syllables of last three words;

TEMPO: no tempo prominence;

PITCH: (a) fall to base on lexically accented syllable of last word (P3);  
(b) lexically accented syllables of antepenultimate and penultimate words (P1 & P2) are level.

Schematic Representation: 

```
          P1 P2 P3
        |---|---| |
        |---|---| \ |
          L   L L
```

TOTAL BACKGROUNDING

Contonation 6: (Chain VIII) (n=1)

Sentence represented: 1

**LOUDNESS:** two equal peaks, on the lexically accented syllable of the penultimate lexical head (P1) and on the lexically accented syllable of the last word in the sentence (P2) (n=1).

**TEMPO:** no tempo prominence.

**PITCH:** (a) falling-rising pitch movement on P2;  
(b) step up to P2 from preceding syllable;  
(c) falling pitch on P1;  
(d) P1 and P2 are the same height.

Schematic representation:

```
      P1 P2  
      | \ | / |  
      |  |  |  
      L  L
```



NEWS

Contonation 1: (Chains III IV VII VIII) n=36

Sentences represented: 2 4 5 6 7 9

**LOUDNESS:** equal peaks on the lexically accented syllable of the first polysyllabic word or on the first lexical monosyllable (whichever comes first) (P1), and on the lexically accented syllable of the last word (P2) (n=22); or equal peaks on all polysyllabic words and lexical monosyllables (n=9); or single peak on P1 or P2 (n=5).

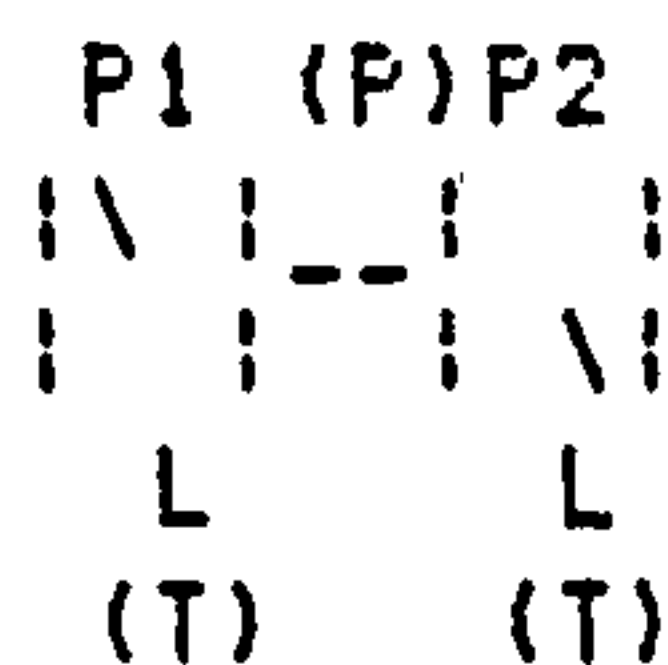
**TEMPO:** no tempo prominence (n=17); prominence on P1 and P2 (n=6); on P2 only (n=8) or on P1 only (n=5).

**PITCH:** (a) P1 is higher than P2 (n=26); or P1 and P2 start at the same height (n=7).

(b) P1 is level (n=19); falling not to base of range (n=13); falling to base of range (n=6); or rising (n=2). (n.b. figures include pitch/loudness peaks between P1 and P2).

(c) pitch on P2 is falling to base (n=18); level followed by step down to base on unaccented syllable(s) (n=9); level at base (n=4); level above base (n=4); rising-falling (n=3).

Schematic representation:



Constraints on on-syllable pitch type:

(a) Non-low level on P2 occurs only with S4 ("down").

(b) Level on P2 followed by step down to base on unaccented syllable(s) occurs when P2 is on first syllable of a polysyllabic word.

NEWS

Contonation 2: (Chain I) n=3

Sentences represented: S1 S2 S9

LOUDNESS: single peak on the lexically accented syllable of the penultimate lexical head (P) (n=3);

TEMPO: no tempo prominence (n=2); or prominence on P (n=1).

PITCH: (a) falling pitch on P;  
(b) step up to P from preceding syllable;  
(c) syllables following P are low level.

Schematic Representation:                    P  
  |    | \ |    |  
  |  --|  |\_\_|  
  L  
  (T)

NEWS

Contonation 3: (Chain II) n=16

Sentences represented: 1 3 5 8

LOUDNESS: equal peaks on the lexically accented syllables of two (n=12) or one (n=2) or three (n=2) lexical heads. (P1 = the penultimate of these, P2 = the last, Pn = any loudness peak before P1.

TEMPO: no tempo prominence (n=7); prominence on final word (n=5) or on a non-final lexical word (n=3).

PITCH: (a) P1 is level (n=7), falling to base (n=5), or falling not to base (n=5).

(b) step up to P1 from preceding syllable (n=9)

(c) P2 starts lower than P1 does (n=12), or they start at the same height (n=3);

(d) P2 is rising (n=12), or low level followed by step up to following unaccented syllable(s) (n=3)

(e) P2 ends higher (n=7), lower (n=7), or same height as P1 starts (n=2).

Schematic representation:

```
      Pn P1 P2
      |  |  |
      |--|\ | /|
           L  L
           (T)(T)
```

Constraints on on-syllable pitch type:

Fall on P1 is realised as level + step down, where P1 is on cooccurs with a short vowel and is not word final (e.g. S3 "Macmillan");

NEWS

Contonation 4: (Chain VIII) n=6

Sentences represented: 1

LOUDNESS: equal peaks on the lexically accented syllables of the penultimate (P1) and final (P2) lexical heads (n=5).

TEMPO: no tempo prominence (n=3); prominence on P1 (n=2), or P1 (n=1).

PITCH: (a) P1 is falling not to base (n=4) or level (n=2);  
(b) step up to P1 from preceding syllable (n=4);  
(c) P2 starts at same height as P1 does (n=6);  
(d) falling-rising pitch on P2 (n=6);  
(e) P2 ends lower (n=3) or same height as P1 starts (n=3).

Schematic representation:

P1 P2  
i \\_ i / i  
i i i  
L L  
(T)