A parallel OT analysis of exceptional stress in Turkish

Deniz Özyıldız

PhoNE, 04/04/2015

1 Introduction

1.1 Background information

Suffixes:

- Turkish is an agglutinative language: roots are suffixed with a variety of morphemes.

Stress:

- Primary stress is regularly assigned to the final syllable, suffixes do not interfere.

    (1) a.   ta.vá   'pan'
         b.   ta.va.cí   'pan salesman'
         c.   ta.va.cı.lár   'pan salesmen'
         d.   ta.va.cı.la.rí   'pan salesmen.ACC'

    (2) a.   gel.dí   'he came'
         b.   gel.di.lér   'they came'

- Except that some suffixes *do* interfere with final stress. They come in two flavors: *prestressing* or *stressed*.

    (3) Prestressing suffixes

         a.   ta.vá.mı   'pan.Q'
         b.   ta.vá.yla   'with the pan'
         c.   gél.me   'don't come!'

I would like to thank our Phonology I class and the audience of the UMass psycholinguistics workshop for their patience, comments and encouragement.

(4)   Stressed suffixes

    a.   ya.p-í.yor   'he is doing'
    b.   ya.p-á.rak   'by doing'
    c.   ya.p-í n.ca   'do-when'

- **Important!**

  - *Prestressing* suffixes are monosyllabic.
  - *Stressed* suffixes are disyllabic and stressed on their initial syllable.

1.2   Proposal

- There is only one kind of exceptional stress assigning suffix.

- A single generalization captures the position of non-final stress:

  (5)   The right edge of a trochee is aligned with the right edge of an exceptional suffix.

- This generalization is used to implement an analysis in parallel OT enriched with a diacritic (McCarthy & Pruitt 2013). This marking makes exceptional suffixes visible to the grammar.

- The analysis extends to a second (and apparently unrelated) type of exceptional stress pattern of the language: initial stress in adjectives that have undergone emphatic reduplication.

1.3   Theoretical import

- The generalization is novel. It provides a clearer perspective on Turkish morphophonological categories.

- The system is simpler than the relevant aspects of McCarthy & Pruitt (2013) and Inkelas (1999).

  - A single diacritic is used, versus two.
  - Not sets of morpheme specific constraints:

  (6)   ALIGN(Stress, Right, Specific Suffix 1, Left)   Prestressing suffix
         ALIGN(Stress, Left, Specific Suffix 2, Left)   Stressed suffix

  But a single "subclass general" constraint

  (7)   ALIGN(Trochee, R, Any Exceptional Suffix, R)

1.4 Conventions

- Capital vowels are used in citation forms of morphemes affected by vowel harmony.

- Only a subset of exceptional stress patterns is captured. For instance Sezer (1981) stress in proper names is not part of what is to be explained.

2 Word final stress

- Forms are analyzed as having a final catalectic trochee (Inkelas 1999).

- (This analysis might look strange, but it is motivated later.)

- The constraints:

  - TROCHEE: ALIGN(Stress,L,Foot,L)
  - FTBIN: Feet are binary
  - FINALSTR: Assign one violation mark to every candidate whose final syllable is not stressed.
  - FILL: Assign one violation mark per empty (unpronounced) syllable.

Table 1: Word final stress: ta.vá, 'pan'

	/ta.va/	TROCHEE	FTBIN	FINALSTR	FILL
a)	→ ta.(vá.σ)	0	0	0	1
b)	(tá.va)	0	0	1	0
c)	(ta.vá)	1	0	0	0
d)	ta.(vá)	0	1	0	0

- Candidate a) with a final catalecic trochee is favored over:

  - b) with non-final stress,
  - c) with a final iamb,
  - d) with a final unary foot.

- For simplicity, I will not show any candidate that violates TROCHEE.

3 Non-final stress

3.1 An incorrect prediction

- The fragment of grammar above makes the incorrect prediction that all forms will have final stress.

  In Table 2. the intended winner a) with non-final stress loses to candidate b) with final stress.

Table 2: Example of the incorrect prediction: ta.vá.mɪ, 'pan.Q'

/ta.va.mɪ/	FTBIN	FINALSTR	FILL
a) → ta.(vá.mɪ)	0	1	0
b) (!) ta.va.(mí.σ)	0	0	1

- Minimal pairs can be constructed that differ by position of stress:

  (8) a. gel.mé   'coming'
       b. gél.me   'don't come!'

  (9) a. ta.va.cɪ.mí   'my pan salesman.ACC'
       b. ta.va.cí.mɪ   'pan salesman.Q'

- Two desiderata:

  - Phonology must be made to see whether the input contains a stress disrupting suffix or not.

  - The position of stress is relative to the position of the suffix (not a root or a word boundary). Phonology must make reference to such a position.

3.2 A diacritic in the lexicon

- Stress disrupting suffixes are marked with an unpronounced diacritic.

  (Perhaps exceptional stress is how the diacritic gets pronounced.)

- A sample lexicon corresponding to this assumption is provided in (10).

  Stress neutral suffixes are unmarked, (10-a), while both monosyllabic and disyllabic stress disrupting suffixes, in (10-b) and (10-c), carry the (same) diacritic, indicated by the subscript d.

  (10) a. dI   regular suffix
        b. mI$_d$ "prestressing" suffix
        c. ArAk$_d$ "stressed" suffix

4

- The grammar will then be able to derive non-final stress patterns by including a constraint that refers to the diacritic, that applies only to forms that bear it.

- It is not necessary to assume that there are different diacritics (cf. McCarthy & Pruitt 2013) or that a diacritic is "positioned" on different segments within the suffix. Such alternatives undermine the perspective of a unified treatment.

3.3 The constraint that refers to the diacritic

3.3.1 Generalization

Recall the two observations from the introduction:

- *prestressing* suffixes are monosyllabic:

    (11)   mA, (y)lA, cE ...

- *stressed* suffixes are stressed on their initial syllable and are at most disyllabic:

    (12)   ÁrAk, Íyor, ÍncA, ...

Then:

- The distinction between *prestressing* and *stressed* is descriptively adequate.

- But these properties are not unrelated (cf. Inkelas 1999). There are not two types of stress-exceptional suffixes in Turkish, but only one.

- The generalization in (13) provides a unified description of the single set of exceptional suffixes.

    (13)   **Core generalization:** Primary stress is assigned to the second syllable to the left of the right edge of an exceptional suffix.

- Indeed, for suffixes that obey this generalization, if the suffix is monosyllabic, stress will be assigned to the syllable immediately preceding it, and if the suffix is disyllabic, it will be stressed on its initial syllable.

    (14)   a. ta.(vá.mɯ$_d$)   'pan.Q'
            b. ge.(l-í.yor$_d$)   'he is coming'
            c. ge.(l-í.yor$_d$).sun   'you are coming'

3.3.2 Implementation

- Assume the following constraint. It will align independently generated trochees with the right edge of *d*-bearing suffixes.

  (15)   EXCEPTIONALSUFFIX: Assign one violation mark per intervening syllable between the right edge of a foot and the right edge of a *d* bearing suffix.   "ALIGN(FT, R, X$_d$, R)"

- This constraint must be ranked higher than FINALSTR.

- Tableaux

  In Table 3

    – candidate a): trochee aligned with exceptional suffix   winner!
    – candidate b): with catalexis and final stress   *EXCSUF
    – candidate c): with unary foot and final stress   *FTBIN

Table 3: Correct prediction for prestressing suffix: ta.vá.mɪ, 'pan.Q'

	/ta.va.mɪ$_d$/	FTBIN	EXCSUF	FINALSTR	FILL
a)	→ ta.(vá.mɪ$_d$)	0	0	1	0
b)	ta.va.(mí$_d$.σ)	0	1	0	1
c)	ta.va.(mí$_d$)	1	0	0	0

  In Table 4

    – candidate a): trochee aligned with exceptional suffix   winner!
    – candidate b): unary final foot   *FTBIN
    – candidate c) and d): no alignment   *EXCSUF

Table 4: Correct prediction for stressed suffix: ge.l-í.yor, 'he is coming'

	/ge.li.yor$_d$/	FTBIN	EXCSUF	FINALSTR	FILL
a)	→ ge.(lí.yor$_d$)	0	0	1	0
b)	ge.li.(yór$_d$)	1	0	0	0
c)	(gé.li).yor$_d$	0	1	1	0
d)	ge.li.(yór$_d$.σ)	0	1	0	1

- The tableaux above omit candidates with multiple stresses.

(16) a. ge.(lí.yor$_d$) / *ge.(lí.yór$_d$)   'he is coming'
      competitor satisfies EXCSUF *and* FINALSTR
      ruled out by *multiply headed feet.

   b. ge.(lí.yor$_d$).sun / *ge.(lí.yor$_d$).(sún)   'you are coming'
      competitor violates FTBIN and EXCSUF

   c. ge.(lí.yor$_d$).su.nuz / *ge.(lí.yor$_d$).(sú.nuz)   'yall are coming'
      competitor violates EXCSUF twice

   d. ge.(lí.yor$_d$).sun / *ge.(í.yor$_d$).(sún.σ)   'you are coming'
      competitor violates EXCSUF twice and FILL

Table 5: Multiple EXCSUF violations: `ge.(lí.yor).sun`, 'he is coming'

/ge.li.yor$_d$.sun/	FTBIN	EXCSUF	FINALSTR	FILL
a) → ge.(lí.yor$_d$).sun	0	0	1	0
b) ge.(lí.yor$_d$).(sún.σ)	0	2	0	1
c) ge.(lí.yor$_d$).(sún)	1	1	0	0

- When an exceptional suffix is present, no need for a constraint like CULMINA-TIVITY (Zuraw 2006) to enforce "one word, one stress". Although it might be needed for regular forms.

(17)   CULMINATIVITY: Assign one violation mark to every candidate that has more than one stressed syllable.

3.3.3   Motivation

- This makes a prediction about what kinds of stress disrupting suffixes are attested in the language.

- Inkelas (1999) presents polysyllabic prestressing suffixes. Here, I argue that they are not convincing counterexamples to the generalization. Inkelas's typology is given in Table 6.

- (I could not find any other purported counterexamples.)

Table 6: Types of stress disrupting suffixes according to Inkelas (1999)

Number of σ:	1	2	3
Prestressing	ko.mík-**çe** funny-SUF somewhat funnily	ak.şám-**le.yin** evening-SUF in the evening	gü.lér-**ce.si.ne** laugh-SUF as if he were laughing
Stressed	*Unattested*	ge.l-**é.rek** come-SUF by coming	*Unattested*

The trisyllabic prestressing suffix 'cA.sI.nA' in (1,3) is morphologically complex

- It can be decomposed into a sequence formed by:

    – the monosyllabic exceptional suffix 'cA', that derives manner adverbs (compare cells (1,1) and (1,3) in Table 6):
    (18)   ko.mík.çe   funnily

    – the stress neutral polyvalent suffix '-(s)I(n)':
    (19)   a.ra.ba.sí   his car

    – the stress neutral dative suffix '-(y)A':
    (20)   ki.ta.b-á   book.DAT

- The challenge: this specific sequence of suffixes is idiosyncratic and each component does not have a clear cut meaning contribution.

    But the counterexample would be more convincing if the initial syllable 'cA' were not an otherwise prestressing suffix.

The disyllabic prestressing suffix 'le.yin' in (2,2) is not productive

- It occurs only in a handful of temporal adverbs, listed in (21).

(21)   sabáhleyin,   akşámleyin,   ikindíleyin, gecéleyin
         in the morning, in the evening, at tea time, at night

- I will thus assume that forms containing this suffix are truly exceptional, in the sense that their stress pattern is learned.

Claim: All counterexamples can be dismissed by appealing to morphological decomposition or non-productivity.

4 Capturing the rest of the facts

- The correct stress pattern is captured for one exceptional suffix in the word, regardless of its position.

    – Word final monosyllabic suffix,

    – Word medial monosyllabic suffix,

    – Word final disyllabic suffix,

    – Word medial disyllabic suffix.

4.1 Multiple stress disrupting suffixes: leftmost wins

- Examples:

    (22) a. ta.vá.yla$_d$.mɪ$_d$ pan-with.Q
          b. ge.l-í.yor$_d$.lar.mɪ$_d$ are they coming?

- Some of these forms are ruled out by the grammar "for free". In (23), two competitors of (22-a):

    (23) a. ta.(vá.yla$_d$).mɪ$_d$ optimal
          b. ta.(vá.yla$_d$).(mí$_d$)   *FTBIN
          c. ta.(vá.yla$_d$).(mí$_d$.σ)   *EXCSUF

- But, not all problematic forms are ruled out.

    Table 7 illustrates a tie between two parses of (22-a), a problem:

Table 7: Multiple exceptional suffixes: ta.vá.yla$_d$.mɪ$_d$, 'are they coming?'

	/ta.va.yla$_d$.mɪ$_d$/	EXCSUF	FINALSTR	LEFTMOST
a)	→ ta.(vá.yla$_d$).mɪ$_d$	1	1	1
b)	ta.va.(ylá$_d$.mɪ$_d$)	1	1	2

- A tie breaking constraint is needed:

    (24)   LEFTMOST: Assign one violation mark per intervening syllable between the position of stress and the left edge of a word.
                                                                "ALIGN(Stress,L,Word,L)"

- Table 8 shows that LEFTMOST breaks a similar tie for (22-b).

9

Table 8: Multiple exceptional suffixes: ge.lí.yor$_d$.lar.mı$_d$, 'are they coming?'

	/ge.li.yor$_d$.lar.mı$_d$/	EXCSUF	FINALSTR	LEFTMOST
a)	→ ge.(lí.yor$_d$).lar.mı$_d$	2	1	1
b)	ge.li.yor$_d$.(lár.mı$_d$)	2	1	3
c)	ge.(lí.yor$_d$).(lár.mı$_d$)	4	1	4

- There is evidence that this constraint is doing other work in the language:

  - Compounds: stress of first noun surfaces
    - (25)   a.   be.bé.k#a.ra.ba.sı   baby car
    -          b.   *be.be.k#a.ra.ba.sí
    -          c.   báş#ba.kan   head minister
    -          d.   *baş#ba.kán
  - Exceptional roots + suffixes: stress of root surfaces
    - (26)   a.   Án.ka.ra-mı$_d$ Ankara.Q
    -          b.   *An.ka.rá-mı$_d$
    -          c.   dán.s#e.di.yor$_d$ he is dance doing
    -          d.   *dan.s#e.dí.yor$_d$

- Since it's a tie breaker here, we cannot rank it. But independent evidence will have it ranked below FINALSTR.

4.2   Expansion to emphatic reduplication

- Some data:
  - (27)   a.   ma.ví → más.ma.vi   very blue
  -          b.   kır.mı.zí → kíp.kır.mı.zı   very red

- Assumption: the reduplicant is d-marked.

Table 9: Emphatic reduplication: más.ma.vi, 'very blue'

	/mas$_d$.ma.vi/	EXCSUF	FTBIN	FINALSTR	FILL
a)	(más$_d$).ma.vi	0	1	1	0
b)	(más$_d$.ma).vi	1	0	1	0
c)	mas$_d$.ma.(ví.σ)	3	0	0	1

5   Conclusion

- Turkish has only one type of exceptional suffix.

- Regular and exceptional stress can be captured in a unified manner.

6 References

Inkelas, S. (1999). Exceptional stress-attracting suffixes in Turkish: representations versus the grammar. The prosody-morphology interface, 134, 187.

McCarthy, J. J. (2011). Doing optimality theory: Applying theory to data. John Wiley & Sons.

McCarthy, J. J. & K. Pruitt. (2013). Sources of phonological structure. In Linguistic Derivations and Filtering: Minimalism and Optimality Theory, H. Broekhuis & R. Vogel (eds), London: Equinox.

Sezer, E. (1981). On non-final stress in Turkish. Journal of Turkish studies, 5, 61-69.

Zuraw, K. (2006). Counteranalysis to Kabak and Vogel, UCLA class handout. http://www.linguistics.ucla.edu/people/zuraw/courses/prosword_2006.html