

In Pursuit of Vowel Harmony in a Specific Trabzon Dialect of Turkish

1. Introduction

The Trabzon dialect is spoken in Trabzon located in the Eastern Blacksea region of Turkey. The dialect has various subdialects which behave as an identity marker. In this study, I analyze a specific Trabzon dialect (henceforth TrbD) spoken in the central district, Ortahisar. I aim to find out whether there is any vowel harmony in this dialect or not based on the theoretical framework of Government Phonology (GP). Moreover, I investigate some puzzling cases in this dialect and suggest different analysis approaches for these structures.

2. General Overview of Data

I obtained my data from the recorded naturally occurring speeches of the TrbD speakers. Besides, I consulted my informants to confirm the acceptability of the further forms to provide such a table below for the purpose of understanding the vowel sequences as well as capturing the similarities and differences among the suffixes in this dialect:

Table 1:

Elements in the stems Morphemes	({ } <u>A</u>)	({ } <u>I</u>)	({ } <u>U</u>)	({ } <u>_</u>)
V+PAST+1SG	kalk- du -m	git- dı -m	tut- di -m	sık- du -m
V+PAST+3SG	kalk- di	git- di	tut- di	sık- di
V+PAST+1PL	kalk- du -k	git- du -k	tut- duk	sık- duk
V+PAST+3PL	kalk- di -ler	git- di -ler	tut- di -ler	sık- di -ler
V+IMPERF+1SG	kalk- ayr -ım	gid- iy r-ım	tut- ayr -ım	sık- ayr -ım
V+ABI+NEG+ IMPERF+1SG	kalk- a -ma-yr- ım	gid- e -mi-yr-ım	tut- a -ma-yr- ım	sık- a -ma-yr-ım
V+IMPERF+3SG	kalk- ay	gid- iy	tut- ay	sık- ay
V+NEG+ IMPERF+3SG	kalk- ma -y	gid- mi -y	tut- ma -y	sık- ma -y
V+FUT+1PL	kalk- ac -uk	gid- ec -uk	tut- ac -uk	sık- ac -uk
V+OPT+1PL	kalk- a -lum	gid- e -lum	tut- a -lum	sık- a -lum
	<i>“to stand up”</i>	<i>“to go”</i>	<i>“to hold”</i>	<i>“to squeeze”</i>

Elements in the stems Morphemes	({A} <u>I</u>)	({A} <u>U</u>)	({I} <u>U</u>)	({A,I} <u>U</u>)
V+PAST+1SG	gel- di -m	koş- du -m	düş- du -m	sök- du -m
V+PAST+3SG	gel- di	koş- di	düş- di	sök- di
V+PAST+1PL	gel- du -k	koş- du -k	düş- du -k	sök- du -k
V+PAST+3PL	gel- di -ler	koş- di -ler	düş- di -ler	sök- di -ler
V+IMPERF+1SG	gel- iy -ım	koş- ay -ım	düş- iy -ım	sök- iy -ım
V+ABI+NEG+ IMPERF+1SG	gel- e -mi-yr-ım	koş- a -ma-yr-ım	düş- e -mi-yr-ım	sök- e -mi-yr-ım
V+IMPERF+3SG	gel- iy	koş- ay	düş- iy	sök- iy
V+NEG+ IMPERF+3SG	gel- mi -y	koş- ma -y	düş- mi -y	sök- mi -y
V+FUT+1PL	gel- ec -uk	koş- ac -uk	düş- ec -uk	sök- ec -uk
V+OPT+1PL	gel- e -lum	koş- a -lum	düş- e -lum	sök- e -lum
	<i>“to come”</i>	<i>“to run”</i>	<i>“to fall down”</i>	<i>“to rip off”</i>

*The table is split for the sake of the paper form; it does not serve to my analysis. For a decent form see Appendix.

**The stress patterns are indicated by the boldfaced vowels.

The table reveals that TrbD involves eight vowels in its inventory; namely a, i, u, ı, e, o, ü, ö¹. When we analyze these vowels within the framework of Element Theory (Kaye, Lowenstamm & Vergnaud, 1985; Harris & Lindsey, 1995) we can conclude a table as below:

Table 2:

Vowel	a	i	u	ı	e	o	ü	ö
Elements	({ } <u>A</u>)	({ } <u>I</u>)	({ } <u>U</u>)	({ } <u>_</u>)	({A} <u>I</u>)	({A} <u>U</u>)	({I} <u>U</u>)	({A,I} <u>U</u>)

This table shows that we do not have any operators without a head since we do not have any long vowels in TrbD. Moreover, elements A, I, and U can occur in the head position within a constituent; however, there are some constraints which determine the occurrence of the complex phonological expressions:²

¹ I should indicate that there may be difference in some vowels in some environments; however, I leave this issue for a further study for simplicity since the consonants may play a crucial role in this difference.

² However, things are not quite easy in a dialect such TrbD. Even though my focus is on the external vowel harmony processes, I should indicate that we observe disharmony in the verb stem most of the time.

- Element A becomes head when there is no other element within the vowel.
- Element I becomes head when there is no U element within the vowel.
- Element U becomes head whenever it occurs in a vowel. The ultimate position for element U is the head position within a constituent.

These constraints for TrbD vowels share the same pattern with the licensing constraints proposed for Standard Turkish by Charette and Göksel (1996). Based on their analysis, we can further claim:

- Element A is not a licenser; the operator position must be empty when element A is the head.
- Element U is not an operator; the operator position is never occupied by element U.
- Element I can function as an operator and a licenser.

However, it is crucial to realize that these eight vowels of TrbD are allowed to occur only in roots and stems. The vowels in the suffix forms are restricted to a, i, u, ɪ, e. The further analysis will present the reason for this restriction on the occurrence in relation to these licensing constraints of the dialect.

3. Analysis

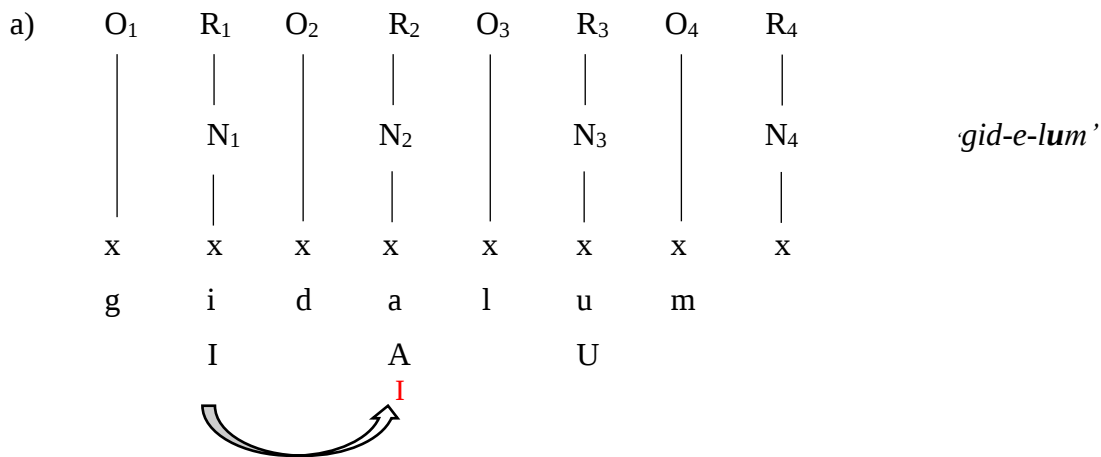
As my data reveals, I am going to focus on the vowel harmony processes on the verbal inflections throughout my analysis. I am going to follow the vowel harmony definition by Charette and Göksel (1996) which explains “harmony as an instantiation of an element licensing itself in a position it governs (p.1). For this analysis, the suffix types carry importance to understand the vowel harmony processes.

Table 1 shows that there are two types of suffixes in TrbD:

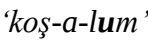
- A-type suffixes which includes non-high vowels³
- I-type suffixes which includes high vowels

3.1. A-type suffixes

The data shows that A-type suffixes undergo vowel harmony. If the final vowel of the verbal stem involves element I, this element spreads to the vowel in the suffix; therefore, this process yields an output as below:



³ I used the SPE terms to give a more explicit definition.



Element U does not spread into the vowel in the suffix when the suffix is A-type.

I argue the structure is formed as below based on the analyses of Charette (2004) which proposes that words are composed of domains (p.11) and Charette (2008) which proposes “concatenation takes place in the form of movement of the suffix into the final (C)V positions of the root” (p.61):



⁴ The representation will be briefly discussed in the previous parts.

Element I spreads into the A-type suffix since processes apply whenever their conditions are met according to Minimality Hypothesis (Kaye, 1995). However, the output which this process yields does not correspond to the one we have in the data. Therefore, I argue that this dialect may have vowel reduction process which is the loss of certain properties under conditions such as being in an unstressed position as Pöchtrager (2016) indicates (p.26). To rephrase, the element delinks itself from the node it is associated when the vowel which involves this element sits on an unstressed position. A clear example comes from Turkish:

- (1) ağla + (I)yor → ağlıyor 'S/he is crying.'
cry + IMPERF

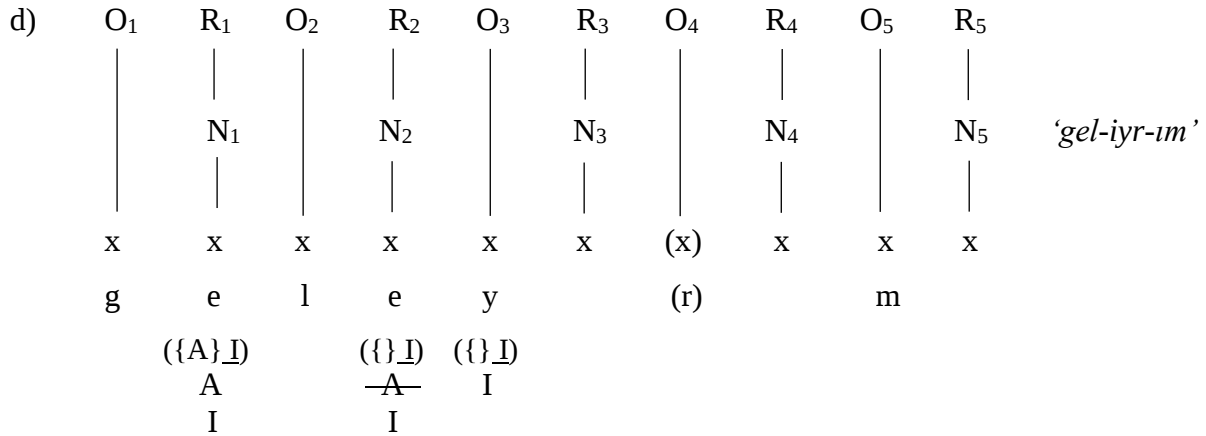
This is an obligatory process in Standard Turkish. Furthermore, Balçı (2006) claims the palatal sound 'y' which involves element I as its head (represented as ({ } I)) causes A-reduction in the verbal stem it attaches (p.177). However, we have examples in which A-reduction is not mandatory but optional in a similar environment in Standard Turkish:

- (2) ağla + (y)acak → ağlayacak 'S/he will cry.'
cry + FUT

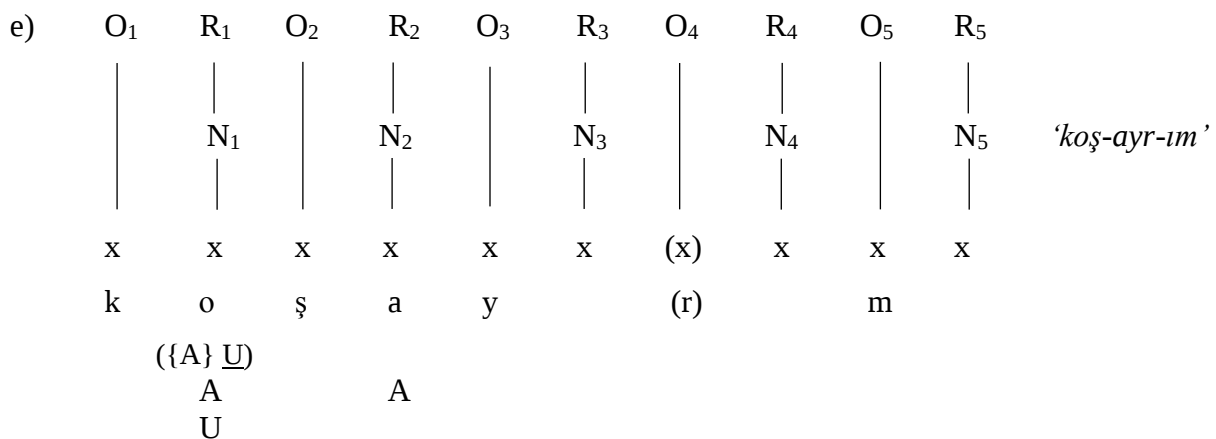
As representation reveals, the process is obligatorily applied when the palatal sound occurs in the core of the suffix. When it occurs as a floating consonant as Charette (2008) identifies, it is an optional process. To sum up, element A in the final vowel of the verbal stem delinks itself from its node when a purely palatal in the core of suffix immediately follows element A due to its interaction with this palatal sound. Therefore, the node has left with a null element which is pronounced as ɪ.

In TrbD, this process does not require unstressed positions to apply; on the contrary, we observe reduction in the stressed positions as can be seen in the Table 1. Moreover, it seems that the vowel reduction process applies partially in this dialect as I am going to discuss in a moment. As seen in the representation (c), after element I in the final vowel of the verb stem spreads to the operator position of A-suffix (the only available place to sit on), the vowel N₂ has an internal structure as ({I}A). This output does not reflect the vowel in an accurate way. The same problem is discussed in the study by Charette and Göksel (1996); they claim this situation can be fixed by means of the switching process in which "element is forced to change its role from head to operator". However, they further claim that the switching process does not hold for Turkish since the absence of switching process enables us to exclude U harmonization with A. Therefore, they argue there are two representations for the vowel 'e' (p.12).

In the light of their analysis, I argue that TrbD has switching process and it does not create any problems for any other processes since the licensing constraints of the dialect have adequate power to eliminate any undesired outputs. I claim that ({I}A) does not represent the vowel 'e' in this example. Moreover, element A is in the licenser position which is ruled out by the constraints. Therefore, we should apply the switching process.



I argue that due to I-headed onset immediately following the vowel, element A loses its link to the node during the switching process. I suppose I-headed 'y' attracts the element I in the immediately preceding vowel and provokes it to become the head of the vowel as 'y' is itself. It is apparent that we need more information to explain the actual motivation of the palatal sound for this behavior; however, this explanation enable us to understand the reduction process for this dialect. For example, when we compared *'gel-iyır-ım'* with the corresponding form *'koş-ayır-ım'*, we realize that there is no vowel reduction process in the latter form. The only difference between these forms is the element inventory of the vowels in the suffixes. I argue that element A delinks itself from the nucleus node when there is an element I under the same nucleus node since in this case they must undergo the switching process in which the palatal sound kills element A for element I to save its head position. This argument is also not well-formed; however, it is way better than two different suffixes argument. Moreover, it can explain the forms with element U.

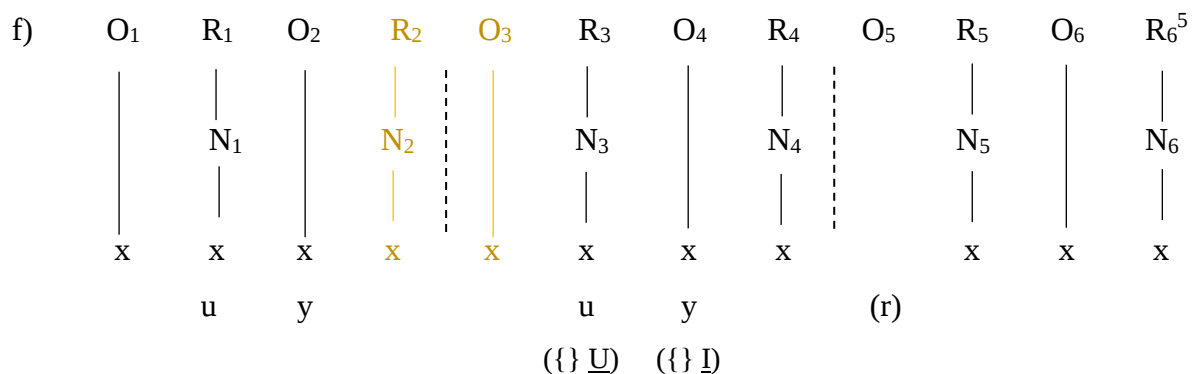


We do not expect element U to spread into the A-type suffix as we concluded before. Since there is no element I in the vowel to be interacted by I-headed onset 'y', element A does not need to delink itself from its nucleus node. Furthermore, the other A-type suffixes provide evidence favoring the tight relation between the vowel reduction and 'y' sound. For example, we do not observe reduction with the optative marker -A (*'gid-e-lum'*) and the future marker -Ac (*'gid-ec-uk'*) as my informants indicate.

Table 3:

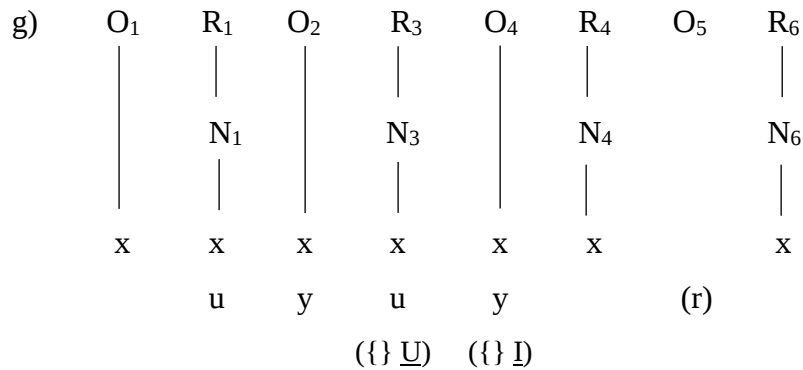
	V+IMPERF+3SG		
oyna	oynay	?oyniy	<i>‘to play’</i>
uyu	uyiy	*uyay	<i>‘to sleep’</i>
işe	işiy	*işey	<i>‘to pee’</i>
üşü	üşiy	??üşüy, *üşey	<i>‘to be cold’</i>
	observed form		

The most interesting case among these forms is for ‘uyu’ (sleep) which has a vowel involving element U as its final sound. We can analyze the structure as below:



⁵ The dashed lines indicate the domains.

the same domain. I argue that R_2 and R_4 are p-licensed since they occur in the domain final positions of their domain as ECP requires (Kaye, Lowenstamm & Vergnaud, 1990, p.219). Furthermore, R_2 and N_3 are subject to the reduction process in which “a p-licensed empty nucleus followed by a pointless onset are removed from any phonological representation in which they occur” (Charette, 2004, p.13). Thus, we have a structure as below:



I argue that, since R_3 and O_4 occur within the same domain, the power of I-headed onset becomes radicalized; it wants the immediately preceding rhyme to have I-head even though there is no element I in the vowel. This time ‘y’ sound makes element U delink itself from the nucleus node then it itself spreads to the preceding node. Therefore, the output is ‘uyiy’. Based on this analysis, I argue that the interaction between the nodes are sensitive domain boundaries.

Another analysis can suggest that the non-initial vowel R_3 involves null element. In a similar way, ‘y’ sound spreads to the empty nucleus; it blocks element U to spread since element U only spreads to the empty nucleus. However, I cannot provide evidence for whether TrbD has null elements in non-initial vowels as Turkish system does; therefore, I favor the former analysis with respect to this process.

To sum up, the analyses I have presented above lead us to come with this conclusion: A-type suffixes in TrbD undergo vowel harmony in general.

3.2. I-type suffixes

I-type suffixes show variation with respect to their reaction to the vowel harmony:

- Rebels against vowel harmony
- Free alternants
- Subjects of vowel harmony

The past tense marker {-DI} occurs as -di (including element I) with the 3rd person marker {} regardless of the elements in the final vowel of the verb stem as in ‘kalk-di-Ø’, ‘düş-di-Ø’, ‘koş-di-Ø’, etc. I argue that the vowel in the suffix does not agree with the final vowel of the verb stem and remains unchanged; therefore, it fits in the category of rebels. In a similar way, 1st person plural marker {-uk} does not show any alternation in different environments such as ‘gel-ec-uk’, ‘düş-du-k’, ‘sök-du-k’, etc. Brendemoen

(2004) also argues that this marker {-uk} does not undergo any harmony processes. Concerning these rebel suffixes, I argue that they do not involve null element in their vowels. Since the constraints of the dialect require element A not to spread and element U to spread only to empty nucleus, we do not expect any vowel harmony processes. At this point, I argue that these suffixes are frozen forms and opaque to the vowel harmony since they already have elements.

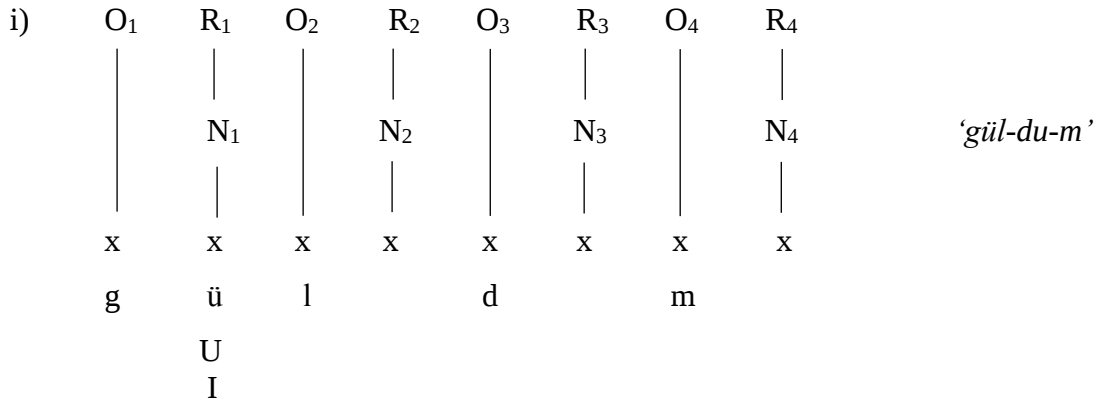
The rest of the I-type suffixes, on the other hand, occurs as free alternants unless there are any constraints as in the examples:

<i>'geldim'</i>	<i>'geldum'</i>	<i>? 'geldim'</i>
BUT		
<i>'güldum'</i>	<i>? 'güldim'</i>	<i>* 'güldim'</i>
		<i>Degradation in acceptability</i>

This representation above shows that in TrbD for the past tense occurring with 1st person singular marker one can choose between the forms -dI, -dU, and -d_ only when there is no element U in the final vowel of the verb stem. It is important to note that the informants tend to indicate degradation in grammaticality when the output is identical to the form used in standard Turkish. Surprisingly, it is possible to observe this type of occurrence in the naturally occurring speech. Within the scope of this analysis, I will focus on the most acceptable and unacceptable forms.

h)	O ₁	R ₁	O ₂	R ₂	O ₃	R ₃	O ₄	R ₄	
		N ₁		N ₂		N ₃		N ₄	<i>'gel-di-m'</i>
									<i>'gel-du-m'</i>
	x	x	x	x	x	x	x	x	
	g	e	l		d		m		
		A							
		I							

In this case, I argue that the vowel position of the suffix (N₃) has empty nucleus; therefore, we can apply ECP operations on this form. N₄ is p-licensed since it is the domain final nucleus; hence, it can stay unpronounced. Due to its unpronounced nature, it cannot govern N₃ properly; therefore, N₃ should be pronounced. The pronounced N₃ is not p-licensed; hence, it can govern N₂ properly and N₂ can remain unpronounced. This process yields the output *'gel-di-m'* since element I in the verb stem, interestingly, does not spread to the empty nucleus of the vowel in the suffix. On the other hand, *'gel-du-m'* is a possible utterance in the dialect. This free alternant *'gel-du-m'* does not have empty nucleus and it is opaque to the vowel harmony as rebels do.



In a similar way, the p-licensing processes apply for the structure above. Due to the licensing constraints of the dialect, element U must spread to the empty nucleus in the vowel of the suffix; therefore, the process yields the output ‘gül-du-m’. Owing to the same constraint, the form ‘gül-di-m’ is ruled out.

When we come to the occurrence of the suffixes with the vowel involving element I as in ‘gül-di-m’, ‘tut-di-m’, ‘gel-di-m’, I argue that any suffix involving element I as its head is a frozen form and cannot be produced by means of vowel harmony since element I cannot spread to the empty nucleus in TrbD. Based on this analysis, I claim that for the cases except for rebel suffixes, it is possible to find suffix -di and -du in any environment without unacceptability. The suffix -di is ruled out when the final vowel of verb stem has element U. Therefore, we can conclude that:

Element U must spread to the empty nucleus in TrbD.

Element I does not spreads to the empty nucleus in TrbD.

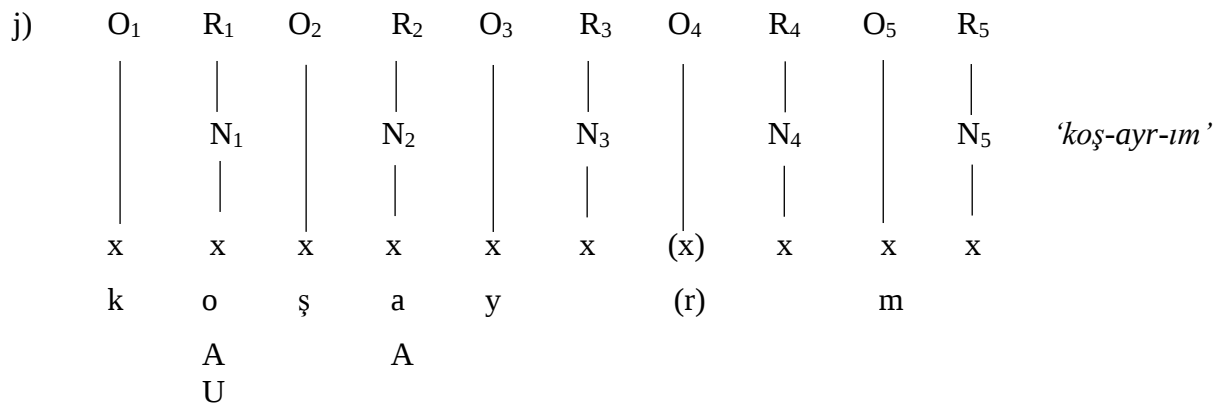
These properties of element I explain the licensing constraints of the dialect. Element I is a good licenser and it spreads to the vowel in the suffix only when there is an element it can license. Since A is not a good licenser, it is the most suitable one for element I to occur with. On the other hand, element I does not occur with element U since U must be the head all the time. We can sum up with a table as follows:

Table 4:

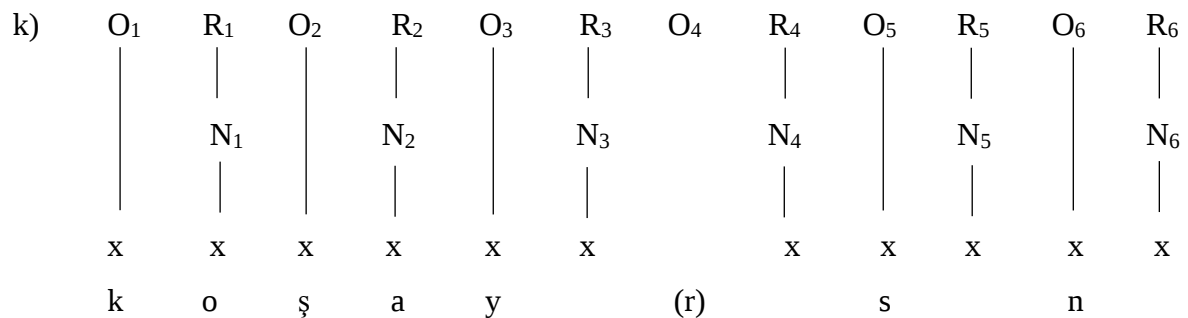
Elements Spread to	A	I	U
Head	-	-	({}U)
Operator	-	({I}A)	-
Findings	<i>A never spreads</i>	<i>I spreads only to the operator position of A head.⁶</i>	<i>U spreads only to head position.</i>

⁶ Please recall the switching process which enables element I to be the head.

It is noteworthy to indicate that there is another issue in TrbD apart from vowel harmony. This issue becomes obvious when we compare V+IMPERF+1SG '*koş-ayr-ım*' and V+IMPERF+2SG '*koş-ay-sın*'. Do we suppose to assume the existence of another IMPERF suffix '-Ay'? In relation, do we suppose to conclude the 1st person singular marker is -rIm? As Charette (2004) indicates, there are floating consonants which attach to a pointless empty onset in the structure. The floating consonants can survive only if they can find a proper onset to associate with. In the case of TrbD, I argue that IMPERF suffix has a floating consonant and it is pronounced when the necessary conditions are satisfied. In the previous examples, I have represented -r in parenthesis to indicate its being floating consonant.



In the structure (j), the empty nuclei become silent or pronounced with respect to the p-licensing processes. The domain final N₅ remains unpronounced since it is p-licensed by its nature; therefore, it cannot govern N₄ properly. Therefore, N₄ must be pronounced and it can p-license its preceding nucleus; therefore, N₃ remains silent. At this point, I argue that O₄ is the position for the floating -r. My assumption is that the realization of a floating consonant in a structure depends on the pair relations of this unit. When the peer of the onset is not governed properly, the onset is realized and pronounced. In other words, -r in the suffix is pronounced when the following nucleus is pronounced.



On the other hand, the process for the structure (k) is not identical to the reduction process which we discussed in the previous pages (Charette, 2004). The domain final N₆ remains unpronounced since it is p-licensed by its nature; therefore, it cannot govern N₅ properly. Since N₅ is not properly governed, it must be pronounced; hence, N₅ p-licenses its preceding nucleus; therefore, N₄ remains silent. Based on my analysis for the example (j), I claim when the peer of the onset is not pronounced, the floating onset cannot be realized and this unpronounced pair undergoes reduction. However, we observe an asymmetry

between the reduction indicated by Charette (2004) and the one related to the IMPERF suffix -Ay(r). In this specific process (R-reduction), the p-licensed empty nucleus and its preceding pointless onset are reduced while the p-licensed empty nucleus and the following pointless onset are reduced in the previous examples. Anyway, the reconstructed structure gives an accurate output after p-licensing process:

l)	O ₁	R ₁	O ₂	R ₂	O ₃	R ₃	O ₅	R ₅	O ₆	R ₆
		N ₁		N ₂		N ₃		N ₅		N ₆
	x	x	x	x	x	x	x	x	x	x
	k	o	ş	a	y		s		n	

The R-reduction which shows asymmetry when compared to the reduction process indicated by Charette (2004) must be applied in this structure since we receive an ungrammatical output without this process. Therefore, I claim that TrbD has a R-reduction process which reduce O-N pair in the environment of a pointless onset and immediately following p-licensed empty nucleus.

To sum up, I-type of suffixes undergo vowel harmony only when the suffix includes empty element. Moreover, the licensing constraints of the elements determine this process.

4. Results and Conclusion

People tend to compare the Trabzon dialect to the Standard Turkish and they mistakenly come up with the conclusion that TrbD has a disharmonic nature. In the light of this analysis, I conclude that there is a vowel harmony process with unique constraints on the contrary to this general opinion which occurs in the environment of A-type suffixes and to a restricted area in the environment of I-type suffixes. We can argue that A-type suffixes undergo vowel harmony in terms of frontness while I-type suffixes undergo vowel harmony in terms of roundness. We do not observe any harmony operation related to frontness-backness with I-type suffixes. We can explain this gap by the characteristics of element I which spreads into a position where only element A occurs. With such an explanation, we cannot expect to have any /ü/, /i/, or /ö/ sounds in the suffixes of TrbD as a result of vowel harmony.

Moreover, I conclude that any suffix pronounced as /i/ in TrbD is a frozen form and it has an element I; in other words, it is not an empty nucleus. It cannot occur due to the p-licensing processes since the element I lacks the ability to spread into the empty nucleus.

To sum up, it is apparent that we talk about the constraints on the vowel harmony in TrbD rather than the possibilities. These constraints give some information about the dialect and its sound inventory. I should indicate the consonants may have play role in the vowel harmony to some point. For further studies, the nature of the consonants will be proper tool to handle this issue.

Appendix

Elements Morphemes	({}A)	({}I)	({}U)	({})	({}I)	({}U)	({}A) I	({}A) U	({}I) U	({}A, I) U
V+PAST+1SG	kalk-du-m	git-di-m	tut-di-m	sık-du-m	gel-du-m	düş-du-m	gel-du-m	koş-du-m	düş-du-m	sök-du-m
V+PAST+3SG	kalk-di	git-di	tut-di	sık-di	gel-di	düş-di	gel-di	koş-di	düş-di	sök-di
V+PAST+1PL	kalk-du-k	git-du-k	tut-du-k	sık-du-k	gel-du-k	düş-du-k	gel-du-k	koş-du-k	düş-du-k	sök-du-k
V+PAST+3PL	kalk-di-ler	git-di-ler	tut-di-ler	sık-di-ler	gel-di-ler	düş-di-ler	gel-di-ler	koş-di-ler	düş-di-ler	sök-di-ler
V+IMPERF+1SG	kalk-ayr-ım	gid-iyr-ım	tut-ayr-ım	sık-ayr-ım	gel-iyr-ım	düş-iyr-ım	gel-iyr-ım	koş-ayr-ım	düş-iyr-ım	sök-iyr-ım
V+ABI+NEG+ IMPERF+1SG	kalk-a-ma-yr-ım	gid-e-me-yr-ım	tut-a-ma-yr-ım	sık-a-ma-yr-ım	gel-e-me-yr-ım	düş-e-mi-yr-ım	gel-e-me-yr-ım	koş-a-ma-yr-ım	düş-e-mi-yr-ım	sök-e-mi-yr-ım
V+IMPERF+3SG	kalk-ay	gid-iy	tut-ay	sık-ay	gel-iy	düş-iy	gel-iy	koş-ay	düş-iy	sök-iy
V+NEG+ IMPERF+3SG	kalk-ma-y	git-mi-y	tut-ma-y	sık-ma-y	gel-mi-y	düş-mi-y	gel-mi-y	koş-ma-y	düş-mi-y	sök-mi-y
V+FUT+1PL	kalk-ac-uk	gid-ec-uk	tut-ac-uk	sık-ac-uk	gel-ec-uk	düş-ec-uk	gel-ec-uk	koş-ac-uk	düş-ec-uk	sök-ec-uk
V+OPT+1PL	kalk-a-lum	gid-e-lum	tut-a-lum	sık-a-lum	gel-e-lum	düş-e-lum	gel-e-lum	koş-a-lum	düş-e-lum	sök-e-lum
	"to stand up"	"to go"	"to hold"	"to squeeze"	"to come"	"to fall down"	"to come"	"to run"	"to fall down"	"to rip off"

References

- Balcı, E. (2006). *A Government Phonology Analysis of Turkish Consonants*. (Doctoral Thesis). Boğaziçi University.
- Brendemoen, B. (2002). *The Turkish Dialects of Trabzon: Their Phonology and Historical Development Volume I: Analysis*. Wiesbaden: Harrassowitz.
- Charette, M. & Göksel, A. (1996). Licensing Constraints and Vowel Harmony in Turkic Languages. *SOAS Working Papers in Linguistics and Phonetics*. pp: 1-25.
- Charette, M. (2004). Defining the Structure of the Turkish Words. *SOAS Working Papers in Linguistics*, Vol.13. pp: 49-79.
- Charette, M. (2008). The Vital Role of Trochaic Foot in Explaining Turkish Word Endings. *Lingua*. Vol. 118. pp: 46-65.
- Harris, J & Lindsey, G. (1995). The Elements of Phonological Representation. In Durand & Katamba. (Eds). *The Elements of Phonological Representation: Frontiers of Phonology*. Harlow, Essex: Longman. pp: 34-79.
- Kaye, J., Lowenstamm, J., and Vergnaud, J (1985). The Internal Structure of Phonological Elements: A Theory of Charm and Government. *Phonology Yearbook*. Vol. 2. Cambridge University Press. pp: 305-328.
- Kaye, J, Lowenstamm, J & Vergnaud, J. (1990). Constituent Structure and Government in Phonology. *Phonology*. pp: 193-231.
- Kaye, J. (2005). GP, I'll Have to Put Your Flat Feet on the Ground. In Broekhuis et al. (Eds). *Organizing Grammar*. Berlin: Mouton de Gruyter. pp: 283-288.
- Pöchtrager, M. (2016). Is There Phonological Vowel Reduction in Turkish. In Güven, M. et al. (Eds.). *Exploring the Turkish Linguistic Landscape: Essays in honor of Eser Erguvanlı-Taylan*. Amsterdam: John Benjamins Publishing Company. pp: 21-39.