

## Subtypes of unconditioned tonal merger in historical Viet-Muong phonology

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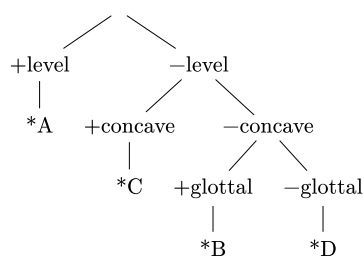
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This paper addresses a proposal concerning unconditioned merger in Contrastive Hierarchy Theory (Dresher 2009, Oxford 2015, Krekoski 2017, Natvig 2018, etc.); the theory encodes phonemes into a binary tree structure with the minimum necessary amount of feature specification and is capable of modeling diachronic changes from a systematic perspective. According to Oxford (2015), the diachronic merger of any two phonemes can happen only in one of the two ways: (i) when the phonemes are in sisterhood, merger directly occurs (the Sisterhood Merger Hypothesis); (ii) otherwise, the relative ordering of features within the hierarchy must be reranked so as to render the phonemes into sisters, after which (i) ensues.

Nevertheless, the second approach to handling mergers is conceptually unfavorable for the following reasons. First, it creates an asymmetry in terms of derivational steps within the unified category of merger without offering any satisfactory functional or formal explanation. Second, the reordering within the contrastive hierarchy, as the first step of (ii), cannot necessarily be attested with diachronic or synchronic evidence and is always manifested indirectly through the subsequent step of merger, making its independent status questionable.

In response to this situation, I propose that diachronic unconditioned merger is further classified into two types: (i) *merger by feature demolition*, in which a contrastive feature pair dominating sister phonemes is wiped out from the phonemic hierarchy, and (ii) *merger by feature reanalysis*, in which a contrastive feature pair is reanalyzed into another extant feature pair when the two pairs are phonetically correlated (in the form of, e.g., Stevens et al. 1986).

As an illustration, consider the diachronic tonal merger from Proto-Viet-Muong to Vietnamese and Muong. Proto-Viet-Muong exhibited four tones, \*A, \*B, \*C and \*D, which had a clear tonogenetic origin from an earlier state of codas (Haudricourt 1954, Thompson 1976, Ferlus 1998, Ta 2023): \*A < \*\*non-obstruent, \*B < \*\*glottal stop, \*C < \*\*spirant, \*D < \*\*oral stop. I propose to model this system as follows, based on phonetic and morphophonological evidence in modern Vietnamese (Vũ 1981, Vũ 1982, Gordina & Bystrov 1984, Alves 1995, Đinh & Nguyễn 1998, Zhū & Nguyễn 2014):



In Pre-Vietnamese, \*B merges with \*D; this merger falls within the subtype of feature demolition, where [ $\pm$ glottal] (dominating two sister tones) are deleted. In Pre-Muong, on the other hand, \*C merges with \*D. Under the previous account, this merger would require \*C to swap with \*B through a shuffle of features. My current analysis, by contrast, models this merger as feature reanalysis: due to the apparent phonetic interrelationship between [ $\pm$ concave] and [ $\mp$ glottal] (Zhang 2001), the former becomes equalized with the latter, thereby completing the merger in one step.

A conceptual advantage of this proposed dichotomy is that it accommodates both structural and phonetic motivations with the same formal device: merger by feature demolition, not involving phonetic similarity between features, must occur at the minimal cost affecting the phonological structure by wiping out terminal sister segments, whereas merger by feature reanalysis is motivated by phonetics-based (de)phonemicization and circumvents the structural condition of feature demolition. In sum, this advocated independence between phonological and phonetic factors may offer a clearer understanding of submechanisms of unconditioned merger (Hoenigswald 1960, Gordon 2013).