

Unicode request for barred letters

Kirk Miller, kirkmiller, gmail

2024 November 13

Timothy Usher, timothyusher, gmail

Denis Moyogo Jacquerye, moyogo, gmail

This proposal is for additional support for letters derived from a convention, once common with manual typewriters, of overstriking a letter with a raised underscore (or, in the case of narrow letters, a hyphen) to create a new symbol, typically for a fricative or some similar phonetic derivation of the base letter. These “barred” letters are required for the digitization of several decades of field notes, for example Laycock’s and Z’graggen’s data on the languages of New Guinea, which have been faithfully replicated with barred letters in publication. Several barred letters are found in the Spanish phonetic alphabet devised by the *Revista de Filología Española* (RFE), which is widely used for linguistic work in Spain and Mexico, as well as in Slovak and other transcription systems. They have also entered into orthographies, so a few have casing pairs. Unicode currently supports the following baseline Latin letters with a bar or similar stroke: Ǽ B̄b ᄁ C̄c Đđ Ďď Ēe F̄f Ḡg H̄h H̄i Īi J̄j K̄k L̄l L̄í Ōo Ōo P̄p P̄p Q̄q R̄r S̄s f̄ T̄t ᄃ ᄄ Ūu Ūu Ȳy Z̄z .

Overstriking was once a common typewriter remedy for fricatives, for example with the $\langle \text{p̄} \text{ t̄} \text{ c̄} \text{ j̄} \rangle$ that are currently supported by Unicode. Oblique strokes are treated distinctly in Unicode, for example U+024D $\langle \text{r̄} \rangle$ R WITH STROKE vs U+A7A7 $\langle \text{r̂} \rangle$ R WITH OBLIQUE STROKE, so proposed $\langle \text{n̄} \rangle$ should not be unified with U+A7A5 $\langle \text{n̂} \rangle$ N WITH OBLIQUE STROKE.

$\langle \text{m̄} \rangle$ and $\langle \text{n̄} \rangle$ in particular are needed by one of us (Usher) for online presentation of data from field notes of the Papuan language Waffa. Barred letters in field notation are a recurring problem in digitizing manuscripts of the Papuan languages we have worked with, and also occur with South American languages. Neither combining diacritics nor existing atomic Unicode characters properly replicate field notation in online databases.

There are some attested letters that we do not propose. For instance, a number of minority languages of Russia once had Latin-script alphabets with letters such as barred gha $\langle \text{᠒ᠣᠯ} \rangle$, but these alphabets are no longer used and there appears to be little if any need for digitization. More recently, Colarusso used a reversed barred lambda or barred turned y, $\langle \text{λ̄} \rangle$ or $\langle \text{ȳ} \rangle$ (Figure 2), but says (p.c. 2023) that he no longer needs that symbol, and we’re not aware of anyone who does.

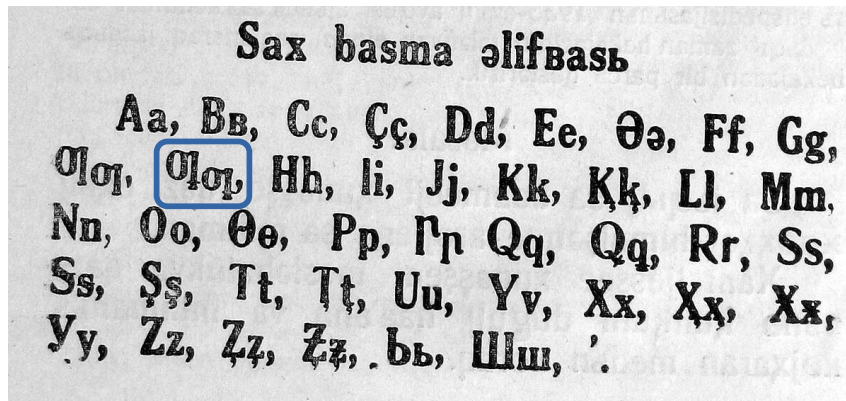


Figure 1. The Tsakhur Latin alphabet of the early 1930s. There are a number of letters with a stroke, including a *gha* <ǧǧ> casing pair (blue) that we have seen nowhere else, as well as <Xx> and <Zẓ>, but we are not aware of any need for digitization of material printed in this alphabet.

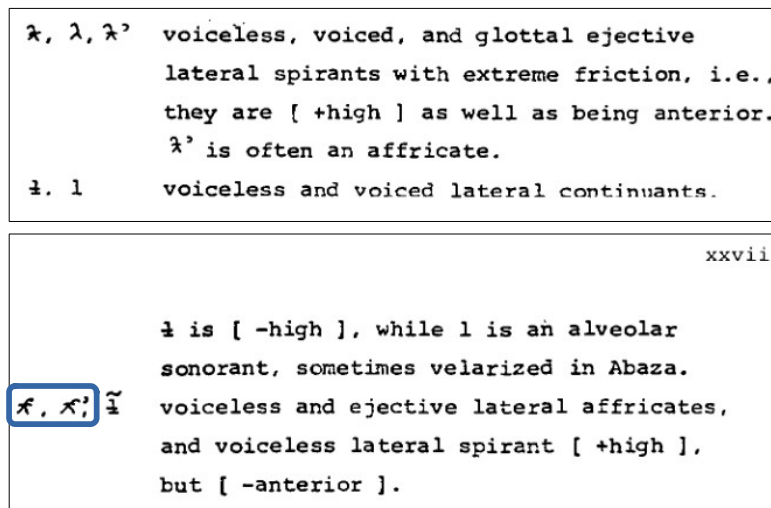


Figure 2. Colarusso (1988: xxvii). Reversed barred lambda <λ̣> for [ɬ̣] (blue) contrasts with barred lambda <λ> for [ɬ] and barred el <ɬ̣> for [ɬ̣]. The author states that he no longer needs the reversed letter, and we know of no other source that uses it.

For barred *g* with palatal hook, we feel that we lack sufficient attestation to argue for a distinction between script and print *g* forms. We therefore request simply ‘*g* with stroke and palatal hook.’ We use a script form <ǧ̣> in the chart, following the chart form of <ǧ̣> U+1D83 LATIN SMALL LETTER G WITH PALATAL HOOK as well as most of the attested literature. We use the bowl-struck <ǧ̣> of Scandinavian dialect transcription, both because it is more recent than the old IPA tail-struck form <ǧ̣>, and because it is more legible.

Naming

Letters with a mid-height stroke across their width we call “BARRED X,” distinguishing them from letters with shorter strokes across a stem that in Unicode are generic “X WITH STROKE.” The only Latin-script letters currently with the word “barred” in their names are ⟨a b e⟩, all with a mid-height stroke spanning the width of the letter, so this convention would consistently associate a specific type of stroke to the word “barred.” Thus we propose BARRED H ⟨h̄⟩ to distinguish it from U+0127 H WITH STROKE ⟨h̃⟩, and similarly BARRED K ⟨k̄⟩ from U+A741 K WITH STROKE ⟨k̃⟩, keeping the character names short. Proposed TURNED R WITH STROKE ⟨r̄⟩, with a short stroke across the stem, copies the generic phrasing of U+024D R WITH STROKE ⟨r̃⟩. A letter such as Fraktur ⟨w̄⟩ (Figure 3), if it were ever encoded, might be named “w WITH (LEFT) STROKE” to distinguish it from U+1DF3 BARRED w ⟨w̄⟩.

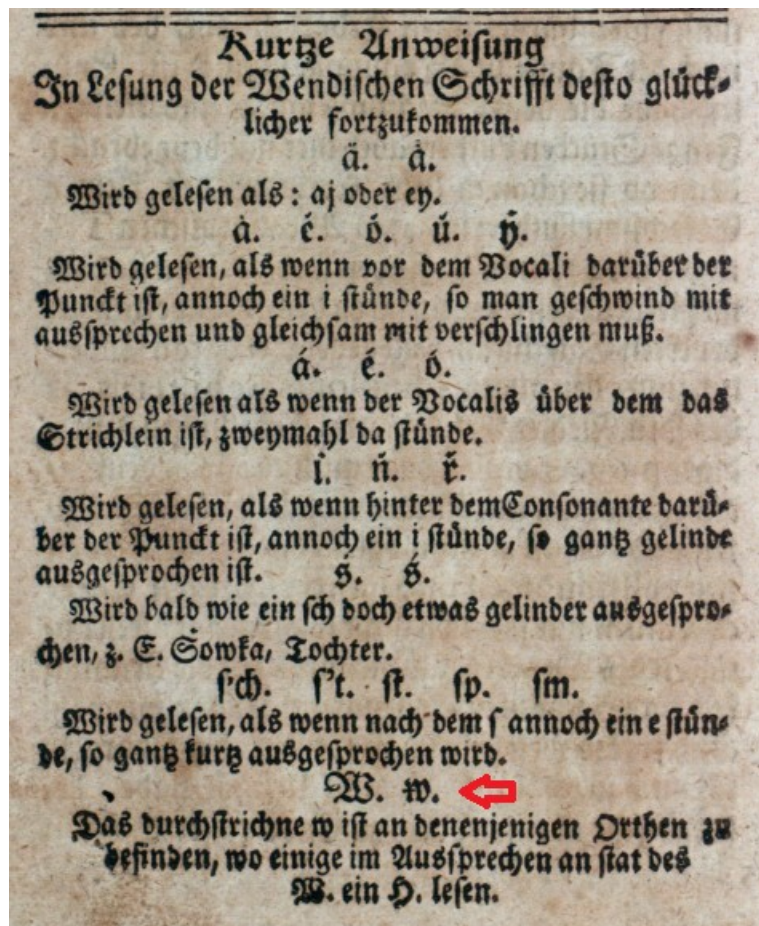


Figure 3. The German foreword of a 1739 Sorbian catechism explaining the letter ⟨W̄ w̄⟩, which might be named w WITH (LEFT) STROKE. (The typeface is Fraktur, but that is not relevant for Unicode.) However, the letter is so obscure that scholars working on Sorbian manuscripts do not feel they need it, and in any case they can replace it in digitization with plain ⟨W w⟩ (Sebastian Kempgen, p.c. 2021), so we do not propose it for Unicode.

Characters

À	1DF40 LATIN CAPITAL LETTER BARRED A. Figure 8 <i>ff</i> .
á	1DF41 LATIN SMALL LETTER BARRED A. Figure 4 <i>ff</i> .
ø	1DF42 LATIN SMALL LETTER BARRED OPEN O. Figure 12 <i>ff</i> , Figure 64.
Ē	1DF43 LATIN SMALL CAPITAL BARRED E. Figure 12 <i>ff</i> .
ē	1DF44 LATIN SMALL LETTER BARRED OPEN E. Figure 12 <i>ff</i> .
ĝ	1DF45 LATIN SMALL LETTER G WITH STROKE AND PALATAL HOOK. Figure 60 <i>ff</i> .
ĥ	1DF46 LATIN SMALL LETTER BARRED H. Figure 44 <i>ff</i> , Figure 49.
ĥ̂	1DF47 LATIN SMALL LETTER BARRED H WITH HOOK. Figure 44, Figure 47.
Ķ	1DF48 LATIN CAPITAL LETTER BARRED K. Figure 14 <i>ff</i> , Figure 20.
ķ	1DF49 LATIN SMALL LETTER BARRED K. Figure 17 <i>ff</i> .
Ṁ	1DF4A LATIN CAPITAL LETTER BARRED M. Figure 38 <i>ff</i> , Figure 57.
ṁ	1DF4B LATIN SMALL LETTER BARRED M. Figure 25 <i>ff</i> .
Ṃ	1DF4C LATIN SMALL LETTER BARRED M WITH HOOK. Figure 35 <i>ff</i> .
Ṇ	1DF4D LATIN CAPITAL LETTER BARRED N. Figure 32, Figure 38 <i>ff</i> , Figure 58.
ṇ	1DF4E LATIN SMALL LETTER BARRED N. Figure 21 <i>ff</i> .
ṯ	1DF4F LATIN SMALL LETTER BARRED ENG. Figure 35 <i>ff</i> , Figure 43.
Ꞥ	1DF50 LATIN SMALL LETTER TURNED R WITH STROKE. Figure 50 <i>ff</i> .
Ṽ	1DF51 LATIN CAPITAL LETTER BARRED V. Figure 57 <i>ff</i> .
ṽ	1DF52 LATIN SMALL LETTER BARRED V. Figure 53 <i>ff</i> .
Ϸ	1DF53 LATIN SMALL LETTER BARRED CLOSED OMEGA. Figure 64.
χ̄	1DF54 LATIN SMALL LETTER BARRED CHI. Figure 66 <i>ff</i> .
ȳ	1DF55 LATIN SMALL LETTER Y WITH LOW STROKE. Figure 65.
Ꞥ̄	1DF56 LATIN LETTER GLOTTAL STOP WITH DOUBLE STROKE. Figure 48 <i>ff</i> .

Modifier letters

ḃ	1DFD2 MODIFIER LETTER SMALL B WITH STROKE. Figure 68 <i>ff</i> .
ḋ	1DFD3 MODIFIER LETTER SMALL D WITH STROKE. Figure 74 <i>ff</i> .
ḡ	1DFD4 MODIFIER LETTER SMALL G WITH STROKE. Figure 68 <i>ff</i> .
ḥ	1DFD5 MODIFIER LETTER SMALL L WITH STROKE. Figure 78 <i>ff</i> .
ḥ̄	1DFD6 MODIFIER LETTER SMALL L WITH BAR. Figure 80 <i>ff</i> .
Ꞥ̄	1DFD7 MODIFIER LETTER SMALL TURNED R WITH STROKE. Figure 86.

Deferred letters

This modifier is deferred until the base letter can be documented.

ḥ̄̄	MODIFIER LETTER SMALL L WITH BAR AND RETROFLEX HOOK. Figure 84 <i>ff</i> .
-----	--

Properties

1DF40;LATIN CAPITAL LETTER BARRED A;Lu;0;L;;;;N;;;1DF41;
1DF41;LATIN SMALL LETTER BARRED A;Ll;0;L;;;;N;;;1DF40;;1DF40
1DF42;LATIN SMALL LETTER BARRED OPEN O;Ll;0;L;;;;N;;;;;
1DF43;LATIN SMALL CAPITAL BARRED E;Ll;0;L;;;;N;;;;;
1DF44;LATIN SMALL LETTER BARRED OPEN E;Ll;0;L;;;;N;;;;;
1DF45;LATIN SMALL LETTER G WITH STROKE AND PALATAL HOOK;Ll;0;L;;;;N;;;;;
1DF46;LATIN SMALL LETTER BARRED H;Ll;0;L;;;;N;;;;;
1DF47;LATIN SMALL LETTER BARRED H WITH HOOK;Ll;0;L;;;;N;;;;;
1DF48;LATIN CAPITAL LETTER BARRED K;Lu;0;L;;;;N;;;1DF49;
1DF49;LATIN SMALL LETTER BARRED K;Ll;0;L;;;;N;;;1DF48;;1DF48
1DF4A;LATIN CAPITAL LETTER BARRED M;Ll;0;L;;;;N;;;1DF4B;
1DF4B;LATIN SMALL LETTER BARRED M;Ll;0;L;;;;N;;;1DF4A;;1DF4A
1DF4C;LATIN SMALL LETTER BARRED M WITH HOOK;Ll;0;L;;;;N;;;;;
1DF4D;LATIN CAPITAL LETTER BARRED N;Lu;0;L;;;;N;;;1DF4E;
1DF4E;LATIN SMALL LETTER BARRED N;Ll;0;L;;;;N;;;1DF4D;;1DF4D
1DF4F;LATIN SMALL LETTER BARRED ENG;Ll;0;L;;;;N;;;;;
1DF50;LATIN SMALL LETTER TURNED R WITH STROKE;Ll;0;L;;;;N;;;;;
1DF51;LATIN CAPITAL LETTER BARRED V;Ll;0;L;;;;N;;;1DF52;
1DF52;LATIN SMALL LETTER BARRED V;Ll;0;L;;;;N;;;1DF51;;1DF51
1DF53;LATIN SMALL LETTER BARRED CLOSED OMEGA;Ll;0;L;;;;N;;;;;
1DF54;LATIN SMALL LETTER BARRED LATIN CHI;Ll;0;L;;;;N;;;;;
1DF55;LATIN SMALL LETTER Y WITH LOW STROKE;Ll;0;L;;;;N;;;;;
1DF56;LATIN LETTER GLOTTAL STOP WITH DOUBLE STROKE;Lo;0;L;;;;N;;;;;

Modifier letters

1DFD2;MODIFIER LETTER SMALL B WITH STROKE;Lm;0;L;<super> 0180;;;;N;;;;;
1DFD3;MODIFIER LETTER SMALL D WITH STROKE;Lm;0;L;<super> 0111;;;;N;;;;;
1DFD4;MODIFIER LETTER SMALL G WITH STROKE;Lm;0;L;<super> 01E5;;;;N;;;;;
1DFD5;MODIFIER LETTER SMALL L WITH STROKE;Lm;0;L;<super> 0142;;;;N;;;;;
1DFD6;MODIFIER LETTER SMALL L WITH BAR;Lm;0;L;<super> 019A;;;;N;;;;;
1DFD7;MODIFIER LETTER SMALL TURNED R WITH STROKE;Lm;0;L;<super> 1DF50;;;;N;;;;;

DoNotEmit data

For historical reasons, a letter with palatal hook is not canonically equivalent to the base letter plus the palatal hook diacritic. The character <g̃> should thus be listed in DoNotEmit.txt.

01E5 0321; 1DF45; Precomposed_Form # LATIN SMALL LETTER G WITH STROKE, COMBINING PALATALIZED HOOK BELOW; LATIN SMALL LETTER G WITH STROKE AND PALATAL HOOK

Annotations

The kip sign U+20AD should not be used for orthography because its general category is currency. This common substitution (e.g. on websites) should be annotated.

20AD KIP SIGN

→ 1DF48 Latin capital letter barred k

1DF45 Ꞁ LATIN CAPITAL LETTER BARRED K

→ 20AD kip sign

In addition, modifier $\langle^{\text{b d g}}\rangle$ may have bowl-struck forms under the same conditions that baseline $\langle\text{b d g}\rangle$ do (i.e., $\langle\text{b d g}\rangle$), whether that is accomplished through language-tagging or variation selectors. The wording of the annotations should wait until the baseline letters are decided.

Chart

Cell backgrounds indicate assigned characters (medium grey), provisionally assigned characters (light grey), and characters proposed here (white).

Latin Extended-G

1DF00

1DFFF

	1DF0	1DF1	1DF2	1DF3	1DF4	1DF5	1DF6	1DF7	1DF8	1DF9	1DFA	1DFB	1DFC	1DFD	1DFE	1DFF
0	ƒ	ƒ	ƒ	ƒ	A	ƒ									ƒ	ƒ
1	ƒ	ƒ	ƒ	ƒ	a	V									ƒ	ƒ
2	ƒ	ƒ	ƒ	ƒ	ə	v								ƒ	ƒ	ƒ
3	ƒ	ƒ	ƒ	ƒ	€	€								ƒ	ƒ	ƒ
4	ƒ	ƒ	ƒ	ƒ	€	ƒ								ƒ	ƒ	ƒ
5	ƒ	ƒ	ƒ	ƒ	ƒ	ƒ								ƒ	ƒ	ƒ
6	ƒ	ƒ	ƒ	ƒ	ƒ	ƒ								ƒ	ƒ	ƒ
7	ƒ	ƒ	ƒ	ƒ	ƒ									ƒ	ƒ	ƒ
8	ƒ	ƒ	ƒ	ƒ	ƒ									ƒ	ƒ	ƒ
9	ƒ	ƒ	ƒ	ƒ	k									ƒ	ƒ	ƒ
A	ƒ	ƒ	ƒ	ƒ	M									ƒ	ƒ	ƒ
B	ƒ	ƒ	ƒ	ƒ	m									ƒ	ƒ	ƒ
C	ƒ	ƒ	ƒ	ƒ	ƒ									ƒ	ƒ	ƒ
D	ƒ	ƒ	ƒ	ƒ	N									ƒ	ƒ	ƒ
E	ƒ	ƒ	ƒ	ƒ	ƒ									ƒ	ƒ	ƒ
F	ƒ	ƒ	ƒ	ƒ	ƒ									ƒ	ƒ	ƒ

References

- Mario Alinei *et al.* (1986) *Atlas Linguarum Europae (ALE)*. Van Gorcum, Assen/Maastricht.
- Trevor Allin (1976) *A Grammar of Resígaro*. Summer Institute of Linguistics.
- Alvar, Llorente & Salvador (1975) *Textos andaluces en transcripción fonética*.
- Fernando Araujo (1893) *Estudios de Fonética Kastelana*. Toledo.
- Z. M. Arend-Choński (1924) *A Polish Phonetic Reader*. University of London Press.
- Arkhipova, Daniel, Belyaev, Morozc & Esling (2019) *A reinterpretation of lower-vocal-tract articulations in Caucasian languages*. ICPHS2019, Melbourne.
- D. W. Arnott (1970) *The nominal and verbal system of Fula*. Clarendon Press.
- Charles-James Bailey (1985) *English Phonetic Transcription*. SIL, University Texas, Arlington.
- J. Berry (1955) Some Notes on the Phonology of the Nzema and Ahanta Dialects. *Bulletin of the School of Oriental and African Studies*, 17(1), 160–165.
- Thomas & Elizabeth Brewster (1976) *Language acquisition made practical: Field methods for language learners*. Lingua House, Colorado Springs.
- Clark, Yallop & Fletcher (2007) *An Introduction to Phonetics and Phonology*, 3rd ed. Blackwell.
- John Colarusso (1988) *The Northwest Caucasian languages: A phonological survey*. Routledge.
- Michel Contini (1992) L'Atlas linguistique roman, *IKER* 7.
- Aharon Dolgorolsky (2013): А. Б. Долгопольский, *Индоевропейский словарь с ностратическими этимологиями – Indo-European Dictionary with Nostratic Etymologies*, vol. I. Moscow.
- George Fortune (1981) *Shona Grammatical Constructions*, Part 1. Mercury Press.
- Andrés Hasler (1996). *El náhuatl de Tehuacan-Zongolica*. Mexico: CIESAS.
- Raymond Hickey (2011) *The Dialects of Irish*. De Gruyter Mouton.
- Leanne Hinton & L. J. Watahomigie (1984) *Spirit Mountain: An anthology of Yuman story and song*. Sun Tracks and University of Arizona Press.
- Historisches Ortsnamenbuch von Bayern*, available online at www.geschichte-bayerns.de/.
- Robert Hollow (1970) Concordance of phonetic alphabets. *Kroeber Anthropological Society papers* no. 43, p. 42–50.
- A.Ye. Kibrik & S.V. Kodzasov (1990): А. Е. Кибрик & С. В. Кодзасов, *Сопоставительное изучение дагестанских языков*. Издательство Московского университета.
- Ábel Král' (2009) *Pravidlá slovenskej výslovnosti*. Matica slovenská.
- Kretzschmar *et al.* (1993) *Handbook of the Linguistic Atlas of the Middle and South Atlantic States*, (LAMSAS). University of Chicago Press.
- Peter Ladefoged (1980) Cross linguistic studies of speech production. *UCLA Working Papers in Phonetics* 51.
- Pierre-Bernard Lafont (1963) *Prières Jarai*. École française d'Extrême-Orient.
- Pierre-Bernard Lafont & Nguyễn Văn Trọng (1969) *Lexique jarai, parler de la province de Plei Ku*.
- Roger Lass (2002) “South African English,” in Mesthrie (ed.) *Languages of South Africa*, CUP.
- Andrea Leeuw van Weenen (2000) *A Grammar of Möðruvallabók*. Leiden University.
- Kelly & Local (1989) *Doing Phonology*. Manchester University Press.

- Juan Lope Blanch (1990–2000) *Atlas Lingüístico de México*. Universidad Nacional Autónoma.
- Terje Mathiassen (1996) *A Short Grammar of Lithuanian*. Slavica Publishers, Columbus, Ohio.
- Larry Mattes & Donald Omark (1984) *Speech and language assessment for the bilingual handicapped*. College-Hill Press, San Diego.
- Timothy Montler (2018) *SENĆOFEN: A Dictionary of the Saanich Language*. Electronic edition. WSÁNEĆ School Board and University of Washington Press.
- Hank Nater (2006) *Athabaskan verb stem structure: Tahltan*. LOT Occasional Series 5, p. 53–72. Universiteit Utrecht.
- Oddvar Nes (1982) *Storms norske lydskriftsystem (med tillegg) definert ved hjelp av IPA's lydskriftsystem*. 4th ed., Bergen.
- (1978) Om palatalar, *Maal og minne* 3/4, p. 150–168.
- Nzambū' Nda'kayii (1974) *Grammaire pratique du bamileke fe'e fe'e*. Edicion Nufi.
- S. Ntagne & G. Sop (1975) *Pé ꞑké: Manuel de Bamiléké*. 3rd ed. Collège Liberman., Douala
- Radoslav Pavlík (2004) Slovenské hlásky a medzinárodná fonetická abeceda (Slovak Speech Sounds and the International Phonetic Alphabet). *Jazykovedný časopis*, 55: 2, p. 87–109.
- Robert Penhallurick (1991) *The Anglo-Welsh Dialects of North Wales*. Lang Publishing.
- Poolaw, Botone-Willis & Kauley-Poolaw (n.d.) [*hét bát gáuiðon:zànyì! \(Let's speak Kiowa!\)*](#). University of Oklahoma Kiowa Language Course Packet.
- Étienne Sadembouo & Sammy Beban Chumbow (1990) Standardisation et modernisation de la langue fe'efe'e. *Journal of West African Linguistics* 20: 2, p. 47–69.
- Frank Seidel (2005) The Bantu languages of the Eastern Caprivi. *South African Journal of African Languages* 25: 4, p 207–242.
- (2009) Layered language genesis in the 'catch basin' of the Linyanti and Okavango swamps: The case of Yeyi. *Sprache und Geschichte in Afrika* 20, p 231–264.
- Stringer & Hotz (1970) *Waffa Sentence, Paragraph and Discours*. Mss, SIL.
- Stringer & Hotz (1979) *Dictionary of Waffa - Tok Pisin - English*. SIL, Ukarumpa, PNG.
- Maurice Tadadjeu & Etienne Sadembouo (1984) *Alphabet Générale des Langues Camerounaises*. Université de Yaoundé, Cameroun.
- Navarro Tomás (1962) *Atlas lingüístico de la la Península Ibérica (ALPI)*, tomo 1 'Fonética.' Consejo superior de investigaciones científicas, Madrid. <http://alpi.csic.es/en/>
- Tim Usher (2020) Waffa. *Newguineaworld*, newguineaworld.linguistik.uzh.ch/families/trans-new-guinea/eastern-highlands-kratke-range/eastern-highlands/kainantu/east-kainantu/waffa.
- VIVALDI (1998–2018): *Vivaio Acustico delle Lingue e dei Dialetti d'Italia*. Humboldt University, Berlin.
- Wm. E. Welmers (1974) *African Language Structures*, University of California Press.
- Mary Ruth Wise (1979) *Vocabulario resígaro*. Instituto Lingüístico de Verano, Lima.
- R.C. Wynne (1980) *English-Mbukushu dictionary*, Avebury.

Figures

Barred A, a

Barred *a* has long been used in phonetic transcription for a low central vowel (Sinological <A>). It was also used in the orthographies of the Bamileke languages Ghomálá' [ISO 639-3: bbj], Medumba [byv] and Fe'efe'e [fmp] in the 1970s, before it was replaced by <a> from the General Alphabet of Cameroon Languages. It is common in dialectal atlases.

STRUT a large range, from lower mid back [ʌ] to something much fronter, e.g. central [a̠] to centralised front [ä] or even raised [ɛ].

(b) STRUT. This is only weakly a social marker. Its values generally fluctuate from low central to centralised front half-close, with the norm around central open [a̠] to [ä]. Impressionistically, the backer and opener values are associated with Conservative and older Respectable speakers, and the fronter and higher ones, going even as far as [ɛ̠], with younger, especially female, Respectable ones. The backer realisations tend to be used by all speakers for Afrikaans short <a> words, so that e.g. *Schalk/skulck, pap/pup* are homophones.

Figure 4. Lass (2002: 106, 98). <a> as an informal extension of the IPA for the central low vowel. Here <a> is central while IPA <ä> is merely centralized.

“ or – may indicate a centralized vowel (as in [ë], [i̠] or [a̠])

Figure 5. Clark, Yallop & Fletcher (2007: 435). <a> as a low central vowel.

matter of symbol shapes we use only one that might be unfamiliar, namely **a̠**, for a vocoid half-way between **ʌ** and **a**. This symbol has been in informal use for some time by linguists of our acquaintance, but is not part of the IPA stock.

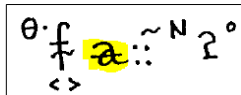


Figure 6. Kelly & Local (1989: 11, 39). The bar convention is used even though the symbol is added in by hand, showing that <a> is more than a typewriter hack.

Jun̄ yə̄ â bá ʈsó̄ **â bá nê** Flànsí **bá** "
yè̄ â **bá** gòm á **pá ka** ? **La** nê gòm nwè

Figure 7. Ntagne & Sop (1975: 20). Bamileke <a> with tone marking, <á à ǎ â>, in running text. Bamileke orthography uses barred Aa Bb Dd Gg Kk Pp Tt Uu.

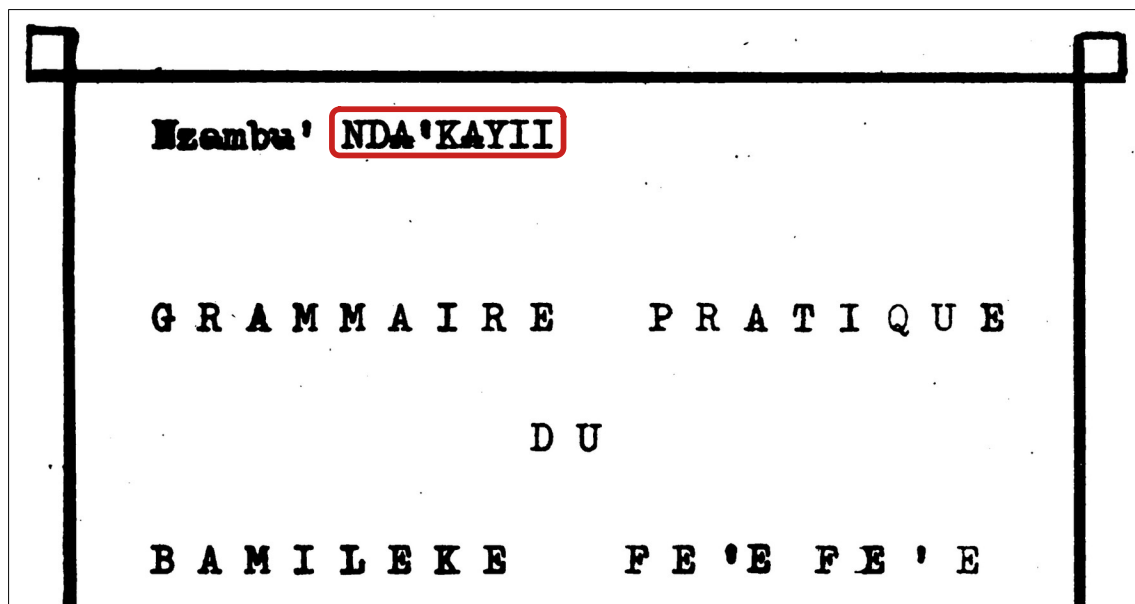


Figure 8. Nda'kayii (1974: title page, 5) <A> appears in the author's name and in a welcoming statement set in all caps.

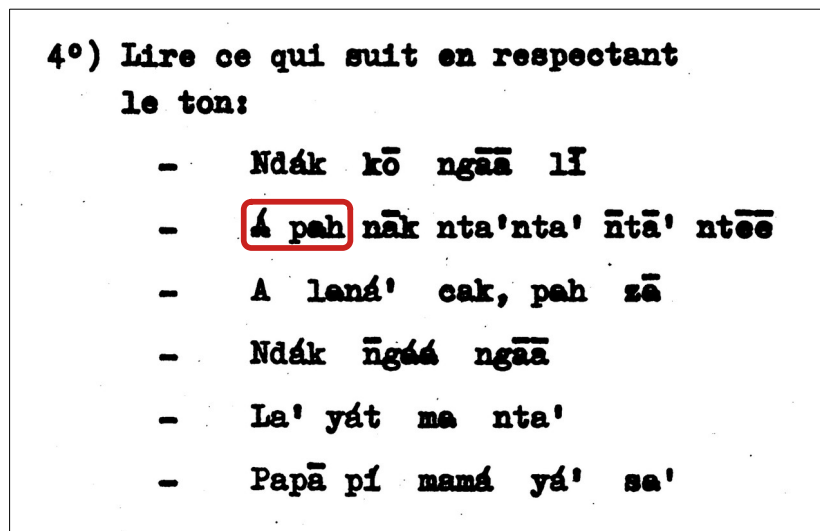


Figure 9. Nda'kayii (1974: 12) Capital <A> in Bamileke (Fe'efe'e) orthography. Lower-case <a> also appears: <Á pah> etc., but this is not as clear as it is in Figure 7.

D'un alphabet à l'autre, il y a eu quelques fois des différences assez remarquables. Mais un souci demeure à partir de Stoll: la représentation du même son toujours pour le même symbole. par rapport au premier alphabet qui fut utilisé seulement par Gontier qui l'avait proposé, le second alphabet fait apparaître de nouvelles lettres par rapport au français comme š, jš, tš, ĝ,... La notation des tons pratiquée par Stoll⁷, à cause de leur pertinence, sera aussi pratiquée par Tchamda et Tchuem au début, puis délaissée, surtout avec la propension des cours d'alphabétisation Nufi à partir des années 1950 et ce, jusqu'à ce jour, en dehors des travaux des linguistes. Le tableau ci-dessous permet de se faire une idée des cas de changements successifs⁸.

1930	1945	1968	1979	valeurs phonétiques (API)
i	i	i	i	[i]
e	è	e	e	[e]
ē	e	ɛ	e	[ɛ]
ē	ë	ə	ə	[ø]
u	u	u	u	[u]
ū	ù	ʉ	ʉ	[ʉ]
o	o	o	o	[o]
ō	ô	ɔ	ɔ	[ɔ]
a	a	a	a	[a]
a	à	ʌ	ʌ	[ʌ]
	â	aa	aa	[ɔ]
j	dj	j	j	[dʒ]
jš	j	ž	zh	[ʒ]
ğ/ĝ	gh	ġ	gh	[ɣ]
tš	tsh	c	c	[tʃ]
š	sh	š	sh	[ʃ]
ñ	ñ	ŋ	ŋ	[ŋ]
'	'	'	'	[']

⁷ L'alphabet proposé par STOLL laisse le dessus des voyelles libre pour la marque des tons.

⁸ Ce tableau ne cite pas les consonnes qui sont identiques en fe'efe'e et en français; mais toutes les voyelles sont citées.

Figure 10. Sadembouo & Chumbow (1990: 53). <a> and <aa> in the 1968 orthography of Fe'efe'e (Cameroon). As this is orthography, capital <A> is also needed.

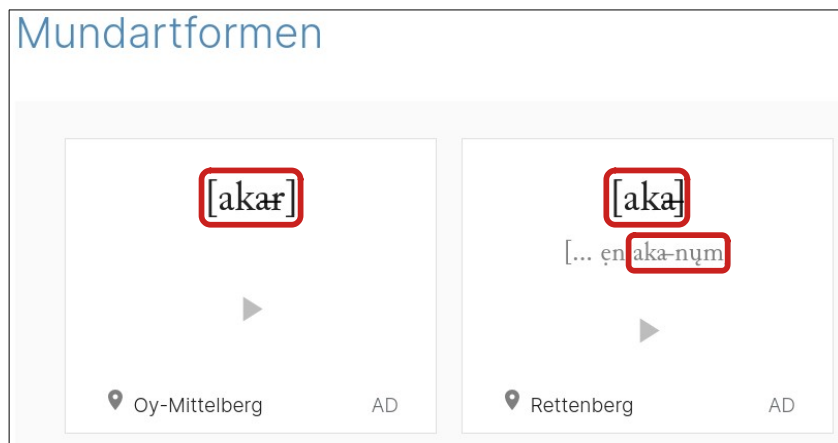


Figure 11. *Historisches Ortsnamenbuch von Bayern*, entry for [Acker](#) as [akar], [aka] and [... ɛn aka-nʉm], using the U+0336 overlay. (The misalignment is due to our web font.) The atlas also uses barred <e i ø ʉ>.

Barred E, ε, ə

These are used in the phonetic transcriptions of the influential *Atlas Linguarum Europae* and *Atlas linguistique roman*, for the near-close central unrounded vowel (IPA [ɨ], para-IPA [ɨ̥]) and the open-mid central vowels (IPA [ɜ] and [ɞ]).

1. *Vocalisme*

	palatales		centrales		vélares	
	non-arr.	arrond.	non-arr.	arrond.	non-arr.	arrond.
haut	i	y	ɨ	ɥ		u
mi-haut	E	Y	ɨ̥			ɯ
moyen-haut	e	ø	e	ə		o
moyen-bas	ɛ	œ	ɛ̥	ɞ̥	ʌ	ɔ
bas ²	a		ʌ		ɑ	
			ə			

Figure 12. Alinei et al. (1986: ic). Barred <E ε ə> as central vowels.

Les phonèmes ci-dessous seront alors /-comp/ (entourez) :

1 i	2 E	3 e	4 ε	9 +	10 ɨ̥	11 e̥	18 ɛ̥
20 u	21 ɯ	22 o	23 ɔ	24 ɨ̇	25 ɛ̇	26 ē̇	
30 ù	31 õ	32 ẽ					
2 E	3 e	4 ɛ̇	7 ø̇	8 œ̇	10 ɨ̥̇	11 -ė-	12 -ɛ̇-
13 ʌ	14 ə̇	16 -ȯ-	17 -ɔ̇-	18 ʌ̇	19 ɑ̇	21 ɯ̇	
22 ȯ	23 ɔ̇	25 ē̥̇	26 ẽ̥̇	27 ɥ̥̇	28 œ̥̇	31 õ̥̇	
32 ẽ̥̥̇	33 ǣ̥̥̇						

Figure 13. Contini (1992: 353–354). Barred <E ε ə> in dialect vowel inventories.

Barred K k

A capital letter is used in the Saanich dialect of Straits Salish [str]. For future compatibility, it should be adopted together with the lower case form. The case pair was used in Ghomala' orthography in the 1970s.

KĆEMES	q ^w čéməs	Elbow Point (Squally Reach): 1814.
KEĆÁL, NEN	q ^w əčélŋən	very sick, dying: 996.1.
KEĆHINĒL; KOĆET	q ^w əčhínəŋ; q ^w áčət	kill: 1416.
KEKEMÁL, S	q ^w əq ^w əmél's	casting, fishing near shore: 1231.1.
KEKĀL, STEN	q ^w əq ^w éʔəl'stəŋ	deceive: 1279.
KEKŚÁP; XEXEĆÁL, S	q ^w əq ^w šép; xəxəčél's	size up another p

Figure 14. SENĆOFEN Classified Word List. <K> and <K̄> are distinct letters (for /q^w/ and /q/) in this Saanich alphabet designed by native speaker Dave Elliott Sr. in the 1970s. It remains the primary orthography. The character U+20AD KIP SIGN is substituted for <K> in electronic documents, but in some fonts it is figure-height rather than capital-height. The cedilla above is not misalligned: it is a spacing character <,> for the glottal stop and glottalized consonants.

240		KĆOTEN
K		
<p>KAKĒK /q^wéqəq̣/ sea wrack, brown seaweed that grows on rocks. <i>Fucus gardneri</i>. *Open the pods to get medicine to put on warts to make them go away. Works like fish slime and slug slime. (EC,VW) KĀN, U, NEN, TFE KAKĒK. /ʔén' uʔ ɲən' tθə q^wéqəq̣/ There's lots of sea wrack. (LGC) [[vq^weqəq̣ vsea_wrack]]</p> <p>KAKĒM seal call. See under: KAKĒN</p>	<p><i>friendly/tame.</i> (LGC) KĀN, U, KĀL, KEL, TFE SWIU, LES. /ʔén' uʔ q^wélq^wəl' tθə swíwłəs/ The young man is very friendly. (LGC) VAR: KEL, KEL, /q^wəlq^wəl/ (EC,VW) VAR: KEKEL, /q^wəq^wəl/ (CP) [[q^weł + vq^weł char + vacquaint]]</p> <p>KĀL /q^wél/ gunpowder. (LGC) KĀL I, TFE CĀPS. /q^wéʔ ʔiʔ tθə képs/ Gunpowder and percussion caps. (PP) KĀN, U, QOMQEM TFE KĀL. /ʔén' uʔ</p>	

Figure 15. Montler (2018: 240). <K> entries in a Saanich dictionary.

ĆSE LÁ,E TFE XAXE TFE SĀÁL ŁTE. U, DOT OL TFE SENĆOFEN ĀŁE E TIĀ WŚĀNEĆ.
 WŪĆIST TFE SKĀŁs I, TFE Ś, ĀENANs ĆSE LĀ,E TFE ĀLEŅENEŁ TFE WŚĀNEĆ. ŹI TFE
 S, YESES SU ŚTENIST ŹENTOL E TIĀ ĀNEŁ I, ŹE, ŹĀĆELES E TFE ŚW, ĀĀLEŁEN E TIĀ
 WŚĀNEĆ. SNINU SE TFE I, TOTELŅEW I, SIĀM, SET SE TFE EŁTĀLŅEW. SIĀM
 ŚWELĐKE SU NIŁ.

Figure 16. Mission statement of the WŚĀNEĆ School Board with an instance of <ƙ ƙ>. wsanecschoolboard.ca/sencoten-language/#main. In this web document, a comma is substituted for the cedilla.

K	K	Ká	erre ;
Kh	ƙ	ƙé	brúle, consume !

Figure 17. Ntagne & Sop (1975: 20). Bamileke casing pair <ƙ ƙ>.

Gwàmònáŋ tá yókpè Alajì Ahmadou Ahidjo bē
 ntúm Kamerúm ŋwényé nā mfà? myé. Mònáŋ bē
 Kamerúm gwé a šǔ?tô m ša? ƙkəpuéé.

Figure 18. Ntagne & Sop (1975: 22). Bamileke <ƙ> in running text.

	Bi-Labial	Labio-Dental	Tip Dental	Tip Alveolar	Blade Alveo-palatal	Back Velar	Glottal
Stops:							
Vl. Asp.	p ^h			t ^h	t̃ ^h	k ^h	ʔ
Vl. Unasp.	p			t	t̃	k	
Voiced	b			d	d̃	g	
Fricatives:							
Voiceless	ɸ	f	θ	s	š	ƙ	h
Voiced	ɸ̣	v	ð	z	ž	ɣ	
Nasals:							
Voiceless	M			N	Ñ	N	
Voiced	m			n	ñ	ŋ	

Figure 19. Brewster (1976: 271). <ƙ> as a phonetic symbol.

(3) Ya en 1630 decía kon sobradísima razón el zélebre Maestro **Ⓚ**oreas: «Mas ai algunos **Ⓚ**e piensan **Ⓚ**e esta todo el saber en **Ⓚ**eskrivir **Ⓚ**omo en Latín, i por donde piensan parezer **Ⓚ**e saben letras, muestran **Ⓚ**e las inoran» (GONZALO **Ⓚ**OFEAS).—*Ortografía kastellana nueva i perfeta*.—Salamanka, 1630).

El alfabeto kastelano keda así konstituido, satisfaziendo a la bez a la razón i a las kombenienzias práktikas, por las 24 letras sigientes:

ⓀONSONANTES: *a, e, i, o, u.*

ⓀONSONANTES { labiales: *b, p, f, m*
 dentales: *d, t, z*
 albeolares: *l, n, r, r, s*
 palatales: *y, e, l, ñ*
 gutturales: *g, k, j*

o sea, por el orden klásiko del alfabeto:

a b z e d e f g i j k l l m n ñ o p r r r s t u y

Figure 20. Araujo (1894: 5, 8). Casing <Ⓚ> and <Ⓚ> in a Spanish phonetic alphabet. The barred letters seen here, <e> and <r>, are already in Unicode.

Barred M m, ɱ, N, n, ɳ

Barred *m*, *ɱ*, *n*, *ɳ* are used for phonetic transcription, and barred *M*, *N* as archiphonemes. Barred *N*, *n* are used in Kiowa and Havasupai orthography.

As a sample of a most unusual consonant system among the Nilo-Saharan languages, that of Murle may be cited; it appears to be as follows:²

p	θ	t	c	k
b	ɖ	d	j	g
w	l	r	y	ɣ
m	ɱ	n	ñ	ŋ

The articulatory positions are bilabial, interdental, alveolar, palatal, and velar; the types are voiceless stops, voiced stops, resonants, and nasals. There are no phonemic fricatives. /θ/ and /ɖ/, and also /c/ and /j/, are only very lightly affric-

Figure 21. Welmers (1974: 52). <ɖ> and <d> are used to transcribe dental stops in Murle. <d> has been added to Unicode since this image was made.

n	<i>niis</i> , 'spider'. As in <i>nice</i> .
ñ	<i>ñgwaay</i> , 'shirt'. As in <i>canyon</i> .
ɱ	<i>hangja</i> , 'handkerchief'. As in <i>sing</i> .
p	<i>pu</i> , 'gun'. As in <i>pun</i> .

Figure 22. Hinton & Watahomigie (1984: 105). <ɱ> in Havasupai orthography.

wiiña ɖ'oobo'we. ɕu qejm, ɕu gwe qlyaayvo, gag haandava iɕ ɕu gavyuuja wiiyñ ye wañih'yu ñaa dobo, yugtho, maaj ña awa m'iiijaha, 'Grandson', ña awa maaj myaamñɱiɕ ñaa j'aalo, ñaa j'aalo 'east' myaamñ, he yiɕ gwe ghaanajiɕ yuwaha, gwe ghaana maañ mwiiñha ñyugiɕ gag, gag buyña

Figure 23. Hinton & Watahomigie (1984: 160). <ɱ> in context. The letter does not occur word-initially, and the capital is unattested, but <ɱ> would be needed for title case.

𐌺	&nbar;	E7B2	PUA-13	LATIN SMALL LETTER N WITH BAR
---	--------	------	--------	-------------------------------

Figure 24. Medieval Unicode Font Initiative (MUFI 2015: 64). <𐌺> is needed for transcribing Icelandic manuscripts.

54 Hank Nater

The intricacy of the Tahltan verb manifests itself in two processes: phonemic fusion (characterizing prefix strings and the prefix-stem boundary):⁴

(d) **kódiḥk'a'la'**
 /ko-d-ᶑn=h-k'a'-ᶑa'/
 fire-completion-you+futureA-augment-ignite-futureB-question⁵
 'Will you light the fire?'

(e) **náḥt'e'θ**
 /na=ᶑn=h-t'e'θ/
 again-you+urgency-augment-cook
 'Cook it again!'

voiced continuant	m	n	ḏ	z
voiceless continuant	ḥ	ḥ̄	θ	s

Figure 25. Nater (2006: 54, 72). <ḥ>, <ḥ̄> for voiceless /ḥ, ḥ̄/ in Tahltan.

Voiced oral fricative v [b] and voiceless oral fricatives f [p], s and h. Sonorant nasals m, n, ng [n] and obstruant nasals mm [ḥ], nn [ḥ̄].	<table border="1"> <tr><td>m</td><td>ḥ</td></tr> <tr><td>mm</td><td>ḥ̄</td></tr> <tr><td>n</td><td>ḥ̄</td></tr> <tr><td>ng</td><td>ḥ̄</td></tr> <tr><td>nn</td><td>ḥ̄</td></tr> <tr><td>o</td><td>ḥ̄</td></tr> <tr><td>oo</td><td>ḥ̄</td></tr> </table>	m	ḥ	mm	ḥ̄	n	ḥ̄	ng	ḥ̄	nn	ḥ̄	o	ḥ̄	oo	ḥ̄
m	ḥ														
mm	ḥ̄														
n	ḥ̄														
ng	ḥ̄														
nn	ḥ̄														
o	ḥ̄														
oo	ḥ̄														

Figure 26. Stringer & Hotz (1979: 9, 1970: 4). <ḥ̄> for Waffa. (is requested in a separate proposal.)

	ḥ	
ḥepókó	piraña, paña (pez)	piranha
ḥé?koní?	deslustrado	dull (not bright)
ḥotó	probar (p.ej., comida)	to try (food, etc.)

Figure 27. Wise (1979: 430). <ḥ̄> for Resigaró.

El orden alfabético que se ha dado a los símbolos fonémicos del resígaro es el siguiente:

a	f	ᄁ	s	v
b	g	n	š	ž
č	h	ᄂ	t	ʔ
čh	i	ᄃ	th	(x)
d	ǰ	ᄄ	ty	(r)

Figure 28. Wise (1979: 379). Note that barred n may take a tilde, <ᄄ>.

	vl.	ᄁ	ᄂ	ᄃ
Nasals	vd.	m	n	ᄄ

sky and Hallo, *op.cit.*, p. 413 and p. 405, (XV).) In Resígaro, /ᄁ/ and /ᄂ/ are thus marked, and unmarked /m/ and /n/

Figure 29. Allin (1976 I: 47, 56). Barred letters for voiceless nasals in Resígaro.

9. aponá tsó tsetsanó mfuǰé phé?mee?kú vašáá - nó
 ,once_more her, he-ask , wife you-roast-come we-meat_eat ppsv
 nomú "I bite"

Figure 30. Allin (1976 III: 379). <ᄂ> and <ᄁ> in context.

Stringer and Hotz (1971: 49-62, 1973: 523-529, 1992) give 18 consonants and 5 vowels for Waffa of Kusing as follows:

m	n		ŋ	
ᄁ	ᄂ			
p	t		k	ʔ
mb	nd		ŋg	
φ	s			h
β	r	j		

Nasalized bilabial fricative /ᄁ/ and alveolar flap /ᄂ/ are developments of plain nasals /*m */n/, hence their placement in the chart above.

Figure 31. Usher (2020). Waffa description online at *New Guinea World*. The <ᄁ> and <ᄂ> for nasal fricatives should have a straight bar per the source of the data; a tilde is substituted here due to lack of online font support.

2. CONSONANTS

Consonants may combine with -w- / -y- and with a nasal **<ɲ>**. The potentiality for combination is shown in each case. As there is only one set of affricates and as these may in some pronunciations

	LABIAL LABIO-DEN	DENTAL INTER-DEN	ALVEOLAR	PALATAL PRE-PAL	VELAR GLOTTAL	CLICK
PLOSIVE AND AFFRICATE	p [p] + w/y kupinduka b [b] + w/y dibu	t [t] kutandha nd [nd] (cf. ndh)	t [t] + w/y thitondo d [d] + w/y kudira nd [nd] + w/y ndema	tj [tʃ] + w/. kutjora dj [dʒ] + w/. kudjata ndj [ndʒ] + w/. ndjato	k [k] + w/y shoko g [g] + w/. kugunda ng [ŋg] + w/. ngombe	c [tʃ] kaci gc [gʃ] geo nge [ŋgɛ]
FRICATIVES	f [f] + w/. kufu v [v] + ./y kovora mv [mv] + ./. mvu	th [θ] + w/. thinyunyi dh [ɖ] + ./. rudhi ndh [ndh] + w/. ndhira	y [j] (cf. y) mayira ndh [ndh] (cf. ndh) ndhira	sh [ʃ] + w/. shushwa gh [ɣ] + ./. dighumbo	h [h] + ./. hanuke nh [ɲ] + w/. manhwe	

Figure 32. Wynne (1980: xv). Capital barred <ɲ> for a nasal archiphoneme.

Napríklad v publikácii Pravidlá slovenskej výslovnosti (Král', 1988) je namiesto znaku [ɲ] použitý znak **[ɲ]**. Podobne, v tej istej práci, znak **[ɲ]** má tú istú platnosť ako novšie používaný znak [ŋ]. Na inom mieste (Dvončová – Jenča – Král', 1969, s. 93) je zase znak [ň] vyjadrený znakom [n,]. Nebudeme sa zaoberať príčinami

Figure 33. Pavlík (2004: 101). Notes on the use of <ɲ> for [ɲ] and <ɲ> for [ɲ] (p. 107) in Slovak phonetic notation.

e) Výslovnosť **[ɲ]** namiesto [m]

Figure 34. Král' (2009: 75). I unfortunately do not have better access to Král', which is on its fifth edition and has its own entry in Slovak encyclopedias.

*mp	mp	mp	mp	mp	mp	p
*nt	t	nt	nt	nt	nt	t
*nk	nk	nk	nk	nk	nk	k
*mb	mb	mb	mb	mb	mb	p
*ng	ŋg	ŋg	ŋg	ŋg	ŋg	k
*nc	ɲ / nɲ	nɲ	ns	ns	ns	t
*nj	ndʒ	ndʒ	nʒ	nʒ	nʒ	t
*mpj	ns	ns	ns	ns	ns	p
*mbɥ	ɲv	ɲv	ɲv	ɲv	ɲv	p

Figure 35. Seidel (2005: 242). [ɲ ɲ ɲ ɲ] in realizations of reconstructed Common Bantu prenasalized stops in Yeyi, Fwe, Totela, Mbukushu, Subiya and Lozi.

68	rain	72	speak	83	Star
CB	-bɔ̀dà	CB	-yàmb-; -búd-;	CB	no correspondence
YEY	ɲvura	YEY	-hueta	YEY	ɲata
FWE	ɲvúra	FWE	-amba	FWE	ɲtuŋgɛzi
TOT	ɲvúla	TOT	-amba	TOT	ɲtuŋgɛzi
CLT	ɲvula	CLT	-ámba	CLT	ɲtuŋgɛ
SUB	ɲvúla	SUB	-amba	SUB	ɲkani
LOZ	pula	LOZ	-βulela	LOZ	naleli

Figure 36. Seidel (2005: 237, 239). Specific lexical sets.

	Bilabial	Labio-dental	Alveolar	Palatal	(Palato-velar)	Velar
Voiceless plosive	mp [mp]		nt [nt]		(nky [ɲkʰ])	nk [ɲk]
Voiceless aspirated	mpʰ [mpʰ]		ntʰ [ntʰ]			nkʰ [ɲkʰ]
Voiceless fricative		nf [ɲf]	ns [ns]	nsh [ɲʃ]		
Voiced fricative		nv [ɲv]	nʒ [nʒ]	nzh [nʒ]		
voiceless prenasal		nc [ɲ]	nq [ɲʰ]			
voiceless prenasal aspirated.		ncʰ [ɲʰ]	nqʰ [ɲʰʰ]			
voiced prenasal		ng [ɲ]	ng [ɲ]			

Figure 37. Seidel (2009: 242, 243). <ɲ ɲ ɲ ɲ> for voiceless nasals in Yeyi.

SYSTEME DE TRANSCRIPTION

La transcription utilisée est la même que celle employée dans notre Lexique Jarai-Français-Vietnamien (1).

- Consonnes :
- CH correspond à TI mouillé et bref.
 - DJ correspond à un Đ fortement mouillé et parfois se rapproche de Y.
 - KH correspond à K suivi d'une aspiration.
 - NH est intermédiaire entre GN et NI.
 - PH correspond à P suivi d'une aspiration.
 - TH correspond à T suivi d'une aspiration.
 - TS la prononciation du S est dure.
 - Ḃ correspond à B préglottalisé.
 - Ḍ correspond à D préglottalisé.
 - Ḟ correspond à M préglottalisé.
 - Ḩ correspond à N préglottalisé.

MANG JANG

Nom d'une montagne et nom d'un col (Feuille Plei Ku est) qu'utilise la route Plei Ku - An Khê (R.N.19). Ce col était jadis une des voies de pénétration vietnamienne vers les pays montagnards.
38.

Figure 38. Lafont (1963: ii, 441). Capital <Ḟ Ḩ> for preglottalized nasals.

hét bát gáuidòḡzànyì:!

(Let's speak Kiowa!)

ḑé gyát gáuidòḡzànyì:t'àu.

(We will all be speaking Kiowa.)

Figure 39. Poolaw et al. (front cover). Kiowa orthography uses barred <ḡ> for nasal vowels, but here <ḡ> is substituted due to font limitations (Dane Poolaw p.c.). Capital <Ḩ> is only used for title case.

Dentales	sourde	T
	sourde aspirée	Th
	sonore	D
	sonore préglottalisée	Ḑ
	nasalisée	N
	nasalisée préglottalisée	N
Labiales	sourde	P
	sourde aspirée	Ph
	sonore	B
	sonore préglottalisée	Ḑ
	nasalisée	M
	nasalisée préglottalisée	M
	nasalisée aspirée	Mh

Figure 40. Lafont & Trọng (1968: iii).

Syllables of the pattern, V, and **M**, and V + **M**, are to be found only in S2 or in what are, in S1, sub-systems of affixial elements, or as particles and interjections.

Syllables of the pattern, **CVM**, are restricted to non-final position in certain types of 'extended' (i.e. reduplicated) and compound radicals described below.

Figure 41. Berry (1955: 160).

8.19. In addition to the above, two other patterns occur in special cases. Firstly, the first element of the *independent pronoun* involves an alternance which can be summarized as **ny/N/y**, where **N** is a nasal consonant homorganic with the following consonant. This first element is variously **hany-** (before the vowel-initial suffix **-um**, i.e. **hany-um**), **hay-** (before **-re, -ri, -ru**, e.g. **hay-re**) and **haN-** (before any other consonant, as in **ham-be, han-ji, haŋ-ki, haŋ-ge**), cf. § 24.2 and column 15 in Appendix 3.

Figure 42. Arnott (1970: 53). Capital <N> for a harmonic nasal.

velar	ŋ	ḡ ḡ
-------	---	-----

Figure 43. Tomás (1962: symbol guide). Eng with a low stroke, <ŋ>. It's not evident that this needs to be kept distinct from barred <ḡ>.

Barred h, ħ, ʔ

Barred *h*, *ħ* and *ʔ* with a double stroke are used in descriptions of Caucasian languages. Barred ⟨*ħ*⟩ is distinguished from simple *h* with stroke ⟨*ḥ*⟩ in Dolgopolsky (2013).

Epiglottis \ VF	Closed	Adducted	Abducted
Neutral position	ʔ		h (ħ)
Moderately lowered	ʔ̤	ʕ	ħ (ḥ)
Strongly lowered	ʔ̤̤	ʕ̤	Ḥ

Figure 44. Arkhipova et al. (2019: 4). ⟨*ħ*⟩, ⟨*ḥ*⟩ and ⟨*ʔ̤̤*⟩ for Caucasian languages. Footless ⟨*ʕ*⟩ and footed ⟨*ʕ̤*⟩ (blue) are not distinguished in Unicode, though ⟨*ʕ̤*⟩ has been used for ⟨*ʕ̤*⟩ (see below).

Voiced [ħ] in row 1 and [ḥ] in row 2 were identified as possible voiced variants of ‘aspiration’ (of [h] and [ħ] respectively). The voiced [ʕ̤] in row 2 was described as a glide, while all three elements in row 3

Figure 45. Arkhipova et al. (2019, full paper).

334	ФОНЕТИКА
<p>задерживается свистящими. Примеры: <i>ḫlāra</i> <i>ḫlālp̄lāi</i> "лапа", <i>alraba</i> <i>ʔaɾf̄al- blāi</i> "повозка", <i>hilsu</i> <i>ħilʕ̤lul</i> "петушинный гребень", но <i>hilsilu</i> <i>ħilsilul</i> "ножницы". Велярные и <i>l</i> палатализируются в фарингализованных слогах: <i>ul̄</i> <i>ʔul- ly</i> "корова", <i>hulk'u</i> <i>ħulk'yul</i> "осленок".</p>	

Figure 46. Kibrik & Kodzasov (1990: 334). ⟨*ħ*⟩ for Lak.

11. Контраст по ФЛС охватывает увулярные и ларингалы (зафиксировано также два слова с а| без согласных этих рядов). В случае Xl, Rl, ql, Gl представлена фарингализация, в случае q'l, а также ?l и hl - фаринго-эпиглоттализация: ?l = |?l|, hl = |h|, |h|. ФЛС в Лучке веляризирующего типа, представлено лишь в слогах с гласными заднего ряда. Признак ФЛС - сегментный, в слоге сосредото-

2. ʕ и ɴ - редкие фонемы, обычно встречаются в заимствованных словах по соседству с ʕ; ʕ = [ʕ], [h]; ɴ = [h].

Figure 47. Kibrik & Kodzasov (1990: 341, 343). <h> and <ḥ> for Rutul and Lezgin. <ʕ> might be used for the footless pharyngeal (blue).

орфографии ʕ и ɴ соответственно. Что касается ʕ, то этот звук либо дополнительно распределен с [ʕ] или ʕ (тогда фонема обозначается ʕ), либо варьирует с [ʕ] - это типично для систем с противопоставлением трех эмфатических ларингалов (тогда

Figure 48. Kibrik & Kodzasov (1990: 313). <ʕ>.

ḥ = "allgemeiner Mundgeräsch\Geräuschlaut" {Lagerkrantz}, e.g. in Lp.

ḥ = fricative laryngeal onset that is added before vowels in the absolute initial position (in Dsn).

ḥ = voiceless epiglottal fricative (like Arabic ح; = ḥ of the Orientalistic Transcription).

(Reben) ʕ Chx. 1934 | | u: FU {Coll.} *oč̣īč̣∇ - v. 'wipe' > Lp: Ar {Lgc.} ciḥ:cuqt, Vfs {Lgc.} cāʕco't 'abwischen' ʕ FU *-č̣- for the expected *-t- is probably due to the infl. of the paronymous FU root *č̣ōč̣∇ (< N

tjirreh, Tn {Lgc.} č̣+rrʕḥ ({Lgc.} č̣j̣ṛṛɣḥ), Vfs {Lgc.} č̣+rrʕ] ({Lgc.}

Figure 49. Dolgopolsky (2013: 2980, 468, 2289). <h> (red) is distinct from <ḥ> (blue).

Barred ɹ

Barred ɹ is used for the transcription of English and Irish.

ɹ is used to represent fricative r
 ɔ is used to represent the back open,
 secondary cardinal vowel

Figure 50. Penhallurick (1991: xvii). <ɹ> is used for a fricative [ɹ] in English dialectology.

251

STRODUR, n.sg. Gn 4 'st_ɔr_ɔɔd_ɔɹ_ɔ Gn 8 'st_ɔr_ɔd_ɔr_ɔ²
 Cl 4 'st_ɔr_ɔd_ɔɹ_ɔ Cl 7 'st_ɔr_ɔd_ɔr_ɔ³

DRY MOON, n.phrase Cl 1 d_ɔaɪ mu:n³

Figure 51. Penhallurick (1991: 251. 353). <ɹ> for fricative [ɹ].

(3)	velarised	—	palatal
	/r/ [ɹ]		/r ^j / [ɹ ^j] ²⁵³
	rua [ɹuə] 'red'		tóir [to:ɹ ^j] 'demand'

Figure 52. Hickey (2011: 408). <ɹ> in Irish.

Barred V v

Barred v has been used for a labiodental flap (IPA [ɸ]), for example in the phonetic transcription of the *Alphabet général des langues camerounaises / General Alphabet of Cameroon Languages*. It is not a typographic substitute, as the IPA letter did not yet exist.

Margi, a Chadic language spoken in Northern Nigeria, has a voiced labiodental flap (symbolized by [ɸ]) as in (4). Photographs of the lip action in this sound have been given in Ladefoged (1968).

(4) bəɸú (ideophone descriptive of sudden appearance and flight)

Figure 53. Ladefoged (1980: 97). <ɸ> for a labiodental flap in Margi.

vɛly. In Zesuru there is a labiodental flap in which the lower lip is drawn back behind the upper teeth and then flapped forward to its position of rest. It is symbolised in this study by the symbol [ɸ].

Figure 54. Fortune (1981: 10). <ɸ> for a labiodental flap in Zesuru.

Vibrants	ɸ	ⓧ
Glides	w̄	

Figure 55. Tadadjeu & Sadembouo (1984: 8). <ɸ> in transcription for the *General Alphabet of Cameroon Languages*. The letter <ɸ> to its left is available in the PUA of SIL fonts.

En Acuayuca y Cuauhtepanca coexisten los seis alófonos de /w/ de principio de sílaba: [w], [b], [ɸ], [w], [ɸ] y [bʷ] (véase el mapa 20). Después de mostrar la distribución geográfica de los alófonos de /w/, trataremos otro comportamiento dialectológicamente signifi-

Figure 56. Hasler (1996: 92). [b], [w], [ɸ] as allophones of /w/ in the transcription of Náhuatl. [ɸ] is a labiodental approximant with narrow lips.

and in each case the prefix is : (i), M̄ a homorganic nasal (column 3) or (ii), ⓧ, one of five possible vowels, for example, a (column 4). The realization of the radical consonant in medial position in the reduplicated verbal base is also as

Figure 57. Berry (1955: 163). Capital <ⓧ> (also <M̄>).

For ^w, ^x, ^y, ^z, in Chapter 58, see § 57.17.

C = any consonant.

€ = a consonant harmonizing with the following consonant.

N = a homorganic nasal consonant.

V = a short vowel.

VV = a long vowel.

V = a vowel the same as the following vowel.

-U = the alternance -u/zero/-(u) (§§ 9.8(i), 9.9–10).

Figure 58. Arnott (1970: xiii). Capital <N> and <V> for harmonic nasal and vowel.

(vi) **-Vt**

9.16. In some Future tenses one form of the tense suffix consists of a vowel followed by **t**, but the vowel varies with the vowel of the next element, e.g. (Relative Future Active)

ngar-at-aa you will come
ngar-et-en you and I will come
ngar-ot-on you (pl.) will come

Here the tense suffix may be generalized as **-Vt, V** representing a vowel identical with the following vowel. The same pattern may be recognized in the General Future Middle form **mi-yaaf-et-e** as against **mi-yaaf-oto-be** (§ 9.14 above); and in fact there are a number of other suffixes beginning with **-at, -et, or -ot** where the vowel could be generalized as **V**, since it is always the same as the immediately following vowel:⁸

-at(-aa) **-ata** **-ataa** **-ataako** **-ataake**
-et(-en) **-ete** **-etee**
-ot(-on) **-oto** **-otoo**

generalized as:

-Vt **-VtV** **-VtVV** **-VtVVCV**

Figure 59. Arnott (1970: 59).

Barred g with palatal hook

<i>j</i> [j-] ¹	Andersen 1954:306c: [j]. (Storm 1908:138; Nes 1978:161).
g [ɣ] ¹	(Storm i oppskr. 1883-84, brukt i 1892:XI; Skulerud 1922:429; Nes 1978:161).
<i>x</i> [x] ¹	(Storm 1908:143).
g [ɣ, ɣ] ¹	Andersen 1954:306c: [ɣ]. (Storm 1908:144).

Figure 60. Nes (1982: 24). The transcription <g> and its IPA equivalent <ɣ> for Norwegian. Barred <g> was the IPA convention for a velar fricative before the adoption of modern <ɣ>. Because the Scandinavian convention is to use italics, it's not clear whether this is an inherently script *g*.

Storm	Koefoed	Nes
<i>t</i>	ṭ	c
<i>d</i>	ḏ	ɟ
<i>tʃ</i>	c	c̥-
<i>dʃ</i>	ɟ	ɟ̥-
<i>n</i>	ṇ	ɲ
<i>ɲ</i>	ɲ	ɲ̥
<i>l</i>	l	ʎ
<i>k</i>	x	ɕ
<i>j</i>	ɕ	ʃ-
<i>j</i>	j	j-
<i>k</i>	k	k
<i>g</i>	g	g̥
g	ɣ	ɣ

Figure 61. Nes (1978: 162). The printed text does not match, but in a footnote on p. 166 the printer explains that they lack a symbol for the correct rendering.

The consonant phonemes of Lithuanian (some of which are marginal) can be given in the following table:

	labial		dental		post-alveolar		palatal	velar	
plosives	p	b	t	d				k	g
	p̣	ḅ	ṭ	ḍ				ḳ	g̣
fricatives	f		s	z	ʃ	ʒ		x	g
	f̣		ṣ	ẓ	ʃ̣	ʒ̣		x̣	g̣
affricates			ṭṣ	ḍẓ	ṭʃ̣	ḍʒ̣			
			ṭʃ̣	ḍʒ̣	ṭʃ̣	ḍʒ̣			

PHONOLOGY

23

German *ich-Laut*. The voiced counterparts [g] and [g̣] are pronounced with activation of the vocal cords.

As demonstrated in the above table the [r] and [ṛ] are dentals.

Figure 62. Mathiassen (1996: 21, 23). Script barred <g̣> for Lithuanian. (The bar is missing in the table, but obvious from context and clarified in the text at bottom.) Old-style <g> is used for modern <ɣ>.

the five most notable of these subsidiary sounds by separate symbols: Δ, g̣, g, e, ē. These sounds may be considered as belonging to the l, x̣, x, ε, and ē

30. x̣, g̣. Fricatives formed at the same place as ḳ and g. x̣ is breathed, g̣, voiced.

Figure 63. Arend-Choiński (1924: 8, 14). Script <g̣> for Polish.

Barred closed omega

⟨̩̥⟩ is the equivalent of the para-IPA barred central rounded vowel letter ⟨̥̩̥⟩ for those who prefer the historical IPA letter ⟨̩̥⟩ to now-standard IPA ⟨̥̩̥⟩. It parallels U+1D7C ⟨̥̩̥⟩ for 1D7B ⟨̥̩̥⟩ for the unrounded vowel.

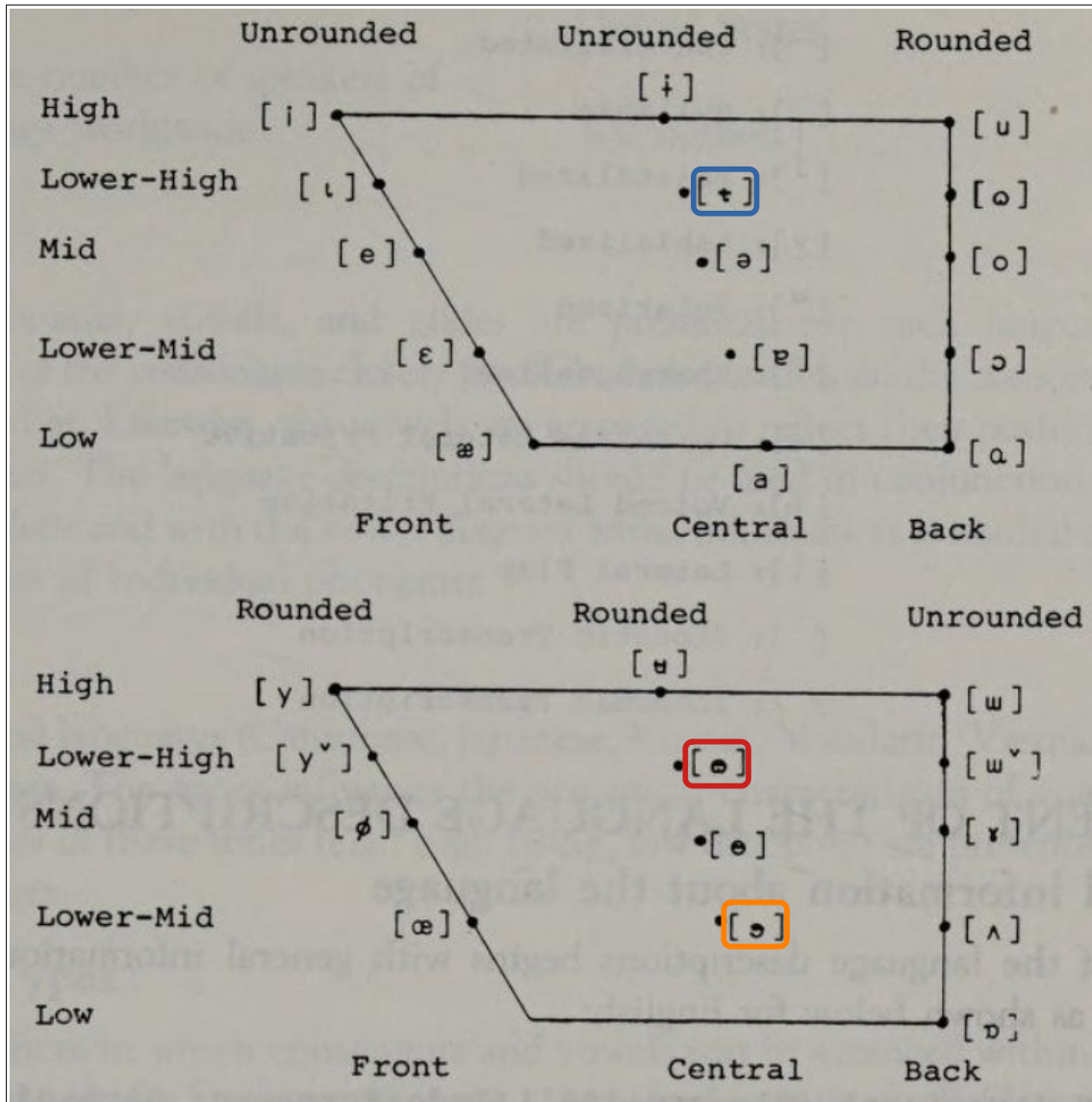


Figure 64. Mattes & Omark (1984: 133). Central vowels ⟨̩̥̥⟩ (red) and ⟨̥̩̥̥⟩ (blue) in a transcription system that uses alternative IPA letters ⟨̥̩̥̥⟩ and ⟨̥̩̥̥̥⟩. Note also barred open o ⟨̥̩̥̥̥⟩ (orange).

y with low stroke

A y with stroke below the baseline, <y>, is found in Old Norse manuscripts (Leeuw van Weenen 2000). Capital <Y> and the lowercase <y> were used in 19th-century Maya orthography as an abbreviation of *yéteł* ‘and’. The stroke is also set purposefully low in transcriptions of Tahltan.

	2.	<i>ʔáyt'eʔi</i>	
		/ʔa=<i'=s=h-t'eʔ=ɪ/ ¹¹	
		?-perfective-I-augment-be-final	
		‘I have been’	
	3.	<i>ʔáde:st'eʔ</i>	
		/ʔa-d-<e:s=h-t'e-ʔ/	
		?-completion-I+futureA-augment-be-futureB	
		‘I will be’	
(k)	1.	<i>ʔet^séy</i>	
		/ʔe-t ^s ey/	
		he-cry	
		‘he cries’	
	2.	<i>yí^tse^yi</i>	
		/yə=<i'-∅-t ^s e'y=ɪ/	
		yə-.conjugation-perfective-he-cry-final	
		‘he has cried’	
	3.	<i>náda^tse^yʔ</i>	
		/na-d-<∅-t ^s ey=ʔ/ ¹²	
		again-completion-he+futureA-cry-futureB	
		‘he will cry again’	
C = consonant		V = vowel	
K = non-R consonant		VR = VR or	
R = <i>ɲ, n, n', y, y, ʔ, h</i>			

Figure 65. Nater (2006: 56, 57). <y> for Tahltan. The key (blue) shows that the cross stroke is purposefully set lower than the bar in <n>.

Barred chi

In the German and other European transcription conventions, chi <χ> is used for a palatal or velar fricative (IPA <ç> or <x>), and a modified chi such as dotted <χ̣> or barred <χ̤> is used for the uvular (IPA <χ̤>).

χ	stimmloser mediopalataler Frikativ (ich-Laut)
χ̣	stimmloser prävelarer Frikativ
χ̤	stimmloser velarer Frikativ (ach-Laut)
χ̥	stimmloser uvularer Frikativ

Figure 66. VIVALDI (1998–2018, transcription guide). Barred <χ̥> for a voiceless uvular fricative, alongside palatal <χ>, pre-velar <χ̣> and velar <χ̤>.

Taufers:
dər r̥χ̥n

Graun:
d̥r̥χ̥n

Figure 67. VIVALDI (1998–2018, Trentino-Südtirol). Entry for ‘il rastrello’ (‘the rake,’ standard German *der Rechen*), with a uvular pronunciation of the *ch*.

Modifier \grave{b} , g

Modifier \grave{b} and g are used for weak sounds and doubly-articulated consonants.

$[b^g]$	labiovelar
$[b^g]$	fricativa labiovelar
$[b^{fi}]$	aspirada
$[b]$	relajada

Figure 68. Lope Blanch (1990–2000). RFE transcription in linguistic atlas of Mexico. $\langle b^g \rangle$ is a labiovelar fricative, IPA $[\beta y]$; $\langle b \rangle$ is a ‘relaxed’ \grave{b} , IPA $[\beta]$.

34

$\varphi\grave{b}$ bilabiodental fricativa semisonora.

Figure 69. Alvar, Llorente & Salvador (1975: 34).

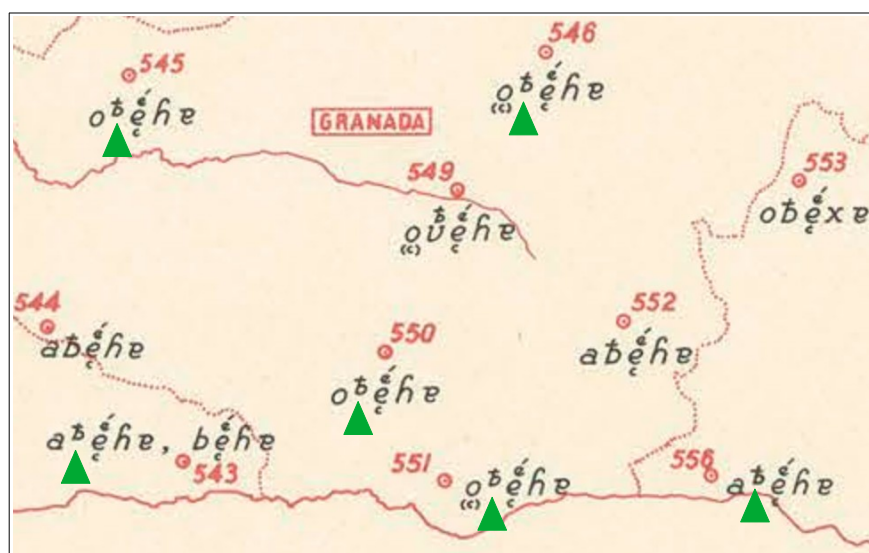


Figure 70. Tomás (1962: map 6). $\langle b \rangle$ for a ‘relaxed’ $[\beta]$ in the dialect atlas of Iberia. The word is *abeja* ‘bee.’



Figure 71. Tomás (1962: map 66). <sz> for a 'relaxed' [ɣ], alongside a superscript <sz> in one case. The word is *desnudo* 'naked.'

/jauk/ [ja^{up}k] 'in the status of bachelorhood'; /jouk/ [jo^{up}k] 'danger or fear as of attack'; /mauke/ [ma^{ub}gʒ] 'periodic pig feast'; /ouk-ekke/ [...^{ub}gʒkʒ] 'sickness'; symbols [k^p] and [g^b] represent the phonetic complex of bilabial closure preceding and simultaneous with backed velar closure in the preceding examples.¹²

/kouk-a/ [k^{ub}ga, k^uga]

Figure 72. Bromley (1961: 29, 42). Bowl-struck g and superscript b, <b^g>, in Dani. The bowl-struck glyph variant of modifier should be handled the same way as the base letter ~ .

fricative allophones. Velarization is written here with superscript [g] above the colon marking added vowel length: /hakasin/ [deliberately ha^gasin rapidly in conversation ha^gsin] 'do it'; /sokou'mo/ [deliberately scgc^{up}mc, rapidly in conversation sc^{up}mc] 'Sogoukmo, a village name.'

Figure 73. Bromley (1961: 26, 27). Modifier <sz> indicates velarization, IPA [ɣ]. Stroke position should be handled the same as ~ .

Modifier \dot{d}

Modifier \dot{d} is used for weak sounds and shades of sound.


 interdental fricativa semisonora.

Figure 74. Alvar, Llorente & Salvador (1975).

\dot{d} consonante dental fricativa sonora relajada, con menor los incisivos que en \dot{d} .
 \dot{d} consonante dental fricativa sorda; puede ser relajada (\dot{d})

Figure 75. Tomás (1962: introduction). $\langle \dot{d} \rangle$ for a 'relaxed' [ð].

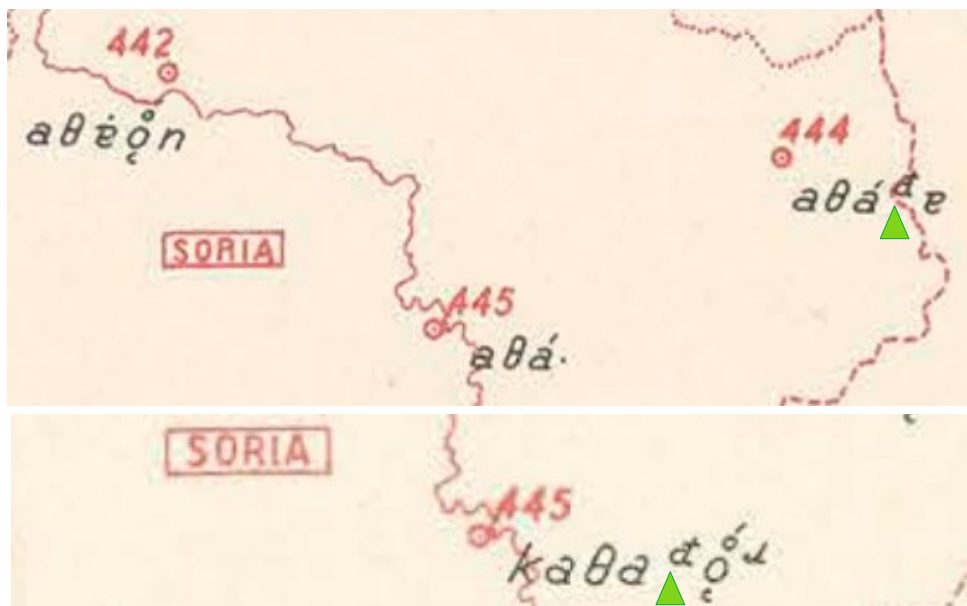


Figure 76. Tomás (1962: maps 22, 39). The words are *azada* 'hoe' and *cazador* 'hunter.'

$lo_{(u)}^{\dot{d}}$ $\dot{d}om\dot{u}nggo_{(u)}$
ALMERIA

Figure 77. Tomás (1962: map 72). The phrase is *los domingos* 'on Sundays.'

Modifier ɫ and ɭ (and ɮ)

Used for weak sounds or a fricated release.

[ʌ] denotes a true palatal *l*, homorganic with [c j]. The symbol is rarely used.

Superior lateral symbols, especially [ɭ] and [ɮ], denote sounds resembling true laterals but formed without actual contact between the tip of the tongue and the roof of the mouth, heard frequently in words like *will* and *milk*. When these sounds are

Figure 78. Kretzschmar (1993: 124). A weak <ɭ>.

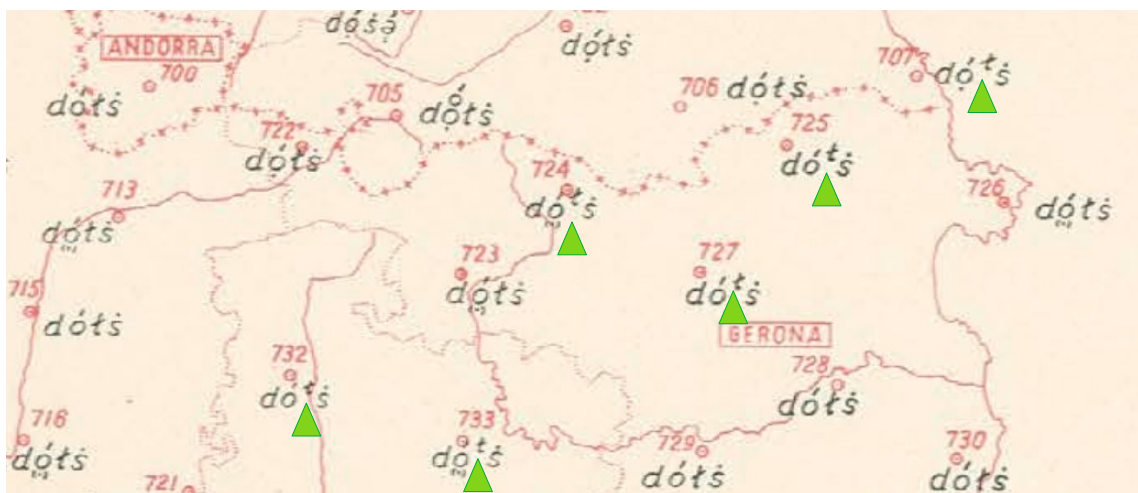


Figure 79. Tomás (1962: map 74). <ɭ> for a 'relaxed' [ɭ] in the dialect atlas. The word is Catalan *dolç* 'sweet.'

An apical-alveolar laterally released [ɮ], freely varying initially with [tɮ] ([ʌ]), an apical-alveolar affricate with a lateral release.

Figure 80. Pitkin (1984: 32) *Wintu Grammar*. <ɮ> for the affricate [tɮ] in IPA.

Voiceless affricates [ts]		t^s or c
45		
Voiced affricates	[tʃ]	t^s or č
	[tʃ̥]	t^h or ʃ̥
	[dz]	d^z or ʒ
	[dʒ]	d^z or ʒ̣
	[dl]	d^l or λ

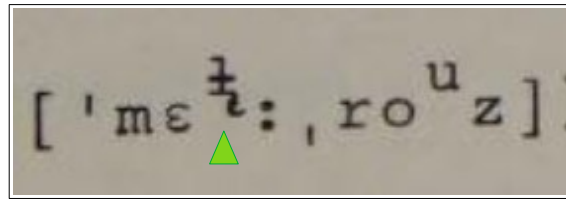
Figure 81. Hollow (1970: 45–46). Americanist <t^h> as an equivalent to <ʃ̥>.

4	ɪ [d ^l]	ʃ̥ [t ^h]	ʃ̣ [ṭ ^h]	ʒ [ʒ]	ɪ [ɪ]
---	---------------------	----------------------	-----------------------	-------	-------

Figure 82. Nater (1986: 314/2). <t^h> and ejective <ṭ^h>.

[a ^(e) ɪ̣:]	<u>file</u>	also	[a ^{ɪ̣} ɪ̣:]
[a ^(o) ɪ̣:]	<u>foul</u>	also	[æ ^{ɪ̣} ɪ̣:]
[ɔ ^(e) ɪ̣:]	<u>foil</u>	also	[ɔ ^{ɪ̣} ɪ̣:]
['sɪ̣ɪ̣~li] with ['sɪ̣ɪ̣~li]			

Figure 83. Bailey (1985: xxv, 17). bottom: two pronunciations of “silly,” with the tilde separating syllables. Superscript <ɪ̣> is a vocalized el, not a consonant, thus the long vowel [æ^{ɪ̣}ɪ̣:].



*The lateral satellite may be retroflex before [r] (e.g. Melrose ['mɛ ^{ɹ̠} : , r o ^u z]), but is not usually fronted to [^{ɹ̟}] before

Figure 84. Bailey (1985: xxv). Modifier <ɹ̠>. A baseline <ɹ̟> is not attested.



distill(e)ry, chol(e)ra, scull(e)ry. Here, /l/ becomes [^{ɹ̠̠̠}].
Cf. gallery ['ɟæ ^{ɹ̠̠̠} : rɪ 'ɟælə rɪ -i].

Figure 85. Bailey (1985: 131, 173).

Modifier ɹ̠

Used in Penhallurick and similar dialect atlases for weak allophones of English /r/. <ɹ̠> is used, along with a modifying superscript variant, for fricative [ɹ̠] in Penhallurick (1991). The data this is based on is published in volume 3 of D.R. Parry (director, U. of Swansea) & Penhallurick (ed.) *Survey of Anglo-Welsh Dialects*.

The following superscript IPA letters in
ɹ ɹ̠ ^{ɹ̠̠̠} ɹ̠̠̠̠ ɹ̠̠̠̠̠ ɹ̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠̠̠̠̠

The following superscript IPA letters indicate weak articulation :
ɹ ɹ̠ ^{ɹ̠̠̠} ɹ̠̠̠̠ ɹ̠̠̠̠̠ ɹ̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠̠̠̠̠

Figure 86. Penhallurick (1991: xviii, two copies). Modifier IPA superscript letters used for weak articulation. The letters are <ɹ ɹ̠ ^{ɹ̠̠̠} ɹ̠̠̠̠ ɹ̠̠̠̠̠ ɹ̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠̠̠̠ ɹ̠̠̠̠̠̠̠̠̠̠̠>.

ISO/IEC JTC 1/SC 2/WG 2
**PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS
 FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646¹.**

Please fill all the sections A, B and C below.

Please read Principles and Procedures Document (P & P) from std.dkuug.dk/JTC1/SC2/WG2/docs/principles.html for guidelines and details before filling this form.

Please ensure you are using the latest Form from std.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html.
 See also std.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html for latest *Roadmaps*.

A. Administrative

1. Title:	<i>Barred letters</i>	
2. Requester's name:	<i>Kirk Miller, Timothy Usher, Denis Jacquerye</i>	
3. Requester type (Member body/Liaison/Individual contribution):	<i>individual</i>	
4. Submission date:	<i>2024 November 13</i>	
5. Requester's reference (if applicable):		
6. Choose one of the following:		
This is a complete proposal:		<i>yes</i>
(or) More information will be provided later:		

B. Technical - General

1. Choose one of the following:			
a. This proposal is for a new script (set of characters):			<i>no</i>
Proposed name of script:			
b. The proposal is for addition of character(s) to an existing block:			<i>yes</i>
Name of the existing block:	<i>Latin Extended-G</i>		
2. Number of characters in proposal:			<i>29</i>
3. Proposed category (select one from below - see section 2.2 of P&P document):			
A-Contemporary	<input checked="" type="checkbox"/>	B.1-Specialized (small collection)	<input type="checkbox"/>
C-Major extinct	<input type="checkbox"/>	D-Attested extinct	<input type="checkbox"/>
F-Archaic Hieroglyphic or Ideographic	<input type="checkbox"/>	E-Minor extinct	<input checked="" type="checkbox"/>
G-Obscure or questionable usage symbols	<input type="checkbox"/>		
4. Is a repertoire including character names provided?			
a. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?			<i>yes</i>
b. Are the character shapes attached in a legible form suitable for review?			<i>yes</i>
5. Fonts related:			
a. Who will provide the appropriate computerized font to the Project Editor of 10646 for publishing the standard?	<i>Kirk Miller</i>		
b. Identify the party granting a license for use of the font by the editors (include address, e-mail, ftp-site, etc.):	<i>SIL open font license</i>		
6. References:			
a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?			<i>yes</i>
b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?			<i>yes</i>
7. Special encoding issues:			
Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?			<i>no</i>

8. Additional Information:
 Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at www.unicode.org for such information on other scripts. Also see Unicode Character Database (www.unicode.org/reports/tr44/) and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

¹ Form number: N4502-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10, 2007-03, 2008-05, 2009-11, 2011-03, 2012-01)

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before? If YES explain	<i>no</i>
2. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)? If YES, with whom? If YES, available relevant documents:	<i>yes</i> <i>Tim Usher</i> <i>p.c. emails available</i>
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included? Reference:	<i>yes</i>
4. The context of use for the proposed characters (type of use; common or rare) Reference:	<i>orthography, transcription</i>
5. Are the proposed characters in current use by the user community? If YES, where? Reference:	<i>yes</i> <i>See figures</i>
6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP? If YES, is a rationale provided? If YES, reference:	<i>no</i>
7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?	<i>yes</i>
8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence? If YES, is a rationale for its inclusion provided? If YES, reference:	<i>yes</i> <i>U+0335, 0336 are not</i> <i>adequate hacks for orthography or professional typesetting.</i>
9. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters? If YES, is a rationale for its inclusion provided? If YES, reference:	<i>no</i>
10. Can any of the proposed character(s) be considered to be similar (in appearance or function) to, or could be confused with, an existing character? If YES, is a rationale for its inclusion provided? If YES, reference:	<i>no</i>
11. Does the proposal include use of combining characters and/or use of composite sequences? If YES, is a rationale for such use provided? If YES, reference: Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided? If YES, reference:	<i>no</i>
12. Does the proposal contain characters with any special properties such as control function or similar semantics? If YES, describe in detail (include attachment if necessary)	<i>no</i>
13. Does the proposal contain any Ideographic compatibility characters? If YES, are the equivalent corresponding unified ideographic characters identified? If YES, reference:	<i>no</i>