

## Case markers in Czech: floating melodies, self-licensing vowels and morpheme-final empty nuclei

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### 1. Abstract

In this paper, I investigate two types of alternations in Czech: *e* ~  $\emptyset$  alternations between morpheme-final consonants and alternations of post-consonantal **morpheme-final liquids** which are either **syllabic (L=)** or **non-syllabic (L)**.

**Both of these alternations are phonologically driven. The distribution of the alternants depends on whether the final phonological constituent of a given morpheme is at the edge of a phonological cycle or not.**

The analysis presented is based on the **CVCV model** of phonology (Lowenstamm 1996, Scheer 2004) and adopts the widely accepted view that **derivation proceeds in cycles** (SPE, namely Halle & Vergnaud 1987, Distributed Morphology, Chomskian Phase Theory).

### 2. Introducing the data

In the Czech declension, there are two types of case markers, which differ in essence:

- **positive (i.e. phonetically expressed) markers**
- **zero markers**

The alternants in question are in complementary distribution with respect to them.

#### (1) Distribution of alternants: *e* ~ $\emptyset$ , L ~ L=

		<i>e</i> ~ $\emptyset$		L ~ L=	
		strong alternant <i>e</i>	weak alternant $\emptyset$	strong alternant L=	weak alternant L
<b>positive marker</b>			met $\emptyset$ l-a 'whisk, nom.sg.' kot $\emptyset$ l-ů 'boiler, gen.pl.' pat $\emptyset$ r-em 'floor, ins.sg.'		trotl-ů 'prune, gen.pl.' bratr-em 'brother, ins.sg.'
<b>zero marker</b>	metel- $\emptyset$ 'whisk, gen.pl.' kotel- $\emptyset$ 'boiler, nom.sg.' pater- $\emptyset$ 'floor, gen.pl.'			trotl- $\emptyset$ 'prune, nom.sg.' bratr- $\emptyset$ 'brother, nom.sg.'	

**Two general points can be made:**

1. The weak alternant occurs when the stem-final consonant is immediately followed by a vowel.
2. The strong alternant occurs when the stem-final consonant is simultaneously word-final.

**3. CVCV in a nutshell**

- **Phonological structure is represented on two separate levels: the suprasegmental and the segmental level. The minimal suprasegmental unit is the CV sequence.**

**Some consequences:**

- within each consonant cluster, its parts are separated by empty nuclei
- all morpheme-final consonants are onsets of empty nuclei
- the suprasegmental structure of each morpheme starts with an onset (empty or full) and ends in a nucleus (empty or full)

**(2) Morpheme-final consonants**

**a. morpheme-final consonant**



**b. morpheme-final consonant cluster**



**(3) NOM SG [atlas]: empty onset & empty nuclei**



- **Mapping between the levels need not be one to one**

**(4) Mapping between the levels of representation**

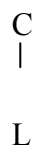
**a. short vowel**



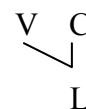
**b. long vowel**



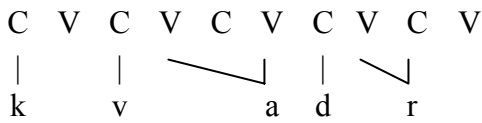
**c. non-syllabic liquid**



**d. syllabic liquid**



(5) **NOM SG [kva:dp=]: long vowel & word-final syllabic liquid**



- **The suprasegmental level is part of the lexical representation**

In CVCV, there is no re-syllabification or anything alike. If the suprasegmental level is part of the lexical representation, it projects in the course of derivation.

**Some consequences:**

- vowels alternating with zero cannot be epenthetic, the constituent dominating them must be already present in the lexical representation

(6) **Lexical representation of *e* alternating with  $\emptyset$ :  $\sqrt{\text{PATR}}$**



- **There are two lateral forces which affect the phonological constituents: government and licensing**

**Constituents that are governed are weakened.**

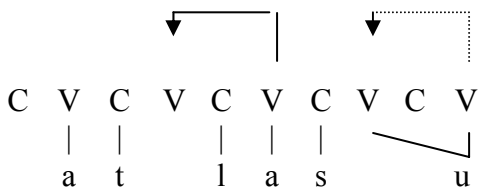
→ government prevents empty nuclei from connecting to the segmental level

**Constituents that are licensed are strengthened.**

→ licensing strengthens the relationship between both levels of representation

Both of these forces are **regressive: a constituent can govern/license only a constituent which precedes it.**

(7) **Licensing & Government: from right to left**



**Some consequences:**

- derivation proceeds from right to left

- **Empty nuclei must be governed, otherwise they need to be filled, empty onsets need not be governed to remain empty** (the phonological ECP, see Kaye (1990))

An empty nucleus can be governed:

- a) **by a filled nucleus → filled nuclei are governors by default**
- b) **by an empty nucleus → empty nuclei are governors by parameter**
- c) **externally → empty nuclei at the beginning of a derivational cycle can be governed, even if they aren't followed by another nucleus**

On the terminology:

Empty nuclei that can be governed externally and can be governors as well; they are usually called *domain-final empty nuclei*. But from the procedural point of view, labelling them as *final* is rather misleading. If all lateral relations are regressive then the derivation runs from right to left. From this it follows that *domain-final empty nuclei* are in fact at the beginning of a derivational cycle. Hence I will call them *cyclic-initial empty nuclei*.

**Some consequences:**

- there are two types of empty nuclei according to their phonological properties:

**cyclic-internal empty nuclei:** they cannot govern and have to be governed by the following nucleus

**cyclic-initial empty nuclei:** they may govern and may also be governed externally

### (8) Empty nuclei: three sources of government

a. **Lexical representation of the root**  $\sqrt{\text{FLIRT}}$       b. **Derivation of the nominative form** [flirt]



**Zero markers have no phonological structure of their own. They have no lexical representation on any phonological level. Their effect on the form of the stem arises from the empty nucleus which stands at the beginning of a phonological cycle.**

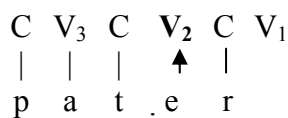
### 4. Properties of cyclic-initial empty nuclei

The nucleus which precedes the morpheme-final consonant is not governed, therefore it has to be filled up. The filling material is either a lexically floating vowel *e* or an adjacent liquid.

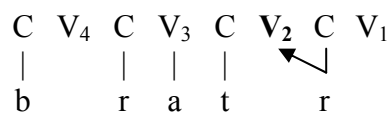
- There is one motivation for both strong alternants: saving the nucleus before the morpheme-final consonant

(9) Derivation of strong alternants

a. Derivation of „epenthetic“ *e*



b. Derivation of syllabic L



(10) Cyclic-initial empty nuclei in Czech

Governing properties	Consequence	Examples
They are governed.	Words can end with C.	<i>kotel</i> ,boiler, nom.sg.‘ <i>dělat</i> ,make, inf.‘
They do not govern nuclei that host a floating vowel.	Alternation sites preceding word-final Cs are always vocalised.	<i>chlapec</i> ,boy, nom.sg.‘ <i>her</i> ,game, gen.pl.‘
They do not govern empty nuclei before L.	Word-final liquids (after other Cs) are always syllabic.	<i>bratr</i> ,brother, nom.sg.‘ <i>mátl</i> ,confuse, past part. masc.sg.‘
They do govern empty nuclei before non-liquids.	Words can end with CC clusters.	<i>flirt</i> ,flirt, nom.sg.‘ <i>malt</i> ,mortar, gen.pl.‘

Table (10) raises at least two interesting questions:

1. Why only liquids can spread onto the preceding empty nucleus.
2. Why cyclic-initial empty nuclei fail to govern nuclei with floating vowels?

→ there have to be some hierarchy how empty nuclei before morpheme-final consonants can be saved

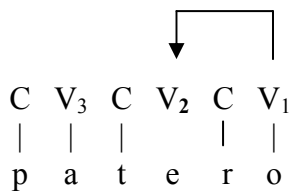
## 5. Representation of positive markers

- Positive markers are in the same cycle as the preceding morpheme

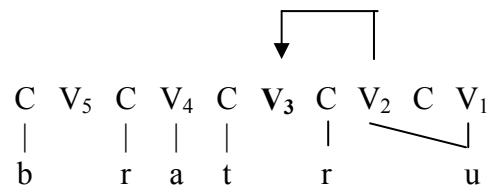
No cyclic-initial empty nucleus intervenes between the stem and the positive marker. Hence, the positive markers must be in the same derivational cycle as the preceding morpheme. Their effect on its form arises from being associated with its final nucleus.

### (11) Derivation of weak alternants

#### a. Floating *e* is silenced



#### b. Non-syllabic liquid

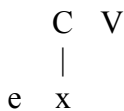


- Affix-initial short vowels lexically float, long vowels are lexically specified as licensors

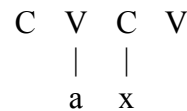
In the lexicon, affix-initial short vowels will be represented only on the segmental level. They are *floating vowels* without their own constituent. To be phonetically realized they need to search a vacant nucleus and associate with it. By contrast, affix-initial long vowels have their own constituent to which they are associated. In the lexicon, they start with an empty onset, followed by a filled nucleus. This nucleus is specified to be a self-licensor.

### (12) Affix-initial short vowels vs. affix-initial long vowels

#### a. LOC PL marker *-ech*



#### b. LOC PL marker *-ách*



## 5.1 Paradigm *dělání*, the poorest one of all

This nominal paradigm is the poorest, because in the singular, nouns receive only one positive marker, the *-m* in INS. In this respect, the paradigm has no parallel in any other. I argue that this is for phonological reasons.

### (13) Neutral paradigms (singular)

#### a. Paradigm *dělání*

NOM	dělání
ACC	dělání
GEN	dělání
DAT	dělání
LOC	dělání
INS	dělání- <b>m</b>

#### b. Paradigms *moře, město*

NOM	moř-e	měst-o
ACC	moř-e	měst-o
GEN	moř-e	měst-a
DAT	moř-i	měst-u
LOC	moř-i	měst-u
INS	moř- <b>em</b>	měst- <b>em</b>

### (14) Floating vowel in INS marker fails to be pronounced

C	V	C	V	C	V	C	V	C	V	C	V
			—		—						
d	ě	l		a	n		i	e	m		

## 6. Conclusion

In this paper, I have discussed two examples of alternations in Czech. I have argued for the model of CVCV phonology which allows a unified of them. I have demonstrated (using case markers as an example) that the distribution of weak/strong alternants is controlled by stem-final empty nuclei: if they are simultaneously cyclic-initial, strong alternants arise, otherwise weak alternants are presented.

## References

- Halle, M. & J. R. Vergnaud (1987): Stress and the Cycle. *Linguistic Inquiry* 18, 45-84.  
 Kaye, J. (1990): 'Coda' licensing. *Phonology Yearbook* 7, 301-330.  
 Lowenstamm, J. (1996): CV as the only syllable type. In: Durand, J. & B. Laks (eds.): *Current trends in Phonology. Models and Methods*. Salford, Manchester: ESRI, 419-441.  
 Marvin, Tatjana 2002. Topics in the Stress and Syntax of Words. Ph.D dissertation, MIT.  
 Scheer, T. (2004): *A Lateral Theory of Phonology*. Vol.1: What is CVCV, and why should it be? Berlin: Mouton de Gruyter.

