Vowel Harmonies in Kazan Tatar
Element Theoretical Analysis

Chihiro Taguchi

1. Introduction: Tatar language

- Tatar < Kipchak < Turkic
- Agglutinative
- SOV, AN
- Extensive case-marking system
- Chiefly spoken in Tatarstan, Russia

1. Introduction: Tatar vowels

- 9 Vowels
  - /a/, /ä/, /ï/, /e/, /o/, /ö/, /u/, /ü/, /i/
  - Some argue 10, allowing for /ïy/
- Vowel harmonies
  - Fronting harmony (FH)
  - Rounding harmony (RH) (?)
    - Poppe (1965), Comrie (1997), Ersen-Rasch (2009)
    - Conklin (2015) claims there's no such harmony

1. Introduction: Vowel harmony

- A long-distance process of assimilation in which a certain vowel triggers changes in the properties of adjacent vowels (Conklin 2015)

- FH: [± front]
- RH: [± rounded]
- Also found in Turkish, Kyzgyz, Tuvan etc.

What's special about the Tatar RH?

- Past tense suffix in Turkish and Tatar: -tI / -dI

- (1) Turkish: unut-tI   >   unuttu (RH)

    forget-PST.3SG   'S/he forgot'

    ol-dI   >   oldu (RH)

    become-PST.3SG   'S/he became'

- (2) Tatar: onot-tI   >   onotto (RH)

    forget-PST.3SG   'S/he forgot'

    bul-dI   >   buldï (**no RH**)

    become-PST.3SG   'S/he became'

What's special about the Tatar RH?

- Triggers
    Turkish: /o/ & /u/
    Tatar: /o/

/u/ seems more trigger-like to be RH…

Why /o/, not /u/?

Aim of this study

- To clarify the mechanism of the Tatar vowel harmonies

by means of

- Element Theory (Backley 2011; Botma, Kula & Nasukawa 2013)
    - < Government Phonology

2. Element Theory (ET)

- In ET, phonological segments are expressed in **elements**
  - Vowel elements: |I|, |U|, |A|
  - Consonant elements: |H|, |L|, |?|

- Features: bivalent (+ or -)
  - /i/: [+high], [-back], [-round]
- Elements: monovalent
  - /i/: |I|

ET: Why |I|, |U|, |A|?

- /i/, /u/, /a/ are structurally simplex
- cross-linguistically constitute basic vowels (Arabic, Greenlandic)

2.1. ET: Element Dependency

- Like syntactic theories (cf. X-bar Theory), elements can also have a head and a dependent

- Headed element is underlined

- Headedness expresses a prominence of a certain quality

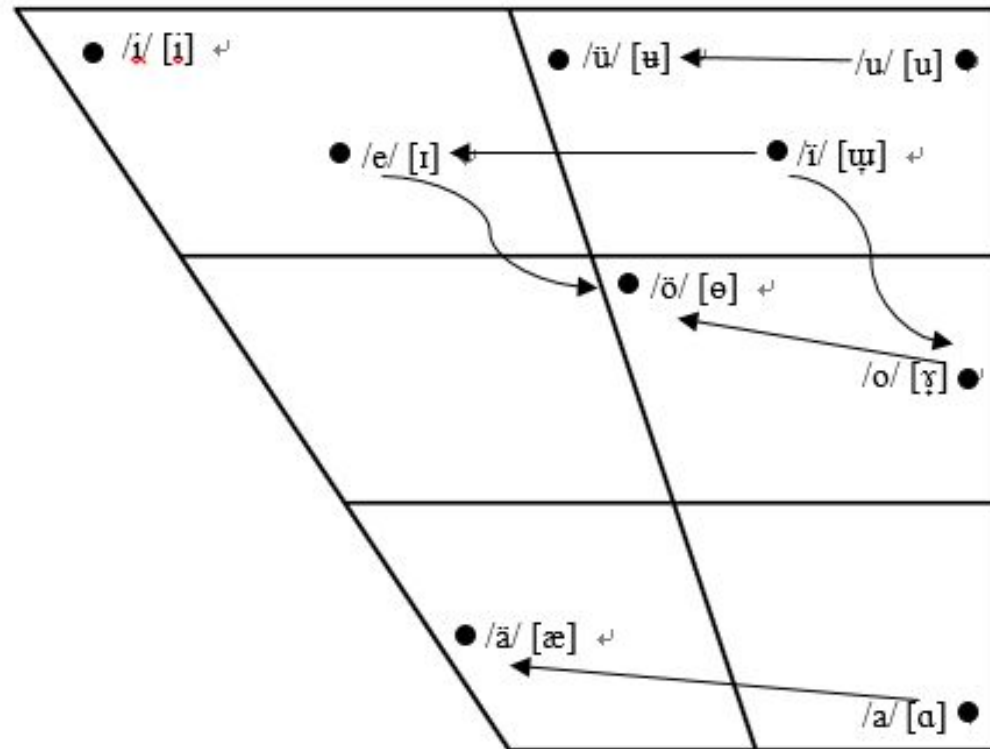   → enables us to distinguish various vowels

e.g. Italian:

- /e/: |I̲ A|
- /ɛ/: |I A̲|

3. The vocalic system of Tatar

- (3) Phonetic distribution

* Arrows show the processes of assimilation

3. Vocalic system: with elements

(4)

	Front |I|		Back	
	[-r]	[+r] |U|	[-r]	[+r] |U|
High |_|	/i/ |I|	/ü/ |I <u>U</u>|		/u/ |<u>U</u>|
Mid	/e/ |I|	/ö/ |I U|	/ï/ | |	/o/ |U|
Low |<u>A</u>|	/ä/ |<u>A</u> I|		/a/ |<u>A</u>|	

A piece of evidence for emptiness of /ï/

- Vowel-zero alternation

    e.g.   *xalïq* 'nation' + *-I* (POS.3SG) -> *xalqï*

    but   *balïq* 'fish' + *-I* -> *balïğï* (*balqï)

Vowel-zero alternation of /ï/ in GP

- In Government Phonology (GP) terms...

(5)

When the last nucleus is empty, the nucleus is itself p-licensed (underlined).

A p-licensed category gets no phonetic interpretation.

Because a p-licensed category cannot be a governor, the last nucleus cannot p-license the preceding nucleus.

Therefore, the second nucleus is phonetically interpreted (cross-linguistically it is to be a schwa-like vowel), and in Tatar it is expressed as /ï/.

When the last nucleus is filled by the suffix -ï, it is no longer empty (p-licensed) and it p-licenses the preceding nucleus (i.e. the second last nucleus is empty).

By contrast, as for *balïq*, the second last empty is not empty but lexically filled.

Therefore, the suffix -ï cannot p-license the preceding nucleus.

3.1. Observations: FH

- Spreading of |I|-element

(6)

bäräŋge-lär-egez-gä 'to your (pl.) potatoes'

potato-PL-POS.2PL-DAT
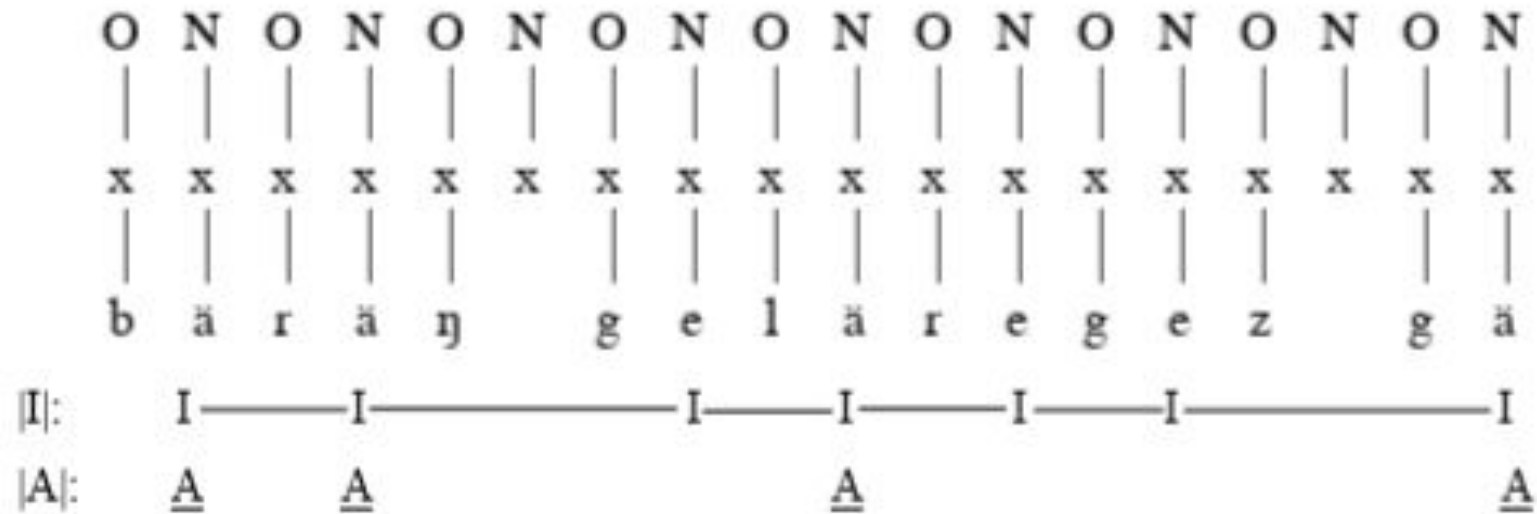
3.1. Observations: RH

- Spreading of |U|-element

(7)

toron-oğoz-noŋ 'of your (pl.) grandchild'

grandchild-POS.2PL-GEN

O	N	O	N	O	N	O	N	O	N	O	N	O	N
|	|	|	|	|	|	|	|	|	|	|	|	|	|
x	x	x	x	x	x	x	x	x	x	x	x	x	x
|	|	|	|	|	|	|	|		|	|	|
t	o	r	o	n	o	ğ	o	z		n	o	ŋ

|U|: U————U————U————U————————U

3.1. Observations: |U|-spreading blocked

(8)

toron-nar-ïǧïz-nïŋ 'of your (pl.) grandchildren'

grandchild-PL-POS.2PL-GEN

O	N	O	N	O	N	O	N	O	N	O	N	O	N	O	N	O	N
|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
|	|	|	|	|		|	|	|	|	|	|		|	|	|
t	o	r	o	n		n	a	r	ï	ǧ	ï	z		n	ï	ŋ

|A|:   A

|U|:   U———U————————x

Possibly because *|U A| in the Tatar vocalic inventory;
/u/ blocks |U|-harmony as well.
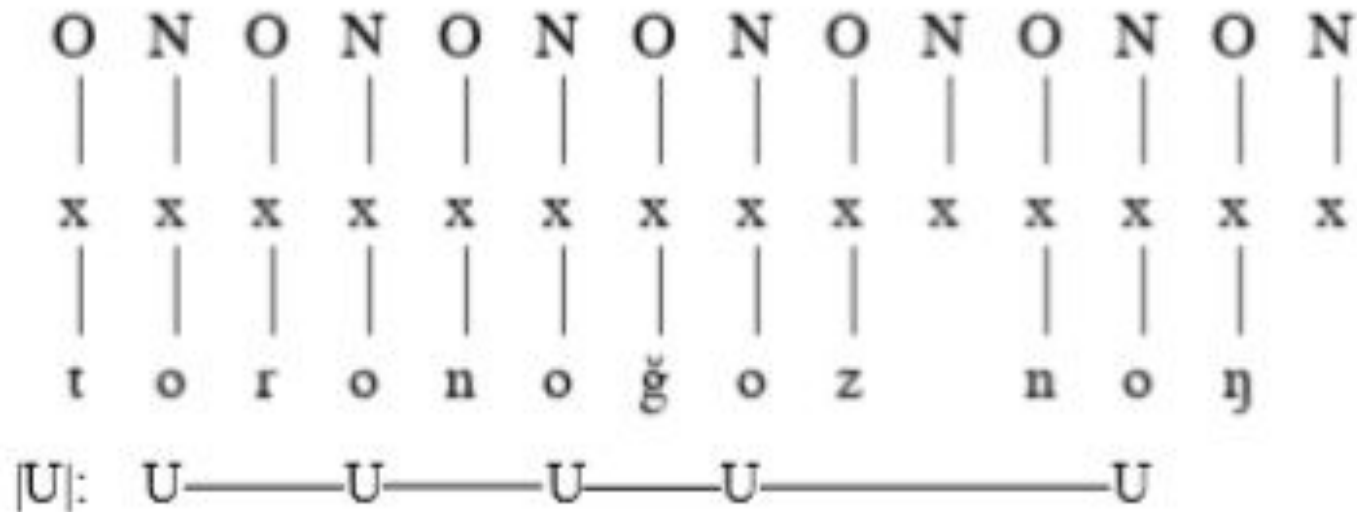
3.2. ET analysis of FH

(9)

	| I |	|U|	|U|	|A|	|_|
-|I|	/ï/	/o/	/u/	/a/	
+|I|	/e/	/ö/	/ü/	/ä/	/i/

- (10) Condition of FH

  FH is caused if and only if the trigger has |I|-element

3.3. ET analysis of RH

- Why /u/ cannot be a trigger of RH?

- Kaun (2004) enumerates general tendencies favoring RH

(11)
  - i.   The trigger is non-high
  - ii.   The trigger is front
  - iii. The target is high
  - iv.   The target is back
  - **v.   The trigger and target agree in height**

3.3. ET analysis of RH: Mid vowels

(4)

	Front |I|		Back	
	[-r]	[+r] |U|	[-r]	[+r] |U|
High |_|	/i/ |I|	/ü/ |I U|		/u/ |U|
Mid	/e/ |I|	/ö/ |I U|	/ï/ | |	/o/ |U|
Low |A|	/ä/ |A I|		/a/ |A|	

3.3. ET analysis of RH: Observations

- Tatar has three vowel heights

- High and low vowels are headed, 'vague' mid vowels are non-headed

- /i/, /u/, /ü/, /a/, /ä/ block |U| spreading

    |U| spreading is blocked when intervened by vowel |X| where |X U| is not well-formed in the vocalic inventory

    OR

    |U| spreading is blocked when intervened by vowel with headed element

3.3. ET analysis of RH: Observations

- It is more coherent to generalize in terms of headedness
    - Because "blocked when |X U| is ill-formed" sounds an arbitrary rule

- (12) Conditions of RH in Tatar

RH is caused if and only if
 (a) the trigger has |U|-element
 (b) the trigger has no headed element
 (c) the target has no headed element

4. Conclusion

This study has

- Formulated a simple account of FH and RH in Tatar
- Clarified why /u/ cannot be a trigger, unlike Turkish
- Supported Kaun's (2004) finding on RH
- Shown theoretical strengths of ET

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Игътибарыгыз өчен рәхмәт!
İğtibarığız öçen räxmät!