Consonant-Induced Harmony in Turkish:
I-Spreading and Disharmonic Patterns under Headedness

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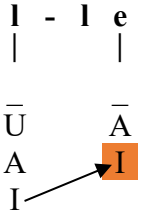
Turkish vowel harmony has been widely studied, with debates on "disharmonic" patterns (Clement & Sezer, 1982; Denwood, 1998; Polgárdi, 1999). Pöchtrager (2010) links internal disharmonies to phonological elements **I** and **U**, constrained by: (i) *Non-initial positions can contain any phonological expression*; (ii) ***I** only spreads into empty-headed positions*; (iii) ***U** spreads into empty expressions only*. The present study extends Pöchtrager's framework by examining consonant-induced external harmony.

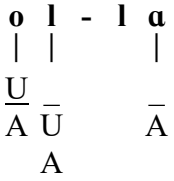
(1)	a. sür**ɑ**t-l**e**r	speed.pl	**sürat-lar*	f. v**ɑ**ls-l**e**r	waltz.pl	**vals-lar*
	b. g**o**l-l**e**r	goal.pl	**gol-lar*	g. **ɑ**lp-l**e**r	hero.pl	**alp-lar*
	c. r**ɑ**b-l**e**r	god.pl	**rab-lar*	e. h**ɑ**rf-l**e**r	letter.pl	**harf-lar*
	d. h**ɑ**d-l**e**r	limit.pl	**had-lar*	h. h**ɑ**rp-l**e**r	war.pl	**harp-lar*

For the disharmonic cases in (1a-h), we propose that the disharmony reflects consonant-to-vowel element spreading, where the element **I** in stem-final consonants spreads to adjacent vowels under specific phonological constraints.

(2) a. **b o l - l e r**

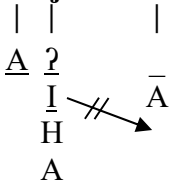


b. **b o l - l ɑ r**

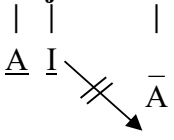


Examining minimal pairs like *bol* [bol] (2a) 'a type of drink' and *bol* [boɬ] (2b) 'loose' shows that different phonemes (/l/ vs. /ɬ/) imply distinct elemental structures, affecting vowel outcomes. For example, /l/ in [bol] (2a) has the structure ⎪_(UAI)⎪, allowing the element **I** to spread and produce [e], whereas /ɬ/ in [boɬ] (2b) has ⎪_(UA)⎪, leading to [ɑ] due to the absence of **I**. This pattern is consistent in other disharmonic cases given in (1a-h). Our analysis suggests that palatal consonants containing element **I** in the stems of examples (1a-h) represent distinct phonemes, differing from non-palatal consonants (e.g. *sür**at-ler*** vs. *lüg**at-lar*** 'dictionaries'; ***harp-ler*** vs. *eş**arp-lar*** 'scarves'). Additionally, element **I** spreads to a vowel only if it is in a non-head position and the vowel is empty-headed, which explains why some consonants with element **I** do not exhibit spreading (e.g. *taç-lar* 'crowns' (3a) and *ray-lar* (3b) 'rails').

(3) a. **t ɑ tʃ - l ɑ r**



b. **r ɑ j - l ɑ r**



Accordingly, we propose that **I**-spreading must adhere to three constraints to prevent excessive spreading:

(4) C1: **I** can only spread to empty-headed vowels.
C2: **I** can only spread when it is in non-head position in the source expression.
C3: **I** can only spread to the closest vowel on the right.

Constraint C1 ensures that **I** spreads only to vowels that are empty-headed, specifically those with structures │_(A)│ or │_( )│. C2 restricts **I** from spreading when it is a head element, while C3 limits I-spreading to the closest available vowel to the right. These constraints collectively define the conditions under which **I** can spread from consonantal positions, maintaining specific elemental and positional requirements.

Previous researches on Turkish consonant-vowel interactions have revealed gaps in data (İskender, 2021) and theory (Canalis & Dikmen, 2021), particularly concerning palatalized consonants and vowel harmony. The present study extends Pöchtrager's work by incorporating Balcı's (2006) elemental composition and proposing a model of **I**-spreading with three constraints to clarify how consonantal elements affect vowel harmony, especially in disharmonic cases.

Selected References: •**Balcı, E.** (2006). *A government phonology analysis of Turkish consonants* [Ph.D. Dissertation]. Boğaziçi University. • **Canalis, S., & Dikmen F.** (2021). Turkish palatalized consonants and vowel harmony. *Proceedings of the Workshop on Turkic and Languages in Contact with Turkic*, *6*, 41–55. • **Clements, G. N., & Sezer, E.** (1982). Vowel and consonant disharmony in Turkish. In H. van der Hulst & N. Smith (Eds.), *The structure of phonological representations, part II* (213–255). Cinnaminson. • **Denwood, A.** (1998). A template for Turkish. *SOAS Working Papers in Linguistics and Phonetics*, *8*, 177–190. •**Denwood, A.** (2002). Vowel harmony in Government Phonology: Three for the price of one. *Altai Hakpo Journal of the Altaic Society of Korea*, *12*, 155–182. • **İskender, H.** (2021). A case of absolute neutralization in Turkish: T-Palatalization and its predictability. *Zemin*, *2*, 78–111. • **Kabak, B.** (2007). Hiatus resolution in Turkish: An underspecification account. *Phonology*, *24*(3), 317–360. •**Polgárdi, K.** (1998). *Vowel Harmony: An account in terms of Government and Optimality*. Holland Academic Graphics. •**Polgárdi, K.** (1999). Vowel harmony and disharmony in Turkish. *The Linguistic Review*, *16*(2), 187–204.