Word Stress in Lezgian in Optimality Theory

by Sarah Ruth Moeller
Graduate Institute of Applied Linguistics student

Abstract
This paper uses Optimality Theory to describe native Lezgian root stress patterns. For most polysyllabic roots, stress falls on the second syllable. Exceptional patterns appear on disyllabic roots ending in [-ar] which take stress on the first syllable. In addition, these roots syncopate the final vowel when followed by a vowel-initial suffix.

1. Language background

This paper looks at the stress patterns of native Lezgian roots and attempts to describe them using Optimality Theory. It also looks at exceptional stress patterns on roots ending in [-ar] and the vowel syncope that characterizes these in certain environments.

Lezgian (Lezgi) is a Lezgic language belonging to the Nakho-Daghestanian (East Caucasian) family. It is spoken by about 400,000 people in the Caucasus Mountains of southern Daghestan (Russian Federation) and northern Azerbaijan (Haspelmath 1993:1).

Lezgian phonology has some interesting characteristics that have provided interesting study. One is the voicing of word-final obstruents, which seems to defy a cross-linguistic tendency that word-final consonants devoice. Another phenomenon that has been looked at more, particularly in Optimality Theory, is stress-attracting, or dominant, suffixes (Aronoff and Xu 2009). Less attention has been given to Lezgian stress patterns.

2. Data

All the data in this paper were taken from Haspelmath (1993).

Most native roots in Lezgian are monosyllabic, but on polysyllabic roots stress generally falls on the second syllable. Most exceptions to this generalization are loan words, and their stress seems to be borrowed from Turkic patterns. Their stress falls on the third or fourth syllable. This paper will focus on native words. The tendency for stress to fall on the second syllable is so strong that some Russian loan words take stress on this syllable, though most are not integrated into the native stress pattern.

No secondary stress is evident.

Most native roots are monosyllabic, but Haspelmath (1993:65) gives these examples of polysyllabic native verb and noun roots.

(1)	aq̃wáz[1]	‘stop’	aq’úl	‘intelligence’
	ilā́s	‘surpass’	četín	‘difficult’
	q^{h}it’q’ín	‘burst’	tumáž	‘leather’
	alcíf	‘settle’	jašájiš	‘life’

[1]The spelling of the Lezgian words is taken directly from Haspelmath (1993). I refer the reader to that work (1993:28-32) for explanation of the symbols used.

alámuq’	‘remain’	merhémet	‘mercy, leniency’
galámuq’	‘remain’	žanáwur	‘wolf’
		xüšrékan	‘spider’
		q̃alábulux	‘panic’

2.1 Exceptional stress

Despite the general tendency for stress to fall on the second syllable, there are exceptions to this rule. On disyllabic verb roots ending in [-ar] stress falls on the first syllable. These words also demonstrate another unique pattern — when a vowel-initial suffix is added, the vowel of the second syllable is syncopated, as shown in (2) and (3). This is similar to another process that is due to Post-tonic Vowel Syncope, where the vowel of the plural suffix [-ar] syncopates when the next syllable begins with a vowel, as shown in (4) (Haspelmath 1993:39).

(2) /xkádar-un/ → [xkádrun] ‘jumping’

(3) /gádar-un/ → [gádrun] ‘throwing’
cf. /gádar-zawa/ → [gádarzawa] (*[gádrzawa]) ‘is throwing’

(4)

Absolutive	Ergative	
[balk’án-ar]	[balk’án-r-i]	‘horses’
[didé-jar]	[didé-jr-i]	‘mothers’

This paper focuses on the type of alternation depicted in (2) and (3). The [-ar] syllables in (2) and (3) are not suffixes, but part of the root. Why these words allow stress to fall on the first syllable is unclear. Haspelmath does not attempt to explain this pattern and provides only a little data. This is a subject for further research. For the purposes of this paper this exceptional stress pattern will be considered lexically determined.

Adverbs and particles are also frequently stressed on the first syllable. These are not dealt with in this paper.

3. Analysis in Optimality Theory

Lezgian roots are parsed into iambic feet. This is shown in the stress placement on disyllabic words. The relative ranking of the constraints IAMB and TROCHAIC is shown in Tableau 1.

(5) IAMBIC (Kenstowicz 1995)[2]
Syllables must be parsed into iambic (right-headed) feet.

[2]All constraints names and definitions, along with their sources, are taken from Ashley *et al.* (2010).

(6) TROCHAIC (Kenstowicz 1995)
Syllables must be parsed into trochaic (left-headed) feet.

Tableau 1
IAMBIC » TROCHAIC

input: /iläs/ 'surpass'	IAMBIC	TROCHAIC
a. ☞ (ilä́s)		*
b. (íläs)	*!	

The fact that in polysyllabic words the stress falls on the second syllable and not later syllables shows that metrical feet are parsed from left to right. This shows an interaction of the constraints ALLFEETLEFT and ALLFEETRIGHT as illustrated in Tableau 2. Both candidates (b) and (c) are eliminated because they violate AFL at least once; candidate (a) wins because it satisfies AFL, though at the expense of AFR.

(7) ALLFEETLEFT (AFL) (McCarthy & Prince 1993)
Align the left edge of every foot with the left edge of the prosodic word.

(8) ALLFEETRIGHT (AFR) (McCarthy & Prince 1993)
Align the right edge of every foot with the right edge of the prosodic word.

Tableau 2
AFL » AFR

input: /q̃alabulux/ 'panic'	AFL	AFR
a. ☞ (q̃alá)bulux		**
b. q̃ala(bulúx)	*!*	
c. q̃a(labú)lux	*!	*

Lezgian apparently has no secondary stress. This indicates that the constraint PARSE-σ is ranked below AFL. That is, it is more important to avoid secondary stress than it is that every syllable be parsed into a metrical foot. This ranking is illustrated in Tableau 3. Even though the first candidate violates PARSE-σ two times, it is preferred because it better satisfies the constraint AFL, which is higher ranked.

(9) PARSE-σ (Prince & Smolensky 1993)
Every syllable must be incorporated into a metrical foot.

Tableau 3
AFL » PARSE-σ

input: /q̃alabulux/ 'panic'	AFL	PARSE-σ
a. ☞ (q̃alá)bulux		**
b. (q̃alá)(bulùx)	*!*	

On disyllabic words we see that stress is allowed to fall on the final syllable. This indicates that the constraint NONFINALITY is low ranked. This low-ranking can be shown as an interaction with PARSE-σ or with FOOTBINARITY. Since only one foot is allowed per word, no relative ranking can be given between PARSE-σ and FOOTBINARITY. We will show the ranking of NONFINALITY in relation to PARSE-σ. In the next section we see that FOOTBINARITY may actually be low ranked, because single syllable feet are allowed in some roots.

(10) NONFINALITY (Prince & Smolensky 1993)
No head of PrWd is final in PrWd/the PrWd-final syllable is unparsed.

(11) FOOTBINARITY (FTBIN) (Prince & Smolensky 1993)
Feet are binary at some level of analysis (μ, σ).

The ranking between PARSE-σ and NONFINALITY is illustrated in Tableau 4. Candidate (b) loses because it fatally violates PARSE-σ. The winning candidate satisfies PARSE-σ but violates NONFINALITY.

Tableau 4
PARSE-σ » NONFINALITY

input: /iläs/ 'surpass'	PARSE-σ	NONFINALITY
a. ☞ (ilä́s)		*
b. (íl)äs	*!	

The interaction of the above constraints gives us the following exhaustive ranking of constraints for Lezgian stress. This ranking is illustrated in Tableaux 5 and 6.

(12) IAMBIC, AFL » PARSE-σ » NONFINALITY, AFR, TROCHAIC

Tableau 5

input: /alamuq'/ 'remain'	IAMBIC	AFL	PARSE-σ	NONFINALITY	AFR	TROCHAIC
a. (alá)(mùq')		*!*		*	*	*
b. (á)(là)(mùq')		*!,**		*	*,**	
c. ☞ (alá)muq'			*		*	*
d. a(lamúq')		*!	*	*		*
e. (á)lamuq'			**!		**	
f. (ála)muq'	*!		*		*	

Tableau 6

input: /q̃alabulux/ ‘panic’	IAMBIC	AFL	PARSE-σ	NONFINALITY	AFR	TROCHAIC
a. q̃alabulux			***!*			
b. ☞(q̃alá)bulux			**		**	*
c. (q̃ála)bulux	*!		**		**	
d. (q̃alá)(bulùx)		*!*		*	**	**
e. (q̃alá)(bù)lux		*!*	*		*,**	*
f. (q̃á)(là)(bù)(lùx)		*!,**,***		*	***,**,*	
g. (q̃á)labulux			***!		***	
h. q̃a(labú)lux		*!	**		*	*
i. q̃ala(bulúx)		*!*	**	*		*

3.1 Analysis of Syncope

Lezgian allows vowel syncope in disyllabic roots ending in [-ar]. This occurs only when the root is followed by a vowel-initial suffix. This syncope is motivated by the constraint EUPODY, which is higher ranked than MAX, as shown in Tableau 7. EUPODY does not apply to words with iambic stress; therefore only the Lezgian words with exceptional stress undergo syncope.

(13) EUPODY (Hanson & Kiparsky 1996)
No resolution, i.e. no light+heavy trochee.

(14) MAX (McCarthy & Prince 1995)
Every segment of the input has a correspondent in the output (no phonological deletion).

Tableau 7
EUPODY » MAX

input: /gádar-un/ 'throwing'	EUPODY	MAX
a. ☞(gád).run		*
b. (gá.dar).un	*!	

In Tableau 7, the second candidate is the faithful candidate, but it is eliminated because it has a light+heavy trochaic foot. The first candidate satisfies EUPODY by syncopating the second vowel and creating a heavy stressed syllable. However, this only occurs when the root is followed by a vowel-initial suffix. The motivation for barring syncopation when no suffix occurs or when a consonant-initial suffix occurs is the crucial ranking of the constraint *COMPLEX above EUPODY. Its higher ranking does not allow syncope even when EUPODY is violated, as shown in Tableau 8 and 9.

(15) *COMPLEX (Prince and Smolensky 1993)
No more than one C or V may associate to any syllable position node.

Tableau 8
*COMPLEX » EUPODY

input: /gádar/ 'throw'	*COMPLEX	EUPODY
a. ☞(gá.dar)		*
b. (gádr)	*!	

Tableau 9
*COMPLEX » EUPODY

input: /gádar-zawa/ 'is throwing'	*COMPLEX	EUPODY
a. ☞(gá.dar).za.wa		*
b. (gádr).za.wa	*!	

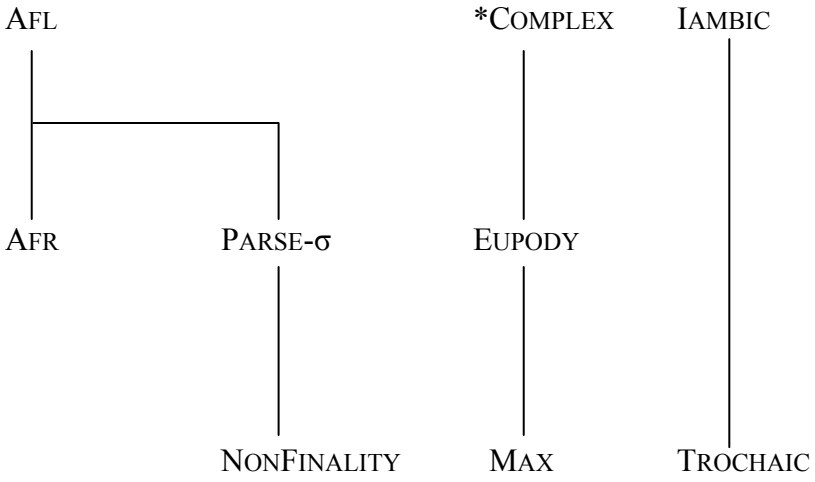
Complex onsets and codas are allowed in Lezgian (cf. (2) and Haspelmath 1993:40), which indicates that faithfulness constraints for the root are crucially ranked above *COMPLEX. We do not deal with this ranking here.

4. Conclusion

We have looked at data showing stress patterns on Lezgian roots. Based on this data we have constructed a crucial ranking order for the most prominent constraints. We have also looked at the patterns of exceptional stress on roots ending in [-ar], and at the patterns of vowel syncope that characterize them. This was illustrated by additional tableaux of constraints. The overall relationship between these constraints is shown below.

This Optimality Theory analysis of Lezgian word stress is a very logical, benign, and restrictive account of the data. It allows the stress patterns to be easily analyzed alongside other languages, because the crucial ranking of the constraints can be compared with cross-linguistic constraint rankings.

(16)



References

Aronoff, Mark, and Zheng Xu. 2009. A realization Optimality-Theoretic approach to affix order. To appear in a special issue of Morphology. Rutgers Optimality Archive. 1053-1009.

Ashley, Karen C., Lynette Disch, David C. Ford, Erin MacSaveny, Steve Parker, Carla Unseth, Angela M. Williams, Rachel Wong, and Brendon Yoder. 2010. How many constraints are there? A preliminary inventory of OT phonological constraints. Occasional Papers in Applied Linguistics No. 9. Dallas: GIAL.

Hanson, Kristin and Paul Kiparsky. 1996. A parametric theory of poetic meter. Language 72:287-335.

Haspelmath, Martin. 1993. A Grammar of Lezgian. Berlin: Mouton de Gruyter.

Kenstowicz, Michael. 1995. Cyclic versus noncyclic constraint evaluation. Phonology 12:397-436.

McCarthy, John J. and Alan Prince. 1993. Generalized alignment. In Geert Booij and Jaap van Marle, eds. Yearbook of morphology 1993. Dordrecht: Kluwer. pp. 79-153. ROA 7.

McCarthy, John J. and Alan Prince. 1995. Faithfulness and reduplicative identity. In Jill N. Beckman, Laura Walsh Dickey and Suzanne Urbanczyk, eds. University of Massachusetts Occasional papers in linguistics, vol. 18: Papers in Optimality Theory. Amherst: GLSA. pp. 249-384.

Prince, Alan and Paul Smolensky. 1993. Optimality theory: Constraint interaction in generative grammar. Ms., New Brunswick, NJ and Boulder, CO: Rutgers University and University of Colorado. Published 2004. Malden, MA and Oxford: Blackwell.