

## (Slavic) vowel-zero alternations and phase theory

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V~Ø alternations appear to fall into two categories: those that follow the Havlik pattern, and those that follow the Lower pattern (Scheer 2004). Given a sequence of alternating Vs, languages of the former kind realise every other (counting from the right edge), while languages of the latter type promote all alternating Vs to the surface (1). Scheer (2004) opposes both patterns by a parameter on the lexical ability of alternating Vs to govern the preceding nucleus: they are good governors in Havlik, but not in Lower languages. Furthermore, alternating Vs float in the lexicon and associate when escaping government, while stable Vs are lexically associated to their nucleus. Thus in the Modern Czech (MCz) examples under (2a), the *e* in V<sub>2</sub>, even when associated, cannot govern and consequently the *e* in V<sub>3</sub> is realised. In Old Czech (OCz) under (2b), however, alternating Vs are lexically specified to be good governors. Therefore, V<sub>2</sub> can govern V<sub>3</sub>, which remains unpronounced.

This analysis does not work because it is unable to differentiate between alternating and non-alternating Vs in affixes. Indeed, stable Vs of V-initial suffixes must also float and end up in the final empty nucleus of the preceding morpheme: this follows from the fact that morpheme-internal alternation sites *always* remain unvocalised when followed by a stable V (e.g. skl-o "glass, Nsg", skl-ov-it-ý "glassily", compare with skel "glass, Gpl": both suffixal *o*'s must float). Hence if stable Vs can float as well, alternating and stable Vs cannot be distinguished in terms of the opposition floating vs. associated.

Following Gussmann & Kaye (1993), rather than a representational, we propose a procedural encoding of the opposition Havlik vs. Lower: suffixes with a V~Ø alternation on their left edge (like the Cz diminutive *-ek*) have identical phonological representations in both Havlik and Lower languages (cf. (3)), but different procedural properties. In the former, they come to stand in the same phase as all preceding material (they are non-cyclic), while in the latter they sit in a phase of their own (they are cyclic). The non-cyclic derivation (4a) of the double dim. in OCz (a Havlik language), then, is as before under (2b). In MCz (a Lower language), however, the concatenation of *-ek* triggers a phase. Hence under (4b), the double dim. in MCz contains three phases. In the first phase, nothing relevant happens. In the second phase, the floating *e* of the suffix enters the stem-final empty V<sub>3</sub>. V<sub>3</sub> cannot be governed by the following empty V<sub>2</sub> and hence associates with the floating *e*. In the third phase, the floating *e* of the second suffix attaches to V<sub>2</sub> for the same reason. According to *phase impenetrability*, all previously concatenated material has already been interpreted, and the result cannot be modified. Therefore V<sub>2</sub>, although a sound governor, cannot govern V<sub>3</sub>, which surfaces.

Hence the only thing that has changed between OCz and MCz is that the dim. suffix has become cyclic. Cyclicity as a lexical property of affixes is a notion reminiscent of Halle & Vergnaud (1987). We show that it has a promising more general prospect, but contend that the additional machinery that Halle & Vergnaud need can be dispensed with in the syllabic environment of CVCV. Also, Gussmann & Kaye need to cut out VC units from the skeleton (so-called Reduction), an unwarranted procedure that is not needed in CVCV. On the bottom line, our analysis prompts a phase theory where phases are defined by a lexical property of affixes (or affix classes), not by universal morphological categories (all xPs, cf. Marvin 2002). We show that very basic cyclic effects such as the derivation of English *origin-ality* are incompatible with the xP-trigger theory anyway. Finally, we introduce two ways for a suffix to be cyclically active: suffixes may trigger phases *before them* (i.e. enforcing a phase over all the material to their left, excluding themselves) or *after them* (i.e. enforcing a phase over all the material to their left and including themselves). This distinction will turn out to

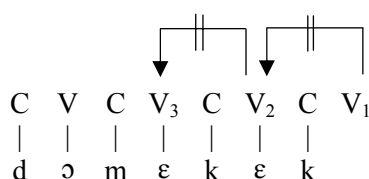
control the contrast between stable (right phase) and alternating (left phase) Vs in affixes. Finally, our analysis makes a previously unreleased prediction: since the existence of a phase supposes concatenation, V~Ø alternations within morphemes must always follow Havlik. This appears to be true for the languages we know (e.g. French, Moroccan Arabic).

(1) V ~ Ø alternations: Lower pattern vs. Havlik pattern

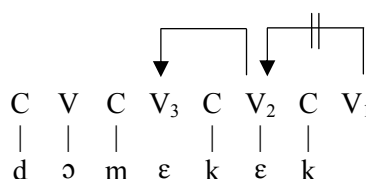
	<b>Lower</b>		<b>Havlik</b>
Modern Czech	dom-ek (nom.), dom-Øk-u (gen.) 'house, dim.' dom-eč-ek, dom-eč-Øk-u 'house, double dim.'	Old Czech	dom-ek, dom-Øk-u 'house, dim.' dom-Øč-ek, dom-eč-Øk-u 'house, double dim.'
Polish	pies (nom.), pØs-a (gen.) 'dog' pies-ek, pies-ecz-ek 'dim.', 'double dim.'	Moroccan Arabic	kØtib (sg.), kitØb-u (pl.) 'write, pf. 3 m.'

(2) Lower pattern vs. Havlik pattern: governing properties of alternating Vs (Scheer 2004)

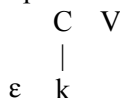
a. Representation of [dɔmɛt͡ʃɛk] (MCz)



b. Representation of [dɔmɛk] (OCz)

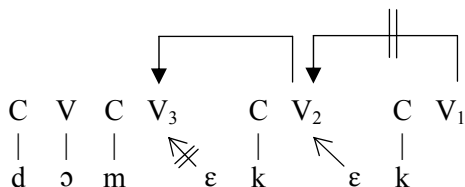


(3) Representation of the diminutive suffix -ek

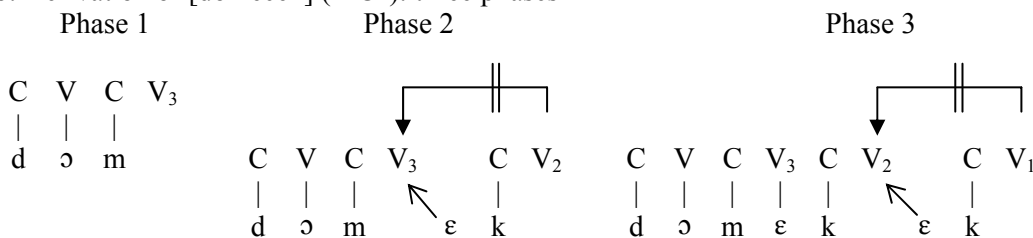


(4) Havlik pattern vs. Lower pattern: phonological properties of suffixes

a. Derivation of [domčɛk] (OCz): one phase



b. Derivation of [domečɛk] (MCz): three phases



References

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 Halle, Morris & Jean-Roger Vergnaud 1987. Stress and the Cycle. Linguistic Inquiry **18**, 45-84.  
 Marvin, Tatjana 2002. Topics in the Stress and Syntax of Words. Ph.D dissertation, MIT.  
 Scheer, Tobias 2004. A Lateral Theory of Phonology. Vol.1: What is CVCV, and why should it be? Berlin: Mouton de Gruyter.