

Coronal stops in Kawam: sound change and phonetic variation

The Pahoturi River (PR) language family consists of six closely-related varieties (Kawam, Agob, Taeme, Idi, Ende, and Em) spoken by about 4000 people in southern Papua New Guinea (Evans et al., 2017). Approximately 400 words (the Yamfinder wordlist; Carroll et al., 2016) have been collected and transcribed from speakers of all six varieties (Lindsey, 2015). 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.

All PR varieties have obstruent phonemes in two distinct coronal places of articulation, with all sharing the alveolar stops /t d/. However, Kawam has postalveolar affricates /tʃ dʒ/ where the rest of the languages (ATIEM) have retroflex stops /ɬ ɖ/, which are frequently affricated [t~tʃ ɖ~ɖʒ]. Note, however, that the Kawam affricates may be retroflex affricates or stops for some speakers.

Realizations of non-alveolar coronal obstruents across the PR family

	Kawam	Agob	Em	Ende	Idi	Taeme
1 arm	<u>tʃan</u> <u>tʃan</u>	<u>tɛn</u>	<u>tan</u>	<u>tʃan</u>	<u>tɛng</u>	<u>tɛn</u> <u>tʃan</u>
2 hot	<u>tʃɔŋsɔm</u> <u>tʃɔŋtɛm</u>	<u>tɔŋtɛm</u>	<u>tonɔm</u>	<u>tɔŋtɛm</u>	<u>tʃɔŋsɔm</u>	<u>tɔtɛm</u>
3 sky	<u>dapar</u> <u>dʒapar</u> <u>dʒapal</u> <u>dʒapar</u>	<u>dapar</u>	<u>dapar</u>	<u>dapar</u>	<u>dapal</u>	<u>dapal</u>

The Kawam affricates usually map onto ATIEM retroflex stops, but in certain words, Kawam affricates near back vowels map onto ATIEM alveolar stops.

Postalveolar affricate in Kawam, alveolar stop elsewhere (words with +)

	Kawam	Agob	Em	Ende	Idi	Taeme
1 +yesterday	<u>tʃɔtɔm</u>	<u>tɔtɛm</u>	<u>totom</u>	<u>tɔtɛm</u>	<u>tɪtɪm</u>	<u>tɔtɛm</u>
2 +arrow	<u>tʃobor</u>	<u>toɔɔ</u>	<u>toɔɔ</u>	<u>təɔɔ</u>	<u>təbəl</u>	<u>tabol</u>
3 –flying fox	<u>topor</u>	<u>topoɔ</u>	<u>topoɔ</u>	<u>topoɔ</u>	<u>topal</u>	<u>topəl</u>
4 +sun	<u>jəbɔdʒ</u>	<u>jəbɔd</u>	<u>jobod</u>	<u>jəbəd</u>	<u>jəbəd</u>	<u>jəbəd</u>
5 +listen	<u>dʒɔndʒɔn</u>	<u>dəndər</u>	<u>dondor</u>	<u>dəndər</u>	<u>dəndər</u>	<u>dəndər</u>
6 –arrowhead	<u>dompa</u>	<u>dompa</u>	<u>dompa</u>	<u>dompa</u>	<u>dopaj</u>	<u>dopaj</u>

Because this correspondence is not always observed in this vocalic environment, we suggest that the two different outcomes reflect reflexes of two different Proto-PR coronal obstruent pairs. This would mean that Proto-PR had three coronal obstruent pairs in total, unlike modern varieties: alveolar */t d/, retroflex */ɬ ɖ/, and an additional pair of unknown phonetic quality */T D/, perhaps affricates [tʃ dʒ].

Development of Proto-PR coronal obstruents

Proto-PR		Kawam	ATIEM
*t *d		t̪ d̪	t d
*T *D	+back		t d
	-back		
*t *d			

While Proto-PR */t d/ remained /t d/ across the family, the newly-posed */T D/ developed differently in different varieties. In ATIEM, Proto-PR */T D/ merged completely with /t d/. In Kawam, the same merger occurred near front vowels, but reflexes of */T D/ underwent retroflexion near back vowels, merging with the reflexes of Proto-PR */t d/. This must have occurred before the non-retroflex allophones [t̪ d̪] became widespread in Kawam, as retroflex consonants have been observed to pattern with back vowels cross-linguistically (Hamann, 2003). Additionally, we suggest that such a change may have occurred due to language contact. Kawam is known to be in contact with Gidra, an Eastern Trans-Fly language that lacks retroflex phonemes, but has /d̪/ (Shim, 1993).

Lastly, two words that have a voiced alveolar stop /d/ near a front vowel in ATIEM are pronounced with an affricate in Kawam [d̪t̪~d̪t̪], which overlaps with realizations of the already existing phoneme /z/, which is also present in ATIEM. This can be considered a palatalization event separate from the aforementioned changes. No corresponding palatalization has been observed for /t/.

Proto-PR */d/ > Kawam [d̪t̪~d̪t̪]

	Kawam	Agob	Em	Ende	Idi	Taeme
1 yam stick	[d̪t̪æd̪ze]~ [dzæd̪ze]	dæde	dade	dade	didi	dæde
2 ashes	[id̪t̪ɛr]	—	—	—	judir	judir

As a consequence of all aforementioned changes, a single Kawam realization, [d̪t̪], may correspond to three different consonants in ATIEM: /d/, /d̪/, and /z/.

Carroll, M.J. et al. 2016. *Yamfinder: Southern New Guinea Lexical Database*.

<http://yamfinder.com/>. 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. De Gruyter Mouton. Hamann, S. 2003. The Phonetics and phonology of retroflexes, 90–92. Amsterdam: LOT. Lindsey, K.L. 2015. *Language Corpus of Ende and other Pahoturi River Languages* (LSNG08). Digital collection by PARADISEC. Shim, J.W. 1993. *Organized phonology data of Wipi*. Manuscript. SIL, Ukarumpa.