Coronal stops in Kawam: sound change and phonetic variation

The Pahoturi River (PR) language family consists of six undocumented and likely endangered varieties (Kawam, Agob, Em, Ende, Idi, and Taeme) spoken by 4000 people in Papua New Guinea ([3]). Approximately 400 words (the Yamfinder wordlist; [2]) have been collected and transcribed from speakers of all varieties ([5]). Based on this preliminary data, we observe that Kawam differentiates itself from the rest of the family in both the distribution and phonetic realization of its coronal stops. We present descriptions and analyses for two diachronic patterns and two synchronic variations.

All PR languages have alveolar stops /t d/ and retroflex stops /ʈ ɖ/ in their phonemic inventories ([6]). Some Kawam retroflex stops correspond with other PR alveolar stops (**Pattern 1**). We argue that this correspondence stems from a change that occurred only in Kawam, where some alveolar stops became retroflex near back vowels (Ex. 1-4). Across the family, retroflexes avoid front vowel positions at least 75% of the time ([7]). This correspondence between Kawam /ʈ ɖ/ and /t d/ in the other PR languages seems to reflect an analogical sound change rather than preservation of retroflex stops in Kawam.

All PR varieties have two alveolar fricatives /s z/, the latter of which has a number of affricated realizations. In Kawam, this /z/ can be realized as a postalveolar [d͡ʒ] or alveolo-palatal affricate [d͡ʑ] (**Variant 1**). This is relevant for **Pattern 2**, in which other PR languages have an alveolar stop [d] /d/, but Kawam speakers produce an affricate [d͡ʒ~d͡ʑ], which overlaps with the realization of /z/ (Ex. 5-6). Analogous to Pattern 1, this appears to be triggered by nearby vowels: /d/ undergoes palatalization near front vowels. Note, however, that no such palatalization has been observed for /t/. This is likely because across the family, /s/ is never realized as an affricate, unlike its voiced counterpart. Therefore, a Kawam phoneme with the realization [t͡ʃ~t͡ɕ] likely did not already exist at the time of the change.

Lastly, some Kawam speakers frequently pronounce the retroflex stops /ʈ ɖ/ as postalveolar [t͡ʃ d͡ʒ] or alveolo-palatal affricates [t͡ɕ d͡ʑ] (**Variant 2**). Affrication of the retroflex stops to [t͡ʂ d͡ʐ] also occurs in other PR varieties (Ex. 7-9). However, Ende speakers have noted that they perceive the Kawam phonemes as being pronounced differently to the corresponding set in their own varieties (i.e. not retroflex). Therefore, the two aforementioned sound changes (/d/ > /ɖ/ and /d/ > [d͡ʒ~d͡ʑ]) may have the same result [d͡ʒ~d͡ʑ] for some Kawam speakers, despite the fact that the environments in which they occur are mutually exclusive. For such a speaker, [d͡ʒ~d͡ʑ] could be a reflex of three Proto-PR consonants: /*d/, /*ɖ/, and /*z/.

In this presentation, we illuminate the sound patterns and variations and discuss their interactions within the Kawam system along with a proposal for the proto-PR coronal stop inventory. In doing so, we add to the growing work on Proto-PR reconstruction ([4], [1]) based on empirical data gathered for the documentation and description of these languages ([5]).

	Kawam	Agob	Em	Ende	Idi	Taeme
Pattern 1: Proto-PR /*t, d/ > Kawam /ʈ, ɖ/ (transcriptions are phonemic)						
1 **arrow**	ʈobor	tobor	tobor	təbor	təbəl	tabol
2 **sun**	jəbod	jəbod	jobod	jəbəd	jəbəd	jəbəd
3 **heart**	tikop	tikop	tikop	tikop	tikɪp	tikəp
4 **old**	ɖudne	dudne	dudne	dudne	ɖʷɪdiʈ	ɖʷɪdɪni
Pattern 2: Proto-PR /*d/ > Kawam [d͡ʒ~d͡ʑ] (transcriptions are phonemic)						
5 **yam stick**	[dæd͡ʑe] ~ [d͡ʑæd͡ʑe]	dæde	dade	dade	didi	dæde
6 **ashes**	[id͡ʒɛr]	—	—	—	judir	judir
Variant 2: Realizations of /ʈ ɖ/ across the PR family (transcriptions are phonetic)						
7 **arm**	t͡ʂaŋ ~ t͡ʃaŋ	tɛŋ	taŋ	t͡ʂaŋ	tæŋg	tæŋ ~ t͡ʂaŋ
8 **hot**	tənʈ͡ʂom ~ ʈ͡ʃəntʃ͡əm	tənʈəm	tonʈom	tənʈəm	ʈ͡ʂət͡ʂəm	təʈəm
9 **sky**	ɖapar ~ d͡ʑapar d͡ʒapal ~ d͡ʑapar	ɖapar	ɖapar	ɖapar	ɖapal	ɖapal

[1] Brickhouse, C. & K.L. Lindsey. 2021. "Reconstructing labialized velars in proto-Pahoturi River." APLL Conference. **[2]** Carroll, M.J. et al. 2016. *Yamfinder: Southern New Guinea Lexical Database.* http://yamfinder.com/. **[3]** Evans, N. et al. 2017. "The Languages of Southern New Guinea." In *The Languages and Linguistics of New Guinea: A Comprehensive Guide*, edited by B. Palmer. **[4]** Evans, N. et al., 2019. "Reconstructing liquids in proto-Pahoturi." ICHL. **[5]** Lindsey, K.L. 2015. *Language Corpus of Ende and other Pahoturi River Languages* (LSNG08). PARADISEC. **[6]** Lindsey, K.L. 2019. *Ghost elements in Ende phonology*. Dissertation (Stanford). **[7]** Schokkin, D. et al. 2021. Phonetics and phonology of Idi. In K. Lindsey & D. Schokkin (Eds.), *Phonetic fieldwork in Southern New Guinea*, 76–107.