MINIMAL WORDS IN TURKISH:

A VIEW FROM LOCALITY

YASİN TAŞDEMİR

BOĞAZİÇİ UNIVERSITY

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Yasin Taşdemir

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A View From Locality

The thesis of Yasin Taşdemir

has been approved by:

Assist. Prof. Kadir Gökgöz
(Thesis Advisor) _____

Assist. Prof. Pavel Logačev _____

Dr. Markus Pöchtrager
(External Member) _____

August 2018

DECLARATION OF ORIGINALITY

I, Yasin Taşdemir, certify that

- I am the sole author of this thesis and that I have fully acknowledged and documented in my thesis all sources of ideas and words, including digital resources, which have been produced or published by another person or institution;
- this thesis contains no material that has been submitted or accepted for a degree or diploma in any other educational institution;
- this is a true copy of the thesis approved by my advisor and thesis committee at Boğaziçi University, including final revisions required by them.

Signature Yasin T.

Date 14.08.2018

ABSTRACT

Minimal Words in Turkish: A View from Locality

This thesis proposes that the apparent irregularity of minimal words in Turkish emerges from the interaction between phonology and morphosyntax. In order to analyze this interaction, I utilize Government Phonology and Distributed Morphology. Firstly, I argue that only nouns in Turkish should be at least bimoraic in size, other categories such as verbs ‘ye, de, ko’ (eat, say, put), conjunction ‘ve’ (and), demonstratives ‘bu, şu, o’ (this, that (near), that (far)), clitic ‘mI’ are saved from this constraint. I also argue that the only apparently exceptional noun ‘su’ is not an exception, but ends with a glottal stop as in the following ‘sʊʔ’. My claim on ‘su’ is based on two facts: i) historically ‘su’ was ‘sub’ or ‘suv’ and according to McCarthy (2018) if a consonant is deleted in the historical process, a glottal stop is inserted in its place, ii) the phonetic features of ‘su’ show that the vowel ‘u’ is not lax although word final high vowels in Turkish are as such. Secondly, as I make use of Distributed Morphology, I predict that the bimoraic minimal size condition is a local constraint and there should be exceptional nouns when a category assigning head other than n^0 intervenes between the root and the n^0 because of the local nature of spell-out. In fact, I show that this prediction is confirmed through ‘ne-yi’ (what-ACC) and phrasal compounds such as ‘ye emr-i’ (eat.IMP order-CM).

ÖZET

Türkçede Minimal Sözcükler: Yerellik Açısından Bir Bakış

Bu tez, Türkçedeki minimal sözcüklerdeki görünürdeki düzensizliğin, sesbilim ve biçim-dizim arasındaki etkileşimden kaynaklandığını ileri sürmektedir. Bu etkileşimi analiz etmek amacıyla, Yönetimsel Sesbilim ve Dağıtılmış Biçimbilimi kullanmaktayım. Öncelikle, Türkçede yalnızca adların uzunluğunun en az iki moradan oluşması gerektiğini önermekteyim; 'ye, de, ko' gibi eylemlere, 've' bağlacının, 'bu, şu, o' işaret sıfat ve zamirlerine, 'mI' gibi biçimcelere bu kısıtlamanın uygulanmadığını iddia etmekteyim. Ayrıca, görünürde istisnai olan 'su' sözcüğünün istisna olmadığını, bu sözcüğün 'sʊʔ' şeklinde bir gırtlak ünsüzü ile bittiğini de savunmaktayım. 'Su' hakkındaki iddiam iki gerçeğe dayanmaktadır: i) tarihsel olarak 'su' sözcüğü 'sub' ya da 'suv' şeklindeydi ve McCarthy'e göre bir ünsüz tarihsel süreç içinde silindiğinde, onun yerine bir gırtlak ünsüzü getirilir, ii) 'su' sözcüğünün sesbilgisel özellikleri göstermektedir ki 'u' ünlüsü, Türkçe'de sözcük sonundaki yüksek ünlüler gevşek olmasına ragmen gevşek değildir. İkinci olarak, Dağıtılmış Biçimbilimi kullandığım için, iki moradan oluşan minimal boyut şartının yerel bir sınırlama olduğunu tahmin etmekteyim ve buna göre n^0 başından başka bir sözcük karegorisi atayan bir baş, kök ile n^0 arasına girdiğinde çıkartımın yerel doğasından dolayı istisnai adlar ortaya çıkmalıdır. Gerçek şu ki, bu tahmin, 'ne-yi' ifadesi ve 'ye emr-i' gibi öbeksi birleşik isimler sayesinde doğrulanmaktadır.

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CHAPTER 1

INTRODUCTION

1.1 The aim of the thesis

This thesis investigates the relationship between morphosyntax and phonology from the point of view of locality. The so-called monomoraic minimal words, which have only one onset and a nucleus in Turkish, attracted much attention because they have often been treated as irregular in the literature (Denwood, 1998, 2007; Charette, 2006; Inkelas and Orgun, 1995; Hankamer, 2013). The analyses by various researchers are summarized in the Table 1.

Table 1. Summary of Previous Research

Linguist	Theoretical Framework	Summary of the views
Denwood (1998)	Government Phonology	Turkish words have a four=position template (ONON)
Denwood (2007)	Government Phonology	Turkish words have an ONON template, the ones such as "kedi" (cat) have an ONON+ON template
Charette (2006)	Government Phonology	Turkish words are at least $O_1N_1O_2N_2$, the last N is unpronounced and dependent upon the preceding N
Inkelas and Orgun (1995)	Lexical Phonology	Turkish words can be underlyingly CV, but after the application of Level 1 phonology they become CV:
Hankamer (2013)	Distributed Morphology	Word Size Constraint is sensitive to three types of information: phonological shape (syllable number), morpheme number, wordhood

Despite these previous analyses, most of which treat the issue to be exclusively phonological, I will show that the so-called irregularity is caused by extra-phonological reasons. These reasons are due to morphosyntax.

I will use Government Phonology and Distributed Morphology as theoretical apparatuses. The former is very strict in distinguishing between phonological and non-phonological phenomena. The latter is transparent regarding the relationship between morphology and syntax.

The following data in Table 2 show the skeleton of the thesis:

Table 2. The Skeleton of the Thesis

	Canonical Situation	Canonical Pronunciation (+V)	Canonical Pronunciation (+CV)	BUT	Canonical Syntax	Nominalization	Phonological Shape
GROUP-1	dağ [da:] (mountain) değ [de:] (touch)	dağ-ı [daɯ] (mountain-ACC) değ-er [deer] (touch-AOR)	dağ-da [da:da] (mountain-LOC) değ-di [de:dı] (touch-PAST)		Noun		O1 N1 O2 N2 | | | | X1 X2 X3 | | / d a
GROUP-2	do [do:] (note C)	do-yu [do:yu] (note C-ACC)	do-dan [do:dan] (note C-ABL)		Noun		O N | | \ X1 X2 X3 | | / d o
GROUP-3	a. ve [ve] (and) b. mi [mi] (clitic)			a. [ve:-yi] (and-ACC) [ve:-den] (and-ABL) b. [mi:-yı] (cl-ACC) [mi:-den] (cl-ABL)	a. ve (conjunction) b. mi (clitic)	a. ve: (noun) nP / \ √ve n b. mi: (noun) nP / \ √mi n	a. O N | | \ X1 X2 X3 | | / v e b. O N | | \ X1 X2 X3 | | / m i
GROUP-4	ye/de/ko/yu [je/de/ko/ju] (eat/say/put/wash)	yi-yor [jiyor] (eat-PROG.3P.S)	ye-me [jeme] (eat-INF) ye-di [jedı] (eat-PAST)	[ye:-yı] ("ye" thing-ACC)	ye (verb)	a.ye: (noun) nP / \ √ye n	O N | | \ X1 X2 X3 | | / y e
GROUP-5	bu/şu/o [bu/ʃu/o] (this/that-near /that-far)	bu-n-u [bunʊ] (this-ACC)	bu-n-dan [bundan] (this-ABL)	[bu:-yu] ("bu" thing-ACC)	bu (demonstrative)	bu: (noun) nP / \ √bu n	O N | | \ X1 X2 X3 | | / b u
GROUP-6	su [su] (water)	su-y-u [suyʊ] (water-ACC)	su-dan [sudan] (water-ABL)		noun		O1 N1 O2 N2 | | | | X1 X2 X3 X4 | | | s u ʔ

The data will be studied in the light of the following questions:

i. Do the words in Table 2 have different phonological representations?

ii. Can the alternations such as ve→ve:-yi (and-ACC) be explained by suprasegmental reasons (i.e. word stress) or do we need an alternative analysis?

iii. Can the interplay between phonology and morphosyntax be the trigger behind the alternations of length in Table 2?

iv. If the results of the inquiry point out to the interference of morphosyntax into phonology, what does it tell us about locality and the architecture of grammar?

1.2 Outline of the thesis

In Chapter 2, I will first provide information about Government Phonology (GP) and Distributed Morphology (DM) which are the theoretical tools used in this thesis. After the presentation of the theoretical tools, Chapter 2 will also present the literature review on previous analyses on minimal words in Turkish. I will evaluate the arguments put forward by previous researchers by testing their predictions. Through the literature review and a critical evaluation of it, I will show that the so-called irregular words which lack two morae cannot be accounted by a purely phonological approach, but the morphosyntactic environment is the determining factor on the phonological shape of the words.

In chapter 3, I will present Turkish minimal words and group them into six categories on the basis of their phonological behavior following Phonological Epistemological Principle (Kaye, 2005) which states that "the only source of phonological knowledge is phonological behavior". This categorization will first present a better picture of the word final long vowels by dividing them into lexically long ones and those which receive lengthening after nominalization as understood by addition of nominal suffixes. As a result, I will show that the so-called minimal word constraint cannot be explained by phonology alone. For example, the words "do:" and "dağ" in Table 2 cannot be explained by the same phonological process because their phonological behavior is different after affixation. This means that the long vowels at the end of these words can have the same phonetic features for length but they are different phonological objects according to Phonological Epistemological Principle (Kaye, 2005), which dictates that "the only source of phonological knowledge is phonological behavior (Kaye, 2005)". As a result, every purely phonological account which will try to account for the phonological processes in a

unified way will run against the Phonological Epistemological Principle (Kaye, 1995).

Furthermore, I will put words within nominal contexts such as nominal inflection or compounding, and I will show that the change in their phonological behavior is not by accident but that there is a very strict relationship between the morphosyntactic environment in which these words occur and their phonology. In this section of Chapter 3, I will employ Distributed Morphology to show the interaction between roots and lexical heads which assign lexical category to roots. I will argue that the so-called minimal word constraint is a property of the nominal lexical head. Strictly speaking, all nouns in Turkish should comply with the xxx skeletal schema (i.e. CV: or CVC); therefore, all the so-called irregular words in Turkish should be considered from this point of view. Secondly, I will argue that this interaction between roots and nominal head should be local in the sense that there should not be any interfering phasal head such as vP, v*P and possibly CP because in such situations the local relation between the roots and the nominal lexical head, n, is lost and thus the length requirement does not hold anymore.

In chapter 4, I will summarize the results and I will provide implications for further research.

CHAPTER 2

LITERATURE REVIEW

2.1 Theoretical tools

2.1.1 Government Phonology

Being a very restrictive generative phonological model, Government Phonology (henceforth GP) has a few major principles and a theoretical toolbox (such as onsets and rhymes, skeletal points, melody and minor principles) to explain phonological phenomena.

2.1.1.1 The Principles of the theory

The first major principle is Phonological Epistemological Principle:

(1) "The only source of phonological knowledge is phonological behavior." (Kaye, 2005)

This principle means that phonetics alone does not help to distinguish between two phonetically similar objects. However, if two phonetically dissimilar objects are subject to the same phonological conditions, it can be inferred that they are of the same phonological structure. The second principle is the Minimalist Hypothesis:

(2) "Processes apply whenever the conditions that trigger them are satisfied." (Kaye, 1995)

According to this principle, phonology should eliminate exceptions. This means that if a phoneme undergoes a change in a specific environment, then it should always do so. Otherwise, the phenomena under investigation may not be a phonological process. The third and the last principle is Principle of Non-arbitrariness:

(3) “There is a direct relation between a phonological process and the context in which it occurs.” (Kaye, Lowenstamm and Vergnaud, 1990)

The principles given above constitute the core of the theory. During my analysis, I will refer to the Phonological Epistemological Principle and the Minimalist Hypothesis (Kaye, 1995), because the previous accounts of word minimality in Turkish suffer from not being able to explain exceptions.

2.1.1.2 Theoretical toolbox of Government Phonology

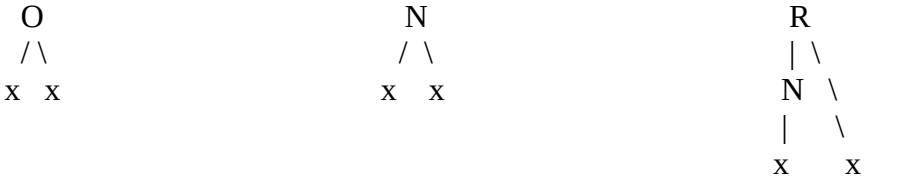
The first terms of the toolbox are Onset and Nucleus. Onset is a cover term for consonants, while Nucleus is for vowels. If a Nucleus projects to a Rhyme, the Rhyme can host a Coda on the condition that an Onset is present after the Coda (Kaye, 1990, p. 311):

(4)



The structure given above presents us with another part of the toolbox; the skeletal points. The X letters in the structure above are skeletal positions. They constitute timing units. According to the Binarity Theorem (Kaye, 1990), Onsets, Rhymes and Nuclei can be associated with two skeletal positions at most:

(5) a. branching onset b. branching nucleus c. branching rhyme



2.1.2 Distributed Morphology

Distributed Morphology is an anti-lexicalist grammar model (Halle and Marantz 1993). Although it acknowledges almost all aspects of Generative Syntax, there are

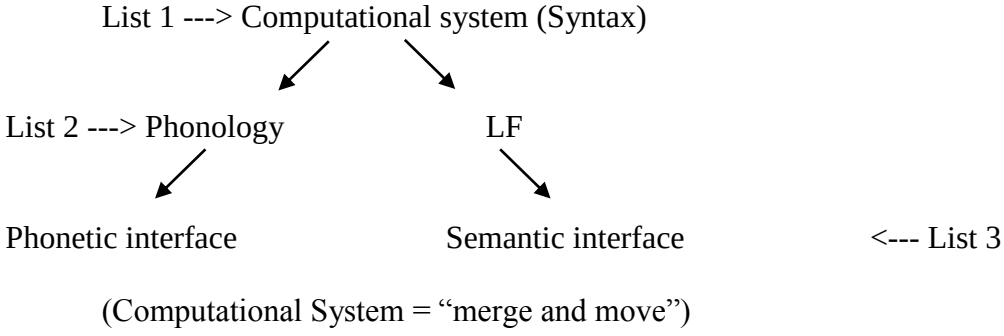
some points where it diverges from the mainstream model. For instance, in canonical Generative Syntax, lexical items - however morphologically complex they might be - are taken from the lexicon as ready to merge. However, in Distributed Morphology (DM), inflectional and derivational morphemes, which are also known as f(unctional)-morphemes and l(exical)-morphemes, are treated as separate lexical items and they merge with √roots which are proposed to be categoriless (Marantz, 1997):

(6) a. b.



In DM, the lexicon is also divided into three as it can be seen in (7) taken from Marantz (1997, p. 204):

(7) structure of grammar

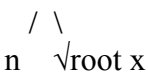


In the "structure of grammar" given above, List 1 is the partition of the lexicon where the √roots, f-morphemes and l-morphemes are saved. List 2 is called the "vocabulary" and the phonological properties of the items which are spelled-out after the "Computational System" are present here. List 3 includes special meanings assigned to sounds and structures. The "Late Insertion" is another important point in DM. For instance, the past tense morpheme is "-ed" in English, The expression "√go+v+PAST" is created in the Computational System (CS) while there is no

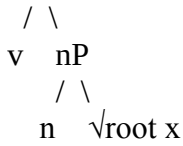
Vocabulary Item as “goed” in English. It surfaces as “went”. So, the phonological properties of the items spelled out from the CS are calculated later on. That is to say, after the computation of morphosyntactic structure, it is sent to PF for interpretation, and at this point, it is PF where the phonological words are matched with the relevant morphosyntactic structure as well as possible.

As we are talking about spell-out, it is crucial to mention the difference between approaches towards phases in Generative Syntax and DM. In the traditional Generative analyses, only v*P and CP are accepted as phase heads (Chomsky, 2000), but according to Marantz (2001; 2007) l-morphemes (*n*, *v* and *a* heads) are also phases and they trigger spell-out. After the spell-out, the lexical phase head and its complement are sent to PF and LF for interpretation. At this point, the elements in CS cannot interfere with the spelled-out items. The spelled-out items are frozen, which is known as PIC in the traditional Generative account (Chomsky, 2000).

It is necessary to note that there is one point my thesis deviates from the standard DM. During the analysis section, I will follow Acquaviva (2009) according to whom √roots can be merged with more than one l-morpheme. For example, a √root x can be in the following form first:

(8)


Then it can be merged with a v head:

(9)


As already mentioned, l-morphemes are phase heads (Marantz; 2001; 2007), and since, as noted by Newell (2008), they comply with PIC (Chomsky, 2000), the "n" and its complement √root x in (9) above are not accessible to "v". Therefore, it is expected that the latter should preserve their phonological shape.

In this section, I introduced the theoretical apparatus that I will use in this thesis. In the next section, I will survey the previous accounts.

2.2 Previous accounts

Hayes (1995) shows that Word Minimality is a strict phonological constraint for many languages. It is used to describe phenomena which can be summarized as a ban on CV words (or CVC in some languages). We can list a number of accounts for the issue of Word Minimality in Turkish (Denwood, 1998, 2007; Charette, 2006; Inkelas and Orgun, 1995; Hankamer, 2013). The general assumption in these accounts is that Turkish words are longer than a CV in general. The linguists cited above argue for the following views, which are presented on Table 3.

Table 3. Previous Research on Word Minimality in Turkish

Linguist	Theoretical Framework	Summary of the View
Denwood (1998)	Government Phonology	Turkish words have a four-position template (ONON)
Denwood (2007)	Government Phonology	Turkish words have an ONON template, the ones such as "kedi" (cat) have an ONON+ON template
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Inkelas and Orgun (1995)	Lexical Phonology	Turkish words can be underlyingly CV, but after the application of Level 1 phonology they become CV:
Hankamer (2013)	Distributed Morphology	Word Size Constraint is sensitive to three types of information: phonological shape (syllable number), morpheme number, wordhood

Let us see the list of the minimal words in Turkish first before we examine all the arguments one by one.

Table 4. List of Minimal Words in Turkish

CV	Meaning
be	Exclamation
bu	this
ce	Exclamation
de	say.IMP
fe	Iron
he	yes (dialect)
ki	complementizer
Ko	put.IMP (dialect)
la	dude (dialect)
me	sound of sheep and lamb
ne	What
o	that/he/she/it
su	Water
şa	Exclamation
şu	That
ve	and
ya	what if/ either
ye	eat.IMP
yu	wash.IMP

The words given in Table 4 have been extracted through Wuggy, which is a word and non-word generator for phonological studies.

We will now go over the arguments advanced before in the light of the data and decide whether they are explanatorily adequate.

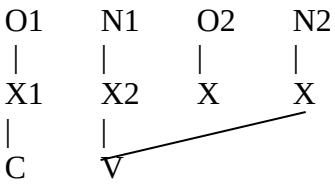
2.2.1 Denwood (1998)

Denwood (1998) argues that Turkish words, like Beijing Mandarin (Goh, 1996) and Khalka Mongolian (Denwood, 1997), have a four-position template which ends with an Onset and Nucleus pair. Denwood (1998) also states that the interpreted word final empty nuclei and k-zero alternation can be attributed to the template. Furthermore, she makes it very clear that the four-position template must have a

relationship with vowel harmony, borrowed words and morphology of the language (Denwood, 1998). Since the brief information given above is very compact, it is best to examine them respectively. Let us have a look at the four position template.

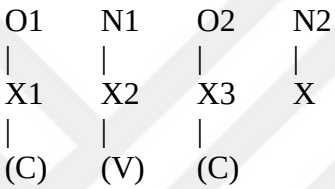
The following representations are taken from Denwood (1998, p. 178).

(10)



(e.g. [pɪː] ‘pen’)

(11)



(e.g. [kan] ‘dry’)

Denwood (1998) argues that in these templates, the second nucleus is parametrically p-licensed. In the word [pi:], the second nucleus is interpreted so that it should become a proper governor for the empty onset. On the other hand, in the word [kan], the second nucleus is empty and it is not interpreted because the second onset position is already filled. So, according to Denwood (1998), words in Chinese have an ONON structure and either the second Onset or the second Nucleus in this language should be filled/interpreted. Denwood’s analysis is based on Harris’s (1992, p. 340) understanding of licensing, because according to Harris, if a position is licensed, it can remain silent. Keeping this in mind we can say that, in a way, it is possible to say that Denwood (1998) argues for a constraint which is very similar to word minimality. The ONON template given above for each word is reduced to

[ONON[ON]] when two words with the same ONON structure are combined as a compound:

(12a)

O1	N1	O2	N2
|	|	|	|
X1	X2	X	X3
|	|		|
t	o		u

(b)

O1	N1	O2	N2
|	|	|	|
X1	X2	X	X
|	|		
f	a		

(c)

O1	N1	O2	N2	O3	N3
|	|	|	|	|	|
(x	x1	x	x)1	(x	x)2
|	|		|	|	|
t	o		u	f	a

[t’oufa] ‘hair’ (Representations from Denwood (1998, p. 179).

The word [t’ou] has a second nucleus with melodic content (12a); therefore, it is not forced to interpret the second onset position. On the other hand, in the word [f’a:] in (12b) both the second onset and the nucleus positions are devoid of melody; thus, the second nucleus of the word [f’a:] is interpreted the same as the first nucleus “a”. When we look at the situation in which the words [t’ou] and [f’a:] are compounded, in other words, when a morphological operation applies to these words, the vowel in the word [f’a:] loses its length. Denwood (1998) claims that this is because the words are merged analytically and the second word, depending on the first one, cannot retain the length of the vowel [a] in [f’a:]. Although, Denwood (1998) does not put it explicitly, it can be understood that the underlying reason for such a change is that the new word [t’ouf’a] complies with the ONON template as it is now longer in size. Why the word [f’a:] changes although [t’ou] remains the same is not stated in the paper. That is to say, the question whether this process applies to

all the words which constitute the second part in a compound or only those words with a second nucleus that lacks melodic content like [f'a:] remains unanswered. Keeping this point in mind, we can now continue with Denwood's (1998) account with Turkish words.

Denwood (1998) argues that there are three "facts" for Turkish, which can be summarized as the following:

(13) a) Turkish words or stems are either CVC or CV: at minimum.

b) The pattern described in (a) cannot be observed with the suffixes.

c) Suffixes are either CVC or (C)V.

There are problems with these arguments. Functional words in Turkish such as "ve" (and), "de" (Topic marker), "mi" (question particle) are exceptions to the pattern seen in (13a). There are also content words, such as the verbs "ye" (eat), "de" (say), "ko" (put), and "yu" (wash). Therefore, when faced with the Turkish data, the facts advanced by Denwood (1998) seem not to work properly as her analysis runs against the tenets of the Government Phonology, specifically against the Minimalist Hypothesis (Kaye, 1995), which dictates that phonological processes apply when their conditions are met. The words given in this section are clear violations for Denwood (1998); therefore, her main argument fails about Turkish words in the first place.

On page 182, Denwood (1998) states that her analysis is based on three points whose third one is the following:

> (iii) There is only one context where a domain final empty nucleus must be interpreted in order to satisfy the requirements of a minimal word: when O_2 of a stem template is empty. N_2 of a suffix is never interpreted.

There are problems with this statement. First of all, it is a clear violation of the Minimalist Hypothesis (Kaye, 1995) because although the words like "ye"

(eat.IMP) lacks an O_2, we do not see the interpretation of the so-called "domain final empty nucleus". Secondly, the statement depends on distinguishing between stems and suffixes in terms of their phonological behavior. At this point, Denwood (1998) is not clear whether her analysis deals with a phonological process such as word final devoicing or an interface phenomenon happening because of the interaction between morphology and phonology.

Denwood (1998, p. 183) admits that her analysis will fail to explain words such as "kedi" (cat) and "sarı" (yellow) because the word final vowels in these words should be parametrically p-licensed and therefore they should not need to be pronounced according to Denwood (1998, p. 182). However, it is clear that these words do end with a vowel. She tries to explain this crucial detail by arguing that these words can be morphologically complex. However, this is circular: the final vowels in these are not licensed because these words are morphologically complex. In addition, a morphological word is saved from the domain final p-licensing. Secondly, she does not bring external evidence such as irregular stress patterns or irregularity in terms of suffixation. Therefore, her argument for the sake of morphological complexity does not hold for the "kedi" type words.

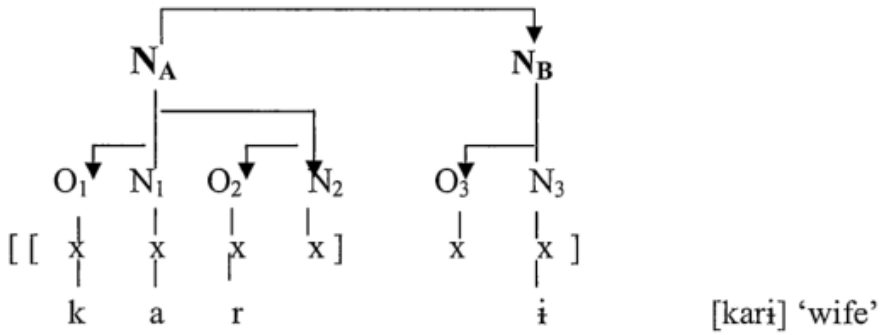
Another problematic point with Denwood (1998) is the claim that long vowels can be present in Turkish words, either to conform with the ONON template as in the case of "dağ" (mountain) or in morphologically complex words such as "ayağ-a" (foot-DAT). However, when we look at words such as [ve:-yı] (and-ACC) we see that the word "dağ" (mountain) does not behave the same in the accusative form: "da-ɯ" (mountain-ACC) as the former. Therefore, for the words such as "dağ", it can be argued that they are ONON (Nuhbalaoğlu, 2010), but the words such as [ve:jı] (and-ACC) cannot be captured with the template hypothesis because i) the

word final vowel in [da-ɯ] and in [ve:jı] does not show uniformity in terms of length after suffixation, ii) the appearance of [j] in between [ve:] *ve* and the accusative suffix cannot be observed in [da:] *dağ* (mountain), so the question why the very same template ONON triggers different sorts of phonological behavior is curious. iii) "ve" is ON as a conjunction but the vowel lengthening appears after suffixation as in the case of the accusative or in compounds such as "ve: bağlac-ı" (and conjunction-CM). Thus, why does the so-called "domain final" N_2 in "ve" is licensed as a conjunction? That the last N of the ONON template can remain silent when it is a conjunction but it loses this licensing potential when used in a compound remains an unanswered question through the paper.

2.2.2 Denwood (2007)

Denwood (2007) tries to capture the points which are left open for discussion in her previous paper. For example, the words such as "kedi" are claimed to be morphologically complex in her 1998 paper because they are expected to end in either an onset or just a nucleus as in the case of Mandarin Chinese. However, in latter work, she proposes a different approach to words like [kedı] *kedi* (cat). To this end, she gives the examples of the words [kar] *kar* (snow) and [karɯ] *karı* (wife). As it can be seen in the word "kar" it complies with the ONON template. However, "karı" does not comply with the ONON template because if the template hypothesis is correct then it should be either CVC like "kar" or CVV. For this reason, Denwood (2007) argues that the word "karı" has one-and-a-half templates. Let's look at the following representation taken from Denwood (2007, p. 14):

(14)



In the template given above it is claimed that the N_2 is in the first template and since O_2 is interpreted, it is licensed, which causes N_2 to be empty. On the other hand, N_3 is in a separate template, too; therefore, it has melody. First of all, this approach has many parallels with that of Goh (1967). As it is already recognized by Denwood (2007), Goh proposes the following repeated from (12) above:

(15a)

O1	N1	O2	N2
|	|	|	|
X1	X2	X	X3
|	|		|
t	o		u

(b)

O1	N1	O2	N2
|	|	|	|
X1	X2	X	X
|	|		
f	a		

(c)

O1	N1	O2	N2	O3	N3
|	|	|	|	|	|
(x	x1	x	x)1	(x	x)2
|	|		|	|	|
t	o		u	f	a

[t'oufa] 'hair' (Representations from Denwood (1998, p. 179).

We should keep in mind that the process described in (15a-c) is both a morphological and phonological one. However, words like "karı" and "kedi" do not

involve morphology. Secondly, [f'a:] loses its length and tone as Denwood (2007) mentions it. On the other hand, there is no such suprasegmental irregularity in the words like "kedi" and "karı". On the contrary, these words have regular word final stress like many other words in Turkish. Thus, the claims in this paper seem to be lacking an empirical basis.

Continuing with the arguments for an ONON template in Turkish, Denwood (2007) states that in Mandarin Chinese the independent - or in other words the first - template can have either a (C)V: or a (C)VC shape and the latter can have only [r] or [+nasal] consonants as the second Onset. Therefore, although Denwood (2007) does not put it explicitly, it can be inferred that she seems to assume that [r] and [+nasal] consonants are sonorants, which are very similar to vowels according to her because these sonorant sounds can be present in the same position with vowels, i.e. (C)V: vs. (C)VC. As a result, she claims that Mandarin Chinese can only have the (C)V: or (C)VV shape. In other words, first Nucleus, also known as the template head, can license only another nucleus. However, she argues that the first Nucleus in Turkish is stronger and can license either a long V or [k] in the O_2N_2 position. So, according to her analysis that is why Turkish has "dağ" type words which behave as if they end with a [k] because both [k] and the long vowel which is created through the spreading of the first Nucleus are deleted after a vowel initial suffix is added to the base. For this reason, she proposes that "unlike Beijing Mandarin, the second Nucleus is never interpreted in Turkish" (Denwood, 2007, p. 16). It means that in Beijing Mandarin the first Nucleus in the ONON structure can license only the second Nucleus while in Turkish it can license only the second Onset.

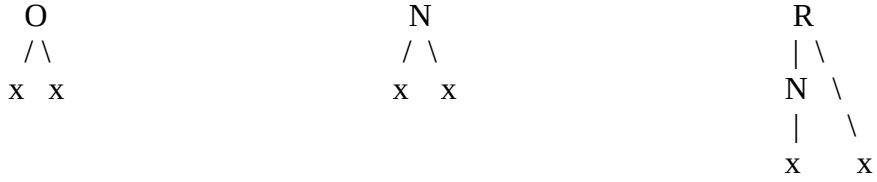
This point is particularly interesting because according to this analysis words such as "do:" results because the second uninterpreted Onset, which is in Denwood's

(2007) terms, “the second empty onset is interpreted either as [k] or as a long vowel”, which means that we should expect the length of the vowel in “do:” type words to be lost after affixation. However, what we get is “do:→do:-yu” (do→do:-ACC) as opposed to “dağ→da-ı” (mountain→mountain-ACC). Here, remember the Minimalist Hypothesis (Kaye, 1995) which states that the phonological processes should apply when their conditions are met. As it can be seen in the example, both words end with a long vowel but one loses length while the other one retains it. So, the template hypothesis cannot be correct.

2.2.3 Charette (2006)

Based on the observation that Turkish words do not always end with an onset as already mentioned (do:→do:-yu (note C-ACC) but dağ→da-ı (mountain-ACC)), Charette (2006) argues that Turkish words always end in an ON pair whose Nucleus is licensed by the leftward N which is claimed to be the domain head. Charette (2006) builds this view on the basis of Lowenstamm (1996) which states that the following branching structures (Binarity Theorem, Kaye, (1990)) are not possible so the onsets and nuclei are non-branching:

(5) a. branching onset b. branching nucleus c. branching rhyme



After the approval of the ON – or in other words CV- as the sole structure, Charette (2006) follows the analysis of Lowenstamm (1999) who states that French words should start with a CV pair and she argues that for Turkish there should be a CV structure at the end of every Turkish word. Therefore, a minimal word should be at least ONON (CVCV) according to Charette (2006):

(16)

O1	N1	O2	N2
|	|	|	|
x	x	x	x

And, as it was already mentioned the N_2 should be licensed by N_1. It means that Charette (2006, p. 27) accepts only words like “buz” (ice) as true minimal words in Turkish, which is already confessed by Charette herself (on the same page) that CV words in Turkish are only pronouns. At this point it should be noted that conjunction “ve” (and) and question particle (mI) or even verbs “ye” (eat), “de” (say), “ko” (put), “yu” (wash) are CV in Turkish although she never mentions them. To quote her:

> Starting with the structure of a minimal word, CV words in Turkish are extremely rare, they are almost without exceptions restricted to pronouns and they show the appearance of an epenthetic consonant ‘n’ or ‘y’ when suffixes are added (e.g. bu ‘this’, bunlar ‘these’, o ‘he’, onlar ‘they’, su ‘water’, suyum ‘my water’ vs. oda ‘room’, odalar ‘rooms’, odam ‘my room’). Leaving aside those very few words, […]

Since the first problematic point has already been mentioned here, let us continue with the second one: according to Minimalist Hypothesis (Kaye, 1995) one simply cannot “leave aside” the exceptions as minimalism is one of the basic building blocks of the GP framework.

Another issue with Charette’s (2006) claims is that her account increases the number of empty positions (consonants and vowels) in the structure, which is a point accepted by Charette (2006, p. 33) herself.

After proposing the ONON template for words in Turkish, Charette (2006) puts the following structures forward in order to explain the so-called irregular words such as “su” and “o”:

(17a)

C	V	c	v	
|	|			
s	u	I		*su* ‘water’

(b)

C	V	c	v	
	|			
o	n			*o* ‘he’

(Representations are taken from Charette 2006, p. 37)

So, clearly the words “su” and “o” have four positions. The reason that she proposes that these words have two ON pairs is that these words always end with a fixed consonant:

(18) a. su + (I)m ‘water + my’ = suyum, *sum ‘my water’

vs.

oda + (I)m ‘room + my’ = odam, *odayam ‘my room’

b. o + lar ‘he + plural’ = onlar, *olar ‘they’

vs.

oda + lar ‘room + plural’ = odalar, * odanlar ‘my rooms’

(Examples are taken from Charette 2006, p. 37)

For Charette (2006), these fixed consonants are floating consonants and they are invisible before suffixation because as it can be seen in the examples given above these floating consonants are not attached to any skeletal position, which causes these positions to be represented as empty and therefore she argues that the stems cannot contain empty syllables. Although Charette (2006) seems to be on the right track, her account cannot be confirmed with the following data presented on Table 5.

Table 5. Counter-evidence to Charette (2006)

Bare verb	Aorist	Past
Git (go)	Gid-Er (go-AOR)	Git-ti (go-PAST)
De (say)	De-r (say-AOR)	De-di (say-PAST)
Ye (eat)	Ye-r (eat-AOR)[1]	Ye-di (eat-PAST)

In Table 5, it is clear that there is no such fixed "floating" consonant for the verbs "ye" and "de" as opposed to "su" vs. "o". Although it can be said that the words given in Table 5 belong to verbs as opposed to "su" and "o", this point should not be of any concern in terms of true phonological processes according to Minimalist Hypothesis (Kaye, 1995). Therefore, the claim that the CV words have a CVCV structure cannot be maintained at least with these words. All in all, although Charette's (2006) attempt is a step towards explaining phenomena such as word final vowels and minimal words in a unified way, it fails with respect to the minimal words given above, which is against the Minimalist Hypothesis (Kaye, 1995).

2.2.4 Inkelas and Orgun (1995)

After going over a short survey of GP based approaches towards word minimality, let us see another account. Inkelas and Orgun (1995) handle the issue from the point of Lexical Phonology. First of all, they list the following words as CV words:

(19) "(C)V, (C)VC roots: all speakers

do$_i$, re$_i$, mi$_i$, fa$_i$, … [notes of scale]

a$_i$, be$_i$, ʤe$_i$, … [letters of the alphabet]

je 'eat', de 'say', su 'water', ko[11], 'put' "

(Examples are taken from Inkelas and Orgun 1995, p. 772)

[1] Although the word "ye-r" is pronounced as [jer] in Standard Turkish, in some dialects it is observed to be pronounced as "yiy-er" (eat-AOR) [jɪjer].

The musical notes and the letters of the alphabet cannot be seen as CV words (at least for all speakers), because even Inkelas and Orgun (1995), who claim that there are 4 dialects of Turkish (Ai, Aii, Bi, Bii) based on their acceptance of CV words both in their bare forms and after affixation, accept that only for Bi speakers these words are acceptable as CV both in their bare forms and after affixation with a bimoraic suffix. Table 6 presents these data.

Table 6. Inkelas and Orgun's data (1995, p. 774)

Group	Isolation	Before consonantal suffix (1SG. POSS)	Before longer suffix (1PL. POSS)	In root-root compound
Ai	fa:	fa:-m	fa:-mɯz	fa-minör
Aii	fa:	fa:-m	fa:-mɯz	fa:-minör
Bi	Fa	-	fa:-mɯz	fa-minör
Bii	fa:	-	fa:-mɯz	fa:-minör

Therefore, there is a contradiction in their presentation of the data. Another point that should be emphasized is that although words "ye" and "de" are listed among CV roots, they do not undergo lengthening after affixation as it can be seen in Table 7.

Table 7. Counter Evidence to Charette (2006)

Bare form	Aorist	Evidential
Git (go)	Gid-er (go-AOR)	Git-miş (go-EVD)
Ye (eat)	Ye-r (eat-AOR)	Ye-miş (eat-EVD)
De (say)	De-r (de-AOR)	De-miş (de-EVD)

To offer a solution to the problem given above, using the basic machinery of Lexical Phonology, Inkelas and Orgun (1995, p. 787) suggest that lengthening phenomenon is seen when a bare root is applied at Level 1 phonology. However, the exceptional roots given above are claimed to be "pre-specified" as Level 1; thus, they are implied to start their phonological journey as Level 1 since there is no derivation from bare form to Level 1 as they already start at Level 1, they are exempt from the side effects of assigning Level 1 phonology.

Such a Lexical Phonology based approach towards word minimality suffers from lacking falsifiability (Popper, 2010) because arguing that these words are pre-specified is not a testable argument. As a result, Inkelas and Orgun (1995) fail to explain the Turkish data.

2.2.5 Hankamer (2013)

The last analysis regarding the ban on CV words in Turkish is by Hankamer (2013). Using the Distributed Morphology framework, he concludes that lengthening processes seen in Turkish words are not because of purely phonological reasons, but morphology and whether the lexical item is a word or not are also important details. After positing the canonical examples such as the ones in (20):

(20) "(C)V, (C)VC roots: all speakers

do$_i$, re$_i$, mi$_i$, fa$_i$, … [notes of scale]

a$_i$, be$_i$, ʤe$_i$, … [letters of the alphabet]

je 'eat', de 'say', su 'water', ko[11], 'put' "

Hankamer (2013) also observes that the words such as musical notes and letters of alphabet undergo word final vowel lengthening as in Table 8.

Table 8. Data from Inkelas and Orgun (1995, p. 774)

Group	Isolation	Before consonantal suffix (1SG. POSS)	Before longer suffix (1PL. POSS)	In root-root Compound
Ai	fa:	fa:-m	fa:-mɯz	fa-minör
Aii	fa:	fa:-m	fa:-mɯz	fa:-minör

Hankamer (2013) proposes that every monosyllabic word should also be monomorphemic. Although the size constraint he advances can deal with cases of vowel epenthesis in the words such as "kɯz+m" (daughter-POSS.1P.S) by inserting a vowel to comply with the size constraint, he also accepts that aorist forms of CV verbs are as in Table 9:

Table 9. Counter Evidence to Charette (2006)

Bare form	Aorist	Evidential
Git (go)	Gid-er (go-AOR)	Git-miş (go-EVD)
Ye (eat)	Ye-r (eat-AOR)	Ye-miş (eat-EVD)
De (say)	De-r (de-AOR)	De-miş (de-EVD)

Apart from the irregularity of "de" and "ye", the problem with this account is that in DM terms stems such as "ye" and "de" are not monomorphemic too, because √roots should be merged with a lexical morpheme (n, v, adj, adv) so that they can have a category. Another problematic point in Hankamer's analysis is that he fails to explain vowel lengthening processes seen in (21):

(21) ve: bağlac-ı-nı yanlış yaz-dı-n.

"and" conjunction-CM-ACC wrong write-PAST-2.s

You wrote the conjunction "and" in the wrong way.

The example given above shows that there is no suffixation but still the conjunction "ve" undergoes lengthening. So, although Hankamer's (2013) approach towards word minimality is better than the previous analyses examined so far, he fails to detail under which morphosyntactic environments his condition works.

We have reached the end of the survey of previous research. In the next chapter, I will lay out my own analysis.

CHAPTER 3

ANALYSIS

The accounts offered so far point to the result that the phenomena in Turkish cannot be handled in solely phonological terms, because the words that do comply with the so-called “word minimality constraint” only come from the nominal category. As it can be observed below, the words in group 3 show lengthening regardless of whether the initial sound of the suffix is a consonant or a vowel, when one can attach a suffix to these. On the other hand, the words in groups 4 and 5 do not show this pattern. They are spared from the lengthening process when they are attached a suffix form their canonical suffix pool. In other words, although the words in groups 3, 4 and 5 are in the same phonological shape, i.e. CV, in their bare forms, the word final vowels only in group 3 are lengthened under the same phonological circumstances with the words in group 4 and 5. The skeleton of the study is once again presented below, in Table 10.

Table 10. The Skeleton of the Study

	Canonical Situation	Canonical Pronunciation (+V)	Canonical Pronunciation (+CV)	BUT	Canonical Syntax	Nominalization	Phonological Shape
GROUP-1	dağ [da:] (mountain) değ [de:] (touch)	dağ-ı [daɯ] (mountain-ACC) değ-er [deer] (touch-AOR)	dağ-da [da:da] (mountain-LOC) değ-di [de:dı] (touch-PAST)		Noun		O1 N1 O2 N2 | | | X1 X2 X3 | | / d a
GROUP-2	do [do:] (note C)	do-yu [do:yu] (note C-ACC)	do-dan [do:dan] (note C-ABL)		Noun		O N | | \ X1 X2 X3 | | / d o
GROUP-3	a. ve [ve] (and) b. mi [mi] (clitic)			a. [ve:-yi] (and-ACC) [ve:-den] (and-ABL) b. [mi:-yı] (cl-ACC) [mi:-den] (cl-ABL)	a. ve (conjunction) b. mi (clitic)	a. ve: (noun) nP / \ √ve n b. mi: (noun) nP / \ √mi n	a. O N | | \ X1 X2 X3 | | / v e b. O N | | \ X1 X2 X3 | | / m i
GROUP-4	ye/de/ko/yu [je/de/ko/ju] (eat/say/put/wash)	yi-yor [jiyor] (eat-PROG.3P.S)	ye-me [jeme] (eat-INF) ye-di [jedı] (eat-PAST)	[ye:-yı] ("ye" thing-ACC)	ye (verb)	a.ye: (noun) nP / \ √ye n	O N | | \ X1 X2 X3 | | / y e
GROUP-5	bu/şu/o [bu/ʃu/o] (this/that-near /that-far)	bu-n-u [bunʊ] (this-ACC)	bu-n-dan [bundan] (this-ABL)	[bu:-yu] ("bu" thing-ACC)	bu (demonstrative)	bu: (noun) nP / \ √bu n	O N | | \ X1 X2 X3 | | / b u
GROUP-6	su [su] (water)	su-y-u [suyʊ] (water-ACC)	su-dan [sudan] (water-ABL)		noun		O1 N1 O2 N2 | | | | X1 X2 X3 X4 | | | s u ?

However, remember that according to the Phonological Epistemological Principle:

(22) "The only source of phonological knowledge is phonological behavior." (Kaye, 2005)

The data runs against this principle since the source of phonological behavior is not phonological. It should be noted that the condition given in the description of the Phonological Epistemological Principle (Kaye, 2005) is intra-phonological in nature. As such, it is not adequate for explaining the minimal word condition in Turkish.

When we take a look at the data again with respect to the Phonological Epistemological Principle, we observe that "dağ" *mountain* and "do:" *musical note C* seem to have a very similar phonological make-up in terms of the length. That is to say, they both end with a long vowel. However, as we observe on the table above, they do not behave similarly when they are affixed the same suffix (dağ(n) (mountain), da-ı (mountain-ACC) vs. do:(n) (musical note C), do:-yu (m.note C-ACC)). The same line of behavior is observable for "ve" which behaves like do: as well as the other words with a CV structure in their bare forms. This differentiated behavior is the basis of suspecting Phonological Epistemological Principle to account for the data because if what we have with "dağ" is "word final long vowels of CV words become shorter when they are followed by a vowel initial affix" or with "ve" (and), "word final short vowels of CV word become longer when they are followed by an affix", then these statements should apply in all such environments against what actually happens. Hence, there is reason to suspect that the data we are trying to account for is not triggered by some phonological constraint per se. We will build an analysis based on a morphosyntax-phonology interaction because when we take a closer look at the bare forms in the groups 3, 4 and 5, we witness that their syntactic categories are different from nouns; the ones in 3 are conjunctions, those in 4 are verbs and the ones in 5 are demonstratives in their so called bare forms. Since conjunctions and demonstratives are function words, the data indicate another interesting point about minimal words in the phonology literature where it has been often cited that functional words are exempt from the so-called "minimal word constraint" (i.e. Hall, 1999). However, even this claim is a manifestation of the fact that "minimal word constraint" is perhaps not strictly phonological since phonology should be insensitive to such categorization, as lexical vs. functional, as it is

explicitly evident in the Minimalist Hypothesis according to which only the phonological environment is the decisive factor for phonological behavior (Kaye, 1995). If a phonological change occurs, it should occur all the time and there should not be exceptions as opposed to what we see in Turkish data. For all these reasons, while maintaining the analysis of the minimal words in Turkish, we will amend it by a morphosyntactic account of the data.

3.1 Length

Before we start examining the data for length, let us first see what sort of phonological structures can result in length in vowels so that we have the relevant background in mind to help us understand the ensuing discussions:

(23) a. Melody-sharing b. Branching nucleus c. Branching rhyme

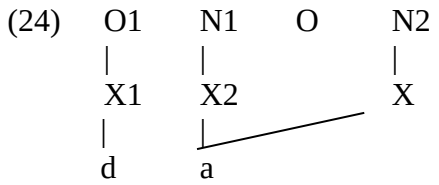


In structure (23a), there are two nuclei the latter of which is empty and shares the same melodic content with the former one. Note that the representation in (23a) is a non-branching one while (23b) and (23c) show branching. In (23b), the nucleus branches into two skeletal points while in (23c) the rhyme branches into a Nucleus and a skeletal position. The difference between (23b) and (23c) will be explained later in more detail. These phonological representations can all yield length.

After this background for length, let us now return to Group 1 and 2 for a deeper discussion. It is visible that the words in both groups have word final long vowels, however, those in group 1 are shortened (dağ(n) (mountain), da-ı (mountain-ACC)) whereas the ones in group 2 are retained (do:(n) (musical note C), do:-yu (m.note C-ACC)) in the presence of a vowel initial suffix of the same suffix

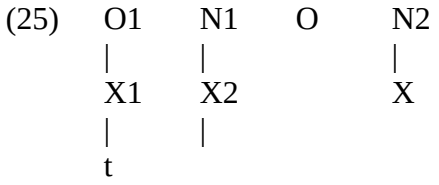
category. Again, according to the Minimalist Hypothesis (Kaye, 1995), this shows us that the explanation behind the phenomena should not be sought in Phonology only, but it should also include the phonological representation of the words in the lexicon as well. Following Nuhbalaoğlu (2010) I will assume that the words in Group 1 are lexically long in the sense that is given below:

(24)



As Nuhbalaoğlu (2010) puts it, the structure given above should not be caused by spreading but by the empty N_2 receiving the phonetic interpretation in the same way as the preceding nucleus. This is because a word such as "tığ" [tɯ:] (knitting needle) which is the same with [da:] (mountain) with respect to the phonological behavior of the word final vowel is problematic according to a standard spreading approach since the "ɯ" sound in Turkish is accepted as empty in terms of the melodic structure, thus it cannot spread.[2] (25) is what she proposes as the representation of "tığ", which means that "dağ" type words have the same representation as well now that "tığ" and "dağ" behave in the same way in their phonology:

(25)

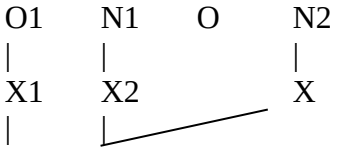


[2] This view of Nuhbaloğlu's (2010) actually depends upon Pöchtrager's (2010) analysis of Turkish vowel harmony which can then be traced back to Harris and Lindsey (1995) in which it is stated that melody of a segment is composed of monovalent primes, namely elements. Vowels are produced through the |A|, |U| and | I | elements which substitute for the monovalent features of height, labiality and palatality respectively. Harris and Lindsey (1995) argue that although these elements correspond to vowels of [a], [u] and [i] by themselves, they can also be combined with each other and can produce other vowels. Harris and Lindsey (1995) also continue that schwa-like sounds which include [ɯ] in "tığ", represented by [@], are empty.

Notice that the representation given above does not have any melodic content in the first nucleus position, which indicates that its melody is not decided by any element, i.e. [@] (Harris and Lindsey, 1995); therefore, there exists no phonetic content to spread from the first nucleus position to the second. This point is particularly important, firstly because the Minimalist Hypothesis (Kaye, 1995) clearly states that a phonological process occurs in the same environment each and every time.

Returning to the difference between "dağ" and "do" type words, the long vowel at the end of "dağ" type words loses their length while the one at the end of "do:" retains it when a suffix is added. Therefore, it indicates that they do not have the same environment. There are two ways this can be the case; either they do not belong to the same morphosyntactic category, which would mean that morphology intervenes with the behavior of these words, or their phonological representations in the lexicon are different from each other. The first option is not possible as both "dağ" and "do:" can take nominal suffixes such as case and plurality (i.e. dağ-ı (mountain-3.S.POSS), do:-su (musical note "do:"-3.S.POSS); dağ-lar (mountain-PL), do:-lar (musical.note.do:-PL) which shows that they are both nouns. Hence, they should differ in their phonological representation. On the grounds that we are dealing with long vowels as we indicated above, there are two main theoretical tools to this end; non-branching (23a) and branching structures (23b-c), as it was already recognized by Nuhbalaoğlu (2010) as well. Let us start with a non-branching option:

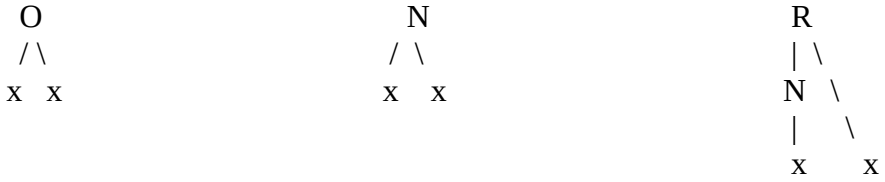
(26)



In this structure, the first nucleus shares its melody with the second causing length as it was mentioned earlier.

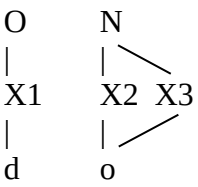
As for the branching structures, according to the Binarity Theorem (Kaye, 1990), "All syllabic constituents are maximally binary." It means that an onset, a nucleus and a rhyme can branch. Hence, we get the following structures given in (5a-c) repeated here:

(5) a. branching onset b. branching nucleus c. branching rhyme

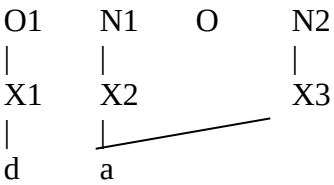


Because onsets are positions for consonants, we have two options left (5b-c). As it was accepted by Nuhbalaoğlu (2010), branching rhyme in (5c) is also not possible because it openly runs against the Coda Licensing Principle (Kaye, 1990): "Post-nuclear rhymal positions must be licensed by a following onset". Thus, we have the only option of a branching nucleus to distinguish "do:" from "dağ" so that they should not share the same phonological environment and thus are not subjected to the Minimality Hypothesis (Kaye, 1995). Group 2 should be represented as in (27) which you can compare to (28) for Group 1:

(27)



(28)



A careful look at Group 3 will reveal that, words in this group pattern with those in Group 2. Here is an example for Group 2:

(29) Do:-yu yanlış yaz-dı-n.

Do:-ACC wrong write-PAST-2.s

You wrote “do:” in a wrong way.

And here is an example for Group 3:

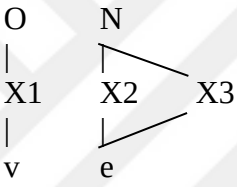
(30) Ve:yi yanlış yaz-dı-n.

“and”-ACC wrong write-PAST-2.s

You wrote “and” in a wrong way.

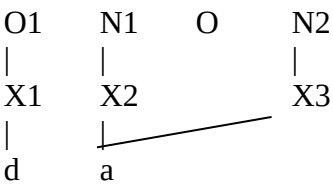
Since the words in Group 2 and 3 behave in the same way for the length of their word final vowels, we can conclude that the representation of the words in Group 3 should be the following after (27) above:

(31)



There is a second type of evidence for the structural difference between “dağ” and “do:”. To recapitulate, we proposed that these words should have a different representation as in (27) vs. (28) above on the basis of the Minimalist Hypothesis of Kaye (1995) and Phonological Epistemological Principle (Kaye, 2005) because “dağ” loses its length after affixation with a vowel initial suffix while “do:” undergoes no change after affixation. A careful look at the data will reveal that “do:” type words never get affixed with a vowel initial suffix. Actually, this interesting point becomes more meaningful when we consider the structures of “dağ” and “do:”. Remember that for “dağ” we proposed the following structure:

(32)



In the representation of "dağ" type words, it was argued that the second nucleus is interpreted in the same fashion with the first one on the grounds that according to element theory (Harris and Lindsey, 1995) words such as "tığ" become problematic under a spreading account. Now let us reconstruct what it really means for phonology. The interpretation view is actually a cover term for phonetic interpretation, which means that phonologically second nucleus is empty. Pöchtrager (2010) puts it into words as such:

> "Spreading" from x to y really only means that y receives the same interpretation as x. There is *no implication that a particular element is present in both positions*.

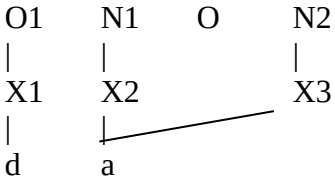
Let us put this aside as a short reminder and continue. Göksel and Kerslake (2005) propose that when a word ending with a vowel receives a vowel initial suffix, either the initial vowel of the suffix is deleted or a [j] is inserted between the final vowel of the word and the initial one of the suffix, because two vowels cannot stand together in Turkish.

Putting two things together, we conclude that "dağ" type words never have a [j] inserted in between them and the affixes when they get affixed with a vowel initial suffix simply because there is no vowel at the end of the word. To put it another way, we can modify Göksel and Kerslake's (2005) proposal as in the following:

When a word ending with a nucleus which contains melodic structure (element/s) receives a nucleus initial suffix, the onset of the latter receives the phonetic content [j].

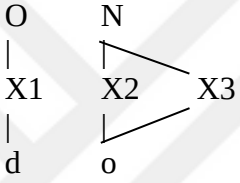
As it was mentioned earlier, the final nucleus of "dağ" is empty therefore [j] sound in the suffix remains silent and two nuclei are not next to each other across morphological boundaries.

(33)



On the other hand, in the case of "do:" type words, which were argued to have a branching final nucleus due to the Minimalist Hypothesis (Kaye, 1995) and the Coda Licensing Principle (Kaye, 1990), the buffer consonant [j] is always present. Because the words in this group have the following structure, it complies with our modified version of Göksel and Kerslake's (2005) and two nuclei do not come together:

(34)



As we have tried to support our initial hypothesis about the difference between "dağ" and "do:" type words in that the former one is actually CVCV while the latter is CV with a branching nucleus, we argued that Group 3 ("ve" type words) are like "do:". However, a more profound analysis is necessary to uncover the nature of the so-called Minimal Word Constraint in Turkish. Therefore, let us compare "do:" type words and "ve" type words with each other. Although it can be argued that the representation of "do:" is lexicalized with a branching nucleus in the phonological representation in the lexicon, the same claim cannot be put forward for "ve:" because in its original usage as a conjunction it has a short vowel, i.e. "ve".

(35) Ali *ve* Ayşe okul-a gel-di.

Ali and Ayşe school-DAT come-PAST.

Ali and Ayşe came to school.

Therefore, the third skeletal position "x" in the representation of "ve:" in (31) must have been added by interaction with morphology. This being noted, a simplistic claim that the nucleus is converted into a branching one only because of the presence of some suffix coming after "ve" in (36) is not true as seen below where ve: does not bear any suffix in (37).

(36) ve:-yi yanlış yaz-dı-n

And-ACC wrong write-PAST-2.s

You wrote "and" in a wrong way.

(37) ve: bağlac-ı-nı yanlış yaz-dı-n.

"and" conjunction-CM-ACC wrong write-PAST-2.s

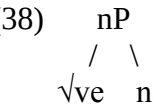
You wrote the conjunction "and" in the wrong way.

The sentence given in (37) shows us that the word final vowel of "ve" is lengthened even in the absence of a suffix. Now that we cannot maintain the idea that the suffix is the trigger of lengthening, there are two conceivable options; either the stress or nominalization is the cause of the lengthening.

Let us start with checking if stress can be the source of lengthening. Kabak and Vogel (2001) cite compound stress as a type of irregular (non-final) stress in Turkish. According to them, stress falls on the first word in a compound. Thus, in "vé: bağlacı" stress is on the [e] sound and it looks like the vowel is longer due to stress. However, the idea that stress is the cause of length cannot be defended, because in "ve:yi", which is not part of a compound, stress is regular (final), viz it is on the [ı] sound while the vowel on "ve" is still long. As a result, we will pursue a morphosyntactic solution below.

3.2 Morphosyntactic structure of minimal words

The only common point in morphological characteristics between the compound "ve: bağlacı" and "ve:yi" is that in both "ve" is nominalized. The accusative suffix targets nouns only and "ve" is nominalized in the compound as well. Given it is nominalized, the morphosyntactic representation of "ve:" should be the following according to Distributed Morphology (DM):

(38)


After this process, the newly created nP is spelled-out for interpretation at PF and LF.

3.3 Processes in PF

First of all, before going through the processes that apply at PF, it should be noted that there are different types of phasal heads according to Newell (2008:21):

(39) "a. Complement-Interpretation Phases: v*P, CP, DP

b. Total-Interpretation Phases: vP, aP, nP".

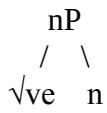
The first group (functional) phasal heads are evaluated separately from their complements while the second group (lexical) phasal heads are evaluated together with their complements. Newell (2008) argues that Total Interpretation Phases are also phases like the Complement-Interpretation Phases in terms of their phasehood. On the other hand, to show the difference that they have, Newell (2008, pp. 18-22) discusses that the former cannot undergo Narrow Syntactic operations such as movement although it is possible in v*P and CP because these phases have uninterpretable features which allow their complements to move out from their base generated positions. However, Total-Interpretation Phases do not have such features and therefore they do not allow their complements (roots) to undergo movement.

Secondly, Newell (2008) tries to prove her initial predictions via the comparison of Nuclear Stress Rule in CP phases and vPs. She states that according to Cinque (1993) stress prominence reflects the depth of embedding. For instance, both in Farsi and English, the object receives the Nuclear Stress because it is the most deeply embedded constituent in CP, although these languages differ in terms of head directionality and word order. According to her (Newell, 2008, p. 86-87), Turkish verbal stress works in a very similar fashion. That is to say, in the following expression, -ecek receives stress:

(40) Git-ecek-i-di-m

Go-Asp-COP-Tense-1s

Newell (2008) argues that this is because "git-" moves to "-ecek" and attaches to it, so "gidecek" becomes the most deeply embedded constituent. Since stress in Turkish is at the right edge of the word, "-ecek" receives stress. At this point, copula "i" adds a vP layer on top of "gidecek" and because of the Nuclear Stress Rule (Cinque, 1993), stress cannot move outside of the most deeply embedded constituent and "-ecek" receives the stress. After showing Newell's (2008) arguments for the phasehood of vP, let us continue with the story of "ve:". The morphosyntactic structure given for "ve:" is as follows:

(41)


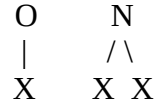
The overall structure is sent to PF for interpretation as we have just covered that nPs are Full-Interpretation Phases (Newell, 2008). At this point, I argue that the following constraint is at work:

(42a) No nP can be smaller than xxx skeletal size in Turkish:

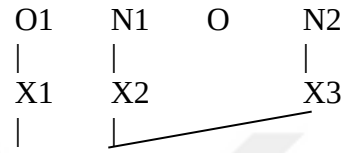
X X X

Before going into further details of the argument given below, it should be noted that the XXX skeletal structure is used in the sense that it can be an ON structure with a branching nucleus (as in b.) or ONON with an empty nucleus (as in c):

(42b)



(c)



It should be noted that GP does not recognize syllables because the only structures available in GP are Onsets, Rhymes and Nuclei. Therefore, there is no distinction between the first Onset and the second Onset. As a result, why a CV noun is unacceptable but a VC is acceptable cannot be answered through the means of GP, but other phonological models regards the consonant of a VC word as a coda while that of CV is considered as an Onset and they create an asymmetry between CV and VC.

Returning to (42b-c), in the formulation of the constraint that I propose above, I specifically claim that the constraint is about nPs. As the phonological exception of the nouns is the central argument in this thesis, it is valid why they are treated as such in Turkish. First of all, Smith (2011) concludes that word category can affect the phonological behavior of the word in terms of suprasegmental and prosodic (length) features. She argues that nouns have more privilege over adjectives and verbs in this sense. In this thesis, it has been claimed that the word final vowel lengthening in CV words targets only nouns in Turkish. Turkish is not the only language which gives a distinct status to the nouns in terms of their shape. Muller

(1999) argues that in Chuukese language (a Micronesian language), nouns should be bimoraic at the minimum:

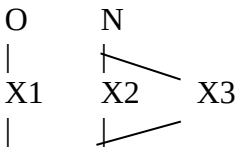
Table 11. Chuukese Bimoraic Minimality Condition (adopted from Muller (1999)

	UR	Final Mora Loss
CCVC (already bimoraic)	/kkeji/	[kkej] ‘laugh’
	/ʧʧara/	[ʧʧar] ‘starfish
CVC (undergoes lengthening	/fasa/	[fa:s] ‘nest’
	/fæne/	[fæ:n] ‘building’

In Table 11, it can be seen that after the application of the final mora deletion rule, the vowel of the CVC nouns undergoes lengthening so that the noun satisfies the bimoraic minimality condition. Muller (1999) states that the same behavior cannot be seen on verbs. So it gives us clues about the special place of nouns in the Turkish language.

All the roots, save two “dağ” type words and “su” (because their phonological representations are specified in the lexicon as ONON) should have the following structure to comply with the size constraint:

(43)



The size constraint given above can only work through locality in morphosyntax. That is to say, the √root and the n^0 should be sent to PF together and no phase (vP, v*P, CP) should be present in between.

The evidence that only nPs are associated with this type of behavior comes from the words in Group 4 in the data sets:

(44) Yemeğ-in-i ye!

Meal-2.s-ACC eat.IMP

Eat your meal.

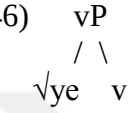
As it is shown above the verb “ye” does not have a long vowel at the end. The short length of the word final vowel of the verb is retained after verbal suffixation, as well:

(45) Köfte-yi ye-di-m.

Meatball-ACC eat-PAST-1.s

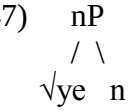
I ate the meatball

Thus, the morphosyntactic structure of “ye” should be as such:

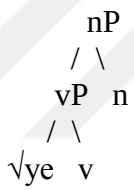
(46)


As it has already been noted, xxx size condition only applies for nPs; hence, vPs are spared from the process of lengthening even in the presence of a suffix as in the case of “ye-di-m” (eat-PAST.1.S).

According to Halle and Marantz (1997), roots are categoriless, which means that they do not have selective powers to be merged with a category assigner head (n, v, a). At first sight it may seem odd but Acquaviva (2009) assumes that roots also do not have their own meaning *contra* Marantz (2001). For Acquaviva (2009) they are just tags to distinguish words from each other. He proposes that roots can be merged with different heads at the same time. For example, when root “√tape” merges with n head it becomes a “√tape” thing ([nP[√tape]n] and at this point, it is also possible to merge the resulting structure with a v head, too. The end state [vP [nP[√tape]n]v] means “to use the “tape” thing. Returning to the argument with “ye”, one can argue that “√ye” should be able to merge with an n head as well. In the light of what Acquaviva (2009) says it follows that the word means the ““ye” thing”:

(47)


In this case, it should not be forgotten that the word "ye" loses its semantics as a verb because the verbal head is not present. Now, let us imagine a scenario where we can use this word: When the sentence "köfteyi yyeedim" is given to monolingual Turkish speakers and they are asked to correct the sentence with ...'yi yanlış yazmışsın" (you wrote ... in a wrong way). The answer is generally "ye:yi yanlış yazmışsın" (you wrote "ye" in a wrong way"). So, our initial hypothesis seems to be right. The sentence produced by the Turkish speakers can also be interpreted as "you wrote the "√ye" thing" wrong[3].On the other hand, the word can be nominalized after the v head is merged, too. In this case, it is expected that the resulting meaning should be ((doing √ye) thing). In fact, this is the case with the following structure as represented below:

(48)


In the preceding representation, the word is still nominalized but there is a v head in between the root and the n head. The following example can be given for such a structure:

(49) Köfte ye-me-yi sev-mi-yor-um.

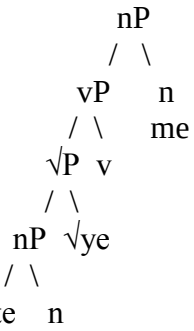
Meatball eat-Nom-ACC like-NEG-Prog-1.s

I don't like eating meatball.

So, the representation of the expression given above is as follows, which results in a short form.

[3] It should be noted that the same scenario is pronounced with a shorter duration by 5 speakers whose ages are above 40. It can mean that there can be dialects and the lengthening can be affected through language change.

(50)



Turkish has phrasal compounds, which can be described as compounds with a non-head larger than a lexeme, stem or word form (Göksel, 2015):

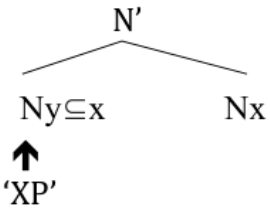
(51) Yemeğ-i ye-di-m cümle-si

Meal-ACC eat-PAST-1.s sentence-CM

The sentence "I ate the meal"

The reason for mentioning phrasal compounds in this part is that they pose a challenge for the assumptions followed until thus far, because according to Göksel (2015) generalized insertion takes place in phrasal compounds (Ackema and Neeleman, 2004) in a sense that the non-head constituent of the compound is inserted under an N node:

(52)



(Image is adopted from Göksel 2015: 26)

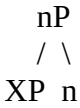
(53) Yemeğ-i ye emr-i-ne itaat et-me-di.

Meal- ACC eat.IMP order-CM-DAT obey do--NEG-PAST.3.s

S/he did not obey the order "eat the meal"

As we can see in the example, "yemeği ye" is imperative, so it has a type-token relationship with the head noun "emr" *order*. Therefore, the process is the

same as the example taken from Göksel (2015). Since this thesis makes use of Distributed Morphology, we need to translate the Generalized Insertion exemplified above into DM terms. For this reason, I will follow Harley (2009). She argues that the XP non-head in phrasal compounds are derived through zero-affixation of the n head: [[XP] n°]nP (Harley, 2009). So, we can represent the structure as follows:

(54)


Going back to our case at hand, the non-head "yemeği ye" is under an N node, which makes it necessary that there must be an nP in the structure as it is also proposed by Harley (2009). If our assumption about the Generalized Insertion is correct, then the CV pattern of "ye" should be clarified because whatever that is which is under an nP is nominalized thus would be expected to be longer. To answer this challenge, first the structure of the given phrasal compound should be analyzed in detail.

As it was already noted, roots are categoriless in DM (Acquaviva, 2009). Therefore if "ye" is merged with the n head, then it is expected to be longer than CV. However, the following example immediately disproves such a hypothesis:

(55) Yemeğ-i ye emr-i-ne itaat et-me-di.
Meal- ACC eat.IMP order-CM-DAT obey do--NEG-PAST.3.s
S/he did not obey the order "eat the meal"

As we can see in the example, the verb takes an object which is marked with accusative case; therefore, the verb can be claimed to have an argument structure. So, "yemeğini ye emri" (*the order "eat!" your food*) should have a non-head which must have consisted of at least a v*P (Chomsky, 1999; Kratzer, 1995) before the nominalization has taken place. As a quick reminder, it should be noted that

Chomsky (1999) states that v*P is also a phase. v*P checks the accusative case of the direct object and also assigns the theta-role to the subject in the spec v*P position. Therefore, it can be argued that every transitive structure carries a v*P layer. A second proof for the existence of v*P or possibly a larger structure in the tree comes from adverbs in Turkish. To clarify, let us examine the following example:

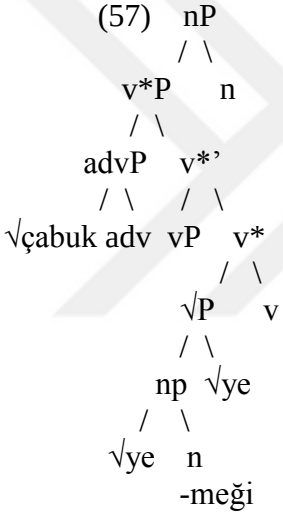
(56) Yemeğ-i çabuk ye emr-i

Meal-ACC quickly eat.IMPorder-CM

The order "eat the meal quickly"

The structure is at least a v*P since the AdvP çabuk *quick* is of that level.

(57)



As it can be seen above, there are two phases between the n head and the root; namely vP and v*P. it means that the root "ye" is already spelled out for interpretation in the first cycle (vP) and yet the second phase which is argued to be a stronger one, (v*P), makes it even more inaccessible for the "n" head.

At this point the following sentence can be advanced as a counter argument to the analysis developed above:

(58) *Yemeğ-i çabuk ye:-yi ayrı yaz.

Meal-ACC quickly eat.IMPorder-ACC separately write.IMPorder.

Write "eat your meal" separately.

However, when the sentence given in (58) is studied carefully, some Turkish speakers have been observed to find the sentence ungrammatical. For those speakers, because “ye:” must be nominalized in (58), the phases vP and v*P cannot be immediately present above √ye. Therefore, the accusative case of the “yemeğ-i” *meal-ACC* cannot be licensed.

(59) nP
/ \
√P n
/ \ :-yi
nP √ye
/ \
√ye n
meği

3.4 Demonstratives

To continue, next stop of the minimal words in Turkish are demonstratives (bu, şu, o). These words consist of an Onset and a Nucleus and are perfectly acceptable as they are contra the so-called minimal word constraint. Since my original hypothesis is that nouns in Turkish are bigger than CV, these words should belong to a category other than nouns. Indeed, apart from phonology, the morphophonological and syntactic behavior of these words display different behavior than nouns.

First of all, “bu, şu, o” are always followed by –n when they are affixed, but other nouns which end with vowels get –y before the vowel initial suffix.

(60) Bu-n-u sev-mi-yor-um

This-n-ACC love-NEG-Prog-1S

I don’t love this.

(61) O-n-dan ekmek al-dı-m.

that-n-ABL. bread buy-PAST-1s.

I bought a bread from him/her.

(62) Şu-n-lar çok güzel.

That(near)-n-Pl very beautiful.Copula.PRESENT

Those (near) are very beautiful.

The consonant [n] cannot be seen in other nouns, but a [j] sound intervenes between the word final vowel and the suffix initial one:

(63) Kuyu-yu gör-me-di-m.

Well-ACC see-NEG-PAST-1S.

I did not see the well.

Secondly, as it was shown by Arslan-Kechriotis (2009), when these words are used in the same environment with "bir", it results in ungrammaticality:

(64) *[bu bir kitap] iyi

This one book fine

Intended: this single book is fine (Arslan-Kechriotis, 2009, p. 89)

The assumption that "bu, şu, o" are not nouns can be claimed to be supported by the morphophonological behavior of them as well, as it is evident that when some suffix is added to these words they become [DEM[n]]-suffix and they look as they do not comply with the so-called minimal word constraint. This point can be clarified if the morphological order of the inflected forms of the demonstratives is compared with that of the [dem[noun+]] structures:

(65) Bu-n-lar

This-n-Pl.

(66) Bu insan-lar

This human-Pl.

As it can be observed in the data, [n] seems to be at the same position with "insan". Moreover, [n] and a noun cannot be seen in a *[dem[n][noun]] structure:

(67) *bu-n insanlar

It can be understood from the examples provided above that Turkish demonstratives do not act like typical nouns either phonologically or morphologically. Therefore, we can assume that they are not nouns and thus are not obliged to comply with the rules operating over nouns. This assumption becomes even more attractive when the insights of Arslan-Kechriotis (2009) are considered. The interested reader can check Arslan-Kechriotis (2009) as the discussion of determiners is orthogonal to the thesis.

We will remind that the Turkish demonstratives are not nouns and therefore they are spared from the word final lengthening process seen in CV nominals in Turkish.

As for the morphophonological evidence, viz. "-n" coming after the demonstratives, it is crucial to remember that the demonstratives do not lose their [+def] feature. So, they still continue to be demonstratives. However, when a context where they act like true nouns without this feature is provided, they both lose "-n" and final V is lengthened.

Context: Imagine a primary school in which a teacher is giving instructions to the students. One of the students mistakenly writes "bukalem kırmızı" instead of "bu kalem kırmızı" (this pencil is read). The teacher sees the mistake and warns the student with the sentence.

(68) *bu-yu\bu:-yu ayrı yaz

This-ACC separately write.IMP

Write "this" separately!

Most speakers accept that the longer form is grammatical. Apart from the phonological difference given above, let us see the morphological one. Normally,

when Turkish demonstratives are affixed with the accusative case they become "bunu, şunu, onu", but as in the example when they cannot retain being demonstratives they act like other nouns and are sent to spell-out as "bu:yu, şu:yu, o:yu":

(69) nP (=bu:)
/ \
√bu n

Since this thesis does not intend to uncover what "-n" is, it will not be discussed here. All in all, the demonstratives should be outside of nP to be shielded from the phonological effects of nPs but when they are under nP, they get longer.

3.5 "Su"

The next stop of minimal words in Turkish is "su". It seems to be the only deviant word on the list considering the assumptions that we have made thus far, because it consists of a CV structure although it is a noun. So, apparently, it lacks an xxx schema which is the proposed shape for nouns in Turkish. However, as sometimes the first impression is unreliable, we should take a second look at the word "su".

Before we start the analysis, we should keep in mind that McCarthy (2018) suggest that if a consonant is deleted in the historical process, a glottal stop is inserted in its place. He argues that the general coda deletion applies as the following: pat.ka> paʔ.ka> pa.ka across the languages.

As for "su", according to Okyanus Encyclopedic Dictionary (Tuğlacı, 1971, p.2261), "su" was either "sub" or "suv" etymologically.

Synchronically, since there are only two segments, namely the consonant and the vowel, in the word, we investigated the length of the vowel because, despite deletion of the segment, the timing unit of the deleted consonant might have been kept which would have resulted in a longer duration.

We looked at the length of the vowel in ‘su’ *water* vs. the last vowel of ‘pususu’ *his ambush*. These words “su” and “pususu” are chosen to have the least amount of difference in terms of the environment the vowel “u” occurs in. 10 Turkish speakers (5 females, 5 males), between the ages of 28-55 were told to recite the data and their utterances were recorded and analyzed in Praat. We investigated both the length of the syllable where the vowel occurs and the vowel itself. Table 12 presents these data.

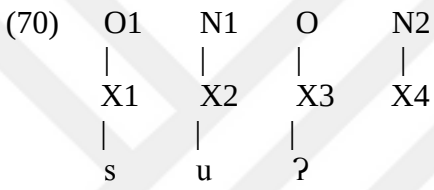
Table 12. Duration of the last syllables and vowels in sU-pususU

participant 1	Syllable duration	Vowel duration
su	0.465	0.248
pususu	0.193	0.115
participant 2		
su	0.621	0.226
pususu	0.244	0.235
participant 3		
su	0.721	0.367
pususu	0.555	0.349
participant 4		
su	0.725	0.418
pususu	0.476	0.243
participant 5		
su	0.799	0.263
pususu	0.360	0.115
participant 6		
su	0.973	0.348
pususu	0.321	0.330
participant 7		
su	0.669	0.266
pususu	0.298	0.223
participant 8		
su	0.703	0.319
pususu	0.435	0.225
participant 9		
su	0.559	0.400
pususu	0.549	0.299
participant 10		
su	0.783	0.456
pususu	0.607	0.446
Su mean	0.745	0.331
Pususu mean	0.403	0.258

The average durations of the two syllables are different with ‘su’ *water* having a much longer duration. This may relate to the fact that the number of syllables is different in these two words. Nonetheless, the average duration of the vowel in ‘su’ *water* which is 0.331 is longer than the average duration of the vowel in the last syllable in ‘pususu’ *his/her ambush* which is 0.258. This may show a trend. Due to the small number of participants, no stats could be run but it looks like the duration of ‘su’ is not ordinary.

Taking everything into consideration, I propose the following representation for ‘su’:

(70)



3.6 Language architecture

Before starting with the conclusion part, it will be highly beneficial to introduce the language architecture kept in mind through the thesis as this thesis advances the hypothesis that the so-called minimal word syndrome in Turkish is not purely phonological but stems from the interaction between morphosyntax and phonology. As a result, it is best to answer the following questions in advance of the analysis:

1. Is the interaction between morphosyntax and phonology serialist or parallelist in nature?

2. Does the language architecture in the thesis imply a localist or a globalist view on the interaction between morphosyntax and phonology?

The language architecture that has been envisaged through the thesis is serialist in its nature. That is to say, under standard DM accounts, the morphosyntactic operations are computed and then the resulting structure is sent to

PF. During the vocabulary insertion, however, PF can see the earlier phasal heads and roots. Moreover, as it has been advanced by Newell (2008) phonology is sensitive to earlier morphosyntactic operations. Morphosyntax is computed first, then the phonology interprets the information it has been fed. So, Chomskian inverted Y model of the grammar is applied during the analysis in this thesis, Distributed Morphology being compatible with this model. A second important point that has been raised through the thesis is that the word size is assumed to be related to phases, which seems to be parallel to Direct Reference Theory (henceforth DRT) and its descendants in terms of the syntax-phonology interface, because in those theories syntax feeds into phonology; moreover, the phonological output is based on the earlier (morpho)syntactic operations as in the DRT and the related theories. For example, through the thesis it was proposed that the roots are categoriless and when they are merged with the "n" lexical head, they should obey the size condition (equal to or bigger than xxx skeletal size):

(71) nP (equal to or bigger than xxx)
/ \
√root n

However, the same lengthening process cannot be observed if there is an intervening lexical head as in the example of the question word "neyi" (what-ACC):

(72) nP
/ \
√qP n
/ \
√root q

The vocabulary inserted for the structure above does not have to comply with the size condition in Turkish, because the derivation proceeds cyclically and in a model of syntax-phonology interface where the syntax is quite transparent in nature, phonology can read the information it has been transferred, which results in

lengthening in nominalized ‘ve’ *(and)* whereas the same phonological behavior cannot be observed on ‘ne’ *what* because the question meaning is preserved.

The intervening effect of the category assigning heads illustrated above shows that the phonology acts in a localist view in that it interprets only the product of the phasal spell-out and acts on the basis of whether it deals with a noun or another category.

CHAPTER 4

CONCLUSION

Minimal words in Turkish, which have CV structure, have been examined through this thesis. Since previous accounts (Denwood, 1998; Denwood, 2007; Charette, 2006; Inkelas and Orgun, 1995) listed such words with a CV shape as irregular because they assumed that phonology is the only decisive factor on the shape of these words, the aforementioned accounts resulted in inconsistency in terms of approaching the data and failed to embrace an explanatorily-adequate attitude.

Secondly, the previous accounts cannot explain the productivity of XXX constraint on Turkish nouns. For instance, a made-up word such as "ʧü" is pronounced as "ʧü:yü" after the addition of the accusative suffix –(y)I whereas it is pronounced as "ʧüdü" when the past suffix –DI is added to the word. The lengthening observed in the example given above shows that the constraint given for Turkish is productive for nouns.

Hence, seeing that a phonology-only approach is not enough to uncover the mystery of CV words in Turkish, we have made use of Government Phonology (GP) to differentiate between the phonology and "non-phonology" to come up with a solution for the so-called irregularity. Accordingly, Distributed Morphology (DM) has been used to provide an answer to the irregularity which could not be covered by the previous accounts (Denwood, 1998; Denwood, 2007; Charette, 2006; Inkelas and Orgun, 1995; Hankamer, 2013). We have argued that only nouns in Turkish should be larger than the CV shape. Now that the limits of phonology are drawn by a syntactic category, namely nouns, we have also argued that the phenomena dealt with in the thesis cannot be explained through phonology alone, but it would be right

to say that there is an interaction between morpho-syntax (nominalization) and phonology which manifests itself as word final vowel lengthening.

We have sought to show the interplay between morphosyntax and phonology through the current thesis and we hope that it will contribute to a deeper understanding of the so-called irregular phonological phenomena. We also hope that the strict attitude taken in this thesis towards phonology will stress the importance of constraining approaches such as GP. We expect that the current thesis will open the way for further research on the phonology and morphosyntax of Turkish.

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