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Squibs and replies

*Turkish stress: a review**

Sharon Inkelas
University of California, Berkeley

Cemil Orhan Orgun
University of California, Davis

This work evaluates an argument recently made in these pages by Kabak & Vogel (2001) to the effect that the analysis of Turkish which they develop is superior on theoretical grounds to that of past accounts. Kabak & Vogel explicitly contrast their account to that offered in two recent, comprehensive discussions of Turkish stress by Inkelas & Orgun (1998) and Inkelas (1999). Careful consideration of the data discussed by Kabak & Vogel and by Inkelas & Orgun, as well as some additional data introduced in this paper, shows that the original Inkelas & Orgun analysis achieves greater empirical coverage while using less theoretical machinery.

Competing analyses in theoretical linguistics are typically evaluated on their empirical coverage and theoretical parsimony. Kabak & Vogel (2001), henceforth K&V, present an analysis of Turkish stress which they argue to be superior to past analyses, specifically to that of Inkelas & Orgun (1998) and Inkelas (1999) (henceforth I&O). Their argument falls short in four ways:

(1) a. K&V deal with only a proper subset of the data analysed by I&O, ignoring phenomena which are the centrepiece of I&O's analysis.
b. K&V's analysis, despite claims to the contrary, requires more machinery than that of I&O to handle even the reduced body of data that K&V analyse, and would require even more to handle the rest of the data that I&O's analysis accounts for.
c. K&V's analysis make the wrong predictions even for some of the data they address, as well as for data that they omit from their study.

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d. K&V's theoretical argumentation rests on mischaracterisation of proposals and generalisations formulated by I&O, and, in some cases, of the data itself.

In this work we demonstrate the greater empirical success and theoretical appeal of the original I&O analysis not only on the basis of the data discussed in K&V and I&O but also on the basis of additional data which we introduce here.

1 The facts

The essential facts of stress in Turkish are these.[1] Every word has exactly one main stress. The default stress position for words is final, e.g. *arabá* 'car', *araba-lár* 'car-PL', *araba-lar-dán* 'car-PL-ABL'; *bırák* 'leave!', *bırak-acák* 'leave-FUT', *bırak-acak-lár* 'leave-FUT-3PL'.[2] Final stress is overridden in words containing lexically stressed roots, lexically stressed or pre-stressing suffixes, certain types of compounds or the type of subconstituent referred to by I&O as a 'Sezer' stem because of its distinctive stress pattern, first described by Sezer (1981). Most compound types have main stress on the first member (*baş+bak-an → báşbakan* 'head look

[1] This summary draws from Inkelas (1999) and Inkelas & Orgun (1998). Earlier treatments of subparts of the Turkish stress system include Lees (1961), Swift (1963), Lewis (1967), Foster (1970), Zimmer (1970), Underhill (1976), Lightner (1978), Sezer (1981), Kardestuncer (1982), Poser (1984), Hameed (1985), Kaisse (1985, 1986), Dobrovolsky (1986), Hammond (1986), Sebüktekin (1986), Halle & Vergnaud (1987), Barker (1989), van der Hulst & van de Weijer (1991), Idsardi (1992), Halle & Idsardi (1995), Hayes (1995) and Kornfilt (1997).

[2] Examples in this work are given in Turkish orthography, with the addition of a length mark to indicate long vowels, a palatality mark for phonemically palatal velars (*k̂*), an acute accent to mark the stressed syllable, and hyphens to mark morpheme boundaries. *ğ* is the orthographic representation of the so-called soft *g* (historically a velar fricative), which is realised either as zero or as lengthening of the preceding vowel. Following standard practice, vowels which are subject to vowel harmony and consonants which are subject to voicing assimilation are represented with uppercase letters in underlying representation. We indicate pre-stressing suffixes by a circumflex accent preceding their underlying form (e.g. /-^mE/). The data represent the speech of the second author, and have been checked with a 66-year-old native speaker of the standard Istanbul dialect of Turkish, who has lived in Turkey all his life (GO, to whom we are infinitely grateful). In cases of discrepancy, we have used GO's pronunciations, which are consistent with other descriptions of Istanbul Turkish as well as the data in K&V, whose alphabetically first author is also a speaker of standard Istanbul Turkish. Dialect variation in word stress exists but does not factor into the present discussion.

Abbreviations of suffix names are as follows: 1 = 1st person, 2 = 2nd person, 3 = 3rd person, ABL = ablative, ACC = accusative, ADV = adverbial, AOR = aorist (= imperfective), ASSOC = associated with, CAUS = causative, COND = conditional, COM = instrumental/comitative, COP = copula, ECOP = epistemic copula, FUT = future, IMP = imperative, INF = infinitive, INT = interrogative, MIT = mitigative, NEG = negative, PL = plural, POSS = possessive, PROG = progressive, PRT = particle, REL = relativiser, SG = singular, VBL = verbaliser.

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after-REL = prime minister'); phrases typically have main stress on the final word or on the immediately preverbal constituent.[3]

1.1 Lexically stressed morphemes

Many roots and suffixes are exceptionally stressed, e.g. *tarhána* 'dried curd' (root stress), *pénaltı* 'penalty' (root stress), *bırak-árak* 'leave-ADV = by leaving' (suffix stress). No root or suffix manifests exceptional final stress; thus exceptionally stressed morphemes are always at least disyllabic.[4] In addition, a number of suffixes (of all sizes) are pre-stressing, e.g. the instrumental/comitative, in *araba-^yla → arabáyla* 'car-COM = by/with car' (cf. regularly stressed *araba-lár* 'car-PL'), the mitigative, in *süt-lü-^ce → sütlűce* 'milk-ASSOC-MIT = kind of milky' (cf. regularly stressed *süt-lü-lér* 'milk-ASSOC-PL = the milky ones'), the negative, in *bırak-^ma → bırákma* 'leave-NEG' (cf. regularly stressed *bırak-tí* 'leave-PAST') and adverbial *-^CEsInE*, in *hayvan-^casına → hayváncasına* 'animal-ADV = animal-like' (cf. regularly stressed *hayvan-lár* 'animal-PL'). Exceptionally stressed or pre-stressing morphemes override final word stress, even when embedded within further morphology, e.g. *pénaltı-lar* 'penalty-PL', *bırak-^ma-dı → bırák-ma-dı* 'leave-NEG-PAST', etc.[5] Since there can be only one stress per word, words containing more than one exceptionally stressed or pre-stressing morpheme must arbitrate between them. The generalisation is simple, and consistent with standard descriptions: the innermost

[3] K&V are rather inaccurate in stating (p. 339) that phrasal stress falls on the first word in the phrase in Turkish. In fact the general pattern is for stress to be either phrase-final or preverbal (see e.g. Kornfilt 1997). Phrase-final stress is the norm when all of the verb's complements are definite and none is in narrow focus. Thus, to use an example which is similar to K&V's (39a), the sentence *Orhan açı-yı ölç-tű* 'Orhan angle-ACC measure-PAST = Orhan measured the angle' has phrase-final stress. Preverbal stress occurs when a definite argument is in narrow focus; preverbal position is the spot for focus in Turkish and attracts stress. Indefinite arguments are also attracted to preverbal position, and stressed, even under broad focus. K&V consider only verb-final sentences consisting of two words, thereby conflating initial and preverbal position. Their four examples all involve preverbal indefinite arguments under broad focus, e.g. *Sűt beyaz-dır* 'milk white-ECOP = milk is white' (their (38b)) or *Açí ölç-er-mi?* 'angle measure-AOR-INT = does (it) measure an angle?' (38a). Simply adding an overt subject to an example like *Açí ölç-er-mi?* makes it clear that the correct analysis is preverbal, rather than initial, stress: *Orhan açí ölç-tü* 'Orhan angle measure-PAST = Orhan measured angles'.

[4] Inkelas (1999: 158) identifies three suffixes as stress-bearing: progressive *-Íyor*, adverbial *-ÉrEk* 'by' and adverbial *-ÍncE* 'when'. K&V inaccurately characterise this set as 'several aspect and modality markers': they also imply that Inkelas treats the aorist suffix in *bul-úr-um* 'find-AOR-1SG-I find' as stressed (p. 323); it is not. Not only does Inkelas (1999) correctly classify the aorist suffix as unexceptional in its stress behaviour (p. 140), she also highlights the generalisation that *no* monosyllabic suffix is ever lexically stressed (pp. 255, 274–276; see also §§ 1.1, 4.1 of this paper). The reason that the aorist suffix appears stressed in K&V's *bul-úr-um* example is, as K&V themselves later point out, that the agreement suffix is pre-stressing.

[5] K&V classify some of the pre-stressing endings as clitics, rather than suffixes; as in I&O, we avoid this terminological distinction, which correlates with no phonological criteria, nor with any morphological criteria relevant to the discussion at hand.

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	stressed suffix	*pre-stressing suffix*
stressed root	a. Avrúpalılaşarak /**avrúpa**-lı-laş-**árak**/ Europe-ASSOC-VBL-ADV 'by becoming European' ablúkalayınca /**ablúka**-la-**ínca**/ blockade-VBL-ADV 'having blockaded' Meksíkalılaşıyor /**meksíka**-lı-laş-**íyor**/ Mexico-ASSOC-VBL-PROG 'is becoming Mexican'	d. pencéreyle /**pencére**-**^yle**/ window-COM 'by/with window' pénaltımı[6] /**pénaltı**-**^mı**/ penalty-INT 'is it a (soccer) penalty?' tarhánaydıysada /**tarhána**-**^y**-dı-**^y**-sa-**^da**/ dried curd-COP-PAST-COP-COND-PRT 'even if it was dried curd'
stressed suffix	b. yapíverince /yap-**íver**-**ince**/ do suddenly-ADV 'having suddenly done' bırakívererek /bırak-**íver**-**érek**/ leave suddenly-ADV 'by suddenly leaving'	e. yapárakmı /yap-**árak**-**^mı**/ do-ADV-INT 'is it by doing?' yapíyormu /yap-**íyor**-**^mu**/ do-PROG-INT 'is (he/she/it) doing?'
pre-stressing suffix	c. bırákmıyor /bırak-**^ma**-**íyor**/ leave-NEG-PROG '(he/she/it) isn't leaving' gélmeyince /gel-**^me**-**ince**/ come-NEG-ADV 'having not come' yápmayarak /yap-**^ma**-**árak**/ do-NEG-ADV 'by not doing'	f. gélmesin /gel-**^me**-**^sin**/ come-NEG-3SG IMP 'let him/her/it not come' arabáylamı /araba-**^yla**-**^mı**/ car-COM-INT 'by/with (a) car?' (see also third example in (d))

Table I
Combinations of stressed and/or pre-stressing morphemes.

exceptionally stressed morpheme is the one to prevail, no matter what. This 'Innermost Wins' generalisation, discussed more fully in §§ 1.3–1.5, is illustrated in Table I. All forms except those in (b) are taken directly

[6] The yes–no question marker /-^mI/ is written with a space preceding it in standard Turkish orthography. As its phonological behaviour is consistent with that of other pre-stressing suffixes or clitics, we do not consider this orthographic quirk relevant to its linguistic description.

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from or are similar to forms discussed in I&O. Forms of the sort in (b) constitute an accidental gap in the presentation in I&O which we take the opportunity to fill here; the stress pattern they exhibit is precisely what the analysis of I&O would predict. K&V discuss only forms of the types in (c)–(f). For the reader's convenience, underlying forms are shown with vowel harmony already in place.

1.2 The Sezer stem construction

As mentioned above, word stress can be affected by the presence of what I&O call a 'Sezer stem' within the word. Sezer (1981) observes that Turkish place names are associated with a distinctive non-final stress pattern: stress falls on the antepenult if it is heavy and the penult is light (*Án.ka.ra*), and otherwise on the penult (*A.dá.na*, *E.dír.ne*, *İs.tán.bul*); this is termed the Sezer stress pattern in I&O. Sezer stress is not assigned to monosyllables (Kaisse 1985, Barker 1989).

Clear evidence is presented in Sezer (1981), Inkelas *et al*. (1997) and I&O that Sezer stress is productively assigned as part of a zero-derivation process producing morphologically derived place names, which I&O term Sezer stems. First, Turkish speakers readily apply Sezer stress when asked to pronounce unfamiliar or novel place names. (The second author recalls a visit to Mexico during which he and GO had considerable difficulty pronouncing the place name *Mulegé* with final stress, pronouncing it instead as [muléhe], with the characteristic Sezer pattern.) Second, Turkish speakers can zero-convert any existing word, monomorphemic or derived, to a place name, triggering Sezer stress. Examples of existing place names formed in this way include *Bébek* < *bebek* 'baby' (cf. *bebek-lér* 'baby-PL'), *Bakácak* < *bak-acak* 'look-FUT' (cf. *bak-acak-lár* 'look-FUT-PL') and *Tórbalı* < *torba-lı* 'bag-ASSOC' (cf. *torba-lı-lár* 'bag-ASSOC-PL'); see Sezer (1981: 67), Inkelas & Orgun (1998: 379) and Inkelas (1999: 140). I&O associate the zero-derivation construction turning non-place names into place names with a particular phonological subgrammar, or co-phonology, which assigns Sezer stress. They term this the Sezer co-phonology.

It is sometimes said that Sezer stress is assigned to recent loanwords (e.g. Barker 1989: 7). However, while some older loans, like *másа* 'table' or *lokánta* 'restaurant', have fixed non-final stress, more recent borrowings, e.g. 'photocopy' and 'steamboat', are completely regular in their stress behaviour: *fotokopí*, *fotokopi-dén* (ABL); *istimbót*, *istimbot-lár* (PL). Foreign proper names used in Turkish, e.g. *Kenédi*, *Papadopúlos*, do tend to exhibit non-final stress. Our impression is that when speakers encounter novel foreign personal names in written form and have to pronounce them, they respond in the same way that they do when asked to read novel place names, i.e. with Sezer stress or, sometimes, fixed penultimate stress. An experimental study is needed to fully illuminate what speakers do in online proper name and place name adaptation.

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1.3 Interactions between Sezer stress, lexical stress and final stress

In line with the Innermost Wins generalisation, the Sezer stress pattern is a default, imposed on zero-derived place names only when no embedded morpheme or morphological constituent already bears stress. Thus, as Inkelas (1999: 157) points out, *süt-lü-^ce* → *sütlűce* 'milk-ASSOC-MIT = kind of milky', whose penultimate stress is due to the pre-stressing *-^ce* suffix, keeps its stress when used as a place name (*Sütlűce*) instead of receiving Sezer stress, which in a stem of this shape would be antepenultimate (**Sútlüce*; cf. *Tórbalı* < *torba-lı*, mentioned earlier).

Also consistent with Innermost Wins, Sezer stems keep their stress, whether inherited from a component morpheme or assigned by the Sezer rule, when embedded within further derivational or inflectional morphology. Thus, for example, *Bakácak-lı-laş-tır-dı* 'Bakacak-ASSOC-VBL-CAUS-PAST = caused to become ones from Bakacak' bears the stress assigned to its embedded Sezer stem, *Bakácak*, itself the product of two layers of morphology (stress-neutral suffixation creating *bak-acak* 'look-FUT' and Sezer-stressing zero place-name conversion, creating *Bakácak*). For analogous examples see Inkelas & Orgun (1998: 373, 379) and Inkelas (1999: 160, 162).

1.4 Compounds

Compounds subdivide into two types phonologically: stressed and unstressed. This phonological distinction correlates with a morphological distinction.

Unstressed compounding, which has no effect on stress, is limited to compounds of a phrase-like structure in which the second member is a predicate of which the first member is an argument. Following Swift (1963), Inkelas & Orgun (1998: 376) cite the example *hünk̂ar* 'sultan' + *beğen-di* 'like-PAST' → *hünk̂ar-beğendí* 'pot roast of lamb with eggplant puree' (*lit*. 'the sultan liked it'), whose behaviour under further suffixation (e.g. *hünk̂ar-beğendi-niz-dén* 'pot roast of lamb with eggplant puree-2PL.POSS-ABL') shows that the compound lacks inherent stress of its own.

The better-known type of compound from a stress perspective, and the only type discussed by K&V, is the stressed compound. In stressed compounds, the second member is stressless (according to I&O; K&V say that its stress is demoted, which may mean the same thing). The first member of the compound is stressed as it would be if it were an independent word, conforming to the patterns described above for word stress. Inkelas & Orgun cite examples like *ye-mek* 'eat-INF' + *oda* 'room' → *yemék oda-sı* 'dining room' (1998: 375), in which *yemek* surfaces with the same final stress it has when it stands alone as a word, and *Kandílli* + *cadde* 'street' → *Kandílli cadde-si* 'Kandilli street' (1998: 384), in which *Kandílli*, a Sezer place name formed from *kandil-li* 'oil lamp-ASSOC', surfaces with the Sezer stress pattern. (The possessive suffix *-(s)I* in both

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of these examples is added morphologically in the compounding process; see Lewis 1967: 41–48 for details of this construction.) As discussed by Inkelas & Orgun (1998: 381–384), stressed compounds retain their stress when embedded in larger words, even when converted to Sezer place names or combined with stressed or pre-stressing suffixes, e.g. the pre-stressing interrogative *-^mI* in *Kandílli caddesi-mi* 'Kandilli street?'.

1.5 Interactions between Sezer and compound stress

As predicted by Innermost Wins, the assignment of Sezer stress to a zero-derived place name is blocked in case the place name is a compound and bears compound stress; thus the stressed compound *Saím-bey* 'Saim-Mr' keeps its stress when suffixed with *-li* 'associated with' and zero-converted into a place name: *Saímbeyli*. See Inkelas & Orgun (1998: 383–384).

2 The Inkelas & Orgun analysis

I&O provide a straightforward analysis of these facts. According to Inkelas (1999) – the predecessor to Inkelas & Orgun (1998) – each stressed root, stressed suffix and pre-stressing suffix bears a trochaic foot in underlying representation (p. 169). The fact that the foot is trochaic accounts for the absence of morpheme-final lexically specified stress (pp. 174–177). Examples, with parentheses indicating stress feet, include the stressed root *pen*(*cére*) 'window', the stressed adverbial suffix *-*(*ÉrEk*), and the pre-stressing negative suffix (*σ́-mE*). Thus there is one unified treatment of all lexically stress-perturbing morphemes. Inkelas (1999) observes that cyclic enforcement, even on bare roots, of a prohibition against non-trochaic stress feet could be invoked if desired to ensure that only trochaic feet are allowed to survive.

Default final stress is assigned to completed words by the independently needed word construction. Inkelas (1999), striving to use trochaic feet for the entire stress system, proposed final catalexis (Kiparsky 1991, Kager 1995); however, there are numerous methods of imposing default word-final stress, and any one would be sufficient. Default Sezer stress is assigned by the independently needed zero-derivation morphological construction that forms place names. Stress is assigned to the first member of stressed compounds, and any stress present in the second member is deleted (or demoted), by the relevant compounding construction.

The Sezer and word stress patterns are defaults in the sense that any stress present in the input to the application of these rules always prevails. This Innermost Wins generalisation (which Inkelas 1999 calls 'Input Wins') is a general principle in the language, also covering cases in which Sezer stress is present in the input to stressed or pre-stressing suffixes, cases in which stressed compounds are present in the input to Sezer stem formation, stressed or pre-stressing suffixes, and cases in which more than one exceptionally stressed morpheme occurs in the word. In short, in every

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imaginable case of competing sources of stress it is the innermost stressed morphological constituent whose stress prevails. Inkelas (1999) proposes that, within any given co-phonology, input stress always prevails over the pattern the co-phonology would otherwise assign (Innermost Wins); given a choice between competing input patterns (e.g. in stressed compounds), the leftmost input stress wins (Leftmost Wins). Since Turkish is a suffixing language, Innermost Wins and Leftmost Wins tend to converge. However, the prioritisation that Inkelas (1999) proposes, i.e. Innermost Wins ≫ Leftmost Wins, is needed because of at least one type of example in which the two would conflict. As discussed in Inkelas (1999), place names which are zero-derived from penultimately stressed words with a heavy–light-σ pattern retain their penultimate stress pattern, even though the Sezer stress pattern associated with place names would place stress further to the left, on the antepenultimate syllable. Thus the place name *Kanlíca*, zero-derived by the Sezer-stressing place-name construction from the complex word *kan-lı-^ca* → *kanlíca* 'blood-with-MIT = sort of bloody', bears penultimate stress, due to the fact that the mitigative suffix *-^ca* is pre-stressing (see also the discussion of *Sütlűce* in § 1.3). Only the principle of Innermost Wins can account for the fact that the Sezer stress pattern is not imposed; if it were, it would incorrectly predict **Kánlıca*.

Innermost Wins does not obviate Leftmost Wins; the latter is still needed to account for cases, like stressed compounding, in which, due to their presumed symmetrical morphological structure, Innermost Wins will not determine an outcome.

(2) *Summary of I&O*

a. A trochaic stress foot is prespecified on exceptional roots, stressed suffixes and pre-stressing suffixes.
b. Sezer stress pattern: assigned (as default, in accordance with (e)) within Sezer constituents.
c. Final stress pattern: assigned (as default, in accordance with (e)) within word constituents.
d. Stressed compound pattern: first member of relevant compounds receives an application of (default) word stress (Leftmost Wins).
e. In case of competing sources of stress, stress associated with an inner morphological constituent takes precedence over stress associated with an outer morphological constituent (Innermost Wins).

The I&O analysis accounts in a theoretically economical way for all the facts discussed by K&V, as well as for the stress of some morphological constructions that K&V do not discuss (e.g. unstressed compound formation and morphologically derived place names; on the latter, see especially § 3.2).

K&V criticise the account of Turkish stress in I&O on grounds of excess machinery, proposing an alternative analysis that they argue is simpler. The components of their analysis of word stress are as follows. They

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propose two mechanisms for handling exceptionally stressed roots and suffixes (3), and they posit three stress rules (4):

(3) a. For exceptionally stressed roots and stressed suffixes, one syllable is lexically marked in such a way as to trigger a word-level rule assigning stress to it if the syllable falls within the Phonological Word (PW) (p. 325; n. 7).

b. Pre-stressing suffixes are analysed as adjoining to the PW, the domain within which final stress is assigned. They thus fall outside the domain of stress. K&V account for the fact that no suffix – whether stressed or pre-stressing – to the right of the first pre-stressing suffix in a word can have any effect on stress by stipulating that the first (leftmost) PW-adjoining suffix in the word effectively closes off the PW (p. 327). No subsequent suffixes may incorporate into the PW, nor (even when they themselves are pre-stressing, i.e. PW-adjoiners) may they introduce new PW constituents of their own. The end result is that no suffixes to the right of a PW adjoiner can receive or influence stress.[7]

(4) a. Stress a lexically marked syllable (p. 329).

b. Otherwise, stress the final syllable of a PW (p. 329).

c. Stress the initial member of a PW–PW compound and demote the stress of the second member (p. 337).

3 Comparison

K&V argue that their analysis is simpler than that of I&O in requiring fewer lexical distinctions and fewer rules and in making no reference to multiple levels or co-phonologies (see e.g. p. 353). The point-by-point comparison, provided below, shows that K&V's reasoning is faulty. The only respect in which the K&V analysis could be said to use less theoretical apparatus is that it accounts for less data. K&V fail to consider a class of data (Sezer stems) that I&O argue must be accounted for on indisputable grounds of morphological productivity; in addition, K&V's analysis (as stated) makes incorrect predictions for two other sets of data, one of which I&O analyse and the other of which is not discussed by I&O but is correctly predicted by the I&O analysis.

[7] K&V's treatment of pre-stressing suffixes resembles that of Poser (1984), who treats pre-stressing suffixes as extrametrical and assumes that, in Turkish, extrametricality extends to any suffixes to the right (p. 90). Barker (1989) adopts this analysis but, because his analysis is cyclic, does not require Poser's novel extension of extrametricality; see Barker (1989: 29–32). Barker's analysis, adopted by van der Hulst & van de Weijer (1991) and discussed by K&V, is elegant in many respects but makes incorrect predictions for disyllabic suffixes, sequences of monosyllabic pre-stressing suffixes and stressed stems which combine with pre-stressing suffixes.

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3.1 Co-phonologies

I&O use co-phonologies to account for cases in which phonology is sensitive to morphological constituent type, i.e. for the differences in stress between morphologically derived Sezer stems and regularly stressed stems, and between stressed and unstressed compounds. Any theory must use co-phonologies or their equivalent to describe these differences.[8] K&V observe that their analysis is simpler than I&O's in not using co-phonologies (or their equivalent). But this simplification comes at a high cost: they do not account for, or even acknowledge the existence of, the different morphologically conditioned productive stress patterns that motivate I&O's use of co-phonologies. Rather than being a laudable decrease in machinery, the absence of co-phonologies (or equivalents) from K&V's analysis results in descriptive inadequacy.

3.2 The reality of Sezer stress

K&V argue specifically against including a Sezer stress rule in the grammar of Turkish; they cite the absence of this morphologically conditioned rule (co-phonology) as one important way in which their model of Turkish stress is simpler than that of I&O. Of course, simplicity is not the primary issue; the important question is whether the pattern is real. Either both analyses must account for the pattern, or neither needs to. K&V base their decision not to posit a Sezer stress rule on the well-known existence of certain place names that do not show the Sezer stress pattern. Citing four such forms (*Üsḱüdar*, *Belçíka*, *Anadolú*, *Işıklár*; p. 318) and a study of simplex place names by Çakır (see below), K&V claim that the pattern is not linguistically real.

K&V's dismissal of the Sezer stress rule follows from their failure to consider morphologically derived place names. As we have seen already, the Sezer stress pattern is productively assigned to morphologically derived place names; as we will show, the Sezer stress pattern is influenced in principled ways by the internal morphological make-up of these names, resulting in systematic subpatterns. We lay these facts out below, drawing not only on the existing discussion in I&O but also on a new statistical assessment we have made of the stress patterns of the 948 Turkish place names in the TELL database to show that K&V were premature in concluding from the existence of place names not bearing Sezer stress that the pattern is not real.[9] 351 of the place names in the TELL database are monomorphemic; 597 are morphologically complex.

[8] On co-phonologies, see e.g. Orgun (1996), Inkelas (1998), Yu (2000), Anttila (2002). Functional equivalents to co-phonologies include morpheme-specific constraint ranking (e.g. Itô & Mester 1993, Kirchner 1993), a descendant of rule-exception features (Chomsky & Halle 1968), or stem-specific constraint re-ranking (e.g. Alderete 2001), virtually identical to co-phonologies.

[9] The Turkish Electronic Living Lexicon (TELL), version 1.0, is freely accessible (July 2003) at http://socrates.berkeley.edu:7037/TELLhome.html. The place names are drawn from an atlas of Istanbul and a telephone area code directory of

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3.2.1 *Morphologically complex place names*. Within the set of morphologically derived place names, there are four principled subtypes. Three are not expected to, and do not, show Sezer stress. These are: (a) place names formed from words containing stressed or pre-stressing morphemes, (b) place names formed from stressed compounds and (c) place names formed by alternative morphological constructions which do not happen to be associated with special stress. We have already dealt in § 1.3 with the fact, correctly predicted by Innermost Wins, that the presence of lexical stress in the input will block the default Sezer pattern. There are 43 forms with input stress in the TELL place name database; 41 contain pre-stressing suffixes and two have lexical root stress. All 43, as expected, preserve their lexical stress. We also dealt, in § 1.5, with the fact that, by Innermost Wins, a stressed compound will preserve its initial stress when zero-converted to a place name. 437 place names in the TELL database are compounds, of which all but two bear compound stress. (Interestingly, the two counterexamples, *Sultan-ahmét* 'Sultan Ahmet' and *Mimar-sinán* 'Sinan the architect', are the only two appositives in the corpus; more examples of appositives are needed to determine whether they constitute a distinct subpattern in terms of stress.[10]) The Innermost Wins principle alone, operating in morphologically derived place names, thus accounts for the stress patterns of 480 place names, over 50% of the 948 in the TELL database.

We turn now to morphologically derived place names which lack lexically stressed morphemes and are not formed from compounds, but still do not exhibit Sezer stress. The stress patterns of these forms also turn out to be principled. Turkish has at least five place-name forming morphological constructions, all in complementary distribution. One, the zero-derivation construction we have seen, assigns Sezer stress; the other four do not.

The morphological constructions used in Turkish to create place names from non-place-name stems are given in (5).

Turkey. For internal consistency, we have used GO's stress patterns for these place names, rather than those of the speaker whose transcriptions are currently available from the TELL website. Development of the TELL database and website was supported by NSF awards #SBR-9514355 and #SBR-9911003.

[10] Some internally compounded place names which are used frequently can be truncated to their first member; in this case the first member exhibits the same stress it has in the compound (e.g. *Sanaːyí Sitesi* 'industrial site' → *Sanaːyí, Cumhuːriyét-köy* 'republic village' → *Cumhuːriyét*). Such forms exemplify compound stress, rather than counterexemplifying Sezer stress.

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(5) a. *Place names formed with pre-stressing* -^iye
Sultáːn-iye, Ahméd-iye, Süleymáːn-iye

b. *Place names formed with stress-neutral* -istan[11]
Hind-istán, Bulgar-istán, Moğol-istán

c. *Place names formed with stress-neutral* -haːne
Ḵ̂ağıt-haːné, Gümüş-haːné

d. *Words ending in* -lEr *or* -mEz*, which are always converted to place names by a non-stressing zero-derivation construction*[12]
Işık-lár < ışık-lar 'light-PL', Söyle-méz < söyle-mez 'say-NEG AOR'

e. *All other words converted to place names by Sezer-stressing zero-derivation construction*
Bébek < bebek 'baby', Tórba-lı < torba-lı 'bag-ASSOC'

It is clear from (5) that the Sezer-stressing zero-derivation place name construction is morphologically an elsewhere case, bled by several other more specific means of forming place names. Three of these means are suffixational, namely the *-^iye*, *-istan* and *-haːne* constructions. None of these assigns Sezer stress. *-^iye* is a pre-stressing suffix, like those in (d) and (e) of Table I, e.g. *Sultáːn-iye*, *Sultáːn-iye-den* (ABL), etc. *-istan* is a stress-neutral suffix, so that place names formed from it receive stress by the default final stress rule (unless a stressed or pre-stressing suffix is added), e.g. *Hind-istán* 'India', *Hind-istan-dán* (ABL); *Bulgar-istán* 'Bulgaria', *Bulgar-istan-á* (DAT); *Moğol-istán* 'Mongolia', *Moğol-istan-í* (ACC). *-haːne* is also stress-neutral, e.g. *Ḵ̂ağıt-haːné*, *Ḵ̂ağıt-haːne-dé* (LOC), etc. These three semi-productive suffixation constructions are in complementary distribution, not just with each other but also with the fully productive Sezer-stressing zero-derivation construction.

In addition to the place-naming suffixation constructions, Turkish also makes use of a zero-derivation place-name forming construction which does not assign Sezer stress. I&O refer to this as the 'non-Sezer place-name construction'.[13] Fully productive as far as we know, it is in principled complementary distribution with the Sezer-stressing zero-derivation construction, selecting specifically for stems ending in the suffixes *-lEr* (PL) and *-mEz* (NEG AOR). Like the *-istan* and *-haːne* suffixation constructions, the non-Sezer place-name construction is not associated with any special stress pattern; place names which it creates receive stress by the default final stress rule (unless a stressed or pre-stressing suffix is added), e.g. *Söyle-méz* < *söyle-mez* 'say-NEG AOR', *Söyle-mez-dén* (ABL);

[11] The examples cited in this table are foreign place names; there happen to be no place names formed by *-istan* in the TELL database.

[12] There are no place names zero-derived from stems ending in *-mEz* in the TELL database.

[13] Orgun (1996) and Orgun & Inkelas (2002) use the term 'co-phonological allomorphy' for construction sets of this kind in which the morphological function of the constructions is the same, but the associated co-phonologies differ.

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	pattern predicted by I&O	pattern not predicted by I&O
place name formed by Sezer-stressing zero-derivation construction		
input contains stressed or pre-stressing morpheme	lexical stress 41/41 (100%)	0
input contains stressed compound	compound stress 435/437 (>99%)	Sultanahmét, Mimar-sinán 2/437 (<1%)[14]
input has no lexical stress or internal compound	Sezer stress 90/91 (99%)	Kúle-li[15] 1/91 (1%)
place name formed by other construction		
place name is zero-derived by non-Sezer-stressing construction from stem ending in *-lEr*	final stress 19/19 (100%)	0
place name contains stressed root + suffix *-lEr*	lexical stress 2/2 (100%)	0
place name is formed by stress-neutral *-haːne*	final stress 4/4 (100%)	0
place name is formed by pre-stressing *-^iye*	pre-suffix stress 23/23 (100%)	0

Table II
Stress patterns found in morphologically complex place names.

Işık-lár < *ışık-lar* 'light-PL'; *Işık-lar-á* (DAT) (Inkelas & Orgun 1998: 374; see also Sezer 1981: 69).

23 morphologically derived place names in the TELL database meet the conditions just identified for final stress: they end in place-name forming *-haːne* or are zero-derived from words ending in *-lEr*. All 23 have final stress.

Table II summarises the stress patterns found in morphologically complex place names. It is clear from this table that the I&O account, which includes the Sezer stress pattern, accounts almost exceptionlessly for the stress of morphologically derived place names.

[14] As suggested earlier, it could be that appositives pattern with stems ending in *-lEr* or *-mEz* in being zero-converted to place names via the non-stressing place-name forming construction.

[15] Though not in the TELL database, there is another place name that has the same stress neutral suffix and unexpected antepenultimate stress: *Kínalı* (</kına-lı/ 'henna-ASSOC'; cf. *kınâ*, *kına-lî*). We thank Jaklin Kornfilt for bringing this example to our attention.

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3.2.2 *Monomorphemic place names.* The focus of K&V's discussion, in which the Sezer stress pattern is rejected as not being linguistically real, is monomorphemic place names. Some monomorphemic place names, like *Ánkara*, have stress consistent with the Sezer pattern; others do not. In the latter group, some, like *Zónguldak*, have fixed antepenultimate stress; many, like *Meksíka*, have fixed penultimate stress. At least one place name, *Anadolu*, does not have special stress, and simply conforms to the regular default final stress pattern: *Anadolú*, *Anadolu-dán* (ABL), etc.[16] These facts are discussed in I&O, who also observe a limitation on exceptionality: no place name has fixed lexical final stress. I&O see this as part of the larger generalisation that no morpheme of any kind has fixed final stress in Turkish; see §§ 1.1, 4.1. I&O treat monomorphemic place names with fixed non-Sezer stress in just the same way that they treat other morphemes with fixed, unpredictable stress (e.g. *másа* 'table'): by prespecifying stress in the root. K&V use this method as well.

The existence of irregular stress in lexically listed place names does not, of course, directly bear on the question of whether stress is productively assigned to derived place names; we are reminded of the argument in Clements & Sezer (1982) that the existence of disharmonic roots does not invalidate the more general claim that Turkish has vowel harmony in derived words. Nonetheless, our study of monomorphemic Turkish place names shows that the Sezer stress pattern may be more robust than K&V suggest. 351 of the place names in the TELL place name database are monomorphemic. Of these, five are monosyllabic and thus are irrelevant to the determination of whether or not the place names bear Sezer stress. 203 are disyllabic; all have initial (= penultimate) stress, which is consistent with the Sezer pattern. 143 have three or more syllables. Of these, 135 have stress which is consistent with the Sezer pattern, while only six (not including *Aːşiyán*, on which judgements vary (see note 16) or *Üsḱűdar*, which isn't in the TELL database) have stress in a location that is inconsistent with the Sezer pattern (antepenultimate, e.g. *Kastámonu*, or penultimate, e.g. *Bergáma*). (*Anadolú*, lexically unstressed, is an exception as well, though it is not in the TELL database.) Thus 100% of disyllabic names and 96% of polysyllabic monomorphemic place names in the TELL database have stress consistent with the Sezer pattern.

K&V describe a very different scenario for Turkish place names, basing their discussion on an unpublished conference paper by Çakır (1998). K&V (p. 318) describe Çakır as having conducted a dictionary survey of Turkish place names which revealed the following generalisation about stress: 'of the 206 irregularly stressed place names that contain a heavy antepenultimate and a light penultimate syllable, 155 words have primary stress on the penultimate and only 51 have stress on the antepenultimate, the pattern predicted by the Sezer rule'.

[16] *Anadolú* is not in the TELL database. There is another place name, *Aːşiyan*, that has unexpected final stress for some speakers (including the second author and some members of the audience at WAFL, but not GO, who reports antepenultimate stress – as predicted by the Sezer pattern – in this form).

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These results are very different from ours; of the 32 monomorphemic place names in the TELL database that would be expected to bear antepenultimate Sezer stress if the rule productively applied to lexically listed place names, 28 have Sezer stress, while four have penultimate stress. To this could be added the fact that all 11 of the morphologically complex place names in the TELL database which would be expected to have Sezer stress indeed conform to the pattern.

Without access to Çakır's database it is difficult to assess the discrepancy. One suggestive observation is that, of the 16 polysyllabic place names listed on page 4 of the handout from Çakır's talk, 11, including all five examples violating the Sezer stress pattern (*Afríka* 'Africa', *İngiltére* 'England', *Belçíka* 'Belgium', *Bermúda* 'Bermuda', *Avrúpa* 'Europe') are foreign place names; it is possible that foreign place names instantiate a principled subpattern among the larger set of place names. Recall that the place names in the TELL database are all Turkish.

Working on the assumption (borne out by our survey of the TELL place names) that Sezer stress is robustly attested in monomorphemic place names, I&O proposed that monomorphemic place names undergo the Sezer stress-assigning co-phonology and, unless lexically stressed already (like *Kastámonu*), receive Sezer stress. In retrospect this move is morphologically problematic, in that according to the framework I&O were working within, the Sezer co-phonology is associated with the morphological construction forming place names. Because roots like *Ánkara* are already place names, it would be morphologically redundant to send them through the place-name forming construction (just as it would be redundant to affix them with *-^iye*, *-haːne* or *-istan*).[17] Thus there are two alternatives: overlook the overwhelming generalisation that (native) monomorphemic place names exhibit Sezer stress, or come up with some system of assigning Sezer stress to roots which happen to be place names.[18] We leave this matter unresolved here, since our main goal is simply establishing that Sezer stress is alive and well in the grammar of Turkish, and the evidence from morphologically derived place names is sufficient proof of this.

3.3 Exceptionally stressed roots

To deal with exceptionally stressed roots (e.g. *másа* 'table', *pénaltı* 'penalty'), I&O use a lexically specified stress foot. K&V use a lexical diacritic

[17] To preserve the unstressed lexical status of the place name *Anadolu*, Inkelas & Orgun (1998) proposed that *Anadolu* undergo the non-Sezer stressing place-name forming construction. This is also morphologically redundant.

[18] On the association of different co-phonologies (constraint rankings) with subsets of roots in a language, see e.g. Itô & Mester (1995, 1999). Inkelas *et al*. (1997) argue against the use of positing co-phonologies just to capture phonological differences among bare roots, but the co-phonology in question here – namely the Sezer co-phonology – exists independently in the grammar, and would not have to be created just to capture root stress patterns.

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feature in tandem with a word-level stress rule that assigns stress to a syllable lexically marked with this diacritic, a practice which K&V's discussion (e.g. n. 7 and p. 353) suggests they may view as conceptually identical to stress prespecification, despite the technical differences. K&V state in several places that their analysis of root stress is more streamlined than that of I&O; on p. 353, for example, K&V write that previous analyses of Turkish stress 'have all required much more elaborate systems to handle the irregular root stress than the proposal advanced here'. It is not clear to us what K&V mean by 'much more elaborate systems'; all previous approaches handle irregularly stressed roots by prespecifying root stress, the practice followed by K&V as well.

It is possible that what K&V have in mind here is the decision by I&O to send bare place name roots (like *Ánkara*) to the Sezer co-phonology. We have already discussed the pros and cons of this approach to place name roots (§ 3.2.2); whatever one thinks about sending place name roots through the Sezer co-phonology, however, the result of doing so is not co-phonology proliferation (grammar complication). The Sezer co-phonology is required for derived place names independently of the existence of these roots.

3.4 Exceptionally stressed or pre-stressing suffixes

I&O use the same mechanism for pre-stressing suffixes as they do for stressed ones, namely a lexically specified trochaic stress foot. K&V use phonological word adjunction for pre-stressing suffixes and what (following Kornfilt 1997) they term clitics, including the copular /-^y/. As mentioned in note 5, I&O do not make the terminological distinction between suffixes and clitics in Turkish. The suffix–clitic distinction seems inconsequential in K&V's analysis, given that clitics and pre-stressing suffixes behave alike in every way and are analysed in parallel fashion.

K&V imply (e.g. p. 353) that their system for handling exceptional suffix stress is simpler than past analyses in requiring only a two-way distinction between suffixes, namely that between PW-adjoining suffixes and all others. But this oversimplifies the situation; like Inkelas (1999), K&V really make a three-way distinction. Earlier in the paper (n. 7), K&V acknowledge the need for a third type of exceptional morpheme, namely lexically stressed suffixes (as well, for that matter, as for a fourth type, their clitics, which happen to have identical phonological behaviour in all respects to pre-stressing suffixes). K&V claim (e.g. on p. 326) that their analysis of pre-stressing suffixes is simpler than approaches that, like I&O's, attribute pre-stressing to 'stress properties of the suffixes themselves'. But it is K&V who use more machinery; while I&O use the same mechanism, namely lexical foot specification, to deal with exceptional roots, pre-stressing suffixes and stressed suffixes, K&V introduce PW adjunction expressly to handle pre-stressing suffixes (and clitics), while still using the 'stress properties of the suffixes themselves', i.e. stress prespecification, to handle stressed suffixes.

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	K&V	I&O
regular final stress	default final word stress	default final word stress
stressless compound	*not discussed*	
Sezer stress in derived place names	*not discussed*	Sezer stress co-phonology
compound stress	Leftmost Wins	Leftmost Wins
exceptional morpheme stress	rule assigns stress to lexically marked syllable	lexical stress foot plus Innermost Wins
pre-stressing suffix	non-recursive PW adjunction	
pre-stressing clitic		
stressed root + stressed suffix	*existence denied*	
two or more stressed suffixes	*not discussed*	

Table III
Comparison between the K&V and I&O analyses.

3.5 Summary of comparison

Table III summarises the comparison between the K&V and I&O analyses in terms of theoretical machinery. Note that the presentation of the I&O analysis follows the presentation in the I&O papers, rather than K&V's characterisation thereof. Place-name roots are omitted from the table.

K&V claim that their analysis is more streamlined than I&O's. However, as Table III shows, the reason for this relative simplicity is that K&V's account does not address certain classes of data that figure centrally in I&O's analysis. Unstressed compounds, which K&V do not discuss, could be handled with their existing default final stress rule, but they would have to emulate I&O in positing two different compounding constructions with different co-phonologies. To account for Sezer stems, as well as for words containing more than one stressed morpheme within the PW, K&V would have to complicate their rule system by the addition of a Sezer stem co-phonology and an Innermost Wins principle holding within the PW. Recall that K&V's existing Leftmost Wins rule, developed for compounds, applies strictly across the PW boundary only, and could not as it stands handle the data in (a)–(c) of Table I.

Even if we restrict our attention only to the data that both analyses can account for, Table III still does not support the claim that K&V's account is simpler than that of I&O. I&O handle exceptional stress uniformly, by prespecifying a trochaic stress foot, while K&V use different methods for pre-stressing suffixes (PW adjunction) *vs*. stressed morphemes

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(stress (diacritic) prespecification). This difference does not necessarily make their analysis unacceptably worse, but it certainly does not make it simpler.

In summary, the K&V account is somewhat more complicated than the I&O analysis, while accounting for a notably smaller set of facts. It would certainly be possible for K&V to modify their analysis to be more like I&O's, and thereby to account for all the data. But in that case it would no longer qualify as the 'reanalysis' of Turkish stress that it claims (e.g. p. 324) to be.

4 Empirical problems with the K&V account

The most telling comparison between the K&V and I&O analyses is not along the dimension of theoretical parsimony but in terms of how accurately the two accounts capture empirical generalisations about Turkish.

4.1 Distribution of exceptional stress in morphemes

K&V's analysis misses the generalisation that there is no exceptional fixed morpheme-final stress in Turkish. As mentioned earlier, Inkelas's primary motivation for choosing an underlying trochee as the representation of exceptional stress is the fact that no morpheme ever bears exceptional final stress, and, as a corollary, that no monosyllabic morpheme is ever exceptionally stressed. Inkelas's account of this observation is that any lexically specified stress foot in Turkish must be contained wholly within the subcategorisation frame of an exceptional morpheme (that is, either within the morpheme itself, or within the constituent that the morpheme is obligatorily part of). Given this, a polysyllabic root may bear exceptional stress anywhere but on its final syllable; a monosyllabic or larger suffix can be pre-stressing; only a polysyllabic suffix can be stressed (and then never on the last syllable).

Inkelas's (1999) analysis also accounts naturally for an interesting generalisation, presented here, which is not discussed in her paper. Inkelas correctly predicts that no consonantal suffix (e.g. 1st person possessive *-m*, passive *-n*) can be pre-stressing, since there is no way to assign a trochee to one in such a way that the trochee would be guaranteed to be contained within the subcategorisation frame. This generalisation holds throughout Turkish with exactly one apparent exception, which, on closer examination, turns out in fact to validate Inkelas's approach. The one apparent exception is the so-called 'copula' suffix or clitic, discussed extensively by K&V. Termed a copula because of its historical origins as a copular auxiliary (see Kornfilt 1997: 77–82), this morpheme must be present in order to attach tense/aspect/mood suffixes to participles and non-verbal predicates (see K&V: 329); the last form in (d) of Table I sports two of them. The copula is pre-stressing although its phonological realisation is either a consonant (/-^y/) or zero, depending on environment. The pre-stressing nature of the copula is in fact consistent with Inkelas's trochee

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account. Since the copula can never be final in a word but must obligatorily be followed by one of a number of tense and modality suffixes (past tense *-DI*, evidential *-mIş*, conditional *-sE*, etc.), its subcategorisation frame extends not only at least one syllable to its left (the stem it attaches to) but also one syllable to its right (the suffix that must follow it). Therefore, it is possible to assign an underlying trochee to this suffix such that the trochee is contained entirely within its subcategorisation frame.

K&V's account of exceptional stress predicts a number of unattested exceptional stress patterns. Recall that K&V handle stressed morphemes via lexical diacritic marking of the stressed syllable. The expectation is therefore that it should be possible to so mark *any* syllable within a given morpheme. This in turn predicts that a polysyllabic morpheme should be able to bear exceptional stress on any syllable, crucially including the final syllable, and, furthermore, that a monosyllabic root or suffix should be able to bear exceptional stress. Both predictions are wrong. (The possibility of exceptional morpheme-final stress also seems to be a prediction of K&V's use of suffix-induced PW boundaries. If a suffix can induce a PW boundary to its left, there is no apparent reason that a suffix should not be able to do so to its right. Such a morpheme would bear exceptional final stress, an unattested pattern in Turkish.)

4.2 Interactions among competing stress sources

Perhaps the most significant weakness in K&V's analysis is its failure to capture the right generalisations about competing stress sources in the word. We have already talked about the interactions between Sezer stem stress and exceptional root and suffix stress. In this section we focus only on interactions among stressed and/or pre-stressing morphemes within the same word, a centrepiece of K&V's analysis.

Recall that I&O appeal to a principle of Innermost Wins to adjudicate situations in which more than one morphological constituent is associated with special stress effects. K&V do not have a general principle of this kind, and in fact argue on page 334 that their analysis does not require one, although they do make two related statements. One is the Leftmost Wins rule that they posit specifically for multiple PW structures (compounds), according to which stress is demoted in the rightmost PW. The other is the disjunctivity they assume between the rule assigning stress to a lexically specified syllable, if any, within the PW (rule (24a)), and the rule assigning stress to the final syllable in the PW (24b). In the event that both are applicable, rule (24a) applies to the exclusion of rule (24b). K&V claim that this disjunctivity follows from Kiparsky's (1973) Elsewhere Condition; however, our understanding of that condition is that it holds only between rules whose outputs are distinct in the sense of containing intrinsically contradictory specifications for the same features, or intrinsically contradictory metrical parses of the same material. Final and non-final stress are of course not intrinsically contradictory (many languages have alternating stress); the fact that they happen to be incompatible in Turkish

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	stressed suffix	*pre-stressing suffix*
stressed root	a. *existence denied; incorrect prediction is that both stresses should surface*	d. follows from default status of PW-final stress rule and from PW structure
stressed suffix	b. *not discussed; incorrect prediction is that both stresses should surface*	e. follows from default status of PW-final stress rule and from PW structure
pre-stressing suffix	c. follows from PW-final stress rule and from PW structure	f. follows from PW-final stress rule and from PW structure

Table IV
K&V's analysis of the interactions among stressed roots, stressed suffixes and pre-stressing suffixes.

has to be explicitly accounted for, not simply presupposed. I&O's Innermost Wins principle is still needed.

As a result of spurning a general principle like Innermost Wins to deal with multiple stressed morphemes within a word (in their terms, a PW), K&V generate incorrect predictions for two of the six types of combinations of exceptionally stressed morphemes. Table IV, which parallels Table I, shows how K&V's analysis fares with respect to the attested interactions among stressed roots, stressed suffixes and pre-stressing suffixes. As seen, K&V can handle the situations in which the effects of pre-stressing suffixes are overridden by stressed morphemes to the left ((d), (e)), as well as the situation in which a pre-stressing suffix overrides effects of morphemes to its right ((c), (f)). However, K&V cannot handle the situations in (a) and (b).

Because they have no principle like Innermost Wins applying within PWs, K&V predict that both suffixes should surface in words with a stressed root and stressed suffix within the same PW (a), and in words that have two stressed suffixes within the same PW (b). Both predictions are incorrect.

K&V dismiss the relevance of the prediction in (a) by claiming in note 7 that words combining stressed roots and stressed suffixes do not exist. However, (a) of Table I is proof by demonstration that such words do exist (and that Innermost Wins correctly predicts the outcome). K&V are led astray by their observation that stressed suffixes 'are verbal morphemes, while idiosyncratic root stress is typically observed in nouns' (n. 7), the unexamined assumption being that verbal suffixes don't combine with nominal roots. The flaw in K&V's reasoning is that Turkish abounds in category-changing derivational morphology. In another context (p. 334), K&V actually cite a verb manifesting category-changing derivation: *güzelleştírmediyselerde* (< *güzel-leş-tir-^me-di-^y-se-ler-^de* 'beautiful-VBL-CAUS-NEG-PAST-COP-COND-PL-PRT = even if they haven't beautified it')

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has as its root a nominal (the adjective 'beautiful') which is verbalised by *-leş* and causativised, then inflected for negation, tense, mood and subject agreement.[19] The morphologically parallel *Avrúpalılaşarak* 'by Europeanising' (< *Avrúpa-lı-laş-árak*), one of the words in (a) of Table I, is phonologically significant in containing two stressed morphemes, the noun root *Avrúpa* and the adverbial *-árak*; the two belong to what K&V would call a single PW, as no pre-stressing suffixes intervene. To analyse such forms K&V would need to add the Innermost Wins principle or modify their existing Leftmost Wins principle so that it also holds within the PW.

K&V do not discuss the possibility represented in (b), i.e. that a word might contain two stressed suffixes. However, some of the stressed suffixes that they mention individually in notes 7 and 10 are in fact able to combine in the same PW, as shown above in (b) of Table I. Forms like *bırak-íver-érek* → *bırakívererek* show that the innermost stressed morpheme is the one whose stress surfaces. Again it is necessary to appeal to a principle like Innermost Wins to handle these cases.

5 Conclusion

Once K&V's analysis is augmented, as required for descriptive adequacy, with Sezer-stem capability and a principle of Innermost Wins, it becomes nearly indistinguishable from the I&O analysis which K&V claim to be supplanting. Inkelas (1999) uses stress prespecification to account for all types of exceptional stress. K&V also use stress specification (or, rather, its indirect equivalent) for all but one type of exceptional stress. Inkelas & Orgun (1998) use Leftmost Wins to account for stressed compounds; K&V do the same. The only *bona fide* difference in theoretical apparatus between the analyses is that K&V propose for pre-stressing suffixes the distinct theoretical mechanism of PW adjunction. And this difference does not favour K&V. PW adjunction is ad hoc, lacking independent motivation in Turkish; as K&V point out, neither word-level syllabification nor vowel harmony, for example, is bounded by the particular PWs needed to generate pre-stressing suffix effects. Moreover, the stipulation that all suffixes to the right of a PW-adjoiner are excluded from PW status is a theoretical innovation needed only for these data and is at odds, as K&V acknowledge in their note 12, with cross-linguistically common patterns in which recursive PW formation would seem to be the norm, especially when multiple PW adjoiners are concerned. Since lexical stress specification is needed anyway for stressed roots and stressed suffixes, using it for pre-stressing suffixes as well (as in Inkelas 1999) is more theoretically parsimonious than introducing PW structure in an essentially diacritic

[19] K&V misgloss the adjective *güzel* as a noun, 'beauty'; the corresponding abstract noun is actually *güzel-lik*. They also misgloss verbalising *-leş* as an adjectivaliser, though they translate its product, *güzel-leş*, correctly as 'beautify'.

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way (as in K&V). Thus, by K&V's own line of reasoning regarding excess machinery, the I&O analysis is preferable to theirs.

In conclusion, the account of Turkish stress developed in I&O has greater empirical coverage, captures more generalisations and is theoretically more streamlined than the alternative offered in K&V.

REFERENCES

Alderete, John (2001). Dominance effects as transderivational anti-faithfulness. *Phonology* **18**. 201–253.

Anttila, Arto (2002). Morphologically conditioned phonological alternations. *NLLT* **20**. 1–42.

Barker, Christopher (1989). Extrametricality, the cycle, and Turkish word stress. In Junko Itô & Jeff Runner (eds.) *Phonology at Santa Cruz 1*. Santa Cruz: Linguistics Research Center. 1–33.

Çakır, M. Cem (1998). On non-final stress in Turkish simplex words. Paper presented at the 9th International Congress on Turkish Linguistics, Lincoln College, Oxford.

Chomsky, Noam & Morris Halle (1968). *The sound pattern of English*. New York: Harper & Row.

Clements, George N. & Engin Sezer (1982). Vowel and consonant disharmony in Turkish. In Harry van der Hulst & Norval Smith (eds.) *The structure of phonological representations*. Part 2. Dordrecht: Foris. 213–255.

Dobrovolsky, Michael (1986). Stress and vowel harmony domains in Turkish. *BLS* **12**. 61–71.

Foster, Joseph F. (1970). *On some phonological rules of Turkish*. PhD dissertation, University of Illinois, Urbana.

Goldsmith, John (ed.) (1995). *The handbook of phonological theory*. Cambridge, Mass. & Oxford: Blackwell.

Halle, Morris & William Idsardi (1995). General properties of stress and metrical structure. In Goldsmith (1995). 403–443.

Halle, Morris & Jean-Roger Vergnaud (1987). *An essay on stress*. Cambridge, Mass.: MIT Press.

Hameed, Jumah (1985). Lexical phonology and morphology of Modern Standard Turkish. *Cahiers Linguistiques d'Ottawa* **14**. 71–95.

Hammond, Michael (1986). The obligatory-branching parameter in metrical theory. *NLLT* **4**. 185–228.

Hayes, Bruce (1995). *Metrical stress theory: principles and case studies*. Chicago: Chicago University Press.

Hulst, Harry van der & Jeroen van de Weijer (1991). Topics in Turkish phonology. In Hendrik Boeschoten & Ludo Verhoeven (eds.) *Turkish linguistics today*. Leiden: Brill. 11–59.

Idsardi, William (1992). *The computation of prosody*. PhD dissertation, MIT.

Inkelas, Sharon (1998). The theoretical status of morphologically conditioned phonology: a case study of dominance effects. *Yearbook of Morphology 1997*. 121–155.

Inkelas, Sharon (1999). Exceptional stress-attracting suffixes in Turkish: representations versus the grammar. In René Kager, Harry van der Hulst & Wim Zonneveld (eds.) *The prosody–morphology interface*. Cambridge: Cambridge University Press. 134–187.

Inkelas, Sharon & Cemil Orhan Orgun (1998). Level (non)ordering in recursive morphology: evidence from Turkish. In Steven Lapointe, Diane Brentari & Patrick Farrell (eds.) *Morphology and its relation to phonology and syntax*. Stanford: CSLI. 360–392.

https://doi.org/10.1017/S0952675703004482 Published online by Cambridge University Press

Inkelas, Sharon, Cemil Orhan Orgun & Cheryl Zoll (1997). The implications of lexical exceptions for the nature of grammar. In Iggy Roca (ed.) *Derivations and constraints in phonology*. Oxford: Clarendon. 393–418.
Itô, Junko & Armin Mester (1993). Japanese phonology: constraint domains and structure preservation. Report LRC-93-06, Linguistics Research Center, UCSC.
Itô, Junko & Armin Mester (1995). Japanese phonology: constraint domains and structure preservation. In Goldsmith (1995). 817–838.
Itô, Junko & Armin Mester (1999). The phonological lexicon. In Natsuko Tsujimura (ed.) *The handbook of Japanese linguistics*. Malden, Mass. & Oxford: Blackwell. 62–100.
Kabak, Barış & Irene Vogel (2001). The phonological word and stress assignment in Turkish. *Phonology* **18**. 315–360.
Kager, René (1995). Consequences of catalexis. In Harry van der Hulst & Jeroen van der Weijer (eds.) *Leiden in last*. The Hague: Holland Academic Graphics. 269–298.
Kaisse, Ellen (1985). Some theoretical consequences of stress rules in Turkish. *CLS* **21:1**. 199–209.
Kaisse, Ellen (1986). Toward a lexical phonology of Turkish. In Michael Brame, Heles Contreras & Frederick Newmeyer (eds.) *A Festschrift for Sol Saporta*. Seattle: Noit Amrofer. 231–239.
Kardestuncer, A. (1982). A three-boundary system for Turkish. *Linguistic Analysis* **10**. 95–117.
Kiparsky, Paul (1973). 'Elsewhere' in phonology. In Stephen R. Anderson & Paul Kiparsky (eds.) *A Festschrift for Morris Halle*. New York: Holt, Rinehart & Winston. 93–106.
Kiparsky, Paul (1991). Catalexis. Ms, Stanford University & Wissenschaftskolleg zu Berlin.
Kirchner, Robert (1993). Turkish vowel disharmony in optimality theory. Paper presented at the Rutgers Optimality Workshop, Rutgers University.
Kornfilt, Jaklin (1997). *Turkish*. London & New York: Routledge.
Lees, Robert (1961). *The phonology of Modern Standard Turkish*. Bloomington: Indiana University.
Lewis, Geoffrey (1967). *Turkish grammar*. Oxford: Oxford University Press.
Lightner, Theodore M. (1978). The main stress rule in Turkish. In Werner Winter (ed.) *Linguistic and literary studies in honor of Archibald Hill*. The Hague: Mouton. 267–270.
Orgun, Cemil Orhan (1996). *Sign-based morphology and phonology with special attention to Optimality Theory*. PhD dissertation, UC Berkeley.
Orgun, Cemil Orhan & Sharon Inkelas (2002). Reconsidering bracket erasure. *Yearbook of Morphology 2001*. 115–146.
Poser, William J. (1984). *The phonetics and phonology of tone and intonation in Japanese*. PhD dissertation, MIT.
Sebüktekin, Hikmet (1986). Turkish word stress: some observations. In Eser Erguvanlı Taylan (ed.) *Türk dilbilimi konferansı*. Istanbul: Boğaziçi University Publications. 295–307.
Sezer, Engin (1981). On non-final stress in Turkish. *Journal of Turkish Studies* **5**. 61–69.
Swift, Lloyd B. (1963). *A reference grammar of Modern Turkish*. Bloomington: Indiana University Publications.
Underhill, Robert (1976). *Turkish grammar*. Cambridge, Mass.: MIT Press.
Yu, Alan C. L. (2000). Stress assignment in Tohono O'odham. *Phonology* **17**. 117–135.
Zimmer, Karl (1970). Some observations on non-final stress in Turkish. *Journal of the American Oriental Society* **90**. 160–162.

https://doi.org/10.1017/S0952675703004482 Published online by Cambridge University Press