Turkish Emphatic Reduplication

Andrew Wedel
University of California, Santa Cruz
wedel@ling.ucsc.edu

1 Introduction

Emphatic variants of some Turkish adjectives are historically derived by prefixing a CVC syllable in which the initial CV are identical to the word-initial CV of the base of affixation, while the final C is taken from the set {p, s, m, r}, as illustrated in (1):'[1].

(1) *Turkish emphatic adjectives*

	base	gloss	emphatic form	gloss
(a)	kara	'dark'	<u>kap</u>kara	'pitch black'
(b)	belli	'clear'	<u>bes</u>belli	'obvious'
(c)	bejaz	'white'	<u>bem</u>bejaz	'bright white'
(d)	temiz	'clean'	<u>ter</u>temiz	'spotless'

Cross-linguistically, derivational processes often make use of phonological material already present in a base word; in such reduplicative processes a copy of the base word is affixed to the base word itself. This copy can be complete or partial, perfect or imperfect, as required by constraints on prosody or phonological well-formedness. A number of accounts within the framework of Optimality Theory (OT; Prince & Smolensky 1993) have been proposed in which the initial CV of Turkish emphatic prefixes is analyzed as a copy of the word-initial CV (Kelepir 1999, Yu 1998, 1999). Within these accounts, the identity of the prefix-initial CV to the initial CV of the base is formally enforced through high-ranking constraints on base-reduplicant identity, following work of McCarthy & Prince (1995), among many others.

The source of the consonant interpolated between the reduplicant and the base is less clear however; some previous work has suggested that this consonant is simply lexically encoded (Yavas, 1980, Vaux, 1998) while more recent accounts have claimed that a sufficiently clear relationship exists between the distribution of final prefix consonant and phonological material in the base to warrant a phonological explanation (Kelepir 1999, Yu, 1999).

Previous attempts to rationalize the pattern of final prefixal consonant distribution have focused on featural OCP (obligatory countour principle, Leben 1973) effects, claiming that the choice of final prefixal consonant operates to minimize featural similarity with any consonant in the base, with particular emphasis on any similarity with both the initial

[1] The emphatic prefix is underlined in all forms given. A near exhaustive list of attested reduplicated forms is provided in Appendix 1.

consonant of the base (C1) or the second consonant of the base (C2) (Demircan, 1987; Yu, 1999; Kelepir, 1999). Although this and related generalizations holds for many forms, there are also many exceptions, e.g. [bombok], 'really crappy', in which the interpolated consonant [m] shares place and voice features with C1, or [kaskatɯ], 'rock solid', in which the interpolated consonant shares place and voice features with C2. Furthermore, there are a significant number of forms for which there is some disagreement among speakers, e.g. [semsert/sepsert], 'very harsh', [yosyoun/yopyoun], 'very thick', and [køskøty/køpkøty], 'very bad'. The prevalence of exceptions to all the as yet adduced phonological patterns as well as differences in individual speakers' reported forms suggests that independent lexicalization may also play a role in fixing particular emphatic forms in the language apart from any underlying phonological process.

In fact, while similar processes remain entirely productive in at least two other Turkic languages, Uzbek and Yakut (Dobrovolsky, 1987), in modern Turkish it is no longer productive: emphatic prefixes are applied only to particular common adjectives—indeed, most acceptable forms appear in dictionaries as separate entries. Nonetheless, regardless whether these emphatic forms represent lexicalized remnants of some previously productive process or one still active today, when prompted a native speaker can carry out this process on a variety of Turkish adjectives, choosing one or two of the of the four consonants with confidence as the only possibilities, indicating that native speakers do abstract some productive phonological generalization from the emphatic forms that exist.

To zero in on any active phonological generalizations that Turkish learners abstract from the body of attested emphatic forms, I compiled a list of adjectives not normally subject to emphatic reduplication, and asked native speakers to provide an emphatic form, in spite of their intuition that this was 'not allowed'[2] (see Appendix 2). In contrast to the body of attested forms, these solicited novel emphatic forms together show an unambigous pattern of consonant distribution. A majority of attested forms are also consistent with the pattern emerging from the solicited forms, consistent with the respondents' judgement that they were creating recognizable emphatic forms.

The responses reveal the following generalizations:

1) The interpolated consonant is taken from the set {p, m, s}.
2) [p] is not selected if C1 is labial, e.g. [m] or [b].
3) The interpolated consonant must be non-identical to both C1 and C2 of the base.
4) Except where contravened by 2) or 3), [p] is selected over [m] or [s].

In the following section, I address each of these claims in turn, introducing and motivating constraints where necessary. In section 3, I discuss the source of the interpolated consonant, and provide evidence that it is epenthetic and affixal, not standing in correspondence to any consonant in the base. In section 4, I discuss general markedness effects that can be seen in the choice of affixal consonant when the highly ranked constraints introduced in section 2 are satisfied. Finally, in section 5 I compare the results of this study to conclusions drawn by others from the body of attested emphatic forms.

[2] The only restriction on using forms such as these may be prior use, as several of the respondents for this exmperiment now spontaneously usea wide variety of novel emphatic forms with me in conversation and writing for humor value.

2 Generalizations concerning the distribution of the affixal consonant

2.1 The set of consonants is limited to {p, m, s}

There are only four attested forms in Turkish in which [r] is the interpolated consonant. In the solicited forms, [r] is never selected, even in cases in which each of the the three other options is suboptimal (see section 2.5 below), indicating that [r] is not present to native speakers in the set of possible affixal consonants. Furthermore, several native speakers who served as informants for this study report that there are no novel forms that they can make up in which [r] sounds as good as, or better than [p], [s], or [m]. Therefore, the four attested [r] forms may be solely derived from the lexicon.

2.2 [p] is not selected if C1 is labial

In Turkish, voiceless consonants are rarely followed by a voiced obstruent if they share place, a generalization confirmed by a search through TELL, a searchable online Turkish language lexicon[3]. As releasing a voiceless stop with a burst into a homorganic voiced stop is articulatorily marked, such sequences are not released in casual speech. However, since place information for non-continuant stops is most concentrated in burst formants, non-continuant stops lacking a burst are perceptually less salient. Correspondingly, when bases beginning with C1 = {b, m} undergo emphatic reduplication, the otherwise primary affixal [p] may give way to the suppletive alternates {m, s} in order to maintain high perceptual salience of the reduplicative morpheme. I abbreviate this constraint, *[-cont, -voice, αplace][+voice, αplace] as *SHAREDPLACE, and illustrate its effect in the following tableau.

(1)

	RED +{p,m,s} + /bilge/	*SHAREDPLACE
a	bip/bilge	*!
b ☞	bim/bilge	
c ☞	bis/bilge	

Candidate (a) fails because the initial consonant of the base is [b], and as such the choice of [p] as the affixal consonant violates *SHAREDPLACE. The affixal consonants chosen in candidates (b) and (c) are not stops and so cannot violate *SHAREDPLACE. In fact, both of these candidates are chosen by my respondents, even though in candidate (b) the affixal consonant [m] shares a place feature with C1, [b].

2.3 The interpolated consonant must be non-identical to C1

As we have seen above, [p] is perceptually marked when it precedes [b] or [m], and in emphatic reduplication it is avoided in this situation. Similarly, the first segment in a false geminate (a sequence of two incidentally adjacent identical segments with an intervening morpheme boundary) can only signal its presence by length, rather than by any contextual distinctiveness. If we accept the argument that [p] is avoided before [m] or [b] for reasons of

[3] http://socrates.berkeley.edu:7037/cgi-bin/TELLsearch.cgi

perceptual distinctiveness, the avoidance of false gemination in emphatic reduplication follows directly[4]. I abbreviate the constraint against false gemination as*C_iC_i.

(2)

	RED + {p,m,s} + /pullu/	*CiCi
a	puppullu	*!
b ☞	pumpullu	
c ☞	puspullu	

Candidate (a) fails because the selected affixal consonant is identical to the first consonant of the base. In contrast, neither candidate (b) nor (c) violates *CiCi, and correspondingly both were reported by respondents.

2.4 The interpolated consonant must be non-identical to C2

If C2 in the base is [p], [m], or [s], that consonant is avoided in final position in the reduplicant. This may be initially surprising, as that choice would result in total reduplicative identity, thereby more fully satisfying base-reduplicant correspondence constraints (McCarthy and Prince, 1995). Avoidance of repetition in reduplication has been described by Moira Yip (Yip 1993, 1995) as a conflict between constraints militating for and against identity between base and reduplicant and may reflect an advantage in retaining minimally distinguishing contrast between morphemes. This constraint, formulated by Yip as *REPEAT, is violated by the presence of abutting identical strings in the base and reduplicant, and is sufficiently highly ranked that there are only two attested forms that violate it, [kapkapalɯ] and [perperisan]. The action of *REPEAT is illustrated below in tableau 3

(3)

	RED + {p,m,s} + /yaman/	*REPEAT
a	yamyaman	*!
b ☞	yasyaman	
c ☞	yapyaman	

Candidate 1) fails in this tableau because the reduplicant [yam] is identical to the initial string in the base [yaman]. Candidates (b) and (c) do not provide identical strings, and thereby satisfy *REPEAT. Because [p] is the elsewhere choice (as will be shown in section 2.6) the actual winner in this case is candidate (c) even though the base-consonant nominally in correspondence with the affixal consonant is [m], which shares labiality with [p].

*2.5 Interaction of *SHAREDPLACE, *CiCi, and *REPEAT in emphatic reduplication*

[4] A small number of native Turkish words contain geminates, and false gemination in derived forms is tolerated without epenthesis or deletion, so language-specific undominated constraints cannot explain the avoidance of an affixal consonant identical to C1.

Adjectives such as [mest] and [miskin] in which C1 = [m] and C2 = [s], cannot be reduplicated without violating one of the constraints adduced in the preceding sections: the affixal consonant [p] violates *SHAREDPLACE, [m] violates *CiCi, and [s] violates *REPEAT, as illustrated in Tableau 4. That the actual reported forms are invariantly [mepmest] and [mipmiskin] shows that constraints against any output that includes a false geminate or that could be misconstrued as faithful reduplication crucially dominate *SHAREDPLACE, allowing the ranking shown in the following tableau to be deduced:

(4)

	RED + {p,m,s} + /mest/	*REPEAT	*CiCi	*SHAREDPLACE
1	mesmest	*!		
2	memmest		*!	
3 ☞	mepmest			*

Candidate (a) fatally violates *REPEAT by interpolating [s] which results in the appearance of faithful reduplication of the initial base string, while candidate (b) fatally violates *CiCi by virtue of interpolating [m] which is identical to the base initial segment. Although candidate (c) violates *SHAREDPLACE by interpolating [p] before the base-initial voiced, labial segment [m], the observation that this is the winning candidate provides support for the ranking given above. That *CiCi is ranked above *SHAREDPLACE is perhaps not surprising, for if perceptual distinctiveness is in fact the motivation for both constraints, we would in fact predict that the affixal consonant would fare better as the first member of a […pm…] sequence than of an […mm…] sequence.

An alternative solution to the markedness dilemma provided by the [mepmest] cases would be to insert a different consonant; the observation that in these cases, [r] is never chosen as the interpolated consonant, although it would satisfy all identified constraints, supports the conclusion that it is not part of the input morpheme, and that all attested +[r] outputs are therefore irregular.

2.6 [p] is the elsewhere affixal choice

Authors studying the distribution of affixal consonant in attested emphatic forms have concluded that [p] is the elsewhere choice, both from the affixal distribution in C-initial forms and from the observation that all vowel-initial bases reduplicate exclusively with [p] (Demircan, 1987, Yu, 1999). The distribution of affixal consonants in solicited forms supports this interpretation; in solicited forms in which C1 is not a member of the set {p, m, b} and C2 is not [p], the affixal consonant virtually always [p] with the exception of some bases beginning with [t] discussed in section 4.2). Consequently, following Yu (1999) I analyze [p] in combination with RED as the underlying emphatic affix, while [m] and [s] are suppletive alternates used when [p] would violate *CiCi, *REPEAT, or *SHAREDPLACE

2.7 Affixal consonant identity to consonants elsewhere in the base does not force suppletion

In the attested forms, affixal consonants are claimed to avoid identity not just to C1 or C2, but to any consonant in the base (Demircan, 1987, Yu, 1999). However, the corpus of attested forms do not provide any opportunities to test this proposition per se, as there are no attested forms in which [p] or [s] are found to the right of C2 position in the base, and only

seven forms in which [m] appears to the right of C2 position. In each of the latter seven forms, the actual selected affixal consonant conforms to, or at least does not contradict the other constraints/rules adduced in each of these treatments, making it impossible to know if segmental identity per se to positions to the right of C2 can force affixal consonant suppletion[5].

To address this issue, I included several adjectives in the set of solicited forms designed to assess the ability of segments beyond C2 to affect the selection of the affixal consonant. For example, the adjective [synepe] 'condescending', contains an [s] in C1, a [n] in C2, and a [p] in C3 position. The constraint *CiCi prevents the choice of [s] as the affixal consonant, and so the only choices are [p] and [m]. The distribution of affixal consonants in the attested data suggest that avoidance of featural identity to C1 and C2 of the base are most important in affixal consonant choice, so it might be argued that [p] is better than [m] because C2 in the base is nasal. However, we saw above that a nasal C2 does not discourage the selection of [m] as affixal consonant in the emphatic form [pimpinti]. Hence, the fact that [synepe] is uniformly reduplicated to [sypsynepe] by selecting [p] as the optimal affixal consonant suggests that identity to segments other than C1 and C2 plays little role in conditioning affixal consonant selection[6].

3 Defining the emphatic morpheme

3.1 The interpolated consonant is affixal

I have left until now a discussion of the source of the consonant in question: is it in correspondance with the base (violating Ident-BR), or epenthetic (violating Dep-BR)? High ranked *REPEAT will force a segment in some position of the emphatic reduplicant to be non-identical to the base regardless of the input, but if this were all that were necessary, we might expect one of two alternative scenarios, 1) correspondence or 2) default epenthesis.

1) The segment could be in correspondance with the base, in which case it could dissimilate from its correspondent just enough to satisfy *REPEAT while salvaging some featural identity. However, in most cases, the interpolated consonant cannot be derived from C2 by dissimilation, making this interpretation difficult to support. Furthermore, soliciting an emphatic form of the loanword [kaoslɯ] ‘chaotic’, which has a vowel in third position separated from the preceding by hiatus, produces an output in the form of [kapkaoslɯ]. The observation that [kaoslɯ] begins with CVV and yet still reduplicates to CV[p] suggests that the third position in the reduplicant is not in correspondence with a segment in the base.

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[5] In defense of this position however, it appears that individual featural identity to segments to the right of C2 may be sufficient to explain many instances of affixal suppletion in the attested forms, so it is a reasonable extension to assume that full featural, i.e. segmental, identity would do so as well.

[6] Other examples that contain segments to the right of C2 position that are identical to, or share significant featural similarity to the selected emphatic consonant, include [pi(m/s)piʂman], [musmuhteʂem] and [mysmynasip]. The particular combinations of segments in these words however do not allow any firm conclusions to be drawn. For example, the base [mynasip] contains an [s] to the right of C2 which in isolation might drive selection of [p], but the presence of [p]in addition to [s] right of C2 may explain why this is non-optimal.

2) The interpolated consonant could be epenthetic, appearing as a default segment. This scenario has been described in Alderete et. al (1997) as phonological fixed segmentism, in which epenthesis occurs to fulfill reduplicative prosodic and markedness requirements. Because the epenthetic segments are not governed by faithfulness to any input, they can be chosen to minimize markedness, and as such appear as contextually conditioned default segments. However, as {p,m,s} do not resemble the default segments of Turkish (usually taken from the set {n, j}), and appear in the output despite clear markedness violations (e.g. [mepmest], section 2.5), this cannot be a case of phonological fixed segmentism.

As members of the set {p,m,s} are neither base correspondents nor epenthetic default segments, they must be analyzed as affixal, bearing a portion of the emphatic morpheme itself. Alderete et. al. (1997) analyze this kind of reduplication as melodic overwriting in which affixal material is realized within the reduplicant. In their analysis, if the size of the reduplicant is limited for prosodic reasons, some reduplicant material that could otherwise be in correspondence with the base must be overwritten by affixal material. In the analysis presented here however, violation of BR faith is not proximally located in overwriting, because *REPEAT forces some element of BR faithlessness regardless.

Consistent with the designation of the interpolated consonant as affixal, the consonants {p,m,s} are taken from the larger inventory of affixal consonants in Turkish: [Vp] is a verb-conjoining affix, affixes with the shape [mV] signal negation and question, and [s] is a suppletive alternate of the genitive suffix. Alan Yu (1999) proposes in fact that the emphatic morpheme evolved from the verb-conjoining affix [Vp].

4 General markedness effects in the choice of affixal consonant

4.1 Vowel height effects

In bases beginning with [p] or [b], the constraints *CiCi and *SHAREDPLACE restrict the choice of affixal consonant to [s] and [m]. However, there are some bases for which only [s] is used, and others for which [s] and [m] both appear possible, for example [pa(s)pahalɯ], but [pi(m/s)pinti]. This trend correlates to a large degree with vowel height, in which [s]-only forms correlate with an initial low vowel, and the [s/m] forms correlate with an initial mid/high vowel. This can easily be motivated from the standpoint of articulatory markedness, because the lip-closure required in the gesture for [m] is farther from neutral position with the jaw dropped for a low vowel, than with the jaw in high or medial position. The observation that both [s] and [m] are used in the context of high vowels while [s] is the only appearing form in the context of low vowels may suggest that [s] is slightly favored over [m] in general.

4.2 Word level sonority effects

In the set of solicited emphatic forms beginning with [t], there are a subset in which [p] is not the optimal affixal consonant even though none of the constraints motivated in section 2 are violated. Demircan (1987) noted that the pattern of consonant choice in the attested cases was consistent with what she called an "aestheticising" tendency which produced featurally balanced outputs. For example, she noted that the base [katɯ] 'hard' is reduplicated to

[kaskatɯ] rather than [kapkatɯ] although [s] and C2 share place features, and suggested that this is because the two consonantal segments in the base, [k, t], are both (-cont., -strid.). Selecting the affixal consonant [p] would produce an output in which four out of four consonants were (-cont., -strid.), which could be avoided by the selection of [s]. Similarly, in this study when native speakers were asked to produce an emphatic form of the word [tabu] 'taboo', they invariably selected [s] as the optimal affixal consonant (see Appendix 2). The fact that C2 of [tabu] shares a place feature with [p] cannot alone explain this effect, as [p] is optimal for other words with C2 = [b] such as [yabani] 'wild' and [sabɯrlɯ] 'patient'. However, as for [katɯ], an emphatic form of [tabu] using [p] as affixal consonant produces [taptabu] in which all consonants are (-cont., -strid.). All of the other [t] initial bases for which [s] is optimal rather than [p] contain a medial consonant cluster, suggesting in fact that it may be overall word sonority value that is at issue. In support of this, a study of segment frequency by context in the TELL database indicates that a tendency to match low sonority islands (individual low sonority consonants or clusters) with distant higher sonority consonants is pervasive in native Turkish vocabulary (Wedel, in prep.). Stephen Frisch has demonstrated similar gradient, whole word effects in English and Arabic vocabulary that operate to minimize featural redundance both locally and non-locally (Frisch 1996).

5 Comparing attested and solicited data

The solicited data suggest that the constraints on affixal consonant choice are quite straightforward: The two highest ranked constraints *CiCi and *REPEAT, operate on a segmental level to rule out identity between the affixal consononant and C1 or C2, while *SHAREDPLACE prevents the affixal [p] from appearing in a local context in which it is articulatorily and perceptually marked. In contrast, the attested data suggest that in addition to these, constraints operating on the affixal consonant to avoid featural identity over the entire word are important, even if apparently unevenly applied (Demircan, 1987, Kelepir, 1998, Yu, 1999). For example, there are no attested forms in which a base containing a nasal segment in any position appears with the affixal consonant [m], strongly suggesting dissimilation away from multiple nasal segments in one word. However, in the solicited data, [pinti] can appear as [pimpinti], and [bulanɯk] can appear as [bumbulanɯk]. Similarly, although the attested data suggest that the affixal consonant cannot be identical to any consonant in the base, [synepe] is uniformly reduplicated with a [p] rather than the possible [m], as [sypsynepe], even though the base contains a [p].

The constraint system suggested by the solicited data can in fact be seen as a more sharply defined version of that proposed for the attested forms: in the solicited forms, the optimality of an output is decided on the basis of segmental rather than featural identity, and the comparison between the affixal consonant and the base is limited to C1 and C2, rather than the entire base. In contrast, the constraint systems adduced to explain the distributional pattern of the attested forms extend the comparison between affixal and base consonants to partial featural identity, and although the features of C1 and C2 remain most important, segments in the rest of the base are also taken into account. As such, the constraint system for the solicited data can be seen to be a subset of that for the attested data. Correspondingly, nearly 70% of the attested forms are predicted by the solicited constraint system alone, and 82% can be explained allowing additionally for suppletion to allow dissimilation of place features between the affixal consonant and C2.

Clearly, the constraint system for generating novel forms and that which produced the attested forms are related, but how?
Two hypotheses suggest themselves:

1. The attested forms developed and became lexically fixed in the language at a time when a somewhat different constellation of constraints/rankings were operative. The constraints that reveal themselves in the solicited data then represent either a newer set of constraints/rankings presently operative over some portion of the language and generalizable to this novel task, or if these constraints/rankings are no longer relevant to the language at all, represent the maximum in complexity of constraints/rankings that modern speakers can abstract out of their knowledge of the attested forms.

2. The same constraints with their rankings that originally produced the attested forms remain operative in the language. These constraints fall into two categories: i) constraints/rankings that govern the spontaneous production of novel emphatic forms, and ii) constraints on general word well-formedness operative throughout the language. Under this hypothesis, when novel forms are solicited, native speakers primarily refer to the constraints in i) to produce an output. The attested emphatic forms now familiar in the language also originally conformed to the constraints in i), but drifted to their present forms under the influence of general word well-formedness constraints in ii) as they became increasingly lexicalized.

In support of some form of hypothesis 2), within the solicited data are hints of effects like those that may have shaped the attested forms. For example, it is noteworthy that in the solicited data that if no consonant is optimal, similarity (as opposed to identity) to C2 can shift the frequency of a given interpolated consonant. For example, C2 = [z] can discourage use of [s] as interpolated consonant, as in [bezgin] → [bembezgin]; similarly, the [z] in [mazlum] and other similar words appears to convince some speakers to choose [mapmazlum] even though that violates *SHAREDPLACE. However, no other non-identical consonant has any consistent effect, for example, C2 = [n] does not discourage [m], and C2 = [b] or [m] does not discourage [p]. It is possible that /z/ is perceptually close enough to [s] to trigger *REPEAT.

Similarly, among the [t]-initial bases with medial consonant clusters, the tendency away from [p] as the affixal consonant is strongest in forms containing labial consonants in the consonant cluster (see e.g. [tombul], [terbijeli] and [tembel]). Effects that appear to be gradient and/or cumulative such as these cannot be adequately modeled by OT in its current formulation (Frisch 1996, Wedel in prep.).

In her 1987 paper, Demircan found an interesting frequency effect that could be adduced in support of either hypothesis: when asked to provide previously attested emphatic forms, many of her informants regularized the least common forms to conform to the constraint system found in this study, suggesting that when these informants were less familiar with a particular accepted form, they relied on a productive process rather than on memory.

6 Conclusion

Although native speakers of Turkish do not in general innovate new emphatic reduplicative forms, I have shown here that they all do in fact have access to a uniform, constraint-based schema for doing so. This schema produces outputs very different from those involving choice of most harmonic nonsense words (Demircan, 1987), supporting the participants' contention that they were creating genuine, recognizable emphatic forms. In this system, the choice of the prefix-final consonant is governed by two high-ranking constraints which state that the affixal consonant must be *non-identical* to both C1 and C2 of the base. Operating within the framework of Optimality Theory (Prince & Smolensky 1993), and following Yip (1995), I suggest that these constraints operate to maximize perceptual salience of the reduplicant with respect to the base by preventing gemination across the morpheme boundary in the case of identity with C1, and by avoiding base-reduplicant string identity in the case of identity with C2. A second constraint, *SHAREDPLACE, operates to condition suppletion from the elsewhere affix [p] when it would appear in a particularly marked context. Crucially, contrary to the evidence provided by the attested data, there is no evidence that identity between individual features of the epenthetic consonant and C1 or C2 has any significant effect on consonant choice in the generation of novel forms. The observation that the suppletive alternation of fixed affixal segments is driven by full segmental rather than featural identity supports the contention that this phenomenon does not in fact represent a kind of anti-faithfulness, as identity operates at the featural rather than segmental level, but rather a constraint militating against string-identity.

Furthermore, given that these constraints all seem to operate towards the one common goal of making the affixal consonant perceptually salient in context, it may be profitable to reconsider these constraints as comprising negative instanciations of the general faithfulness constraint, Realize Morpheme (Samek-Lodovici, (1993)). This constraint penalizes any output in which an input morpheme does not achieve phonological exponence. Yip's *REPEAT can be seen as an instance of this general faithfulness constraint, recast in the form of a markedness constraint which penalizes an output too easily mistaken for faithful reduplication in which the affixal morpheme does not appear. Likewise, * C_iC_i and *SHAREDPLACE penalize outputs in which the affixal morpheme is obscured by a neighboring segment. This work thereby supports the proposition advanced by Yip (1995) that achieving some minimum level of perceptual distinctiveness between base and reduplicant morphemes may represent a functional goal within reduplicative morphology.

Appendix 1

Attested C-initial reduplicated forms; emphatic prefix is underlined.
Alternative reduplicated forms are offset.

b

bambaʃka
basbajaɯ
basbajat
bembej
bembejaz
besbedava
besbelli
besberaber

besberrak
besbeter
bombok
bomboʃ
bumburuʃuk
bysbytyn

d͡ʒ

d͡ʒapd͡ʒanlɯ

d͡ʒasd͡ʒavlak
d͡ʒimd͡ʒilk
d͡ʒɯsd͡ʒɯbɯl
d͡ʒɯsd͡ʒɯbɯldak
d͡ʒɯsd͡ʒɯvɯk

t͡ʃ

t͡ʃart͡ʃabuk,
t͡ʃapt͡ʃabuk

t͡ʃept͡ʃevre
t͡ʃɯrt͡ʃɯplak
t͡ʃimt͡ʃi:
t͡ʃipt͡ʃirkin

d

damdazlak
dapdar
dapdarad͡ʒɯk

depderin
desdeirmi
dimdik
dipdinʧ
dipdiri
dopdolu
dosdoˈru
dupdurgun
dupduru
dymdyz
dypdyry
dypdyzgyn

g

gepgeʤe
gepgenʧ
gepgeniʃ
gepgergin
gypgyndyz
gypgyr
gypgyzel

h

hɯphɯzlɯ

k

kamkar
kapkahve
kapkalɯn
kapkapalɯ
kapkara
kapkaranlɯk
kaskatɯ
kepkel
kɯpkɯrmɯzɯ
kɯpkɯsa
kɯpkɯzɯl
kɯskɯzɯl
kipkirli
kɯskɯvrak
kopkolay
kopkoyu
koskoʤa
koskoʤaman
koskomik
kopkoyu
køpkøty
køskøty
køskøtyrym
kyskyʧʃyk
kyskytyk
kupkuru

l

laplaʤivert

m

masmavi
mosmor

p

pespembe
pimpis
perperiʃan

s

sapsade
sapsa:
sapsa:lam
sapsalak
sapsarɯ
sepserin
sepsert
semsert
sepsevimli
sersefil
sɯmsɯʧak
sɯmsɯk
sɯmsɯkɯ
sɯpsɯkkɯn
sɯpsɯska
sɯrsɯklam
simsiyah
sipsilik
sipsivri
sopsouk
supsulu

ʃ

ʃepʃekerli
ʃipʃirin
ʃipʃirkin

t

tamtakɯr
taptatlɯ
taptaze
tastamam
tertemiz
tortop
tostop
tostopaʧ
tostoparlak
tupturunʤu
tuptuzlu

j

jamjassɯ
japjakɯʃɯklɯ
japjalnɯz
japjanliʃ
japjaʃlɯ
japjavaʃ
jemjeʃil
jepjeni
jopjoun
josjoun
jusjumru
jusjumuʃak
jusjuvarlak

z

zapzajif
zepzengin

Appendix 2: Solicited Novel Reduplicants
A response is not included in the consensus if it appears only once.

Input	Responses	Consensus	Input	Responses	Consensus
ba:lɯ	s, s, s, s, s	s	makul	s, s, s s, s	s
bɯdɯk	s, s, s, s, s	s	ma:rur	s, s, s s, s	s

bojlu	s, s, s, s, s	s	mɯjmɯntɯ	s, s, s s, s	s
bed͡ʒerikli	s, s, s, p, s	s	minik	s, s, s s, s	s
bodur	s, s, s, s, s	s	modern	s, s, s s, s	s
bulanɯk	s, s, s, s, s	s	møbleli	s, s, s s, p	s
budala	m, s, s, s, m, s, s, s, s	m/s	mert	s, s, s, p, s	s
bilge	s, m, s, s, m	m/s	mest	p, p, p, p, p	p
berak	m, m, s, s, s, m, m, s, s	m/s	miskin	p, p, s, p, p	p
bitap	s, m, s, s, m	m/s	motorize	p, s, s, p, s	p/s
baskɯn	m, m, m, s, m, m, m, m, m	m	muzɯr	p, p, s, p, s	p/s
bezgin	m, m, m, s, s, p, m, s, m	m/s	mazlum	p, s, s, s, s	s
			myzevir	m, p, p, s, s	p/s

Input	Responses	Consensus	Input	Responses	Consensus
pullu	m, m, s, s, s	m/s	sabɯrlɯ	p, p, p, p, p, m, p, p	p
perili	s, s, m, s, s	s	silik	p, p, p	p
pinti	s, m, m, s, s, s, m, s, m	m/s	suni	p, p, p	p
pytyly	s, m, m, s, m	m/s	suratlɯ	p, p, p	p
pahalɯ	s, s, s, s, s	s	sat͡ʃma	p, p, p	p
pespaje	m, m, m, m, m	m	synnetli	p, p, p	p
pasaklɯ	m, m, m, s, m	m	sinsi	p, p, p	p
puslu	m, m, m, m, m	m	somut	m, p, p, p, p, p, p	p

Input	Responses	Consensus	Input	Responses	Consensus
tɯkɯz	p, p, p	p	tombul	s, s, p, s, s, s, s, s	s
tɯkalɯ	p, p, p	p	terbijeli	s, s, s, s, s, s, s, s	s
turund͡ʒu	p, p, p	p	tembel	s, s, s, s, s, s, s, s	s
tasalɯ	p, p, p	p	tipsiz	m, m, s, m, m, m, m, m	m
tutud͡ʒu	p, p, p	p	topal	p, s, p, s, s, s, s, s	s/p
titiz	p, p, p	p			

taʃlɯ	p, p, p	p			
tabu	s, s, s, p, s	s	Input	Responses	Consensus
tenha	p, p, s, p, p, s, p, s	s/p	jyd͡ʒe	p, p, p, p, p	p
tɯklɯm	s, m, s, s, s	s	jɯkɯd͡ʒɯ	p, p, p, p, p	p
tyjly	p, p, s, p, p, s, p, s	s/p	jyzejsel	p, p, p, p, p	p
tɯknefes	p, s, m, s, s	s	jabani	p, p, p, p, s	p
ted͡ʒrubeli	p, s, m, p, s	p/s	jɯrtɯk	p, p, p, p, s	p
tokgyzly	p, m, m, m, s	m	jaman	s, p, s, p, p	s/p

References:

Alderete, John, et. al. 1997. Reduplication with Fixed Segmentism. ROA

Demircan, Ozgur. 1987. Emphatic Reduplication in Turkish *Studies on modern Turkish; Proceedings of the 3rd conference in Turkish Linguistics*; ed. Hendrik E. Boeschoten, Ludo Th. Verhoeven. Tilburg University Press.

Dobrovolsky, Michael. 1987. Why CVC in Turkish Reduplication? *The Nordic Languages and Modern Linguistics* 6, ed. Plilw and M. Saari, 131-146 Helsinki

Frisch, Stefan. 1996. Similarity and Frequency in Phonology. Ph.D. dissertation, Northwestern University, Evanston, Illinois.

Kelepir, Meltem. 1999. Emphatic non-identical reduplication in Turkish, LSA Annual Meeting.

Leben, William. 1973. Suprasegmental Phonology. Ph.D. dissertation, MIT. Cambridge, Massachusetts.

McCarthy, John and Alan Prince. 1995. Faithfulness and reduplicative identity. In J. N. Beckman, L. Walsh Dickey and S. Urbanczyk, eds., UMOP: Papers in Optimality Theory 18, 249-384

Prince, Alan & Paul Smolensky. 1993. Optimality Theory: Constraint interaction and satisfaction. Ms., Rutgers University and University of Colorado, Boulder.

Samek-Lodovici, Vieri. 1993. Morphological gemination crosslinguistically. Ms, Rutgers University.

Vaux, B. 1998. The Phonology of Armenian, Clarendon Press: Oxford.

Yavas, M. 1980. Borrowing and its implications for Turkish phonology. Ph.D. thesis, Univ. of Kansas.

Yip, Moira. 1993. Identity Avoidance in Phonology and Morphology, ROA.

Yip, Moira. 1996. Repetition and its Avoidance: The Case of Javanese, ROA.

Yu, Alan. 1999 Dissimilation and Allomorphy: the case of Turkish Emphatic Reduplication, Ms. University of California, Berkeley.