# A typological study of lateral fricatives

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## TYPOLOGICAL OVERVIEW

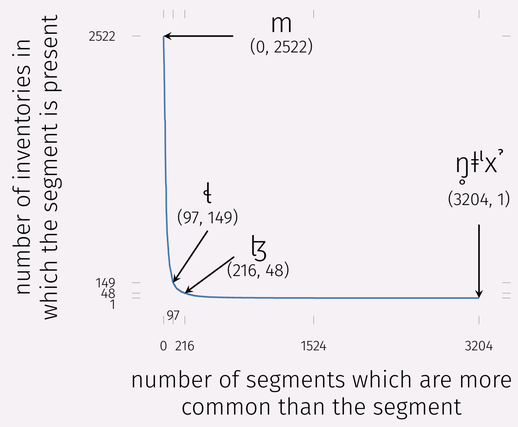
### Introduction

**What?** A study of the typological diachronic and synchronic features of lateral fricatives.

**Why?** In order to contribute to our understanding of the typological distribution of sounds in the world's languages, their diachronic pathways (leading to and away from them), their place in synchronic systems and the effects of language contact. The lateral fricatives /ɬ/ and /ɮ/ are neither too common nor too uncommon, making them ideal candidates for such a study.

**How?** By combining 'low resolution' information from typological databases and 'high resolution' information from specific case studies (Welsh, Sinitic, Semitic, Mongolian) with an emphasis on shared tendencies.

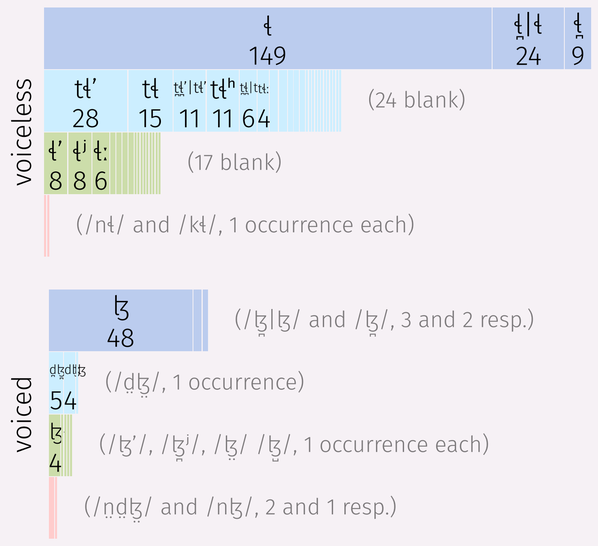
### Goldilocks zone



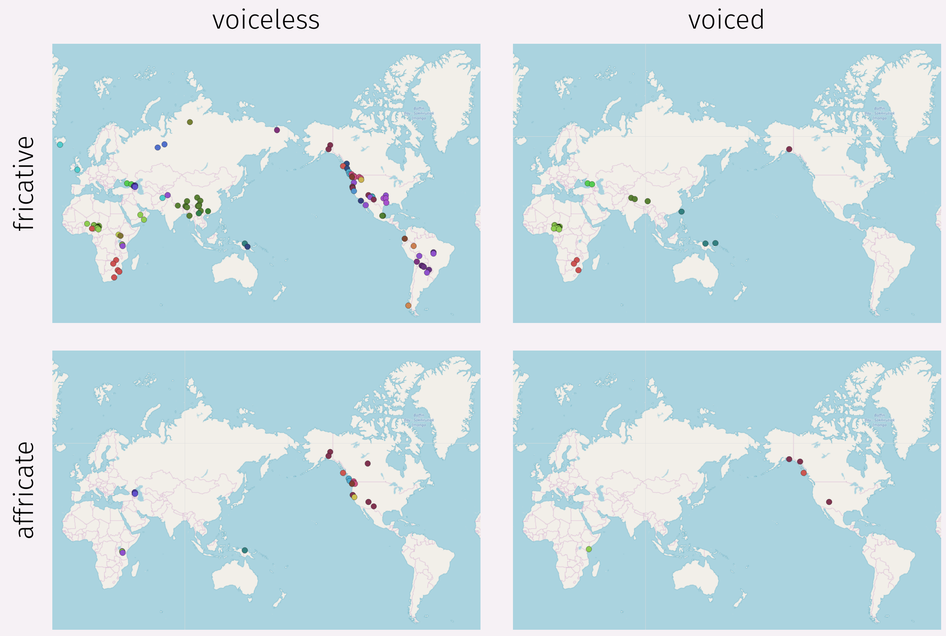

### Lateral fricatives

| | Labial: Bilabial | Labial: Labio-dental | Coronal: Dental | Coronal: Alveolar | Coronal: Palato-alveolar | Coronal: Retroflex | Dorsal: Alveolo-palatal | Dorsal: Palatal | Dorsal: Velar | Dorsal: Uvular | Laryngeal: Pharyngeal | Laryngeal: Glottal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nasal | m | ɱ | | n | | ɳ | | ɲ | ŋ | ɴ | | |
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | | k g | q ɢ | ʔ | ʔ |
| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ɕ ʑ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
| Approximant | | ʋ | | ɹ | | ɻ | | j | ɥ | | | |
| Tap, flap | | ⱱ | | ɾ | | ɽ | | | | | | |
| Trill | ʙ | | | r | | | | | | ʀ | ʜ | ʢ |
| Lateral fricative | | | | ɬ ɮ | | ʇ ʝ | | ʎ | ʟ | | | |
| Lateral approximant | | | | l | | ɭ | | ʎ | ʟ | | | |
| Lateral flap | | | | ɺ | | ɻ | | | | | | |

### Relative prevalence



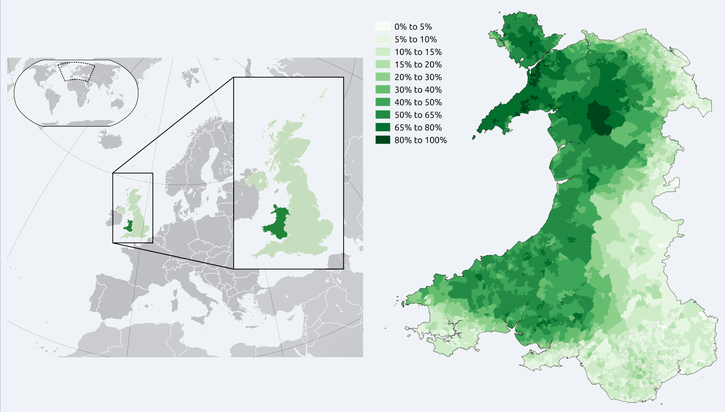

### Geographical distribution




(PHOIBLE 2.0)

## WELSH

### The Welsh language



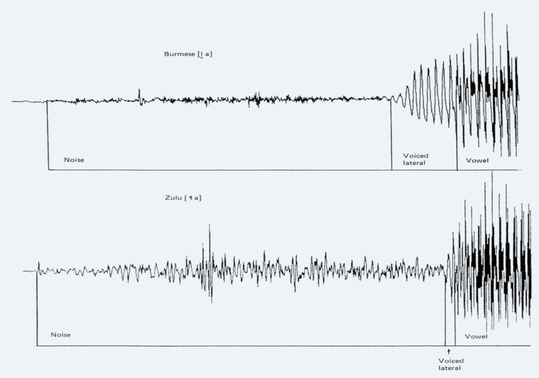

### Consonant mutations

| Radical | | Soft | | Nasal | | Aspirate | |
|---|---|---|---|---|---|---|---|
| p | /p/ | b | /b/ | mh | /m̥/ | ph | /f/ |
| t | /t/ | d | /d/ | nh | /n̥/ | th | /θ/ |
| c | /k/ | g | /g/ | ngh | /ŋ̊/ | ch | /χ/ |
| b | /b/ | f | /v/ | m | /m/ | | |
| d | /d/ | dd | /ð/ | n | /m/ | | |
| g | /g/ | ∅ | // | ng | /ŋ/ | | |
| **ll** | **/ɬ/** | **l** | **/l/** | | | | |
| rh | /r̥/ | r | /r/ | | | | |
| m | /m̥/ | f | /v/ | | | | |
| (ts | /t͡ʃ/) | (j | /d͡ʒ/) | | | | |

### Examples

| | | |
|---|---|---|
| tad | /taːd/ | a father |
| ei thad | /i θaːd/ | her father |
| ei dad | /i daːd/ | his father |
| eu tad | /i taːd/ | their father |
| fy nhad | /və n̥aːd/ | my father |
| llygaid | /ˈɬəgaɨd/ | eyes |
| ei llygaid | /i ˈɬəgaɨd/ | her eyes |
| ei lygaid | /i ˈləgaɨd/ | his eyes |
| eu llygaid | /i ˈɬəgaɨd/ | their eyes |
| fy llygaid | /və ˈɬəgaɨd/ | my eyes |

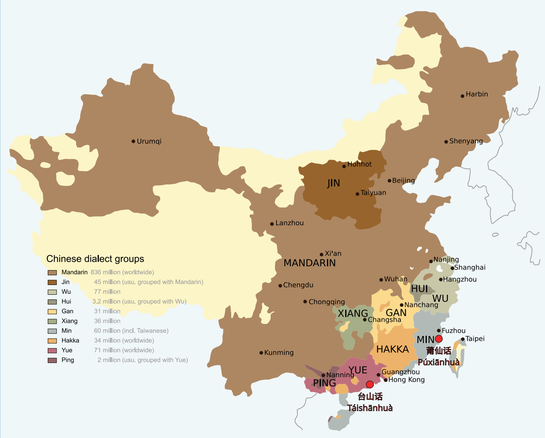
### Why not [l̥]?




(Maddieson 1984)

## SINITIC

### Sinitic language groups




(based on Wurm et al. 1984)

### Reflexes of sibilants

| | meaning | Middle Chinese | Táishān | Púxiān | | Mandarin | |
|---|---|---|---|---|---|---|---|
| 三 | three | /sam/ | /ɬam³³/ | /ɬo³³/ | | sān | /sa̠n⁵⁵/ |
| 四 | four | /siɪ^H/ | /ɬi³³/ | /ɬi⁵²/ | | sì | /sɿ̩⁵¹/ |
| 新 | new | /siɪn/ | /ɬin³³/ | /ɬiŋ/ | | xīn | /ɕin⁵⁵/ |
| 生 | live | /ʃʷæŋ^(H)/ | /saŋ³³/ | /ɬã, tsʰã/ | (coll.) | shēng | /ʂɤŋ⁵⁵/ |
| | be born | | | /ɬɛŋ⁵⁵/ | (lit.) | | |
| 食 | eat, … | /ʑɨk̚/ | /sɛt³²/ | /ɬie²¹/ | | (shí | /ʂʐ̩³⁵/) |
| 坐 | sit | /d͡zuɑʷ/ | /tɔ³³/ | /ɬœy⁵²/ | | zuò | /ʈʂu̯ɔ⁵¹/ |

### Lateralization in Yìyáng

| | 長 | 常 | 柴 | 賤 | 乘 | 尋 | 茶 | 蛇 | 爬 |
|---|---|---|---|---|---|---|---|---|---|
| MC | dʰiɛŋ | dʑiɛŋ | dʐɯæ | dziɛn | ʑɨŋ | zim | dʐɯa | ʑia | bɯa |
| Yìyáng | lɔ̃ | lɔ̃ | lai | liẽ | lən | lin | la | la | la |

(Bu 2018)

### Xiānyóu consonant mutations

| | a (C)Vʔ._ | b (C)V._V | c (C)._V | d (C)V._ or (C)._ | e (C)(V)N._R |
|---|---|---|---|---|---|
| 1 p, pʰ | | β | β~m | m | m |
| 2 t, tʰ, ɬ, ts, tsʰ | | **l** | **l~n** | n | n |
| 3 k, kʰ, h, ʔ | | ∅ | ∅ | ∅ | ŋ |
| 4 m, n, l, ŋ | | | | | |

gemination

1b tsau⁵² + piŋ⁵⁵ = tsau⁴⁴.βiŋ⁵⁴
fireplace edge — the edge of the fireplace

2b tua¹¹ + **ɬ**ya²⁴ = tua²⁴.**l**ya²⁴
big snake — (big?) snake

3e aŋ²⁴ + kou⁵⁵ = aŋ²⁴.ŋõũ⁵⁴
red mushroom — red mushroom

(Chen 2018)

## SEMITIC

### Sound correspondences

| PS | Akk. | Ugr. | Hbr. | Syr. | Arb. | Sab. | Gez. | Tgr., Tna. | Amh. | Har. | Gur. | Mhr. | Jib. | Soq. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *s | s | s | s | s | s | $s_3$ | s | s, š | s, š | s, š | s, š | s | s | s |
| *š | š | š | š | š | s | $s_1$ | s | s, š | s, š | s, š | s, š | š, h | š, s | š, h |
| *ṣ | ṣ | ṣ | ṣ | ṣ | ṣ | ṣ | ṣ | ṣ, č | ṭ, č | ṭ, č | ṭ, č | ṣ, š | ṣ | ṣ |
| *ś | š | š | ś | s | š | $s_2$ | ś | s, š | s, š | s, š | s, š | ś | ś | ś |
| *ṣ́ | ṣ | ṣ | ṣ | ʿ | ḍ | ṣ́ | ṣ́ | ṣ, č | ṭ, č | ṭ, č | ṭ, č | ẑ | ẓ̂ | ẓ̂ |

### Arabic *ḍād*

*min bayni awwali ḥāffati l-lisāni wa-mā yalīhi mina l-aḍrās*
'between the beginning of the tongue's edge and the corresponding molars' — Sībawayhi (c. 760–796), *Al-Kitāb*

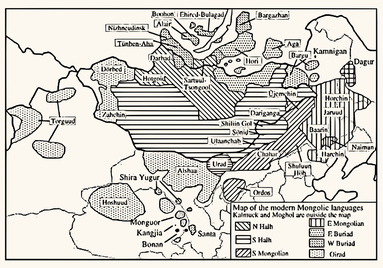
| language | loanword | gloss | | Arabic form |
|---|---|---|---|---|
| Spanish | *alcalde* | 'judge, mayor' | < | *al-qāḍ(ī)* |
| Malay | *dloha* | 'morning' | < | *ḍuḥā* |
| Hausa | *hailạ* | 'menstruation' | < | *ḥayḍ* |
| Somali | *árli* | 'country' | < | *arḍ* |

### Greek loanwords

| Semitic | Greek |
|---|---|
| בֹּשֶׂם *bōśɛm* | βάλσαμον *bálsamon* |
| כַּשְׂדִּים *kaśdīm* | χαλδαίοι *kʰaldaíoi* |
| מְתֹלְיָא *m(ä)ṯ(ä)* | μάτλια *mátlia* |

## MONGOLIAN

### Mongolian dialects

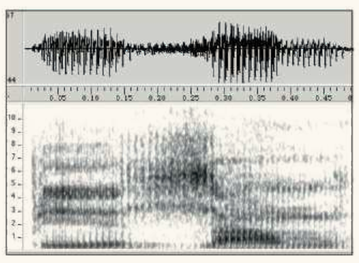


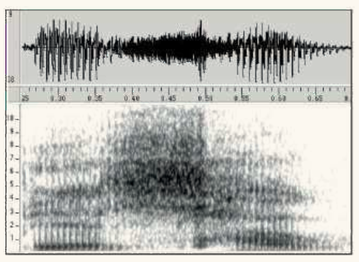

(Svantesson et al. 2005)

### Language contact

| Mongolian | | | | source | | | |
|---|---|---|---|---|---|---|---|
| лам | *lam* | /ɮam/ | 'lama' | Tibetan | བླ་མ | *bla ma* | /la˥˥.ma˥˥/ |
| лимбэ | *limbè* | /ɮimp/ | 'flute' | | གླིང་བུ | *gling-bu* | |
| лал | *lal* | /ɮaɮ/ | 'Muslim' | | ཀླ་クློ | *kla-klo* | |
| лавраант | *lavraant* | /ɮawrantʰ/ | 'lab assistant' | Russian | лаборант | *laborant* | [ləbɐˈrant] |
| лямнаад | *lâmnaad* | /ɮʲamnat/ | 'lemonade' | | лимонад | *limonad* | [lʲimɐˈnat] |
| лхагва | *lhagva* | /ɬɑɢw/ [ɬaʁʷ] | 'Wednesday' | Tibetan | གླ་གཡ་ | *lhag pa* | /l̥a(k̚)ʾ˥˥.pa˥˥/ |

### [ɮam] 'lama' vs. /ɬɑɢw/ [ɬaʁʷ] 'Wednesday'

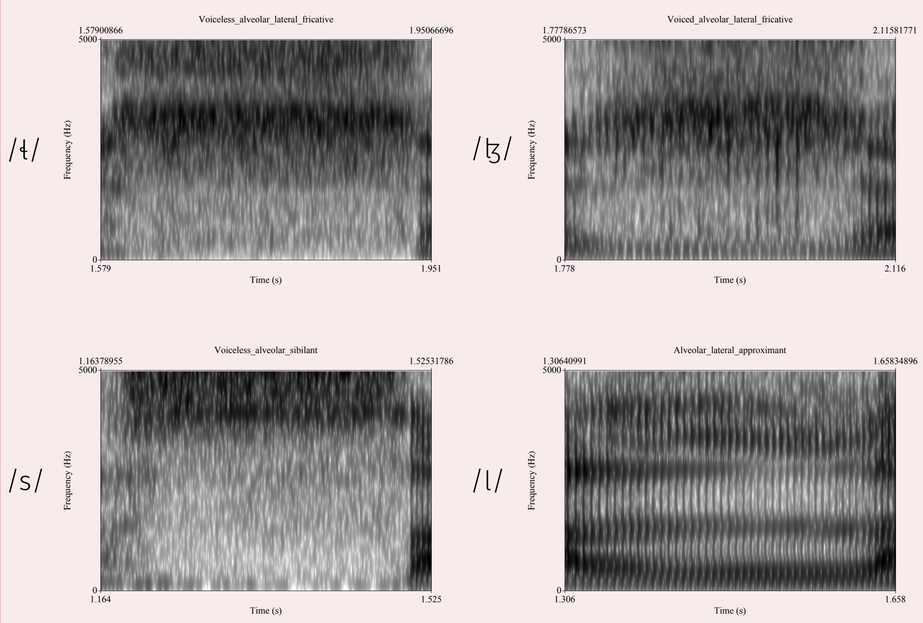




(Svantesson et al. 2005)

## CONCLUSIONS

### Perception




### Diachronic pathways and morphologial alternations

| language | original phoneme(s) | | reflex(es) | morphophonological alternation |
|---|---|---|---|---|
| Welsh | */l/ | > | /ɬ/ | /ɬ/ → /l/ mutation |
| Táishān | */s/ | > | /ɬ/ | |
| Xiānyóu (Púxiān) | various sibilants | > | /ɬ/ | /ɬ/ → /l/ mutation |
| Most Semitic languages | */ɬ/, */ɬʼ/ | > | mostly sibilants | |
| Khalkha Mongolian | */l/ | > | /ɮ/ | |

### Production

| | voiced | alveolar | lateral | fricative |
|---|---|---|---|---|
| ɬ | - | + | + | + |
| ɮ | + | + | + | + |
| s | - | + | - | + |
| l | + | + | + | - |

### Foreign renditions

- Welsh surname Llwyd (/ɬʊɨd/): *Floyd*, *Flewitt*, *Luyd* and *Thloyd*.
- Muscogee Creek town Rvp-Rakko (⟨r⟩=/l/): *Thlopthlocco*.

### Conclusions

By examining the case of lateral fricatives we have seen how quantitative, structural and geographical phonological typology, phonological change and diachronic pathways, morphophonology, phonotactics, loan-word phonology, language contact and typological universals are all interconnected and has to be taken into account when studying each (sub-)field.

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