

## How to represent the Korean consonants: A GP2.0. Perspective

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Whether Korean tense consonants are underlyingly geminates (*i.e.* a tense consonant occupying two skeletal timing slots) is a highly controversial issue in Korean Phonology. The purpose here is to introduce a novel representation of the ternary laryngeal system of obstruents. Adopting GP2.0. Framework (Pöchtrager 2010, 2006), we argue that this system is due to structural properties rather than the internal melodic makeup. We will show that, in order to fully illustrate the mechanisms at play, Post Obstruent Tensing (POT) needs to take morpho-syntactic categories and word boundaries into account (Lowenstamm 2010, 2007, 1999).

Two competing proposals have been put forward: *the feature analysis* and *the bipositional analysis* (Ahn & Iverson 2003 ; Avery & Idsardi 2001; Choi 1995; Kim R. 1974; among others). *The feature analysis* focuses on identifying the laryngeal features that represent the three-way laryngeal contrast (Kim-Renaud 1974; Kim Hyunsoon 2011; among others), *e.g.* [±aspirated], [±tense] and [±spread glottis]. Despite the well defined laryngeal distinction, there remains a need for syllable-segment interaction to be taken into consideration.

*The bipositional analysis* develops the underlying representation of the three-way obstruent system (Choi 1995; Ahn & Iverson 2003) in a syllable-segmental perspective. However, both analyses disregard morphological processes that are at work in Korean phonology, namely POT variation due to morpho-syntactic categories.

We will first show how the new representations naturally explain typical Korean phonological processes (Coda Neutralisation and Palatalisation of coronals). We will then argue that POT relies on the same principle and that variation results from the structural proximity of the interacting consonants.

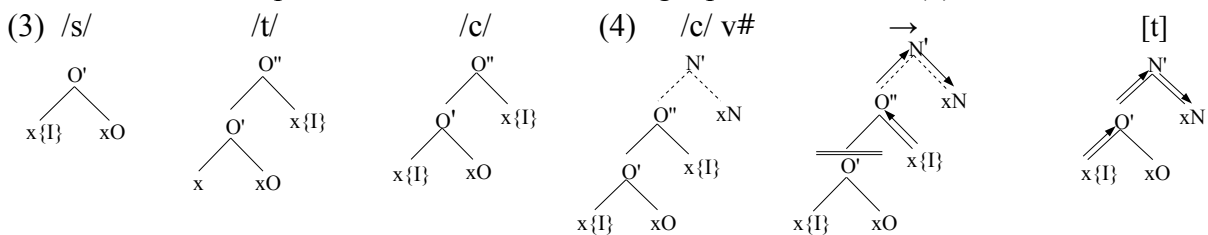
**1. Coda Neutralisation (CN).** [±anterior] coronal stops are neutralised to [+ant, -cont] in coda. Regardless of their laryngeal specification, aspirated and tense stops become plain (1).

- (1) a. /nac/ → [nat] *day* c. /sas'/ → [sat] *past form of verb buy* f. /p<sup>h</sup>at<sup>h</sup>/ → [p<sup>h</sup>at] *red bean*  
b. /s'is/ → [s'it] *to wash* d. /pic<sup>h</sup>/ → [pit] *light*

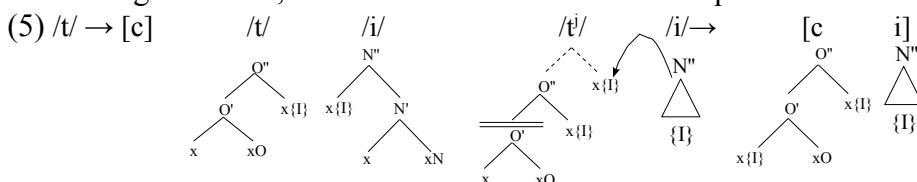
**Palatalisation.** In Korean, /t, t<sup>h</sup>, s/ are palatalised to [c, c<sup>h</sup>, s<sup>j</sup>] before a morphological /i/.

- (2) a. /mat+i/ → [maci] *the oldest son* d. /kut+i/ → [kuci] *stubbornly (to be firm ADVL)*  
b. /pat<sup>h</sup>+i/ → [pat<sup>h</sup>ci] *field-Nom* e. /kat<sup>h</sup>+i/ → [kac<sup>h</sup>ci] *together (to be same ADVL)*  
c. /si/ → [si] *poem* f. /os+i/ → [os<sup>j</sup>i] *clothes-Nom*

Using a revised version of GP2.0 (Tifrit & Voeltzel 2014), we will use the elements [I, U] to define coronals {I}, labials {U} and dorsals {IU}. In this framework, x can be annotated and thus m-command heads. The fricative/stop distinction relies on the number of projections: fricatives have only one projection (o') while stops have two (o'', o'). An annotated x m-commanding a head xO shares the same interpretation. Hence, the following representations in (3).



Neutralisation, in (4), is explained by *pruning* of the lower part of the structure (the first projection o'). The CN proceeds from left to right *e.i.*, m-command that goes from x{1} to xN. Note that concerning fricatives, the structure does not need to be pruned because it is a well formed structure.



In palatalisation (5), the vowel /i/ gives the target consonant a non projecting onset x{I} which is interpreted as [j] (Pöchtrager 2006:91). The intermediate structure /tj/ (which can be produced by some speakers) is then reduced to [c] by pruning of the lower projection as in CN.

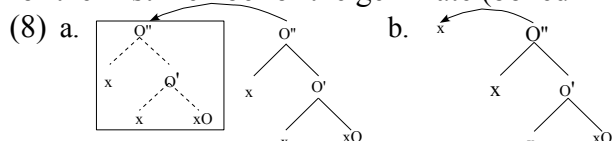
**2. Post Obstruent Tensing (POT) and variation.** (6) provides examples of POT where an obstruent becomes tense when preceded by another obstruent.

- (6) a. /hak+kyo/ → [hakk'yo] *school*      d. /kak+paN/ → [kakp'aN] *individual room*  
 b. /pak+su/ → [paks'u] *clapping*      e. /mit+ta/ → [mitt'a] *to believe*  
 c. /ap+to/ → [ap.t'o] *front too*      f. /mas+cip/ → [matc'ip] *good restaurant*

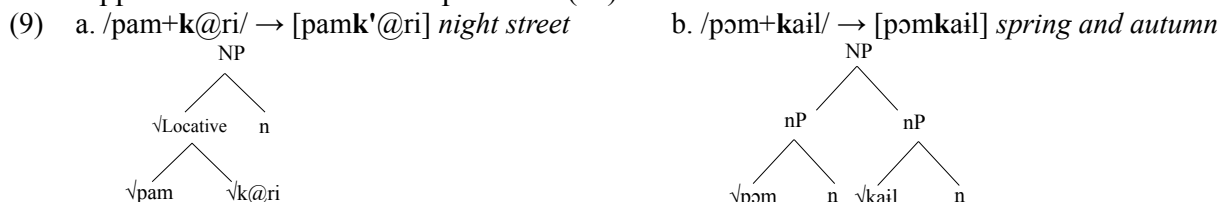
This process of tensification of the second consonant is considered as the usual result of the contact of two obstruents. However, there are many exceptions where POT is unapplied even if the same phonological conditions are met, especially when the first consonant is sonorant. For example, compare (7a-c) and (7d-f).

- (7) a. /pɔm+kail/ → [pɔmkail] *spring and autumn*      d. /pam+k@ri/ → [pamk'@ri] *night street*  
 b. /san+til/ → [santil] *mountain and field*      e. /sɔn+tiŋ/ → [sɔnt'iŋ] *back of the hand*  
 c. /kaŋ-san/ → [kaŋ.san] *river and mountain*      f. /cɔŋ-sɔri/ → [cɔŋ.s'ɔri] *sound of bell*

It has been suggested that tensing results from gemination (at least the association to two positions). How to represent POT in GP2.0? There are two possible scenarios: creation of a structure *ex nihilo* for the first member of the geminate (boxed in 8a) or using a pre-existing position (8b).



With this in mind, let us consider the cases where POT is not applied. Phonology does not seem to be responsible for it. Rather, morphology is to do with the exceptions. Following Lowenstamm (1999, 2012), we argue that POT is triggered by the presence of boundaries in compounds formation (Khym 1998). Variation falls into two categories. *Co-compounds* (as in 9b) which refer to [N<sub>1</sub>+N<sub>2</sub>] words that still maintain their own meaning (*i.e.*, each noun forms nP). As a result, there is no place for N<sub>1</sub> and N<sub>2</sub> to interact, which explains the non application of POT. On the other hand, *Subcompound* allows phonology to operate tensification. The latter refers to [N<sub>1</sub>+N<sub>2</sub>] where N<sub>1</sub> has a functional category (*e.g.*, Genitive, Locative, Beneficiary) and changes the meaning of N<sub>2</sub>. Therefore, the functional head (N<sub>1</sub>) takes the root (N<sub>2</sub>) as its complement and projects to √P. The fact that they are under the same projection (√P) allows them to interact phonologically. The result is the application of POT as exemplified in (9a).



Therefore, we will retain the representation in (8b) and we will show that the right word boundary #\_ in Korean is an initial CV unit hosting the first part of the tense consonants (Lowenstamm 1999).

## References

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