What Determines Accentuation? A Reply to Cruttenden & Faber.

Short title: What Determines Accentuation?

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Abstract

This article was inspired by Cruttenden & Faber's (1991) article (henceforth 'C&F') on the accentuation of prepositions in English, and constitutes both a response to that article and an exposition of an alternative approach to accent placement. [1] The first part of the present article is a critique of C&F's analysis, demonstrating the inadequacy of 'contrastivity' as an explanation for the accent placements which they observe and introducing general principles of accent placement as alternative candidates. The second part of the article attempts to formalise these general principles, such as focus, rhythm, accentability and linear position, into a framework for determining accent placement both in C&F's data and in the general case. Subsequent sections address the issues of interpretation and markedness, and finally we discuss remaining problems and how they might be tackled.

1. Introduction

C&F set out to account for what they see as "a special sort of nucleus placement" (p.265): one which involves placing the main 'sentence stress' or 'accent' on a preposition but — crucially — without conveying the impression of 'contrastive stress' which is assumed by many authors (Halliday 1967; Bolinger 1961; see also Schmerling 1976:45-6) to result from such accentuations. The phenomena at issue, then, include (1) (C&F's example (1)) but not (2) (their example (3)) which is clearly a case of 'contrastive stress'.

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(1) this poem describes london and the journey TO london[2]

(2) are you talking about the bus TO bath or the one FROM bath?

C&F take for granted the fact that in example (1) above the 'given' (Halliday 1967; Prince 1981) item *London* does not carry the nucleus: the "special" nature of this accentuation lies in the location of the nucleus on a preposition rather than on a content word.[3] C&F go on to give many interesting examples of this phenomenon, but their approach to the data and their assumptions regarding the process of accentuation together prevent them from seeing any common factors in most of their examples and they are therefore obliged to conclude (p.266) "that there is no one explanation for such preposition accentuation".

In our view, there are basic principles of accentuation which shed light on the examples C&F discuss and which can provide a unified explanation for most cases of preposition accentuation. In this paper we shall discuss some of C&F's examples and conclusions, present an alternative analysis, and show how these and other examples fit into a more unified account of accentuation. The following section presents a critique of C&F's analysis; the next section sets out our alternative proposals; and subsequent sections discuss the implications and remaining problems of this alternative.

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[2]In all examples, capitalisation indicates accented syllables. In keeping with tradition, unacceptable accentuations are indicated by an asterisk preceding the example and dubious examples are preceded by a question mark.

[3]For present purposes, content words (CWs) include nouns, lexical verbs, adjectives and adverbs; all other items are function words (FWs).

2. Contrast and Focus

Assuming we accept that the 'givenness' of *London* is sufficient to explain why it does not carry the nucleus in (1), we must then explain why the nucleus should fall on a preposition despite the fact that, as C&F (p.266) point out, in keeping with the CW/FW distinction observed by Kingdon (1958) and Halliday (1967) amongst others, "the nucleus would normally be expected to shift back to the last new CONTENT word." (Emphasis as in original.) C&F's first suggestion is that there is some kind of "contrastivity" — but not 'contrastive stress' as in (2) — which points up "the contrast between the absence of a preposition and the presence of a preposition before a noun phrase," and that if this is the case "it is clearly appropriate that the preposition — the item whose presence or absence makes the crucial difference — should be accented." (p.267)

The first stage of this argument seems plausible, since the preposition arguably conveys the bulk of the 'new' information in the second conjunct in example (1). The second stage, however, does not appear to fit the facts regarding the accenting of function words such as prepositions and determiners: accentuation is, unfortunately, not that simple. In cases of explicit contrast, such as (2) above, function words may — and often must — be accented: however, there are many cases where a function word is "the item whose presence or absence makes the crucial difference" but nevertheless does not carry the nuclear accent, and in these cases there seems to be no 'contrastive stress' reading. Examples include (3-5), where the nucleus placement indicated is not a contrastive one and it is difficult to accent the function words without producing a strongly contrastive reading.

(3) fred cooked lots of beans, but john didn't EAT any

(4) i took my briefcase out of the boot, but left my umbrella in the CAR

(5) the accused hit my client with a crowbar, so she KICKED him

In (3), eating is a predictable, or in Prince's (1981) terms <u>inferrable</u>, sequel to cooking, but it still carries the nucleus despite the arguably more "crucial" information conveyed by *any*. In (4), the presence of a car must be inferred before the first conjunct can be understood, and the contrast between *in* and *out* is certainly crucial, but the preposition is still not an appropriate carrier of the nucleus. In (5), there is no implication that kicking (rather than punching, stabbing, etc.) is the best defence against a crowbar: indeed, it is the retaliation itself rather than the manner of it which is at issue; but there is no possibility of placing the nucleus on either pronoun, despite the fact that it is the pronouns which convey the woman's crucial change of role from patient to agent.

If we permit a traditional 'contrastive' reading, by making the parallel between the conjuncts more explicit, we can easily allow the nucleus to fall on a function word: examples (6-8) do precisely that. However, this change is not brought about by making the function words more "crucial": rather, we have made the content words less readily available as sites for the nucleus by making them exact repetitions of those in the first conjunct and thereby producing classic cases of "direct contrast" (C&F p.266).[4]

(6) fred ate lots of beans, but john didn't eat ANY

(7) i took my briefcase out of the car, but left my umbrella IN the car

(8) the accused hit my client with a crowbar, so SHE hit HIM

It is the very fact that non-contrastive readings such as (3-5) tend to have the nucleus on content words, and nucleus placements such as those in (6-8) (on function words) tend to force a contrastive reading, which makes cases such as (1) (which falls between these two groupings) appear to be "special" and to require some intermediate treatment such as the 'semi-contrastivity' of C&F's account. However, it should be clear from our examples that the contrast which C&F suggest between preposition and no preposition is not the determining factor in such cases, and that a better explanation must be found.

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[4]The question of degrees of availability for accent, and of the need for two accents in (8), is discussed below.

C&F attempt to improve on this "trivial and superficial" analysis (p.267) by suggesting that in (1) it is the particular preposition *to* which is highlighted (to borrow Bolinger's (1972) term) rather than simply the presence of some indeterminate member of the class of prepositions. They argue that this accentuation underlines the change in the 'semantic role' of *London*. There are two problems with this analysis. Firstly, even if it were the case that the speaker wished to highlight this aspect of the utterance in (1), there is no obvious reason why he should choose to accent the preposition: C&F claim that the preposition can be seen as assigning the semantic role of 'destination', but the noun *journey* could equally well specify a destination and so accenting that item would serve to highlight this semantic role just as well. Moreover, if the fact that *London* has a new semantic role is the most salient aspect of (1), there would appear to be no reason not to accent the place-name itself, thereby emphasising the new aspect of its meaning: this is precisely the case in (8) above, where the only new information is the change in agent-patient relations.

The second problem, as C&F themselves point out, is that the definition of semantic roles is not at all clear. There is currently no agreement on the types and numbers of semantic roles which play a part in language, and how one might determine the role which a particular item fulfills. "If we are not able to say what a semantic role is , then we will be unable to say with any certainty if two semantic roles (or what appear to be two semantic roles) are really two, and different, and can contrast, or not." (C&F pp.268-9)

The remaining two types of contrast suggested by C&F are discussed briefly below, but they are not the central cases of preposition accentuation. The discussion above has demonstrated the problems with a contrastive account of preposition accentuation, and has clearly shown that it is not contrastivity which results in the nucleus placements observed by C&F. What, then, can account for the tendencies noted so far?

2.1 Broad and Narrow Focus

The notion of 'contrastive' nucleus placement, as exemplified in (2) and (6-8), has a long and turbulent history (Trager & Smith 1951; Bolinger 1961; Halliday 1967; Chomsky 1971; Schmerling 1976; Ladd 1980; Gussenhoven et al. 1987). Schmerling (1976:45ff.), in a lengthy discussion, shows that the bipartite view of accent as either 'normal' or 'contrastive' has been used in a variety of very different ways to account for often unrelated phenomena, and that there is in fact no reliable definition of 'contrastive' accentuation. Moreover, she argues (p.65) that the notion of contrastivity as something "special" is untenable: all language is 'contrastive', in that it requires a choice from a set of options and therefore the option chosen contrasts with those not chosen.

Ladd (1980:73ff.) replaced the notions of normal and contrastive stress with a distinction between broad and narrow focus: broad focus, where a whole utterance was presented as new and interesting, corresponded to normal stress, with (in most cases) only one broad focus accentuation available for a given utterance; other accentuations corresponded to a particular narrow focus, with only part of the utterance in focus. In any utterance, the nucleus would fall on the last content word in the focussed portion of the utterance: thus, in example (2) only the prepositions are in focus, whereas in (3-5) the entire utterance may be in focus. By this account, the accentuation in (1) would also result from narrow focus on the preposition, but there are two problems with such an explanation. Firstly, there is no obvious reason why *to* should be in focus and *journey* should not in (1): indeed, there is a general problem with a purely focus-based account that there is no independent way of predicting a particular narrow focus. Secondly, it is difficult to account for the difference in perceived 'contrastivity' between (1) and (2) if they are both seen as instances of narrow focus on prepositions: why, then, should their interpretation be so different?

2.2 Degrees of Accent

To understand the difference between (1) and (2), we must consider non-nuclear accents as well as nuclear ones. C&F explicitly state that they are only concerned with nuclei, but even so they are forced to mark more than one accent in some of their examples: this is indicative of the relevance of non-nuclear accents in such cases. The use of single-accent examples is a common practice in the literature, especially in work where the intonational issues are subordinate to other areas of linguistic theory: however, the inadequacy of such practice in many cases was pointed out by Fuchs (1984:136). For the sake of clarity, we use single-accent examples where possible: however, multi-accent examples are also used below and their interpretation is discussed in this section.

The notion of different degrees of accent dates at least from the work of Newman (1946), and is acknowledged by Chomsky & Halle (1968) and formulated by Schmerling (1976:82) as her Principle II: "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." There are therefore at least two degrees of accent: primary accent, assigned to arguments (loosely, nouns); and secondary accent, assigned to predicates (all other content words). The question of which accent functions as the nucleus in multi-accent examples is resolved by Schmerling's (1976:86) Principle III (based on Newman (1946:176)): "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." Thus, the rightmost accent of the highest degree assigned will be the nucleus: any accents to the right of the nucleus tend to be reduced or deleted (Crystal 1969:207,224; Halliday 1967:12). For the present, an "intonational unit" can be defined as a single focus domain (focussed portion of an utterance bounded by unfocussed material) plus optional unfocussed elements.

It is generally assumed, as C&F (p.266) point out, that only content words receive accent of any degree: however, both Ladd (1980) and Gussenhoven (1983) point out that focussed function words may receive accent if there are no focussed content words. Bolinger also allows accent to fall on function words, as in his view accent is assigned entirely at the whim of the speaker and therefore "the focusing of a preposition is like the focusing of any other word." (Bolinger 1985:85) C&F (p.272ff.) suggest that the boundary between content words and function words is unclear, and that "prepositions come within the 'fuzzy' area between the two categories" so that they are able to behave like content words and carry accents in certain circumstances. The only clear motivation which C&F give for such a suggestion is the difference in acceptability between (1) and (9).

(9) *this poem describes london and the old icknield way TO london

In such cases, according to C&F, the preposition behaves as a content word when there is a semantically 'light' (i.e. atypical or fuzzy) content word before it, but if there is a 'heavy' or contentful item in that position the preposition behaves as a function word and cannot carry the nucleus. The vague, impressionistic nature of this suggestion is freely admitted (C&F p.274), and no further conclusion is drawn: however, with the availability of different degrees of accent it is possible to give a more principled explanation of such cases, as follows.

In example (1), as C&F point out, there is a very clear reason not to accent *London*: it is a repeated item, and hence 'given' or unfocussed information. It is generally agreed (Halliday 1967; Ladd 1980; Bolinger 1985) that such items are deaccented, and that any nuclear accent which would have been assigned to them is assigned to some other item: however, there is less agreement as to which other item should receive this accent. In some cases, there is a clear candidate in a 'new' content word in the same focus domain: examples such as (10-12), adapted from Ladd (1980:54ff.) illustrate such cases, where (10) gives the 'out-of-the-blue' accentuation while (11) and (12) show the effect of making *parents* given or unfocussed.

(10)a. what time are you meeting your PArents?

(10)b. what time are your PArents arriving?

(11) A: My parents arrive today, and there's still all this work to do

B: what time are you MEEting your parents?

(12) A: There's still all this work to do, and I've got to meet my parents off the train.

B: what time are your parents arRIving?

In (1), the item *journey* provides such a candidate and can indeed carry the nucleus as C&F (p.273) demonstrate. However, this item is not very 'heavy' semantically — its semantic content is minimal — and so there is no particularly compelling reason to treat it as a typical content word and assign the nucleus to it. There is also no particular reason to accent any other item in the noun phrase, yet the nucleus must be assigned to something or the utterance will not be intonationally well-formed. We now have an explanation for why *London* is deaccented, and why it is possible (but not obligatory) to accent *journey*, but there is another factor which must be considered before we can explain why the preposition may be accented but the determiner may not.

2.3 Linear Position

The importance of linear position in determining where the nucleus falls is clearly stated in Schmerling's Principle III given above, and there is general agreement that in a sequence of accents of the same degree the rightmost will be more prominent. This phenomenon has been discussed at length in cases where there are obvious sites for the nucleus, such as (6-8) and (10-12) above: however, there has been rather less discussion of cases such as (1) where there are no readily-accentable items. We suggest that in cases such as (1) the tendency is for the nucleus to fall as far to the right as possible: this is not obligatory, as can be seen from the fact that placing the nucleus on *journey* is possible: however, it accounts for the possibility of accenting the preposition but not the determiner in (1).

The same tendency accounts for the nucleus placements in many of C&F's examples where there is no particular reason to accent any of the content words. Example (14), used by C&F to support their 'semantic role' account, is a case in point: in our analysis, there is no good reason to accent the relatively content-free item *people* and so the nucleus drifts to the right and falls on an item which would not normally carry an accent. Examples (15) and (16) demonstrate that replacing *people* with a more contentful item such as *penguins* will make such an accentuation impossible, since such an item can quite easily carry the nucleus.

(14) i love both london and the people THERE

(15) *i love both antarctica and the penguins THERE

(16) i love both antarctica and the PENguins there

Similarly, examples (17-19) show that simply by changing the word-order we may affect where the nucleus falls: the semantics do not change, but the accentual possibilities do.

(17) this report describes london and my activities IN london

(18) this report describes london and my london-based acTIvities

(19) *this report describes london and my london-BASED activities

The influence of word-order on accentuation is not a new idea: Bolinger (1985:85) comments on the special status which an item may be afforded by its linear position, and Gussenhoven (1985:131) gives examples from German which illustrate the same effect as (17-19). However, there are examples observed by C&F which prompt us to go rather further than previous authors regarding the importance of word-order. We suggest that factors of linear position may not only determine which of a number of elements of roughly equal prominence will be selected to carry the nucleus, but may also PROMOTE a less prominent item over more prominent items in order to place the nucleus closer to the right edge of a domain or utterance.

We claim that Schmerling's Principle III is symptomatic of a pressure on speakers (of English at least) to place the nucleus as far to the right as possible and thereby avoid long post-nuclear stretches or 'tails'. There is considerable evidence in the literature (Crystal 1969:224; Berman & Szamosi 1972; Altenberg 1987; Sproat 1990) that speakers avoid long tails, and such a pressure would explain both Schmerling's Principle III and many of C&F's examples including those repeated in (20-22).

(20) a woman shouldn't be a politician - she should be the wife OF a politician

(21) a woman shouldn't be a politician - she should be the WIFE of one

(22) *a woman shouldn't be a politician - she should be the wife OF one

C&F observe (pp.272 & 275) that the accentuations in (20-22) appear to depend on "the lexical repetition of the given NP", and they suggest two explanations for these examples and others such as (23) and (24).

(23) the works of shaw and my comments ON those works

(24) the rules and the interpretation OF those rules

Their first suggestion is that both the repetition of the NP and its deaccenting are strategies designed to emphasise the fact that it refers to an entity which has already been mentioned. This seems unlikely, since the replacement of the NP with a pronoun would serve the same purpose and it is in any case perfectly possible to accent given items in order to make their reference clear, as in (25) where the pronoun must refer to Mary.

(25) mary hit joan, and then george hit HER

C&F's second suggestion is that there is some difficulty with pronominalising the NP in such examples, and they cite the peculiarity of (26) and (27) as evidence for this difficulty. "The root cause of the accentuation of the preposition, then, is held to be the difficulty of pronominalising the NP." (C&F p.276) However, for us at least, pronominalisation is perfectly possible in these cases as long as the accentuations in (28) and (29) are used.

(26) ?the works of shaw and my comments ON them

(27) ?the rules and the interpretation OF them

(28) the works of shaw and my COMments on them

(29) the rules and the interpreTAtion of them

The behaviour of pairs such as (20) and (21), ((23) and (28), and (24) and (29) indicates, in our view, that it is the amount of material to the right of the last new content word (the expected site for the nucleus) which determines whether the nucleus falls on the preposition. The presence of a full NP in post-nuclear position leads to accentuation of the preposition in order to reduce a long post-nuclear tail, whereas a post-nuclear pronoun does not constitute a long enough tail to trigger displacement of the nucleus. This analysis also accounts for other examples cited by C&F but given very different explanations by them, as is shown by examples (30-36).

(30) and here is brian widlake, with forty-five minutes of news and comment ON that news

(31) and here is brian widlake, with forty-five minutes of news and COMment

(32) the accident wasn't caused by the lorry, but by the concrete ON the lorry

(33) christ, and your faith IN christ

(34) ?christ, and your faith IN him

(35) christ, and your FAITH in him

(36) *christ, and your faith IN the holy ghost

2.4 Phrasal Verbs and Other Exceptions

Although C&F state that they are concerned only with accentuation of prepositions, and only nuclear accent, and only then in cases where there is no strongly contrastive interpretation, they mention several cases which do not conform to these restrictions. Of these cases, they devote the most space to the accentuation of particles in phrasal verbs such as *look after, rely on*; but they also discuss some cases of classic 'contrastive stress' and non-nuclear accent, as well as instances of nucleus placement on what they term "adpreps" (p.266). In this section, we will discuss such cases and show how they can be incorporated into our analysis.

There is a class of verbs, which we will call phrasal verbs, where a particular preposition is required by and forms part of the verb: the preposition in these cases is referred to as a particle. These verbs are characterised by the fact that the particle may be separated from the verb: thus, *look up* is a phrasal verb in (37) but *paddle up* in (38) is not.

(37) He looked the river up in his guidebook.

(38) *He paddled the river up in his canoe.

For purposes of nucleus placement, the particle is exactly equivalent to a lexical verb: it has a higher degree of accent than function words, but a lower degree than nouns, as shown in (39-41).

(39) before he left, he locked me UP

(40) before he left, he locked the PENguins up

(41) before he left, he locked UP

C&F (p.278ff.) posit a class of 'verb+preposition' units which do not behave in this manner but where the preposition appears to be specified by the verb and "the eye of faith" can detect a commonality of meaning. Examples which they propose include *look after, comment on, pay for, rely on, protest against* and *desist from.* Their claim appears to be that these units license accentuation of the preposition, since the preposition is no less central than the verb to the meaning of the unit. However, the accentual behaviour of these items does not seem to support this claim, as examples (42-47) show.

(42) i like children, but i don't like looking AFter children

(43) i like parties, but i don't like cleaning up AFter parties

(44) *i like indian meals, but i don't like paying FOR indian meals

(45) *i like reading modern poetry, but i don't like commenting ON modern poetry

(46) *i like catching the bus, but i don't like relying ON the bus

(47) i like rivers, but i don't like paddling UP rivers

The fact that the verb specifies a particular preposition, then, does not appear to make that preposition more salient or contentful: indeed, this is precisely what we would expect, since the preposition is in fact predictable in such cases and therefore redundant. The same argument applies to partitive *of* (C&F p.284): there is a strong case for claiming that this 'preposition' is entirely redundant.[5] Indeed, C&F's example 17 (p.278) (repeated here as (48)) serves to illustrate the crucial role of redundancy in these cases: the more 'contentful' the preposition, and the less 'contentful' the verb, the more likely the former is to carry the nucleus and vice versa:

(48) i wasn't particularly enamoured of the argument, but i wasn't going to protest aGAINST it

(49) i wasn't particularly enamoured of the argument, but i wasn't going to proTEST about it

(50) i wasn't particularly enamoured of the argument, but i wasn't going to speak aGAINST it

(51) i wasn't particularly enamoured of the argument, but i wasn't going to say anything aGAINST it

(52) i wasn't particularly enamoured of the argument, but i wasn't going to SAY anything about it

(53) i wasn't particularly enamoured of the argument, but i wasn't going to say anything aBOUT it

These examples do seem to support C&F's distinction between simple prepositions and 'adpreps' such as *against* "which can occur as free-standing adverbs" (C&F p.266): the latter seem to be much more readily accented. We would argue that this is a function of their more 'contentful' nature, rather than of their syntactic behaviour: these items may indeed hover between content words and function words in many cases, on grounds of semantic weight.

On stylistic grounds, (53) is arguably preferable to (52): the latter has a rather long post-nuclear tail, and this gives an impression of extra emphasis on *say* (since

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[5]See Matheson's (1990) thesis for a full discussion.

if *say* were not specially important we would expect the nucleus to be postponed). The question of fine distinctions such as this is discussed below.

C&F (p.280) give the following three examples with accentuation marked as here, and indicate that these examples are taken from radio broadcasts:

(54) the job involves working FOR and dealing WITH the prisoners

(55) in this programme we examine the case FOR and the points aGAINST electoral reform

(56) the local vicar understandably has little faith IN or charity FOR the elected representatives

The first point which we wish to make regarding these examples is that there appear to be two nuclei marked — either that, or C&F are marking non-nuclear accents in these cases. If there are two nuclei, then there must be two intonational units: a division into two units would indicate some relation other than a close coordination for contrastive effect, since the boundary between the two units would counteract any impression of closeness; yet this is precisely the explanation which C&F propose for these examples. If, on the other hand, these are not cases of two nuclei, then we would suggest that there are other accents present as well as those marked by C&F, at least in (56). The second point to make is that, unless the final NP in all these examples is deaccented for contextual reasons, the accentuations shown would be highly unnatural: we will assume, therefore, that the final NPs are 'given'. An informal account of the accentuation of the prepositions in these cases would therefore proceed as follows.

In (54) and (55), *prisoners* and *electoral reform* are deaccented for contextual reasons: we would expect the nucleus to fall on the last focussed content word. However, none of the content words in these examples is particularly 'heavy': we may suppose, then, that the items are all salient to roughly the same degree. In such a case, the nucleus should fall on the rightmost focussed item, and this is precisely what happens. In addition, non-nuclear accents fall in rhythmic positions[6] (i.e. evenly spaced) before the nucleus.

In (56) the situation is slightly more complicated. We assume that *elected representatives* is unfocussed: the problem is to account for the failure of the nucleus to fall on *charity*. Assuming, of course, that *faith* and *charity* (and probably also *hope*) are not contextually deaccented or 'given', there are two possible explanations for this accentuation. Both these explanations require that the prepositions be as salient for the speaker as the content words, and to that extent we agree with C&F that in these cases the preposition and the noun are closely associated in the speaker's mind: however, we do not agree that contrast or coordination is a crucial factor in producing such accentuations.

Firstly, and in our view most plausibly, the speaking style[7] used may be one which realises a large number of accents — a slow or emphatic style — and there are in fact accents on *faith* and *charity*, as well as on other items, which C&F have not marked: in addition, the long unfocussed sentence-final NP puts pressure on the speaker to place the nucleus as late as possible. Secondly, in a more normal speaking style, there might be no accents on *faith* and *charity* but the pressure still exists to place the nucleus late — on *for* — and the rhythm or balance of the utterance requires an accent on *in* in this case.

[6]The question of rhythm is discussed in Section 3.4 below.

[7]See Monaghan (1991c) for a discussion of the interaction between accent and speaking style.

3. Determinants of Accent Placement

Our accounts of the examples given above mention factors such as rhythm, linear position, givenness and so forth without relating these factors to each other or stating how their effect is to be predicted. The present section attempts to rectify this, and to present a unified account of the accentuations observed by C&F.

There are two long-established schools of thought on the matter of what determines accent placement. The first holds that accent is determined by the speaker, with few constraints other than the communicative effect which the speaker wishes to produce: this approach is set out in Bolinger (1986, 1989), and has been called the "highlighting" approach since it allows the speaker to highlight whatever item or items he wishes. The second school believes that accent placement is determined by rule on the basis of a particular level of linguistic structure: the most recent incarnation of this approach favours the use of focus structure to determine accent placement (Ladd 1980, Gussenhoven 1983, Fuchs 1984). Our own approach attempts to combine the insights of both these schools and to produce a hierarchy of factors which determine accent placement.

3.1 Focus

Both the above schools agree that the nuclear accent in an utterance falls on the element which is most salient for the speaker — the "highlighted" or "focussed" element. Where the two schools diverge is on the size of this element: Bolinger argues that in most cases a single word is highlighted, whereas the focus approach claims that this element may be an entire clause or utterance. The evidence would appear to support the focus approach, since a single nucleus can serve to highlight much more than a single word: examples (57-59) illustrate this possibility.

(57) A: What was strange about George?

B: he was wearing a pink SHIRT

(58) A: What was John wearing?

B: he was wearing a pink SHIRT

(59) A: What was John wearing that was pink?

B: he was wearing a pink SHIRT

3.2 Accentability

If we accept that the nucleus falls on the focussed portion of an utterance, we must then answer two further questions: where in that portion does it fall, and what determines the focussed portion anyway? The answer to the first question is given by Schmerling's Principles II and III, discussed above: different items in the focussed portion have different degrees of accentability, and the rightmost item with the highest such degree will carry the nucleus. What, then, determines accentability? We propose semantic criteria for this role: the accepted content/function dichotomy is in our view a semantic distinction made in the lexicon, and in addition there are considerations of semantic weight which may take precedence over lexical classes in determining accentability. Thus, although content words are generally more accentable than function words the word *say* is semantically much lighter than the word *against* and we therefore find accentuations such as (51) above. It can be seen from (1) and (60) that considerations of focus take precedence over semantic factors: the context can lead to deaccenting of even the heaviest items, since contextually "given" items tend not to be in focus and unfocussed items cannot carry the nuclear accent.

(1) this poem describes london and the journey TO london

(60) this poem describes london and the journey to MANchester

3.3 Intention

The question of what determines the portion of an utterance to be focussed has a simple answer: the speaker, and the speaker alone, determines the focus structure of any utterance. The speaker's communicative intentions are the sole factor in deciding what is in focus and what is not. This is the root of Bolinger's (1987:142) assertion that "What counts is ... how the speaker feels about what he is saying." A speaker may override the semantic weight of the elements in his utterance, and even the contextual given/new status of those elements, for a particular communicative effect: however, this is not done lightly, since it has serious consequences for the interpretation of the utterance by a listener. Thus, a speaker may choose to focus a "given" item, as in (61), but he must be aware that such an accentuation will lead to a different interpretation by the listener from the interpretation given to (62).

(61) A: What kind of a man is John?

B: oh, he's a wonderful MAN.

(62) A: What kind of a man is John?

B: oh, he's a WONderful man.

Similarly, a speaker may choose not to focus a "new" item: this may be because the speaker is not aware that it is new, as in (63), or because the speaker intends some other effect as in (64), but in either case the listener's interpretation will be affected.

(63) i didn't enjoy "macbeth", but then i NEver liked the histories

(64) the food's alright, if you LIKE raw fish

3.4 Linear Position

The speaker is therefore free to assign focus as he sees fit, regardless of either discourse context or truth values: the question of interpretation is returned to below, but for the present all that matters is that the speaker marks some portion of the utterance as in focus. Within that portion, the position of the nucleus is determined by accentability and linear position. Schmerling's Principle III states that the last of a series of maximally prominent items will receive the nucleus, and Bolinger (1985:85) concurs but adds that "the initial position confers a similar distinction." We argue above that factors of linear position may even override semantics-based distinctions of accentability, but this is not the norm: in most cases, Principle III holds.

A factor which is mentioned above, and which relates to linear position but not to nucleus placement, is the principle of rhythmic alternation which was first explored in depth by Liberman & Prince (1977). This principle accounts for the differences in acceptability between (65-69).

(65) RED, yellow, GREEN, blue and BROWN

(66) RED, YEllow, GREEN, BLUE and BROWN

(67) ?RED, yellow, green, blue and BROWN

(68) *RED, yellow, green, BLUE and BROWN

(69) *RED, YEllow, green, blue and BROWN

The cases where the accents are equally spaced are quite acceptable, although (66) requires quite a slow speaking rate, but the cases where the spacings are not equal are unacceptable. (67) is dubious because it would require a very fast speaking rate, rather than because it is not rhythmic: compare Bolinger's (1985:85) *ONE, two, three, four, FIVE* example, where placing an accent on every item would require an excessively slow speaking rate. The placement of pre-nuclear accents, then, depends crucially on rhythm and it has been shown (Terken 1985; Monaghan 1990) that rhythmic factors may often result in pre-nuclear accents on unfocussed elements without producing any impression of unnaturalness.

We therefore have a hierarchy of determinants of accent placement:

$$\text{Intention} > \text{Context} > \text{Semantics} > \text{Word Order}$$

This is not a hierarchy which would be instantly accepted by many workers in the field of intonational theory, but nevertheless it is advanced here in all seriousness as a resolution of the highlight/focus debate. Indeed, we suspect that the main reason this hierarchy would not be more widely accepted at face value is that, as discussed above, most intonational theorists are firmly entrenched in one camp or the other and are more interested in pursuing the possibilities within that camp than they are in examining the views of the other camp or in reconciling the two views.

3.5 Examples

In order to justify this hierarchy, and to show that it is capable of accounting for many of the accentuations observed by C&F, we will work through the stages involved in generating three of their examples according to our view of accent placement.

Example (1) is C&F's central example, and our view of the reasons for this accentuation has been indicated above: however, for the sake of clarity we will present our analysis of this example, repeated here.

(1) this poem describes london and the journey TO london

On its second appearance, the item *London* is no longer new information and the speaker has therefore chosen not to focus it. The relation between newness and focus is not obligatory, but it is the norm. Since *London* is not in focus, it cannot carry the nucleus and so this must be assigned to some other item. Of the items which are possibly in focus (*the, journey* and *to*), the nucleus will fall on the rightmost of the most accentable items. In this case, none of the items are particularly accentable, since two are function words and the third is semantically rather 'light': the nucleus therefore falls on the rightmost of the three to produce the observed accentuation. This is not the only possible accentuation, as is discussed above: it is up to the speaker to resolve the conflicting pressures of lexical class and linear position within the focussed portion of the utterance, and they must be resolved one way or the other but they will not always be resolved in the same way.

Example (70) (C&F's example (2)) is very similar in our view despite the syntactic differences. The given item *Joyce* is not in focus, and the NP *anything he found by Joyce* contains no other semantically 'heavy' items since *found* is a rather colourless verb: the nucleus therefore falls on the rightmost focussed item.

(70) joyce he detested, and he always used to swear that he would burn anything he found BY joyce

There are two alternative nucleus placements available in this case, depending on the importance of various factors in the speaker's opinion. If the speaker felt (at some subconscious level) that the CW/FW distinction was very important, or that the verb *found* was in fact more salient than we have suggested, then he could place the nucleus on that item and produce (71). If, on the other hand, the speaker did not consider *found* sufficiently heavy to carry the nucleus but did not object to a long post-nuclear tail, he might place the nucleus on *burn* and produce an accentuation such as (72). In our view, these are all possible accentuations and although the speaker's priorities may change the choices involved are the same.

(71) joyce he detested, and he always used to swear that he would burn anything he FOUND by joyce

(72) joyce he detested, and he always used to swear that he would BURN anything he found by joyce

In (73) (C&F's example (6)), there is no such optionality: the accent must fall on the preposition as shown. There is an obligatory boundary between two intonation units, indicated by the comma, such that the PP forms a separate intonation unit in its own right: the precise reasons for this are not relevant — it may be the result of topicalisation or simply of the impossibility of combining the PP with the following material — but it is clearly impossible not to have an intonational boundary after the PP. Given this, there is only one possible location for the nucleus of this small intonation unit: the item *Harrods* cannot be focussed without severe unnaturalness, and so the accent must fall on the preposition. It should be noted, however, that this accent is only the nucleus of its own intonational unit: the nucleus of the entire utterance is not marked by C&F, but is likely to fall on *report*.

(73) ... and this morning sees the start of harrods' spring sales. FROM harrods, our roving reporter molesworth sends this special report ...

4. Interpretation and Markedness

As stated above, the argument that contrastivity in language is something special is in our view untenable. What, then accounts for the impressions of contrastivity which C&F and others observe? We would claim that the 'contrastive' aspect of examples such as (2) resides in the interpretation of the accentuation rather than in its linguistic form. The previous section has discussed the formal characteristics of accent placement: we will now discuss its function and interpretation.

4.1 Function and Interpretation

C&F make various comments regarding the function of the accent placements in their examples, and the meanings which they are intended to convey. For instance, they claim (p.267) that in accenting a preposition a speaker can distinguish between a meaning such as "Note that this time the noun phrase occurs, it is preceded by a preposition" and a different meaning such as "Note that this time the noun phrase occurs, it is preceded by — and is hence the object of — such and such a particular preposition". In our view, this is emphatically not the case: the function of accentuation is to convey the focus structure of the utterance, and the choices involved in accent placement are simply not precise enough to distinguish meanings such as these. Indeed, it is difficult to see how these two cases could be distinguished at all on the basis of accentuation alone, and we are not aware of any evidence to suggest that speakers or listeners reliably distinguish such meanings on the basis of phonetic characteristics such as contour shape or timing.

C&F also claim (p.269) that accentuation can be used to express "a syntactic or a semantic contrast." Again, this is not the function of accentuation: if such contrasts are to be expressed, they will be expressed by the syntax and semantics directly, as seems only reasonable. It is not the place of intonation to usurp the place of syntax or semantics and express distinctions which are clearly marked by these other aspects of language: the fact that an item is the argument of a preposition, rather than the argument of a verb, can be expressed by the speaker's syntactic or semantic choices without the help of accentuation.

There is an important distinction which needs to be made here between the function and the interpretation of accent placement. The function of accentuation is simply to convey a focus structure. This structure may be ambiguous, as in (57-59) above: it is up to the listener to deduce the intended communicative effect and thus the focus structure assigned by the speaker. It is true that a speaker may have a particular interpretation in mind, but he cannot convey that interpretation directly by means of accentuation: experimental evidence shows that a narrow-focus or 'contrastive' accentuation is phonetically indistinguishable from a non-contrastive broad-focus one (Eady & Cooper 1986:402), and so the choices available to a speaker are therefore limited to the number and location of accents. The interpretation of a particular accentuation is much more variable: it depends on the context, the listener's expectations and beliefs, and the host of paralinguistic and extralinguistic accompaniments of the speaker's utterance. C&F (p.272) refer to possible byproducts of accentuations, and this is precisely how interpretation works: the listener makes a series of deductions and inferences on the basis of the accentuation, which may or may not be what the speaker intended. It is possible that the speaker has carefully planned which byproducts will occur and has tailored his utterance accordingly; but it is equally possible that the listener will adopt an interpretation quite unforeseen by the speaker. As C&F (p.285) point out, "there is no necessity for the meaning that a hearer gets out of this (or any other) accentuation to be the same as the meaning that the speaker has put into it."

It is the listener's interpretation which is responsible for the perceived contrast in examples such as (2) and (6-8). This perception can be facilitated by the speaker's accentuation, but it is not a necessary consequence of any particular accentuation: rather, it is a result of the listener's attempts to process an accentuation which is in some way unexpected or <u>marked</u>. The detection of a contrast is only one of many possible ways in which a listener may account for the <u>markedness</u> of a particular utterance. This markedness does not reside in the accentuation of a preposition, or in some intra-utterance contrast, but is a function of the relation of the utterance to its context. It is therefore just as inappropriate to talk about a marked accentuation out of context as it is to assume that every case of narrow focus must be contrastive.

4.2 Markedness

The system of binary choices which a speaker must make between accenting and deaccenting particular items seems to correspond to the MARKED/UNMARKED dichotomy invoked in many areas of linguistic theory (Chomsky & Halle 1968:402ff.; Fodor et al. 1974:497; Gazdar et al. 1985:29ff.), and this is how authors such as Ladd (1980, 1983), Gussenhoven (1983) and Selkirk (1984) have interpreted the choice between accenting and not accenting. C&F (p.273) make quite a different use of the marked/unmarked dichotomy to explain the variable accentual behaviour of prepositions, suggesting that their behaviour as contentful carriers of accents is somehow marked compared with their more typical behaviour as function words. However, we reserve the use of markedness for another purpose.

We see focus structure, together with the relative accentability of focussed constituents, as determining nucleus placement with what has been termed 'Normal Stress' corresponding to maximally Broad Focus: this is largely in agreement with Ladd (1980:73ff.). Where we differ from Ladd's approach is in our view of the relation between narrow focus and markedness: Ladd (1980:76) equates these two notions, whilst pointing out that many sentences do not have a broad focus realisation, and therefore concludes that these sentences cannot have an unmarked realisation either; we agree entirely that sentences such as Ladd's examples (repeated here as (74) and (75)) involving reflexives and the word *even* have no full-focus realisation, but we see their focus structures as being completely determined by semantic and contextual factors and consequently as being <u>unmarked</u> in our terms.

(74) even a TWO-year-old could do that

(75) john was killed by himSELF

Examples such as (76) and (77), however, reflect intonational choices by the speaker which explicitly contradict the pragmatic content of *himself*, and it is these cases for which we reserve the term <u>marked</u>.

(76) john was KILLED by himself

(77) john WAS killed by himself

Although it is true, as Bolinger (1951), Schmerling (1976) and Fuchs (1984) amongst others have pointed out, that the notion of Normal Stress as a syntactically determined property of isolated sentences is not tenable, since it is demonstrably untrue that "every sentence has a 'normal' pronunciation" (Schmerling 1976:49), we are of the opinion that <u>every sentence in a particular context does indeed have a normal or unmarked accentuation</u>, and that it is this which is seen in (75) as opposed to (76) or (77). Ladd's examples of sentences which do not admit of a full-focus interpretation are therefore not cases of marked focus in our view, since any other focus structure would be much less normal: the difference between the accent placement in (75) and those in (76) and (77) is to our mind clearly one of markedness. A similar case can be seen in Ladd's (1980:75) example (repeated here as (78)) in defence of Normal Stress. Speaker B's reply in (78) clearly has narrow focus on *wonderful*, but it is in no way unusual or marked in the context: on the other hand, the reply in (79), despite being perfectly compatible with broad focus, gives a distinctly unusual emphasis to *man* and is therefore marked in our terms. It is the context, then, rather than any particular focus structure, which determines what the unmarked realisation of a particular sentence will be: this is similar to the Praguian notion of neutrality relative to a particular linguistic context (Daneš (1972:223ff.).

(78) A: What kind of a man is John?

B: oh, he's a WONderful man

(79) A: What kind of a man is John?

B: oh, he's a WONderful MAN

It can be seen from these examples that marked accentuations, whatever the focus structure which underlies them, oblige the listener to revise his beliefs or to infer some new information: it is only by making an effort to account for such unexpected accentuations that they can be processed as part of a coherent discourse. This is precisely what speaker B is trying to achieve in (79): he wishes the hearer to infer that John's qualities as a man are not the real issue. Whether or not the hearer does this by positing an implicit contrast — between John as a man and John as, say, an accountant — is irrelevant, at least to speaker B.

4.3 Summary

We take the function of intonational accents to be the indication of focus. Breadth of focus is indicated by the position of the main or nuclear accent in a domain: every utterance has some focussed constituent, and the size and number of such constituents determine the focus structure of the utterance. The question of boundaries between focus domains has not been addressed here: see Monaghan (1989, 1991a) for a discussion of this issue. Within any focus domain, the position of the nucleus is determined by the relative positions and accentability of the various constituents: the rightmost of the most accentable constituents will be assigned the nuclear accent, although accentability may in turn be influenced by considerations of linear position. Other accents in the domain are then optionally assigned to pre-nuclear accentable items, with the condition that these accents fit a regular rhythmic pattern for the entire domain.

For any utterance in a particular context, there is a predictable or unmarked focus structure which dictates a similarly unmarked accentuation. This focus structure is determined both by contextual factors and by the interpretations associated with particular lexical items (such as *even* and *only*, or pronouns and reflexives) and syntactic structures (such as fronting, clefts and inversion): focus structure is therefore determined by choices at various linguistic levels, producing incidental correlations between these levels and the realisation of focus structure as intonation. Speakers' assignment of focus is a completely free choice: marked focus structures are assigned to convey particular emphasis or attitudes, and it is only on the basis of the deviation from the unmarked case that listeners are able to interpret such uses.

Speakers may choose a marked intonational realisation for any number of reasons, but the realisation in itself does not convey the specific reason: the listener must deduce the reason on the basis of other information. We take the view that in general the use of a marked accentuation draws attention to the constituent whose accentuation is affected, and informs the speaker that the usual assumptions regarding this constituent do not hold. Thus, in (79) above speaker B has chosen to give *man* a marked intonational realisation. The most obvious interpretation of this realisation is that John's qualities as a man somehow contrast with his qualities in some other role, but this contrastiveness is not conveyed directly by the accentuation: there is in fact no necessary difference between the accentuation in (79) and the same accentuation in a context where it constitutes an unmarked realisation (Ladd 1980:75ff.). Indeed, it has been shown that such 'contrastive' uses of intonation are phonetically identical to more 'normal' uses. What has happened in (79) is simply the assignment of a marked focus structure: *man* should be unfocussed for a neutral accentuation in this context, but the speaker has chosen to focus it. The fact that this produces a marked realisation of *man* forces the listener to construct an explanation for the speaker's choice of focus structure, and in the absence of other information the most obvious explanation is the contrastive one mentioned above. This contrastive interpretation does not, however, involve the basic man/woman contrast or any similar primitive contrast, as this would clearly be quite implausible in the context and it is the context (rather than the semantics of the intonation contour) which provides the interpretation. If we change the context by adding more information, *à la* Bolinger, we can produce a different interpretation and in so doing illustrate the importance of context rather than accentuation: if we know, for instance, that John is a werewolf then the same accentuation as in (79) produces quite a different interpretation (a man/animal contrast which was impossible in (79)):

(80) A: What kind of a man is John?

B: oh, he's a WONderful MAN, but when there's a FULL MOON he's DREAD-ful!

5. Discussion

In this article we have attempted to show that the disparate data which C&F present may not require disparate accounts. In our view, all the examples which we have discussed can be explained by general principles of accent placement and communication. The notions of focus, accentability, rhythm and linear order which we have presented constitute a definite improvement on the "vague tendencies" identified by C&F (p.279), in terms of both breadth of coverage and theoretical elegance.

We feel that our account provides the "important, urgent reasons for accentuation" which C&F (p.267) were lacking, in proposing focus structure as "a connection between intonation and what the language means." Our definition of the function of accent placement as signalling focus structure provides a fixed basis for the prediction and interpretation of accentuations such as those which C&F point out: there is no place in our account for explicitly 'contrastive' or 'parallel' accentuations, but listeners' perceptions of contrast and parallelism are explained by the role of the listener in interpreting the focus structure conveyed by the accentuation. However, there are still some problems with our account, both in explaining some of C&F's examples and in the complex interactions between some of the notions involved.

Accent placement, like other aspects of language such as syntax and lexis, is prone to performance errors in spontaneous speech¿ However, unlike these other aspects, accent placement does not form part of the written language and it is therefore more difficult to distinguish between errors and individual variations. Nevertheless, some of the examples which C&F cite seem to us to be cases of erroneous accentuation: examples (81) and (82) (C&F's examples (11) and (18)), both taken from unscripted radio programmes, are such cases in our view.

(81) ... but for those sentenced TO long terms in prison ...

(82) i'll give you six marks and you should be happy WITH it

It is beyond the scope of the present article to give a detailed analysis of the cause of such errors: our main aim is to point out that such errors occur, especially during live broadcasts, and that there is a need to identify such cases rather than to devise a theory which will admit them as perfectly acceptable accentuations. However, on the basis of the framework for accent placement outlined above, we can make informed suggestions as to what the possible causes of such errors might be. Firstly, it is possible that such accentuations occur when the speaker has chosen an infelicitous syntactic or other structure for his utterance: instead of (81), for instance, the speaker might more felicitously have produced (83), where the choice not to elide certain constituents would have allowed a more natural accentuation.

(83) ... but for those who ARE sentenced to long terms in prison ...

On the other hand, the speaker may have felt that (83) would leave too long a tail: the pressure to place the nucleus as late as possible will frequently conflict with the wish to place it on the most accentable item. Without knowing the precise context of (82) it is difficult to make precise suggestions as to the reasons for the observed nucleus placement, but we suspect that the speaker was aiming to place the nucleus as late as possible and in effect ran out of places to put it. This may have been because of a re-structuring of the entire utterance — if, for example, the speaker had originally had two utterances in mind, *I'll give you six marks* and *You should be happy with six marks*, and had collapsed them to form (82) — but in any case such examples (where the speaker is forced to place the nucleus on a function word because there are no more content words left in the utterance) are not uncommon in broadcasting and other spontaneous speech.

We would suggest that such errors account for C&F's observation (p.267) that in some cases "the accentuation may actually be felt to come between the hearer and the meaning." However, it is also possible that accentuations such as the clichéed 'sports commentator' style along the lines of (84) become the norm in particular situations and produce the "metalinguistic air" observed by C&F (pp.267,270). Certainly, the style of accentuation adopted by regional newsreaders is often an obstacle to understanding and appears to be both nationally recognised and specific to this group of speakers.

(84) ... and as they come ROUND the bend it's red rum ON the inside galloping aWAY from shergar ...

Finally, we feel that it is not feasible to predict all cases of accent placement, for several reasons. Firstly, there is a great deal of individual variation: studies such as Altenberg's (1987) and van Bezooijen's (1989) have shown that people differ widely in where they produce, perceive and anticipate accents. Secondly, there is a large degree of optionality even for a single speaker, depending on speech rate, familiarity, arousal and other factors (Bolinger 1972) which are very difficult to control. Thirdly, although many accent placements can be predicted on the basis of focus structure it is entirely up to the speaker to determine the focus structure of an utterance according to the desired communicative effect. Fourthly, as C&F (pp.285-286) point out, there is a constant guessing game in progress between the speaker and the hearer to ensure that they both make the appropriate deductions about the communicative content of any utterance: nothing is guaranteed to be conveyed by a particular accentuation. There are thus many areas of vagueness and uncertainty which any account of accentuation must allow for.

However, as we have attempted to demonstrate here, there are general principles which will handle most cases and which have been applied with considerable success (Monaghan & Ladd 1989; Monaghan 1991ab) to synthesising accentuations for unrestricted text. We are currently engaged in an ESRC-funded project to apply the principles outlined above to spontaneous dialogue: our initial strategy will be to weight factors such as accentability and linear position and adjust the weightings to model particular accent patterns. Our assumption is that the process of accentuation is basically non-deterministic, i.e. that the same input may produce different outputs on different occasions even for the same speaker: however, the possible outputs are assumed to divide largely into acceptable and unacceptable accentuations. The aim of this research is to determine the permissible interactions between the determinants of accent placement discussed above, at a qualitative and a quantitative level.

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