

Where do Central Cushitic ejectives come from?

Paul D. Fallon*

Abstract. This paper examines and accounts for the origin and presence of ejectives in Central Cushitic (CC) languages. Appleyard (2006) claimed that most occurrences of ejectives are due to borrowing from the Ethiosemitic languages. This is certainly true for all ejectives in Kemantney, and some in Blin and Xamtanga. However, examination of Appleyard's data shows that only 37% of ejectives in Blin and 25% of ejectives in Xamtanga are found in borrowings. Most ejectives in CC in these two languages are therefore "of indubitable Agaw origin", which suggests that ejectives are from the proto-language rather than through sound change. This paper analyzes the distribution of ejectives in Appleyard's data and re-examines the consequences for reconstructed forms and probable sound changes.

Keywords. Central Cushitic; ejectives; historical linguistics; reconstruction; sound change; typology

1. Introduction. Historical-comparative reconstructions of the Cushitic languages have included ejectives in their proto-inventories (Dolgopolskij 1973, and Ehret 1987 being the most detailed). A more recent reconstruction of Proto-Cushitic by Bender (2020) includes only one form with an ejective (*k'amb-* 'cold') but it includes a question mark after it, indicating a lack of confidence. And Bender's (2020) second iteration of reconstruction includes no ejectives in Proto-Cushitic. Ehret's (1995) reconstruction of Proto-Afroasiatic (Afrasian) and Orel & Stolbova's (1995) reconstruction both presume ejectives in Cushitic. Because they are skeptical of Cushitic unity, Orel & Stolbova analyze the branches of Cushitic individually, but do reconstruct ejectives for Central Cushitic and several other branches. The first detailed reconstruction of Central Cushitic (Appleyard 2006, which calls the branch Agaw), is an overall excellent work of scholarship. Appleyard observes that glottalized articulation occurs in all Northern Agaw languages and they are a feature of the Ethiopian Semitic languages with which all Agaw languages are in contact. He states the following: "It is clear that most of the occurrences of glottalized consonants in Agaw languages can be explained as contact features, most obviously because they occur in borrowings". For two languages, however, "the situation is not as simple as this in Bilin and Xamtanga, where glottalized consonants occur in lexemes of indubitable Agaw origin." (Appleyard 2006: 17). This paper will investigate the presence of ejectives in Central Cushitic and argue for their reconstruction in Proto-Central Cushitic.

This paper is organized as follows: background on the Central Cushitic languages is given in §2. Section 3 describes the methods used to research the distribution and etymology of ejectives. Detailed findings are presented in §4, first for Blin, then Xamtanga, then Kemantney; Awngi has no ejectives. Results are discussed in §5, and implications for the reconstruction of Central Cushitic are discussed in §6. A brief conclusion is in §7.

2. Central Cushitic. The Central Cushitic family is comprised of four principal languages. Blin, Xamtanga, and Kemantney form the Northern Central Cushitic (or Northern Agaw) languages,

* I am grateful for insightful comments from the abstract reviewers and discussants at the 2024 LSA poster session. Author: Paul D. Fallon, University of Mary Washington (pfallon@umw.edu).

while Awngi is the sole member of the Southern Central Cushitic (or Southern Agaw) branch.¹ Blin (byn) is the sole member of the family spoken in Eritrea, centered in Keren in Senhit Province, with 69,600 speakers in Eritrea (demographics from Eberhard et al. 2024). Tigre (Ti.) is spoken by 70% of the Muslims, while Tigrinya (Tna.) is spoken by 60% of the Christians. Christians and Muslims are about evenly divided, and there is a large degree of intermarriage among the Blin. Xamtanga (xam) has about 224,000 native speakers, 42% of whom are monolingual. The majority is bilingual, either in Amharic in the Averegele district, Lasta and Waag zones, or in Tigrinya in the Tigray region, southeast in the Jirurzba area. Kemantney (ahg) has an ethnic population of 172,000, but only 1,650 L1 speakers and 3,180 L2 speakers (based on 30-year-old census data). Speakers are based in the North Gonder zone, north of Lake Tana. Finally, Awngi (awn) has the most robust population, with over 489,000 native speakers, located in the Amhara region in the Awi and North Gonder zones, southwest of Lake Tana, and in the Metekel zone of the Benishangul-Gumuz region.

Figure 1 below, adapted from Hensinger (1988), shows the historical distribution of the Central Cushitic languages and their relation to adjacent EthioSemitic languages. Blin, in the North, is salmon-colored, and shown between Tigre- and Tigrinya-speaking regions. Xamtanga (in pink) is found along the southeastern border of the Tigrinya-speaking zone, in a predominantly Amharic-speaking area. Kemantney (in red) is shown north of Lake Tana. Awngi (rust-colored) is spoken in the area south of Lake Tana in an Amharic (Amh.)-speaking area. The variety shown as Kaĩliña (brownish red) was intermediate between Xamtanga and Kemantney and is associated with the Beta Israel (Falasha, Ethiopian Jews). Xamir is a variety associated with Xamtanga. Quara is a variety closely associated with Kemantney.

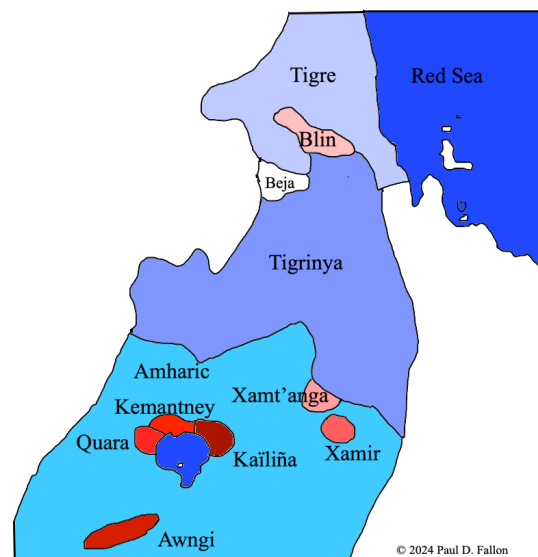


Figure 1. Map of Central Cushitic (in shades of red) and major Ethiosemitic languages (in shades of cyan/purple) (adapted from Hensinger 1988)

¹ The language names used here are different from Appleyard's usage. Blin is native speaker preference for their autonym in Roman script. Kemantney is chosen because that is the name of the language used in Zelealem (2003). Appleyard uses Bilin and Kemant, respectively.

3. Methods. Appleyard’s (2006) *A comparative dictionary of the Agaw languages* was scoured, page by page, for forms in the CC languages which contained ejectives. Each was recorded, with gloss, part of speech, a brief encapsulation of Appleyard’s notes, including etymologies where provided, and page number(s) of occurrence. This was done for each language, sound by sound, from anterior articulation to posterior, and then further subdivided by position within the word (initial, medial, or final). Each ejective was counted and classified separately, so the data in this paper are sound by sound, *not* lexeme by lexeme. A brief selection of examples illustrates the encodings:

Language	Form	Gloss	PoS	Notes	Pg.
Blin	<i>t’äſamb-</i>	‘beat, hit; strike; thresh’	vt	Agaw; cognate with non-ejective forms in X, Kem.-Qu. ²	137
Blin	<i>č’äffär-</i>	‘sing’	vi	from Tna <i>č’äffärä</i>	124
Blin	<i>sank’i</i>	‘liver’	n	PNA <i>*sanq-</i> native	94
Xam.	<i>s’ək’a</i>	‘ten’	num.	PA <i>*cək-a</i>	133
Kem.	<i>t’af-</i>	‘write’	vt	EthSem <i>s’hf</i> , in part. Amh. <i>s’afä/t’afä</i> .	150

Table 1. Sample of coding examples

In the first form, Blin *t’äſamb-* ‘beat’ is a transitive verb found on p. 137 of Appleyard (2006) s.v. ‘thresh’. Appleyard notes that an alternate form (not listed above), Blin *šäwät’ä*, is from Ti. *šäwwät’ä*. However, he notes that “X *tab-* [Chamir *tab-/ṭab-*] and Kem.-Qu. *tamb-* are clearly cognate with B. *t’äſamb-*”, which a native speaker dictionary glosses as ‘beat, hit’, and which Reinisch (1887) glosses as ‘schlagen, dreschen (getreide)’. So the form is native CC, but with variable ejective in X. and lack of ejection in Kem. The second form of Table 1, Blin *č’äffär-* ‘sing’ is analyzed as a borrowing, given its presumed source, the Tna. form *č’äffärä*. Blin *sank’i* ‘liver’ is traced to PNA **sanq-*, a native root which Appleyard reconstructs with an ejective. The fourth item, Xam. *s’ək’a* ‘ten’ appears twice in the full coding set, once for each ejective. Appleyard traces the word to PA **cək-a*, a native, not borrowed, reconstructed root and thus each ejective is coded as native. Finally, Kem. *t’af-* is traced to an Ethiosemitic source, and is therefore considered a borrowing. We turn next to a detailed examination of the data.

4. Data. We begin to examine the data, first in Blin, then in the other languages. Within each language, we begin from most anterior plosive and proceed to posterior articulations, from most to least constriction.

4.1. BLIN. Let us begin our analysis of the distribution of ejectives, beginning with Blin. The results may be found in Table 2, below. “Position” in the Tables refers to the position within the word for the sound in question. The language of the data is explicitly labeled. “NTot” refers to the number of total tokens, and “NEtym” is the number of words for which Appleyard provided an etymology. Those without etymologies were excluded from calculations, but will eventually need further investigation. The label “#EthSem” is the number of forms for which Appleyard

² Abbreviations as follows: Akk. Akkadian, Amh. Amharic, Ar. Arabic, Aw. Awngi, B Blin, Cham. Chamir, CC Central Cushitic, EthSem Ethiosemitic, Heb. Hebrew, HEC Highland East Cushitic, K or Kem. Kemantney, Kham. Xhamta, PA Proto-Agaw, PC Proto-Cushitic, PCC Proto-Central Cushitic, PEC Proto-Eastern Cushitic, PLEC Proto-Lowland East Cushitic, PNA Proto-Northern Agaw, PNCC Proto-Northern Central Cushitic (=PNA), Qu. Quara/Quarenaya, Soq. Soqotri, Ti. Tigre, Tna. Tigrinya, X or Xam. Xamtanga.

has proposed an etymology with Ethiosemitic origin. Finally, “#CC” is the number of forms with a Central Cushitic etymology. The percentages are calculated on the number of etymologies, and whether the etymology was Ethiosemitic or Central Cushitic. Thus 7 of 11 forms of medial /-t’-/ have an Ethiosemitic etymology, giving 63.6 (64)%; 4 of 11 CC forms (36%) are native.

Position	Blin	NTot	NEtym.	# EthSem	%	# CC	%
Initial	t’-	4	3	0	0	3	100
Medial	-t’-	11	11	7	64	4	36
Final	-t’	4	3	3	100	0	0
Total	t’	19	17	10	59	7	41

Table 2. Number and percentage of borrowings with alveolar ejective /t’/ in Blin

The Blin roots with /t’/ not claimed to be of Ethiosemitic origin include initials *t’aſy-* ‘drive (animals)’, *t’äſamb-* ‘hit, strike, beat; thresh’, *t’əfy-* ‘spit’. The medials include *ʔənt’är-* ‘hate’ (though compare Amharic *tälla* ‘hate (v.)’ Leslau 1976: 365), and *fənt’ira* ‘goat’. For the latter, it is tempting to compare Tigrinya *tēl* ‘goat’ (Kane 2000: 2398), and Militarev & Kogan (2005: 298) for forms from Ge‘ez and other languages with initial *t’* and meanings of ‘goat’. These are probably not related, though, given the unusual difference in liquid, the vowel differences, and apparent lack of etymology for the *fən-* component. Furthermore, CC forms include X. *fəč’əra*, Khamta *fi[k’]rā*, K. *fəntāra*, and Aw. *fiyēll*. Additional medial forms include *k’wət’a* ‘wet’ and probably related root *k’wət’ana* ‘green, unripe’.

Next let us examine the occurrence of /č’/ in Blin. 82% of tokens indicate an Ethiosemitic origin.

Position	Blin	NTot	NEtym.	# EthSem	%	# CC	%
Initial	č’-	14	14	13	93	1	7
Medial	-č’-	2	2	0	0	2	100
Final	-č’	1	1	1	100	0	0
Total	č’	17	17	14	82	3	18

Table 3. Number and percentage of borrowings with post-alveolar ejective /č’/ in Blin

Of the initial single form with /č’/, *č’ak’uta* ‘chick, fledgling’, Appleyard (2006: 43) notes many Ethiosemitic cognates (though the second consonant is usually also *č’*), but also similar forms in Cushitic. He cites Sasse (1982: 50), who thinks it is onomatopoeic. In medial position, *bəč’ək’* ‘saliva’ is treated as deriving from PCC **bəsq-*. Compare also the related form *bərč’ək’y-* ‘to spit’.

We turn next to the velar ejectives in Blin, which appear to have an overall 69% occurrence in native roots, as illustrated in Table 4.

Position	Blin	NTot	NEtym.	# EthSem	%	# CC	%
Initial	k’-	19	16	8	50	8	50
Medial	-k’-	15	14	3	21	11	79
Final	-k’	10	9	1	11	8	89
Total	k’	44	39	12	31	27	69

Table 4. Number and percentage of borrowings with velar ejective /k’/ in Blin

In initial position, half of the roots appear to be of Central Cushitic origin. They include *k'af* ‘bark (of tree)’, *k'afəd-* ‘to peel’, *k'anša* ‘straw, stalk’ (which Appleyard reconstructs with some uncertainty as PNA **qanc* ‘straw’?, but he also observes EthSem Tna. **k'anč'a* ‘maize stalk’), *k'as* ‘morning’ (and related root *k'as-* ‘spend the morning’), *k'aš* ‘cheek’, *k'ir* ‘night’, *k'ira* ‘smell’. In medial position, Appleyard reconstructs these as Proto-Agaw or Proto-Northern-Agaw: *ʔäk't-/ʔak't-* ‘be enough’, *ʔänk'ar-* ‘wash o.s.’, *ʔänk'as-* ‘wash’, *ʔank'äy* ‘inside’, *ʔank'i* ‘girl’, *č'ak'uta* ‘chick, fledgling’ (q.v.), *däk'är-* ‘divorce’, *lank'i* ‘tongue’, *nəšk'a* ‘servant, messenger’, *sank'i* ‘liver’, *wänk'är-* ‘ask, request’. In final position are *ʔənšak'-* ‘send’, *ʔamäk'-* ~ *šamäk'-* ‘dirt’, *bəč'ək* ‘spit, *gok* ‘hole’, *lak'-* ‘vomit’, *sədək* ‘sweat’, and *šək* ‘rainy season’.

There are a number of roots with labialized velar ejectives, nearly all of which are of Central Cushitic origin. Results are summarized in Table 5.

Position	Blin	NTot	NEtym.	# EthSem	%	# CC	%
Initial	k ^w '-	14	13	1	8	12	92
Medial	- k ^w '-	15	12	1	8	11	92
Final	- k ^w '	4	4	0	0	4	100
Total	k ^w '	33	29	2	7	27	93

Table 5. Number and percentage of borrowings with labialized velar ejective /k^w/ in Blin

In initial position, there are following: *k'w-* ‘eat’, *k'wal-* ‘see’, *k'war-* ‘anoint o.s.’ and related root *k'was-* ‘anoint, smear’, *k'wāham* ‘charcoal’, *k'wəməš*, *k'wəməšəš* ‘cheek’, *k'wəmba* ‘nose’, *k'wəna* ‘food’, *k'wəra* ‘child, boy’, *k'wət'a* ‘wet’, *k'wət'ana* ‘green, unripe’, *k'wi* ‘wife’. In medial position, the following Blin forms are all reconstructed with PA or PNA forms: *ʔək'wəw* ‘few’, *ʔänk'wa* ‘cough’, *ʔänk'wa₂* ‘ear’, *ʔänk'war-* ‘laugh’, *bək'wəs-* ‘empty’, *däräk'wa* ‘mud, clay; pottery’, *sək'wa* ‘below, beneath’, *sək'wana* ‘thirst’, *sək'want-* ‘be thirsty’, *šäk'wa* ‘wet, fresh dung’, *šik'wa* ‘scorpion’. In final position, there is *šak'w/ʔak'w* ‘water’, *bäk'w-* ‘go sour, curdle’, *šäk'w-* ‘cook’, and *šak'w* ‘stew, sauce’. Next, we turn in §4.2 to data from Xamtanga.

4.2. XAMTANGA. Xamtanga is a Northern Central Cushitic language with many ejectives. The data for /t'/ is provided in Table 6.

Position	Xamtanga	NTot	NEtym.	# EthSem	%	# CC	%
Initial	t'-	10	7	2	29	5	71
Medial	-t'-	9	7	4	57	3	43
Final	-t'	9	8	4	50	3	38
Total	t'	27	21	10	48	11	52

Table 6. Number and percentage of borrowings with alveolar ejective /t'/ in Xamtanga

Some of the Xamtanga ejectives vary with (indicated by the tilde ~) non-ejective counterparts. We will postpone discussion of this variation until §6. Among the lexemes with alveolar ejective /t'/ are: *taz-* ~ *t'az-* ‘hit, strike’, *t'əw-* ‘enter’, *t'əwš-* ‘marry (of a man)’, *t'əws-* ‘marry (of a woman)’. In medial position, *ət'əŋ* ‘little, small’, *fät's-* ‘spread out’, *q'wət'an* ‘wet’. In final position: *bət* ‘soil, earth, dust; land, ground’, *fäwt* ~ *fäwt'* ‘breath, soul, life’, *jət* ‘backside’, and *wət* ‘run’.

The alveolar ejective fricative /s'/ is found only in Xamtanga. Appleyard’s data contain 59 tokens of it, almost all of which have an etymology. In final position, nearly half (43%) of tokens

with *s'* are of Ethiosemitic origin, but overall, 77% are of CC origin. The details of distribution may be found in Table 7, below.

Position	Xamtanga	NTot	NEtym.	# EthSem	%	# CC	%
Initial	<i>s'</i> -	38	36	6	17	30	83
Medial	- <i>s'</i> -	14	13	4	31	9	69
Final	- <i>s'</i>	7	7	3	43	4	57
Total	<i>s'</i>	59	56	13	23	43	77

Table 7. Number and percentage of borrowings with alveolar ejective /*s'*/ in Xamtanga

Lexical items with initial /*s'*/ in Xamtanga include *s'əb*- 'live, dwell, stay, remain', *s'əbk'a* 'hair', *s'əč' y*- 'spit', *s'əgləwa* 'star', *s'əg'āna* 'young woman', *s'ək'a* 'ten', *s'amər* 'tail', *s'əŋw*- 'steal', *s'əŋ'āta* 'thief', *s'əs'a* 'fly', *s'əs'ba* 'termite', *s'əws*- 'be sick, ill', *s'əwza* 'sickness, disease', *s'ab* 'milk', *s'ab*- 'do, make', *s'abb* 'shoe, sole of the foot', *s'abbənāw* 'heel', *s'abra* ~ *s'əbra* 'ashes', *s'agəb* 'left side', *s'ak'a* 'grass', *s'ama* 'shade, shadow', *s'aŋ*- 'walk', *s'aq*- [2] 'sew', *s'aaqw* 'stew, sauce', *s'ar*- 'swear an oath', *s'ara* 'oath', *s'arāw* 'white', *s'ay*- ~ *s'əy*- 'have, hold, take', *s'ayč'a* 'nine', and *s'ayč'ärŋən* 'ninety'.

In medial position, there are the following items: *əs'a* 'curse', *əs'aq*- 'send', *əs'w*- 'tie, bind', *bəs'a* 'yellow', *bəs'qən* 'saliva', *has'a* 'leaf', *s'əs'a* 'fly', *s'əs'ba* 'termite', *wäs'a* 'hide for sleeping on', and *xəs'a* 'worm'. In final position: *əs*- 'curse', *gas* 'face', *las*- 'shave', and *ŋas* 'bone'.

Next is Xamtanga /č'/, almost all of which (90%) are native roots. Nearly one-third (31%) of these ejectives did not have an etymology posited by Appleyard, so this certainly merits further investigation. Details of distribution may be found in Table 8.

Position	Xamtanga	NTot	NEtym.	# EthSem	%	# CC	%
Initial	č'-	17	11	0	0	11	100
Medial	-č'-	10	8	2	25	6	75
Final	-č'	2	1	0	0	1	100
Total	č'	29	20	2	10	18	90

Table 8. Number and percentage of borrowings with post-alveolar ejective /č'/ in Xamtanga

In initial position of /č'/, the lexical items of probable Central Cushitic origin include: č'- 'spend the night', č'äč'wa 'Vervet monkey', č'āw- 'ask for, beg, pray', č'an [2] 'male (animal)', č'əŋ 'call', č'əqa 'bad', č'əwa 'salt', č'əwa [2] 'scorpion', č'a 'urine', č'aq- 'urinate', č'ara 'rainy season', and č'wara 'hoe'. In medial position: əč'əwa 'mouse, rat', fəč'əra 'goat', ŋəč'ər 'black', s'ayč'a 'nine', s'ayč'ärŋən 'ninety', and xəč'əla 'claw, fingernail'. In final position, there is one lexeme: nəč' 'today'.

Table 9 shows Xamtanga /k'/. Over two-thirds to three quarters of forms with this ejective may be traced to Central Cushitic origin.

Among the lexical items are, in initial position: *k'äb*- 'cut', *k'än*- 'love, like', *k'äs'aw* 'good', *k'äš*- 'spend the morning', *k'əw*- 'kill', *k'əyän* ~ *qəyän* 'marriage, wedding', *k'ana* 'wood', *k'ar y*- 'be angry', *k'aw*- 'lead, guide', and *qəy*- ~ *k'əy*- 'sell'. In medial position: *ək'k'a* 'leech', *ak'ət* 'grey hair', *mik'äk* 'chin', *sək'ma* 'barley', *s'əbk'a* 'hair', *s'ək'a* 'ten', *s'ak'a* 'grass', *wik'a* 'hyena', and *zək'äw*- 'be heavy'. In final position: *ək* 'people', *ənk* 'all', *bəč'ək* 'many', *mik'äk* 'chin', *wik* 'word', and *witrək* 'always'.

Position	Xamtanga	NTot	NEtym.	# EthSem	%	# CC	%
Initial	k'-	20	16	5	31	11	69
Medial	- k'-	14	12	3	25	10	75
Final	- k'	6	6	0	0	6	100
Total	k'	40	34	8	24	27	79

Table 9. Number and percentage of borrowings with velar ejective /k'/ in Xamtanga

We turn next to the distribution of the very rare *k^w'* in Xamtanga in Table 10:

Position	Xamtanga	NTot	NEtym.	# EthSem	%	# CC	%
Initial	k ^w '-	0	0	0	0	0	0
Medial	- k ^w '-	1	1	0	0	1	100
Final	- k ^w '	2	1	0	0	1	100
Total	k ^w '	3	2	0	0	2	100

Table 10. Number and percentage of borrowings with velar ejective /k^w'/ in Xamtanga

In medial position, the word *sək^w'äta* 'axe' is analyzed as Proto-Northern Agaw. In final position, *sak^w'* 'sacrifice (animal)' is also PNA in origin. One other alternating form, *wit-u ~ witək^w'* 'be small, few' has no explicit etymological analysis by Appleyard, and is thus excluded from the analysis here. However, its similarity to B. *ɬək^w't-əw* suggests possible metathesis among its changes and thus could be PNA.

4.3. KEMANTNEY. According to Appleyard's analysis, all ejectives in Kemantney are of Ethiose-mitic origin. The results for /t'/ are shown in Table 11.

Position	Kemantney	NTot	NEtym.	# EthSem	%	# CC	%
Initial	t'-	3	3	3	100	0	0
Medial	- t'-	2	2	2	100	0	0
Final	- t'	2	2	2	100	0	0
Total	t'	7	7	7	100	0	0

Table 11. Number and percentage of borrowings with alveolar ejective /t'/ in Kemantney

The results for /č'/ are shown in Table 12, below:

Position	Kemantney	NTot	NEtym.	# EthSem	%	# CC	%
Initial	č'-	3	3	3	100	0	0
Medial	- č'-	3	3	3	100	0	0
Final	- č'	0	0	0	0	0	0
Total	č'	6	6	6	100	0	0

Table 12. Number and percentage of borrowings with post-alveolar ejective /č'/ in Kemantney

The velar ejective data are shown in Table 13:

Position	Kemantney	NTot	NEtym.	# EthSem	%	# CC	%
Initial	k'-	3	3	3	100	0	0
Medial	- k'-	4	4	4	100	0	0
Final	- k'	3	3	3	100	0	0
Total	k'	10	10	10	100	0	0

Table 13. Number and percentage of borrowings with velar ejective /k'/ in Kemantney

4.4. AwnGI. This brief section serves as a reminder that AwnGI, also known as Southern Agaw or Southern Central Cushitic, does not have ejectives in its phoneme inventory in native vocabulary.

5. Summary of data. Table 14 shows the number of total forms for which Appleyard has proposed an etymology or made comments about a word origin. The overall data show 88% of forms have an etymology. Even with 12% unanalyzed, it is unlikely additional etymologies would change the overall patterning of the data.

Sound	Blin	Xamtanga	Kemantney	Total
N etymologies	102	133	23	258
N total forms	113	158	23	294
Total %	90%	84%	100%	88%

Table 14. Number and percentage of ejective forms with etymologies (all data)

The data in Table 15 show by sound the percentage of ejectives which are borrowed in Appleyard's analysis. In Blin, 82% of forms with č' are borrowed, followed by t' (59%), k' (31%), and k^w' (7%). In Xamtanga, 48% of forms with t' are borrowed, followed by s' and k' (both 23%), and č' at 10%. In Kemantney, all ejectives are borrowed. In Blin, over one third (37%) are borrowed, and in Xamtanga, one in four ejectives (25%) are in borrowings.

Sound	Blin	Xamtanga	Kemantney
t'	59%	48%	100%
s'	—	23%	—
č'	82%	10%	100%
k'	31%	23%	100%
k ^w '	7%	0%	—
N borrowed	38	33	23
N total	102	133	23
Total %	37%	25%	100%

Table 15. Percentage of **borrowed** forms with ejectives and etymologies (all data)

The converse percentage of native forms with ejectives is as follows. In Blin, 93% of forms with k^w', 61% with k', 41% with t', and 18% of forms with č' are native Central Cushitic forms. In Xamtanga, 100% of forms with k^w', 90% of forms with č', 77% with k', and 52% of forms with t' are native Central Cushitic forms. In Kemantney, no forms with ejectives are native. These results are shown below in Table 16.

To reiterate, only 25% of Xamtanga ejectives and 37% of Blin ejectives are found in borrowings (with around three dozen tokens for each language). The bottom line is in Blin, 63% of words with ejectives, some 64 in Appleyard's dictionary, are native. And in Xamtanga, 75%, or

100 words with ejectives are native Central Cushitic. The situation is thus not as Appleyard stated when he said that “most of the occurrences of glottalized consonants in Agaw languages can be explained as contact features” (2006: 17). There are in fact several score of native roots which contain ejectives. Ejection is thus not a diagnostic for borrowings due to contact. And this suggests the need for a more careful examination of the origin of Central Cushitic ejectives, which is the subject of the next section.

Sound	Blin	Xamtanga	Kemantney
tʼ	41%	52	0
sʼ	—	77	—
čʼ	18%	90	0
kʼ	61%	77	0
kʷʼ	93%	100	—
N native	64	100	0
N total	102	133	23
Total %	63%	75%	0%

Table 16. Percentage of **native** Central Cushitic forms with ejectives and etymologies

6. Central Cushitic reconstruction.

6.1. EJECTIVIZATION. Appleyard (2006) reconstructed Proto-Central Cushitic (PCC), which he called Proto-Agaw (PA). Convinced that most ejectives were borrowed through language contact, his reconstruction contains no PCC ejectives. Among the four major language pillars of his reconstruction (Blin, Xamtanga, Kemantney, and Awngi), this is true for native words in Awngi, which lacks ejectives. And among the Northern Agaw languages, in Kemantney, he is totally correct, assuming his identifications of borrowed forms are accurate (and we have no reason to doubt his judgment given his expert knowledge of Amharic and other Ethiosemitic languages, and fieldwork in CC and other Cushitic languages).

In this account, how did ejectives come to appear in Blin and Xamtanga? Because not all ejectives are in borrowings, the logical conclusion is that the feature of glottalization (ejectivization) spread through the lexicon of the two languages in a sporadic manner, affecting some 64 cases in Blin, and 100 in Xamtanga. (The number of lexemes affected would be smaller due to some roots having more than one ejective). The introduction of ejectives into the lexicon may thus have been due to a type of hypercorrection in a bi- or multilingual speech community.

Zealelem (2020: 554) notes that in Kolisi (better known in the literature by the pejorative xenonym Kunfāl), a language very close to Awngi, “ejectives are known only from Amharic loanwords and are replaced by the non-ejective counterparts by monolingual speakers as in *k’et’o* > *keto* ‘green pepper’, *tʃ’amma* > *tʃami*, ‘shoe’, *bak’ela* > *bakela* ‘bean’; *atʃ’tʃ’ed* > *atsed* ‘harvest’, *märrat* > *meret* ‘choose’, and *tʃ’äw* > *tʃiwi* ‘salt’.” Thus the monolingual Kolisi speakers represent one end of a continuum: complete lack of ejection in native and non-native vocabulary. In Awngi, ejectives appear only in Amharic loanwords (Zealelem & Yaregal 2023: 147). The same appears to be the case in Kemantney, where ejection occurs, but only in loanwords, e.g. *bis ät’jamot* ‘greedy’ (from Amharic, Zealelem 2002: 6). Blin has ejectives in loanwords and also in native vocabulary.

We may be seeing the continual spread of ejectives through the lexicon in Xamtanga. As Appleyard (2006: 17) points out, where older works by Reinisch on Chamir show a form with no glottalization, Xamtanga has a glottalized variety, e.g. *sʉn* /səŋʷ-/ vs. Xamtanga *s’əŋʷ*- ‘steal’. In

addition, there are other instances of apparent historical change which give rise to free variation, e.g. *t'əw-* ~ *təw-* ‘enter’, *t'əya* ~ *təya* ‘smoke’, etc. Xamtanga has the greatest number of native roots with ejection, and, in the ejection model, it would represent the most robust end of the continuum. It may also help to account for the great number of correspondence sets involving ejection, many of which are represented by only a few tokens, as shown in Table 17, which contains only the major Central Cushitic languages Blin and Xamtanga. I have mostly omitted the minor dialects, especially Khamta, Chamir, Quara, Kaïliña, in order to provide a simpler overview.

Set	Blin	Xam.	N	Example
t' t'	t'	t'	2	<i>k^w'əta/q^w'ət-n</i> ‘(be) wet’
t' t	t'	t	2	<i>t'əf-y-/təf-y-</i> ‘spit’
t t'	t	t'	2	<i>təw-/t'əw-</i> ‘enter’
t' č'	t'	č'	1	<i>fənt'ira/fəč'əra</i> ‘goat’
č' č'	č'	č'	1	<i>č'ak'uta /č'āč'utān</i> (Kham.) ‘chick’
č' s'	č'	s'	2	<i>bəč'ək'/bəš'qən</i> ‘saliva’
k' q	k'	q	13	<i>k'af/qaf</i> ‘bark (of tree)’
k' x	k'	x	2	<i>k'ir/xar</i> ‘night’
k č'	k	č'	1	<i>k-/č'-</i> ‘spend the night’
k ^w ' x ^w	k ^w '	x ^w	3	<i>k^w'-/x^w-</i> ‘eat’
k ^w ' q ^w	k ^w '	q ^w	5	<i>ʔənk^w'ar-/əq^wär-</i> ‘laugh’
k ^w ' q	k ^w '	q	5	<i>k^w'al-/qal-</i> ‘see’
h s'	h	s'	3	<i>həmb-/s'əb-</i> ‘live, dwell’
š s'	š	s'	31	<i>šəbka/s'əbk'a</i> ‘hair’
s s'	s	s'	5	<i>sāx-/s'aq</i> ‘sew’
š č'	š	č'	10	<i>ši-w-/č'äw-</i> ‘ask for, beg’
k k'	k	k'	17	<i>kāb-/k'āb-</i> ‘cut’
k k ^w '	k	k ^w '	1	<i>suk-/sak^w'-</i> ‘sacrifice (animal)’
k ^w k ^w '	k ^w	k ^w '	1	<i>sänk^wätä/sək^w'äta</i> ‘axe’

Table 17. Native correspondence sets with ejectives (primarily Blin and Xamtanga)

The principal sound change required in this scenario would have a voiceless consonant as input and add ejection—phonologically, the feature [constricted glottis]. This process does happen allophonically in English in word-final position, especially velars (e.g. Wells 1982: 261; Gordeeva & Scobbie (2013). The process can happen in loanword adaptation, as when the Greek voiceless series gets mapped to ejectives in Ge‘ez, as in Greek *ekklēsía* to *'äklesya* ‘church’), or Russian *bank* to Georgian *bank'i* ‘bank’. However, this is not the case in Central Cushitic, where native lexemes are acquiring ejection.

6.2. DEGLOTTALIZATION. An alternate point of view was first sketched by Fallon (2009, 2015). This posits that Proto-Central Cushitic had ejectives, which were subsequently lost in two of the major CC languages, Awngi and Kemantney. Three major arguments in favor of this involve (1) phonetic naturalness, (2) reliance on cognates in other Cushitic languages, and (3) simplicity or Occam’s Razor due to the majority of roots with ejection being native.

Regarding phonetic naturalness, deglottalization is a very common process, more so than glottalization (Fallon 1998/2002). The change simply involves the loss of a marked feature such

as [+constricted glottis]. Loss of ejection is especially common when accompanying lenition such as spirantization. For aerodynamic reasons, ejective fricatives are far rarer than stops or affricates. And this is precisely what we see from the correspondence sets in Table 17. The most common correspondence is between Xamtanga /s'/ and Blin /š/. Appleyard reconstructs PNA *c, the alveolar affricate [ts]. However, I would treat it as *ts', with deaffrication in Blin, coupled with loss of ejection on the fricative, and shift of articulation to postalveolar in Blin. A similar set of changes are mirrored in the affricate *tʃ', which is unchanged in Xam. but which also deaffricates and deglottalizes, resulting in Bil. š.

Another set of alternations required in this model is to account for the correspondence between Blin velar ejective and Xamtanga voiceless uvular, of which I have found 23 cases for stops. The alternation between velar ejective and uvular stop is reminiscent of Proto-Semitic. The older view of sound change in EthSem is from uvular to velar ejective (Trumpp 1874:518; Leslau 1945: 63). The alternate view is that Proto-Semitic had glottalized *q* (i.e. [k']) (Brockelmann 1908: 121; Grimme (1909: 242), and that emphatics were originally glottalized (Bergsträsser 1928: 5). The shift from glottalization to pharyngealization in Arabic, for example, results in the uvularization of the velar stop, from PS *k' > Ar. *q*. This is now the mainstream view (Faber 1980; Zemánek 1996; Dolgopolsky 1999; Kogan 2011; Huehnegard 2019), though some scholars believe pharyngealization was original (e.g. Lipiński 2001). So, which is the case in Central Cushitic?

Appleyard argues that the change of **q* > *k'* is recent. Neither Palmer (1960) nor Lamberti & Tonelli (1997) report a uvular realization of B /k'/. Fallon (2001: 52) reports that B velar ejectives can be allophonically realized as uvulars after back vowels (e.g. *šamak'* ~ *šamaq'* 'dirt', and before back vowels (e.g. *k'ufa* ~ *q'ufa* 'sand'). This suggests that the change might be from PCC *k' > *q* in other CC languages, with Blin *k'* > *q* being allophonic and more recent. Qiangic languages have also been argued to undergo a change from velar to uvular in Tangut (Gong 2020; Van Way 2018). Darmon (2023: 375) notes that the uvular stop in Xamtanga is "always realized as [q] in the speech of Abergelle, but optionally glottalized in other dialects." The optional glottalization could be interpreted as either an original feature, confirming the original glottal status, and showing a shift in place from velar to uvular was independent. Or one might view this data as supportive of the ejectivization hypothesis, showing increasing spread of ejection throughout non Abergelle Xamtanga.

The second main argument in favor of the deglottalization approach involves examining roots with CC ejectives and comparing them to other Cushitic and Afroasiatic languages. Appleyard (2006) includes possible cognates from Cushitic, Omotic (and sometimes other) languages in his dictionary. For example, there is an extensive note under 'chick, fledgling' in which the Agaw forms are cognate with forms not only in Ethiosemitic, but several other Cushitic languages as well. In Central Cushitic: Blin *č'akuta*, Kham. *čāčutān* Qu. *šaršuna*, Kem. *šaršuna*; Ethsem. Ti *č'ač'ut*, Tna. *č'ax^wət*, Amh. *č'ač'ut* (and other forms in Leslau 1963: 50); other Cushitic languages such as Saho *č'aač'utta*, Or. *č'ač'u*, *č'uč'oo*, *č'uč'ii*, Qabenna *č'uwač'uwēta*, Hadiyya *č'iič'oola*, Sidamo *č'aač'č'urre*, *č'ač'ute*, Gidole *č'aač'uutet*.

To take another example, 'eat' is a word found on both the Leipzig-Jakarta list of words least commonly borrowed (Haspelmath & Tadmor 2009) and the traditional Swadesh list (1971). In the CC data, it is a monoconsonantal root: Blin *k^w'*, X. *x^w'*, Kem. *x^w'*, Aw. *yú-/y^w'* (where the Awngi *y* is actually the voiced uvular stop [ɣ] or fricative [ʁ], Joswig 2010). Appleyard believes it is probably cognate with PEC *-*k'm-/k'aam-*, citing Burji *k'aam-*, Konso *k'om-*, Gologano *qan-* 'chew' (and Afar *-okm-*, Dhassanac *kóm* ('eat!'), Redille *aḥam-/uḥum-*), with data from Sasse

1982:121-122). Ehret (1987) provides PLEC **k'(o)m-* ‘to chew, bite’, and suggests the Yaaku -*eq-* ‘to drink’ with PC **-kʷ-* ‘to swallow’.

In another example, Appleyard compares Blin *k'af* with Xamtanga *qaf* and Awngi *qap* ‘(tree) bark’ to reconstruct PA **qaf*. Bender’s (2020) PC has **ka(L)f-*, allowing comparison with Core East Cushitic **k'olf-*, HEC *k'unc-*, Dullay **qaq-*, PSC **qaf-oo*, and Dahalo *pak'* (with metathesis, cf. Appleyard’s citation of a form of Awngi with *paq*). Bender goes on to consider this an Afrasian retention, comparing Berber *krp* (which has no ejectives), Proto-Semitic **k'rp* (Proto-Ethiosemitic *k'arf+it*, Akk. *qulpu*, Heb. *qəlaf*, Ar. *qirfah*, Soq. *qalyof*), and Proto-Chadic *krp*, *kbr*.

The three detailed examples above show the utility of comparing data from other branches of Cushitic and Afroasiatic and lend greater weight to the hypothesis that Central Cushitic should be reconstructed with ejectives. For additional data, Fallon (2009) looked at 25 roots with velar ejectives and Fallon (2015) looked at 21 roots with coronal ejectives.

The third major argument in favor of a deglottalization model of PCC is simplicity. Since nearly two-thirds of ejectives in Blin and three-quarters of ejectives in Xamtanga are in native roots, it is far easier to account for the distribution of these forms. Likewise, a universal loss of glottalization as a distinctive feature is also easier to state for Awngi and Kemantney.

7. Conclusion. This paper has reviewed in detail the entries in Appleyard (2006) which have ejectives, focusing on those for which Appleyard did not offer an etymology of Ethiosemitic origin, and which had cognate forms in Central Cushitic. A new finding here is that a minority of forms with ejectives were Ethiosemitic borrowings, and therefore a majority of ejectives were in native Agaw forms. After examining their distribution in great detail, we turned to look at two main hypotheses regarding ejectives in PCC. One view is that Blin and especially Xamtanga have spread ejection through the lexicon, and it is therefore not reconstructible in PCC. The other view, postulated here, is that PCC had ejectives, which were deglottalized in Kemantney and Awngi.

There is always a judgment call in historical linguistics, especially given the time the time depth of Proto-Cushitic, which Ehret (n.d.) estimates at 8600 years before present. Blažek (2014: 298) calculates the split between North and South Central Cushitic is estimated to be 800 BCE, and the split between Kemantney and Quara vs. Blin and Xamtanga at 420 CE. Ehret (n.d.) pushes the time depth greater, with the Awngi/PNCC split some 4700 years before the present, and Blin splitting some 2900 years ago. Another complicating factor is that being a marked series, ejectives tend to be relatively infrequent in the lexicon, so the number of reconstructible forms is relatively small. In addition, there are numerous sound changes which must be sketched out, such as the variable uvular articulations in various CC languages.

Future work on this matter should cross-check the entries designated Ethiosemitic in Appleyard (2006). Forms which may well be Central Cushitic, but which have no etymologies, could be researched. Finally, future scholarship must try to make more precise the various strata of vocabulary and borrowing, and refine the phonological changes in order to account for the different cognate sets. The significance of this research has been to challenge the assumptions that most Central Cushitic ejectives are due to borrowings. Their robust presence in some of the Central Cushitic languages can inform a more precise reconstruction of Proto-Cushitic.

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