L2/20-125

Unicode request for a ligature, expected IPA retroflex letters and similar hooks & tails.

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Ligatures

ɬ LATIN SMALL LETTER L WITH FISHHOOK. Figures 1–7.

Expected IPA retroflex letters

ɻ LATIN SMALL LETTER TURNED R WITH LONG LEG AND RETROFLEX HOOK. Figures 8–11.

ƭ LATIN SMALL LETTER T WITH TOP HOOK AND RETROFLEX HOOK. Figures 12–13 + note.

Other retroflex tails

ɽ LATIN SMALL LETTER O WITH RETROFLEX HOOK. Figure 15.

ɨ LATIN SMALL LETTER I WITH STROKE AND RETROFLEX HOOK. Figure 16.

ʧ LATIN SMALL LETTER TESH DIGRAPH WITH RETROFLEX HOOK. Figure 14.

(currently have vowels ɑ ɑ ɐ ɛ ɜ ə i ɿ ɔ ᴜ ᴜ + alveolar ɖ ɭ ƫ ɳ ɾ ɻ ʂ □(t-ʂ) ʃ t z □(d-ʐ) ʒ)

Palatal hooks

ɬ LATIN SMALL LETTER L WITH BELT AND PALATAL HOOK. Figure 23.

ŋ LATIN SMALL LETTER ENG WITH PALATAL HOOK. Figure 24.

ɻ LATIN SMALL LETTER TURNED R WITH PALATAL HOOK. Figures 17–19.

... LATIN SMALL LETTER R WITH FISHHOOK AND PALATAL HOOK. Figure 19.

ʒ LATIN SMALL LETTER EZH WITH PALATAL HOOK. Figures 20–21.

ʤ LATIN SMALL LETTER DEZH DIGRAPH WITH PALATAL HOOK. Figure 22.

ʧ LATIN SMALL LETTER TESH DIGRAPH WITH PALATAL HOOK. Figure 22.

(currently support consonants (except j, y, w) + ʃ)

Figures

l–ɾ ligature (r with ascender, ɬ)

An old letter for a lateral flap, used in IPA transcription before the official adoption of *ɺ*. Also used by Dolgopolsky (2013) for a liquid that is historically ambiguous between [ɾ] and [l]. Considered for similar use (as a 'rhotic lateral') by the extIPA in 2015, but the eventual decision was to not adopt it.

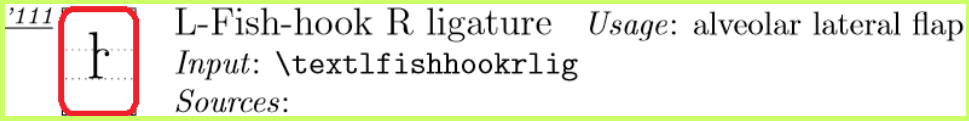


Figure 1. Fukui (2004: 29)

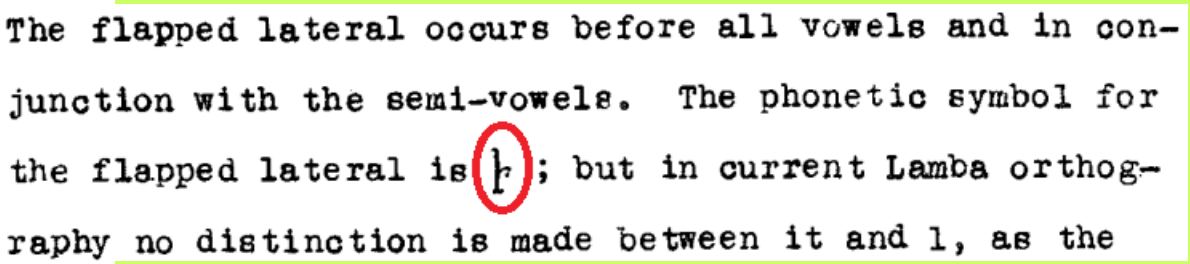


Figure 2. Doke (1938: 29). The apparent descender is simply a misaligment with the baseline, as seen in the next illustration.

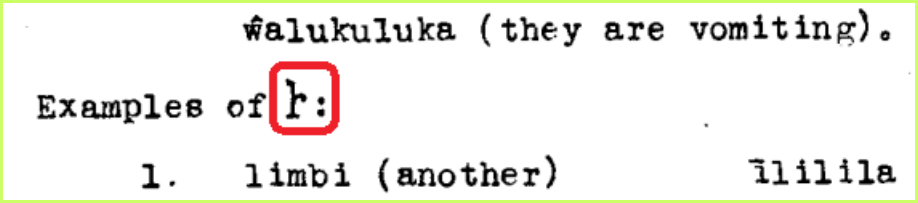


Figure 3. Doke (1938: 38), showing that the letter has no descender. (This is also apparent from the consonant table on p. 11, where the ligature appears in italic hand.)

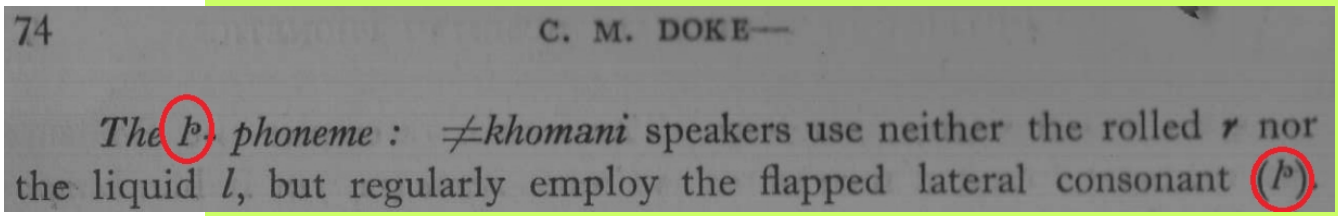


Figure 4. Doke (1936: 74). A typeset ligature in italic typeface.

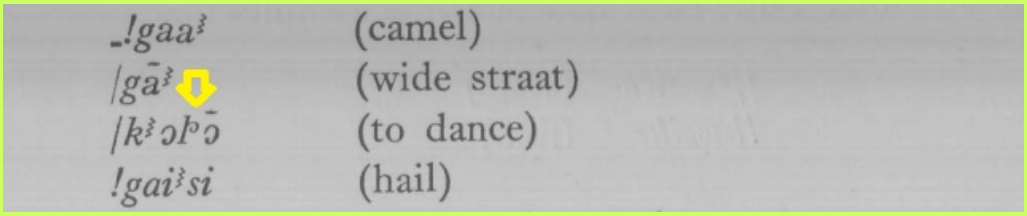


Figure 5. Doke (1936: 68). An example of the *l-r* ligature in the context of a word.

ɾ = a consonant (flap or tap) that is intermediate between r and l (Loubignac's ǰ in ZAS), or a phoneme without phonemic distinction between r and l (as in proto-Agaw).

Figure 6. Dolgopolsky (2013: 230)

und volksetymologischer Verdrehung") ||| **From N** *paLuC∇ (or *paLüC∇?) 'stinging insect (flea, mosquito, tick)' > **HS**: C ≈ *f∇ll∇t- 'flea' > EC: Gdl fillét id. (coll.); ?? Hr {AMS} fillàyye, Gwd {AMS} fillàye 'flea' (× N *P̲ʳiʔuˀL∇ 'stinging insect') ¦¦ Ag *fɜɾɾ∪t- (= *fɜll∪t-), {Ap.} *fɜl∇t- > Bln {R} filúːtāˑ, Xm {R} falta, Q {R} peleyə, {Flad} pelea, Km {Ap.} fälä̀y 'flea' ¶ Ap. AV 9 (Ag *fɜl∇t-), Ap. WLQ 8, AD SF 45 (Ag *f∇ll∇t- or *f∇ɾɾ∇t-), R WB

Figure 7. Dolgopolsky (2013: 494), for proto-Agaw ('Ag'), showing that here ⟨ɾ⟩ is not the lateral flap ɺ but rather a consonant indeterminate between *l and *r.

Alveolar IPA letters with retroflex tail

Like the implosive ⟨ɗ⟩ mentioned in the *Handbook* as an obvious, if unofficial, extension of the IPA, the lateral flap ⟨ɻ⟩ and old-style implosive ⟨ƈ⟩ fill out the retroflex series. (For ⟨ǃ⟩ and ⟨ƛ/ƺ⟩, see the separate requests for click and extIPA letters.)

Erik Zobel wrote, 2020 feb 04: *I'm am working on two chapters ("Chamorro" / " Palauan") for the OUP Guide to the Malayo-Polynesian languages of Southeast Asia and Madagascar, and there will also be a chapter about the languages of Sulawesi. I'm lobbying to have the authors use the SIL PUA symbol for the retroflex lateral flap in the phonetic overview, and mention the attestation in Buol, Totoli, Tonsawang, Sangir etc. Can't guarantee if they will listen to me, but do you think that may help?*

Retroflex lateral flap (ɻ)

A retroflex lateral flap occurs throughout South Asia, in languages spoken by half a billion people, from Pashtun to Oriya (Masica 1991*The Indo-Aryan Languages*), in Sulawesi, and in various languages of Australia, Africa and the Americas.

Table 1: Ku Waru phonemic inventory: Consonants

	Labial	Apico-Alveolar	Palatal	Velar
Plain stop	p	t		k
Fricative		s		
Prenasalized stop	mb (b)	nd (d)	ɲd͡ʒ (j)	ŋg (g)
Nasal	m	n	ɲ (ny, yn)	ŋ (ng)
Continuant	w	r	j (y)	

	Retroflex flap	Alveolar continuant	Palatal continuant	Prestopped velar
Lateral	ɻ (rlt)	l (*l*)	ʎ (ly, yl)	ʡʟ (l)

Figure 8. Rumsey (2017: Table 1)

Retrofex lateral flap /ɻ/.

(1) a. /ɹim/ → [ɻim] a woman's name
b. /(kera) koɹa/ → [(kɛrʌ) koɻʌ] '(bird) chicken'
c. /(kum) piniɹ/ → [(kum)pinɻ] '(ear) eardrum'

Figure 9. Rumsey (2017: 98)

Lateral approximant		l	ɭ	ʎ	ʟ
Lateral flap		ɺ			

Figure 10. Bekker (2003: 439). The letter is grey rather than black because it's not an official IPA symbol.

suffice). Other unofficial symbols are [ɻ] for a retroflex lateral flap and [ʁ] for an epiglottal

Figure 11. Ball et al., section 4.1.

Mark Harvey (p.c.), who wrote a grammar of Gaagudju where the sound occurs allophonically, said of the letter ɻ that he "can forsee that it will need to be used in descriptions of Australian languages, so [he] would be happy to support its inclusion."

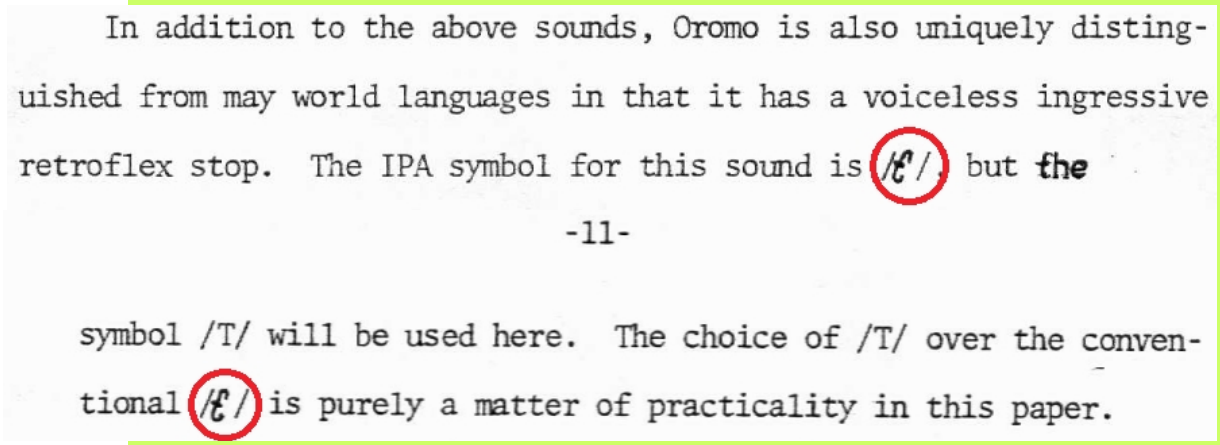
Robert Mailhammer (p.c.) said of the proposal for ɻ that "the symbol [I] used has been an l with either a tap or a retroflex tap superscript [...]. But having a proper symbol would, of course be good. [...] for the lateral flaps there is definitely a need."

Lakhan Gusain at John Hopkins (p.c.) says he would like to have this letter for Pashto.

Eric Zobel (p.c.) said "For us Sulawesianists, it's quite a pity that the retroflex lateral flap doesn't get a Unicode symbol. Sneddon has described it for the Sangiric languages, Himmelmann for Totoli and Dondo,"

Small t with hook and tail (ʇ)

A voiceless retroflex implosive. It occurs in Oromo. It is the single missing voiceless implosive letter.



In addition to the above sounds, Oromo is also uniquely distinguished from may world languages in that it has a voiceless ingressive retroflex stop. The IPA symbol for this sound is /ʈ/, but the

-11-

symbol /T/ will be used here. The choice of /T/ over the conventional /ʈ/ is purely a matter of practicality in this paper.

Figure 12. Dissassa (1980: 10–11)

Table 28.1 lists the implosives that have been found in languages. Unlike ejectives, implosives can be either voiced or voiceless. The voiced series of implosives is more common than the voiceless series. There appear to be no implosive fricatives used in any language, although a voiced implosive affricate [ʤ] is reported to occur in Roglai of Vietnam (Norris McKinney, personal communication) and Komo of the Democratic Republic of Congo.

Table 28.1. Implosive sounds

	Bilabial	Alveolar	Palato-alveolar	Retroflex (alveolar)	Palatal	Velar	Uvular	
vl.	ɓ̥	ɗ̥		ʈ		ɠ̊	ʛ̥	implosive stop
vd.	ɓ	ɗ		ɖ	ʄ	ɠ	ʛ	
vd.			ʤ					implosive affricate

The ingressive glottalic airstream mechanism is symbolized by adding a hook to the top of the basic symbol of the corresponding pulmonic sound.

Figure 13. Bickford & Floyd (2006)

Laver (1994: 582, Table 19.2h) lists a voiceless retroflex implosive in a table like that of Bickford &

Floyd, for the frequency of sounds in the UPSID, but the printed symbol is a typographic error: ⟨ɓ ʄ̪ ʄ̪~f̪ f̪ f̪ ƈ̓ ƙ ɖʃ⟩. The other UPSID tables all have a retroflex-tailed letter in the retroflex column. For example, the voiced implosive series is ⟨ɓ ɖ̪ ɖ̪~ɗ ɗ ɖ̪ ɖʃ ʄ ƈ̓⟩, with a non-IPA retroflex *ɖʃ*. Other typos occur in these UPSID tables, such as ⟨N̥⟩ for ⟨ɴ̥⟩ in Table 19.2j and ⟨B⟩ for ⟨ʙ⟩ in 19.2p, so it appears that this would have been a retroflex *ɾ* but for the lack of proper font support. I have asked John Laver about this, but I've been warned he is not well and may not respond.

Other retroflex tail

ʧ with retroflex tail (t-ʃ ligatures: ʧ)

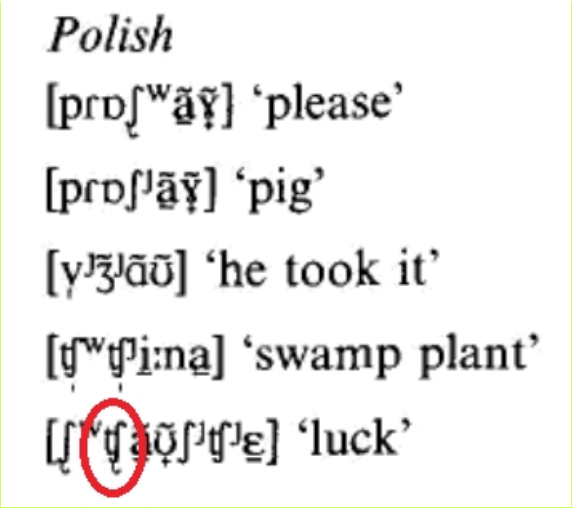


Figure 14. Laver (1994: 560)

Small o with retroflex tail (ɋ)

The only basic-Latin vowel without a tailed variant. Used for prosodic/allophonic retroflexion in descriptions of Iwaidja. In the figure below it slightly resembles an o-ogonek, but is analogous to other retroflex/rhotic vowels (cf. the a-with-tail ⟨aɻ⟩ rather than a-ogonek ⟨ą⟩ in the transcription following each example).

> Firstly, although retroflexion can be realised phonetically on a syllable-initial segment (e.g. /gomɖaw/ (I) 'long-necked turtle'), a final segment (e.g. /gunbaɖ/ 'knee'), a vowel (e.g. /beˈg/ 'deaf adder'), or various combinations of the above (e.g. /dɋd/ 'louse', /gaɻgːi/ 'salmon-tailed catfish' (E:D)), it only needs to be marked once on any syllable and once a syllable is marked as retroflex the loci of retroflexion will be predictable: any apical segment in the syllable and the vowel. Retroflexion is more clearly audible on the vowel in monosyllables, which are phonetically lengthened, as discussed in §2.1.2.
>
> Within a syllable, all apical stops and nasals agree in retroflexion. Thus there are words like /ʈiʈ/ 'moon', /ʈɋʈ/ 'louse' and /ʈaɳki?/ 'near' on the one hand and /nin/ 'small bird', /nan/ 'I saw you' and /tatkujeɲ/ 'long-legged' on the other, but no syllables like */ʈit/, */tiʈ/, */naɳ/ or */ɳan/. The only exceptions to such 'retroflexion agreement' occur when two apical consonants are linked across a morpheme and syllable boundary (see below). Note also that the retroflex continuant /ɹ/ does not participate in these effects and hence we find words like /naɹin/ 'snake'.

Figure 15. Evans (2003: 86). Syllable-level retroflexion of consonants and vowels.

i-bar with retroflex tail (ɨ̡)

Used for Tarascan in the UPSID.

Retroflexed high central unrounded vowel.		
/ɨ̡/	1	Tarascan.

Figure 16. UPSID (1981: 229)

Palatal hook

Turned small r and tap ɾ with palatal hook (ɻ add ɾ,)

Used for palatalization of English *r*.

effect, transcribing *rara* as ['ra:rɵ]. In all positions it is slightly palatalized before *i* . Between low vowels some speakers, e.g. Dugal Goongarra, pronounce it as a retroflex flap, neutralizing the distinction between *r* and *rd* .

'south'	*rara*	/ ɹaɹa /	['ɹɐɹ]
'egg'	*kuru*	/ kuɹu /	['kɷɹɷ]
'east'	*riya*	/ ɹiya /	['ɹ̡ei]
'young girl'	*nguriwa*	/ ŋuɹiwa /	['ŋɷɹ̡iɒ]
'red ant'	*barakurra*	/ paɹakura /	[baɹɐkur ~ 'baɽɐkur]

Figure 17. Evans (1995: 56)

[ß v ẓ ð z ɹ ʁ ʐ ɹ̡ ẓ ɹ̣ ʒ ʒ̡ ž j j̇ ṙ r ɦ] denote weak (lenis) voiced fricatives. When initial in a word or final in a phrase, these sounds are often partly or wholly devoiced (equivalent to [ß̥ y̥ ẓ̥ ð̥ z̥ ɹ̥ ʁ̥ ʐ̥ ɹ̡̥ ẓ̥ ɹ̣̥ ʒ̥ ʒ̡̥ ž̥ j̥ j̥̇ ṙ̥ r̥]. This fact is indicated by the field workers only when the devocalization is complete or especially noticeable.

Figure 18. Kretzschmar (1994: 124). The palatal ɹ is repeated several times on the page. The symbol highlit in yellow goes with the next entry.

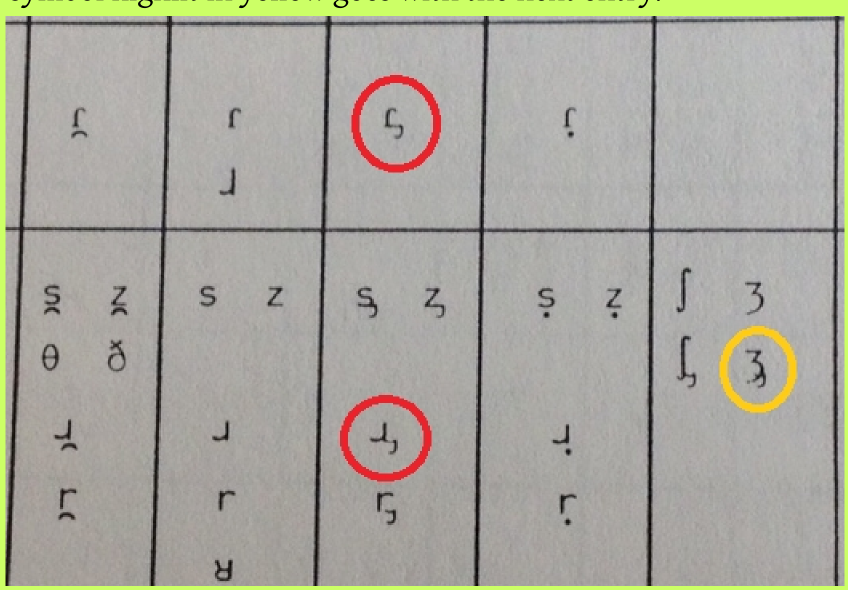
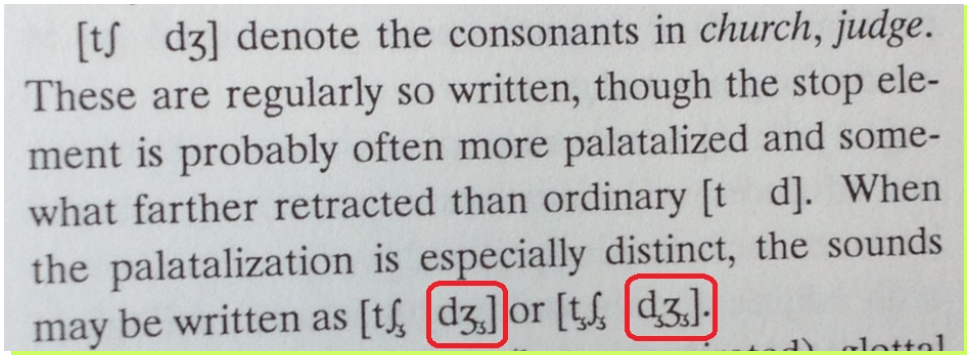


Figure 19. Kretzschmar (1994: 116). [is this the correct source?]

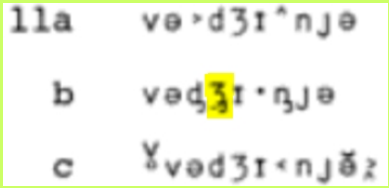
Ezh with palatal hook (ʒʲ); d-ezh and t-esh with hook (ʤʲ, ʧʲ)

Used for palatalization of [ʒ] since the dedicated IPA letter <ʒ> was abandoned.



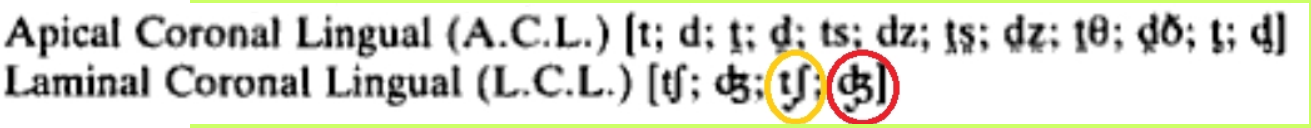
[tʃ dʒ] denote the consonants in *church*, *judge*. These are regularly so written, though the stop element is probably often more palatalized and somewhat farther retracted than ordinary [t d]. When the palatalization is especially distinct, the sounds may be written as [tʃʲ dʒʲ] or [tˌʃˌ dˌʒˌ].

Figure 20. Kretzschmar (1993: 123). <ʒʲ> is also visible (yellow) in the previous figure. On p. 115 they note that in Kurath et al. (1943) *LANE*, ʃʲ and ʒʲ have the hook coming off the bottoms of the letters, but those are clearly allographs.



11a	və·dʒɪˆnjə
b	vədʒʲɪ·ŋjə
c	ᵛvədʒɪ‹njə̆ː

Figure 21. McDavid & O'Cain (1980: 130)

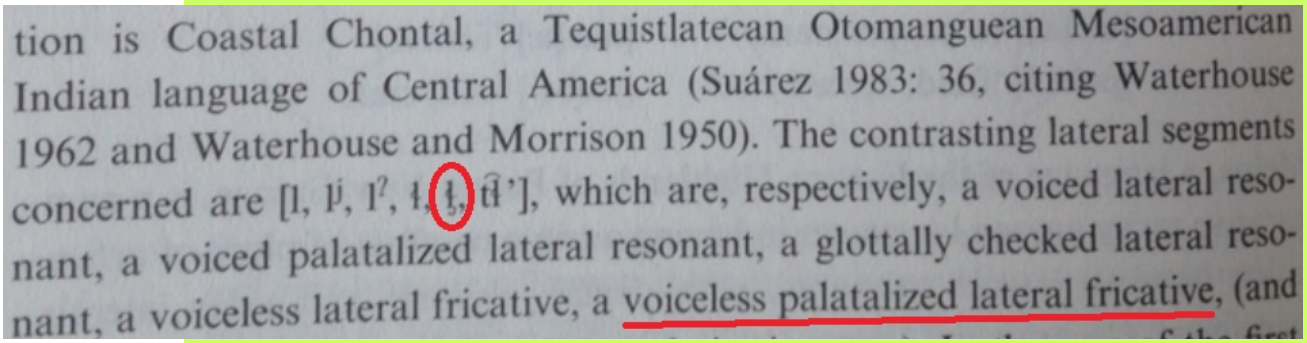


Apical Coronal Lingual (A.C.L.) [t; d; ʈ; ɖ; ts; dz; ʈʂ; ɖʐ; ʈθ; ɖð; ʈ; ɖ]
Laminal Coronal Lingual (L.C.L.) [tʃ; dʒ; tʃʲ; dʒʲ]

Figure 22. Grunwell (1981: 73). The <tʃʲ> here (yellow) may not look like a ligature, but context suggests that is just a matter of font support.

ɬ with palatal hook (ɬʲ)

A palatalized lateral fricative. Found for Coastal Chontal.

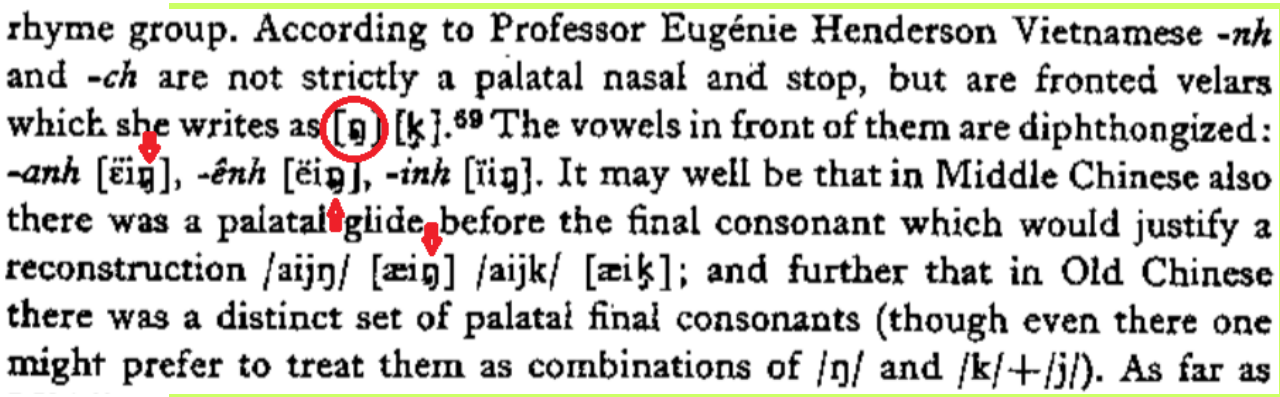


tion is Coastal Chontal, a Tequistlatecan Otomanguean Mesoamerican Indian language of Central America (Suárez 1983: 36, citing Waterhouse 1962 and Waterhouse and Morrison 1950). The contrasting lateral segments concerned are [l, lʲ, lˀ, ɬ, ɬʲ, t͡ɬʼ], which are, respectively, a voiced lateral resonant, a voiced palatalized lateral resonant, a glottally checked lateral resonant, a voiceless lateral fricative, a voiceless palatalized lateral fricative, (and

Figure 23. Laver (1994: 310)

eng with palatal hook (ŋ̡)

A fronted velar, as in Vietnamese; analogous to fronted velars k̡ g̡ in Russian.



rhyme group. According to Professor Eugénie Henderson Vietnamese *-nh* and *-ch* are not strictly a palatal nasal and stop, but are fronted velars which she writes as [ŋ̡] [k̡].[69] The vowels in front of them are diphthongized: *-anh* [ëiŋ̡], *-ênh* [ëiŋ̡], *-inh* [ïiŋ̡]. It may well be that in Middle Chinese also there was a palatal glide before the final consonant which would justify a reconstruction /aijŋ/ [æiŋ̡] /aijk/ [æik̡]; and further that in Old Chinese there was a distinct set of palatal final consonants (though even there one might prefer to treat them as combinations of /ŋ/ and /k/+/j/). As far as

Figure 24. Pulleyblank (1970: 237). The hook is on the left leg here.

As yet unattested

ʤ with retroflex tail (d-ʒ ligature: ʤ̡)

The obvious choice for people who use ʃ̡ and ʒ̡ together with the old IPA ligatures for affricates. The example above, for Polish, only shows the voiceless affricate, but Polish also has a voiced affricate that would need to be transcribed the same way.

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