

## Derived environment effects in Optimality Theory: the case of pre-sonorant voicing in Slovak

Obstruent clusters in Slovak (including those broken up by a strong boundary) must agree in voicing, their voicing properties being determined by the last obstruent of the cluster (1). Only voiceless obstruents and obstruent clusters are permitted in pre-pause position (2). Within the domain of the phonological word, both voiced and voiceless obstruents can occur before sonorant consonants and vowels (3). However, underlyingly voiceless obstruents surface as voiced preceding a sonorant if a strong morpheme boundary separates the two (4). Derived environment effects of this kind are easy to handle in rule-based models, but they constitute a challenge to constraint-based frameworks (see Lubowicz 1999 for a detailed description of the matter).

In the present discussion, I argue that if morphological information is encoded in phonological representation (as proposed in CV Phonology (CVP) by Lowenstamm 1996, Scheer 1997, 2001, Dienes & Szigetvári 1999), this phenomenon can be accounted for in OT without making use of local constraint conjunction (as in Lubowicz 1999) or introducing a Derived Environment Constraint (Polgárdi 1998). In fact, it is shown that these models are unable to handle the Slovak data.

My analysis is based on Petrova et al. (2000). They claim that in languages like Slovak, **Share** and **IDpreson voice** are highest ranked, crucially dominating **\*voice**, which in turn outranks **IDvoice** (see (5) for the definitions of the constraints). I propose a constraint requiring that obstruents be voiced before sonorant segments, to be ranked below **IDpreson voice** and above **\*voice** in Slovak. On the basis of earlier work in CV Phonology, I suggest that the morphological information ‘beginning of a word’ be represented the phonological representation as an empty skeletal position. This move is independently motivated by phenomena like cliticisation, liaison and phonotactic restrictions on initial clusters (see the abovementioned CVP references for details). This way, **IDpreson voice** only has effect in cases like (), but forms such as those in () are left unaffected by it. By introducing these minor modifications to Petrova et al.’s model, the derived environment effects of Slovak pre-sonorant voicing can be accounted for.

In the final part of my discussion, I show that neither Lubowicz’s nor Polgárdi’s model is applicable to the data under examination. Lubowicz claims that all morphologically derived environment effects are at the same time violations of stem:syllable anchoring. However, there is no evidence for that in the Slovak, moreover, there are arguments against Lubowicz’s claim, concerning consonantal phonotactics and syllabification patterns.

Polgárdi introduces a Derived Environment Constraint (DEC), which prohibits changes within morphological domains. She claims that DEC is ranked below constraints regulating across-the-board processes and above those responsible for regularities that are only valid in derived environments. This solution works in cases where across-the-board processes are unrelated to derived environment phenomena, but fails in the present case where the two kinds of phenomena are directed by the same set constraints.

In sum, it can be argued that the OT analyses proposed so far cannot be applied to the data constituting the focus of the present discussion. Instead, a minor change in the representation (motivated on independent grounds as well) enables the theorist to correctly describe the Slovak data. Apart from extending the empirical coverage of the model, this analysis also highlights the importance of representation, an issue often neglected within the OT paradigm.

(1)  
*prosiť* [s] ‘ask’      *prosba* [zb] ‘request (n)’  
*Rado* [d] ‘name’      *Radko* [tk] ‘id. dimin.’

(2)  
*pádom* [d] ‘case Ins.Sg.’      *pád* [t] ‘case Nom.Sg.’  
*brzda* [zd] ‘brake Nom.Sg.’      *brzd* [st] ‘brake Gen.Pl.’

(3)  
*sestra* [st] ‘sister’      *zrak* [z] ‘vision’  
*mokrá* [k] ‘wet’      *modrá* [d] ‘blue’

(4)  
*vojáka* [k] ‘soldier Gen.Sg.’      *vojákide* [g] ‘the soldier goes’  
*lese* [s] ‘forest Loc.Sg.’      *lesje* [z] ‘the forest is’

(5) the constraints of Petrova et al. (2000)

**Share**                      Obstruent clusters share their laryngeal feature.

**IDpreson voice**      A segment in presonorant position must be faithful to the input specification for voice.

**\*voice**                      Voiced obstruents are prohibited.

**IDvoice**                      A segment must be faithful to the input specification for voice.

**Share, IDpreson voice >> \*voice >> IDvoice**

## References

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