**"Murmurogenesis" and the Armenian stop system**

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**Introduction.** This paper proposes a new analysis of the development of breathy voice – or "murmurogenesis" – in the Armenian stop system. Building on past theories of obstruent voicing (Trigo 1991, Vaux 1996), our proposal accounts for the cross-linguistic historical development of breathy voice while preserving the mainstream chronology of Armenian sound changes.

**Background.** In a geographically contiguous cluster of Armenian dialects, Adjarian's Law (AL; Adjarian 1901, Vaux 1992, 1998) causes fronting of vowels in initial syllables after reflexes of the Proto-Indo-European (PIE) stop series traditionally called "voiced aspirated" (Schleicher 1861). Garrett (1998) argues we can only understand AL if the Proto-Armenian reflex of this series was breathy-voiced; breathiness on the stop causes the following vowel to become [+ATR] and then fronted. Whether Proto-Armenian innovated a breathy-voiced series or inherited it directly from PIE is a point of contention between more traditional reconstructions and the glottalic theory (Hopper 1973, Gamkrelidze and Ivanov 1973), which reinterprets the "breathy-voiced" series as plain voiced. If Proto-Armenian didn't already have breathy-voiced stops, there must have been a sound change introducing breathy voice within Armenian.

**Discussion.** We point out several problems with Garrett's proposal that Proto-Armenian inherited breathy-voiced stops from PIE. First, Garrett proposes that AL must coincide with the loss of breathy voice, if listeners reinterpret breathiness as vowel frontness. This predicts AL never applies in varieties with breathy-voiced stops, but the two co-exist in the dialects of Diadin, Erevan, Gaṙni, Kaputan, T'uskulu, Vardenis, and Vozmi. Second, Garrett argues against Vaux's (1992) analysis of AL as an effect of voicing on the grounds that, if AL were triggered by voiced stops, we should see it on all synchronically voiced stops in varieties that have AL. But if AL applied to the common ancestor of all the varieties that have it, not to their current forms, it makes sense that AL could be synchronically opaque. Third, Garrett's theory that breathy-voiced stops have always been breathy has difficulty accounting for borrowings (Sayeed and Vaux 2017). An early loan like Greek *bēma* "stage" appears as Classical Armenian *bēm*, with an initial *b* belonging to the series causing AL. If Proto-Armenian had breathy-voiced stops alongside voiced stops, *bēma* should more naturally be borrowed as Proto-Armenian *bēm*, Classical **pēm*, with a voiceless stop; compare *tasn* "ten" < **dékm̥*.

**A new analysis.** In our chronology, the PIE breathy-voiced series was plain voiced in Proto-Armenian, not breathy-voiced. Producing this voicing can involve dorsum fronting (Trigo 1991), which then perseveres into a following vowel, leading to AL. A second strategy for implementing voicing involves pharyngeal expansion, which in turn causes breathy voice, creating a breathy-voiced series from the stops that triggered AL. We show that this general

process of “murmurogenesis” is not uncommon in the world’s languages, appearing in, for example, Cao Bang (Weiss 2009), Kelabit (Blust 2018), Maranao (Lobel 2010), Pearic (Choosri 2007) and Sundanese (Kulikov 2010). If murmurogenesis is typologically common and phonetically natural, we no longer have any conceptual problems in proposing that breathy voice in Indo-European is an innovation internal to Armenian.