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Syntactic-Prosodic Interface in Information Structure: The Interplay between Syntactic Markedness and Prosodic Prominence of Focus

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ABSTRACT

There is a vast body of research that attempts to get a window into the information structure-prosody interface. These accounts take a simplistic view and examine the prosody of information structure divorced from syntax. The current study postulates that the prosodic encoding of information structure is constrained by some syntactic factors. The basic hypothesis of the study is that syntactic markedness, as an independent syntactic variable, contributes to the eventual prosodic encoding of focus, particularly its prosodic prominence. Given that marked focus constituents basically manipulate syntax in such a way as to stand out syntagmatically, the study hypothesizes that syntactically unmarked focus constituents are predicted to be more prosodically prominent than marked constituents and, as a corollary, are predicted to be realized with higher maximum pitch, higher scaling of the H tonal target of the focus accent compared to the H of the preceding and following accents, and lower scaling of the L tonal target. To test these hypotheses, the study provides a prosodic investigation of two data sets that feature marked focus constructions and unmarked ones. The results of the study show that syntactic markedness is a highly significant predictor for focus prosody[1].

1. Introduction:

The current is an attempt at building a multi-factorial model to account for focus prosody. We explicitly adopt a probabilistic account in such a way as to assume that syntactic markedness places constraints on the prosodic encoding of focus. Thus, within the present framework, it is not expected that focus exhibits consistency regarding its prosodic marking. Rather, it is predicted to exhibit different prosodic reflexes given its position on the markedness scale. Therefore, the study is an attempt to challenge

[1] This article is part of the author's unpublished Ph.D. dissertation under the same title.

the prevalent isomorphic proposals that focus can be prosodically predicted, losing sight of the syntactic imports of the sentence. In doing so, it detects cases of syntactically driven discrepancies for the prosodic encoding of focus to find out when and why they occur. It does not only shed light on the prosodic variation of focus in isolation, but rather it takes a wider scope to explore the impacts of syntactic markedness on focus prosody. By checking the contribution of this variable, the study attempts to give insights into the syntactic-prosodic interplay by conducting a qualitative and quantitative analysis of the data so as to come to grips with how varied the prosodic prominence of focus is.

The remainder of the paper is structured as follows. Section **2** sketches the objectives of the study. Section **3** outlines the significance of the study. Section **4** introduces the research hypotheses. Section **5** lists the research questions**.** Section **6** sketches the data and research methodology. Section **7** sets out the key phenomenon of information structure and reviews the theoretical proposals reported in the literature that account for information structure in discourse pragmatics. We stress the distinction between referential givenness and relational givenness and indicate the relevance of the latter to our analysis. Finally, we sketch the information structural category that will be investigated in our study, i.e. focus, in accordance with Lambrecht's model of information structure that defines focus as a relational notion. Section **8** introduces the information structural notion of focus and its multiple definitions in the functional approaches. We submit that the main property of focus, in almost all accounts, is the fact that it is an assertion-lending element. We also introduce an important distinction between focus and newness, and stress that they do not necessarily coincide. We end the section with a syntactic paradigm of focus that categorizes focus in terms syntactic markedness. Section **9** begins with a distinction between the narrow and broad definition of prosody and points out that the study endorses the broad one that goes beyond intonation and includes both phrasing and prominence. As such, it lays out the two main components of prosody within the Autosegmental-Metrical model of phonology: the metrical component and the tonal component. Given the limitations of the study, emphasis is placed on prosodic prominence. Section **10** scrutinizes the syntactic-prosodic interface of focus in the selected corpus. The study adopts qualitative and quantitative analyses of the data. The qualitative analysis gives remarks on the tripartite relation advocated in this study: Discourse function of focus > syntactic markedness > prosodic prominence. Section **11** introduces a summary and concluding remarks of the study.

2. Objectives of the study

The present study is descriptive, dealing with the prosodic encoding of focus in relation to the syntactic markedness variable. The current study takes a step towards refuting the categorical view or the

one-to-one mapping between focus and prosodic reflexes. We hypothesize that such a mapping is a fallacy, and advocate a multi-factorial interpretation. The intuition we want to develop formally is that syntactic markedness has bearing on the prosodic prominence of focus with two tasks in mind. On the one hand, it detects cases of syntactically driven discrepancies regarding the prosodic encoding of focus to find out when and why they occur. On the other hand, it attempts to propose a model that can predict the prosodic prominence of focus, keeping in mind its syntactic markedness. In this approach, syntax serves the intermediate formal role between function (the pragmatic notion of focus) and form (focus prosody). This boils down to the hypothesis that the relation is probabilistic rather than absolute.

3. Significance of the study

The present study deals with the interplay between prosody and syntax of focus in some selected English audiobooks. It differs from the preceding studies in that it is not going to investigate the syntactic configuration of focus, which has been the subject of many studies conducted on information structure. Neither is it limited to the investigation of the prosodic encoding of focus. Rather, it adopts an intertwining approach by means of which focus will be prosodically investigated against a syntactic independent variable, markedness, so as to see how it has bearing on focus prosody. Further, the study makes use of the techniques of computational linguistics in prosodic analysis by means of using PRAAT Software to extract the prosodic features, which are difficult to capture unless the data are submitted to a native expert in prosody. This software is a great help in identifying the pitch height, intensity and pauses in speech.

4. Hypotheses of the Study

The basic claim of the current study is that focus prosody makes direct or indirect reference to syntax. To this end, we propose a syntactic paradigm of focus that categorizes focus in terms of syntactic markedness to investigate its impact on focus prosody. As shown in Table 1, these variable yields two values, specifically a pair of syntactically distinct focus constructions which are submitted to prosodic scrutiny along the dependent variable of prosodic prominence.

Table 1

The independent variable of Syntactic Markedness for Focus

Variable	Values	
	Unmarked	Marked

Markedness	Focus in-situ	-Focus fronting -Existentials -*It*-clefts -Inversion

The prosodic variable proposed in our study is prosodic prominence. As shown in Table 2, it consists of a set of parameters pertaining to the maximum pitch height of the focus accent, scaling of the H tonal target and scaling of the L tonal target. We will see how it is affected by the outlined syntactic variable of syntactic markedness.

Table 2

The Dependent Variable Scheme for Focus

Dependent Variable	Values
Prosodic prominence	-Maximum pitch height -Scaling of the H tonal target of the focus accent in relation to the prenuclear and postnuclear accent -Scaling of the L tonal target of the focus accent

Based on the interplay between the syntactic and prosodic variables, the study postulates the following hypothesis: Unmarked focus constituents are predicted to be more prosodically prominent than marked constituents and, as a corollary, are predicted to be ranked higher on the scales of maximum pitch height, scaling of the H tonal target, and scaling of the L tonal target.

5. Research Questions

Consistent with the view adopted by the current study, and bearing in mind the aforementioned hypotheses, the study sets out to answer the following questions:

1. To what extent is focus prosody sensitive to syntactic markedness of the focus constituent?

2. How does the prosodic spell-out of marked focus constituents change in view of their rank on the syntactic markedness scale?

6. Data & Methodology

The data chosen for this study are purely audio, and the corpus consists of three audiobooks for three novels written by Trenton Lee Stewart: *The Mysterious Benedict Society*, *The Mysterious Benedict Society and the Perilous Journey*, and *The Mysterious Benedict Society and the Prisoner's Dilemma.* Why I have selected these novels in particular is a matter of personal preferences given that I have read them before. The corpus is exclusively narrative and the study addresses the syntactic-prosodic interface of focus only in one genre, namely narrative audiobooks. Other genres such as scientific audiobooks, political speeches, and everyday conversations may be tackled in follow-up research works. We have not incorporated these genres to make sure that we have only one independent variable, i.e. syntax, and to exclude variation that may be genre-based. To this end, the type of the audiobooks is kept constant to guarantee the consistency of our results. A corollary of this limitation is that we do not claim that our findings are generalizable to other genres than narrative audiobooks, particularly natural speech. However, they can serve as starting assumptions to be tested by future studies on the prosodic-syntactic interface in other genres. In a similar vein, to avoid the effect of the gender of the narrator on focus prosody, the selected audiobooks are all narrated by the same male narrator, Del Roy. In doing so, we can make sure that any different prosodic patterns are only syntactically informed.

The data are downloaded from well-known audiobooks sites, namely Audiobook Store. From this corpus, we extract our data based on the syntactic characterization proposed for focus along the variable of syntactic markedness. From this corpus, we extracted 200 occurrences of focus constituents based on their syntactic markedness. They are distributed in such a balanced way that guarantees accuracy of the quantitative analysis. We extracted 100 instances that could, by the characterization that will be given later, count as unmarked focus constituents and adhere to the canonical word order. The other 100 instances feature marked focus constituents that are selected in line with the markedness variable and are distributed as follows: 25 instances of it-clefts, 25 instances of inversion, 25 instances of focus fronting, and 25 instances of existential constructions.

The study adopts qualitative and quantitative analyses of the data. The qualitative analysis gives remarks on the tripartite relation advocated in this study: Discourse function of focus > syntactic Form > eventual prosodic form. To this end, the data are annotated in terms of the variable of syntactic markedness. Then, the data are submitted to prosodic analysis using the PRAAT software (Boersma & Weenink, 2019) to identify the prosodic features specified in the study, namely prosodic prominence.

7. Information Structure

Information structure, as a linguistic phenomenon, has attracted the interests of numerous linguists. Halliday (1967) coined the term 'information structure'; since then, the phenomenon has been given other labels, and other approaches have been put forward. This was initiated by the Prague school which is one of the most influential approaches that makes reference to such concepts as 'functional sentence perspective' and 'communicative dynamism'. Later, Chafe (1976, p. 28) uses the term 'information packaging' to describe the choices the speaker adopts in communicating his message, including choices of prosody, syntax, and word order. According to his view, information packaging is concerned mainly with how the message is expressed as far as these choices are concerned. Similarly, Prince (1981) follows the same line of argumentation and uses the term 'tailoring' to refer to the way the speaker accommodates his choices in such a way as to express his assumptions about the hearer. She states that the crucial factor is "the tailoring of an utterance by a sender to meet the particular assumed needs of the intended receiver." (p. 224).

Information structure refers to the organization of information in relation to the speaker's assumptions about the mental states of the addressee at the moment of the utterance, i.e. the speaker's assumptions of what the addressee knows or does not know, as well as the mental representation of the referents of discourse in the addressee's mind. The speaker's assumptions about the addressee are reflected in the linguistic form of his utterance; therefore, central to information structure research is the investigation of the relationship between the pragmatic aspect of language and the grammatical structure. Information structure is concerned with how the content of an utterance is formally manifested in the syntax and prosody of a given language. This fact is emphasized by Prince's statement that we are not concerned with "what one individual may know or hypothesize about another individual's belief-state *Except* in so far as that knowledge and hypotheses affect the form" (1981, p. 233).

This view is in conformity with Lambrecht's (1994) statement that information structure is concerned with "the relationship between linguistic form and the mental states of speakers and hearers" (1994, p. 1). As such, he lays much prominence on the formal realization of information structure, and introduces the term 'allosentences' to refer to sentence pairs which convey the same proposition, but differ formally and interpretatively. Information structure finds its way when analyzing a set of sentences with identical truth conditions, but are interpreted differently and, as a corollary, exhibit syntactic or prosodic differences.

On this view, Vallduvi and Engdahl (1996) postulate the principal idea underlying information packaging and define it as "a structuring of sentences by syntactic, prosodic or morphological means that arises from the need to meet communicative demands of a particular context" (p. 460). The diversity of the

formal means is correlated with diversity of interpretations even though the proposition is constant. Why the speaker gives primacy for one form over another has an interpretive consequence. This led Vallduvi (2016, p.729) to posit the one-to-one correlation between "interpretative difference" and "structural contrast". Along these lines, one can say that information structural analysis looks at why a sentence is organized in the way it is, and pays considerable attention to the pragmatic and formal differences between such sentence pairs as active/passive, marked/unmarked word order. The proposition that is conveyed by a marked word order can be semantically equally provided by an unmarked word order, but with considerable difference in the pragmatic meaning. Callies (2009, p. 13-14) makes the same point by discerning the pragmatic differences underlying the following sentences:

- A motorbike hit me last week.
- Last week I was hit by a motorbike.
- I was hit by a motorbike last week.
- It was a motorbike that hit me last week.
- What hit me last week was a motorbike.

That these sentences have the same content cannot be debated. However, their information structure articulation is not the same. The first one makes a statement on the vehicle, while the second and third about the speaker himself 'I'. The last two sentences diverge considerably in that they further involve a contrastive implicature to the exclusion of an alternative that is not explicitly stated, but contextually evoked.

7.1 Referential versus Relational Givenness/Newness

Central to all the approaches to information structure is the new-given distinction. However, they treat this distinction in an inconsistent way. Some accounts define the distinction exclusively in terms of the familiarity status of the referent in the addressee's mind. Other approaches capture this distinction exclusively in terms of the information burden of the referent in relation to the proposition. In fact, the two senses of givenness/newness constitute two separate levels of information structure and cannot be conflated. A unifying theory of information structure has to account for the two aspects and treat them separately. Specifically, the two senses are referential givenness/newness and relational givenness/newness. Consistent with this fact, Allerton (1978) captures these two senses into two labels, 'constituent-givenness' and 'news-value givenness'. The former is concerned with the cognitive status of an entity, whereas the latter encodes how an item relates to the proposition. Within this same line, Gundel (2003) differentiates between 'referential givenness' and 'relational givenness', with the former denoting the relationship between an expression and its nonlinguistic referent, while the latter signals the relationship between a linguistic expression and the proposition of the utterance independent of the hearer's knowledge. Most studies do not

make this distinction and conflate the two levels under the same headings as 'given' and 'new', resulting in inconsistency of terminology.

Referential givenness/newness denotes the discourse status of discourse referents as assumed by the speaker, i.e., it is a property of the referring expression in a given context, borrowing the terminology of Lambrecht (1994). A myriad of terms has been put forward to describe the discourse status of the referring expressions, based on the classification criterion adopted in each account. Chafe (1974) defines givenness in terms of activation, i.e., whether the discourse referent is active in the hearer's consciousness at the time of the utterance. Central to Chafe's notion is activation cost according to which entities are cognitively classified active, inactive, or semi-active. In a comparable context, Prince (1992) pays careful attention to the fact that what the hearer knows is not the same as he thinks of at the very moment of speaking, and offers two-dimension characterization of givenness, namely discourse-based givenness versus hearer-based givenness.

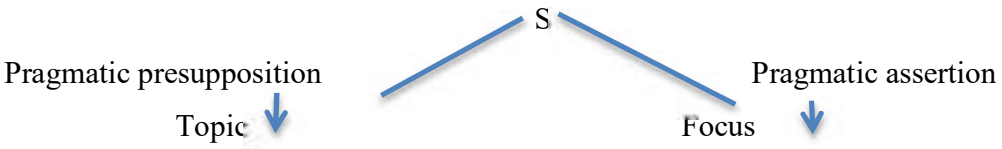
Relational givenness/newness, on the other hand, has at its disposal the relation between a constituent and the proposition of the utterance, that is, whether the element belongs to the pragmatic presupposition evoked by the utterance, or updates the common ground. In the former, the constituent is said to stand in a topic relation to the proposition, whereas in the latter it is taken to stand in a focus relation to the proposition. This relation may be spelled out in a bipartite division of the sentence into two parts, one of which represents the informative part and the other the non-informative part. In this regard, a myriad of labels has been assigned to these two parts, such as "theme/rheme" (Firbas, 1964), "theme/rheme" (Halliday, 1967), "topic/focus", "link/tail/focus" (Vallduvi, 1990), "topic/focus" (Lambrecht, 1994).

7.2 Topic/Focus Partition

As indicated before, the study is concerned with building an account of the syntactic impact on the prosodic realization of focus as a relational category. The starting point for this endeavor is the work of Lambrecht (1994). Lambrecht merges the long-standing approaches to information structure within one scheme with two primitives: topic and focus. These two primitives operate on a second-order level, and are governed by an abstract first-order partition:

Figure 1

Lambrecht's Partitioning of the Utterance into Pragmatic Presupposition and Pragmatic Assertion



He shows the dynamics of topic and focus relations with reference to two more pragmatically general concepts: pragmatic preposition and pragmatic assertion. Central to Lambrecht's account is the fact that information is conveyed in the form of structured propositions rather than separate lexical items, and that the information conveyed, in most cases, is a mixture of new and given information. Further, given information and new information do not coincide with topic and focus, respectively. For this reason, Lambrecht substitutes the two terms by 'pragmatic presupposition' and 'pragmatic assertion' to avoid the prevalent confusion pertaining to the terms 'new' and 'given'. Pragmatic presupposition refers to the information the speaker assumes the addressee to know prior to the utterance, whereas pragmatic assertion is the information conveyed by the utterance itself. Lambrecht (1994, p. 52) defines the two concepts as follows. Pragmatic presupposition is "the set of propositions, lexicogrammatically, evoked in a sentence which the speaker assumes the hearer already knows at the time the sentence is uttered. Pragmatic assertion is defined as "the proposition expressed by a sentence which the hearer is expected to know as a result of hearing the sentence". Except in the out-of-the-blue sentences, both pragmatic presupposition and assertions coexist in the same utterance. That is, pragmatic assertion is not exclusively the non-presupposed element, but rather is a combination of the presupposed propositions and the non-presupposed element. Consider the following example:

- A: Where did you go last night?
- B: I went to the movies (p. 47).

The given information evoked in B's reply is that pragmatic presupposition 'I went somewhere', and the new information is pragmatic assertion 'the place I went last night was the movies' rather than the new constituent 'the movies'. Set against this distinction, Lambrecht considers topic as a part of the pragmatic presupposition, without being identical with it. It is what the speaker intends the utterance to be about, or what the pragmatic assertion is made about. Accordingly, the pronoun 'I' is the topic of the previous example, and the sentence is intended to increase the addressee's knowledge about the speaker himself. By the same token, focus belongs to the pragmatic assertion, without coinciding with it. In the previous example, the focus constituent is 'the movies' since it is the non-presupposed element without which the utterance cannot be informative.

8. Focus

A crucial assumption in our approach to focus is that it is not synonymous with new information, and that the focus constituent, on its own, cannot constitute new information. New information comprises both the presupposition and the focus constituent. What is new is not the constituent itself, which may be

identifiable, but rather the pragmatic relation established between this constituent and the proposition of the sentence. Lambrecht (1994, p. 206) does not lose sight of this distinction and states that "just as topic is included in the presupposition without being identical to it, a focus is part of the assertion without coinciding with it". That is, the focus constituent is the part that cannot be dispensed with and without which the utterance is semantically void and pragmatically ill. As topic lends itself to presupposition, focus belongs to and carries out assertion.

In accordance with this assumption, we can safely define focus as a pragmatic relation established between the referent of a constituent and the proposition of the sentence such that deletion of this constituent yields a pragmatically ill-formed utterance. Inomissibility is thus the main linguistic property of focus, which means that focus cannot be deleted from the sentence, given the fact that the absence of the informative constituent renders an infelicitous utterance which does not abide by the cooperative principle. This fact is supported by an observation from subject-drop languages where the subject is dropped only when it serves as the topic rather than focus. That is, focus is an assertion-lending element.

Another corollary to the highly communicative value of focus is that focus structure is tightly connected to WH-questions, given the fact that a WH-phrase functions as a semantic variable that, as Banon and Martin (2019, p. 2) put it, "binds the constituent with focus in the response". The focus constituent is that which provides new information and fills the variable opened by the question word. To render a felicitous utterance, the focus constituent must be bound by the WH-word. For this reason, the question-answer sequence is a good diagnostic for the identification of focus. The central function of focus is to specify the question that can be answered by the utterance. Thus, 'Jim went to BOSTON yesterday' is typically taken as an answer to 'where did Jim go yesterday?'. Changing the focus position triggers the construction of a different question. The sentence 'JIM went to Boston yesterday' is a possible answer to the question 'who went to Boston yesterday?'

8.1 Markedness-based Configuration of Focus

The literature on focus theory has a large body of functional taxonomies of focus that highlight the discourse function of the focus constituent. Gundel (1999) offers a semantically oriented taxonomy according to which focus is either 'contrastive' or 'semantic'. Similarly, Kiss (1998) distinguishes between 'informational' focus and 'identificational' focus. Gussenhoven's (2008) taxonomy is fundamentally functional, accounting for the function rather than the form of focus. His classification includes 'presentational focus', 'definitional focus', 'corrective focus', 'counterpresupposition focus', 'contingency focus', 'identificational focus' and 'reactivating focus'. Given the main objective of our study that discerns how syntax has bearing on the prosodic realization of focus, the functional categorization is not of interest to our study. It

is not to say that it does not interact with the prosodic structure, but this enterprise is beyond the scope of our study that addresses itself to the syntactic-prosodic interface. To this end, we instead propose a syntactic paradigm that categorizes focus in terms of syntactic markedness to investigate its impact on focus prosody.

The markedness characterization endorsed in this study is syntactically informed in such a way that a marked focus construction does not abide by the canonical word order. It focuses on the syntactic marking of focus through the manipulation of word order. Syntactic linearization can be constrained by pragmatic considerations, particularly the cognitive need for structuring information in such a way that facilitates the speaker's delivery of the message, as well as the addressee's processing of the utterance. On this view, the canonical word order is deemed unmarked as far as information structure is concerned. Marked focus constructions apply when using the canonical word order would not unambiguously signal speaker's specific needs.

Along this variable, focus can be coded in situ by maintaining the canonical word order, or ex- situ by employing a wide range of constructions that breaches the canonical linearization of the language. Based on the notion of minimality condition, Skopetease and Fanselow (2010) argue that what distinguishes canonical and non-canonical constructions is their structural complexity such that in-situ focus "does not involve any syntactic operation; hence it qualifies as the least complex structure" (p. 190). According to their view, the construction that induces multiple syntactic operations is more complex than that which triggers a smaller number of operations.

In the present study, the main distinction along the markedness variable is between unmarked focus constructions and marked ones. As for unmarked focus, it comprises those cases where focus is expressed in-situ and no syntactic movement is involved. On the other hand, marked focus subsumes all the constructions that display a noncanonical word order. Drubig and Schaffer (2001, p. 1079) define marked focus constructions as "a type of sentence that serves to promote a specified constituent, its focus, to a position of particular prominence by setting it off from the rest of the sentence in one way or another". It is a well-established fact that English has a fixed word order and, as a corollary, focus constituents are typically marked by prosody. However, word order can contribute to the identification of focus in English. In this regard, the study is going to prosodically investigate four marked constructions: focus fronting, *it*-clefts, existential sentences, and inversion. In what follows is a brief characterization of these constructions in such a way as to put forth their definitional syntactic characteristics to facilitate their annotation in the corpus.

8.1.1 Focus Fronting

Focus fronting is generally defined as an overt syntactic operation that "drives the focus constituent of the sentence, which bears the main prosodic prominence, to a clause initial position" (Bianchi, et al. 2014, p. 1). Regarding the categories that can be fronted, the phrasal categories NP, PP, AP are very common. They can fulfill the missing argument in an open proposition, and thus qualify as focus expressions. Consider the following examples of fronted APs:

- **Horrible** they are.
- **Bloody amazing** it was.
- I think she was Japanese. No-**Korean** she was (Breul 2004, p. 259).

The referent of 'she being Korean', 'they being horrible', and 'it being bloody' is not active at the time of the utterance. Thus, the nuclear accent falls within the fronted phrase. It may be the case that NPs and PPs can be fronted as well. Consider the following examples:

- I had two really good friends. **Damon and Jimmy** their names were.
- I promised my father-**on Christmas Eve** it was- to kill a Frenchman at the first opportunity I had (p. 259).

Focus fronting is considered a subcategory of the superordinate category of preposing postulated by Birner and Ward (1998). The information-packaging function served by this structure is to prepose the focus constituent. They postulate the constraint that the fronted focus constituent must be inferentially linked to a partially ordered set. For example, the mention of an event automatically renders salient when it occurs, that is, it licenses fronting the temporal space of the event in the subsequent sentence as follows:

- I promised my father-***on Christmas*** *Eve* it was- to kill a Frenchman (1998, p. 84).

The fronted constituent serves as focus since replacing the fronted constituent by a variable X yields an open proposition which is taken as a salient background. The fronted constituent, as Drubig (2000, p. 25) argues, binds "the trace representing the variable and contrasts with a contextually restricted set of alternatives". If applied to the preceding example, we obtain:

- OP= It was on X *time*, where X is a member of the Poset {time}

***It*-Clefts.** Cleft sentences can be defined as bi-clausal constructions that consist of an initial copular clause and a subordinate clause. It-clefts have the following structure:

- It [VP Be X ^{Max} $\bar{S}$] (Rochemont 1986, p. 123)

Rochemont lists the possible phrasal categories that can fulfill the X^{max}, including NP, PP, AP and ADV as follows:

- It is **John** that we decided should leave.

- It was **out from behind the far wall** that she came running.
- It was **bright** red that she painted the fridge.
- It wasn't **easily** that she repaired it, but carefully too (p. 129).

It-clefts proper have to satisfy two requirements. First, clefted constituent should have an argument role in the cleft clause. Akmajian (1979) argues that the cleft clause has to create a variable to be specified by the clefted constituent, which means that the clefted constituent has to be traced back to an argument gap in the cleft clause. This requirement excludes complement constructions that do not have a gap in the subordinate clause such as the following sentence:

- It is not a good example that they quarrel all day.

The second requirement is the non-referential status of the pronoun. In cleft sentences proper, the pronoun is not anaphoric; it does not refer to someone in the preceding context. Lambrecht (2001) posits 'decleftability' as a diagnostic for clefts, that is, a true *it*-cleft can be turned into a simple sentence with a simple proposition. Another diagnostic is proposed by Claude (2008) that states that, in an *it*-cleft proper, the pronoun 'it' cannot be replaced by the cleft clause.

Functionally, *it*-cleft construction serves as a syntactic focusing device. Quirk et al. (1985) argue that clefts primarily serve to focus the clefted constituent, in the same way as focus particles. Contrast has been claimed to be the licensing factor of felicitous occurrence of *it*-clefts. Rochemont (1986) stresses the contrastive, rather than presentational, function of clefted focus, as shown by the fact that a cleft focus construction cannot initiate a discourse:

- JOHN was here.
- # IT was JOHN that was here (p. 130).

8.1.2 Inversion

The most prominent feature of inversion constructions is that the subject is preceded by the verbal element, which is the auxiliary or the main verb. As such, inversion is defined as "a sentence type in which the logical subject appears in post-verbal position while some other, canonically post-verbal constituent, appears in clause-initial position" (Birner 1996, p. 12). Callies (2009) lists the possible syntactic categories that can be fronted in full inversion, namely PP, VP headed by past or present participle, adjectival phrase, or a noun phrase. He gives the following examples:

- **At stake for the day** were 22 national convention delegates-as well as incalculable political momentum in the contest to pick a Democratic challenger for President Bush.
- **Hunkered down next to** me was Canterbury's manager, Soren Schoff.

- **Hanging heavy over** was everyone who has grown to love and admire Canterbury Booksellers is the fact that come March 1, it won't be around anymore.
- **An equally serious tradition**, of course, is pancake racing.

They have in common that the predicated NP, the logical subject, is placed after the verb.

Inversion is intimately associated with marking focus, especially presentational focus. Prince (1986) lists a set of focus-marking constructions, including locative inversion, which marks an open proposition as the salient background, and the prosodically prominent constituent as the focus. Similarly, Rochemont (1986) relates inversion to presentational focus and argues that the postposed constituent in inversion is typically a presentational focus, which means that the remainder of the sentence is c-construable. By the same token, Bresnan (1994) states that inversion, particularly locative inversion, "has a special function of presentational focus, in which the referent of the inverted subject is introduced on the scene referred to by the preposed locative" (p. 85). That inversion primarily expresses a presentational focus is given support by the observation that the fronted constituent is typically endowed with a locative meaning, particularly place, direction, and time. For this reason, it has been commonly known as "locative inversion" (Quirk et al 1985, p. 1381).

8.1.3. Existentials

The typical existential construction has a syntactic subject 'there', be, a postverbal NP. The postverbal NP is generally referred to as 'pivot' and the 'coda phrase' is the constituent that follows the pivot. Many accounts have been proposed as to the syntactic relation between the pivot and coda. Within the Government and binding framework, the argument of the copula is a small clause including the pivot and coda which stand in a predication relation to each other, with the pivot being the subject and the coda as the predicate (Chomsky 1981). In a similar vein, McNally (1992) argues that codas are primarily secondary predicates that delimit the spatial and temporal aspect of the main predicate. On semantic grounds, she states that codas restrict the "spatiotemporal parameters over which the main predication is said to hold" (p. 152). On the contrary, Francez (2007) assigns the coda phrase an adjunctive function and stresses that only when the PP is assigned an adjunctive function, it is said to be a coda as in the following example:

- There is [a boy NP] [in the garden Adj] (p. 5).

If the material following the pivot is a part of the NP, we have a bare existential without coda:

- There is [a boy [with glasses] mod] NP.

Milsark (1990, pp. 154-155) outlines four structural classes of existential constructions. The first class is dubbed "ontological existentials" and is constructed as follows:

- [there - AUX - be - NP] as in the following example:
- There is only one even prime.

"Locational existentials" constitute the second class and are formed as follows:

- [there AUX - be - NP - LOC]. They are exemplified as follows:
- There is a fly in the mustard.

The third class is labeled "periphrastic existentials" and is syntactically represented as follows: V-en – x.

- [There - AUX - be - NP - [VP V-ing -x.
  [pred- AP]
- There are peasants murdered every day.
- There is somebody ogling Mary's left navel.

The last class is "verbal existentials". It has two subcategories: "inside verbal existentials" and "outside verbal existentials". They have in common the use of some other verb than 'be'. However, they differ with regard to the position of the NP which is placed directly after the verb in the inside existential. This is syntactically formulated as follows: [S there - AUX - V - NP - X], where V # be.

- There arose many trivial objections during the meeting.
- There ensued a riot immediately upon the reading of the riot act.

By contrast, outside existentials have the NP after a prepositional phrase intervening between the verb and the NP: [S there - AUX - V - X – NP] where V # be. Consider the following examples:

- There walked into the room a fierce-looking tomcat.
- There stood on the table a lamp.

9. Prosody

In its narrowest sense, prosody is limited to "ensemble of pitch variation" (Hart et al., 1990, p. 10). That is, it coincides with speech melody or intonation. Other proposals, particularly that of Beckman (1986), exclude intonation and define prosody only in terms of hierarchical structure of prosodic constituents and prominence, singling out intonation as a distinct component that describes pitch contours. These definitions need to be reconciled in order to do justice to prosody. Spoken language does not only convey semantic information about words, but also about phrasing, prominence, and intonation. These are the building blocks of prosody and they are imposed on the segmental string.

These prosodic phenomena encode distinctive pragmatic and semantic functions such as the marking of speech act distinctions, what Lambrecht (1994, p. 239) refers to as the "speech act component"

of prosody. Ladd (1980, p. 213) proposes another use of prosody, "the expressive use", to express their attitudes towards the proposition of the utterance, such as irony, sarcasm, exclamation, agreement, etc. Most importantly, prosodic features are the formal markers of information structure in English and play a pervasive role in understanding the interpretative differences between identical utterances by virtue of prominence and phrasing. Selkirk (1984, p. 198) labels this prosodic function as the 'focus-structure component'. In what follows, the main tenets of the prosodic theory adopted here will be sketched.

Prosody has its own principles that are not governed by language-specific phonological rules as those which assign lexical stress to individual lexical items. It cannot be accounted for by rule-governed models without recourse to discourse context. As such, sentence accentuation (the primary cue of prosodic prominence), rather than lexical stress, yields pragmatic contrasts. That is, the failure to assign the correct stress gives rise to ungrammaticality rather than new meanings, while changes in assigning prosodic prominence result in interpretive differences. This fact is stressed by Bolinger (1954) in the following quote:

> Prosodic stress (sentence accentuation) does not HAVE to fall as I described it. The heart of the matter is this very freedom to fall now here, now there, with the speaker's attitude determining where it will fall. A mechanical rule demands that we predict directly where it will fall. A functional rule predicts indirectly: it will fall here, or there, IF the meaning is such-and such; instead of automatism, we have a meaning. (p. 153)

Unlike the lexical stress pattern that is predictable and provided in the dictionary, accentuation can never be predicted with the same confidence with which we can discern the stressed syllable of a word. Predicting accentuation is a matter of the discourse context and, consequently, information structure.

Following the mainstream Autosegmental-Metrical model of phonology, prosody is divided into two main components, with phrasing and prominence subsumed under the metrical component, and intonational events under the tonal component. The first addresses itself to the alternating rhythm of words with less and more prosodic prominence as well as the prosodic phrasing of these words into prosodic units of varied sizes. The tonal component features the intonation pattern. As mentioned before, the current study addresses itself to the effect of syntactic markedness on the prosodic prominence of focus; therefore, prosodic phrasing and the tonal contour of focus do not concern us here.

9.1 Prosodic Prominence

It has been common in the prosodic mainstream that pitch accents express prosodic prominence and, thus, constitute the building blocks of the metrical structure. The Autosegmental-Metrical model of English phonology proposes a hierarchical metrical structure which indicates the prominence relationships between

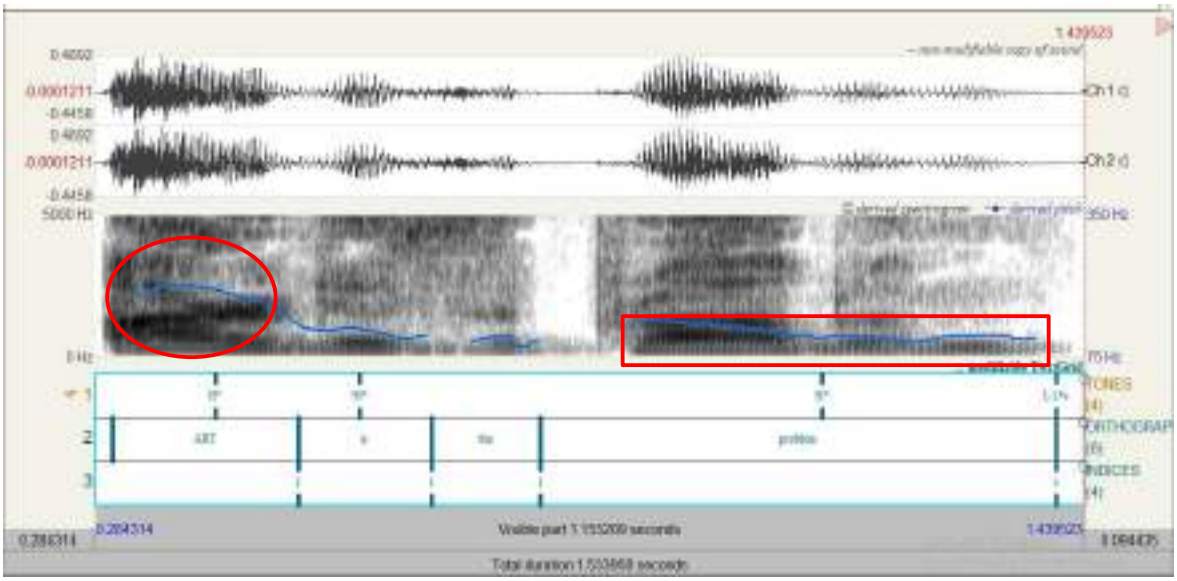
syllables within a prosodic word, and then between prosodic words within a phonological phrase, and finally among the phonological phrases themselves. Prominence relationships give rise to the perceptual effect of rhythm. Selkirk (1984) posits two kinds of rules to explain how rhythmic well-formedness works. The first set of rules explains how prominence relations operate from the lexical level up to the post-lexical levels (between lexical items within the utterance). She labels this set as "text-to-grid alignment rules" (p. 150). In her view, the first level consists in assigning a beat to each syllable. On the second level, heavy syllables are assigned a second beat. On the third level, the main stress rule is applied, and the last syllable that receives a beat at the second level is assigned a further beat. This is the end of the lexical stress cycle represented as follows:

```
                    *
 *                  *
 *        *         *        *
Ma        ssa       chu      setts      (p. 151)
```

Next, on the utterance level, Selkirk posits the "pitch accent prominence rule" (p.152) according to which the accented word, that exhibits pitch variation or F0 changes, is more prominent than the unaccented word. Lack of pitch accent assignment to a stressed syllable indicates that this syllable is not prosodically prominent, and so is the entire word. The following figure represents prosodic prominence relations within the utterance "art is the problem'', with 'art' assigned more prosodic prominence than 'problem'.

Figure 2

Prosodic Prominence Contrast between Accented and Deaccented Words



The traditional prosodic studies concentrated on foot structure/syllables in accounting for rhythm, which corresponds to Selkirk's (1984) 'lexical stress cycle'. However, later on, Bolinger (1986) argues for a high-level rhythm that operates on the post-lexical level and is mainly based on pitch accents. In his view, the former variant is dubbed 'syllabic rhythm' and its domain of application is the syllable. The latter is called 'accentual rhythm', and its domain is the whole utterance. It is the second behaviour that interacts with the expression of information structure since it refers to the distribution of accents in the utterance. As such, pitch accents determine the prosodic prominence relations within the utterance. They are defined in terms of the changes of the frequency of vibration of the vocal folds which are commonly referred to as F0.

9.2 Pitch Accent versus Stress

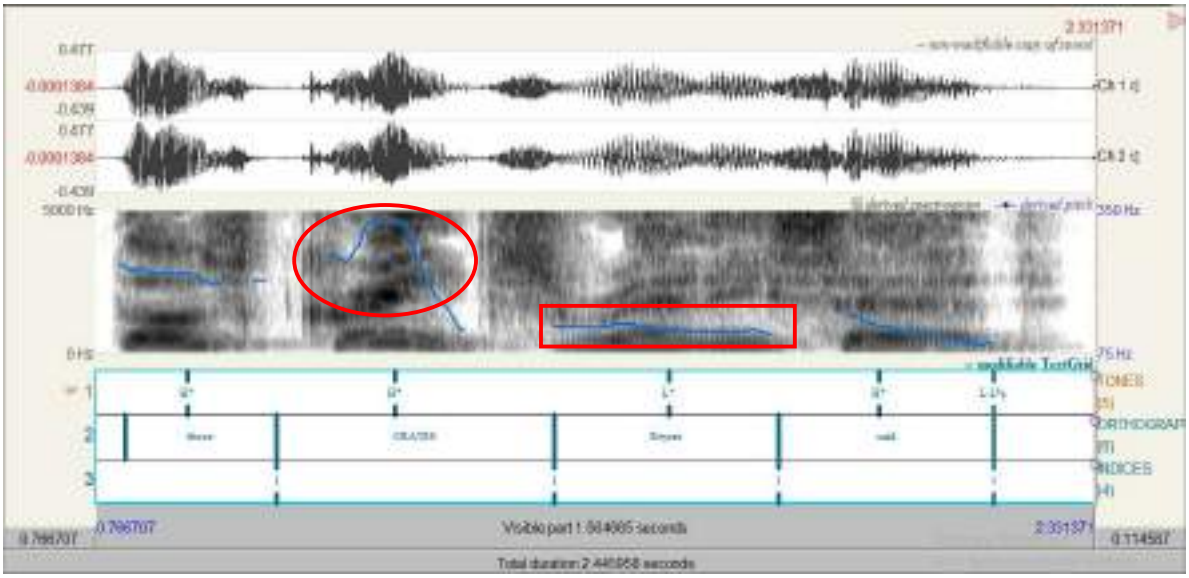
The differentiation between stress and accent is crucial to the present study to avoid terminological confusion. In this connection, Bolinger's characterization of stress is relevant. In his account, lexical stress indicates abstract prominence at the word level, and refers to the potential capacity of a syllable to be accented, whereas accent is the actual manifestation of this abstract capacity. Put differently, acoustic correlates, such as F0, intensity and duration, are correlates of the accent not stress. Stress, Bolinger argues, is reducible to merely a potential location or landing site for the occurrence of these correlates. This implies the important fact that not every lexically stressed full vowel is pitch accented, and that accented syllables are more prominent than unaccented ones. Bolinger (1986) and Campbell and Beckman (1997) advocate the prominence-lending assumption, that is, F0 change is the most important correlate of prosodic prominence. The present study adopts their view that accent is the concrete manifestation of prosodic prominence, and that it does so by virtue of pitch changes (F0) as its primary phonetic cue. As such, the phonetic correlates of prosodic prominence are hierarchical as follows:

- Stress: the least prominent is the item whose stressed syllable is only louder and longer.
- Pitch accent: the presence of a tonal movement on or near the stressed syllable results in more prominence.
- Nuclear pitch accent: the most prominent item is the one with the nuclear accent on the stressed syllable (Bauman, 2006, p. 8).

This hierarchy of prominence has two consequences. First, the accented syllables are more prominent than lexically stressed but not accented ones. In the following example, the stressed syllables 'Rey-is less prominent than the stressed syllable 'crates', only because of deaccentuation.

Figure 3

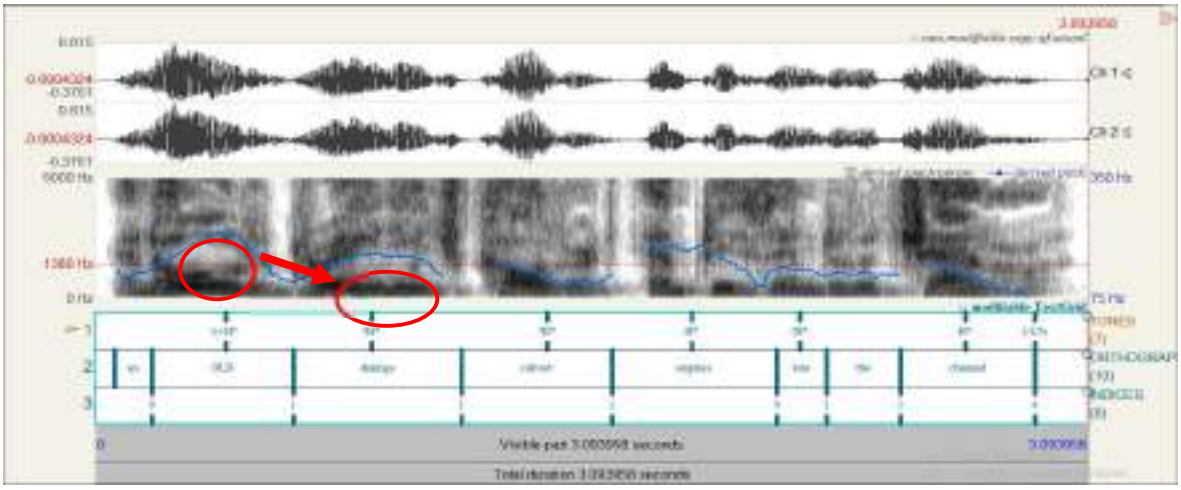
Prosodic Prominence Contrast between Accented and Deaccented Stressed Vowels



Second, prosodic prominence is not categorical but gradient, i.e., it is not always a matter accentuation/deaccentuation. In the preceding example, prosodic prominence is captured in terms of accentuation versus deaccentuation. However, we can discern another level of accent contrast, that is, between the nuclear accent and the other accents. It is usually the case that an utterance can feature several accents, in which case prominence relations cannot be reduced to accentuation versus deaccentuation. Consequently, the perception of strongest (nuclear) prominence is only perceived when looking into the entire metrical structure of the utterance and is always aligned with the focus constituent. In the following example, the nuclear prominence is realized on the word ‘old’ with a higher peak than the accent on ‘drainage’.

Figure 4

Relative Prosodic Prominence of Two Accented Words with Different Pitch Height



Prosodic prominence signals information structure and marks the newness/givenness of information to the interlocutors. The acoustic correlates of prominence thus signal the degree of informativity. To recall, the present study is going to investigate how syntactic markedness affect the prosodic prominence of the focus accent in relation to the neighbour accents. Specifically, prosodic prominence is going to be assessed by measuring the following prosodic parameters: the pitch height (maximum frequency) of the focus accent, pitch range (scaling of the H tonal target as well as the L tonal target), and intensity. What follows is a brief description of these parameters and how they will be measured.

9.2.1 Pitch Height

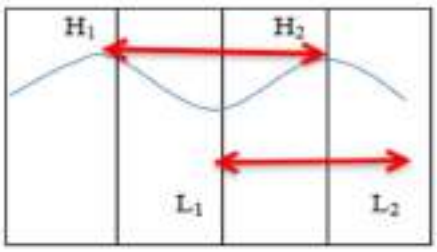
Pitch height is regarded as the most influential cue of prominence, and prominent words have higher F0. The pitch values of focus constituents will be calculated from the fundamental frequency within the accented syllable. It is measured in Hertz (HZ).

9.2.2 Pitch Range

Manipulation of one's pitch range is not a matter of height per se as is the case with the pitch height parameter. Rather, it is a matter of contrast of the span of both rise and fall, i.e., the width of the rise and the depth of the fall. As such, pitch range signals the scaling of the H and L tonal targets of the accent relative to the baseline of the pitch range, thereby occurring either "close to the baseline" or with "a maximal excursion above the baseline" (Gussenhoven, 1983, p. 226). Based on the distance between the tonal targets (H and L) and the baseline, two well-established distinctions of pitch range are defined: expanded pitch range and compressed pitch range (Beckman and Pierrehumbert, 1986). Similar labels have also been used for the same phenomena, the most common among them is broad/ narrow pitch displacement (Estebas-Vilaplana 2014, p. 179). The following two figures represent pitch range variability:

Figure 5

Representation of Normal Pitch Range

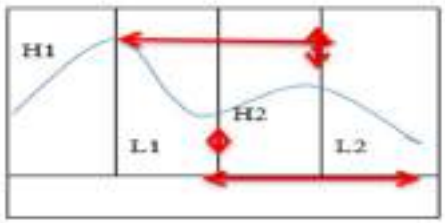


In figure (5), the H targets of their respective pitch accents are produced approximately with the same pitch range. Similarly, the L targets of their respective accents have the same F0. This is typical of normal pitch range which displays neither expansion nor compression. On the contrary, figure (6) exhibits remarkable

contrasts with regard to the span of the H targets on the one hand, and the depth of fall of the L targets, on the other hand. As shown, (H1) is produced with wider or more expanded pitch range than (H2) which is compressed relative to H1, and L2 is produced with more compression of pitch range than L1.

Figure 6

Representation of Expanded/Compressed Pitch Range



In the present study, pitch range will be examined by measuring the scaling of the (L) low target and the scaling of the (H) target of the focus accent. Scaling features therefore account for such phenomena as same height, downstepping, upstepping, pitch range expansion and compression. Scaling of the (L) target indicates whether the fall after the accented syllable is followed by a dip in F0 to below the starting F0 level, or returns approximately to its starting point. Narrower scaling of the (L) target is known to increase the phonetic cues to nuclear prominence. On the other hand, scaling of the (H) target indicates the pitch range of the peak of the target accent relative to the peaks of the prenuclear and postnuclear accents.

10. The Effects of Syntactic Markedness on the Prosodic Prominence of Focus

10.1 Results

The prosodic analysis of the data set of unmarked focus constituents (n=100) and marked focus constituents (n=100) yields significant differences as to their prosodic prominence. The quantitative analysis given in Table 1 below provides evidence that the markedness variable is a significant predictor for the dependent variable of prosodic prominence.

Table 3

The Effect of Syntactic Markedness on the Prosodic Prominence of Focus

Prosodic prominence		Syntactic Markedness	
		Unmarked focus	**Marked focus**
Para	Maximum Pitch mean	335.129 Hz	195.568 Hz
	Maximum Intensity mean	78.45649dB	78.509 dB

	Scaling of the H target of the Focus accent in relation to the prenuclear and postnuclear accent.	Total percentage of nuclear accent- focus coincidence		100%	24%
		Mean difference between the H target of the focus accent and the prenuclear accent		88.777 Hz	36.581 Hz
		Mean difference between the H of the focus accent & the postnuclear accent		The H of the focus accent is followed by deaccentuation in 50 instances, whereas the remaining 50 % have no postnuclear accents.	The H of the focus accent is followed by deaccentuation in 55 %, whereas the remaining 45% display mean difference of about 37.316 Hz.
	Scaling of L	Fall depth mean		122.719 Hz	130.28141 Hz
		Difference Mean between the L of the focus accent and the starting F0 level	Total percentage of low scaling of the L target	90 %	80 %
			Mean difference	72.5762 Hz	52.561 Hz

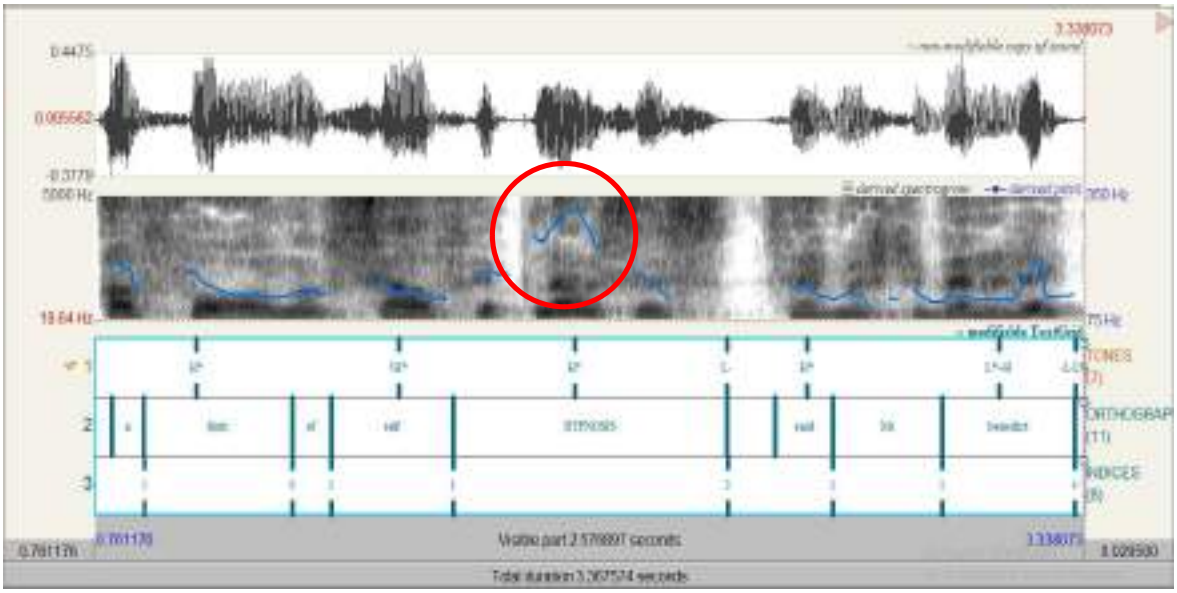
As shown, the markedness variable gives rise to remarkably significant differences that speak in favour of the unmarked focus constituents which happen to rank in prominence the marked ones with regard to the maximum pitch, scaling of the H target, and scaling of the L target. What follows is a brief outline of the quantitative analysis followed by a detailed data interpretation.

10.1.1 Pitch Height

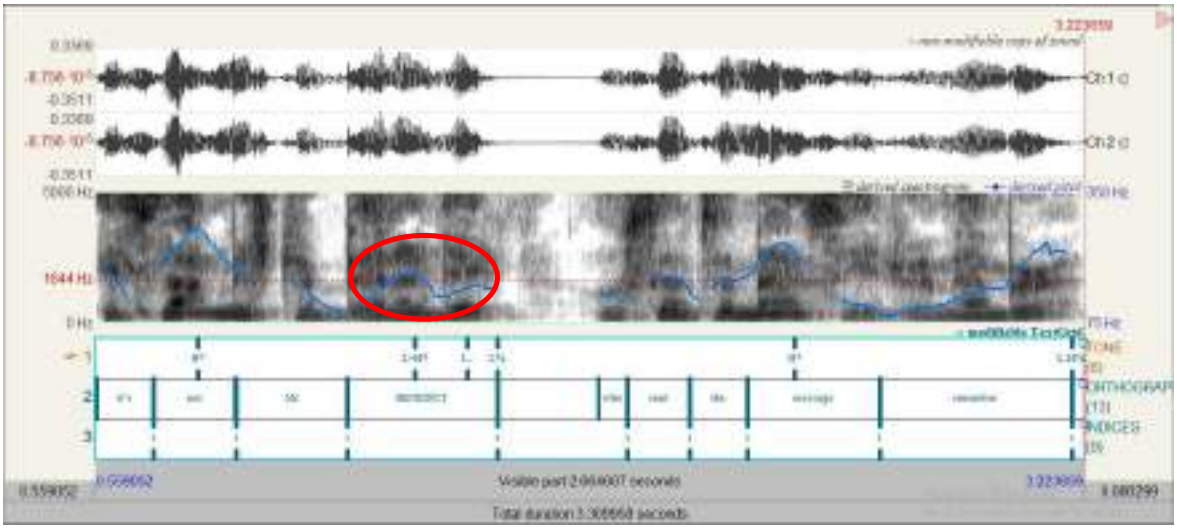
The data shows that markedness significantly affects pitch height, with a maximum pitch mean of about 335.129 Hz for the unmarked data set versus 195.568 Hz for the marked set. In many instances the focus accent approaches the topline of pitch range in the case of unmarked constituents, whereas it approaches the baseline in a high proportion in the marked focus set.

Figures 7

F0 Tracks of the Maximum Pitch on the Focus Exponent 'HYPNOSIS' that Defines the Unmarked Focus Constituent 'a form of self-hypnosis' (a), versus the Maximum Pitch of the Clefted Focus Constituent 'BENEDICT' (b).



(7a)



(7b)

10.1.2 Intensity

It turns out that intensity is the only dependent variable that is not affected by the markedness variable. There are no statistically significant differences between the unmarked and marked data sets as to the intensity values. Approximately, they exhibit the same intensity mean = 78 db.

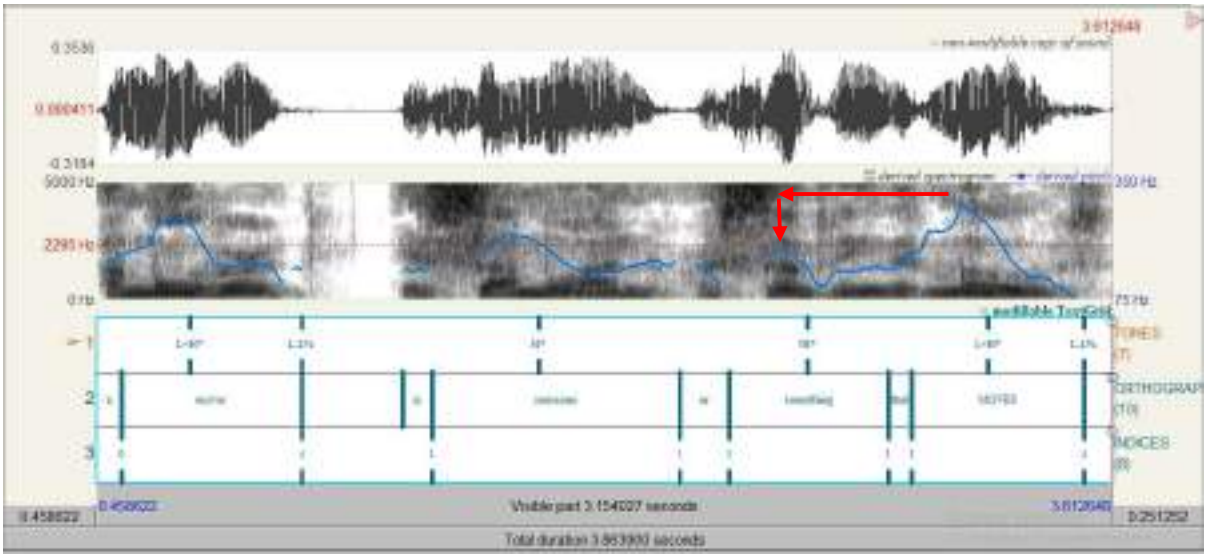
10.1.3 Scaling of the H Target

Pitch height is closely related to scaling which pertains to the relative height difference between the focus accent and the preceding as well as the following pitch accents. As such, it is a measure of downstepping or upstepping of the focus accent, not the height of the focus accent per se. Based on the

relative height, we can determine whether the focus accent is the nuclear accent or not. In our unmarked focus data set (n=100), the percentage of focus constituents that coincide with nuclear accentuation is 100%, with a greater affinity for higher scaling of the H target than the prenuclear accent and the postnuclear accent (if there any). Our results show that the H target of the focus accent is scaled higher than the H of the prenuclear accent with a considerable difference mean of about 88.777 Hz. In all the instances the H target is upstepped. As shown in the table, there are no occurrences of downstepped pitch accents (!H*) in the unmarked focus set.

Figure 8

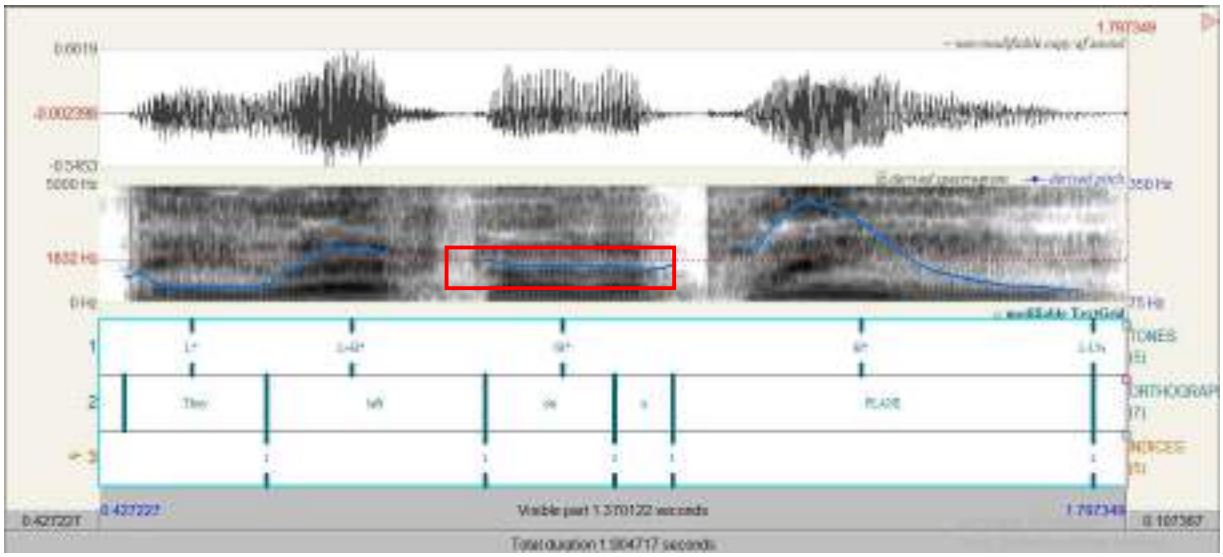
F0 Track of the Scaling of the H Target on the Focus Exponent 'MOVES' that Defines the Unmarked Focus Constituent 'someone or something that moves', Relative to the H Target of the Prenuclear Accent on 'something'.



The prosodic analysis captures many cases where the H target of the focus accent in the unmarked data set is preceded by a flat valley with no pitch obtrusion, which lends greater prominence to the focus nuclear accent in such a way as to stand out remarkably. This finding fits the view that there is more at play than nuclear accentuation that is held responsible for prosodic prominence, and that prominence is essentially a relative, not categorical, phenomenon.

Figure 9

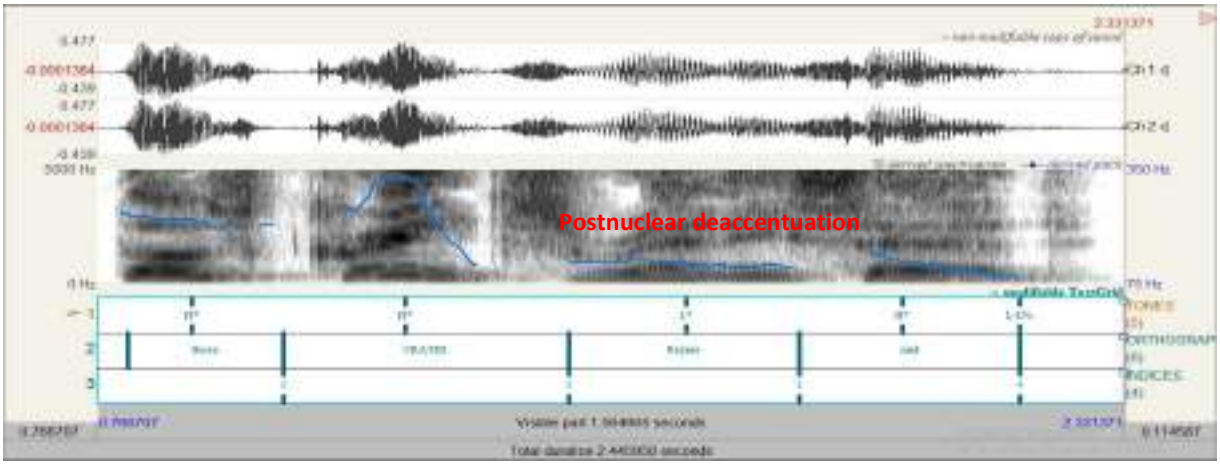
F0 Track of Prenuclear Deaccentuation before the Focus Accent on 'PLANE'



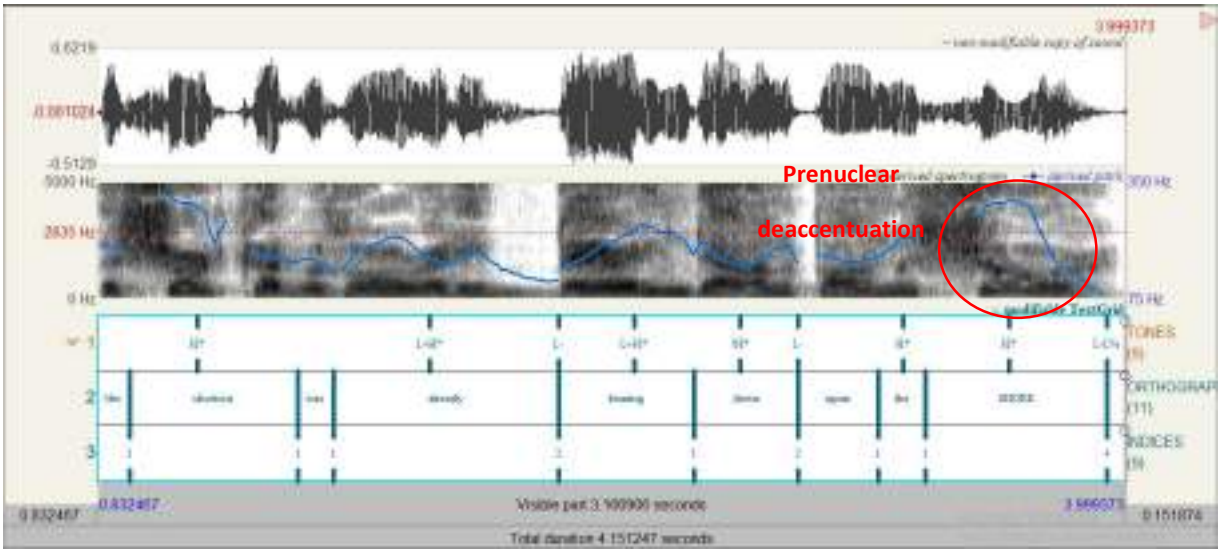
Further, the H target is found to be scaled so higher than the postnuclear accent, and that it is followed by deaccentuation and compression of pitch range in 50 % (n=50) of the data set of unmarked focus constituents. In the remaining 50 % of the data set, no postnuclear accents are reported.

Figures 10

F0 Tracks of Postnuclear Deaccentuation after the Accent on the Focus Exponent 'CRATES' (a), and the Absence of Postnuclear Region after the Accent on the Focus Exponent 'SHORE' (b).



(10 a)

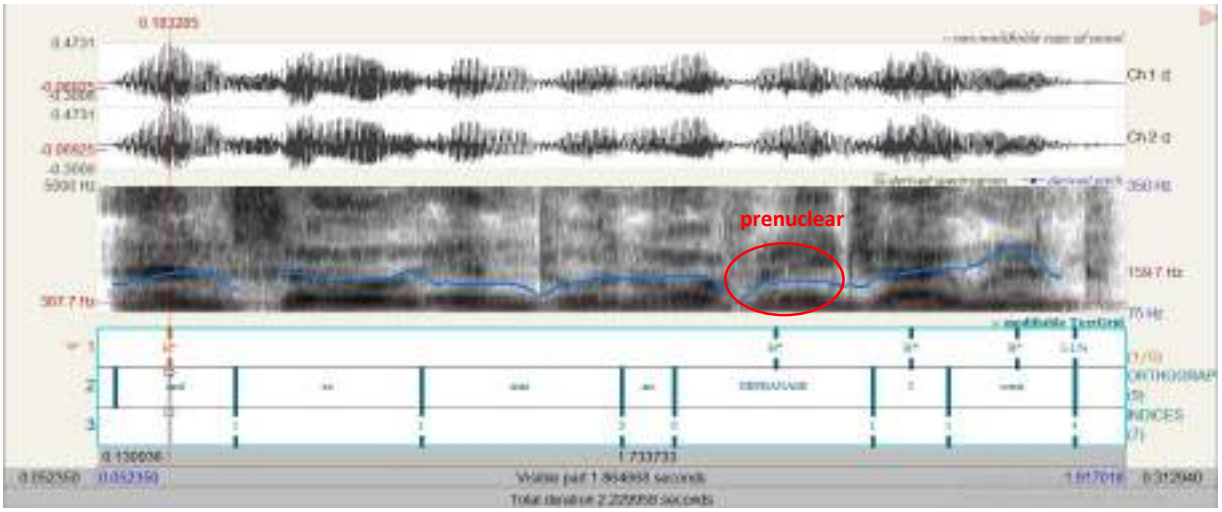


(10 b)

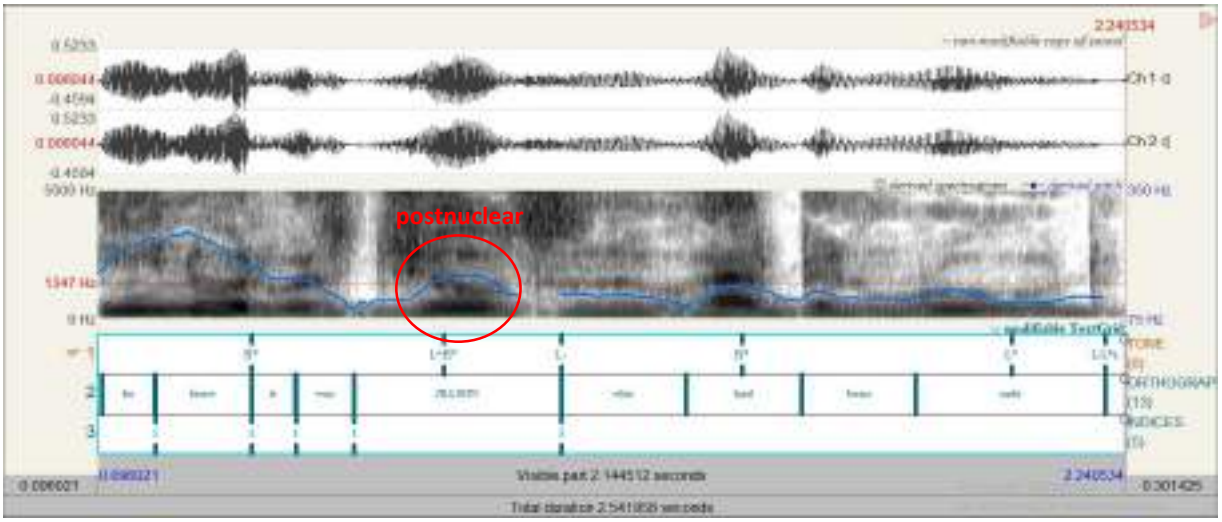
An entirely different picture emerges in the marked data set. Out of the 100 instances of marked focus constituents, only 24 instances are identified with the nuclear accent, and the preference of post or prenuclear accents for marked focus constituents is highly significant (n=76). As such, they stand in stark contrast to the unmarked focus constituents which are never pre/postnuclear in our data, which means that marked focus constituents may be compressed in a postnuclear or prenuclear position.

Figures 11

F0 Tracks of the Fronted Focus Constituent 'ORPHANGE' Receiving the Prenuclear Accent(a), and the Clefted Focus Constituent 'JILLSON' Receiving the Postnuclear Accent (b).



(11 a)

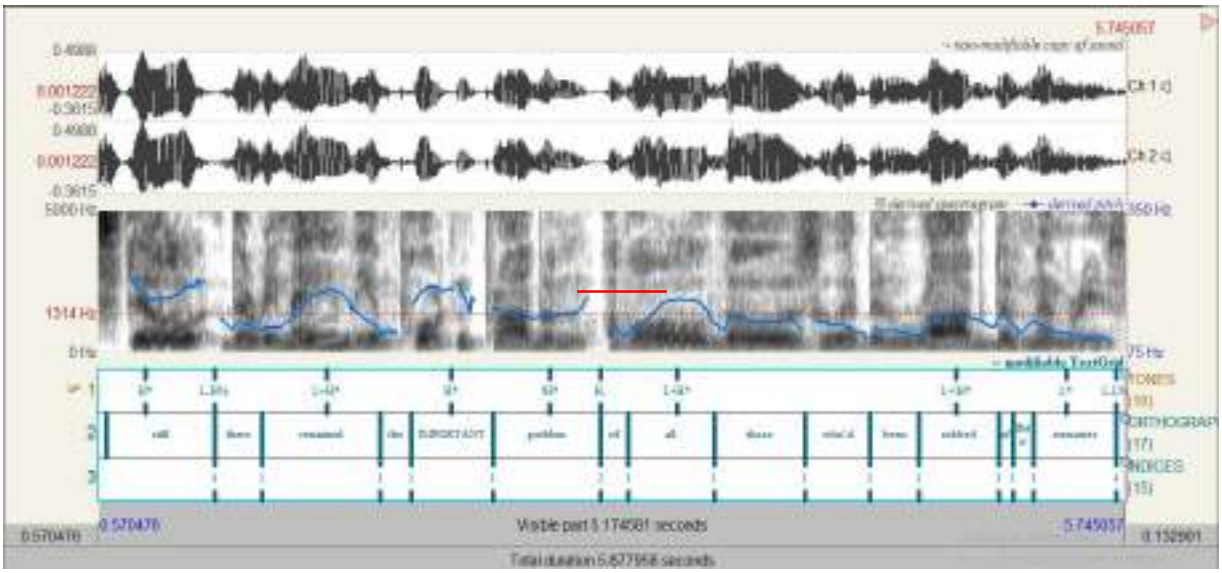


(11 b)

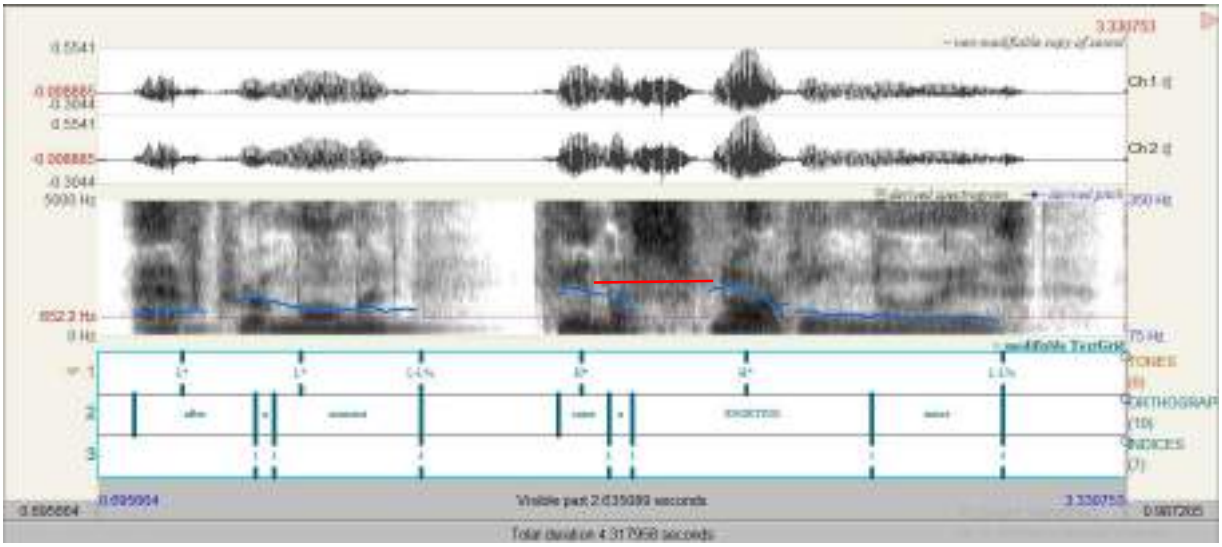
According to our quantitative analysis, even in the few occurrences of nuclear focus accents in the marked focus set (n=24), the H of the focus accent is not significantly scaled higher than the H of the prenuclear accent, with a difference mean of only about36.581 Hz, which is negligible when compared to the difference means reported for unmarked focus constituents = 88.777 Hz.

Figures 12

F0 Tracks of the Difference between the H Target of the Nuclear Accent on 'IMPORTANT' and that of the Prenuclear Accent on 'remained' in an Existential Construction (a), and the Difference between the Nuclear Accent on 'SNORTING' and the Prenuclear Accent on 'came' in an Inversion Construction (b).



(12 a)

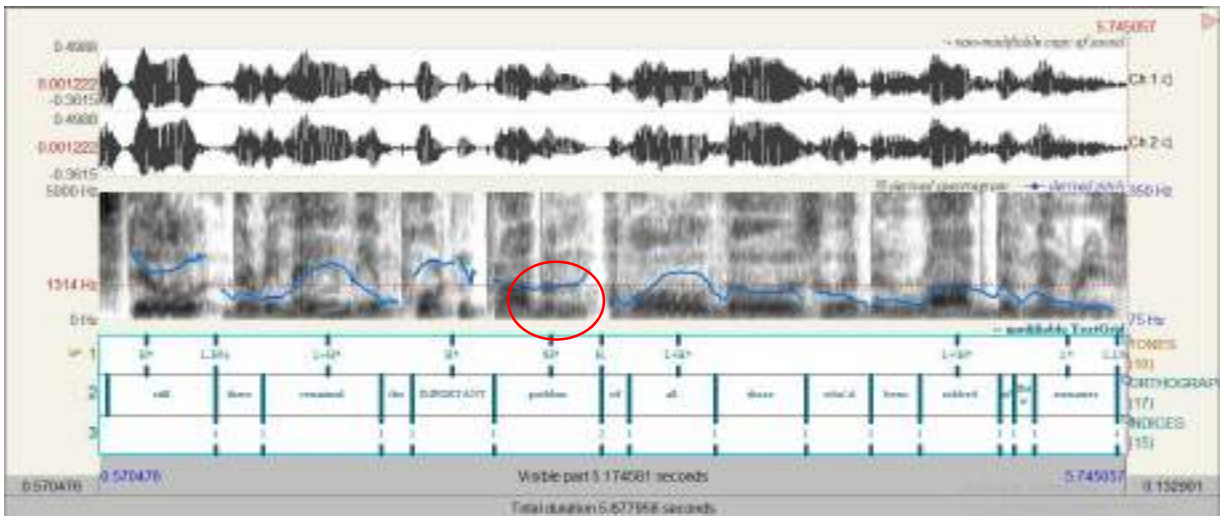


(12 b)

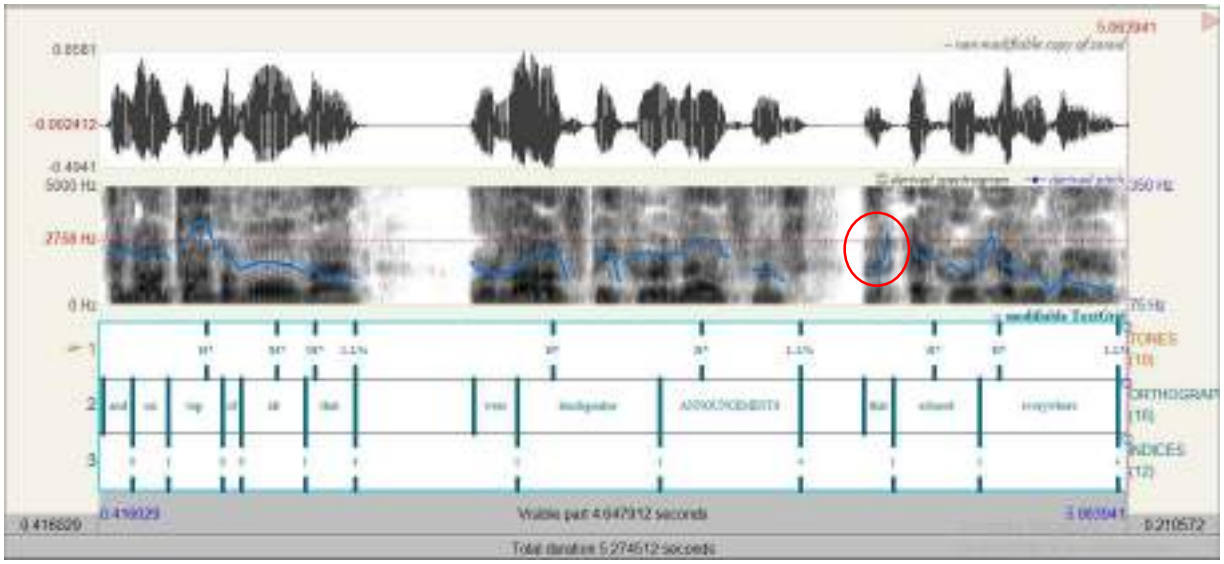
Furthermore, only 13 instances out of the 24 occurrences of nuclear focus accents are significantly more likely to exhibit postnuclear deaccentuation. In the remaining 11 occurrences, the H of the focus accent is followed by slightly compressed postnuclear accents with a slight difference mean of only about 37.316 Hz, which is so small relative to the difference mean between the focus accent and the postnuclear accent in the unmarked set.

Figures 13

F0 Tracks of Slight Postnuclear Compression after the Focus Accent on 'IMPORTANT' in the Existential construction in (a) and on 'ANNOUNCEMENT' in the Inversion Construction in (b).



(13 a)



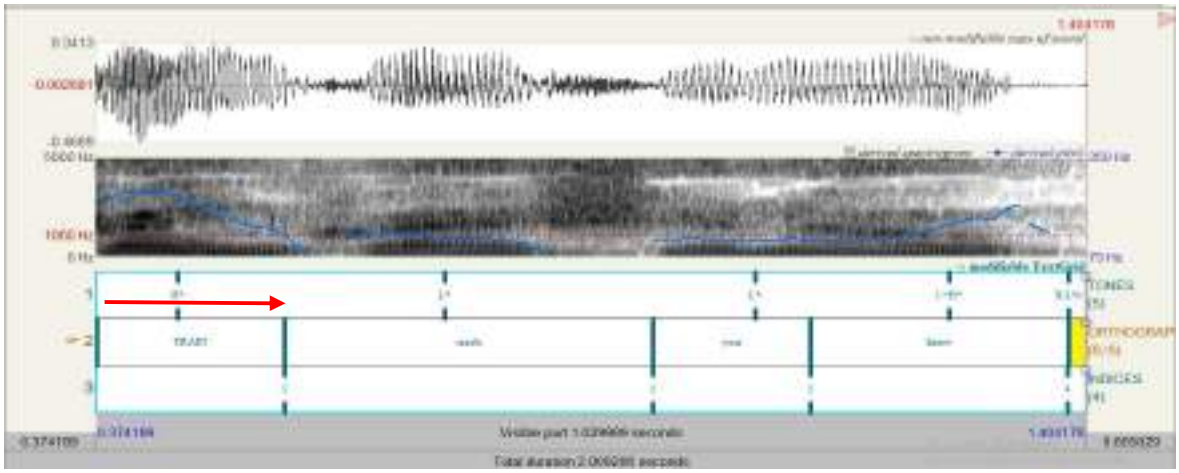
(13 b)

10.1.4 Scaling of the L Target

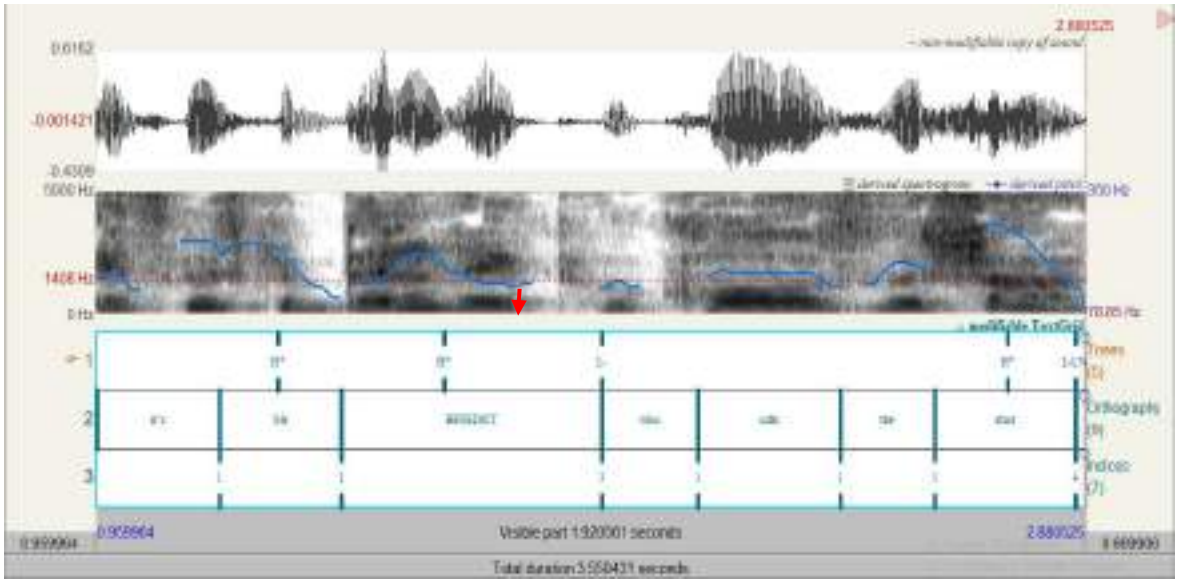
Not only does the markedness variable remarkably affect the scaling of the H target, it also has bearing on the scaling of the L of the focus accent. This effect pertains to the depth of the fall of the L target, i.e., the extent to which the accent falls after reaching the peak. As mentioned before, the fall can be described as wide or narrow. Our data show that the fall of the L target of the accent in the unmarked data set is much narrower than the L in the marked data set, with a difference mean of 122.719 Hz and 130.281 Hz, respectively.

Figures 14

F0 Tracks of Narrow Fall after the Accent on the Focus Exponent 'TRAIN' of the Unmarked Focus Constituent 'TRAIN crash' (a) versus Wide Fall after the Clefted Focus Constituent 'BENEDICT' (b).



(14 a)

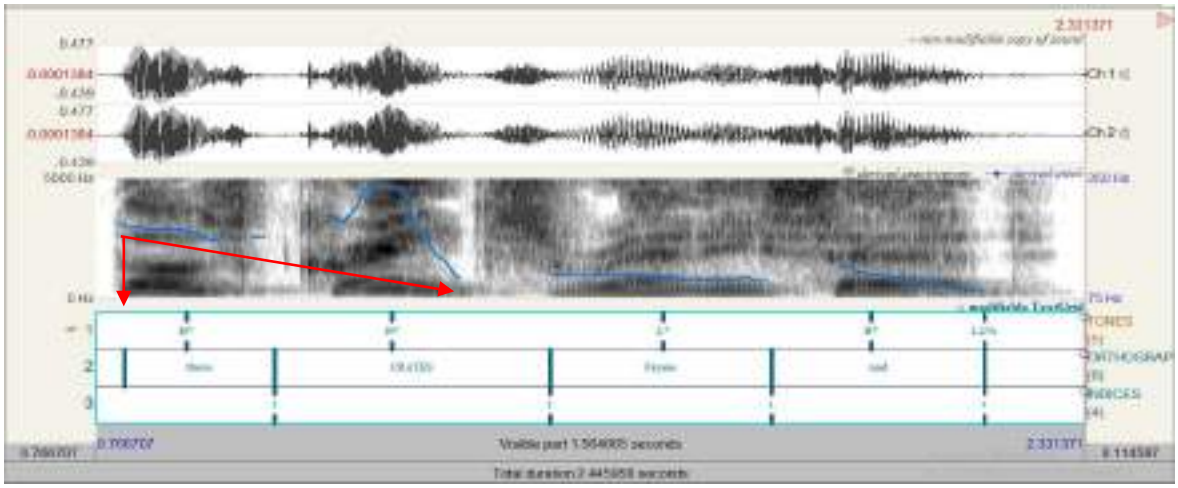


(14 b)

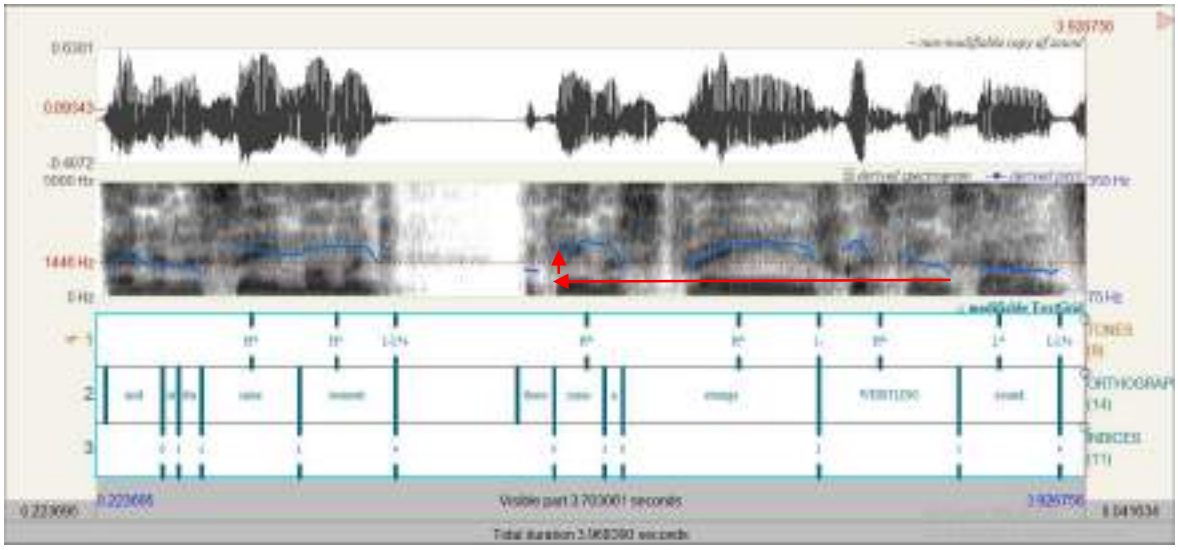
As shown, the fall of the accent on the unmarked focus constituent almost reaches the bottom of the narrator's pitch range, whereas that of the marked constituent is scaled wider and rises above the baseline. In addition, the markedness variable affects the difference mean between the L target of the focus accent and the starting F0 level, which is considerably higher in the unmarked focus constituents than in the marked ones: 72.576 Hz and 52.561 Hz, respectively.

Figures 15

F0 Tracks of the Great Difference between the L of the Accent on Focus Exponent 'CRATES' that Defines the Unmarked Focus Constituent 'those CRATES' and the F0 Starting Point at 'those' (a), VERSUS the Small Difference between the L of the Focus Accent on the Marked Focus Constituent 'WHISTLING' and the F0 Starting Point at 'there' (b)



(15 a)



(15 b)

10.2 Discussion

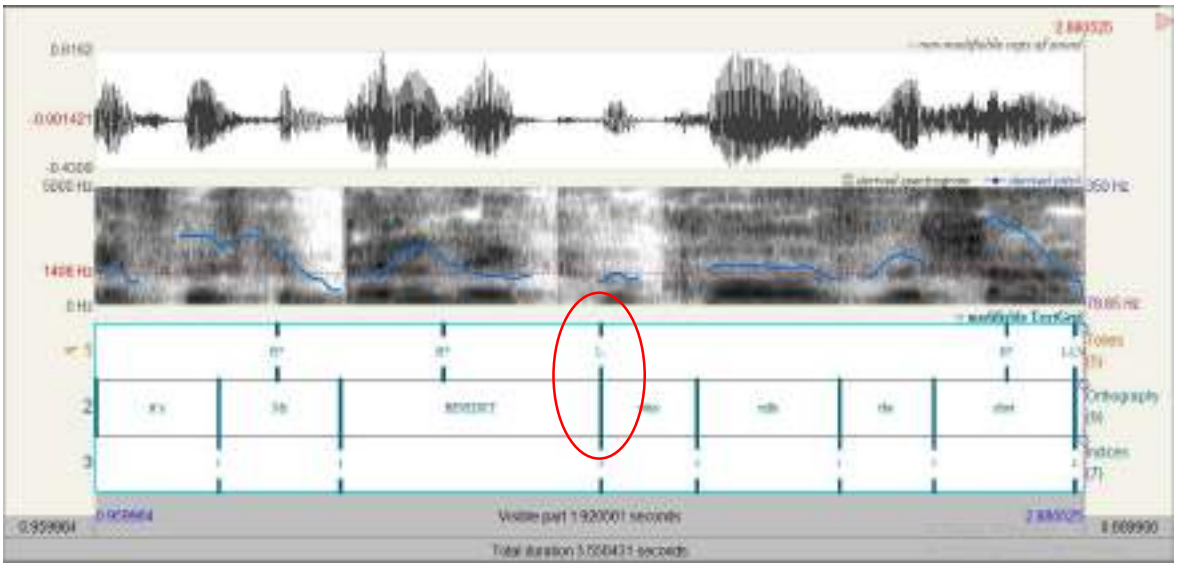
The quantitative analysis has offered ample evidence for our hypothesis that unmarked focus constituents are prosodically more prominent than the marked variants. As shown, the focus exponent (the item that receives the accent that is passed on to the entire constituent) of unmarked focus surpasses that of the marked counterparts along all the parameters of prosodic prominence. Our results have shown that the focus accent in the unmarked data set is realized with a higher pitch than that of the marked ones. The H target of the focus accent is scaled higher than the prenuclear and postnuclear accents, whereas the H target of the focus accent of marked focus constituents is not significantly higher than that of the prenuclear and postnuclear accents. Finally, the focus accent in the unmarked versions displays a narrower depth of fall than that of the marked variants.

As mentioned before, the one-to-one matching between nuclear accent and focus is well-established in the prosodic mainstream. This consistency is maintained in our unmarked data set, with all the instances of unmarked focus realized with the nuclear accents, i.e., the accent with the highest pitch value in relation to the neighbour accents. However, this one-to-one correspondence is not borne out in our marked data set, which means that the focus could be successfully realized by the prenuclear or the postnuclear accent, not necessarily by the nuclear accent. In such cases, our findings show that intensity values are considerably raised in an attempt to compensate for the absence of nuclear accentuation on the focus constituent. In many other cases, the absence of the nuclear accent on the marked focus constituent is tolerated by prosodic phrasing of the focus constituent in a separate intonational phrase, i.e., adding a boundary after the focus constituent. By contrast, dephrasing is frequently associated with unmarked focus constituents since

prosodic prominence is already realized via nuclear accentuation, with phrasing being a subsidiary cue of prosodic prominence in the unmarked case. The interchangeability of the cues of prosodic prominence calls for further refinements to be made for focus-nuclear accent coincidence which is worth revisiting.

Figure 16

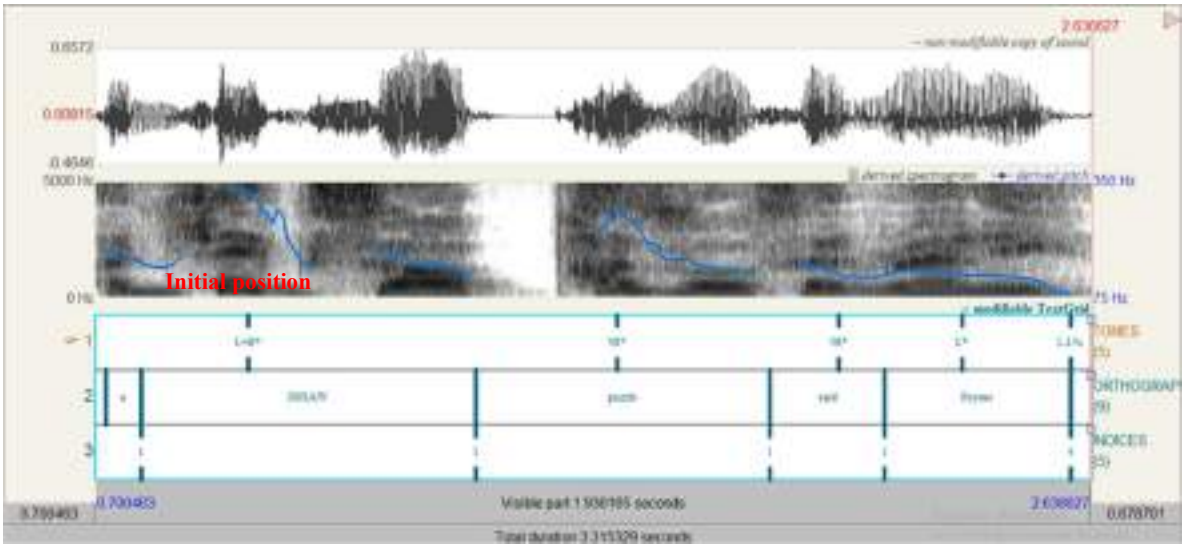
F0 Track of the Break Index (3) and the Phrase Accent (L-) after the Marked Focus Constituent 'BENEDICT' as Compensatory Devices for Lack of Nuclear Accentuation.



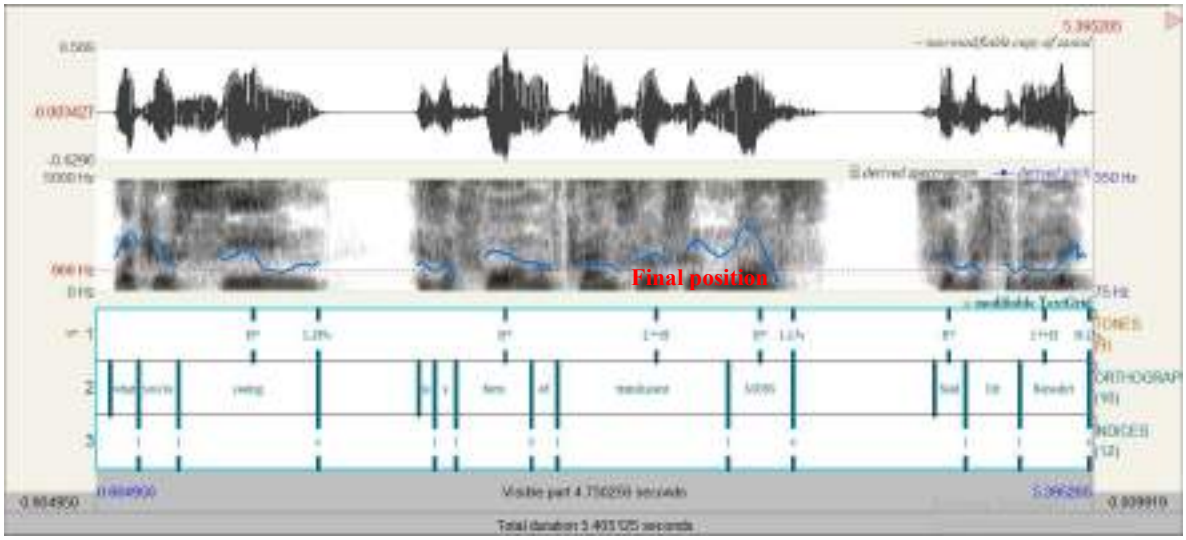
Even when the nuclear accent coincides with the focus constituent, the prominence degree of the accent happens to be governed by some syntactic factors both in the unmarked and marked data sets. As regards the unmarked set, it displays some degree of variation as to the pitch values of the nuclear accent. It turns out that the focus accent that exceeds the maximum pitch mean (=330 Hz) are all sentence initially or near the beginning of the sentence. On the contrary, the focus accents that are remarkably lower than the pitch mean in the unmarked data set are all sentence finally or near the end of the sentence.

Figures 17

F0 Track of the Considerable Pitch Height of the Focus Accent in Initial Position on 'JIGSAW' (a), and the Relatively Low Pitch of the Focus Accent in Final Position on 'MOSS' (b).



(17 a)

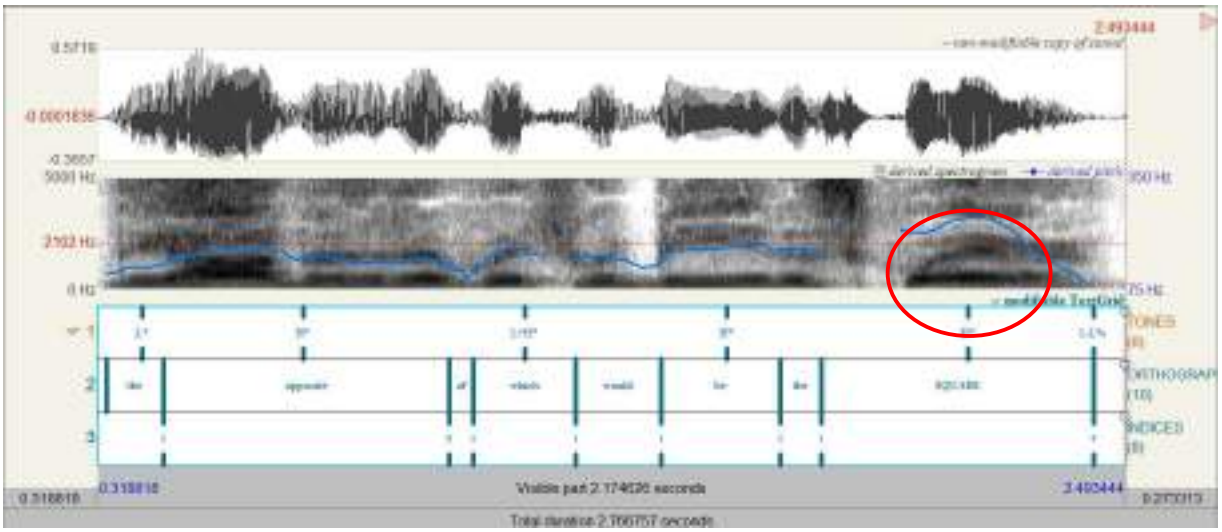


(17 b)

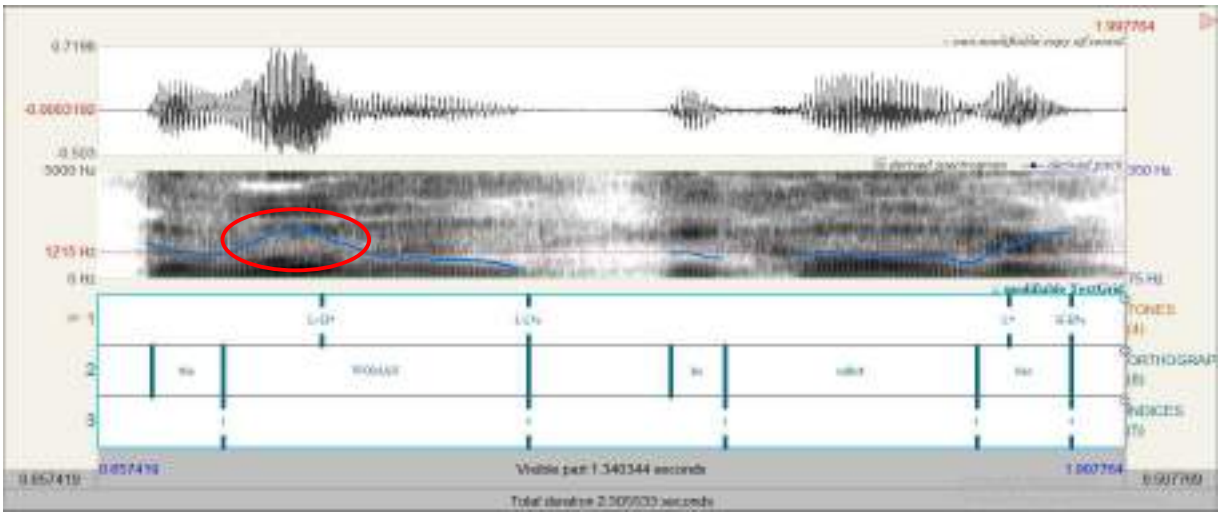
As such, it seems that the sentential position plays a pervasive role in the degree of prosodic prominence of unmarked focus constituents. This is not surprising given the physiological limit of muscular tension which increases air pressure at the beginning and leads to higher values of F0. One may hasten to say that this means that the focus accent on a marked focus constituent in initial position is expected to reach higher pitch values than the focus accent of an unmarked focus constituent in final position. However, our data shows the reverse, which amounts to saying that the focus accent of unmarked focus constituents is always higher than that of marked ones, regardless of the sentential position.

Figures 18

F0 Tracks of the Considerable Pitch Height of the Focus Accent of the Unmarked Focus Constituent in Final Position on 'SQUARE' (a), and the Relatively Low Pitch of the Focus Accent of the Fronted Focus Constituent in an Initial Position on 'WOMAN' (b).



(18 a)

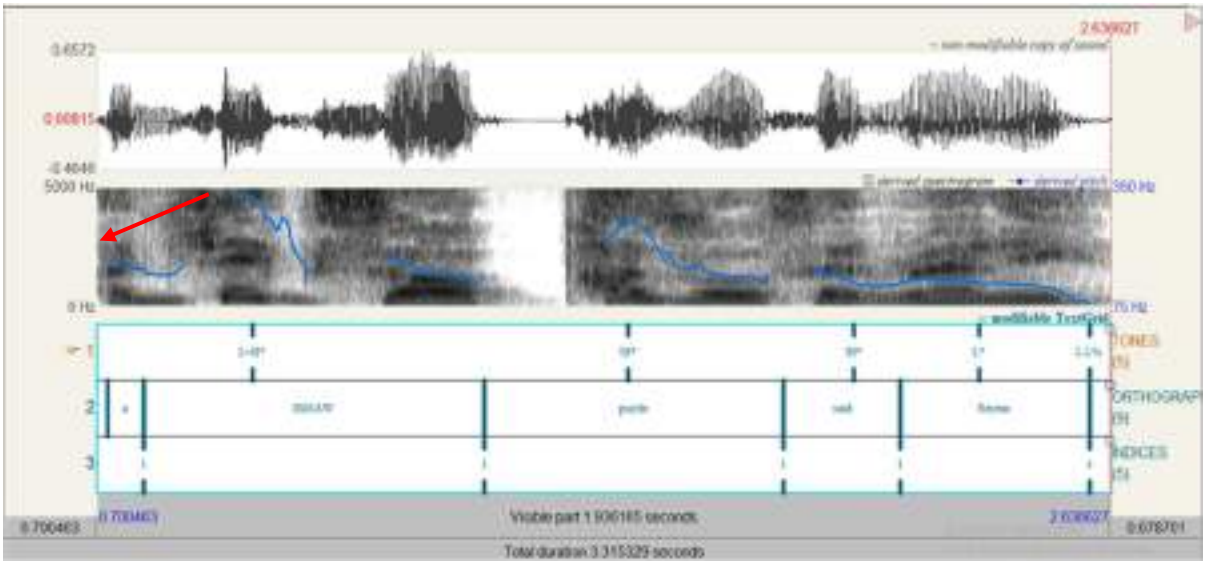


This boils down to the postulation that sentential position yields variation within the unmarked focus constituents as to the pitch values of the focus accent. It is also held responsible for variation with regard to difference mean between the H target of the focus accent and the prenuclear accent (if there any). Our data reveals that the highest difference means (= 187.673 Hz, 180.009 Hz, 171.723 Hz and161.769 Hz) are reported in cases when the focus constituent is sentence initially or near the beginning of the sentence. On

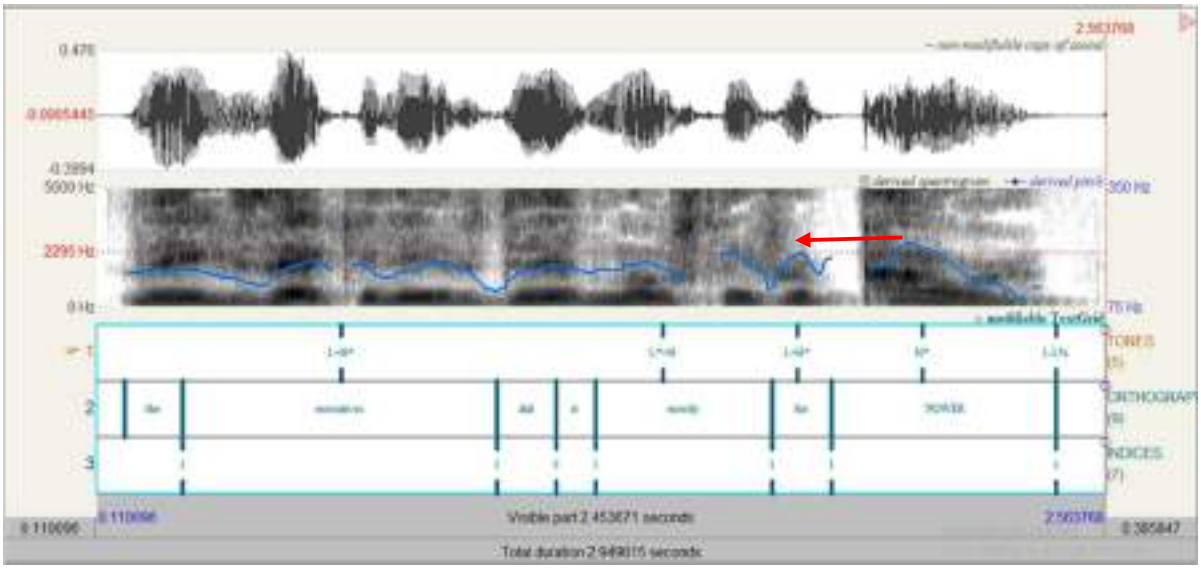
the contrary, the least difference means (= 19.843 Hz, 23.551 Hz, 36.45 Hz, 38.684 Hz and 48.108 Hz) are reported in final positions.

Figures 19

F0 tracks of the Highest Difference between the H of the Focus Accent on 'JIGSAW' and the H of the Prenuclear Accent (a), and the Least Difference between the H of the Focus Accent on 'POWER' and the Prenuclear Accent on 'for' (b).



(19 a)



(19 b)

With regard to the variation of pitch height and scaling of the H target within the marked focus data set, it seems to be inversely proportional to the degree of syntactic markedness. Our study examines the

correlation between the nuclear accent and the focus accent in the marked focus constituents, and finds out that the accents of fronted focus constituents record the highest maximum pitch height 198.308 Hz, and that nuclear accents are the strongest preference for fronted focus constituents. Nuclear accents are statistically more correlated with fronted constituents in the marked data set. Out of the 100 instances of marked focus constituents, only 24 occurrences of nuclear accents are spotted of which 14 go for fronted constituents, 5 for inversion, and 5 for existentials. Based on the extent to which the focus accent coincides with the nuclear accent, the four categories of marked focus constituents can be ordered as follows: *fronting>inversion>existentials>clefts*. The fact that fronted focus constituents are prosodically more prominent boils down to the influence of sentential position of the focus constituent given that fronted constituents are placed sentence initially before the subject. However, for this claim to be validated, inversion focus constituents should have been at the end of the scale of prosodic prominence, given that the focus constituent in this construction is placed postverbally or near the end of the sentence. Simultaneously, existentials and clefts should have ranked inversion in prosodic prominence, since the focus constituent in these constructions is only two or three slots away from the beginning. As such, sentential position is irrelevant to the variation within the marked data set. This hierarchy cannot be even matched with a corresponding scale of syntactic markedness. Based on the number of syntactic operations involved in each construction which are held responsible for the markedness degree of each construction, the following scale of markedness can be proposed: *inversion>fronting>clefts> existentials*. Inversion features an extreme violation of word order by means of argument reversal such that the subject is placed postverbally and the adverbial phrase, typically locative, is placed preverbally. It can be considered the most marked on the syntactic markedness scale, followed by fronting which features a mild violation by merely moving a postverbal argument before the subject. Next on the scale are clefts which feature a gap in the relative clause, in addition to the insertion of dummy '*it'*. At the end point of the scale, existentials represent the least marked construction that merely employs '*there'* insertion. As such, the two scales, the prosodic scale and syntactic markedness scale do not coincide. However, a pattern can be captured if the syntactic markedness scale collapses to two subscales, with inversion and fronting ordered on one scale, and clefts and existentials on another separate scale. This division can be made based on the fact that inversion and fronting violate the subject-verb order, whereas clefts and existentials maintain this order:

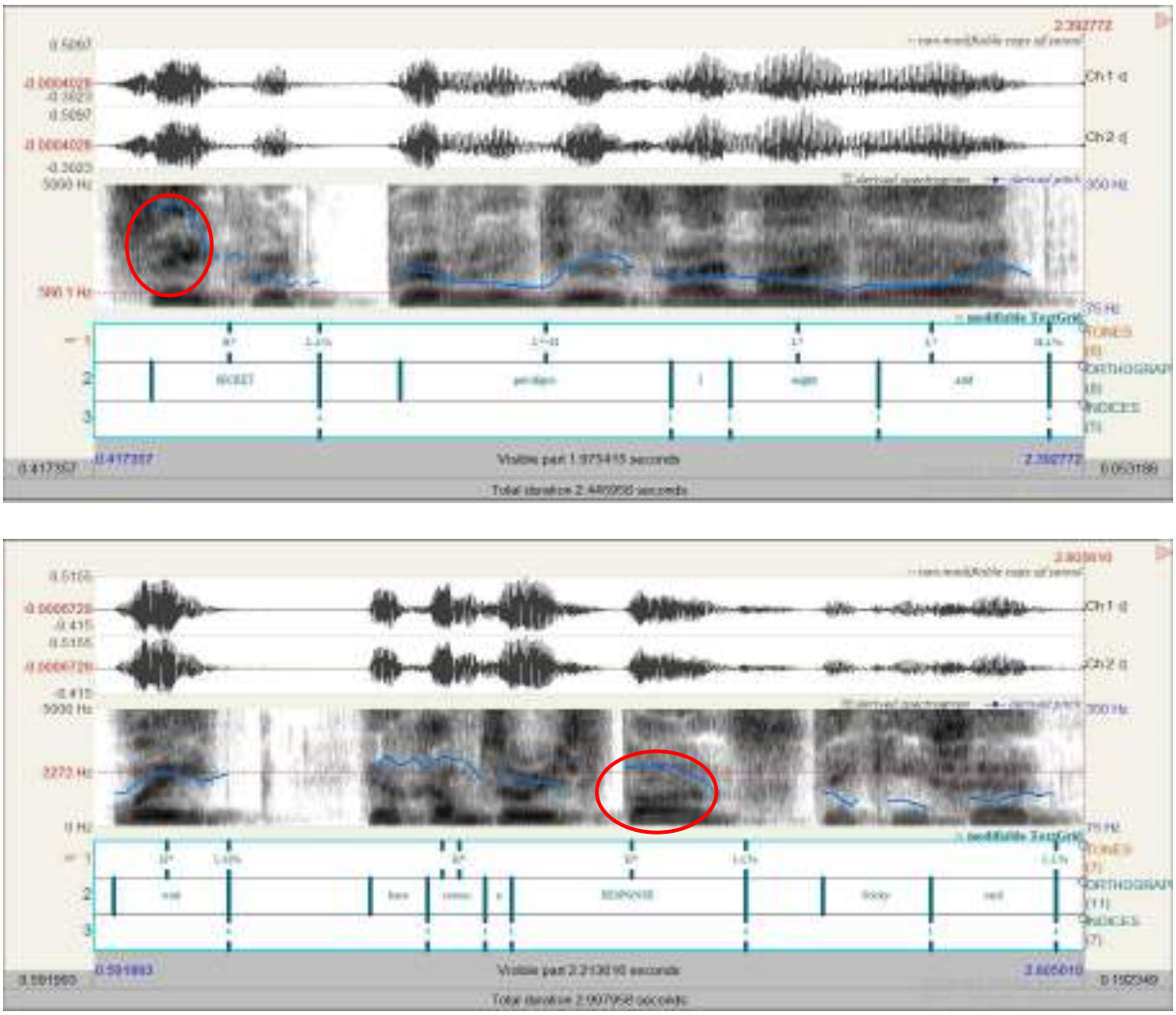
- Scale 1: Inversion> fronting.
- Scale 2: clefts> existentials

When compared to the prosodic prominence scale reported in our data (fronting>inversion>existentials>clefts), it turns out that the degree of prosodic prominence is inversely

proportional to the scale of syntactic markedness. Specifically, the less syntactically marked candidate in each pair is prosodically more prominent than the other one. Our findings have corroborated this hypothesis. Fronted focus constituents in our data are found to be more prominent than those realized via inversion with regard to pitch height, H scaling and L scaling.

Figures 20

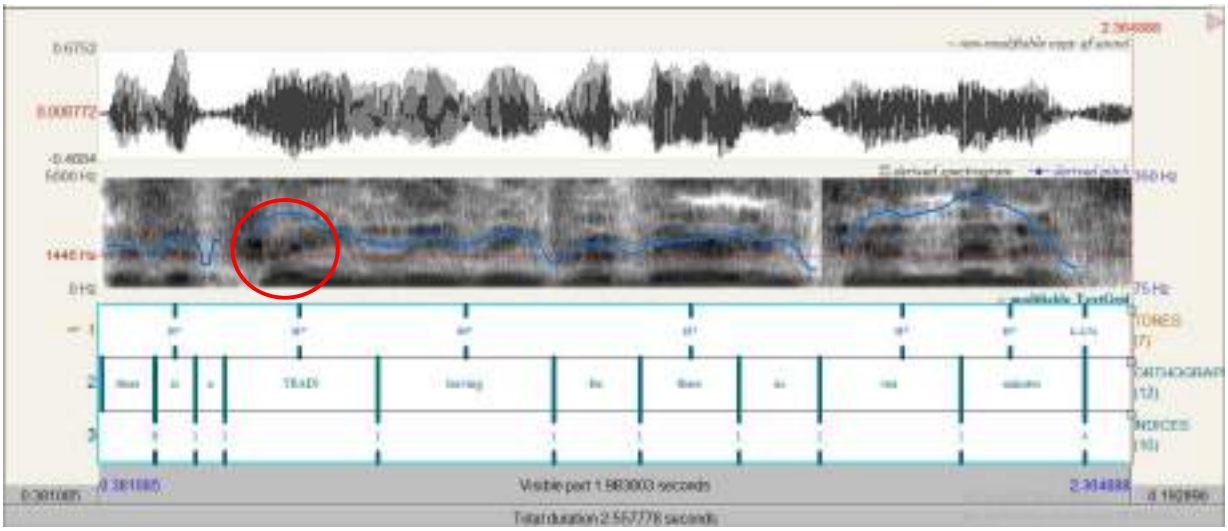
F0 Tracks of the Maximum Pitch Height of Focus Accent on the Fronted Focus Constituent 'SECRET' (a) and the Maximum Pitch of the Accent on the Reversed Focus Constituent 'RESPONSE'(b)



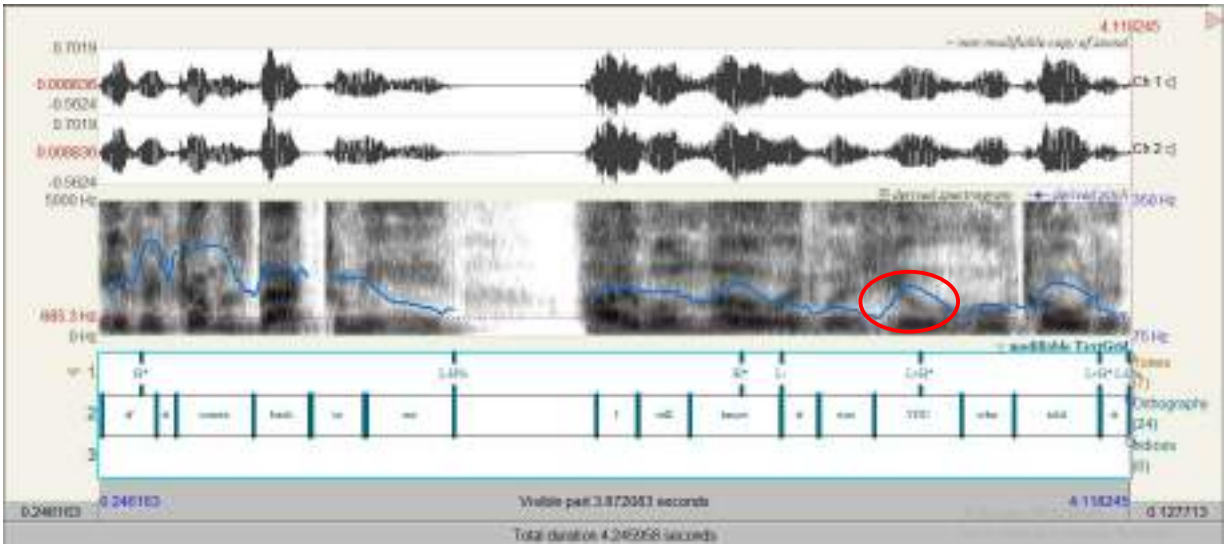
By the same token, focus constituents encoded by existential constructions are found to be significantly more prominent than those by clefts.

Figures 21

F0 Track of the Maximum Pitch Height of the Focus Accent on the Pivot 'TRAIN' in an Existential Construction (a) and the Maximum Pitch of the Accent on the Clefted Focus Constituent 'YOU' (b).



(21 a)



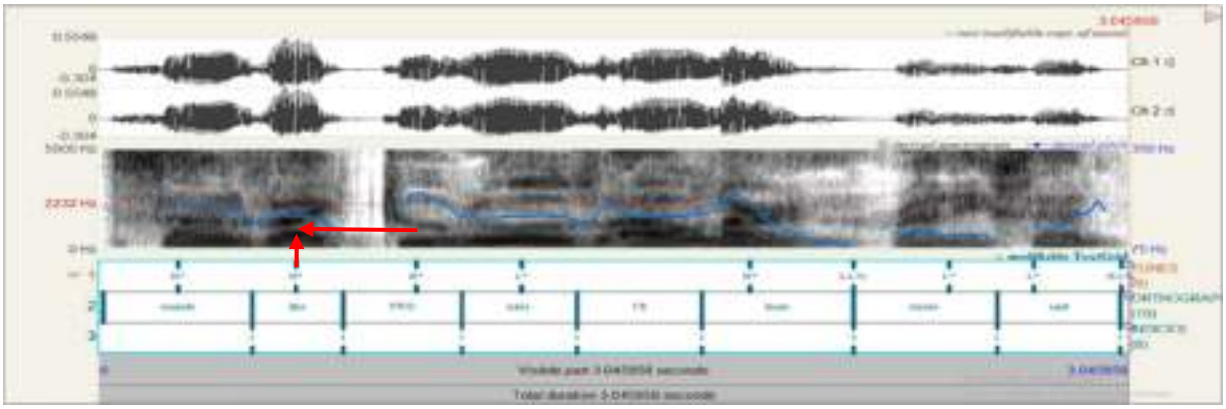
It can therefore be said that not only are unmarked focus constituents more prosodically prominent than marked ones, but also less syntactically marked constructions are more prosodically prominent than the more marked versions.

Interestingly, this hierarchy of pitch height corresponds to a parallel hierarchy with regard to the difference mean between the H target of the focus accent and the prenuclear accent (if there is any). At the top of the scale are positioned fronted focus constituents, with a difference mean of 28.465 Hz. Below are inversion constructions where the postverbal focus constituent is scaled higher than the prenuclear accent

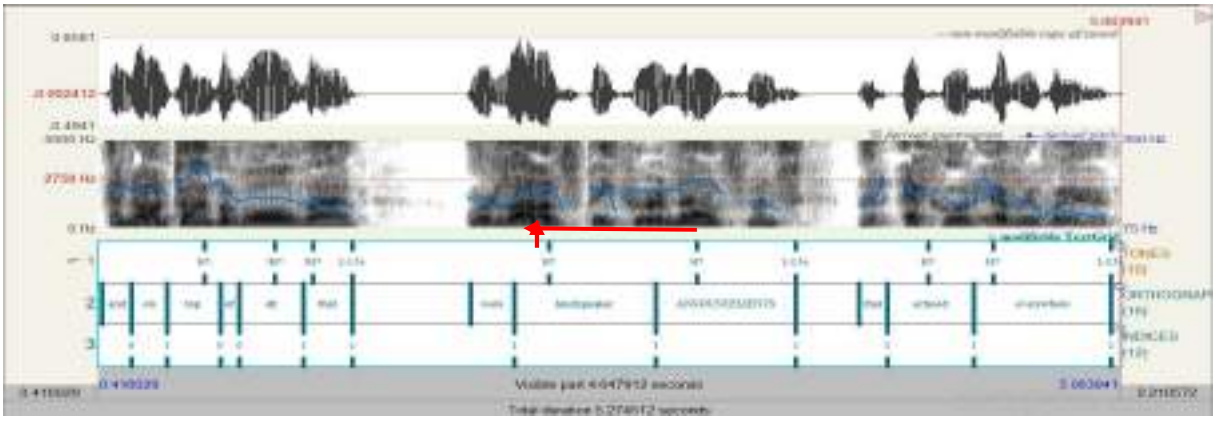
with a difference mean of about 26.141 Hz. Next on the scale are existentials with a difference mean of 13.30 Hz. No nuclear accents are reported for clefts and, consequently, no mean difference is recorded. Until now, with regard to nuclear accentuation and scaling of the H target relative to the prenuclear accent, fronted focus constituents are significantly associated with more prosodic prominence than those encoded by inversion, existentials and clefts. Again, this gives solid evidence to our assumption of the inverse relation between the degree of syntactic markedness and that of prosodic prominence. That fronted focus constituents maintain their prosodic prominence with regard to the scaling of the H target indicates that this relation is not a coincidence. In the following three examples, the difference between the focus accent and the prenuclear accent gradually declines until it reaches the lowest value in the existential construction where the focus accent and the prenuclear accent reach two equal points.

Figures 22

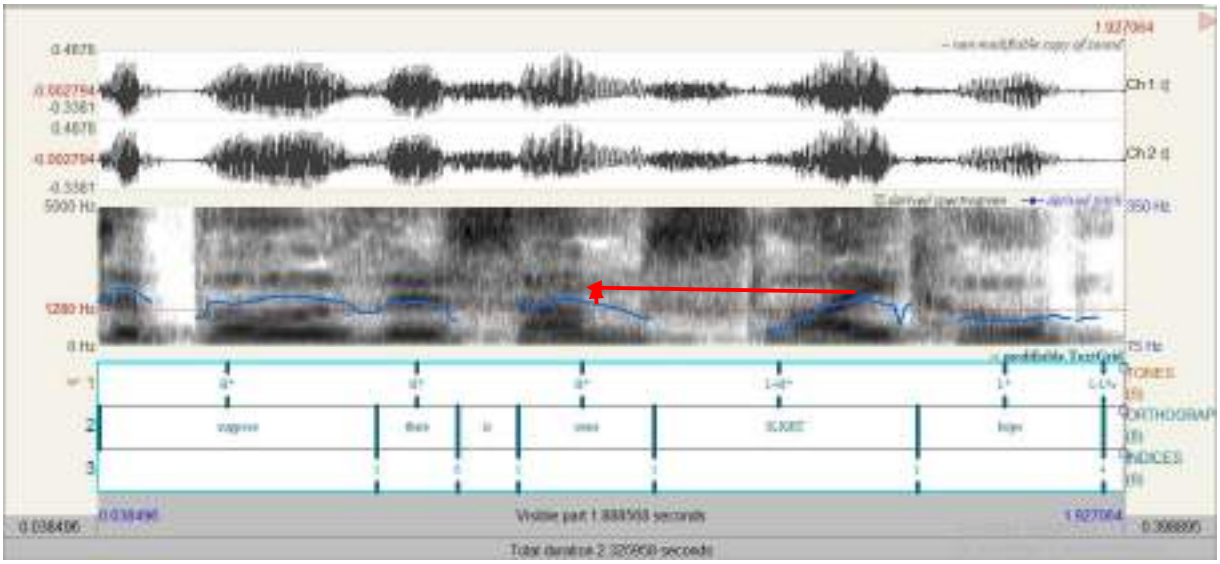
F0 Tracks of the Difference between the H of the Focus Accent on the Fronted Focus Constituent 'TWO' and the Prenuclear Accent on 'like' (a), the Difference Between the H of the Focus Accent on the Reversed Focus Constituent 'ANNOUNCEMENT' and the Prenuclear Accent on 'loudspeaker' (B), and the Difference between the H of the Focus Accent on 'SLIGHT' in an Existential Construction and the Prenuclear Accent on 'some.



(22 a)



(22 b)



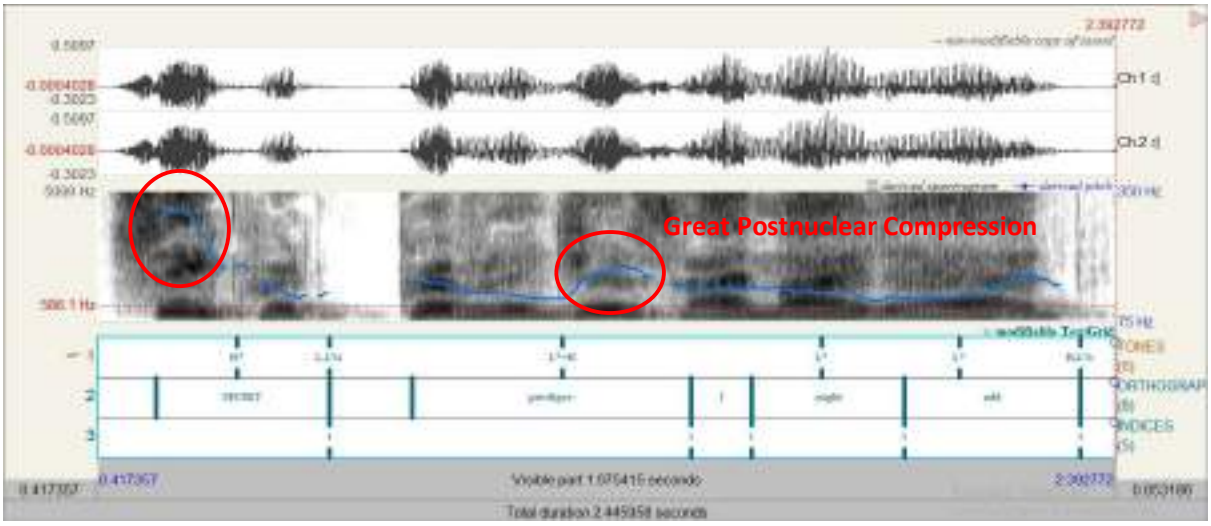
(22 c)

Interestingly, the same hierarchical representation reported up to now is maintained with regard to postnuclear deaccentuation. Fronted focus constituents are found at the top of the scale of postnuclear deaccentuation. Out of the 14 occurrences of nuclear accents on fronted focus constituents, 7 are followed by postnuclear deaccentuation, whereas in the remaining 7 instances the H of the focus accent is scaled considerably higher than the postnuclear accent with a difference mean of 21.154 Hz. It is to be noted that all the occurrences of nuclear accents in inversion constructions (n=5) are sentence finally, that is, there is no postnuclear region at all. As such, existentials are ranked below fronting on this scale, where 2 out of 4 occurrences are followed by postnuclear deaccentuation and the other two instances display a slighter difference mean= 18.544 Hz between the H of the focus accent and the postnuclear accent. Finally, no nuclear accents are reported for clefts and, consequently, no difference mean is recorded. Clefted focus constituents themselves are either prenuclear or postnuclear accents. As such, it can be said that fronted

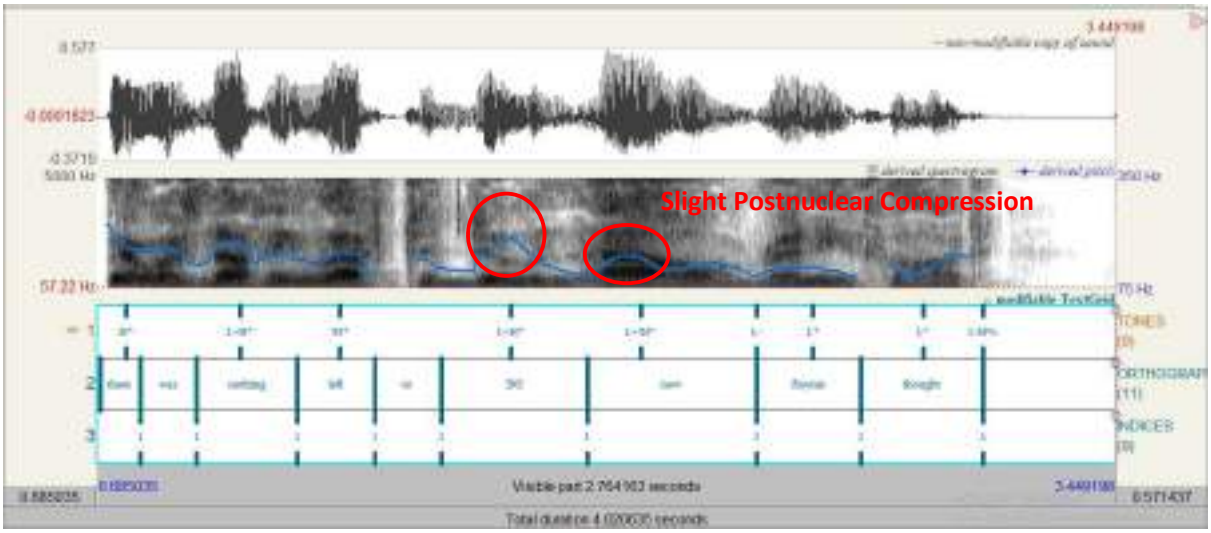
focus constituents, when identified with the nuclear accent, display the highest difference mean between the H of the focus accent and the postnuclear accent.

Figures 23

F0 Tracks of Considerable Postnuclear Compression after the Focus Accent on the Fronted Focus Constituent 'SECERET' (a) Versus the Slight Postnuclear Compression after the Focus Accent on 'DO' in an Existential Construction (b).



(23 a)

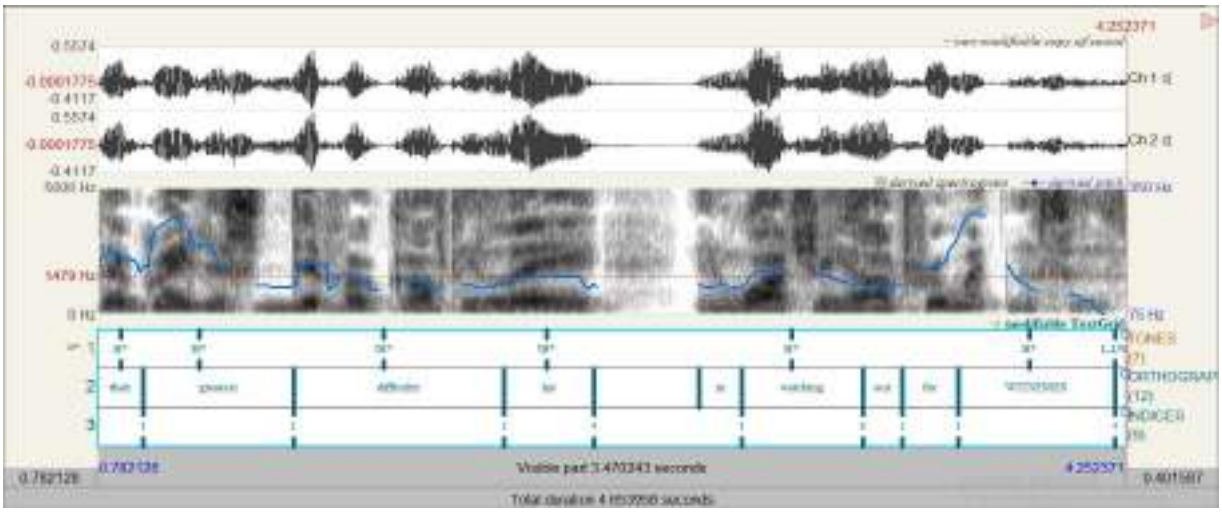


(23 b)

As such, marked and unmarked focus constituents display prosodic differences as to the postnuclear region, with the unmarked set always followed by postnuclear deaccentuation. On the contrary, marked focus constituents leave open two possibilities, either deaccentuation or slight compression. This difference lends

much more prominence to unmarked focus constituents given the fact that prominence is not only attributed to the height of the pitch accent per se, but it is also determined in relation to the postnuclear region.

As regards the scaling of the L target, it has been mentioned that unmarked constituents in our data set are significantly realized by narrower fall than the marked constituents with a mean of about 122.719 Hz. However, the unmarked data set exhibits variation, in this respect, which turns out to be correlated again with the sentential position of the focus constituent. To recall, the highest values of pitch recorded for unmarked focus constituents are strongly correlated with initial position.

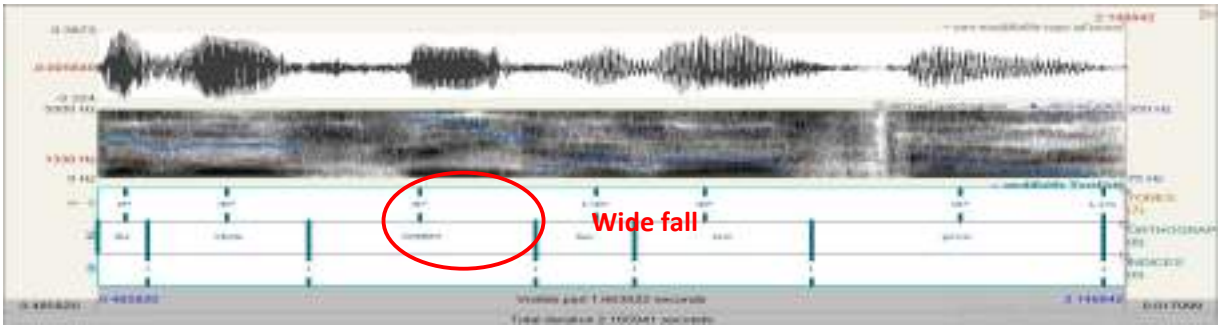


The opposite is true for the depth of fall. The narrowest (deepest) fall values in our unmarked data set are reported in cases where the focus constituent occurs at the end of the sentence. On the contrary, falls that are considerably higher than the depth mean are likely to occur at or near the beginning of the sentence. The fall depth pattern thus displays a distinct behaviour from the pitch height pattern as far as sentential position is concerned. The highest rises and widest falls are more likely to be strongly associated with the initial position, whereas the lowest rises and deepest falls have significant preference for final position. This finding is not surprising given the fact that wide falls indicate continuation and, as a corollary, tend to be frequent in initial position, and that narrow falls express completion which unsurprisingly occurs at phrase boundaries. This is corroborated by the finding that all the instances of focus accents with deep falls in initial position serve as boundaries of either an intonation phrase with the break index (4), and the boundary tone (L%) or an intermediate phrase with the break index (3) and the phrase accent (L-).

Figures 24

F0 Tracks of the Narrow Fall of the Focus Accent on 'WITNESSES' in Final Position (a) Versus the Wide Fall after the Focus Accent on 'STREET' in Initial Position (b)

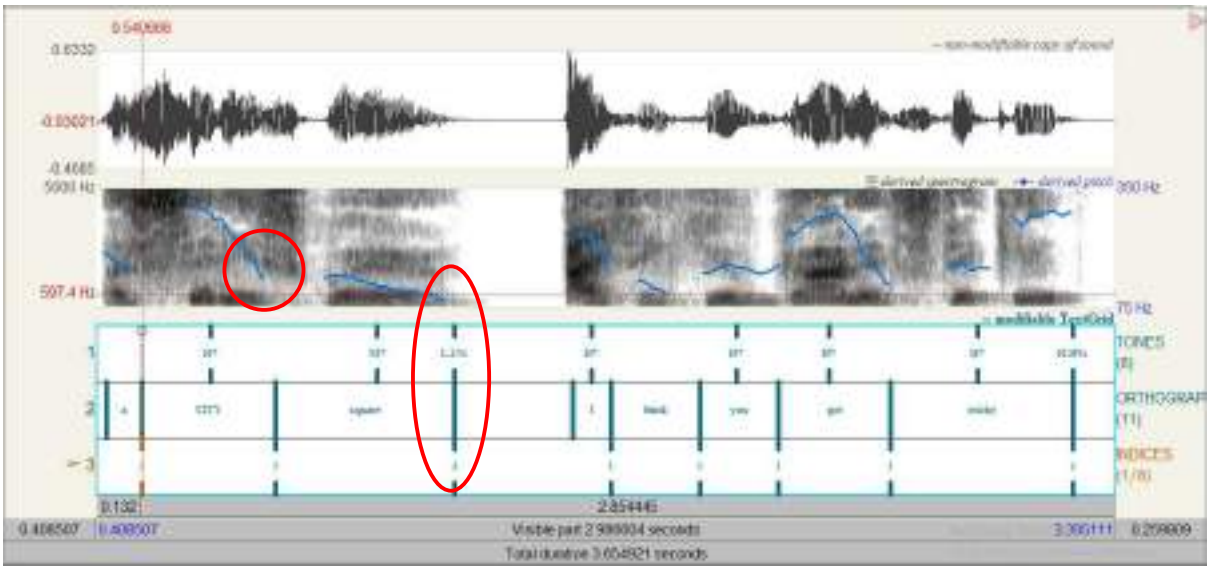
(24 a)



(24 b)

Figure 25

F0 Track of a Considerably Narrow Fall of the Focus Accent on 'CITY' in Initial position Followed by the Boundary Tone L-L% and the Break Index (4).

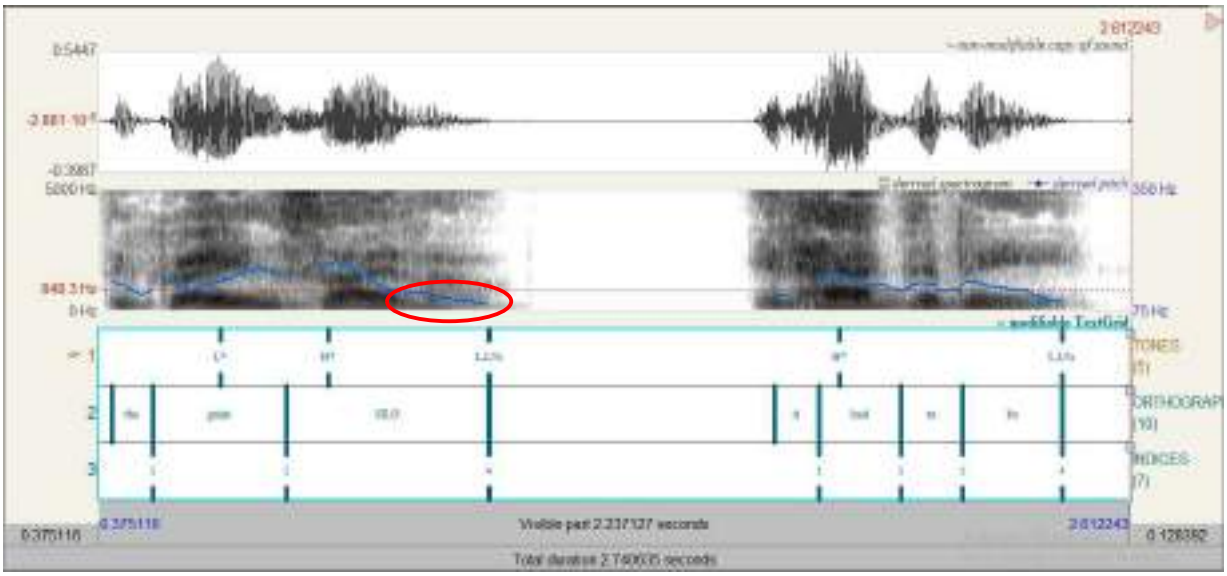


Marked focus constituents also exhibit variation with regard to the depth of fall of the L target of the focus accent, a variation that is closely related to the degree of markedness. They form a scale with regard to this parameter parallel to the scale reported for scaling of the H target. To recall, marked focus constituents maintain a fixed hierarchical order as to nuclear accentuation, scaling of H, and postnuclear deaccentuation, with fronted constituents ranked over those encoded via inversion on the one hand, and existentials over clefted focus constituents, on the other hand. The prosodic analysis of the depth of fall of our marked data set yields the same hierarchy, with fronted focus constituents featuring deeper fall than inversion with a mean of about 125.913 Hz and 127.957 Hz, respectively. On the other hand, focus constituents in existential

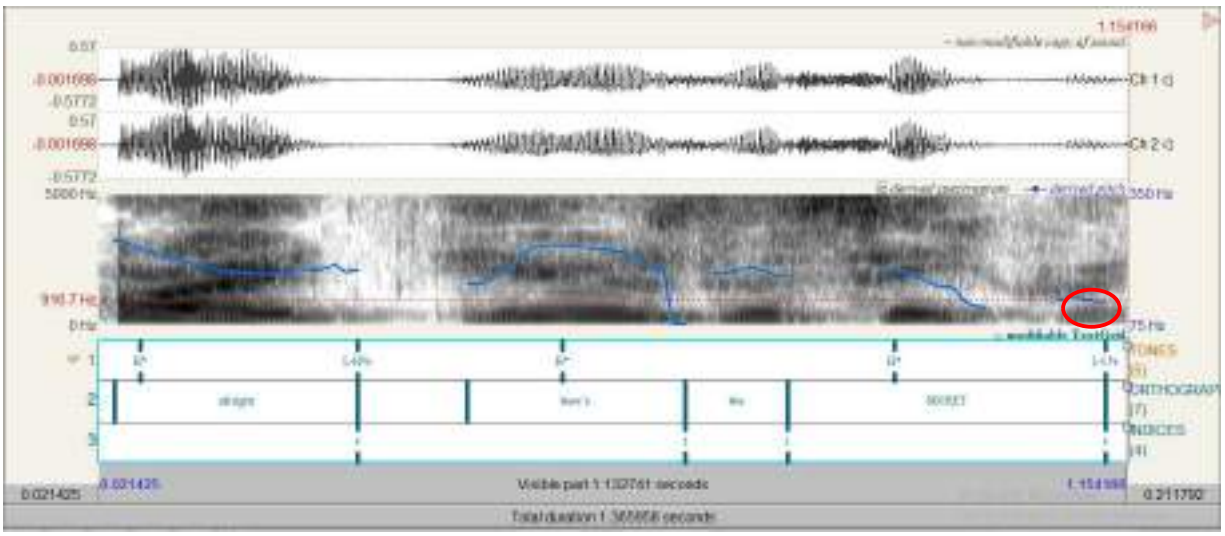
constructions exhibit deeper falls than clefted constituents with a mean of 130.412 Hz and 133.842 Hz, respectively.

Figures 26

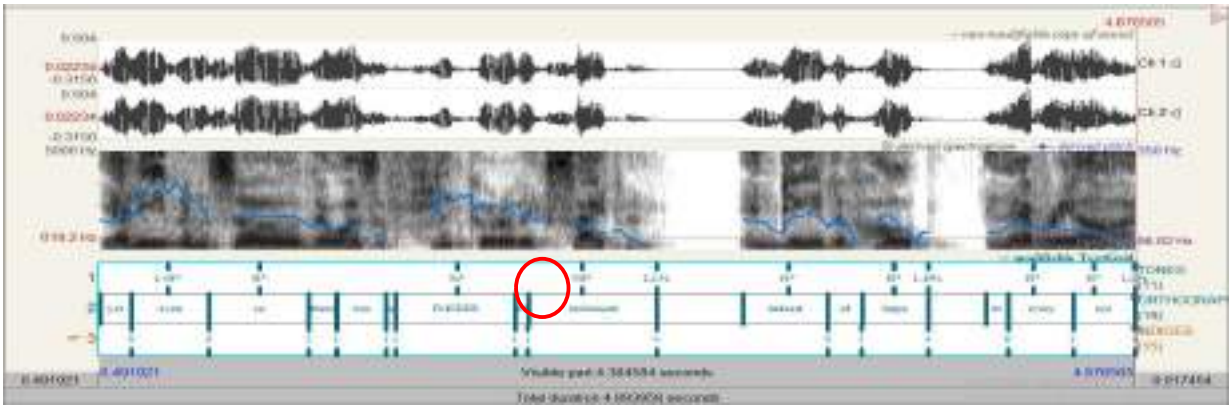
F0 Tracks of the Deepest Fall of the L Target of the Focus Accent on the Fronted Focus Constituent 'SILO' (a), a Relatively Less Deep Fall on 'SECRET' in an Inversion Construction (b), a Wide on 'FLICKER' in an Existential Construction (c), and the Widest Fall on the Clefted Focus Constituent 'HOPE' (d).



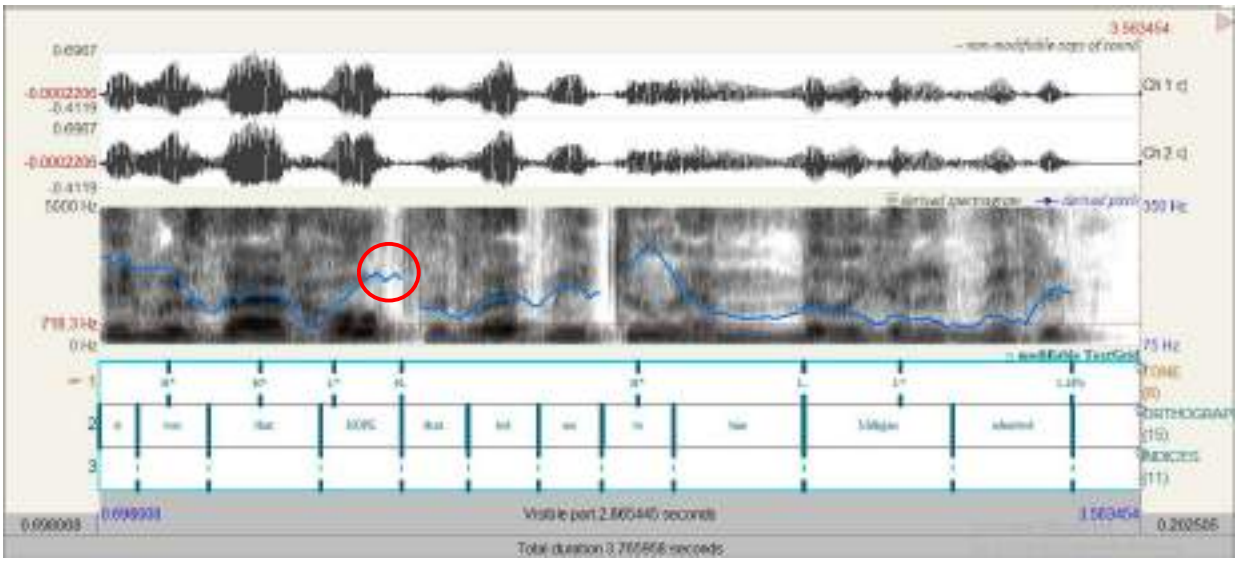
(26 a)



(26 b)



(26 c)



(26 d)

The conformity of the prosodic scales reported until now, with fronted focus constituents at the top of each scale, confirms our assumption that prosodic prominence is not merely a matter of maximum pitch height, but it is also the product of conspiracy of other parameters that reinforce pitch height. These parameters give prosodic information of what happens after and before the focus accent itself in such a way as to stress the relative nature of prosodic prominence. For instance, scaling of the H target is measured relative to the prenuclear and postnuclear regions; scaling of the L target captures the depth of the fall after the peak of the accent. As such, prosodically prominent constituents are more likely to exhibit consistency with regard to these parameters. This goes as follows. A relatively more prominent constituent coincides with the nuclear accent, scaled higher than the prenuclear accent, followed by postnuclear deaccentuation or compression, and reaches a considerably deep level of fall. Our results confirm this assumption and no instances of inconsistency are reported to the extent that the syntactic markedness variable can serve as a predictor for these parameters. On the global level of unmarked-marked dichotomy, the unmarked focus

constituents in our data set significantly rank the marked variants in all respects and record remarkably higher values for these parameters. On the local level of marked focus constituents, fronted candidates are found to show the strongest prosodic prominence and, consequently, rank inversion, existentials and clefts on each scale with statistically significant differences.

11. Conclusion

It can be concluded from the results of this chapter that syntactic markedness is a highly significant predictor for the prosodic prominence of focus. Specifically, unmarked focus constituents could be successfully predicted to be realized with more prosodic prominence than marked ones. In prosodic terms, unmarked focus constituents are significantly more often associated with nuclear accentuation than with marked ones which only show tendency to be realized by either the prenuclear or postnuclear accent. It could be equally predicted that accent of the unmarked focus constituent (the one assigned to the focus exponent) is likely to be scaled higher than the neighbour accents in the utterance, which is not always the case with marked versions. Furthermore, postnuclear deaccentuation has also been found to be more frequently associated with unmarked focus constituents than with marked ones that are frequently followed by pitch compression rather than deaccentuation. Narrow or deep falls have also been found more frequently with the accent of unmarked focus constituents. As such, I argue that unmarked focus constituents are prosodically more prominent than marked ones. The strong correlation of high rises and deep falls, together with postnuclear deaccentuation, provides further substance to the first hypothesis postulated in the beginning of the chapter that unmarked focus constituents are more prominent.

Our results also confirm that marked focus constituents themselves represent gradient, rather than categorical, prosodic prominence. To recapitulate, two scales of syntactic markedness are proposed, depending on whether the subject-verb order is maintained or not. The first scale represents extreme violation of this order by reversal of the postverbal and preverbal constituents by virtue of inversion, and a less extreme violation by merely placing a postverbal constituent before the subject by means of fronting. The investigation of the prosodic prominence of the focus constituents encoded via these two constructions has revealed that fronting is more prosodically prominent than inversion. The second scale preserves the subject-verb order and represents two degrees of syntactic markedness, with clefts being more marked than existentials, given the fact that they involve a gap in the relative clause. The prosodic investigation has suggested a strong effect of syntactic markedness on their prosodic prominence.

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