

## Derived long vowels as moraic spans: Why tone avoids derived long vowels

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In Span theory (McCarthy 2004) spans are headed structures sharing a feature (e.g. tone or melody). In this paper, I apply Span theory to derived long vowels, showing that they behave as headed moraic spans which interact with other, e.g., tonal spans. Based on data from Neo-Štokavian (see Zec 1999, Becker 2007, Werle 2009 and references therein), I show that non-heads of moraic spans are dispreferred as heads of tonal spans. This accounts for several alternations in which tonal spans systematically avoid derived long vowels.

In Neo-Štokavian, spans are right-headed, tonal spans are ideally binary and right-aligned with the stem (Becker 2007). In forms which have a single floating H in the underlying representation, a binary span with perfect alignment with the stem surfaces. The constraint interaction is illustrated on *maram-a* 'scarf.NOMINATIVE.SG' and *moli-ti* 'pray.INFINITIVE'. The constraints are adapted from Becker (2007).

(1) *marama-a* 'scarf.NOMINATIVE.SG'

/maram,H + a/	ALIGNR $\mu$ (H,STEM)	SPANBIN
☞ (márá)ma		
ma(rá)ma		*!
(má)rama	*!	*

(2) *moli-ti* 'pray.INFINITIVE'

/moli, H + ti/	ALIGNR $\mu$ (H,STEM)	SPANBIN
☞ (mólí)ti		
mo(lí)ti		*!
(mó)liti	*!	*

When these two stems derive forms with an ending involving a mora, the mora gets affixed on the stem, making the stem-final vowel long (e.g. *maráam*, *molíi*). These long vowels are avoided by the tonal span: H retracts to the preceding vowel and the two stems surface as (má)raam- and (mó)lii, respectively.

Crucially, both moras of the derived long vowel are avoided by H. The reasons are different for the rightmost and the leftmost mora. The rightmost mora (*maráam*), while being the head of the moraic span, is the weak mora of the syllable and therefore unable to head a H span, as formalised by Becker's constraint  $\Delta H:\Delta\mu\sigma$ . This constraint is about long vowels in general and not only derived long vowels. Indeed, no span in Neo-Štokavian is headed by the rightmost mora of a long vowel.

On the other hand, the leftmost mora of the derived long vowel (*maráam*) is the weak mora of the right-headed moraic span and therefore a bad candidate for heading a tonal span. The relevant constraint, here abbreviated to  $\Delta H:\Delta\mu\mu$ , requires the head of the tonal span to be the head of the moraic span. These two constraints at the top of the hierarchy block derived long vowels from participating in tonal spans.

This is illustrated in (3) and (4) by the Genitive Plural form of *marama* and the 1st-Person-Plural-Present-Tense form of *moliti*, respectively. In both cases the ending contains a mora. The moraic span is marked using the: the following notation:  $[\mu\mu]$ .

(3) maraam-aa ‘scarf.GENITIVE.PL’

/maram, H + $\mu$ + aa/	$\Delta H:\Delta\mu\sigma$	$\Delta H:\Delta\mu\mu$	ALIGNR $\mu$ (H,STEM)	SPANBIN
(má[rá]a)maa		*!	*	
ma([ráá])maa	*!			
☞ (má)[raa]maa			**	*

(4) molii-mo ‘pray.PRESENT.1PL’

/moli, H + $\mu$ + mo/	$\Delta H:\Delta\mu\sigma$	$\Delta H:\Delta\mu\mu$	ALIGNR $\mu$ (H,STEM)	SPANBIN
(mó[lí]i)mo	*!		*	
mo([líi])mo		*!		
☞ (mó)[lii]mo			**	*

This ranking correctly predicts that if the H-endowed stem is monosyllabic, the H-span is headed by the leftmost mora of the stem, as illustrated in (5).

(5) ruup-aa ‘hole.GENITIVE.PL’

/rup, H + $\mu$ + aa/	$\Delta H:\Delta\mu\sigma$	$\Delta H:\Delta\mu\mu$	ALIGNR $\mu$ (H,STEM)	SPANBIN
☞ [(rú)u]paa		*	*	*
[(rúú)]paa	*!			

Finally, the ranking predicts that words with lexical long vowels should not display tone retraction. This is indeed borne out, as shown in (6).

(6) dadiiíaa ‘nanny.GENITIVE.PL’

/dadiií, H + $\mu$ + aa/	$\Delta H:\Delta\mu\sigma$	$\Delta H:\Delta\mu\mu$	ALIGNR $\mu$ (H,STEM)	SPANBIN
☞ (dádí)iíaa			*	
da(díi)íaa	*!			
(dá)diiíaa			**!	*

The general consequences of the proposed constraint and more representational alternatives will be considered.

### References

Becker, Michael. 2007. Tone licensing and categorical alignment in Serbo-Croatian. In Leah Bateman et al. (eds.) *University of Massachusetts Occasional Papers in Linguistics 32: Papers in Optimality Theory III*. Amherst: GLSA, pp. 1–19. ● McCarthy, John J. 2004. Headed spans and autosegmental spreading. Ms., University of Massachusetts, Amherst. ● Werle, Adam. 2009. Word, Phrase, and Clitic Prosody in Bosnian, Serbian, and Croatian. University of Massachusetts Amherst PhD dissertation. Amherst: GLSA. ● Zec, Draga. 1999. Footed tones and tonal feet: Rhythmic constituency in a pitch-accent language. *Phonology* 16(2), 225–264.