

A TUNE-BASED ACCOUNT OF TURKISH INFORMATION STRUCTURE

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ABSTRACT

A TUNE-BASED ACCOUNT OF TURKISH INFORMATION STRUCTURE

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Languages differ in the means they avail themselves of for the structural realization of information structure, where available options are word order, prosody and morphology. Turkish has long been characterized as predominantly using word order and its variation in realizing information structure, where certain positions in a sentence are associated with certain pragmatic functions related to information structure. Prosody has been proposed to play only a secondary role interacting with word order. Contrary to this widely established view, the thesis argues that the notion that sentential positions have pragmatic functions and word order variation is a syntactic means to realize these functions can be abandoned, without any loss of explanatory power, in

favor of a tune-based perspective where prosody is the sole structural determinant of information structure. In this setting word order variations are argued to be prosodically motivated, in that Turkish phonology imposes some precedence constraints on intonational contours. Word order variation then turns out to be just a consequence as opposed to being a determinant in attaining the right information structure required by the discourse context. To substantiate these claims a tune-based account, based on Steedman's account of English information structure, is proposed for the structural realization of information structure in Turkish, whereby information structural units are directly associated with prosodic phrases intonationally marked in certain ways. Validity of the account is tried to be established by intonational analysis of recorded speech data. As for the explanatory value, the information structure phenomena that has received positional explanation in the relevant literature, are tried to be captured only in prosodic terms, without committing to positions, syntactic strategies and such.

Keywords: Turkish, information structure, prosody, word order

ÖZ

TÜRKÇE BİLGİ YAPISININ EZGİ TABANLI BİR AÇIKLAMASI

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Yüksek Lisans, Bilişsel Bilimler Bölümü

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Diller bilgi yapısını yapısal olarak ifade etme yollarında, sözdizimsel, prozodik, biçim-birimsel olmak üzere farklılıklar göstermektedirler. Türkçe, bilgi yapısının yapısal ifadesinde öncelikli olarak sözcük sırası ve sözcük sırası değişimini kullanan bir dil olarak tanımlana gelmiştir. Prozodinin ancak ikincil bir role sahip olduğu düşünülmektedir. Tez, bu yaygın yaklaşıma karşı olarak, belli tümce konumlarının belli edimsel işlevlere sahip olduğu ve sözcük sırası değişiminin bu işlevleri sağlamakta kullanılan sözdizimsel bir araç olduğu fikrinin, açıklayıcılık gücünden bir şey kaybetmeden, prozodinin bilgi yapısının tek yapısal ifadesi olduğu ezgi-tabanlı bir yaklaşımla değiştirilebileceğini iddia etmektedir. Sözcük sırası değişimlerinin, Türkçe fonolojisinin ezgi desenleri arasında

sıralama kısıtları getirmesinden dolayı, prozodik olarak gerektirildiği iddia edilmektedir. Bu bağlamda sözcük sırası değişimleri bilgi yapısının ifadesinde bir sebep değil sonuç olarak görülmektedir. Bu iddiaların desteklenmesi için Steedman tarafından İngilizce için geliştirilmiş olan bilgi yapısı açıklamasını esas alan bir ezgi-tabanlı bilgi yapısı açıklaması Türkçe bilgi yapısının yapısal ifadesi için önerilmektedir. Bu açıklamaya göre, bilgi yapısal birimler doğrudan doğruya belli ezgi yapılarına sahip prozodik öbeklerle ilişkilendirilmektedir. Açıklamanın geçerliliği kayıt edilmiş konuşmaların perde periyodu analizleri yapılarak sağlanmaya çalışılmıştır. Açıklamayı açıklayıcılık yönünden desteklemek için bu zamana kadar konumsal açıklama getirilmiş olgulara sözdizimsel konum ya da stratejilere başvurmeyen prozodik açıklamalar getirilmeye çalışılmıştır.

Anahtar Kelimeler: Türkçe, bilgi yapısı, prozodi, sözcük sırası

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CHAPTER I

INTRODUCTION

In linguistic communication the same propositional content can be realized in various surface forms. These forms may differ in word order, intonation structure, the morphemes they are composed of, or any combination of the three.

One of the factors that affect how we put a proposition into words is our beliefs about how much the hearer knows and what s/he is attending prior to our utterance. From our, i.e. the speaker's, perspective then, a proposition can be divided into a part that we believe to be already known by the hearer, and a part that we believe to be conveying something that is new to the hearer. The dimension along which such partitionings are carried out is often called the *information structure*. It is the structural encoding of this extra-propositional ingredient of linguistic meaning that gives rise to different structural manifestations of the same propositional content.

The information structure signalled as such affects the discourse felicity of an utterance, in that the speaker's assumptions about the hearer's knowledge and attentional state should not contradict with what the hearer actually has in mind at the time of

the utterance, otherwise a pragmatic oddity that disrupts the communication arises.

Let us consider an example from English, where capitals indicate nuclear stress:

(1) *Who does John love?*

a. John loves MARY.

b. #JOHN loves Mary.

As Vallduví (1992) puts it, the difference between (a) and (b) “is not in what they say about the world, but in how they say what they say about the world”(p. 2). The speaker of (b) assumes the referent of *John* to be “new” to the hearer, hence marks it as such by nuclear stress. As the speaker’s assumptions contradict with what the hearer (who asked the question) actually has in mind, (b) is infelicitous in this context.

The means employed in structural encoding of the information structure shows a variation across languages, where available options are syntactic, prosodic and morphological. English is the typical example of a language that predominantly avails itself of prosodic means, as exemplified in (1), in realizing information structure.

On the other hand, flexible word order languages like Catalan, Hungarian, Czech etc. have been characterized as predominantly making use of their flexible word order, hence syntactic means, for the same purpose. An example adapted from (Vallduví and Engdahl, 1996) illustrates the point for Hungarian:

(2) *What did Attila fear from?*

a. Attila a FÖLDRENGÉSTŐL félt.

Attila the earthquake-ABL fear-3sg-PAST

‘Attila feared the earthquake’

b. # Attila félt a FÖLDRENGÉSTŐL.

In order to provide a felicitous answer to the question, the basic word order given in (b) is varied into that of (a) by moving the element representing the new information to the position immediately left of the verb.

Turkish, another flexible word order language, has long been recognized as a language that shows the characteristics of both classes. According to the widely established view, word order and its variation has been attributed the pragmatic function of realizing the information structure, while prosody has been given a secondary role where it interacts with word order. A typical example would be:

(3) *Who was afraid of the earthquake?*

a. Deprem-den Attila kork-tu.

earthquake-ABL Attila fear-PAST

‘ATTILA feared the earthquake.’

b. ATTILA depremden korktu.

c. #Attila depremden korktu.

d. #Depremden korktu Attila.

e. #Korktu Attila depremden.

Although sentences (c)-(e) are grammatical, they are not felicitous in this context, for they cannot structurally indicate that *Attila* is “new” to the hearer. (c) is in the arguably canonical order and as such signals *depremden* as “new” information, for the position immediately to the left of the verb is characterized as the canonical position for “new” information, whereas in (d) *Attila* occupies a position that is associated with

hearer known elements in Turkish. Among the felicitous answers, (a) exemplifies the syntactic strategy, where word order is varied in order to bring the element carrying “new” information to the position that is reserved for such elements, whereas in (b) the prosodic strategy is put to use signalling *Attila* as “new” without moving it from its canonical position.

This thesis is motivated by the doubt as to whether this common view does reflect the true nature of what lies there in a Turkish utterance that the speaker (hearer) makes use of in announcing (interpreting) the information structure, and it comes up with an answer on the negative, eventually proposing a new way to model information structure phenomena in Turkish. In particular, it argues that it is not the relative positioning of elements, but rather the way they are prosodically marked and put together, i.e. prosodic structure is the *sole* structural determinant of information structure in Turkish. The informational status of a word, say whether it is hearer known or “new”, is determined on the basis of the way it is prosodically realized in the utterance.

That is to say that the requirements imposed by the context are prosodic in nature, rather than positional. More plainly, (3a) and (3b) are felicitous in the context of the question *Who was afraid of the earthquake?* by virtue of having the right prosodic structure as opposed to having the right word order. However, represented as in (3), we do not yet see their prosodic structure in sufficient detail.

This is to claim that, as far as the means in realizing the information structure is concerned, there exists no essential difference between Turkish and English. Then the question arises: If Turkish avails itself of prosodic means, then why does it not do it the way English does, i.e. without varying its word order. I claim that the answer to

this question is to be found in the phonology of Turkish intonation, where it is observed that prosodic devices relevant to information structure cannot be put to use as freely as in English, due to the fact that Turkish phonology requires some intonation patterns to precede others. Due to this prosodic constraint, some prosodic structures can only be attained by varying the order of words.

In this setting, word order variation then turns out to be just a consequence as opposed to being a determinant in attaining the right information structure required by the context. In this respect, this thesis argues that, in an explanatory account of structural encoding of information structure in Turkish, the knowledge of relative positioning of sentential elements is dispensable without any loss of explanatory power, in effect rendering all the predications over positions and syntactic strategies superfluous.

In order to provide substance to these claims, a tune-based account, based on Steedman's account of English information structure (Steedman, 2000a), is proposed for the structural realization of information structure in Turkish, whereby information structural units are directly associated with prosodic phrases intonationally marked in certain ways. The validity of the account is tried to be established by the intonational analysis of recorded speech data. As for the explanatory value, the information structure phenomena that has received positional explanation in the relevant literature, are captured only in prosodic terms, without resorting to positions, syntactic strategies and such.

The thesis is organized as follows: Chapter II provides the background information that is needed to understand the tonal description used in describing the speech data and phonological terminology employed in the thesis. Chapter III provides a critical

review of the previous works on information structure in Turkish. Chapter IV is an exposition of Steedman's account of English information structure, which the present proposal follows in many respects. Chapter V provides some empirical observations about the phonology of Turkish intonation of which subsequent chapters make extensive use. Chapter VI presents a tune-based account of Turkish information structure through the discussion of structural manifestations of the informational units proposed by Steedman. Finally, Chapter VII further develops the account by offering prosodic explanations to some syntactic restrictions claimed in the literature, and outlines the conclusions of the thesis.

CHAPTER II

BACKGROUND

The most common way of analyzing speech data is obtaining a plot of fundamental frequency in Hz (F0) versus time in seconds.¹ Fundamental frequency is the parameter associated with perceived pitch; thus fundamental frequency plots represent the pitch variations of a speech segment. I shall refer to these plots as F0 curves throughout the thesis. Figure II.1 shows a typical F0 curve for the utterance ‘*Marianna made the marmalade.*’.

Tune is the fundamental frequency pattern of a speech segment. Pierrehumbert and Hirschberg characterizes “the difference between a typical declarative intonation and a question intonation [as] a tune difference” (p. 272). I shall be using tune interchangeably with *pitch contour* or simply *contour*. Every utterance is divided into *intonational phrases*, where every intonational phrase has its own tune. Intonational phrases are separated by *phrase boundaries*, which may be marked by some parts of tune, duration pattern or by pausing.

¹ This chapter is adapted from (Pierrehumbert and Hirschberg, 1990), where all the figures are from those supplemented with (Beckman and Elam, 1997) as Praat WAV and TextGrid files.

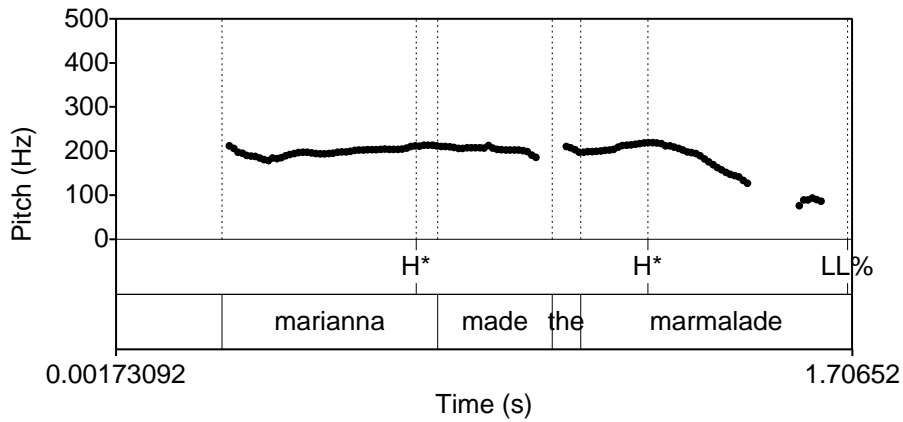


Figure II.1: F0 curve for *Marianna made the marmalade*

Stress is the relative prominence of syllables in an utterance, and may be realized by duration, amplitude and spectral characteristics of the speech segments and assigned by lexical-phonological rules. It is crucial to note that “[t]he stress pattern is independent of tune, in the sense that a given tune can be applied to materials with many different stress patterns and a given stress pattern can be produced with many different tunes” (p. 272). I shall clarify the point with an example after we see how tunes are represented.

In describing tunes, sequences of low (L) and high (H) tones are used. The tune of a phrase consists of a sequence of *pitch accent(s)*, *phrase accent(s)* and a *boundary tone*.

Pitch accents mark the lexical item they fall on as prominent. There are six different types of pitch accent in English. The most common one is H* and it represents a pitch peak on the stressed syllable. H represents that the pitch curve makes a peak, and the diacritic ‘*’ indicates that this peak is aligned with the stressed syllable. Figure II.1 shows the F0 curve of the utterance *Marianna made the marmalade*, where the orthographic representation of this utterance is as follows:

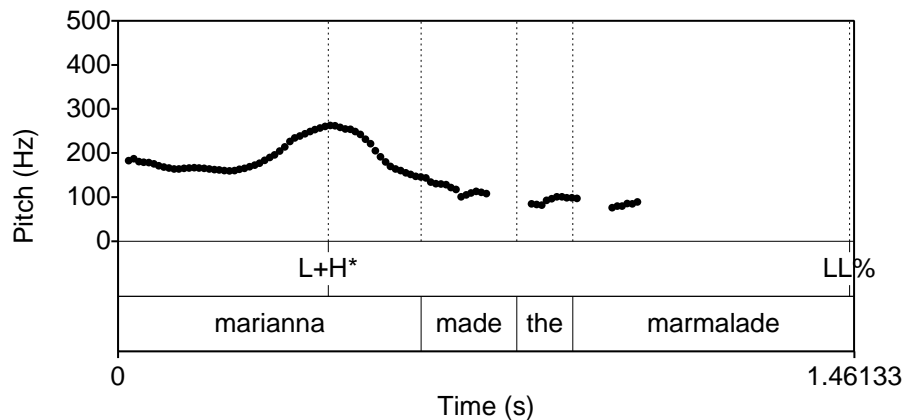


Figure II.3: F0 curve for the token *Marianna made the marmalade*

L+H*. Figure II.3 shows the F0 curve for example (6):

(6) Marianna made the marmalade.

L+H* LL%

The first peak in (4) and the peak in (6) are on the same syllable. However, in (6), in addition to the case in (4), there exists a low valley before the H tone, thus we have an L+H* accent instead of an H* in (6).

As it appears from the above examples, a word can be stressed by different pitch accents, in this respect stress and pitch accent are independent notions. The remaining three pitch accents in English are L*+H, H+L* and H*+L.

Pierrehumbert and Hirschberg distinguish between two levels of phrasing in English, *intermediate phrase* and *intonational phrase*. An intermediate phrase consists of one or more pitch accents followed by either an H- or L- tone that marks the end of the phrase.² These tones are called *phrase accents*. Phrase accents represent the change in pitch between the last pitch accent in the intermediate phrase and the beginning

² Diacritic ‘:’ is a ToBI convention that is not used by Pierrehumbert and Hirschberg (1990). They simply use H and L instead.

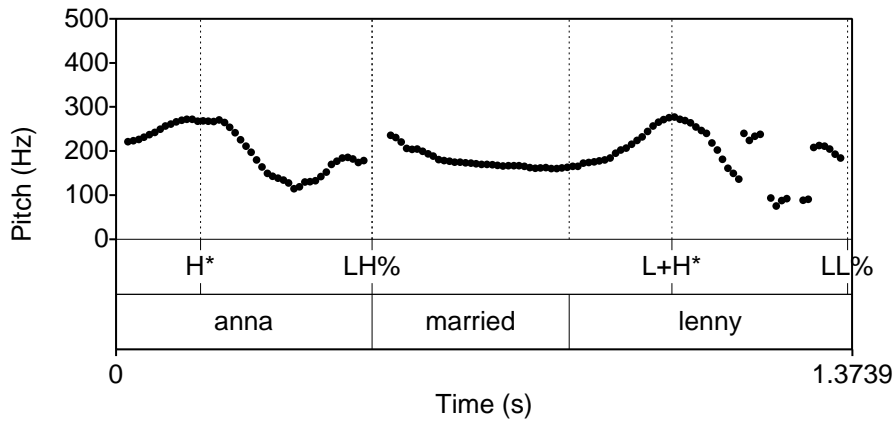


Figure II.4: F0 curve of the token *Anna married Lenny*

of the next intermediate phrase. One level up is the intonational phrase, which is composed of intermediate phrases. The end of an intonational phrase is marked with an additional H or L tone according to whether pitch rises or falls at the end. This tone is referred as the *boundary tone* and indicated by the diacritic '%'. Since the end of every intonational phrase is also the end of an intermediate phrase there are four ways an intonational phrase can end: LL%, HL%, LH% and HH%, where '-' of the phrase accent is dropped. These Boundary markers indicate the course of pitch from the last pitch accent in a phrase to the end of the phrase.

Let us consider an example to see how all these are put together. Example (7) is an utterance consisting of two intonational phrases, the F0 curve is given in Figure II.4:

- (7) Anna married Lenny.
 H* LH% L+H* LL%

Anna constitutes a phrase bearing the tune (or pitch contour) H* LH%, and this phrase is followed by another, *married Lenny*, which bears the contour L+H* LL%.

In this chapter, the background information that will be needed to understand the tonal

descriptions employed in Steedman's account and the account of this thesis is given.

In what respects I deviate from this tonal description in describing the phonology of

Turkish intonation will be made clear in Chapter V.

CHAPTER III

PREVIOUS WORK ON TURKISH INFORMATION STRUCTURE

This chapter aims to provide a critical review of the previous proposals concerning the organization and structural realization of information structure in Turkish. Some of my objections and criticisms will nevertheless have to wait the presentation of the proposal of this thesis, thus will be given in Chapter VII.

Erguvanlı (1979) sets out to investigate the function of word order and its variation in Turkish, and associates specific positions in a sentence with certain pragmatic functions. These functions are the realization of units of her trinomial information structural partitioning. She distinguishes three information structural units: topic, focus and background.

Following Prague School of Linguists (e.g., (Sgall, Hajičová, and Panevová, 1986)), Erguvanlı (1979) defines focus as “the most information bearing element in that context” (p. 44), that is, the element with the highest *communicative dynamism* in Praguean

terms. She argues that focus is “signalled by word order”(p. 47), in that the immediately pre-verbal position is the focus position in Turkish, and word order variation, being a syntactic strategy, carries a pragmatic function in bringing the constituent that is to be focused to this position. It is critical to note that Erguvanlı builds her arguments over a notion that I shall call *syntactic prominence* such that, a relatively defined position in a sentence carries an effect that renders the element it accommodates as *prominent*, where prominence, in her terms, “is a property of an element which causes that element, semantically or pragmatically, to stand out in relation to the other elements in the sentence”(p. 155).

Erguvanlı (1979) defines *topic* as what designates “the framework within which the predication is to hold”(p. 51). She associates topichood with sentence-initial position. According to her, another pragmatic function of word order variation in Turkish is to bring elements to sentence-initial position when they are to be announced as topics.

Erguvanlı (1979) characterizes the post-predicate region of a sentence as hosting her information structural category of *background*. She defines background information as the “material that is ‘supplementary’ to the communication of a linguistic expression”(p.71). For an NP, being supplementary means to be either “discourse predictable (i.e. has already been mentioned) or is recoverable from previous discourse (i.e. has not been mentioned but is implied or alluded to)”(p. 72), and not needed “to be used contrastively”(p. 75). Regarding the material that can occur post-predicately, Erguvanlı also suggests another category distinct from background information that she calls after-thought material, referring “to any material remembered after a sentence has been uttered”(p. 65). She suggests that “a slight pause” between the predicate and after-thought material is an intonational clue that decides between a background and

an afterthought reading. Extraposition of the elements to a post-predicate position, through Erguvanlı's conception, then emerges as a syntactic strategy that is once again attributed a pragmatic function, i.e. *backgrounding*.

Erguvanlı (1979, Ch. 4) also investigates the interaction between stress and word order variation in Turkish. Stress assignment constitutes an alternative to the syntactic strategy in marking an element as prominent in the sense we saw above. She distinguishes between two kinds of stress; the neutral unmarked stress that falls to the immediately pre-verbal position, and an emphatic/marked stress that can fall to any pre-verbal position and is louder than the former. Neutral stress always falls on the element in focus. To Erguvanlı, this is why this type of stress is confined to the immediately pre-verbal position, i.e. *focus position* of Turkish. She gives the following example (p. 156), where neutral stress is indicated by small capitals:

- (8) Ben o resm-i AHMET Bey-den al-dı-m
I that picture-ACC Ahmet Bey-ABL buy-PAST-1sg
'I bought that picture from Ahmet Bey'

To Erguvanlı, in (8) "there is complete correlation between the two strategies of marking prominence; they fall on the same constituent" (p. 158). Erguvanlı argues that "there is, however, room for using both strategies separately for marking prominence, since it is possible for a sentence to have more than one prominent element in it". In this case what is put to use is emphatic stress as in (9) (p.158), where italics indicate the emphatic stress:¹

¹ As Erguvanlı (1979) does not employ any tonal description, how her examples are meant to sound are rather obscure.

(9) *Kim* SINEMA-YA git-mek isti-yor, *kim* TIYATRO-YA?

who movie-DAT go-NOM want-PROG who theater-DAT

‘Who wants to go to the movies, and who to a play?’

Here, question words are marked prominent by emphatic stress, whereas *sinema-ya* (‘movie-DAT’) and *tiyatroya* (‘theater-DAT’) are signalled to belong to the informational unit of focus by the position they occupy.²

It is quite clear that Erguvanlı sees stress assignment and word order variation as two distinct strategies employed to meet pragmatic requirements imposed on the utterance by the context, that is, partitioning of an utterance into informational units. I suggest a way to put this claim to the test: If they are really distinct strategies, then there should be cases in which these two strategies contradict in their choices of what to signal as say focus in a sentence, (of course, provided that no other linguistic constraint is violated). Therefore, in order to support her argument it could have been enough for Erguvanlı to provide us with such a case. One example she gives, which we may consider in this respect, is the sentences in (10) (p.165), which she notes to be ungrammatical:

(10) a. *Ali-den Ayşe o kitab-ı İSTE-Dİ.

Ali-ABL Ayşe that book-ACC want-PAST

‘Ayşe asked for that book from Ali.’

b. *O kitab-ı Ali-den Ayşe İSTE-Dİ.

that book-ACC Ali-ABL Ayşe want-PAST

‘Ayşe asked for that book from Ali.’

² Note that Erguvanlı considers *tiyatroya* to be sitting at the immediately pre-verbal position.

Erguvanlı's explanation for their ungrammaticality goes as follows: Both (10a) and (10b) are marked in their word order as they are derived from,

(11) Ayşe Aliden o kitabı istedi.

which is the unmarked base form over which the syntactic strategies responsible for topicalizing and focusing operated. Through syntactic means, *kitabı* in (10a) and *Ayşe* in (10b) are signalled to be focus. The other strategy, which has the same pragmatic function word order variation has, marks this time the predicate to be the focus by assigning stress to it, hence contradicting the syntactically signalled prominences and thereby rendering these sentences ungrammatical. In this line of thought, Erguvanlı claims that “stressing the verb in a [sentence] with a marked word order would... be contradictory” (p. 166).

However, I do not agree with Erguvanlı as far as the ungrammaticality of her examples is concerned. They occur to me as grammatical, especially in contexts where the predicate is contrasted with another one. I give (12) as an example, where Erguvanlı's example (10) is extended in this direction:

(12) a. Ali-den Ayşe o kitab-ı İSTE-Dİ, ama alamadı.

Ali-ABL Ayşe that book-ACC want-PAST

‘Ayşe asked for that book from Ali, but couldn't get it.’

b. O kitab-ı Ali-den Ayşe İSTE-Dİ, ama alamadı.

that book-ACC Ali-ABL Ayşe want-PAST

‘Ayşe asked for that book from Ali, but couldn't get it.’

At the heart of the way Erguvanlı (1979) sees the matters lies the idea that order of the words, or more precisely their relative positioning, constitutes a linguistic resource

that we use to come up with the information structural categories. Hers has proven to be such an influential conception that, from then on, to my knowledge, almost all researchers interested in information structure and/or function of word order and its variation in Turkish has subscribed to this conception to some extent.

Erkü (1983) is another researcher who approaches word order in Turkish from a functional perspective. She aims “to give a systematic analysis of Turkish word order from a discourse functional point of view” (p.1). Like Erguvanlı (1979), she also sees the positioning of words as a linguistic resource that is interpreted to extract some discourse-pragmatic information. In particular, she claims that words of an utterance are ordered under the influence of two aspects of discourse structure. One is the information structural partitioning of the utterance; Erkü (1983) partitions an utterance into *topic* and *comment*, with further distinguishing a part of comment as *focus*. The second is *activated* versus *unactivated* status of discourse referents.

Although both authors use the term *topic* in exactly the same sense (see below for the point they diverge), Erkü’s (1983) topic definition is somewhat more specific compared to that of Erguvanlı (1979). Erkü (1983) defines topic as “what the speech act is about” (p.119), while her “comment refers to what is asserted, questioned, denied, etc. about the topic” (p.120). She employs two operational tests for topichood. One is the felicity of an utterance as an answer to a certain question, and the other is what she calls *bahsederek* (‘talk about’) test. For instance in:

- (13) Berke bahçe-ye çık-tı
Berke garden-DAT go out-PAST
‘Berke went out to the garden.’

Berke is the topic of the sentence either because (13) answers a question asked about *Berke* such as:

(14) *Berke nerede?*

Berke where

‘Where is *Berke*?’

or because (15) is a grammatical sentence, since according to *bahsederek* test, (13) can be “embedded in a *bahsederek* sentence [as in (14)] only if the NP preceding *bahsederek* has a topic function in” (13) (p. 127):

(15) *Berke-den bahsed-erek o-nun bahçe-ye*

Berke-ABL talk about-PROG he-GEN garden-DAT

çık-tığ-ı-nı söyle-di-n.

go out-REL-POS-ACC say-PAST-2sg

‘Talking about *Berke* you said that he went out to the garden.’

Erkü (1983) says very little in the dissertation on the relation between prosody and topic/comment structure. She notes that “topics are ordinarily set off from comments by a pause and do not carry the primary sentence stress”(p.130), and that primary sentence stress falls on the element at the immediately pre-verbal position within comment, which she calls focus and defines as “that part in the comment to which the speaker intends to direct the addressee’s attention”.

Erkü’s (1983) topics, unlike Erguvanlı’s (1979), need not always come first in the sentence. She gives the following exchange as an example (p. 136):

(16) Q: Kitab-ı kim oku-du?
book-ACC who read-PAST
'Who read the book?'

A: Ahmet oku-du kitab-ı.
Ahmet read-PAST book-ACC
'Ahmet read the book.'

in (16A) *kitab-ı* is a topic that follows its comment.³ Erkü distinguishes between topics that precede their comments and those that follow along the psychological dimension of what she calls *activation*. She defines activation as “a psychological status that certain concepts have in discourse. An activated concept is assumed by the speaker to be in the addressee’s consciousness at the time of the utterance” (p.142). This psychological status constrains the word order in that only the activated elements can appear post-verbally.

To Erkü (1983), string order is thus determined according to the following principles;

- (i) Unactivated topics precede their comments;
- (ii) focused constituent is placed at the immediately pre-verbal position.

Hoffman (1995) is another author who sees a direct relation between the relative position of a word and the information structural category it belongs, hence she tries

³ In my opinion (16A) is ambiguous between whether it is a sentence about *Ahmet* or *kitab* ('book'). Either of the two can pass Erkü's tests for topichood, where *prosodic phrasing* is to decide. Like:

- (i) (Ahmet) (okudu kitabı).
- (ii) (Ahmet okudu) (kitabı).

I argue that (i) is about Ahmet, whereas (ii) is about the book.

to develop a computational framework that would interpret the order of words in a sentence and come up with the information structure.

Hoffman employs an information structure representation that partitions an utterance into first *topic* and *comment* and then further divides comment into *focus* and *ground*.

Following Vallduví (1992), she defines topics as “the “address” in the hearer’s knowledge store where the information in the rest of the sentence can be stored” (p.114). For Hoffman, topics are strictly associated with sentence-initial position. A sentence may not have a topic, but if it has, it accommodates it in the initial position.

Again following Vallduví (1992), Hoffman defines focus as “the informative part of the sentence that makes a contribution of new knowledge within some context” (p. 131). Following the line of thought held by Erguvanlı (1979) and Erkü (1983), she argues that “positional information is often used to identify focus” (p.131), and she identifies the immediately pre-verbal position as the focus position in Turkish. She notes that focus is also associated with the primary stress, which falls to the immediately pre-verbal position.

Hoffman also investigates the issue of focusing verbs in Turkish, noting that they “can be focused... by placing the primary stress of the sentence on the verb instead of immediately pre-verbal position” (p.135).⁴

Hoffman (1995, p.137) identifies the material that is neither topic nor focus as the

⁴ Note that positional accounts should eventually resort to prosody when it is the verb whose information structural category is to be considered, as they lose their “pivot” with respect to which they otherwise identify positions. In (Erguvanli, 1979), for instance, verb is at the same *descriptive level* with information structural categories, as she characterizes a Turkish sentence schematically as:

T-X-F-V-B

where T=Topic, F=Focus, V=Verb, B=Background and X=any material that can come between Topic and Focus.

ground. Her ground is identical to Vallduví's *tail*, specifying how the information is to be entered to the address specified by the topic. Post-verbal positions are reserved for ground material. She gives the following example (p. 137):

- (17) a. Baba-m-la anne-m yüz-üyor-lar-dı.
 father-POS1sg-with mother-POS1sg swim-PROG-PLU-PAST
 ‘(My) dad and mom were swimming.’
- b. \emptyset_S Tayyar-a gel de-di-ler.
 \emptyset_S Tayyar-DAT come say-PAST-PLU
 ‘(They) said come on to Tayyar.’
- c. Kork-uyor-du Tayyar.
 fear-PROG-PAST Tayyar
 ‘He was afraid. Tayyar.’

In (17c) *Tayyar*, by virtue of appearing right to the verb, belongs to the ground partition of the information structure. Hoffman (1995) diverges here from Erkü (1983), in that *Tayyar* would be analyzed as a topic by the latter author.

Kılıçaslan (1994) attempts to bring together two approaches to information structural articulation, namely Vallduví's (1992) trinomial articulation consisting of *Link*, *Focus* and *Tail*, and the Praguean concept of communicative dynamism (Sgall, Hajičová, and Panevová, 1986).

Following Vallduví (1992), Kılıçaslan (1994) partitions a sentence into focus and ground. Ground is further partitioned into *link* and *tail*.⁵ On the assumption that the

⁵ Overlapping parts of the terminology can be identified with respect to Vallduví's trinomial articulation as follows: Vallduvian focus corresponds to “focus” of (Erguvanli, 1979; Erkü, 1983; Hoffman,

knowledge-store of the hearer is organized by file-cards corresponding to discourse entities, a *link* specifies the particular file-card that the information carried in the sentence is to be written. *Focus* is the informative part of the sentence, that is, the information that is not present on the file-card pointed at by the link before the utterance. Finally, *tail* specifies how and exactly where the information conveyed in *focus* should fit in the file-card, whether it should be added as new information or as an update for an already established one.

Kılıçaslan (1994) incorporates the Praguean concept of communicative dynamism into this picture, on the grounds that Vallduví's trinomial articulation is not adequate to capture information structure phenomena in Turkish. Communicative dynamism is the relative degree of how much a sentential element contributes to the advancement of communication. For instance, discourse-old information such as topics, in the sense of the authors I discuss in the present section, are communicatively less dynamic than foci (see (Sgall, Hajičová, and Panevová, 1986, Chapter 3)). For the inadequacy of Vallduví's (1992) trinomial articulation, Kılıçaslan gives the following example (p. 12):

(18) Q: Ben yokken birşey ol-du-mu?

I exist.neg.when anything happen-PAST-Q

'Did anything happen, when I was away?'

A1 Baba-n Ankara-dan ara-dı.

father-POS2sg Ankara-ABL call-PAST

1995); Vallduvian ground corresponds to "topic+ground" of (Hoffman, 1995), "topic + background" of (Erguvanli, 1979) and "topic + (comment - focus) of (Erkü, 1983); Vallduvian link corresponds to "topic" of (Erguvanli, 1979; Erkü, 1983; Hoffman, 1995); Vallduvian tail corresponds to "background" of (Erguvanli, 1979), "comment - focus" of (Erkü, 1983) and "ground" of (Hoffman, 1995).

A2 Baba-n ara-dı Ankara-dan.

father-POS2sg call-PAST Ankara-ABL

‘Your father called from Ankara.’

noting that (18A2) is more felicitous an answer than (18A1) to (18Q). According to Kılıçaslan, felicity of (18A2) comes from its linear ordering. He argues that *Ankara-dan* is the communicatively least dynamic element in the context under discussion, in that “what is of special importance from the speaker’s point of view is the fact that someone called... [whereas] the other element conveying the identity of the place from which the hearer’s father called... does not make a significant contribution to the completion of the communication.” Therefore, *Ankara-dan* can most felicitously occur in a post-verbal position, which he characterizes as hosting the material of low communicative dynamism. Kılıçaslan argues that Vallduví’s trinomial articulation is inadequate for Turkish, as it is blind to this difference in felicity between these sentences.⁶ Kılıçaslan’s argument appears to be incomplete, for he does not consider:

(19) Ankara-dan Baba-n ara-dı.

Ankara-ABL father-POS2sg call-PAST

‘Your father called from Ankara.’

which is equally, if not more, felicitous an answer to (18Q).

For the linguistic realization of the above mentioned categories, Kılıçaslan distinguishes between syntactic means and the prosodic options alternative to them. He schematizes the syntactic means as follows:

(20) $(XP_L) XP_T^* XP_F^+ \text{Verb} \{XP_F, XP_T\}^*$

⁶ Vallduví’s trinomial articulation takes the two sentences as identical as far as information structure goes, since both are composed of only focus.

Links are confined to sentence-initial position as was the case in Hoffman’s (1995) proposal. Kılıçaslan crucially observes that besides appearing sentence-initially, links are, in spoken language, “associated with a pitch accent which may be described as a rising tone... [and] in most cases, an optional pause takes place as a boundary between the link and the rest of the sentence” (p. 27). However, I am not with him when he states that an element marked as such “cannot occur in a place other than the sentence-initial slot” (p. 28), giving the following example for justification:⁷

(21) *Oya *Ayşe-ye*, kitab-ı ver-di.

Oya Ayşe-DAT book-ACC give-PAST

‘Oya gave the book to Ayşe.’

We shall see in Section VII.1 that, contrary to Kılıçaslan’s statement, it is quite natural to have a sentence like (21), hence links are not confined to the sentence-initial slot.

Kılıçaslan (1994) gives the name *point of orientation of the sentence* to what the authors above called *focus*. Kılıçaslan also shares the opinion that “the pre-verbal slot *syntactically* signals the point of orientation in Turkish sentences” (p. 33, my emphasis), hence word order variation is a syntactic strategy for him that works to bring elements to be focussed to the immediately pre-verbal slot.

Kılıçaslan (1994) claims that there is also an alternative prosodic strategy that is responsible for signalling the point of orientation of a sentence. This strategy consists of assigning an H* accent to the element that is to be signalled as the point of orientation, as in (22A):

⁷ Italics designate the rising accent and comma the optional pause.

(22) Q: Pencere-yi kim kır-dı?

window-ACC who break-PAST

‘Who broke the window?’

A: ALI pencere-yi kır-dı.

Ali window-ACC break-PAST

‘Ali broke the window.’

Kılıçaslan sees (22A) as an alternative to (23), where the point of orientation is signalled this time syntactically by bringing *Ali* to the pre-verbal slot.

(23) Pencere-yi Ali kır-dı?

window-ACC Ali break-PAST

‘Ali broke the window?’

Thus, to Kılıçaslan there are two distinct strategies, i.e. one syntactic and one prosodic, that are put to use in linguistic realization of information structure in Turkish. Then, we can once again put this claim to test by asking for the cases where these two independent strategies contradict or coincide in their choices of the element to be signalled as the point of orientation.

Kılıçaslan (1994) has two arguments in favor of his claim that there are two distinct strategies. First, he argues that the prosodic strategy can be put to use provided that “the pre-verbal element stays in situ” (p.40); that is to say, when the syntactic strategy that moves an element to focus position is not used. As support to his argument, he gives the oddity that results from the use of the prosodic strategy without an in situ pre-verbal element as in (24):

(24) *PENCERE-YI Ali kır-dı

window-ACC Ali break-PAST

‘Ali broke the window’

Regarding sentences like (24), he argues that “if in a sentence these two ways of marking prominence are used on two distinct elements, [e.g. prosody on *pencereyi* and syntax on *Ali*,] then this will imply that the sentence has two points of orientation”, hence this would be “an obstacle in interpreting the sentence” (p.40).

However, there are contexts where constructions like (24) are felicitous. Consider the exchanges in (25) and (26) for instance:

(25) A: Ben, kapı-yı ALİ kır-dı zanned-iyor-du-m.

I door-ACC Ali break-PAST think-PROG-PAST-1sg

‘I thought that Ali crashed the DOOR.’

B: Hayır, PENCERE-Yİ Ali kır-dı.

No window-ACC Ali break-PAST

‘No, it was the WINDOW that Ali crashed.’

(26) Q: Kereviz-i sen mi yap-tı-n? Çok güzel ol-muş.

celery-ACC you Qtag do-PAST-2sg much beautiful become-PAST

‘Was that you who cooked the celery. That was delicious.’

A: Hayır, PIRASA-YI ben yap-tı-m. O nasıl ol-muş?

No leek I do-PAST-1sg that how become-PAST

‘No, I cooked the LEEK. What about that?’

The congruence of these exchanges suggests that Kılıçaslan's point is not well-supported. Consequently, once again a claim that syntactic and prosodic strategies contradict in signalling focus seems to stay unsupported.

The second argument Kılıçaslan puts forward in support of his claims is that “it is not very usual to put [an H*] accent on an [immediately] pre-verbal element” as it would be needless to H* accent an element that has already been “signalled as the point of orientation through syntax”(p. 39). In this line, he regards a sentence like (27) unacceptable:

(27) *Pencere-yi ALİ kırdı.

A claim that the immediately pre-verbal position cannot receive H* accent seems to be unwarranted given the fact that this position is characterized as the intonational center of a canonical Turkish sentence by virtue of receiving the maximum pitch. Kornfilt (1997) puts the point as, “In a regular statement, the intonation peak is on the pre-verbal constituent of the sentence. This means that intonation peak will be located on whichever syllable carries primary stress for that pre-verbal constituent”(p. 505).

Regarding the two strategies, Kılıçaslan concludes that:

“In Turkish there are two ways of signalling the point of orientation of a sentence. This element is either marked by the H* pitch accent or brought into the pre-verbal position....any of these strategies can be felicitously used. However, the latter, as a syntactic means, is *preferred* to the former.”

[my emphasis](p. 62)

While agreeing with Kılıçaslan (1994) in that there are two distinct strategies that Turkish avails itself of in the linguistic realization of information structure, İşsever (to

appear) argues that the choice between the two is not a matter of preference but rather “each... is used for a distinct focusing strategy” (p. 1).⁸

İşsever (to appear) distinguishes between two types of foci as c(ontrastive)-focus and p(resentational)-focus. These notions are “defined... with respect to the accessibility of an element from the context. P-focused elements are not accessible while c-focused elements are accessible in the sense that they are members of a set defined by the context” (p. 8). P-focus reading is only available when the syntactic strategy is employed, whereas a c-focus reading can be obtained through either of the strategies.⁹

(28) Q: Fatma-y₁ kim ar-ıy_{or}?

Fatma-ACC who look for-PROG

‘Who is looking for Fatma?’

A1: Fatma’y₁ [_FALİ] arıy_{or}. (p-focus)

A2: [_FALİ] Fatma’y₁ arıy_{or}. (*p-focus)

‘Ali is looking for Fatma.’

For example, (28A2), which is attained through the prosodic strategy, serves a felicitous answer to (28Q) only in contexts where *Ali* is a member of a set defined by the context, whereas there is no such restriction for (28A1), which is attained through the syntactic strategy, i.e. for (28A1), both p-focus and c-focus readings are available. In this respect, İşsever puts immediate pre-verbalness as a syntactic criterion for the availability of a p-focus reading.

⁸ İşsever (to appear) adopts Vallduví’s (1992) trinomial articulation of *link*, *focus* and *tail*, with one exception that he uses topic instead of link.

⁹ The syntactic strategy that İşsever (to appear) argues to be employed in Turkish in realizing the focus is due to Vallduví and Engdahl (1996), thus I shall consider it when discussing Vallduví and Engdahl’s (1996) proposal for the linguistic realization of information structure in Turkish below. However, for now, note that their syntactic strategy consists of moving ground elements from focus position, in contrast to moving the focal element to this position.

Before moving on to İşsever's arguments about the realization of the other two informational categories, I want to discuss another proposal, that of Vallduví and Engdahl (1996), with which İşsever's account has many overlapping points.

Vallduví and Engdahl (1996) characterize Turkish as being in command of both syntactic and prosodic strategies in the structural encoding of informational units of Vallduví's (1992) trinomial information structure articulation.

Vallduví and Engdahl (1996) argue that although the syntactic strategy employed in Turkish may, at first glance, seem similar to the one used in Hungarian, where the element to be focused is brought to a designated canonical focus position, due to the syntactic similarities between Turkish and Catalan, and dissimilarities between Turkish and Hungarian, the syntactic strategy of Turkish can best be characterized as resembling that of Catalan.

According to this strategy, there lies a focus domain to the left of the verb in Turkish, upon where the primary stress falls, and non-focal elements, i.e. ground material, are detached from this domain either to a post-verbal position or to a pre-focus position leaving a trace behind, as exemplified by İşsever (to appear, p.10):

(29) a. Fatma-y₁₁ [F ALİ t₁] ar-ıyor.

Fatma-ACC Ali look for-PROG

'Ali is looking for Fatma.'

b. Ali₁ kitab-ı₂ [F t₁ t₂ AYŞE-YE ver-di.]

Ali book-ACC Ayşe-DAT give-PAST

'Ali gave the book to Ayşe'

c. Ali₁ [_F t₁ kitab-ı AYŞE-YE ver-di.]

d. Ali₁ Ayşe-ye₂ [_F t₁ KİTABI t₂] ver-di.

As an alternative to the syntactic strategy, also available is a prosodic strategy similar to the one in English that can focus elements in their canonical positions by assigning them nuclear stress, hence “Turkish shows, in one language, the characteristics of both Catalan and English” (p. 488).

(30) Bir hizmetçi yemek-ten önce masa-nın üzerine NOT-u

a servant meal-ABL before table-GEN top-POS-DAT note-ACC

bırak-tı.

leave-PAST

‘A servant put the note on the table before lunch.’

Being a canonical sentence with respect to string order and intonation, (30) has a focus consisting of the direct object. In the following examples (a) sentences illustrate the syntactic strategy, while (b) sentences give their prosodic alternatives as operated on (30):

(31) When did a servant put a note on the table?

a. Bir hizmetçi masa-nın üzerine not-u [_F YEMEK-ten önce] bırak-tı.

b. Bir hizmetçi [_F YEMEK-ten önce] masa-nın üzerine not-u bırak-tı.

(32) Where did a servant put a note before lunch?

a. Bir hizmetçi yemek-ten önce not-u [_F MASA-nın üzerine] bırak-tı.

b. Bir hizmetçi yemek-ten önce [_F MASA-nın üzerine] not-u bırak-tı.

(33) Who put a note on the table before lunch?

- a. Yemek-ten önce masa-nın üzerine not-u [_FBir HİZMETÇİ] bırak-tı.
- b. [_FBir HİZMETÇİ] yemek-ten önce masa-nın üzerine not-u bırak-tı.

As Kılıçaslan (1994), Vallduví and Engdahl also hold the view that the prosodic indication of focus by H* accent assignment is limited to canonical ordering. I once again argue that this is not a well-supported claim. To further substantiate my point, I present the following sentences, that I claim to be acceptable (not all possibilities are given):¹⁰

- (34) a. [_FYEMEK-ten önce] bir hizmetçi masa-nın üzerine not-u bırak-tı.
- b. [_FNOT-u] yemek-ten önce bir hizmetçi masa-nın üzerine bırak-tı.
 - c. Not-u [_FBir HİZMETÇİ] yemek-ten önce masa-nın üzerine bırak-tı.

As for the *tail* material, Vallduví and Engdahl (1996) argue that *tails* “may appear in a number of configurations”(p.490), such as (i) “to the left of the pre-verbal focus domain (but to the right of links)”(p.496), (ii) in their canonical position when the prosodic strategy is used,¹¹ and (iii) in a post-verbal position as a result of right detachment.

Vallduví and Engdahl (1996) argue that “Turkish links are signalled both by intonation and position”(p.491). Links carry a pitch accent that is identified as a rising tone by Kılıçaslan (1994), and “must be sentence-initial as well”(p.491). An example from (Kılıçaslan, 1994, p. 30-31) illustrates their point:

¹⁰ This is not to deny the fact that these sentences are *marked*. This is quite natural given that they deviate from the neutral case in both order and intonation. Rather, the point is that they are still interpretable as far as both their propositional meaning and information structure is concerned, and there are contexts in which they can felicitously occur.

¹¹ Again assuming that the prosodic strategy applies only on the canonical order.

(35) *Çaydanlık* masa-nın üst-ü-nde...

teapot table-GEN above-POS-[LOC]

‘The teapot is on the table...’

a. ... fakat *şekerliğ-i* dolab-a koy-du-m.

but sugar bowl-ACC cupboard-DAT put-PAST-[1]sg

‘... but the sugar bowl I put in the cupboard.’

b. *... fakat dolab-a *şekerliğ-i* koy-du-m.

c. *... fakat dolab-a koy-du-m *şekerliğ-i*.

where (35b) and (35c) are unacceptable on the grounds that *şekerliğ-i*, the element that is to serve as *link*, violates the sentence-initiality requirement of linkhood.

As I noted above, to Vallduví and Engdahl (1996), tails can appear at sentence-initial position provided that they do not precede a link (see (i) in the discussion of tails). Thus it is the presence of a rising tone that decides between a link and a tail interpretation for sentence-initial elements. They give the following example (p.491-492):

(36) a. *Başkan* [_FÖL-DÜ.]

president die-PAST

‘The president died.’

b. *Başkan* [_FÖL-DÜ.]

c. [_FÖL-DÜ] *başkan*.

In (36a) *başkan* (‘the president’) bears the link marking rising tone, hence is a link, whereas it is a tail in (36b) and (36c).

Under the light of the above observations Vallduví and Engdahl (1996) argue that while making use of “a complete set of syntactic operations... to realize information packaging” (p. 497), Turkish, at the same time, possesses the intonational plasticity that has been observed in Germanic, enabling it to make use of both the A-accent and the B-Accent in marking *focus* and *link* respectively.¹²

We have seen above the arguments of İşsever (to appear) about the focus in Turkish. Now let us consider his arguments about the other two categories of the information structural partitioning he employs following Vallduví (1992), and Turkish information structure in general.

Following the other authors mentioned above, İşsever (to appear) subscribes to the claim that links¹³ are sentence-initial in Turkish. İşsever (to appear) introduces also a phonological requirement for links, though quite different from the one proposed by Kılıçaslan (1994) and Vallduví and Engdahl (1996), holding the view that “[i]n addition to their crucial s-initial position, there is also a prosodic requirement for [links]: they cannot take a primary sentential stress, i.e. focal accent. Therefore Turkish links are defined both syntactically and phonologically” (p. 4). Thus to İşsever (to appear), any element that occurs sentence-initially without the focal accent is to be given the status of a link. This contrasts with the view held by Kılıçaslan (1994) and Vallduví and Engdahl (1996) that a sentence-initial element is to be interpreted as a tail if it lacks the link marking (see (36)).

¹² To my knowledge, the terms A-accent and B-accent are originally due to Jackendoff (1972). A-accent is associated with the focal accent that realizes the nuclear stress, whereas B-accent usually denotes a continuation rise.

¹³ İşsever (to appear) uses topic instead of what Vallduví (1992) calls link, noting that “link is equal to the term topic in all respects” (p. 2). Although İşsever (to appear) does not specify the sense in which he uses the term *topic*, the context implies that he uses it in Erkü's (1983) sense. It should nevertheless be noted that İşsever's point is not entirely warranted, since Vallduví's (1992) link is not a mere terminological variant of what Sgall, Hajičová, and Panevová (1986) calls topic for instance.

İşsever (to appear) also argues that in sentences consisting of only focus and tail partitions, “it seems that Turkish employs a kind of precedence rule, which requires that tails must be preceded by foci” (p. 5). He gives the following example:

(37) A: Ali-yi okul-a kim götür-ecek?

Ali-ACC school-DAT who bring-FUT

‘Who will bring Ali to the school?’

B1: ? Okul-a [_F BABA-SI] götür-ecek.

school-dat father-POS bring-FUT

B2: [_F BABA-SI] götür-ecek okul-a.

‘His father will bring him to the school.’

İşsever argues that sentence-initial occurrence of the tail *okula* in (37B1) is pragmatically odd as compared to (37B2) where it is preceded by the focus *babası*. However, I argue that, as far as their pragmatic oddity is concerned, the difference between (37B1) and (37B2) is not as clear as İşsever suggests, on the grounds that both can be improved. In the context İşsever has in mind, speaker of (37B1) and (37B2) is not required to announce a link, that is, s/he takes the speaker of (37A) to be already on the file-card associated with *Ali*.¹⁴ Then, it follows that *Ali* can also appear as tail in the same context without disrupting the congruence of the discourse. Then the following sentences are also among the possible answers to (37):

(38) a. Okul-a [_F BABA-SI] götür-ecek Ali-yi.

¹⁴ We can safely assume this, since otherwise İşsever would have to consider (37B2) as odd as well, for links must be overt.

b. [_F BABA-SI] götür-ecek okul-a Ali-yi.

c. Okul-a Ali-yi [_F BABA-SI] götür-ecek.

We see that when *Ali-yi* is added (as in (38a) and (38b)), both (37B1) and (37B2) are improved to a degree that they are arguably indistinguishable as far as discourse felicity is concerned, and note that *okula* is still a tail preceding the focus in (38a) and (38c).

Under the light of these observations I suggest that pragmatic oddity in (37) does not result from the violation of a preceding rule like the one proposed by İşsever, but rather it results from the omission of the direct object while retaining the other elements. The following example provides support for the claim:

(39) Q: Ali-yi okul-a baba-sı ne zaman götür-ecek?

Ali-ACC school-DAT father-POS when take-FUT

‘when will his father take Ali to school?’

A1: #babası okula [_FSABAH] götür-ecek.

father-POS school-DAT morning take-FUT

A2: #okula babası [_FSABAH] götürecek.

A3: #babası [_FSABAH] götürecek okula.

A4: #okula [_FSABAH] götürecek babası.

A5: # [_FSABAH] götürecek babası okula.

A6: # [_FSABAH] götürecek okula babası.

Here *babası* and *okula* are tail material, while *sabah* is the focus. All the answers (39a-f), where the direct object *Ali-yi* is missing, are odd regardless of whether focus precedes tail or not.

In this respect, İşsever's claims that Turkish employs a precedence rule in focus-tail sentences, and that sentence-initial tails are strictly disallowed in Turkish appear to be too strong to be built on such inconclusive data.

In this chapter I tried to review previous works that investigated various aspects of information structure in Turkish. The concentration was on the claims about the organization of information structure, i.e. how an utterance is partitioned into informational units, and how this organization was structurally encoded. In the rest of the thesis, I shall try to argue that this picture is short in reflecting the nature of the linguistic resource that lies in a Turkish utterance that the speaker (hearer) makes use of in announcing (interpreting) the information structural partitioning that is required by the context.

Before moving onto what the thesis proposes for Turkish information structure, Steedman's account of English information structure, which the present study follows in many respects, will be briefly presented in the next chapter.

CHAPTER IV

STEEDMAN'S ACCOUNT OF ENGLISH INFORMATION STRUCTURE

This chapter presents the tune-based account of English information structure that has been developed by Steedman (1991; 2000a; 2000b; 2002). Here, we will be concerned only with what Steedman proposes as *information structural primitives* and how he maintains the relation between these primitives and intonation structure of English. Here we will not delve into how Steedman situates information structure in the broader picture of his theory of Combinatory Categorical Grammar (Steedman, 2000b).¹

Let us start by considering two felicitous exchanges given in (40) and (41) (from (Steedman, 2000a, p. 654)):²

¹ The parts of the cited literature that are most directly related to our current concerns are (1991, §3.1), (2000b, Chapter 5), (2000a, §§2-4) and all but §5 of (2002). (Steedman, 1991) touches the present issues least among all, and its combinatory formulation of information structure is also out-dated by Steedman's subsequent work; (Steedman, 2000b, Chapter 5) is a revised and reworked version of (1991); Steedman extends the coverage of his theory in (2000a) by discussing more pitch accents, boundary tones and introducing more discourse functions than were present in (2000b); (Steedman, 2002) brings further extensions.

² Capitalization of the words bearing the pitch accents and parentheses marking the prosodic boundaries are the devices used by Steedman for expository purposes and are not part of Pierrehumbert and Hirschberg's (1990) system. (Steedman, 2000b, p. 97)

(40) Q: I know who proved soundness. But who proved COMPLETENESS?

A: (MARCEL) (proved COMPLETENESS)

H* L L+H* LH%

(41) Q: I know which result Marcel PREDICTED. But which result did Marcel PROVE?

A: (Marcel PROVED) (COMPLETENESS)

L+H* LH% H* LL%

Utterance (41A) is composed of two prosodic phrases. The first prosodic phrase is *Marcel proved*, where an L+H* accent falls on *Marcel* and the phrase ends with an LH% boundary, hence an L+H* LH% contour is born by the phrase. The second phrase consists of the word *completes* accented with an H*, and ends with an LL% boundary. (41A), which serves a felicitous answer to (41Q), causes a pragmatic oddity when given as a response to (40Q). The same situation holds for (40A) and (41Q). So the same propositional content (also same words in the same order) is cast in different intonational structures in (40A) and (41A) in order to realize the information structure imposed on them by the context established by the preceding questions. The curious thing in all this is that the same tunes appear in both (40A) and (41A) but in reverse order and marking different prosodic phrases, signalling a systematic relation between tunes and information structural units. Steedman points to this systematicity when he says, “The intuition that these tunes strongly convey systematic distinctions in discourse meaning is inescapable.” (2000a, p. 655)

Then the question arises: Which information structural categories are these tunes systematically related to? Or equivalently: How does Steedman’s theory carry the information structural partitioning of an utterance? Steedman, following some others

(see the references cited in (Steedman, 2000a, §3)), proposes to capture information structural partitioning of an utterance along two independent dimensions. These are the binary oppositions of *theme-rheme* and *kontrast-background*.³ Theme roughly corresponds to the part of the utterance that links it to the preceding discourse, whereas rheme is the part that moves the discourse forward by contributing novel information. Steedman (2000a, pp. 653-654) claims that these information structural primitives, *at least* in English, are systematically associated with certain phrasal tunes. In particular Steedman proposes that the tune L+H* LH% is associated with the information structural category of *theme*, whereas the tune H* L and H* LL% is associated with rheme.

Consider the following exchanges from (Steedman, 2000b, p. 98):

(42) Q: Well, what about MANNY? Who married HIM?

A: $\overbrace{(\text{ANNA})}^{\text{Rheme}} \quad \overbrace{(\text{married MANNY.})}^{\text{Theme}}$
 H* L L+H* LH%

(43) Q: Well, what about ANNA? Who did SHE marry?

A: $\overbrace{(\text{ANNA married})}^{\text{Theme}} \quad \overbrace{(\text{MANNY.})}^{\text{Rheme}}$
 L+H* LH% H* LL%

In (42A) *married Manny* bearing the L+H* LH% contour is the *theme* and *Anna* bearing the H* L contour is the *rheme*, whereas in (43) we have a different *theme/rheme* partitioning where *Anna married* this time bearing the L+H* LH% contour constitutes the *theme* and *Manny* this time bearing the H* L contour constitutes the *rheme* of the utterance.

³ The term *kontrast* first appeared in (Steedman, 2002) and replaced the term *focus* which had been used for the same concept till then.

The best way of grasping what is meant by theme is to think of it as being established by a wh-question, and using the notation of λ -calculus to represent it. For example the theme introduced by the question (42) can be represented in the λ -notation as follows:⁴

$$(44) \lambda x.marry'manny'x$$

The λ operator identifies x as a variable “by means of which a value may be substituted into the expression to the right of the dot”(Steedman, 2000a, p. 657). λ -notation enables us to define functions or concepts. The expression in (44) defines the concept of *marrying manny*, or it is a function that maps individuals onto propositions that state that they are married to Manny. This theme is signalled by the phrase *married Manny* bearing the theme contour L+H* LH% in (42A). This theme presupposes a set of individuals that may have married Manny. This set may look like (45) in a certain context:

$$(45) \left\{ \begin{array}{l} sue' \\ mary' \\ anna' \end{array} \right\}$$

The set of possible rhemes that the context makes available is called Rheme Alternative Set (henceforth RAS). Then the rheme of (42A), which is *Anna* as it bears the H* LL% contour, restricts this set to *anna'*. When this rheme is supplied to the theme in (44),

⁴ AB indicates that a function A is applied to an argument B . To give an example, the propositional meaning of the sentence ‘*John sleeps.*’ can be represented as:

$$sleep'john'$$

When we have a function that takes two arguments, say the predicate *love*, then the propositional meaning of the sentence ‘*John loves Mary.*’ becomes:

$$love'mary'john'$$

Function application associates to left, meaning that $love'mary'john'$ is equivalent to $(love'mary')john'$

anna' is substituted for *x* in the λ -expression thus reducing it to the proposition:

(46) *marry'manny'anna'*

which is the proposition expressed by the sentence (42A).

Steedman maintains *kontrast* as marking the “*interesting part(s)* of either information unit” (2000b, p. 106). *Kontrast* is distinguished from background by the location of the pitch accent within the theme or rheme, thus *kontrast* marking applies to individual word(s) that bear the pitch accent(s) in contrast to theme/rheme marking, where what is marked by a specific tune is a prosodic phrase.

Let us consider the exchange in (40), repeated here as (47) with *kontrast* and background indicated for theme, in order to see the information structural function of *kontrast*/background division:⁵

(47) Q: I know who proved soundness. But who proved COMPLETENESS?

A: $\overbrace{(\text{MARCEL})}^{\text{Rheme}} \underbrace{(\underbrace{\text{proved}}_{\text{background}} \underbrace{\text{COMPLETENESS}}_{\text{kontrast}})}^{\text{Theme}}$

H* L L+H* LH%

Here there are two themes that the context makes available:

(48) $\left\{ \begin{array}{l} \lambda x.\text{prove}'\text{completeness}'x \\ \lambda x.\text{prove}'\text{soundness}'x \end{array} \right\}$

namely someone’s proving soundness and someone’s proving completeness. The set consisting of alternative themes like (48) are called Theme Alternative Sets (henceforth TAS). The theme of (47), which is *proved completeness* as indicated by prosodic structure, restricts this theme by marking the term that differs between the λ -expressions

⁵ Throughout this study we will not be concerned with the *kontrast*/background distinction in the rheme, so it will not be discussed here.

as kontrast by the L+H* accent. If there were no such alternatives in the context, then (47) would be infelicitous. The rest of the analysis is same as the above example.

In this chapter I tried to familiarize the reader with what Steedman proposes as information structural primitives, i.e. theme/rheme and kontrast/background, and how he maintains the relation between these primitives and intonation structure of English. We will not delve here into how Steedman situates information structure in the broader picture of the grammar i.e. composition of information structure from the surface form of an utterance. In its entirety, Steedman's theory of Combinatory Categorical Grammar (CCG) offers a syntax-phonology interface where intonation structure is isomorphic to surface derivational structure and canonical predicate-argument structure and information structure are both delivered through the surface derivation (see (Steedman, 2000b)). In this thesis, I shall follow Steedman's information structural primitives and line of thinking in developing a similar tune-based account of Turkish information structure. The CCG formulation of the account will be left as a topic for future research.

CHAPTER V

ON THE PHONOLOGY OF TURKISH INTONATION

To my knowledge Nash (1973) is the first to argue that Turkish has a rich tune system (speech melody in her terms). The present study explores the information structural significance of this tune system.

The relation between prosody and information structure is a matter of prosodic prominence. However, not every natural language maintains this prosodic prominence by exactly the same means. Godjevac (2000, p. 14) discusses three types of prosodic prominence that natural languages make use of in the phonological realization of information structure.¹ These are (i) pitch accent placement, (ii) phonological phrasing, and (iii) pitch range expansion.

Regarding Godjevac's (2000) classification, the present claim is that Turkish can most precisely be situated among languages that use pitch accent placement, since it has long been recognized in the standard literature that Turkish has a *pitch accent*

¹ Godjevac (2000) concerns herself with the prosodic prominence particularly associated with *focus exponent*. A term that corresponds to Steedman's rheme kontrast and also used by Büring (1997) in the same sense. However, as the types of strategies she distinguishes also reflect how Theme is signalled, I see no harm in taking her as generally classifying languages according to the type of prosodic means they use in realizing the information structure.

system (Nash, 1973; Underhill, 1976; Lewis, 2000; Van Der Hulst and Van De Weijer, 1991; Kornfilt, 1997). However, we need to be cautious about what exactly is meant by *pitch accent*. Pitch accent is directly associated with a rise in pitch on the stressed syllable of a word, and it has usually been confounded or identified with stress. For instance, Lewis (2000) identifies stress with accent and uses the two interchangeably; Van Der Hulst and Van De Weijer (1991) start their section on stress by identifying stress with “a high tone on the accented syllable” and announcing that they “will continue, however, to use the term stress”(p. 15); Kornfilt (1997, p.503) identifies loudness and high pitch as phonetic correlates of stress and equates primary stress and intonation peak and uses them interchangeably. Erguvanlı (1979) distinguishes between two types of stress in Turkish, putting the distinction on the dimension of loudness, without mentioning pitch accents.

In this respect, I argue that, in the quite scanty literature on Turkish intonation there is a recurrent neglect of the fact that stress and pitch accent are independent notions. This has caused confusion that has long obscured what is aimed to be brought to light in this study, namely the richness, productivity and information structural significance of Turkish intonation.

Among the authors cited above, only Nash (1973) distinguishes between pitch accent and stress pointing out that “there is... a considerable amount of flexibility permitted in combining variant stress and pitch patterns”(p. 145).² This flexibility is my primary point of departure in proposing a tune based system for information structure in Turkish, and can only be put clearly after finding a way out of the confusion I claim to exist

² Nash (1973) mainly concentrates on the functioning of tune in the global discourse structure and her intonational description is too complex and out-dated to be handy for our present concerns.

in Turkish intonational description. This has already been suggested by Pierrehumbert and Hirschberg's (1990) theory of intonational description. I will show that once the notions of pitch accent and stress are maintained independently following their line of thought, one ends up with a system whereby the assignment of the two operates independently but in a systematic fashion to signal information structural categories of theme and rheme. The system is completed by the additional role played by prosodic boundary events. But before moving on to its information structural significance, we need to draw a clearer picture of the tune system at our disposal.

V.1 Turkish Pitch Accent Inventory

Most of the Turkish words receive stress on their final syllable. Upon suffixation, stress moves to the end as illustrated in (49) where stress is indicated by capitalization:³

(49) a. aĞAÇ

tree

b. ağaç-TA

tree-LOC

'on the tree'

³ In fact the picture is far more complicated than these observations might suggest. Stress assignments to words differ according to the category of the word. For instance consider:

(i)

Zengin-LER gülümser-ler.
rich-PLU smile-PLU
'RICH people smile.'

(ii)

Komşu-lar-ımız zenGİN-ler.
neighbor-PLU-POS rich-PLU
'Our neighbors are rich.'

where *zenginler* is an argument in (i) and a functor in (ii).

c. ağaç-ta-Kİ
tree-LOC-REL
'the one on the tree'

d. ağaç-ta-ki-LER
tree-LOC-REL-PLU
'those who are on the tree'

There nevertheless are variations in this general pattern, where stress falls on a non-final syllable by default, e.g., borrowed words, place names, vocatives, some adverbs etc. (cf. (Van Der Hulst and Van De Weijer, 1991, pp 15-25), (Lewis, 2000, pp 20-21), (Kornfilt, 1997, pp. 503-504)). As far as default stress assignment is concerned, I shall distinguish between two classes of words; naming the ones that receive stress on final-syllable as *oxytones* and the others as non-oxytones, following Lewis (2000, p. 19).

I shall now present some different stress-pitch accent combinations under which a Turkish word can be uttered to illustrate the flexibility in pitch accent and stress assignment. These lists are far from being exhaustive as I confine my investigation only to prosodic distinctions relevant to information structure. We shall consider a bisyllabic word for each class.

The speech data that will be presented is obtained from fundamental frequency (F0) contour analysis of utterances spoken by three native Turkish speakers. Sample utterances are recorded into a personal computer and analyzed by the software Praat, version 4.0.23, developed by Paul Boersma and David Weenink. F0 tracks are transcribed using the notation employed by Pierrehumbert and Hirschberg (1990)(though

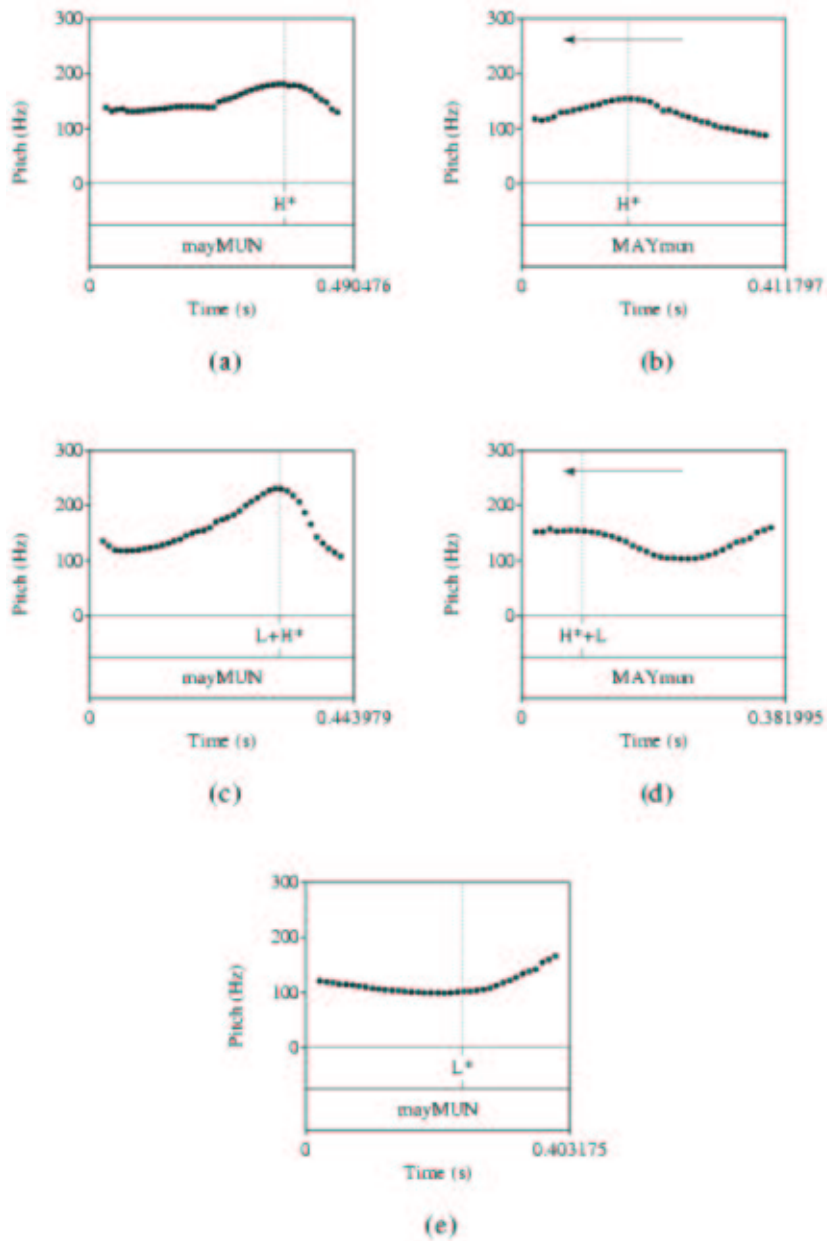


Figure V.1: Various stress-pitch accent assignment combinations for the two syllable oxytone word *maymun* ('monkey'), which receives stress on its second syllable by default

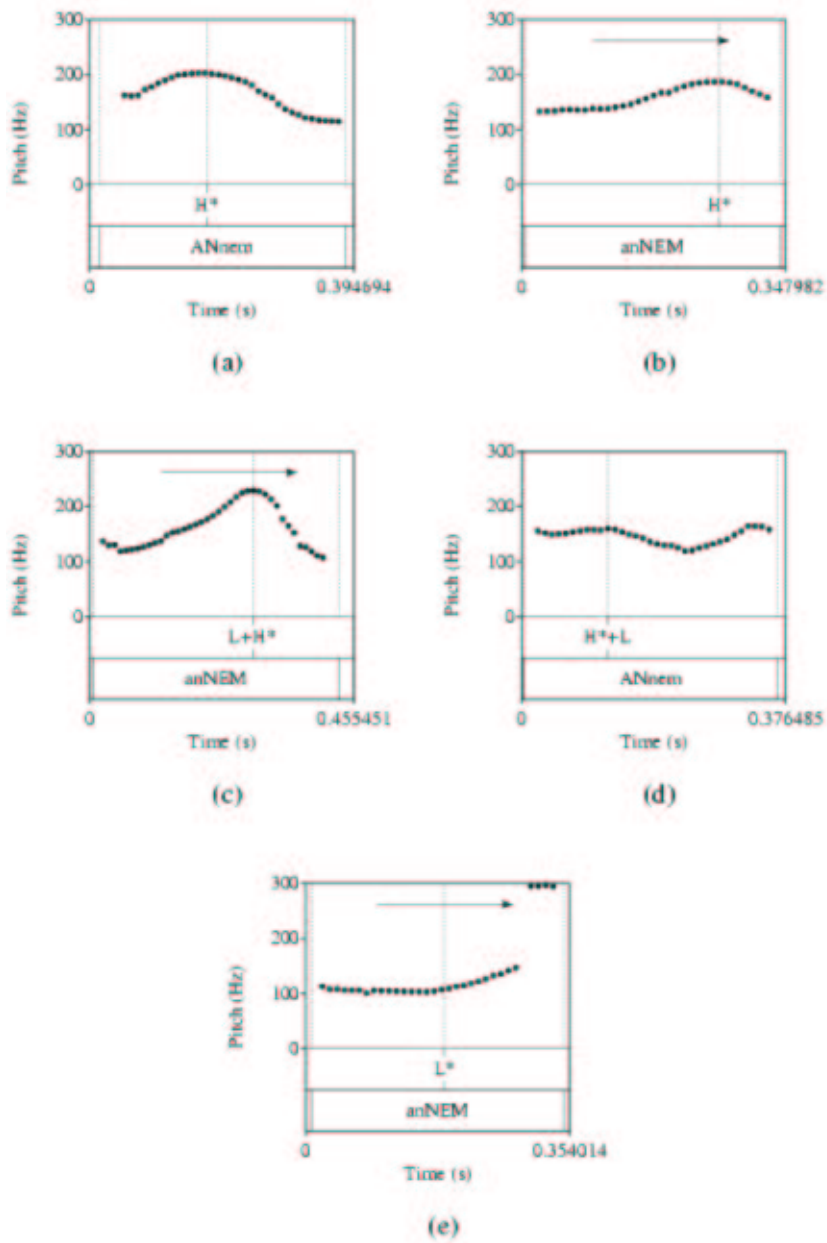


Figure V.2: Various stress-pitch accent assignment combinations for the two syllable non-oxytone word *anne-m* ('mother-POS=my mother'), which receives stress on its first syllable by default

see below for deviations), trying to follow the ToBI guidelines outlined by Beckman and Elam (1997) as much as possible.

In Figure V.1, the fundamental frequency curves of five different articulations of the oxytone *maymun* ('monkey'), each representing a different stress-pitch accent combination are presented. Figure V.2 shows the same combinations for the non-oxytone *annem* ('my mother'). Arrows indicate a shift in stress with respect to the syllable it is assigned to by default. In both Figure V.1(a) and Figure V.2(a), default syllables are stressed by an H* accent whereas in Figure V.1(b) and Figure V.2(b), the same accent stresses the non-default syllables. It should be noted that for oxytones, the stress-pitch accent configuration in Figure V.1(b) sounds quite odd except in some peculiar contexts, whereas the same configuration, i.e., shifted stress realized by an H* accent as in Figure V.2(b), sounds perfectly all right. If we are to generalize H* accent assignment to other words, in all polysyllabic non-oxytones stress can be shifted to the final syllable from its default position regardless of whether the default is the initial position or not. Oxytones sound odd if H* accent stresses a syllable other than the final. Trivially, all words can have H* accent on their default stressed syllables.

In Figure V.1(c) and Figure V.2(c), we see the two words both bearing an L+H* accent stressing their final syllables. Thus stress is shifted from the initial to the final syllable for the non-oxytone *annem*. L+H* accent assignment nicely generalizes to other words as all words can bear this accent stressing their final syllable causing a stress shift only in non-oxytones.

In Figure V.1(d) and Figure V.2(d), we again see both words under the same prosodic configuration, this time bearing an H*+L accent on their initial syllables. This configuration again quite nicely generalizes to other words, causing a stress shift

in oxytones and non-oxytones that have a non-initial default stress position.

The last case I want to bring to the reader's attention is the one depicted in (e) parts of both figures. Both words are stressed on their final syllable by an L* accent resulting a stress shift for the non-oxytone *annem*. This configuration can also be generalized to other words without trouble.

Thus far we have considered the pitch accent system on isolated words. Now let us consider these accents in the frame of complete utterances to see how they fit into the speech stream. The tonal description used in transcribing Turkish speech in this study shall also be discussed in this context. The examples consist of articulations of the sentence:

- (50) Maymun elma-yı ye-di.
monkey apple-ACC eat-PAST
'The monkey ate the apple'

each differing from the others in the stress-pitch accent combination the oxytone *maymun* ('monkey') bears.⁴

The first example's F0 curve is given in Figure V.3. H* marks the point where pitch reaches a maximum, this corresponds to the stressed syllable *-mun*, hence the diacritic '*'. After this point the pitch curve experiences a sharp fall to its initial level just before the onset of the next word *elmayı*. The point at which the pitch dropped to its initial value is marked as LL% designating the boundary that divides the utterance into two prosodic phrases, namely *maymun* and *elmayı yedi*. I shall make use of LL% in marking this type of boundaries that are realized by a fall in pitch following an H*

⁴ Of course this affects the prosodic structure of the whole utterance.

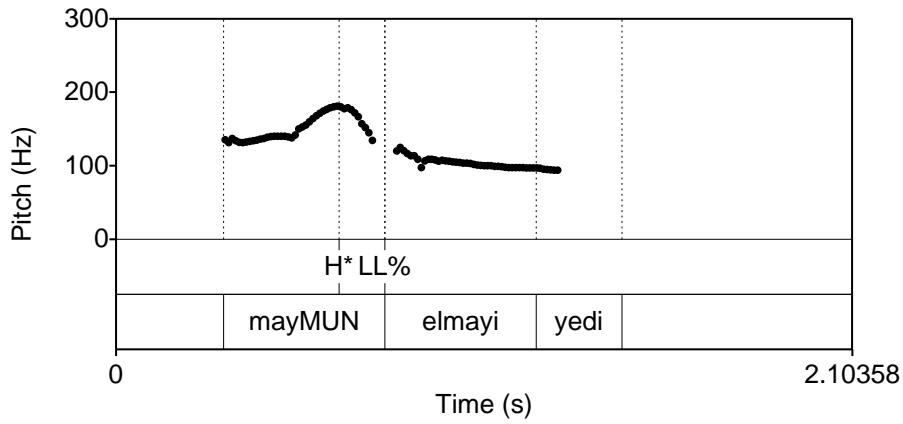


Figure V.3: F0 curve of the token *Maymun elmayı yedi* ('The monkey ate the apple')

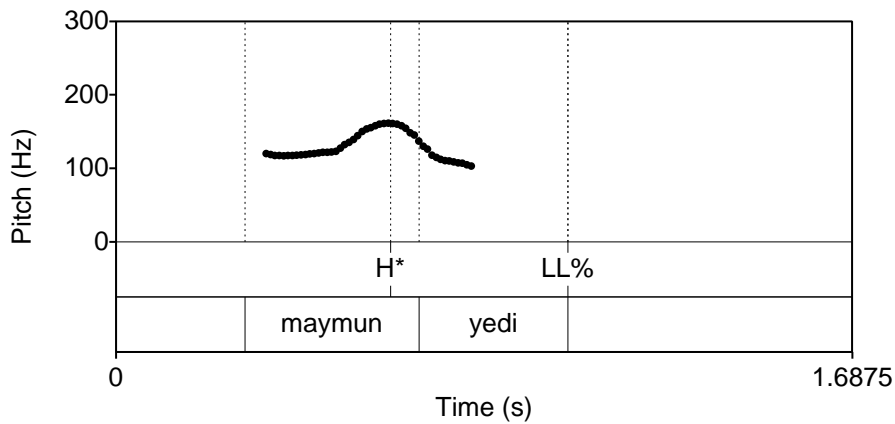


Figure V.4: F0 curve of the token *Maymun yedi* ('The monkey ate the apple')

accent. H* accents are usually followed by LL% boundaries in declarative sentences. For the moment, we are not concerned with how the rest of this utterance is transcribed. The utterance in Figure V.3 is represented as in (51), where I follow Steedman in using parentheses to indicate prosodic phrasing:

(51) (Maymun) (elma-yı ye-di.)

H* LL%

In (51) *maymun* is said to bear the H* LL% contour.

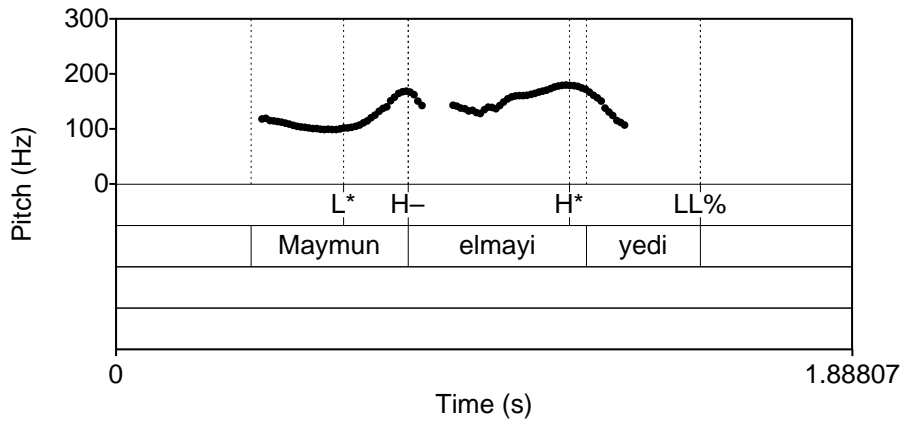


Figure V.5: F0 curve of the token *Maymun elmayi yedi* ('The monkey ate the apple')

H* LL% contour can also be born by phrases consisting of more than one elements as in (52) (see Figure V.4 for the F0 curve):

(52) (Maymun ye-di.)

H* LL%

Here, H* accent again falls on the final syllable of *maymun*, however as pitch falls down to its initial value only after the onset of *yedi*, we do not have a boundary between two words. Here, *maymun* forms a prosodic phrase with *yedi*, and the LL% boundary marks the end of this phrase.

Now we shall consider the other pitch accents, which seem to behave quite differently compared to H*. Figure V.5 shows the F0 track of (53) where an L* accent indicating a minimum in pitch on the final syllable of *maymun*:

(53) (Maymun) (elma-yı ye-di.)

L* H- H* LL%

The prosodic boundary between *maymun* and *elmayi* is realized by a rise in pitch. This boundary is marked as H-, akin to Pierrehumbert and Hirschberg's (1990) phrase

accents. This boundary should be distinguished from the LL% boundary we had in the above examples: At the moment it is not clear to me whether H- acts as an independent boundary event or it is a part of the pitch accent. It may well be what Büring (1997) calls a “trail tone”(p.57). Féry (1993, p. 71-79), as cited in (Büring, 1997), “argues that phrase accents are superfluous for the description of German, since their function can be taken over by the trail tones of bitonal pitch accents”(p. 179). This may also be the case for Turkish.⁵ These issues can nevertheless be addressed only by a thorough phonological research.

However, whether H- is an independent boundary event or it is a part of the pitch accent is irrelevant for our present concerns. What is tried to be captured is the fact that a rising contour designated as L* H-, when born by a word, marks the right end of a prosodic phrase. This notation will consistently be applied through the rest of the study, marking this type of phrase boundaries associated by a fall in pitch as L-.⁶

The last two examples are for the remaining pitch accents. F0 curves of (54) and (55) are given in Figure V.6 and Figure V.7 respectively.

(54) (Maymun) (elma-y1 ye-di.)

L+H* L- H* LL%

(55) (Maymun) (elma-y1 ye-di.)

H*+L H- H* LL%

The same arguments for H- and L- holds for these examples as well. In (55), note that the position of stress also shifts from the default final syllable to first syllable. This

⁵ To be clearer, if Turkish can be regarded as German, then what I call H- would be incorporated in to L* resulting in a bitonal accent L*+H instead of a sequence of a pitch accent and a phrase accent like L* H-. My preference for the latter should not be taken as a theoretical claim of any sort.

⁶ Thus, H- and L- are not meant to signify phrase accents in Pierrehumbert and Hirschberg’s (1990) terms. In this respect, similarities between the present tonal description and theirs should be taken as devoid of theoretical claims.

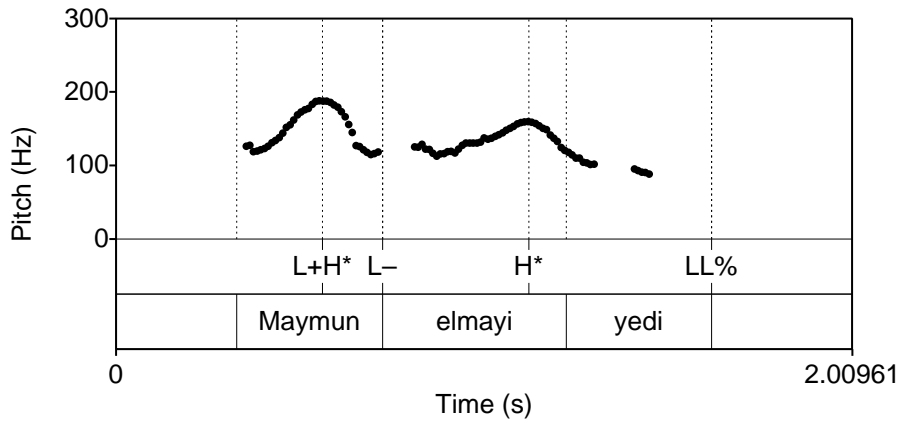


Figure V.6: F0 curve of the token *Maymun elmayi yedi* ('The monkey ate the apple')

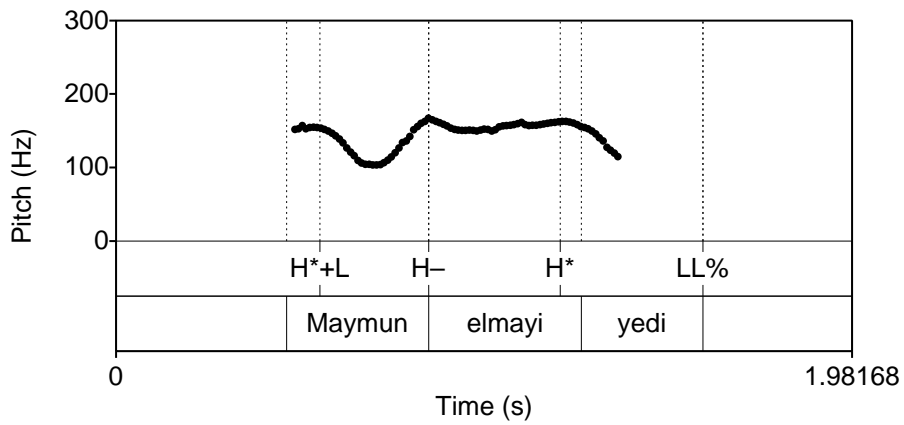


Figure V.7: F0 curve of the token *Maymun elmayi yedi* ('The monkey ate the apple')

Table V.1: Turkish pitch accent inventory

<i>Accent Type</i>	<i>Oxytone</i>		<i>Non-oxytone</i>		
	first	default	first	final	default
H*		✓		✓	✓
L+H*		✓		✓	
H*+L	✓		✓		
L*		✓		✓	

fact is represented by aligning H* with the stressed syllable.

One important point that should be noted about the utterances (51)-(55) is that they differ in the contexts in which they can felicitously occur. Thus a change in the prosodic structure of a Turkish utterance has an effect along the pragmatic dimension of linguistic meaning. In chapter VI we shall investigate the effect of prosodic structure on one such pragmatic dimension, namely the information structure. Table V.1 summarizes the Turkish pitch accent inventory that we covered in this section.

Finally, one additional observation about the examples (53)-(55) is that the phrases bearing the contours L* H-, L+H* L- and H*+L H- are necessarily followed by phrases bearing an H* LL% contour. This is justified by the oddity that results from deaccenting the rest of a sentence that has started with a phrase bearing either of these three contours:

(56) a. *(Maymun) (elma-y₁ ye-di.)

L* H-

b. *(Maymun) (elma-y₁ ye-di.)

L+H* L-

c. *(Maymun) (elma-y₁ ye-di.)

H*+L H-

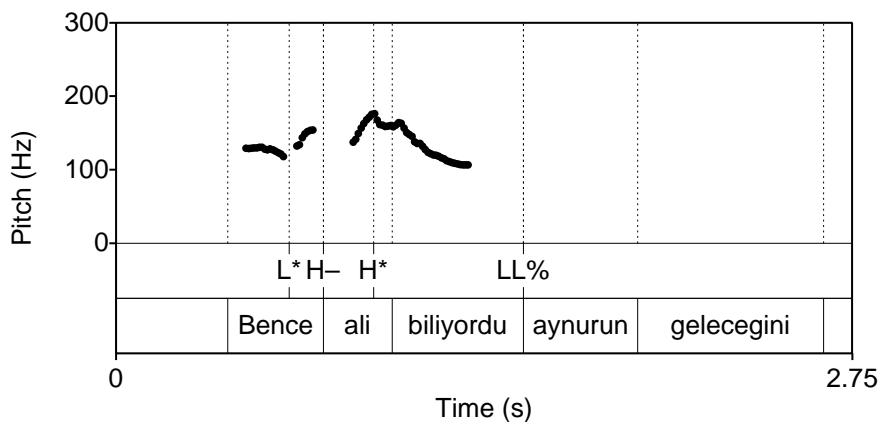


Figure V.8: F0 curve of the token *Bence Ali biliyordu Aynur'un geleceğini* ('To me, Ali knew that Aynur would come')

We shall see in the next section that these contours cannot be preceded by H* LL% either, rendering L* H- H* LL%, L+H* L- H* LL% and H*+L H- H* LL% the only permissible orderings among the contours discussed in this section.

V.2 Pitch Flooring Defined

Göksel (1998) puts into words a fact that is endorsed without exception in the relevant literature on Turkish: “In fact, no constituent which bears *stress* can appear post-verbally except in fixed constructions such as proverbs” (p. 103, my emphasis). Although it has not been put that way in the literature, we can generalize this observation to any kind of *prosodic marking* including the boundary phenomena that is forbidden to the right of the main functor of an utterance.⁷

What motivates these arguments is the fact that the Turkish speaker always falls almost to the bottom of his/her normal speech pitch range after articulating the main functor of the sentence regardless of the position of the main functor within the string,

⁷ We once again witness here the general tendency to equate prosodic phenomena with stress.

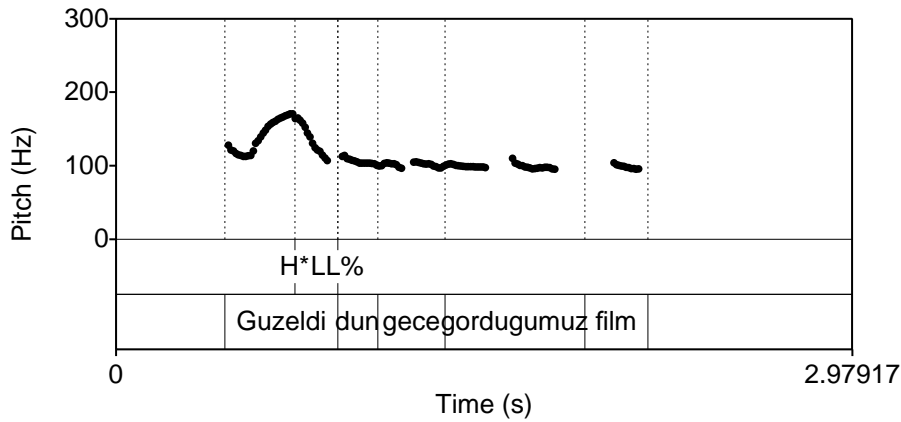


Figure V.9: F0 curve of the token *Güzeldi dün gece izlediğimiz film* ('The movie that we saw last night was beautiful')

and keeps a flat line on this lowered pitch till the end of the sentence. The two utterances in (57) illustrate the point. Corresponding F0 curves are given in Figure V.8 and Figure V.9 respectively.

- (57) a. (Bence) (ALİ bil-iyor-du) (Aynur-un gel-eceğ-i-ni.)
 To me Ali know-PROG-PAST Aynur-GEN come-FUT-POS-ACC
 L* H- H* LL%
- 'To me, Ali knew that Aynur would come.'
- b. (GÜZEL-Dİ) (dün gece izle-diğ-imiz film.)
 beautiful-PAST last night watch-NOM-1pl film
 H* LL%
- 'The movie that we saw last night was beautiful.'

Any prosodic marking to the right of the main functor in these utterances is forbidden as the peculiarity of the following shows:

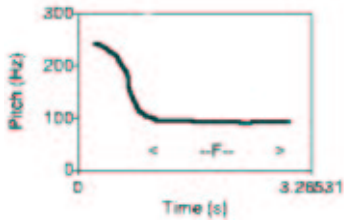


Figure V.10: A schematic representation of *pitch flooring*

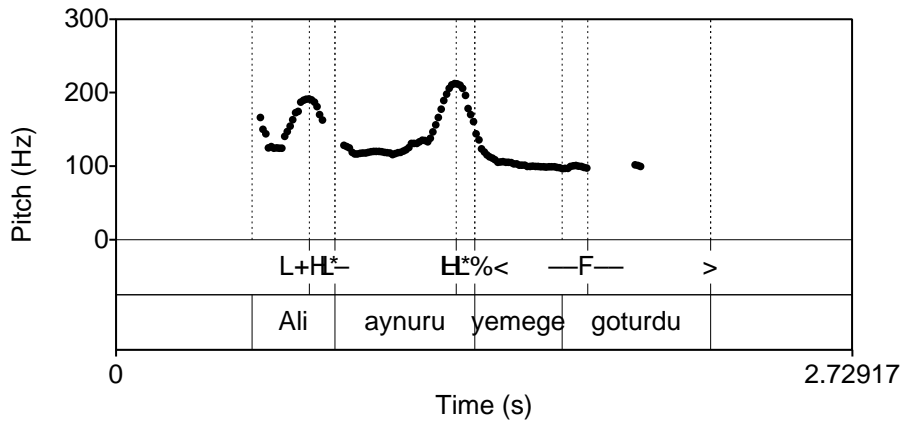


Figure V.11: F0 curve of the token *Ali Aynur'u yemeğe götürdü* ('Ali took AYNUR to dinner')

(58) a. *(Bence) (ALİ bil-iyor-du) (Aynur-un gel-eceğ-i-ni.)

L* H- H* LL% L* H-

b. *(GÜZEL-Dİ) (DÜN gece izle-diğ-imiz film.)

H* LL% H* LL%

I shall call this prosodic phenomenon, i.e., the suppression and flattening of the pitch track, *pitch flooring* or simply *flooring*. As an extension to the tonal description I have been employing in this study (see section V.1), I shall mark floored regions of utterances with $\langle -F- \rangle$, where angle brackets denote the boundaries of the floored portion of speech. Figure V.10 gives a schematic representation.

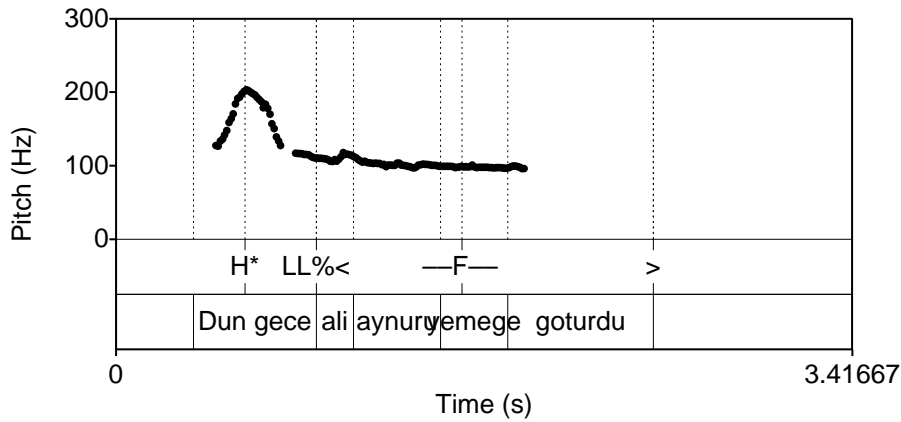


Figure V.12: F0 curve of the token *Dün gece Ali Aynur'u yemeğe götürdü* ('Ali took Aynur to dinner LAST NIGHT')

I argue that pitch flooring is not a phenomenon limited to main functors, but rather, any prosodic phrase that bears an H* LL% contour causes pitch flooring. For justification, I give the following examples:

(59) a. (Ali) (AYNUR-U) (yemeğ-e götür-dü.)

Ali Aynur-ACC dinner-DAT take-PAST

L+H* L- H* LL% < -F- >

'Ali took AYNUR to dinner.'

b. (DÜN gece) (Ali Aynur-u yemeğ-e götür-dü.)

yesterday night

H* LL% < -F- >

'Ali took Aynur to dinner LAST night.'

The respective F0 curves are as in Figure V.11 and Figure V.12. The unacceptability of the following further justifies the claim that it is the H* LL% contour that causes flooring:

- (60) a. *(Ali) (AYNUR-U) (yemeğ-e götür-DÜ.)
 L+H* L- H* LL% H* LL%
- b. *(DÜN gece) (Ali Aynur-u YEMEĞ-E götür-dü.)
 H* LL% H* LL%

In this respect, a positional restriction on prosodic marking can be replaced by a prosodic one. Therefore, (58) is an unacceptable sentence not because the prosodic marking L* H- appears at a postverbal position but because it appears after an H* LL% contour.

A closer investigation of the prosodic behaviors of main functors reveals the relation between main functors and flooring, hence the association of flooring with postverbal positions in other studies like ((Erguvanlı, 1979; Göksel, 1998; Göksel and Özsoy, 1998)).

Turkish main functors differ from other syntactic categories in two ways:

- (i) they can only be stressed by an H*,
- (ii) they are obligatorily stressed when they appear as the leftmost element of a prosodic phrase.

For (i), consider the following examples:

- (61) a. *Ahmet ev-e gel-di.
 Ahmet house-DAT come-PPAST
 L+H* L-
 ‘Ahmet came home.’

b. *Ahmet gel-di ev-e.

L+H* L-

c. *Gel-di Ahmet ev-e.

L+H* L-

These utterances are unacceptable regardless of the prosodic marking the elements other than the main functor *geldi* bear, hence only the prosodic marking of the main functor is specified, and they can only be mended by changing the prosodic marking over the main functor to an H* accent. This generalizes to non-verbal main functors and other two pitch accents easily.⁸

It follows from (i) that, as main functors cannot bear these contours, the only way left for a main functor to end a prosodic phrase is LL% (of course assuming that it is not in a floored region). Thus when deaccented they end a prosodic phrase realizing an LL% boundary.

To substantiate (ii), I offer the unacceptability of the following examples, where the main functor appears deaccented as the leftmost element of a prosodic phrase:

(62) a. *(Biliyor ALİ) (Aynurun geleceğini.)

H* LL% (-F-)

b. *(Aynurun geleceğini) (bilyor ALİ.)

L* H- H* LL%

⁸ It should be noted that, though they can not bear any of the other accents discussed in this section, it appears that they can be followed by an HH% boundary tone when they appear in sentence final position, resulting in a question contour. However, we will not be concerned with the intonational properties of questions in this thesis.

c. *(Biliyor Ali) (AYNURUN gelecegini.)

L* H- H* LL%

Given (i), it should be clear that main functors are obligatorily H* accent when they appear as the leftmost element in a prosodic phrase.

Then, it appears that unless they occur in the floored region, main functors get involved in phrases bearing an H* LL% contour, and what makes them associated with flooring is this prosodic property.

CHAPTER VI

A TUNE-BASED ACCOUNT OF TURKISH INFORMATION STRUCTURE

As I noted earlier in Chapter I, my proposal is to model Turkish information structure under the light of information structural semantics of intonation as proposed by Steedman (see Chapter IV). This is an attempt to free the theory of Turkish information structure from predications over positions. In this line, I shall argue that information structure of a Turkish utterance is delivered through the *interpretation* of its intonation structure, not the order or relative positions of its constituents.¹ This chapter aims to provide substance for the claim through a discussion of how the informational units of rheme and theme (see Chapter IV) are encoded in the surface structure of Turkish utterances.

¹ This should not be mistaken to claim an autonomous level of intonation structure apart from an autonomous level of syntactic structure. In combinatory theory, intonation structure is isomorphic to surface derivational structure where canonical predicate-argument structure and information structure are both delivered through the surface derivation, i.e., the syntactic process (Steedman, 2000b). Being just a process delivering the meaning of an utterance, syntax is not a level of representation which is interpreted by further mechanisms and over which some rules or operations like movement and deletion are predicated. Syntactic aspects of the theory under consideration will not be dealt with in the scope of this study, nevertheless a full exposition can be found in (Steedman, 2000b).

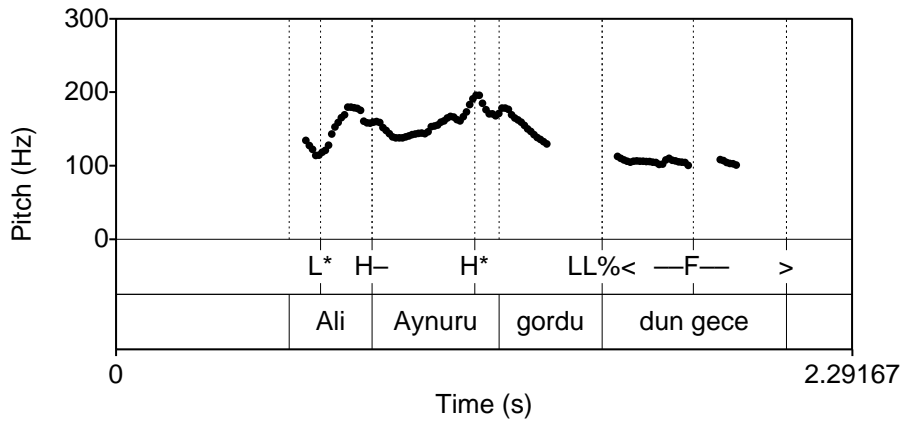


Figure VI.1: F0 curve of the token *Ali Aynur'u gördü dün gece* ('Ali saw Aynur last night')

VI.1 Rheme in Turkish

The claim is that the rheme partition of a Turkish utterance is marked by an H* LL% contour, regardless of the position of the partition in the sentence. Although what is claimed here for Turkish sounds quite in line with what has been suggested by Steedman for English (see chapter IV), matters are a little more complicated due to the variability of Turkish word-order, for it proliferates the possible forms that a proposition is put into. The tune based account presented here also extends to different string orders.

Let us now consider the following exchanges given in (63) and (64):²

(63) Q: Ahmet-in dün gece ne yap-tığ-ı-nı bil-iyor-um.

Ahmet-GEN yesterday night what do-REL-POS-ACC know-PROG-1sg

Peki Ali-den ne haber?

But Ali-ABL what news

'I know what Ahmet did last night, but what about Ali?'

² I do not indicate theme partitions in this section. Trivially, every non-rheme element belongs to theme.

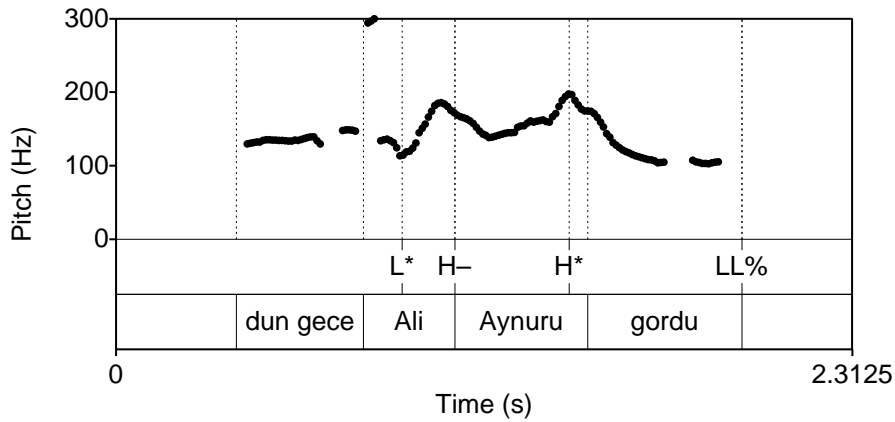


Figure VI.2: F0 curve of the token *Dün gece Ali Aynur'u gördü* ('Ali saw Aynur last night')

A1: (Ali) $\overbrace{(\text{AYNUR-U gördü})}^{\text{Rheme}}$ (dün gece.) : Figure VI.1
 L* H- H* LL% { -F- }

A2: (Dün gece Ali) $\overbrace{(\text{AYNUR-U gördü.})}^{\text{Rheme}}$: Figure VI.2
 L* H- H* LL%

'Ali saw Aynur last night.'

(64) Q: Ali dün gece ne yap-tı?

'What did Ali do last night?'

A1: $\overbrace{(\text{AYNUR-U gördü})}^{\text{Rheme}}$: Figure VI.3
 H* LL%

A2: $\overbrace{(\text{AYNUR-U gördü})}^{\text{Rheme}}$ (dün gece Ali) : Figure VI.4
 H* LL% { -F- }

Both (63Q) and (64Q) can be thought of as establishing a RAS like.³

³ In what ways these two contexts differ will be made clear in the next section when discussing themes.

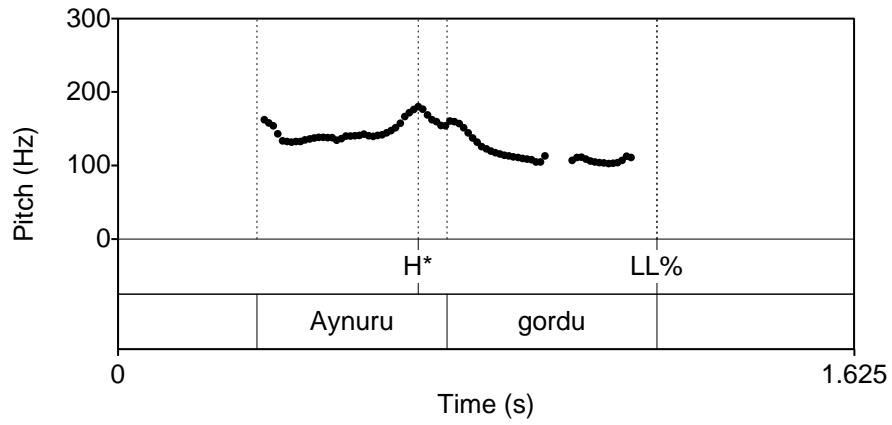


Figure VI.3: F0 curve of the token *Aynur'u gördü* ('Ali saw Aynur')

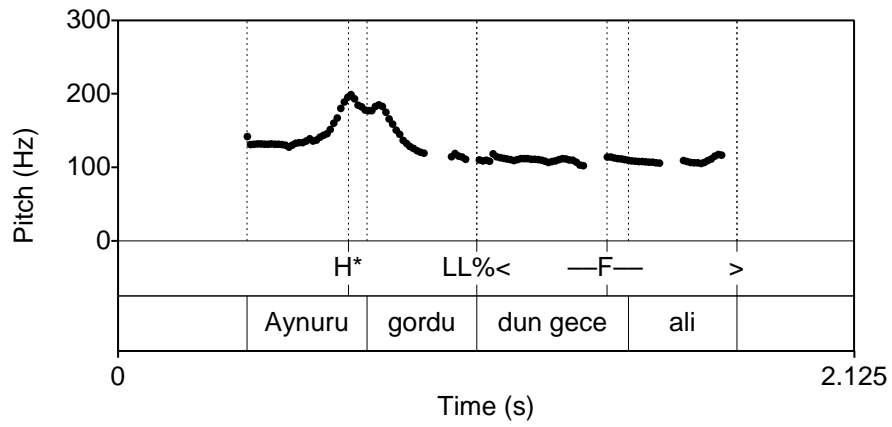


Figure VI.4: F0 curve of the token *Aynur'u gördü dün gece Ali* ('Ali saw Aynur last night')

$$(65) \left\{ \begin{array}{l} \textit{see}'\textit{aynur}'\textit{ali}' \\ \textit{go}'\textit{cinema}'\textit{ali}' \\ \textit{watch}'\textit{tv}'\textit{ali}' \end{array} \right\}$$

namely, the set of course of actions that can be taken by *Ali*. Then a felicitous answer to either of (63Q) and (64Q) should restrict this set by the rheme *Aynuru gördu*, i.e. $\lambda x.\textit{see}'\textit{aynur}'x$. In all the answers considered in the examples the corresponding part of the utterance is indicated as rheme. It is clear from the F0 curves of the example utterances that regardless of the position they occupy, the rheme partitions correspond to a prosodic phrase that carries an H* LL% contour.

However, information structural partitioning that can be realized by the answers in (63) and (64) is not limited to those indicated in the examples. When they are out of the context established by the questions, the verb *gör-dü* ('see-PAST') is ambiguous between whether to belong to the rheme partition or to its complement, i.e., theme, in all four answers in (63) and (64).

To put it more concretely, (63A1), for instance, is information structurally ambiguous in that it serves a felicitous answer to both (66a) and (66b):

(66) a. ALI kim-i gör-dü?

Ali who-ACC see-PAST

'Whom did Ali see?'

b. Ali ne yap-tı?

Ali what do-PAST

'What did Ali do?'

(63A1) realizes the following information structures as an answer to (66a) and (66b)

respectively:

- (67) a. $\overbrace{(\text{AYNUR-U})}^{\text{Rheme}} \overbrace{(\text{gördü.})}^{\text{Theme}}$
 H* LL%
- b. $\overbrace{(\text{AYNUR-U gördü.})}^{\text{Rheme}}$
 H* LL%

Regarding the kind of ambiguity in information structural partitioning in (67), Vallduví and Engdahl (1996) write, “[These] ambiguities result from the fact that, given the right structural context, any of a number of constituents containing the nuclear stress may be interpreted as the focus. The structural phenomenon that allows for this range of foci has often been called ‘focus projection’ (p. 487).⁴ They give (68) as an example from English:

- (68) John [*Rheme* left a note [*Rheme* on the TABLE]]

where focus is said to be projected to the left.

Steedman also considers the same issue, without mentioning *projection*, while he is discussing unmarked themes. When theme is left intonationally unmarked, we end up with sentences “ambiguous with respect to the theme they presuppose” (Steedman, 2000b, p. 117). He gives (69) as an example, which is again a leftward focus projection in Vallduví and Engdahl’s (1996) sense (square brackets are mine):

- (69) ([*Rheme* Mary [*Rheme* wrote [*Rheme* a book about [*Rheme* BATS.]]]])

H*LL%

⁴ Vallduví and Engdahl’s (1996) *focus* here corresponds to our rheme, hence focus-projection and rheme-projection will be used synonymously in what follows. What they call as nuclear stress is the stress made by an H* accent in present terms.

Leftward focus projection is a phenomenon that has been claimed to exist also in Turkish in several studies before (Kılıçaslan, 1994; Vallduví and Engdahl, 1996; İşsever, to appear). However, what is at issue in utterances like those in (67) is *rightward* focus projection. Here I try to provide a prosody based explanation for the phenomenon.

Let me first establish that rightward focus projection is not limited to accusative marked direct object NPs as in VP *Aynuru gördü*, hence is not a syntactic phenomenon. The examples (70)-(74) are meant to illustrate the point. Turkish utterances in the examples can be uttered felicitously as an answer to both questions, where (a) questions result in wide rhemes consisting of the entire utterance that carries the H* LL% contour, and (b) questions result in a narrow rheme consisting of only the H* accented element:

(70) a. *What did you do with the pencil?*

b. *Where did you leave the pencil?*

MASA-YA bırak-tı-m.

table-DAT leave-PAST-1sg

H* LL%

'I left it on the table.'

(71) a. *What happened to the apples?*

b. *Who ate the apples?*

ALİ ye-di.

Ali eat-PAST

H* LL%

'Ali ate it.'

(72) a. *What did you do last night?*

b. *What did you read last night?*

ROMAN oku-du-m

novel read-PAST-1sg

H* LL%

'I read a novel.'

(73) a. *Where is your passport?*

b. *Where did you leave your passport?*

OTEL-DE bırak-tı-m

hotel-LOC leave-PAST-1sg

H* LL%

'I left it at the hotel.'

(74) a. *Where did you find those sandwiches?*

b. *Where did you bring those sandwiches from?*

EV-DEN getir-di-m

house-ABL bring-PAST-1sg

H* LL%

'I brought it from home.'

One crucial observation about the type of utterances where rightward focus projection occurs is that H* accented pre-verbal element and the verb form a prosodic phrase bearing the H* LL% contour. As we saw in Section V.2, this is one of the prosodic

settings in which Turkish main functors show up in speech, where the main functor and its predecessor are prosodically *molded* together in such a strong way that an attempt to put even a slight boundary, say a pause, between the two results in an oddity. I claim that this is why the prosodic phrases in examples (70)-(74) are information structurally ambiguous. Prosodic underspecification results in information structural underspecification. In a tune-based account that is totally devoid of predications over positions, if something is prosodically underspecified, it should also information structurally be so, as in the case of rightward focus projection in Turkish.

As I propose to replace the notion of associating information structural units with specific positions with the one associating them with prosodic phrases marked in a certain way, I need to show that rheme contour is also at work when rheme is at positions other than immediately pre-verbal. Rhemehood in the above examples might still be argued to be signalled by the position that the H* accented element occupies in the examples considered so far, since immediately pre-verbal position has allegedly been announced in the literature to be the canonical focus position of Turkish.

The examples (59) and (51) from chapter V, now appear in exchanges (75) and (76). F0 curves for these utterances are given in Figure V.12 on page 60 and Figure V.3 on page 52.

(75) Q: Ali Aynur-u ne zaman yemeğ-e götür-dü?

Ali Aynur-ACC what time dinner-DAT take-PAST

‘When did Ali take Aynur to dinner?’

A: $\overbrace{(\text{DÜN gece})}^{\text{Rheme}} \quad \overbrace{(\text{Ali Aynur-u yemeğ-e götür-dü.})}^{\text{Theme}}$
 $\text{H}^* \quad \text{LL}\% \langle \quad \quad \quad \text{-F-} \quad \quad \rangle$
 ‘Ali took Aynur to dinner LAST night.’

(76) Q: Kim elma-yı ye-di?

Who apple-ACC eat-PAST

‘Who ate the apple?’

A: $\overbrace{(\text{MAYMUN})}^{\text{Rheme}} \quad \overbrace{(\text{elma-yı ye-di.})}^{\text{Theme}}$
 $\text{H}^* \text{LL}\% \langle \quad \quad \quad \text{-F-} \quad \quad \rangle$

‘The monkey ate the apple.’

In both (75A) and (76A) rheme partitions consist of prosodic phrases that bear an H* LL% contour. Note that some authors (Kılıçaslan, 1994; Vallduví and Engdahl, 1996; İşsever, to appear) hold the view that only this kind of rhemes are prosodically signalled in Turkish, while characterizing the rhemes, where rheme occupies the immediately preverbal position, as signalled by syntactic means.

The rheme in (76) can also be signalled as in (77):

(77) $\overbrace{(\text{Elmayı})}^{\text{Theme}} \quad \overbrace{(\text{MAYMUN})}^{\text{Rheme}} \quad \overbrace{(\text{ye-di.})}^{\text{Theme}}$
 $\text{L}^* \text{H-} \quad \quad \quad \text{H}^* \quad \quad \quad \text{LL}\%$

(76A) and (77) are not discourse equivalent, in that there exists contexts in which they are not interchangeable. The rheme in (76) is more likely to occur in contrastive contexts. To be precise, in combinatory theoretic terms, the speaker of (76A) for instance, believes that the RAS his rheme *Ali* restricts is enumerable by the hearer, for example like in:

$$(78) \left\{ \begin{array}{l} \textit{eat'apple'monkey'} \\ \textit{eat'apple'ali'} \\ \textit{eat'apple'fatma'} \end{array} \right\}$$

If such an enumerable RAS is not available and therefore can not be retrieved or accommodated by the hearer, the utterance becomes infelicitous. (77) on the other hand, is not confined to contrastive contexts as beside contrastive ones, it can also appear in non-contrastive contexts,⁵ where RAS is believed by the speaker to be non-enumerable by the hearer.⁶

Another information structural difference between (76A) and (77) lie in their themes, which is the topic of next section.

⁵ İşsever (to appear) characterizes the contrastive non-contrastive distinction by calling them c(ontrastive)-focus and p(resentational)-focus respectively.

⁶ Note that expository devices such as TAS and RAS we use here to characterize information structural semantics are speaker oriented, in that these sets represent speaker's beliefs about what hearer knows rather than what is actually known by the hearer.

VI.2 Theme in Turkish

In this section I shall discuss how the information structural unit of theme is established and further divided into *kontrast* and *background* by prosodic means in Turkish. I shall present three contours in Turkish that are associated with theme. Although they are equivalent with respect to their information structural function, they differ in the pragmatic force they carry.

I do not offer here a formalization of these pragmatic phenomena. I believe the correct place for such an enterprise is a theory of discourse semantics, an area that falls outside the scope of the current study, as our topic of interest here is the surface realization of information structural categories of theme and rheme. Here, I nevertheless offer an informal discussion of the contexts that typically give rise to the particular contour under discussion. My aim in doing so is to show that these contours are not stylistic variants of doing the same thing, but rather are genuine melodic devices a language puts to use in conveying intricate differences in linguistic meaning.

Let us begin by considering the following exchange:

(79) Q: Baba-n çanta-lar-ı taşı-yor.

father-POS2sg bag-PLU-ACC carry-PROG

Peki Anne-n ne yap-ıyor?

okay mother-POS2sg what-DAT do-PROG

‘Your father is carrying the bags, then what is your mother doing?’

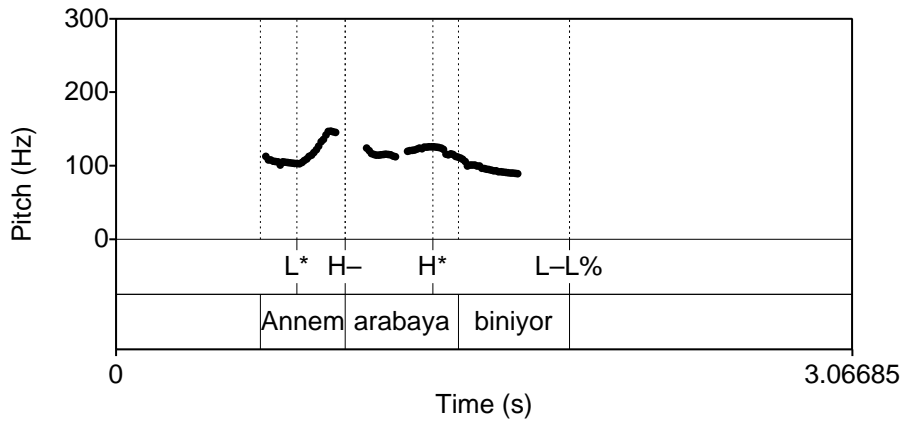
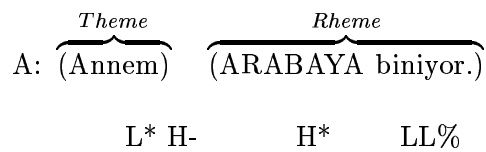


Figure VI.5: F0 curve of the token *Annem arabaya biniyor* ('My mother is getting on the CAR')



'My mother is getting on the CAR.'

The context established by (79Q) can be characterized as a TAS like:

$$(80) \left\{ \begin{array}{l} \lambda P.P \text{ father}' \\ \lambda P.P \text{ mother}' \end{array} \right\}$$

as the speakers are talking about two discourse referents, namely the father and the mother of the speaker of (79). In (79A) *annem* ('my mother') is the theme of the answer, as it forms a prosodic phrase marked by the L* H- contour (see Figure VI.5), and thereby it restricts the TAS in (80) to the theme,

$$(81) \lambda P.P \text{ mother}'$$

which in turn presupposes a RAS consisting of possible actions that the referent of *annem* can take. The RAS is in no way required to be enumerable or finite in this case.

And finally, the rheme of (83A) *arabaya biniyor*, the prosodic phrase that carries the H* LL% contour, restricts this RAS to $\lambda x.geton'car'x$ ending up with:

(82) $geton'car'mymother'$

i.e. the proposition conveyed by (83A).

Information structural units do not always coincide with prosodic phrases as in the above example. Let us consider (79A), this time in a different context:

(83) Q: Baba-n-in cip-e bin-diğ-i-ni bil-iyor-um da.
 father-POS2sg-GEN jeep-DAT get on-REL-POS3sg-ACC know-PROG-1sg but
 Anne-n ne-ye bin-iyor?
 mother-POS2sg what-DAT get on-PROG

‘I know that your father drives the jeep, but what does your mother drive?’

A: $\underbrace{\text{(Annem)}}_{\text{kontrast}} \quad \text{ARABAYA} \quad \underbrace{\text{biniyor.}}_{\text{background}}$
 L* H- H* LL%

‘My mother is getting on the CAR.’

The TAS established by (83Q) is,

(84) $\left\{ \begin{array}{l} \lambda x.drive'xfather' \\ \lambda x.drive'xmother' \end{array} \right\}$

which is different from (80). We see that theme of (83A) is split into two parts by the Rheme *arabaya* resulting in a typical instance of a *discontinuous* theme in Turkish. Following Steedman, I shall call the part that bears the prosodic marking, L* H- contour in this case, the *kontrast* and the part that is deaccented the *background*, and modify them with “thematic” to distinguish them from rheme. Thematic-kontrast realized

by L* H- contour is the part of the theme that differentiates that theme from other alternative themes that the context makes available. For both exchanges (79) and (83), if themes that differ from the present ones only by the argument that bears the L* accent, i.e., $\lambda vp.'vp\ father'$ and $\lambda x.drive'x\ father'$, were not available in the discourse model, answering the questions this way would be infelicitous.

I argue that the separation of the kontrast and background parts of the theme by the intervening rheme element in (83) is prosodically motivated. To give substance to this claim, consider the cases where we have continuous themes:

$$\begin{array}{l}
 (85) \text{ a. } \overbrace{*(\text{Biniyor annem})}^{\text{Theme}} \quad (\text{ARABAYA.}) \\
 \qquad \qquad \qquad \text{L* H-} \qquad \qquad \qquad \text{H* LL\%} \\
 \\
 \qquad \qquad \qquad *(\text{ARABAYA}) \quad \overbrace{(\text{biniyor annem.})}^{\text{Theme}} \\
 \qquad \qquad \qquad \text{H* LL\%} \qquad \qquad \qquad \text{L* H-} \\
 \\
 \qquad \qquad \qquad *(\text{ARABAYA} \overbrace{\text{biniyor}}^{\text{Theme}} \overbrace{\text{annem.}}^{\text{Theme}}) \\
 \qquad \qquad \qquad \text{H*} \qquad \text{LL\%} \qquad \text{L* H-} \\
 \\
 \qquad \qquad \qquad \overbrace{*(\text{Annem}) (\text{biniyor ARABAYA.})}^{\text{Theme}} \\
 \qquad \qquad \qquad \text{L* H-} \qquad \qquad \qquad \text{H* LL\%}
 \end{array}$$

The above utterances are unacceptable for they violate the prosodic constraints outlined in section V.2 of this thesis. These prosodic restrictions can well be put as precedence relations among informational units, given the association between contours and informational units, as follows:⁷

⁷ It might be argued that these principles replace one syntactic strategy with another, since they give precedence rules with respect to a syntactic entity like the main functor of a sentence. However, although they are precedence rules they are prosodically motivated in that, what is referred to here by the *main functor* is the prosodic realization of a syntactic category.

- Thematic-kontrast must come before rheme as rheme contour causes flooring, rendering the announcement of thematic-kontrast impossible to its right.
- Rheme should come before the main functor, as announcing a rheme contour is impossible after the main functor again due to flooring.

Let us this time try to enumerate the information structural requirements imposed by the context established by (83):

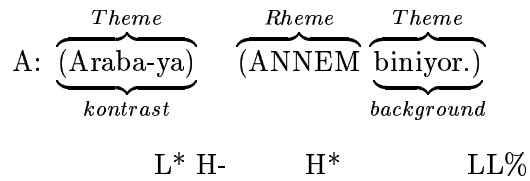
- *Annem* must be theme-kontrasted due to the existence of another theme alternative *Babam*, hence it needs to bear the appropriate prosodic marking.
- *arabaya* needs to be announced as Rheme, hence it needs to bear an H* LL% contour.

This illustrates how information structural requirements and prosodic restrictions, when put together, predicts the word order of the utterance, which is:

(86) Annem arabaya biniyor.

The point at issue is an important one, let us consider another exchange:

(87) Q: Cip-e kim-in bin-diğ-i-ni bil-iyor-um da.
 jeep-DAT who-GEN get on-REL-POS3sg-ACC know-PROG-1sg but
 Araba-ya kim bin-iyor?
 car-DAT who get on-PROG
 ‘I know who drives the jeep, but who drives the car?’



‘My MOTHER drives the car.’

The same arguments apply for (87), i.e. the word order of (87A) is predicted by the information structural requirements of the context and the prosodic constraints. Note that (87A) would be characterized as a product of syntactic strategy, where the subject *Annem* is moved to (or left at) the pre-verbal position, a.k.a. focus position, by many researchers (Erguvanlı, 1979; Erkü, 1983; Kılıçaslan, 1994; Hoffman, 1995; Vallduví and Engdahl, 1996; İşsever, to appear). We will return to this issue in the next chapter. The rest of this section further builds on the tune-based account of information structure I propose by discussing other thematic-kontrast contours and special case of main functors.

Another kind of Thematic-kontrast in Turkish is the one signalled by H*+L H- contour, and has a use quite similar to that of what Büring (1997, p.56) calls “partial topics” in German.⁸ First let us see what Büring (1997) means by “partial topic”. He gives the following example:

(88) A: Was hatten die popstars an?

‘What did the pop stars wear?’

B: Die [WEIBlichen]_T Popstars trugen [KAftane]_F

‘The [Female]_T pop stars wore [CAFTANS]_F.’

In (88B) *weiblichen* is marked by the topic accent that Büring (1997) identifies as an L* H contour. Here “...speaker B does not really answer A’s question, at least

⁸ Büring’s (1997) *topic* corresponds to our *thematic-kontrast* in this case.

not exhaustively” (p. 56), but rather, in a sense, zooms into the set expressed by *popstars* and provides a partial answer to A’s question. This is, in fact, no different from restricting a TAS, if we take the question A as establishing a TAS consisting of equivalence classes induced on the set represented by *popstars* by some equivalence relation, e.g., ‘is of the same sex as’ in this case. Such a TAS would look like:

$$(89) \left\{ \begin{array}{l} \lambda x. wear'x(female'popstars') \\ \lambda x. wear'x(male'popstars') \end{array} \right\}$$

Here is an example from Turkish, where H*+L H- contour marks the thematic-contrast (F0 curve is given in Figure VI.6), resulting in a *partial topic* in Büring’s (1997) sense:

(90) Q: Siz-in-ki-ler nerede?

you-GEN-REL-PLU where

‘Where are your parents?’

A: $\underbrace{(\text{Annem})}_{\text{kontrast}}$ $\overbrace{(\text{ARABAYA biniyor.})}^{\text{Rheme}}$

H*+L H- H* LL%

‘My mother is getting on the car.’

The third and the final Thematic-contrast contour that I shall present is L+H* L-. Announcing a Thematic-contrast by L+H* L- is felicitous in cases where a proposition about the theme-contrasted referent that the speaker does not believe to hold is already established in the preceding context. To give an example:

(91) Q: Maymun-un muz-u yeme-si-ne neden izin verdin?

monkey-GEN banana-ACC eat-POS-DAT why permission give

‘Why did you let the monkey eat the banana?’

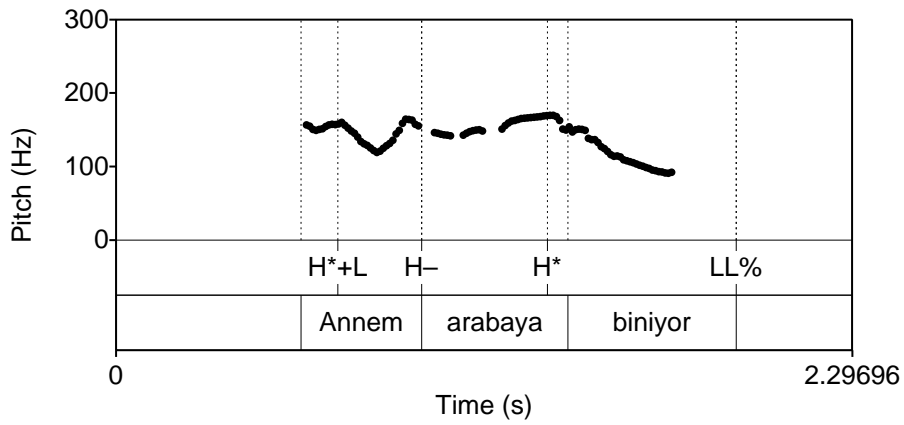


Figure VI.6: F0 curve of the token *Annem arabaya biniyor* ('My mother is getting on the CAR')

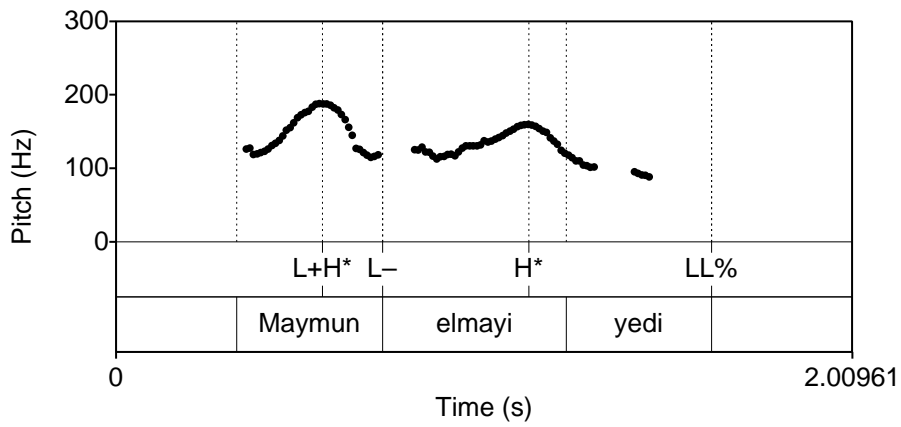


Figure VI.7: F0 curve of the token *Annem arabaya biniyor* ('My mother is getting on the CAR')

A: $\overbrace{(\text{Maymun})}^{\text{Theme}}$ $\overbrace{(\text{ELMA-YI})}^{\text{Rheme}}$ $\overbrace{(\text{ye-di.})}^{\text{Theme}}$
kontrast *background*

monkey apple-ACC eat-PAST

L+H* L- H* LL%

'Monkey ate the APPLE!'

Question (91Q) establishes the following proposition about *monkey*:

(92) *eat'banana'monkey'*

where this proposition is corrected by (91). Here thematic-kontrast marks the discourse referent, which the corrected proposition is about.⁹ Figure VI.7 shows the F0 curve of (91).

As we saw in Section V.2, none of the theme marking accents discussed in the present section are available for a main functor. Under this circumstance, a tune based theory of Turkish information structure predicts it to be impossible to restrict a TAS that consists of lambda expressions that differ only in their main functors. Let us consider an example from a language where this is possible, to better understand the issue. The following exchange is from (Steedman, 2000a, p 654):

(93) Q: I know which result Marcel PREDICTED. But which result did Marcel PROVE?

A: (Marcel PROVED) (COMPLETENESS).

L+H* LH% H* LL%

Here the theme *marcel proved* of (93A) restricts the TAS,

(94) $\left\{ \begin{array}{l} \lambda x.\textit{prove}'x\textit{marcel}' \\ \lambda x.\textit{predict}'x\textit{marcel}' \end{array} \right\}$

⁹ Note that if I had been using Vallduvi's(1992) information structural partitioning, I would have called this kind of thematic-kontrasts as *links* carrying an *overwrite* instruction.

that has been established by (93Q).¹⁰

In Turkish, just for the reason mentioned above, the main functor of an utterance cannot appear as the thematic-kontrast, as oddity (or more precisely impossibility) of a contour like that of (95A) illustrates:

(95) Q: Marcel-in hangi sonuc-u öngör-düğ-ü-nü bili-yor-um.

Marcel-GEN which result-ACC predict-REL-POS3sg-ACC know-PROG-1sg

Fakat hangi sonuc-u ispatla-dı?

But which result-ACC prove-PAST

'I know which result Marcel predicted. But which result did Marcel prove?'

A: *(Marcel ispatladı) (tamliğ-1).

Marcel prove-PAST completeness-ACC

L* H- H* LL%

'Marcel proved completeness.'

Rather, (95Q) would be answered like:

(96) (Marcel) (tamliğ-1 ispatla-dı.)

H* LL%

which is no different from an answer that would be uttered in a context, where TAS is a singleton, established by, say:

(97) Marcel hangi sonuc-u ispatla-dı?

Marcel which result-ACC prove-PAST

'Which result did Marcel prove?'

¹⁰ Vallduví and Engdahl (1996, 496) provide examples for how main functors are theme-kontrasted (linkhood in their terms) in English, Catalan and Dutch. They do not address the case for Turkish.

This shows that Turkish cannot contrast main functors with their alternatives available in the discourse model the way it does for other syntactic categories. Such a contrastive meaning is not available, because the particular prosodic marking needed to convey that meaning is not available.

Nevertheless, there is a construction, in my opinion, employed to serve the purpose of making thematic-kontrasts of main functors. Consider the following exchange:

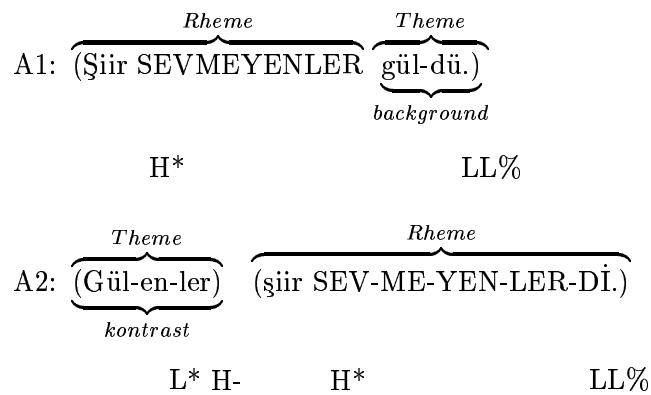
(98) Q: Şiir-i kim-ler beğen-di bili-yor-um da.

poem-ACC who-PLU like-PAST know-PROG-1sg but

Acaba kim-ler gül-dü şiir-e?

I wonder who-PLU laugh-PAST poem-DAT

'I know the ones who liked the poem, but I wonder who laughed at it?'



'The ones who laughed were those who didn't like poetry'

In (98A1) *güldü* is the main functor of the sentence, thus cannot be a thematic-kontrast, and appears in thematic-background. For this reason it can not be contrasted with *beğendi* that is made available by the context of (98Q). However, in (98A2), the main functor *güldü* in (98A1) is relativized to *gülenler*, and can thereby bear the L* H- contour and appear as thematic-kontrast. Now it can be contrasted with *beğendi*. Once a main functor is relativized it can bear any of the theme accents discussed above,

thereby being shaped into an appropriate prosodic form required by the context. I argue that even these syntactic strategies ultimately have prosodic motivations. In my view, this is illustrative of how Turkish finds a way to put tune into action to realize the information structure that would fit the context. More plainly, information structure is conveyed via prosodic structure; syntax only sets up the stage for prosody to act.

CHAPTER VII

DISCUSSIONS AND CONCLUSION

VII.1 Prosodic Explanations to Positional Restrictions

As we saw in Chapter III, it is argued by many authors that Turkish employs syntactic strategies in bringing sentential elements to designated positions that are attributed pragmatic functions. I argue that such proposals are motivated by considering the data in a biased way. Let us consider some question answer pairs:

(99) Q: Bir hizmetçi masa-nın üzerine not-u

a servant table-GEN top-POS-DAT note-ACC

ne zaman bırak-tı?

when leave-PAST

‘When did a servant leave a note on the table?’

A: Bir hizmetçi masa-nın üzerine not-u [_FYEMEK-ten önce] bırak-tı.

a servant table-GEN top-POS-DAT note-ACC e dinner-ABL before leave-PAST

‘A servant left a note on the table before the dinner.’

(100) Q: Bir hizmetçi yemek-ten önce not-u nereye bırak-tı?

A: Bir hizmetçi yemek-ten önce not-u [_FMASA-nın üzerine] bırak-tı.

(101) Q: Yemek-ten önce masa-nın üzerine not-u kim bırak-tı?

A: Yemek-ten önce masa-nın üzerine not-u [_FBir HİZMETÇİ] bırak-tı.

Presented this way, all these examples look as if the element to be focused has been moved to the immediately pre-verbal position. This can be accounted for like this: In questions, question words usually occur in immediately pre-verbal position since this position is prosodically the most prominent place in the sentence (Göksel and Özsoy, 1998). Then if we take the question in the order it is asked and only replace the question word with the answer, then the answer, i.e. the focus, naturally appears at the immediately pre-verbal position.

I argue that exchanges like (99)-(101) quite rarely occur in normal speech. In actuality we do not talk like this. In a highly economic fashion we *usually* utter as much as we believe is needed by the hearer. Real speech is highly elliptical in this sense. For instance in the above exchanges the materials preceding the focus only appear when they are needed to be contrasted with alternatives, to make corrections, to zoom into sets etc. In this respect these kind of exchanges should be considered under accurate discourse specifications.

In section VI.2 I tried to show that when information structural requirements are fulfilled obeying the prosodic constraints, the linear ordering that has long been thought of as responsible for the structural encoding of information structure comes for free.

Now I want to substantiate this claim by trying to give prosodic explanations to some syntactic restrictions proposed in the literature.

First, I want to challenge the view that *links*,¹ or thematic-contrasts in present terms, are strictly confined to sentence initial position. This view has been advocated in (Erguvanlı, 1979; Hoffman, 1995; Kılıçaslan, 1994; Vallduví and Engdahl, 1996; İşsever, to appear), (see Chapter III).

Kılıçaslan's (1994) example (21), repeated here as (102), is provided as evidence for the claim that links should be sentence-initial, or equivalently that links should precede tails:

(102) *Oya Ayşe-ye, kitab-ı ver-di.

Oya Ayşe-DAT book-ACC give-PAST

'Oya gave the book to Ayşe.'

Here, *Ayşeye* bears the intonational marking associated with links in Turkish, i.e. a rising contour that I have been identifying as L* H-, and followed by an optional pause indicated here by a comma. The point over which I shall build my argument is that a construction like (102) is, besides being prosodically well-formed, perfectly natural in an exchange like (103):

(103) Q: Oya-nın Aynur-a ne ver-diğ-i-ni bil-iyor-um da.

Oya-GEN Aynur-DAT what give-NOM-POS-ACC know-PRG-1sg but

Ayşe-ye ne ver-di?

Ayşe-DAT what give-PAST

'I know what Oya gave to Aynur, but what did she give to Ayşe?'

¹ Here, *link* should be understood as also covering Erguvanlı's(1979) and Hoffman's(1995) *topic*. See (Vallduví and Engdahl, 1996, p.513, note 18) for parallels between information structural primitives proposed in (Erguvanlı, 1979) and (Vallduví, 1992).

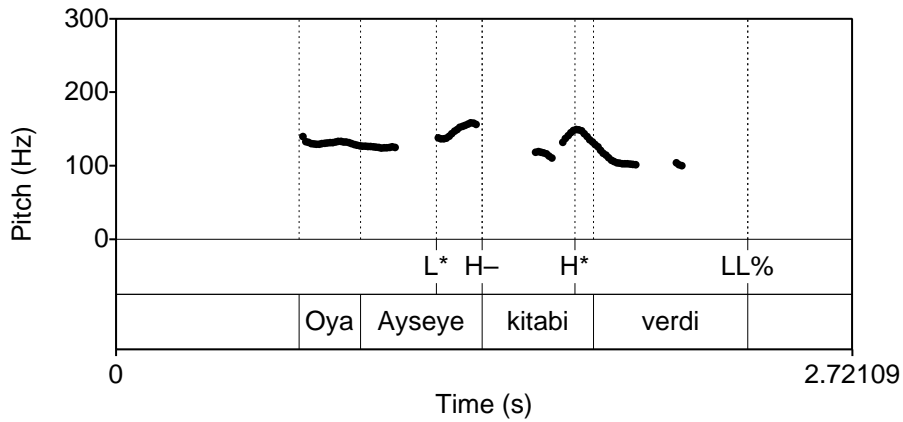
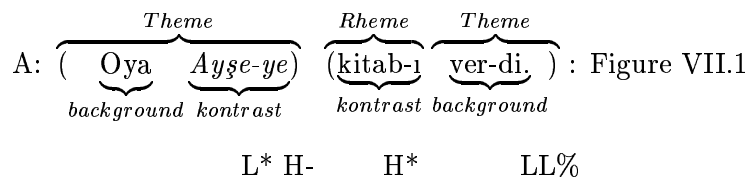


Figure VII.1: F0 track of the token *Oya Ayşeye kitabı verdi.* ('Oya gave the book to Ayşe.')



'Oya gave the BOOK to Ayşe.'

Here it is clear that the subject *Oya* acts as a tail and *Ayşeye*, as a contrastive link. However, various authors would have to characterize the acceptable (103A) as unacceptable on various grounds:

- Hoffman (1995) and Erguvanlı (1979) would reject (103A), on the grounds that topics (=links) are strictly confined to sentence initial slot.
- Kılıçaslan (1994) would reject (103A), on the grounds that '[a]n element which is prosodically marked as a link phrase cannot occur in a place other than the sentence initial slot" (p.28);
- Vallduví and Engdahl (1996) would reject (103A), on the grounds that tails can appear only "to the right of links" (p.496);

- İşsever's(to appear) account seems to be the most problematic of all, as it even fails to capture the right information structural partitioning, since his linkhood condition is being sentence initial and not bearing a focal accent. It is clear that in (103A), the tail *Oya* fulfills both conditions.

The present account, on the other hand, correctly captures that *Oya* is a tail, by virtue of being deaccented, i.e. appearing in thematic-background. *Ayşeye* is evaluated as the thematic-kontrast, or equivalently topic or link in the above authors' terminologies, by virtue of bearing the theme marking accent without committing to any positional information. Finally, *kitabı verdi* ('gave the book') constitutes a prosodic phrase that bears the rheme contour H* LL%, thereby is ambiguous between a wide rheme consisting of the whole VP or a narrow one covering only the direct object *kitabı*. This ambiguity is resolved to the favor of a narrow direct object rheme reading by the context roughly characterized by (103Q).

In this connection, besides being an example that substantially challenges all the above authors simultaneously, (103) is crucial in illustrating the core ideas of the present account. According to the tune-based account that is advocated in this thesis, what decides in tailhood is not the position the element stands but rather whether it is deaccented or not. Along the same lines, what decides in linkhood is the presence of the prosodic marking associated with links. Let us then consider Kılıçaslan's (1994, p. 30-31) example, which constitutes the motivation for the common view that the links should show up in a left-hand position, under the light of the present discussion:

(104) *Çaydanlık* masa-nın üst-ü-nde...

teapot table-GEN above-POS-[LOC]

'The teapot is on the table...'

a. ... fakat *şekerliğ-i* dolab-a koy-du-m.

but sugar bowl-ACC cupboard-DAT put-PAST-[1]sg

'... but the sugar bowl I put in the cupboard.'

b. *... fakat dolab-a *şekerliğ-i* koy-du-m.

c. *... fakat dolab-a koy-du-m *şekerliğ-i*.

Şekerliği ('sugar bowl') needs to be signalled as a link, or thematic-kontrast, as it contrasts with *çaydanlık* ('tea pot'), hence it should bear the L* H- contour. This is all a tune-based account requires. (104b) is unacceptable on the grounds that *Şekerliği* cannot come after *dolaba* given that *dolaba* should bear H* LL% contour as long as it belongs to rheme. More precisely, *Şekerliği* can not come after *dolaba* while bearing an L* H- contour, which it eventually needs to bear in order to be interpreted as a link, since H* LL% L* H- is not acceptable in Turkish. (104c) is also not acceptable in the sense.

In this respect, the requirement that the links should appear at a left-hand position, which has long been construed to be due to the pragmatic function of the sentence initial position, is thus revealed to be effectuated by prosodic constraints that require the element carrying the link marking (thematic-kontrast) to precede rheme (contour) and the main functor.

Recall from Chapter III (page 29) that İşsever (to appear) argued that p-foci are confined to immediately pre-verbal position, as they are realized by the syntactic strategy that detaches the ground material away from the pre-verbal focus domain. Objecting to this characterization, I argue that what distinguishes a c-focus from a p-focus is the way they are prosodically marked, rather than any positional or syntactic feature they carry. Let us once again consider İşsever's examples:

(105) a. (Fatma'yı) ([_{p-focus}ALİ] arıyor.)

L* H- H* LL%

b. ([_{c-focus}ALİ]) (Fatma'yı arıyor.)

H* LL% (-F-)

(105a) is representative of the syntactic strategy, where *Fatmayı* is moved from its canonical position to a peripheral one in order to leave the focus position to *Ali*, making a p-focus reading available. In (105b), on the other hand, prosodic strategy is at work making only a c-focus reading available. Contrary to the way İşsever (to appear) takes the matters to be, I argue that the difference between these two sentences, in fact, lies in the prosodic setting in which the focal element *Ali* is involved. I present (106) as support to my argument:

(106) ([_{c-focus}ALİ]) (arıyor Fatma'yı.)

H* LL% (-F-)

Here, although the focal element *Ali* is again left at the immediately pre-verbal slot by the movement of non-focal *Fatmayı* to a post-verbal slot and hence should carry a p-focus reading according to İşsever, it nevertheless allows only for a c-focus reading. This clearly shows that what causes the availability of a p-focus reading is not being left

at the immediately pre-verbal slot —nor being brought there— by a syntactic strategy, but rather forming a prosodic phrase with the verb as in (105a). In this line, (106) can be rendered felicitous in a non-contrastive (presentational) context just by altering its prosodic structure like:

$$(107) ([_{p-focus}AL\dot{I}] \text{ arıyor}) \quad (\text{Fatma}'y\dot{ı}.)$$

$$H^* \quad LL\% \langle \text{ -F- } \rangle$$

quite clearly illustrating that distinguishing between different types of foci is a matter of prosodic grouping.

As for the c-focus, it appears that, regardless of whether it occurs immediately pre-verbal or not, carrying an $H^* LL\%$ contour by its own makes an element a c-focus (or more precisely a non-p-focus). I take this to be quite natural given that such constructions are prosodically *more marked* than the ones where the focal element is prosodically grouped with the verb. To give flesh to the phrase 'more marked', the focal element is rendered prosodically more prominent in the sense that it is more foregrounded with respect to the rest of the sentence, given the fact that what comes after it is floored due to the $H^* LL\%$ contour.

VII.2 Conclusion

In this thesis I tried to show that the notion that sentential positions have pragmatic functions and word order variation is a syntactic means to realize these functions can be abandoned, without any loss of explanatory power, in favor of a tune-based perspective where prosody is the sole structural determinant of information structure. I argue that the tune-based account developed in this thesis is superior to positional accounts on the grounds that it offers a more transparent and direct relation between sentential

form and information structure, since the information structural status of an element is directly associated with a *physical* property it bears, not by a specific slot it occupies in an abstract schema, tree or any other theoretical construct.

I proposed that word order variations in Turkish are prosodically motivated and thus are effectuated in the process of attaining the right information structure, or equivalently prosodic structure, the context requires.

I tried to support these claims by developing a tune-based account of Turkish information structure where the various allignments of the informational units of theme and rheme with certain pitch contours were enumerated. CCG formulation of the present findings is left as a topic for future research.

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