Vowel harmony and stress in Old Assyrian

Alan Avdagić
Julius-Maximilians-Universität Würzburg

Old Assyrian is a dialect of Akkadian, an ancient East Semitic language of northern Mesopotamia. It is attested in a large corpus of clay tablets in the cuneiform script spanning from the beginning of the second millennium BCE to the first century BCE.

Old Assyrian has a process of vowel harmony whereby a short /a/ in an open penultimate syllable acquires the quality of the vowel in the final syllable. This occurs only in words of three or more syllables (1a), and not in disyllabic words (1b).

(1)   Old Assyrian vowel harmony (Kouwenberg 2017: 101)

a.	/aššat-um/	→	*ašš**u**tum*	'wife (nom)'
	/aššat-am/	→	*ašš**a**tam*	'wife (acc)'
	/aššat-em/	→	*ašš**e**tem*	'wife (gen)'
	/libba-šu/	→	*libb**u**šu*	'his heart'
	/libba-ka/	→	*libb**a**ka*	'your heart'
	/libba-ni/	→	*libb**i**ni*	'our heart'
	/i-šakkan/	→	*išakk**a**n*	'he places'
	/i-šakkan-ū/	→	*išakk**u**nū*	'they place'
	/ta-šakkan-ī/	→	*tašakk**i**nī*	'you (f) place'
b.	/ab-um/	→	***a**bum*	'father (nom)'
	/ab-am/	→	***a**bam*	'father (acc)'
	/ab-em/	→	***a**bem*	'father (gen)'
	/šalim/	→	*š**a**lim*	'he is well'
	/lamun/	→	*l**a**mun*	'he is bad'

Several authors have suggested that Old Assyrian vowel harmony might be sensitive to the position of the word stress, but they arrive at radically different conclusions. Heckler (1968) states that harmony targets only post-tonic syllables, while, more recently, Peust (2009) has argued that harmony targets only stressed syllables, drawing an analogy with Germanic umlaut. On the basis of a comparison with Hebrew, Peust argues that disyllabic words consisting of a light syllable followed by a heavy syllable have final stress, while all other words have penultimate stress. I will argue that the traditional view put forth by Heckler is better supported on both language-internal and typological grounds.

Akkadian vowel syncope is stress-sensitive

The literature on the Akkadian stress system is inconclusive (e.g. Aro 1953, von Soden & Mayer 1969, Knudsen 1980, Buccellati 1996, West 1997, Peust 2009). However, syncope alternations, together with the Assyrian harmony rule, give us reason believe that the Latin stress rule was operative in Akkadian — that is: stress the penult if heavy, otherwise the antepenult.

Akkadian has a vowel syncope rule that deletes short vowels in open syllables when preceded by another light syllable. This rule results in pervasive vowel-zero alternations throughout the language, as in the examples in (2).

(2)   Stem alternations resulting from syncope (Kouwenberg 2017: 100)

/damiq-um/	→	*dámqum*	'good (m.sg.)'
/damiq-at-um/	→	*damíqtum*	'good (f.sg.)'
/damiq-āt-um/	→	*damqā́tum*	'good (f.pl.)'
/mitagar/	→	*mítgar*	'agree! (imp.sg.)'
/mitagar-ā/	→	*mitágrā*	'agree! (imp.pl.)'

The syncope rule has traditionally been formulated without reference to stress or foot structure; for example, Kouwenberg states that in a sequence of three light syllables, the vowel of the last of the three is deleted. However, this rule has a straightforward metrical interpretation: syncope targets the weak branch of a moraic trochee, and moraic trochees are aligned right (leaving the rightmost syllable extrametrical), i.e. (*mita*)⟨*gar*⟩ → (*mit*)⟨*gar*⟩, *mi*(*taga*)⟨*rā*⟩ → *mi*(*tag*)⟨*rā*⟩. This matches the foot structure and foot alignment of Classical Latin as analysed by Hayes (1995: 91–92). It turns out that the Latin stress rule also allows for a natural explanation of the Old Assyrian vowel harmony pattern.

The weakness of post-tonic penultimate syllables

Assuming the Latin stress rule, vowel harmony targets the penultimate syllable just in case it is left unfooted; thus harmony targets (*líb*)*bi*⟨*ni*⟩ and *i*(*šák*)*ku*⟨*nū*⟩, but not (*ábum*) and (*šálim*). In this metrically weak position, the underlying /a/ loses its [low] specification, but rather than simply being reduced to [ə], it shares the features of the following vowel.

A close typological parallel for the Old Assyrian situation can be found in Latin. In the development from Old Latin to Classical Latin, vowels in unstressed open syllables were weakened and surfaced differently according to their environment. According to Weiss (2009: 117), the default outcome is *i* [ɪ] (**kékadai* > *cecidī*), but we find *e* [ɛ] before *r* (**kámara* > *camera*), *u* [ʊ] in the vicinity of *w* and *l* [ɫ] (**áblawō* > *abluō*) and *u/i* [ʏ] before labials {*b,p,f,m*} (**póntifaks* > *pontu/ifex*). The Assyrian and Latin developments both result in neutralization of vowel contrasts in similar metrically weak positions; whereas in Assyrian, the weakened vowel harmonizes with the following vowel, in Latin it either receives a default specification or acquires features from a neighbouring consonant.

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