A compositional approach to Turkish stress[*]
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1. Introduction

Turkish has been analyzed as a *fixed-stress system* since stress is determined by purely phonological principles such as footing, edgemostness, and so on. Many analyses, however, focus on the exceptional stress behavior exhibited by a subset of the Turkish vocabulary. For instance, Hayes (1995) analyzes final stress in terms of iambic feet but observes that in certain circumstances the final syllable can be ignored. In this case, the non-final stress pattern may be derived with right-to-left moraic trochees. Van der Hulst (1999), on the other hand, treats Turkish as an unbounded system; final stress is the elsewhere case which comes to light in the absence of syllables which are lexically pre-specified to be prominent.[1] Undoubtedly, final stress represents the productive pattern found in monomorphemic and suffixed words. Regardless of the number of suffixes, stress is unfailingly on the last syllable, as shown in (1).

(1)   *Turkish final stress* (Kabak & Vogel 2001: 316)
      a.   kitáp   'book'
      b.   kitaplík   'bookcase'
      c.   kitaplıklár   'bookcase-PL'
      d.   kitaplıklarím   'bookcase-PL-1POSS'
      e.   kitaplıklarımíz   'bookcase-PL-1POSS-PL'

As mentioned above, there are, however, several 'exceptions' to final stress. First, there is the *Sezer stress*, named after its discoverer, Enzin Sezer (Sezer 1981) which states the following: if the antepenultimate (APU) is heavy (H) and the penultimate (PU) syllable is light (L), stress the APU; otherwise, stress the PU, e.g. *Án.ka.ra, An.tál.ya, A.dá.na*. The Sezer stress pattern is imposed on place names and some borrowings. Second, there is an exceptional non-final stress pattern which arises when specific affixes attach to a word, e.g. *gel-íyor* 'come-PROGR',[2] *otur-árak* 'sit-ADV', *gél-me-sin* 'come-NEG-2SG'. Different analyses have been proposed to account for non-final stress in Turkish. Due to space limitations, we focus here on the *cophonology* approach proposed by Inkelas (1999) and Inkelas & Orgun (1998, 2003) and the *clitic group* approach proposed by Kabak & Vogel (2001).

The cophonology approach argues in favor of the existence of two subgrammars, called *cophonologies*, associated with different morphological domains. First, there is the *Sezer cophonology* which is a productive subgrammar associated with several borrowings and

[1] Literature on Turkish stress: Lees (1961); Lewis (2000), [1st ed. 1967]; Foster (1970); Lightner (1978); Underhill (1976); Sezer (1981), among many others.
[2] The following abbreviations are used in glosses: ABL (ablative), ADJ (adjectival), ADV (adverbial), AUX (auxiliary), COP (copula), DER (derivational suffix), DIM (diminutive), EPIST.COP (epistemic copula), FUT (future), INF.PAST (inferential past), NEG (negation), NECESS (necessitative), PL (plural), POSS (possessive), PROGR (progressive), SG (singular), TEMP (temporal), VER (verbalizer). Moreover, the following orthographic conventions are used: *ş* represents a voiceless palatal fricative; *c* and *ç* indicate voiced and voiceless palatal affricates, respectively. Following the standard tradition, uppercase letters represent underspecified segments.

a zero-derivation place name forming process. Second, there is the *word cophonology* which is associated with the morphological domain of the word and is responsible for final stress. Word cophonology also includes a system of lexical prespecification. That is, there exist morphemes that carry a lexically pre-specified trochaic foot. When such morphemes occur in a word, they disrupt the default final stress pattern. To explain, the suffix *-(I)yor* 'PROGR' carries a lexically assigned trochaic foot which forces stress away from the final syllable and onto itself, e.g. *gel-íyor* 'come-PROGR'. Similarly, the suffix *-^mA* 'NEG' is pre-accenting; the trochee is right-aligned with the suffix imposing stress onto a preceding syllable, e.g. *gél-me-sin* 'come-NEG-2SG'. Inkelas (1999: 141) claims that cophonologies are ordered with respect to each other. For instance, the output of the Sezer-stem level *Ánkara* is input to the word level /*Ánkara-dan*/ yielding the output *Ánkaradan* 'Ankara-ABL'. Moreover, in word cophonology the leftmost (or innermost) exceptionally stressed morpheme is the one that prevails, thus yielding *Ánkaralilaş̧íyor* from input /*Ánkara-li-laş-íyor*/.

Kabak & Vogel (2001) cast doubt on the productivity of Sezer cophonology and attribute non-final stress in borrowings and place names to lexical pre-specification. Although they acknowledge the existence of a handful of accented suffixes, they draw attention to pre-accenting suffixes which are reanalyzed as *prosodic word adjoiners* (PrWA). To explain, the exceptional stress behavior of PrWAs is ascribed not to their stress properties but rather to their special prosodic status. This means that such elements are incorporated into the prosodic structure of a word by adjunction to the prosodic word (PrW) and not by inclusion within it. As a consequence, suffixes following a PrWA can never receive or influence stress. Multiple adjunction results in n-ary branching *clitic group* (ClGr) constructions, e.g. [[*gél*]PrW-*me*(PrWAd)-*di-niz*]ClGr 'come-NEG-PAST-2PL'.

The pivotal question raised by previous analyses of Turkish stress is whether the exceptional non-final stress pattern is 'marginal' or not. To be precise, is 'exceptionality' a matter of statistics or does it reflect an essential property of the system? In this paper, we propose that 'exceptional' stress constitutes in fact an essential part of the core stress system of Turkish and provide ample evidence towards this direction. More specifically, we argue that Turkish stress is *compositional* in nature. This means that it relies heavily on morpho-syntactic information (Revithiadou 1999, 2005). First, a specific class of morphological elements, namely derivational suffixes and what we informally call here 'strong' inflectional suffixes (e.g. mood, negation), exhibit special accentual behavior in order to highlight their special structural roles. The same class of elements is characterized by special phonological behavior cross-linguistically (e.g. harmony, segmental processes, etc.). Second, copula constructions provide additional support for the inherent morphological nature of Turkish stress (Newell 2004). Furthermore, we argue against the validity of the Sezer stress which should be restated as a tendency of heavy penultimate syllables to attract stress. Unless otherwise stated, the examples in this paper are based on the speech of two of the authors, namely Hasan Kaili and Sophia Prokou, who are bilingual speakers of Greek and Turkish (Ege and Istanbul variety, respectively).

The paper is organized as follows. Section 2 discusses the Sezer stress pattern and presents the results of a corpus-based survey that challenge its validity. Section 3 offers an overview of non-final stress patterns. Section 4 calls attention to the morpho-syntactic nature of Turkish stress and lays out the details of the analysis. Section 5 concludes this paper.

2. Sezer stress or weight attraction?

Inkelas (1999) and Inkelas & Orgun (1998, 2003) take the Sezer stress pattern to be productively assigned to morphologically derived place names as well as to monomorphemic place names and loan words. The main goal of this section, however, is to shed some light on the reality of Sezer stress rather than to explore whether it represents a productive or a static subregularity in the Turkish grammar. For this purpose, a corpus of 175 place names was

compiled drawn both from printed material (e.g. newspapers, magazines, etc.) and the Turkish Electronic Living Lexicon (TELL), version 1.0 (available at http://socrates.berkeley.edu: 7037/TELLhome.html). Subsequently, two native speakers of Turkish were asked to assign stress to these place names. The results are summarized in Table 1:

Table 1. Distribution of Sezer stress in the corpus

STRESS PATTERN	LHσ	HLσ	HHσ	LLσ	PERCENTAGE
SEZER (96/175)	LH́σ: 40	H́Lσ: 8	HH́σ: 12	LĹσ: 36	54.85
OTHER (79/175)	ĹHσ: 0 LHσ́: 13	HĹσ: 8 HLσ́: 15	H́Hσ: 0 HHσ́: 6	ĹLσ: 6 LLσ́: 31	45.14

We observe that the Sezer stress is represented in 54.85% of the data as opposed to the 45.14% of the other stress patterns. However, a closer examination of word shapes that differ in the distribution of H and L syllables reveals that there is a strong tendency for heavy PU syllables to attract stress. This is shown more clearly in Table 2. More specifically, heavy PU syllables show 73.24% of stress attraction as opposed to heavy APU syllables which appear to be stressed only in 25.8% of the data. Moreover, the distribution of stress in LLσ is almost equally divided between the PU and the other syllables. It should also be noted that regular final stress in this part of the vocabulary is certainly not under-represented since it is displayed in 34.57% (69/175) of the data. These findings suggest that, at least for monomorphemic words, the Sezer cophonology is a rather shaky reality.

Table 2. Stress in words with H and L APU and PU syllables

i. stress in words with heavy PU	σHσ
a. stress on H PU	73.24 (52/71)
b. stress elsewhere	26.76 (19/71)
ii. stress in words with heavy APU & light PU	HLσ
a. stress on H	25.8 (8/31)
b. stress elsewhere	74.19 (23/31)
iii. stress in words with light APU & PU	LLσ
a. stress on L PU	49.31 (36/73)
b. stress elsewhere	50.6 (37/73)

Based on the above, we infer that there is not sufficient evidence in support of the Sezer stress algorithm per se, regardless of whether it is associated with a morphological construction or not. We propose instead that place names and loan words are lexically pre-specified to carry an *accent*, just like certain affixes. Moreover, certain constraints control the distribution of such accents.

An accent is a pre-specified grid template associated with a morpheme. For instance, a pre-accenting morpheme carries a *peak* template (2a), whereas a post-accenting morpheme is associated with a *trough* template (2b). Accented morphemes simply carry a pre-specified grid template on some syllable (2c). Turkish lacks post-accenting morphemes but has disyllabic suffixes with pre-assigned troughs, e.g. *-malí* 'NECESSITATIVE'.

(2)   *typology of accents*

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            x                    x                   x
a.    peaks x x      b. troughs x x        c.       x x
            -σ                   -σ                  -σ σ
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We propose that an accent needs to satisfy two wellformedness requirements of equal significance: first, it has be aligned with the right edge of its sponsoring morpheme (ALIGN-R) and/or second, it should match its peak with an inherently prominent constituent, i.e. a H

syllable (PEAK-TO-HEAVY). Given these two constraints, the quantitative results of Table 1 can now receive a straightforward explanation. For instance, the even split between APU (8/31) and PU (8/31) stress in HLσ words is a natural consequence of these two constraints on accents: H́Lσ outputs satisfy PEAK-TO-HEAVY whereas HĹσ outputs satisfy ALIGN-R. This is why both arise in the language.

3. Stress in words with accentually nonneutral morphemes

We now turn to exceptional stress triggered by nonneutral morphemes such as roots and affixes. Affixes can be both accented and pre-accenting, as shown in Table 3:[3, 4]

Table 3: Accentual properties of suffixes

type of morpheme	accented suffixes: -σ́σ		pre-accenting suffixes: ^-σσ	
mood suffixes	-E	'ADVERBIAL'	(-sA)[6]	'CONDITIONAL'
	- Á-gel	'mood'		
	-Á-dur	'mood'		
	-Í-ver	'mood'		
	-(y)Á(sIn)	'OPTATIVE SUBJ'[5]		
	-malí	'NECESSITATIVE'		
aspect	-(Í)yor	'PROGRESSIVE'	-yor	'PROGRESSIVE'
negation	/////		-mA, -mAdAn	'NEGATION'
copula	/////		-y/∅	'COPULA'
			-DIr	'EPISTEMIC COPULA'
derivational suffixes	-(I)mtrák	'rather, -ish'	-CA	'ADVERBIAL'
			-CAsInA	'ADVERBIAL'
			-leyin, -in	'TEMP.ADV'
			-gIl	'CLASSIFIER'
adverbials	-dÍkçA	'as, as long as'	-(y)ken	'while'
	-(y)İncA	'when'		
	-(y)ÁrAk	'MANNER ADV'		
	-mÉksIzIn	'ADVERBIAL'		

We observe that morphemes with inherent accentual properties are either mood, aspect and negation markers or derivational suffixes with mainly adverbial semantics. As expected, such morphemes shift stress away from the final syllable. This is illustrated in examples (3-4), in which accentless roots are combined with accented and pre-accenting suffixes, respectively. Morphemes with inherent accents are given in bold. Strangely enough, in long enough words a secondary stress surfaces on the final syllable, e.g. *delí-cesinè* (4b). As suggested by this and similar examples, secondary stress is not rhythmic.

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[3] The list does not include elements that are considered to be clitics, e.g. *-mI* (interrogative), *-im, -sin, …* (agreement markers), and so on (Kornfilt 1996; Newell 2004).

[4] The grammatical source for the data presented in the paper is Korkmaz (2003).

[5] We consider aspectual expressions such as *-I-ver, -Á-gel, -(y)Á(sIn)* to be formed with an auxiliary verb along with a lexical verb, e.g. *-I-ver < ver* 'give', *-Á-gel < gel* 'come'. Despite their composite nature, they are treated here as bound morphemes with inherent accents. Sezer (2001: 5) refers to the suffix *-ya* as optative subjunctive. On the other hand, Kornfilt (1997: 371) calls it optative whereas Lewis (2000: 135) calls it subjunctive.

[6] According to Sezer (2001: 4-5), the subjunctive conditional *-sA* usually expresses remote condition ("counterfactual"), e.g. *gel-sé-m* 'if I was coming'. It is a Tense1 morpheme which attaches to verbal roots and it is accentless. It has, however, a Tense2 correspondent, the indicative conditional *-i-sE/-y-sE*, which denotes established facts ("factive conditional"). This element appears to be pre-accenting, e.g. *gel-míş-se-m* 'if I have come'. It should be noted, however, that the initial -i- of the suffix, which appears after a C-ending constitutent, is a copula which triggers stress to the preceding syllable (see Newell 2004 and discussion in section 4). In this case, therefore, the pre-accenting behavior of the conditional must be attributed to the presence of the copula.

(3)   *accentless root – accented suffix*
    a.   oku-**yásın**   'you(sg) should read'
        read-OPT
        git-**melí**-ler   'they ought to go'
        go-NECESS-3PL
    b.   yap-**íyor**   'I am doing'
        do-PROGR
        gid-**íyor**-muş   'they say s/he is going…'
        go-PROGR-INF.PAST
    c.   acı-**mtrák**   'rather bitter'
        bitter-ish
        bil-**érek**   'by knowing'
        know-ADV

(4)   *accentless root – pre-accenting suffix*
    a.   gít-**me**-di   's/he did not go…'
        go-NEG-PAST
        yáp-**ma**-yacàğ-ım   'I shall not do…'
        do-NEG-FUT-1SG
    b.   hızlí-**ca**   'quickly'
        quick-ADV
        delí-**cesinè**   'in a crazy way'
        crazy-ADV

In examples (5-9), morphemes with conflicting accentual properties compete for stress. In this case, the accent of the leftmost morpheme prevails suggesting that Inkelas' (1999) 'leftmost accent wins' principle decides on primary stress, e.g. *yap-í-ver-ìnce* (5b), *yáp-ma-yìnca* (7a). There is one exception to leftmostness: the negative suffix *-mA* prevails over other accents even when it is not the leftmost morpheme in the word, e.g. *avrùpa-li-láş-ma-malì* (9b) vs. *avrúpa-lı-laş-àrak* (9a). Interestingly, the accents of non-winning morphemes still surface with secondary stress provided their accent does not clash with the primary stressed one, e.g. *yap-í-ver-ìnce* (5b) but *okú-ma-yor-du* (*okú-má-yor-du*) (6a). This is another piece of evidence that secondary stress in Turkish is *not* rhythmic. Examples such as *delí-cesinè* (4b), on the other hand, indicate that, when there is no more than one accented morpheme in the word, secondary stress falls on the final syllable.

(5)   *accentless root – accented suffix – accented suffix*
    a.   bırak-**í-ver-èrek**   'by suddenly leaving'
        leave-i-AUX-ADV   (Inkelas & Orgun 2003: 142)
    b.   yap-**í-ver-ìnce**   'having suddenly done'
        do-i-AUX-ADV   (Inkelas & Orgun 2003: 142)

(6)   *accentless root – pre-accenting suffix – pre-accenting suffix*
    a.   okú-**mu-yor**-du   's/he was not reading'
        read-NEG-PROGR-PAST.3SG
    b.   hızlí-**ca-dır**   'it is quite fast'
        quick-ADV-EPIST.COP

(7)   *accentless root – pre-accenting suffix – accented suffix*
    a.   yáp-**ma-yìnca**   'since/when s/he didn't do it'
        do-NEG-ADV
    b.   bíl-**mi-yèrek**   'by not knowing'
        know-NEG-ADV

(8)   *accentless root – accented suffix – pre-accenting suffix*
    a.   git-**melí-dir**   's/he should certainly go'
          go-NECESS-EPIST.COP
    b.   gel-**melí-dir**   's/he should certainly come'
          come-NECESS-EPIST.COP

(9)   *accented root – accented/pre-accenting suffix*
    a.   **avrúpa**-lı-laş-àrak   'by becoming European'
          Europe-ADJ-VER-ADV   (Inkelas & Orgun 2003: 142)
    b.   **avrùpa**-li-láş-**ma-malì**   'must not become americanized'
          Europe-DER-VER-NEG-NECESS

To sum up, an analysis of Turkish stress needs to account for: (a) the 'leftmost accent wins' principle and its exceptions, i.e. the dominant accentual behavior of the negation *-mA*, (b) the manifestation of secondary stress, and (c) the fact that morphemes with inherent accentual properties form a natural class: they are either functional or lexical heads. These issues are addressed in the following section.

4. Turkish as a compositional stress system

Words composed of two or more accented morphemes reveal that a central notion for prosodic structure is the morpheme and its inherent accentual properties. In Turkish, all lexically accented morphemes are given a chance to project their accent. As a result, the prosodic structure of accented words reflects morpho-syntactic structure. A comparison between an accented word, e.g. *yap-í-ver-ìnce* (5b) and a word stressed by default on the final syllable, e.g. *kitaplıklarımíz* (1e) makes clear that the internal structure of the former is morphologically more 'transparent' than the structure of the latter. The demarcative function of accents in Turkish resembles the demarcative function of stress in Diyari (Poser 1989) where the left boundary of every (di-/polysyllabic) morpheme projects a stress prominence:

(10)   *stress in Diyari* (Poser 1989: 119)
    a.   pínadu-wàṛa   'old man-PL'
    b.   káṇa-wàṛa-ŋùndu   'man-PL-ABL'

We propose that the principle that allows the communication between the phonological and the morpho-syntactic component and, moreover, requires prosodic structure to be built on a par with morphological structure is *prosodic compositionality* (PC) (Revithiadou 1999, based on Montague 1974), which states:

(11)   *prosodic compositionality*
    The prosody of a complex form is a function of the prosody of its parts and of the morphological rules by which they are combined:
        $g(F_M(A,B)) = F_P(g(A), g(B))$
    where: *g* is a function that maps a morphological constituent into a prosodic constituent, F_M the morphological mode of combination, F_P the prosodic mode of combination, *A* and *B* morphological constituents

PC predicts the existence of *compositional systems* in which stress 'reflects' morpho-syntactic constituent structure. In the remaining of this section, we provide evidence in support of the compositional nature of Turkish stress. The first piece of evidence comes from copula constructions:

(12) a.   kabá-y-dì-nız   'you were rude'
            rude-COP-PAST-2PL
      b.   git-tí-y-dì-m   'I had left'
            go-PAST-COP-PAST-1SG

Building on Kornfilt's (1996) analysis, Newell (2004) argues that in copula constructions the syntactic derivation proceeds in *phases*, which are separately driven to phonological processing by multiple application of *Spell-Out*. More specifically, at the end of a syntactic phase, the *Spell-Out* leads parts of the derivation, namely the verb + low (participial) morphology complex (e.g. *kaba*, *git-ti*), to PF to be assigned stress independently of the rest derivation. This entails that phonology accesses morpho-syntactic material and assigns stress to it *before* the completion of the whole syntactic string. The products of each application of *Spell-Out* are mapped onto a (recursive) PrW, e.g. [[*git-tí*]$_{PrW}$-*y-dì-m*]$_{PrW}$ 'go-PAST-COP-PAST-1SG'. The end result, therefore, is a prosodic structure that reflects the derivational history of the form.

The second piece of evidence comes from non-final stress which is intimately linked with a specific class of affixes. Morphemes with inherent accentual properties are the negation, some aspect and mood markers and also a handful of adverbials and derivational suffixes. Such elements have been shown to exhibit special phonological behavior cross-linguistically.[7] According to traditional morphological theories, derivational suffixes are the morphological determinants of a word, i.e. *heads* (Scalise 1988; Zwicky 1985). With respect to inflectional suffixes, it is standard morphological wisdom that inflections aren't heads. However, different types of inflections behave differently. Aspectual and mood suffixes in many languages exhibit special phonological behavior but agreement and similar suffixes do not. So, intuitively, there is a distinction between inherently relational, or *'weak'* inflectional suffixes (agreement, case, etc.) and inherently independent, or *'strong'* inflectional suffixes (mood, aspect, etc.). This rather pre-theoretical terminology is adopted here to express the difference between suffixes that participate in syntactic dependency relations and those that do not. The former type of suffixes formally marks a relation between two syntactic constituents but lacks inherent semantic content. For instance, agreement encodes the relation between a verb and its argument. The latter type of suffixes, on the other hand, do not facilitate the realization of a particular relation between two constituents and, accordingly, they often have full semantics. Sezer (2001: 4) points out exactly this characteristic:

"…I use the term tense to refer to a syntactic category, much like a noun, verb, etc., the members of which have lexical descriptive content …It is important that they are not considered as purely functional categories. In the present analysis, the category Tense contains affixes (or clitics) which may indicate tense, aspect or mood, or some combination of these, in the general semantic sense these terms are used…"

In sum, inherently accented affixes in Turkish form a natural class: they are either lexical or functional heads. In simpler words, only morphemes with lexical descriptive content can sponsor an accent. Space limitations do not allows us to spell-out the technical details of this issue; a detailed account is offered in Revithiadou (2005).

Let us proceed now to the analysis of non-final stress. For this purpose, the constraint set in (13) is required. Inherent accents surface because FAITH(acc) outranks FINAL-STRESS.

(13) a.   FAITH(acc) (McCarthy & Prince 1995; Revithiadou 1999): A lexical accent in the input has a correspondent in the output.
      b.   FINAL-STRESS (based on Inkelas' 1999 ALIGN(Word, R, ǫ́, R)): Stress is final.
      c.   LEFTMOST: The leftmost line 3 grid mark is the head of the PrW.

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[7] See Revithiadou (1999) for stress in Salish, Barnes (1996) for nasal harmony in Tuyuca, Pensalfini (2002) for vowel harmony in Jingulu.

Candidate (14a) is the absolute winner; both accents are preserved and LEFTMOST assigns primary prominence on the accent of the negation.

(14)	/avrúpa-lı-laş-árak /	FAITH(acc)	LEFTMOST	FINAL-STR
☞ a.	x x x x x avrupa-li-laş-arak			*
b.	x x x x x avrupa-li-laş-arak		*!	*
c.	x x x x avrupa-li-laş-arak	*$_{avrupa}$!		*

There are, however, words consisting of two or more inherent accents only one of which surfaces, e.g. *okú-mu-yor-du* (*okú-mú-yor-du) (6a). Such examples indicate that FAITH(acc) is crucially dominated by *CLASH ('No adjacent level 2 peaks'):

(15)	/oku-^mu-^yor-du/	*CLASH	FAITH(acc)	LEFTMOST	FINAL-STR
☞ a.	x x x oku-mu-yor-du		*$_{yor}$		*
b.	x x x x x oku-mu-yor-du	* !			*

The same constraint ranking is responsible for secondary stress on the final syllable in words like *delí-cesinè* (4b). Finally, words with an accented root followed by negation such as *avrùpa-li-láş-ma-malì* (9b) suggest that the accentual dominance of the negation is due to the parochial constraint PROM-NEG(acc) which requires stress prominence on the accent of negation. It is not uncommon cross-linguistically for negation to be associated with emphatic stress and this could be the case with *-ma*. These thoughts are obviously preliminary and certainly call for a more rigorous investigation in the future both at the phonological and the semantic level.

(16)	/Ameríka-lI-lAş-^mA-mAlI/	PROM-NEG(acc)	FAITH(acc)	LEFTMOST
☞ a.	Amerĭka-lı-láş-ma-malì			*
b.	Ameríka-lı-làş-ma-malì	* !		

5. Conclusions

In this paper, we claimed that 'exceptional' stress in Turkish is part of the core grammar and not a marginal subsystem. More specifically, we argued that Turkish stress is built hand-in-hand with morpho-syntactic structure. Two pieces of evidence were put forward in support of the compositional nature of stress in Turkish. First, phonology reflects the derivational history of the form in copula constructions (Newell 2004). Second, lexical accents demarcate morpho-syntactic boundaries of structurally salient morphemes. The exact status and function of 'strong' inflectional suffixes in Turkish as well as cross-linguistically must be further

explored in the future. Emphasis should be put particularly on whether their special accentual behavior extends to other phonological phenomena (e.g. harmony, segmental rules, etc). Finally, we challenged the reality of the Sezer stress pattern and proposed that the algorithm should be replaced by a system of lexical accents.

References

Barnes, J. (1996). 'Autosegments with three-way lexical contrasts in Tuyuca', *International Journal of American Linguistics* 62: 31-58.

Foster, J.F. (1970) 'On some phonological rules of Turkish', unpublished doctoral dissertation, University of Illinois, Urbana.

Hayes, B. (1995) *Metrical Stress Theory: Principles and Case Studies*. Chicago & London: The University of Chicago Press.

Hulst, H. van der (1999) 'Word accent', in Hulst, H. van der (ed) *Word Prosodic Systems in the Languages of Europe*, pp. 3-115. Berlin & New York: Mouton de Gruyter.

Inkelas, S. (1999) 'Exceptional stress-attracting suffixes in Turkish: representations versus the grammar', in Kager, R., van der Hulst, H. & Zonneveld, W. (eds) *The Phonology-Morphology Interface*, pp. 134-187. Cambridge: Cambridge University Press.

Inkelas, S. & Orgun, C.O. (1998) 'Level (non)ordering in recursive morphology: evidence from Turkish', in Lapointe, S., Brentari, D. & Farrell, P. (eds) *Morphology and its Relation to Phonology and Syntax*, pp. 360-392. Stanford: CSLI Publications.

Inkelas, S. & Orgun, C.O. (2003) 'Turkish stress: a review', *Phonology* 20: 139-161.

Kabak, B. & Vogel, I. (2001) 'The phonological word and stress assignment in Turkish' *Phonology* 18: 315-360.

Korkmaz, Z. (2003) *Türkiye Türkçesi Grameri (Şekil Bilgisi)*. Ankara T.D.K.: Yayınları.

Kornfilt, J. (1996) 'On some copular clitics in Turkish', in Alexiadou, A., Fuhrhop, N., Law, P. & Löhken, S. (eds) *ZAS Papers in Linguistics*, vol. 6: pp. 96-114. Berlin: Zentrum für Allgemeine Sprachwissenschaft.

Kornfilt, J. (1997) *Turkish*. London: Routledge.

Lees, R. (1961) *The Phonology of Modern Standard Turkish* [*Uralic and Altaic Series* 6]. Bloomington: Indiana University.

Lewis, G. (2000) *Turkish Grammar*, 2nd ed. [1st ed.: 1967]. Oxford: Oxford University Press.

Lightner, T. (1978) 'The main stress rule in Turkish', in Jazayery, M.A., Polome, E. & Winter, W. (eds) *Linguistic and Literacy Studies in Honor of Archibald A. Hill*, pp. 267-270. The Hague: Mouton.

McCarthy, J.J. & Prince, A. (1995) 'Faithfulness and reduplicative identity', in Beckman, J., Walsh, L.D. & Urbanczyk, S. (eds) *Occasional Papers in Linguistics 18: Papers on Optimality Theory*, pp. 249-384. Amherst, MA: GLSA, University of Massachusetts.

Montague, R. (1974) 'The proper treatment of quantification in ordinary English', in Hintikka, K.J.J., Moravcsik, J.M.E. & Suppes, P. (eds) *Approaches to Natural Language*, pp. 221-242. Dordrecht: Reidel.

Newell, H. (2004) 'The phonological phase', unpublished ms., McGill University.

Pensalfini, R. (2002) 'Vowel harmony in Jingulu', *Lingua* 112: 561-586.

Poser, W. (1989) 'The metrical foot in Diyari', *Phonology* 6: 117-148.

Revithiadou, A. (1999) *Headmost accent wins: head dominance and ideal prosodic form in lexical accent systems*. Doctoral dissertation, LOT Dissertation Series 15 (HIL/Leiden University). The Hague: Holland Academic Graphics.

Revithiadou, A. (2005). 'How much morphology does phonology 'contain'? A Morphological Containment approach to lexical stress', unpublished ms., University of the Aegean.

Scalise, S. (1988) 'The notion 'head' in morphology', in Booij, G. & van Marle, J. (eds) *Yearbook of Morphology 1988*, pp. 229-246. Dordrecht: Foris.

Sezer, E. (1981) 'On non-final stress in Turkish', *Journal of Turkish Studies* 5: 61-69.

Sezer, E. (2001) 'Finite inflection in Turkish', in E. Erguvanlı Taylan (ed) *The Verb in Turkish*, pp. 1-45. Amsterdam: John Benjamins B.V.

Underhill, R. (1976) *Turkish Grammar*. Cambridge, MA: MIT Press.

Zwicky, A.M. (1985). 'Heads', *Journal of Linguistics* 21: 1-29.