MARKEDNESS AND CODA CONDITIONS IN AZERI*

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1 Introduction

According to Lombardi (2002) and de Lacy (2005, 2006), there is a universal place of articulation markedness hierarchy, which predicts that unpermitted coda consonants will surface as glottals, the least marked coda consonants. If the realization of glottals is ruled out by other phonological factors, we expect coronals to appear since they have a relatively unmarked place of articulation. In this paper, I investigate how the unpermitted coda consonants in Azeri[1] are realized.

In Azeri, all consonants can occur in onset position while there are restrictions on the occurrence of some consonants in coda position. The consonants that are not allowed in coda position are the affricates /ʦ, ʣ/ and the palatal stop /c/. We find alternations in root-final consonants when /ʦ, ʣ, c/ appear before a vowel versus when they appear before a consonant or in word-final position. As shown in (1) and in the dative forms in (2), the affricates /ʦ, ʣ/ and the fricative /ʃ/ surface faithfully in onset position. However, as shown in the other forms in (2),

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[1] By Azeri, I refer to the Azeri language spoken in Iran and more specifically to the standard dialect spoken in Tabriz. The Azeri data presented in this paper is provided by four native speakers.

before a consonant and in word-final position, they all surface as [ʃ].

(1) UR	Nominative	Ablative *-dVn*	Dative *-V*	Gloss
/**ʦ**y.ɾyh/	**ʦ**y.ɾyh	**ʦ**y.ɾyh.dæn	**ʦ**y.ɾy.jæ	'rotten'
/**ʤ**y.ɾi/	**ʤ**y.ɾi	**ʤ**y.ɾi.dæn	**ʤ**y.ɾi.jæ	'short person'
/**ʃ**y.**ʃ**æ/	**ʃ**y.**ʃ**æ	**ʃ**y.**ʃ**æ.dæn	**ʃ**y.**ʃ**i.jæ	'glass'

(2) UR	Nominative	Ablative *-dVn*	Dative-*V*	Gloss
/gɯ**ʦ**/	gɯ**ʃ**	gɯ**ʃ**.dan	gɯ.**ʦ**a	'leg'
/o.ɾu**ʤ**/	o.ɾu**ʃ**	o.ɾu**ʃ**.dan	o.ɾu.**ʤ**a	'fasting'
/ba**ʃ**/	ba**ʃ**	ba**ʃ**.dan	ba.**ʃ**a	'head'

Similarly, the palatal stop /c/ and the glottal /h/ surface faithfully in onset position, as in (3) and in the dative forms in (4). However, as shown in the other forms in (4), they surface as [h] in coda position.

(3) UR	Nominative	Ablative *-dVn*	Dative *-V*	Gloss
/**h**eʦ/	**h**eʃ	**h**eʃ.dæn	**h**e.ʦæ	'nothing'
/**c**oɾ/	**c**oɾ	**c**oɾ.dan	**c**o.ɾa	'blind'

(4) UR	Nominative	Ablative *-dVn*	Dative *-V*	Gloss
/ce**h**/	ce**h**	ce**h**.dæn	ce.**h**æ	'numb'
/ty**c**/	ty**h**	ty**h**.dæn	ty**.c**æ	'hair'

The alternations in (2) and (4) involve change in both manner and place. However, the aim of this paper is to investigate whether i) the change in place is motivated by markedness considerations, ii) the change from underlying form to surface form is consistent with assumptions about the relative makedness of places of articulation, and iii) there is a universal markedness scale for place of articulation in obstruents.

In this paper, I provide an analysis for the Azeri data within the framework of Optimality Theory, employing Lombardi's (2002) place of articulation markedness hierarchy and Lubowicz's (2002) locally conjoined constraint. I argue that, in Azeri, the unpermitted coda consonants surface as glottals in coda position. However, when the realization of glottals is ruled out by a high-ranking faithfulness constraint, coronals surface.

The Azeri data is consistent with the prediction that glottals and coronals are less marked than dorsals and labials. In addition, since the alveolar affricates /ʦ, ʤ/ surface as the post-alveolar fricative [ʃ] rather than the alveolar fricatives [s, z], I argue that there is no universal markedness relationship between [+anterior] and [-anterior].

The organization of this paper is as follows: in Section 2, basic facts of Azeri consonants and restrictions on their occurrence in coda position are provided. In Section 3, the pattern of coda neutralization in Azeri is investigated, followed by an analysis within the framework of Optimality Theory. Section 4 presents different views on neutralization and markedness, followed by a discussion of proposed universal markedness hierarchies for place of articulation of obstruents. Section 5 provides a short conclusion.

2 Restrictions on Coda Consonants

All of the consonants shown in (5) occur in coda position except for the affricates /ʦ, ʣ/ and the palatal stop /c/. As the data in (6) illustrate, /ʦ, ʣ/ and /ʃ/, as in (6a), and /c/ and /h/, as in (6b), are contrastive in onset position.

(5) Azeri consonant inventory

	Bilabial	Labio-dental	Dental	Alveolar	Post-Alveolar	Palatal	Velar	Glottal
Stops	p, b		t, d			c, ɟ	k, g	
Fricatives		f, v		s, z	ʃ, ʒ		x, ɣ	h
Affricates				ʦ, ʣ				
Sonorants	m			n, l, ɾ		j		

(6) *a. /ʦ, ʣ, ʃ/ in onset position*

UR	Nominative	Plural *-lVɾ*	Possessive 1SG *-Vm*	Gloss
/**ʦ**aɣ/	**ʦ**aɣ	**ʦ**aɣ.laɾ	**ʦ**a.ɣɯm	‘fat’
/**ʣ**am/	**ʣ**am	**ʣ**am.naɾ	**ʣ**a.mɯm	‘tub’
/**ʃ**al/	**ʃ**al	**ʃ**al.laɾ	**ʃ**a.lɯm	‘scarf’

b. /c, h/ in onset position

UR	Nominative	Plural *-lVɾ*	Possessive 1SG *-Vm*	Gloss
/**c**al/	**c**al	**c**al.laɾ	**c**a.lɯm	‘unripe’
/**h**a.mam/	**h**a.mam	**h**a.mam.naɾ	**h**a.ma.mɯm	‘bath’

However, as shown in (7a), /ʦ, ʣ/ surface as [ʃ] before a consonant and in word-final position, while they surface faithfully before a vowel. Similarly, as shown in (7b), the palatal stop /c/ surfaces as the glottal [h] in coda position.

(7) *a. /ʣ, ʦ, ʃ/→ [ʃ] in coda position*

UR	Nominative	Plural *-lVɾ*	Possessive 1SG *-Vm*	Gloss
/a.ɣa**ʣ**/	a.ɣa**ʃ**	a.ɣa**ʃ**.laɾ	a.ɣa.**ʣ**ɯm	‘tree’
/o.ɾu**ʣ**/	o.ɾu**ʃ**	o.ɾu**ʃ.**laɾ	o.ɾu.**ʣ**um	‘fasting’
/y**ʦ**/	y**ʃ**	y**ʃ**.læɾ	y.**ʦ**ym	‘three
/gɯ**ʦ**/	gɯ**ʃ**	gɯ**ʃ**.laɾ	gɯ.**ʦ**ɯm	‘leg’
/ba**ʃ**/	ba**ʃ**	ba**ʃ**.laɾ	ba.**ʃ**ɯm	‘head’
/gu**ʃ**/	gu**ʃ**	gu**ʃ**.laɾ	gu.**ʃ**um	‘bird’

b. /c/→ [h] in coda position

UR	Nominative	Plural *-lVɾ*	Locative- *dV*	Gloss
/ty**c**/	ty**h**	ty**h**.læɾ	ty**h**.dæ	‘hair’
/ʦæ**c**/	ʦæ**h**	ʦæ**h**.læɾ	ʦæ**h**.dæ	‘check’

Before providing an analysis for the data, it should be noted that following Rubach (1994), Clements (1999), Kim (1997, 2001), and Hall (2004), I analyze affricates in Azeri as strident stops, which are specified for the feature values of [-continuant] and [+strident]. Following Hall (2007), I identify the feature values of [continuant] and [strident] for obstruents in Azeri as in (8).

(8) Feature values of [continuant] and [strident] in obstruents

	p	b	t	d	c	ɟ	k	g	f	v	s	z	ʃ	ʒ	x	ɣ	h	ʦ	ʤ
[continuant]	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	-	-
[strident]	-	-	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	+	+

As shown in (8), both stops and affricates are [-continuant] and the feature distinguishing them is [strident]; stops are [-strident] while affricates are [+strident]. This analysis is consistent with the fact that, as shown in (9), both affricates and stops, but not fricatives, devoice in coda position. The data in (9) indicate that by specifying both stops and affricates as [-continuant], we can correctly predict that only [-continuant] segments devoice in syllable-final position.

(9) UR	Nominative	Ablative- *dVn*	Accusative- *V*	Gloss
/ɑɾ.va**d**/	ɑɾ.va**t**	ɑɾ.va**t**.dan	ɑɾ.va.**d**i	'woman'
/a.ɣa**ʤ**/	a.ɣa**ʃ**	a.ɣa**ʃ**.dan	a.ɣa.**ʤ**i	'tree'
/ga**z**/	ga**z**	ga**z**.dan	ga.**z**i	'stove'

3 Analysis of Coda Neutralization in Azeri

3.1 The Pattern of Coda Neutralization in the Palatal Stop /c/

The fact that Azeri does not allow the palatal stop /c/ in coda position can be accounted for by the markedness constraint CODA CONDITION1[2], as in (10).

(10) CODA CONDITION1: *[-CONTINUANT, -ANTERIOR, -VOICE]]σ

Following Hall (2007), I categorize the places of articulation of obstruents in Azeri as in (11).

(11) Place of articulation in obstruents

	p, b	t, d	c, ɟ	k, g	f, v	s, z	ʃ, ʒ	x, ɣ	h	ʦ, ʤ
Labial	✓				✓					
Dorsal				✓				✓		
Coronal		✓	✓			✓	✓			✓
Glottal									✓	

[2] CODA CONDITION1 & CODA CONDITION2, in this paper, are used to represent restrictions on the occurrence of the palatal stop /c/ and the affricates /ʦ, ʤ/ in coda position, respectively.

The fact that the coronal palatal stop /c/ surfaces as the glottal [h] in coda position, changing its place of articulation, violates the faithfulness constraint IDENT-IO(PLACE) in (12).

(12) IDENT-IO(PLACE): The specification for place of articulation of an input segment must be preserved in its output correspondent. (Kager 2006: 45)

Another faithfulness constraint that is violated in the change from /c/ to /h/ is IDENT-IO(CONTINUANT) in (13).

(13) IDENT-IO(CONTINUANT): The specification for the feature [continuant] of an input segment must be preserved in its output correspondent.

To achieve the optimal output, the faithfulness constraints IDENT-IO(CONITNUANT) and IDENT-IO(PLACE) must be ranked lower than the markedness constraint CODA CONDITION. The tableau in (14) shows the interaction of constraints for the input /tyc/ 'hair', which is realized as [tyh].

(14) /tyc/→ [tyh]

/tyc/	CODACOND1	IDENTIO(PLACE)	IDENT-IO(CON)
☞ a. tyh		*	*
b. tyc	*!		

The question that needs to be addressed is: why does /c/ surface as [h] rather than some other sound in coda position? Lombardi (2002) proposed the place of articulation markedness hierarchy in (15). According to this hierarchy, glottals have the least marked place of articulation while labials and dorsals have the most marked places of articulation. Based on Lombardi's analysis, when all other things are equal, glottals should emerge as the result of neutralization. However, if the realization of glottals is blocked by a high-ranking constraint, then coronal consonants are expected to surface since they have a relatively unmarked place of articulation.

Since the unpermitted coda consonants in Azeri surface as either glottals (/c/→[h]) or coronals (/ʦ, ʤ/→[ʃ]), I adopt Lombardi's hierarchy in (15) to account for the pattern of coda neutralization in Azeri.

(15) *LABIAL, *DORSAL>> *CORONAL>> *GLOTTAL

The fact that /c/ does not surface as [s, ʃ] shows that we need the faithfulness constraint in (16). Based on this constraint, the feature value of [-strident] of the palatal stop /c/ must be preserved in its output correspondent. In order to achieve the optimal output, IDENT-IO(STRIDENT) must be ranked higher than IDENT-IO(CORONAL).

(16) IDENT-IO(STRIDENT): The specification for the feature [strident] of an input segment must be preserved in its output correspondent.

In addition, to prevent /c/ from surfacing as [t], we need the faithfulness constraint IDENT-IO(ANTERIOR), as in (17). The feature values of [anterior] for coronals in Azeri are given in (18). To achieve the optimal output, the faithfulness constraint IDENT-IO(ANTERIOR) must be ranked

higher than the faithfulness constraint IDENT-IO(CORONAL). The tableau in (19) illustrates constraint interaction, exemplified by the input /tyc/ 'hair', which surfaces as [tyh].

(17) IDENT-IO(ANTERIOR): The specification for the feature [anterior] of an input segment must be preserved in its output correspondent.

(18) Feature value of [anterior] in coronals

	t	d	c	ɟ	s	z	ʃ	ʒ	ʦ	ʤ
[anterior]	+	+	-	-	+	+	-	-	+	+

(19) *DOR>*DOR,*COR>*COR,*GLO>*GLO

/tyc/	CODA COND1	* DOR *LAB	IDENT (STR)	IDENT (ANT)	IDENT (COR)	*COR	*GLO	IDENT (PLACE)	IDENT (CON)
☞a. tyh					*	*	*	*	*
b. tyt				*!		**			
c. tys			*!	*		**			*
d. tyʃ			*!			**			*
e. tyx		*!			*	*		*	*
f. typ		*!			*	*		*	
g. tyc	*!					**			

Candidate (g) incurs a fatal violation of the markedness constraint CODA CONDITION1. Candidates (e-f) violate the high-ranking markedness constraints *DORSAL and *LABIAL, respectively. Candidates (c-d) and (b) lose because they violate the high-ranking faithfulness constraints IDENT-IO(STRIDENT) and IDENT-IO(ANTERIOR), respectively. Candidate (a) wins since its violation of the low-ranked faithfulness constraint IDENT-IO(CORONAL) is not fatal.

The fact that the palatal stop /c/ surfaces as the glottal [h] is consistent with the claim that glottals are less marked than the other consonants and that the direction of change is motivated by markedness, that is, the result is the least marked segment. Therefore, the pattern of coda neutralization in the palatal stop /c/ conforms to the place of articulation markedness hierarchies proposed by Lombardi (2002) and de Lacy (2005, 2006).

3.2 The Pattern of Coda Neutralization in the Affricates /ʦ, ʤ/

Since Azeri does not allow the affricates /ʦ, ʤ/ in coda position, we need to have the markedness constraint CODA CONDITION2, as in (20).

(20) CODA CONDITION2: *[- CONTINUANT, +STRIDENT]]σ

As shown in the previous section, the palatal stop /c/ surfaces as the glottal [h] in coda position. We expect /ʦ, ʤ/ to surface as [h] in coda position, as well. However, /ʦ, ʤ/ surface as [ʃ] in coda position. The question that is raised at this point is: why do /ʦ, ʤ/ not surface as the glottal [h], given that the change to [h] is possible?

One of the distinguishing features between /ʦ, ʣ/ and /h/ is stridency. The affricates /ʦ, ʣ/ are strident while /h/ is not strident. The constraint that prevents /ʦ, ʣ/ from surfacing as the glottal [h] but still permits the palatal stop /c/ to surface as [h] in coda position is the faithfulness constraint IDENT-IO(STRIDENT). To achieve the optimal output, it is crucial to rank the faithfulness constraint IDENT-IO(STRIDENT) higher than the markedness constraint *GLOTTAL. The tableau in (21) illustrates the constraint interaction, exemplified by the input form /gaʦ/ 'to run', which is realized as [gaʃ].

(21) *DOR>>*DOR,*LAB>>*LAB,*COR>>*COR,*GLO>>*GLO,IDENT(STR)>>IDENT(STR)

/gaʦ/	CODA COND2	*DOR * LAB	IDENT (STR)	IDENT (ANT)	IDENT (COR)	*COR	*[+ANT]	*GLO	IDENT (PLACE)	IDENT (CON)
☞ a.gaʃ		*		*		*				*
b.gah		*	*!		*			*	*	*
c.gat		*	*!			*	*			
d.gax		**!	*		*				*	*
e.gap		**!	*		*				*	
f.gaʦ	*!	*				*	*			

Candidate (f) incurs a fatal violation of the high-ranking markedness constraint CODA CONDITION2. Candidates (d-e) lose because their violation of the markedness constraints *DORSAL and *LABIAL, respectively, is fatal. Candidates (b-c) incur fatal violations of the faithfulness constraint IDENT-IO(STRIDENT). The winner is candidate (a) since its violation of the low-ranked faithfulness constraint IDENT-IO(ANTERIOR) is not fatal.

Now that we have shown the faithfulness constraint IDENT-IO(STRIDENT) rules out the realization of the glottal [h], the question that needs to be addressed is: why do the alveolar affricates /ʦ, ʣ/ surface as the post-alveolar [ʃ] in coda position rather than the more faithful alveolar [s, z]? The change of alveolar affricates /ʦ, ʣ/ to the post-alveolar fricative [ʃ] in coda position not only violates the faithfulness constraints IDENT-IO(CONTINUANT) but also the faithfulness constraint IDENT-IO(ANTERIOR). In addition, the voiced affricate /ʣ/ violates the faithfulness constraint IDENT-IO(VOICE), as in (22).

(22) IDENT-IO(VOICE): The specification for the feature [voice] of an input segment must be preserved in its output correspondent. (Kager 2006: 14)

The tableaux in (23-24) illustrate the constraint interaction and exemplify how the inputs /gaʦ/ 'to run' and /oɾuʣ/ 'fasting' are realized as [gaʃ] and [oɾuʃ], respectively.

(23) /gaʦ/→ [gaʃ]

/gaʦ/	CODACOND2	IDENT-IO(ANT)	IDENT-IO(CON)
☞ a. gaʃ		*	*
b. gaʦ	*!		

(24) /oɾudz/→ [oɾuʃ]

/oɾudz/	CODACOND2	IDENT-IO(ANT)	IDENT-IO(CON)	IDENT-IO(VOICE)
☞ a. oɾuʃ		*	*	*
b.oɾudz	*!			

Since the fricatives /s, z/ and the affricates /ʦ, ʣ/ are [+anterior], we expect the affricates to surface as [s, z] in coda position. However, the affricates surface as [ʃ] which is [-anterior]. As shown in tableau (25), the optimal candidate for /gaʦ/ 'to run' is [gas] since it incurs fewer violations than [gaʃ].[3] Similarly, as illustrated in (26), the candidate [aɣaz] is the optimal candidate for the input /aɣaʣ/ 'tree'. However, the grammar does not behave as expected and it prefers the candidates [gaʃ] and [aɣaʃ] in (25) and (26), respectively.

(25) /gaʦ/ → [gas] incurs fewer violations than /gaʦ/ → [gaʃ]

/gaʦ/	CODACOND2	IDENT-IO(ANT)	IDENT-IO(CON)
☺ a. gas			*
☹ b. gaʃ		*!	*
c. gaʦ	*!		

(26) /aɣaʣ/ → [aɣaz] incurs fewer violations than /aɣaʣ/ → [aɣaʃ]

/aɣaʣ/	CODACOND2	IDENT-IO(ANT)	IDENT-IO(CON)	IDENT-IO (VOICE)
☺ a.aɣaz			*	
☹ b.aɣaʃ		*!	*	*
c.aɣaʣ	*!			

As shown in (25-26), the predicted results are the alveolar fricatives [s, z] since they only violate one faithfulness constraint, IDENT-IO(CONTINUANT). However, the actual result is the post-alveolar fricative [ʃ], which incurs a double violation of faithfulness; it violates both IDENT-IO(CONTINUANT) and IDENT-IO(ANTERIOR).

Since there are many words in Azeri that have [s, z] in coda position, such as [cæ**s**] 'cut', [sæ**s**] 'sound', [bu**z**] 'ice', [dy**z**] 'correct', we cannot argue for highly ranked constraints banning alveolar fricatives in coda. In order to account for the pattern of coda neutralization in the affricates /ʦ, ʣ/, I adopt Lubowicz's (2002) approach of local conjunction of markedness and faithfulness.

(27) Local constraint conjunction (Smolensky 1993): The local conjunction of C_1 and C_2 in domain D, $[C_1 \& C_2]_D$, is violated when there is some domain of type D in which both C1 and C2 are violated.

Based on the definition in (27), the locally conjoined constraint incurs a violation if and only if both constraints (C_1 and C_2) are violated within a single domain. Following Lubowicz, I suggest that the domain of local constraint conjunction in Azeri is a segment. This means that both the markedness and faithfulness constraints cannot be violated within the same segment.

[3] ☺ represents the winner that is not the attested output.
☹ represents the attested output.

Since in Azeri, the alveolar affricates /ʦ, ʤ/ and the alveolar fricatives /s, z/ are [+anterior], we cannot use the faithfulness constraint IDENT-IO(ANTERIOR). Otherwise, the grammar will incorrectly choose [s, z] as the optimal outputs. Therefore, we need to use the faithfulness constraint IDENT-IO(CONTINUANT), which is violated by both [s, z] and [ʃ].

In addition, since there is a competition between the alveolar fricatives [s, z] and the post-alveolar fricative [ʃ] to surface in the output form, we need to identify a feature that distinguishes them. The feature distinguishing /s, z/ and /ʃ/ is [anterior]; /s, z/ are [+anterior] while /ʃ/ is [-anterior]. Therefore, the markedness constraint that we need is *[+ANTERIOR], as in (28). We cannot choose the markedness constraint *[-ANTERIOR] since it is violated by /ʃ/ but not by /s, z/. Therefore, the locally conjoined constraint that can account for the Azeri data is as in (29).

(28)*[+ANTERIOR]: Assign a violation mark for each consonant with the feature [+anterior].

(29) [*[+ANTERIOR] & IDENT-IO(CONTINUANT)]$_{Segment}$: Assign a violation mark for any output segment that has the feature [+anterior] and doesn't preserve the specification for the feature [continuant] of its input correspondent.

The constraint ranking in (30) will prevent /ʦ, ʤ/ from surfacing as [s, z] since this change would violate the high-ranking locally conjoined constraint. Based on this ranking, the optimal candidate will be [ʃ] since it only violates the low-ranking faithfulness constraint IDENT-IO (CONTINUANT).

(30) [*[+ANTERIOR] & IDENT-IO(CON)]$_{Segment}$>>*[+ANTERIOR] >>IDENT-IO(CON)

However, in order to allow the underlying /s, z/ to appear faithfully in the output forms and prevent them from surfacing as [ʃ], we need to rank the faithfulness constraint IDENT-IO(ANTERIOR) higher than the markedness constraint *[+ANTERIOR]. Therefore, the constraint ranking in (31) is crucial in achieving the optimal outputs in coda neutralization and allowing the faithful realization of the underlying /s, z/.

(31) [*[+ANTERIOR] & IDENT-IO(CON)]$_{Segment}$>>IDENT-IO(ANTERIOR)>>*[+ANTERIOR]>> IDENT-IO(CONTINUANT)

If we apply the constraints in (31) to our data, we can achieve the optimal output. The tableau in (32) exemplifies how the input /gaʦ/ 'to run' is realized as [gaʃ]. Similarly, the tableau in (33) shows how the input forms with underlying /s, z/ surface faithfully.

(32) /gaʦ/→ [gaʃ]

/gaʦ/	CODA COND2	[*[+ANTERIOR] & IDENT-IO(CON)]$_{Seg}$	IDENT-IO (ANT)	*[+ANT]	IDENT-IO (CON)
☞a. gaʃ			*		*
b.gas		*!		*	*
c.gaʦ	*!			*	

Candidate (c) loses because its violation of the high-ranked markedness constraint CODA CONDITION2 is fatal. Candidate (b) violates the locally conjoined constraint; it violates both the

markedness constraint *[+ANTERIOR] and the faithfulness constraint IDENT-IO(CONTINUANT). The winning candidate (a) violates the low-ranked faithfulness constraint IDENT-IO(ANTERIOR), which is not fatal. We see that the locally conjoined constraint rules out the realization of [s, z] and selects [ʃ] as the winner. Candidate (a) wins even though it violates two faithfulness constraints, IDENT-IO(ANTERIOR) and IDENT-IO(CONTINUANT).

(33) /cæs/ → [cæs], /søz/→[søz]

/cæs/ /søz/	CODA COND2	[*[+ANTERIOR] & IDENT-IO(CON)]$_{Seg}$	IDENT-IO (ANT)	*[+ANT]	IDENT-IO (CON)
☞a.cæs søz				*	
b.cæʃ søʃ			*!		

As illustrated in (33), none of the candidates violates both *[+ANTERIOR] and IDENT-IO(CONTINUANT); therefore, the locally conjoined constraint has no role in selecting the optimal candidate. In this case, the faithfulness constraint IDENT-IO(ANTERIOR) determines the winner.

4 Neutralization and Markedness

According to Lombardi (2002) and de Lacy (2005, 2006), there is a universal place of articulation markedness hierarchy, in which glottals and coronals are less marked than dorsals and labials. Since glottals are the least marked consonants, they are realized as the emergence of the unmarked (e.g. in neutralization). However, when the realization of glottals is ruled out by other constraints, coronals emerge since they have a relatively unmarked place of articulation.

On the other hand, Hume & Tserdanelis (2002) and Hume (2003) have argued that place markedness is determined on a language specific basis, claiming that even labials can be unmarked; therefore, any place of articulation can surface as unmarked in some language.

Similarly, Rice (2007, 2011) argues against a universal place of articulation markedness hierarchy, claiming that any major place of articulation can surface as the result of neutralization.

Recall that, in Azeri, the palatal stop /c/ surfaces as the glottal [h] and the affricates /ʦ, ʤ/ surface as the coronal [ʃ] in coda position. The data show that the pattern of coda neutralization in Azeri is consistent with the predictions made by Lombardi (2002) and de Lacy (2005, 2006) in terms of major articulator. The unpermitted coda consonants surface as glottals, the least marked consonants. However, when the realization of glottals is ruled out by a high ranking constraint, the coronals surface, which have a relatively unmarked place of articulation.

However, the question that needs to be addressed is: given that stridency could be preserved without changing the feature value of [anterior], why do the affricates change from [+anterior] to [-anterior]? It is generally believed that [+anterior] is less marked than [-anterior] (Calabrese 1995; de Lacy 2002). According to de Lacy (2002), [-anterior] is a marked feature since all languages that have [-anterior] consonants also have [+anterior] consonants; there is no language that has [ʧ] without having [t].

Based on the theory of markedness, the prediction is that [+anterior] cannot surface as [-anterior] since [-anterior] is marked. However, in Azeri the [+anterior] affricates /ʦ, ʤ/ surface as the [-anterior] fricative [ʃ] in coda position. These facts suggest either that [-anterior] is less

marked than [+anterior] or that there is no universal markedness relationship between [+anterior] and [-anterior].

One piece of evidence against the hypothesis that [-anterior] is universally less marked than [+anterior] comes from Pali (de Lacy 2002). In Pali, coalescence of a [-anterior] consonant with a [+anterior] one results in [+anterior], for example: /va**c-t**ab:a/ → [va**t**:ab:a], *[va**c**:ab:a]. If [-anterior] were less marked, we would expect the result of coalescence in Pali to be [c] rather than [t].

On the other hand, in Indonesian, the coalescence of the alveolar nasal /n/ and the alveolar fricative /s/ yields a palatal rather than an alveolar (Lapoliwa 1981: 107). As shown in (34), the prefix /mən/ is realized as [məɲ] when the stem starts with the fricative /s/. If [+anterior] were less marked than [-anterior], we would expect the result of coalescence in Indonesian to be the alveolar [n] rather than the palatal [ɲ].

(34) /mə**n** + sapu/ →[mə**ɲ**apu] ‘to sweep’ /mə**n** + seraŋ/→[mə**ɲ**eraŋ] ‘to attack’
/mə**n** + suruh/→[mə**ɲ**uruh] ‘to send someone’ /mə**n** + siksa/ →[mə**ɲ**iksa] ‘to torture’

Furthermore, in European Portuguese, the fricative [ʃ] with the feature value of [-anterior] is allowed in coda position but the fricative [s] with the feature value of [+anterior] is not permitted in coda position (Barbosa & Albano 2004). This restriction is surprising if [+anterior] is universally less marked than [-anterior]. Therefore, based on the evidence from Azeri, Pali, Indonesian, and European Portuguese, we can conclude that there is no universal markedness relationship between [-anterior] and [+anterior].

5 Conclusion

This paper investigated how the neutralization of place contrasts in codas in Azeri. The results show that the data are consistent with the proposed major place of articulation markedness hierarchies by Lombardi (2002) and de Lacy (2005, 2006). The unpermitted coda consonants surface as glottals, which have the least marked place of articulation. However, when the realization of glottals is blocked by a high-ranking faithfulness constraint, coronals surface. Moreover, alveolar affricates surface as post alveolar fricatives, contrary to the claim that [+anterior] is universally less marked than [-anterior].

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