Studies in Asian Geolinguistics

V

Studies in Asian Geolinguistics V

— IRON —

Report of ILCAA Joint Research Project 2015–2017
"Studies in Asian Geolinguistics"

First published 2017

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ISBN 987-4-86337-265-8

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"Iron" in Korean

1. Classification of word forms

Modern standard word for "iron" is /sø/ or /swe/. Dialectal variation is not so great. Only one basic form, derived from Middle Korean (MK) /soy/, is used. This word basically means metal in general but among the various kinds of metals, iron is the most typical one and in many cases this word simply means iron. Another Sino-Korean word /cʰer/ (MK tʰyer), which specifically means iron, has not been widely used in daily life until modernization began.

As for the cultural aspect of this word, it is generally admitted the people in Korea began to use iron earlier than in Japan, and it was imported to Japan until iron was found and the method of making iron was introduced.

Ogura (1944: 1st vol. 221-222) recorded 16 forms but all contain this common element developed from the MK /soy/. These forms can be classified into three major groups.

Group 1
  1a sø, 1b swe, 1c swɛ, 1d se, 1e sɛ 1f si
Group 2
  2a ʔsø, 2b ʔswe, 2c ʔswɛ, 2d ʔse, 2e ʔsɛ, 2f ʔsi
Group 3
  3a sø-ʔkop, 3b swe-ʔkop, 3c swe-ʔkɔt, 3e swe-ʔkat

Forms in Group 1 are the most basic ones. Their differences concerns how the MK diphthong /oy/ is rendered in each dialect. Sometimes the front rounded vowel [ø] (1a) is said to be the standard variety but in fact the diphthong [we] (1b) is the most popular pronunciation of this word in Seoul. Other varieties concerns about the distinction between /e/ and /ɛ/, loss of the glide [w] and vowel raising.

Forms in Group 2 have a reinforced initial consonant /ʔs/. The vowel shows a couple of varieties that are similar to the cases of group 1.

Forms in Group 3 are made up by adding a suffix, of which the meaning is not clear.

2. Geographical distribution and interpretation

The form [sø] is most widespread throughout the Korean peninsula. As to the initial consonant, reinforced varieties are found in Kyŏngsang and Cheju dialects. This goes well with the idea that we have many examples of sporadic and historically irregular reinforced initial consonants in these regions.

The forms with a suffix are used only in the coastal areas in Kangwŏn and Kyŏngsang dialects.

The unrounded front vowel [ɛ] is mainly used in Kyŏngsang and Phŏng'an dialects. In the former cases the distinction between [e] and [ɛ] has been lost in many places including Pusan and Taegu, and for such dialects, Ogura (1944) simply uses the symbol [ɛ]. However, as for Phŏng'an dialects, the distinction between these two vowels is not lost so that it is difficult to explain the form [swɛ] (1c) found in these dialects.

Historically, the Mk word /soy/ (H) seems to have been used for a long time. We also have lots of compounds including the word /soy/ in MK texts:

soy-kiris: iron ware
soy-stoŋ: iron scrap
soy-pupʰ: bell (lit. iron drum) etc.

As to the etymology of this words, there have been two theories (cf. Kim Minsu (1997) and Kang (2010)) but neither seems to be persuasive.

By the way, it seems important to realize that there is a homonym /soy/ which means 'lock/key' in MK, and this poses an interesting question on the etymology of this word. In modern Korean, only compound forms are used for 'lock/key', 'camwulssoy' and 'yelssoy'.

In Matisoff (1992), he observed that "Many Southeast Asian languages have a different word for 'lock/key' which does seem to be borrowed from Chinese 鎖 (Mandarin suǒ), ...". If we think in the same line as these languages, this word may be a borrowing from Chinese 鎖 (Sino-Korean *sway*). (This possibility was pointed out by Kurabe Keita at the presentation of this paper.)

One problem with this theory is that, although the word for iron *soy* and the Sino-Korean *sway* look similar in the modern language, Sino-Korean reading of this character in MK was *swa* or *sa*. (Ito Chiyuki (2007). However, if we look at the form *swɛ* found in Phŏng'an dialects as stated above, the word for iron and the Sino-Korean reading of the character 鎖 is exactly the same for these dialects, and this fact should be taken into account in explaining the etymology of this word.

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Acknowledgements

(Rei Fukui)

小倉進平 『朝鮮語方言の研究』
地図化プロジェクト

鉄・金(かね)

- ○ sø
- ● swe
- ⊙ swɛ
- ◑ se
- ◐ sɛ
- ⊖ si
- ⬭ ʔswe
- ⊝ ʔswɛ
- ◖ ʔse
- ◖ ʔsɛ
- ⊜ ʔsi
- ⬭ ʔsui
- □ sø-ʔkop
- ■ swe-ʔkop
- ◨ swe-ʔkɔt
- ◧ swe-ʔkat
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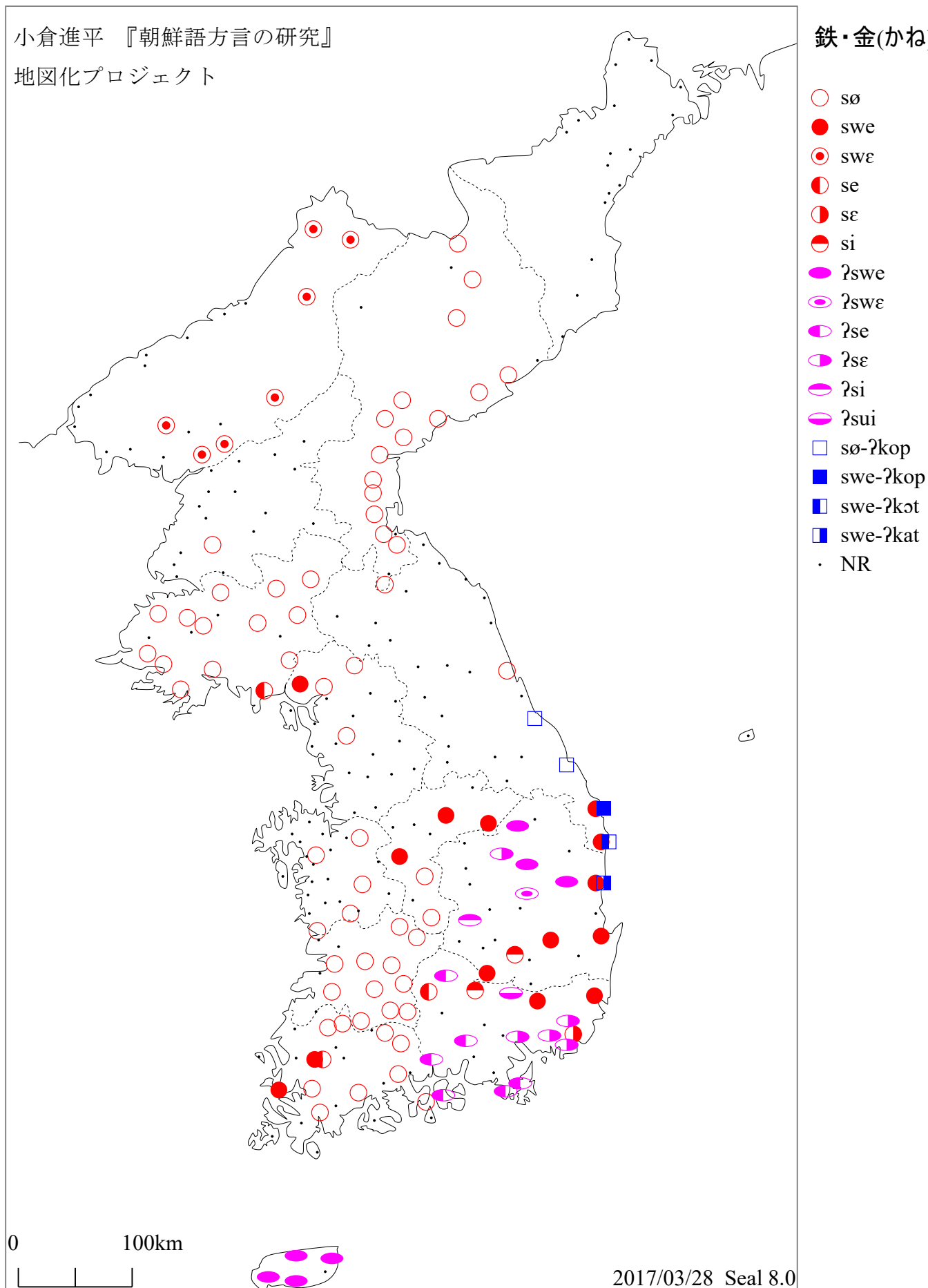
"Iron" in Ainu

1. Classification of word forms

In Ainu, the word *káni* for "metal" was borrowed from Japanese *kane* 金 and created with it the words for some kinds of metals. Specially for "iron," there are the following three types in Hattori (1964: 208):

    A. *kani* type:
        káni, káne, kani, kaani
    B. *X kani* type:
        B-1. *yay'an kaani, yayán káni, yayán kaní,*
            yayán káne
        B-2: *sínokane*
        B-3: *sirár kani*
    C. loan word: *tecí*

2. Geographical distribution and interpretation

Around the 9th or 10th century, when Hokkaido was divided into the Okhotsk culture and the Satsumon culture, people were refining iron, which was taken from a trade with Japanese. Although Sakhalin Ainu had the skill of smithery, Hokkaido Ainu lost it because more Japanese iron products were imported, Mamiya (1810) reported.

In Type A, *kani* type, the words for "metal" are applied as the meaning of "iron." The vowels /e/ and /i/ in the second syllable of *kane* and *kani*, would be influenced by the Tohoku dialects in northeastern mainland Japan. Similarly, there are two forms for "potato," *imo* and *emo*, in the Ainu dialects and Japanese dialects. Ono (1996: 10) reported /e/ can be changed into /i/ in Japanese Ainu speakers' Japanese, influenced by the Hokkaido dialects of Japanese, i.e., *koi < koe* "voice," *kairu < kaeru* "to go back," and *omai < omae* "you."

Type B, the X *kani* type, is classified into three subtypes: the B-1 words, i.e. *yayán káni* etc., mean "general metal," the B-2 word, *sínokani*, means "real metal," and the B-3 term, *sirár kani*, means "rock metal." We can also find other metals and metallic tools, compounded with the term *káni* for "metal" (see Table 1).

As we can see in Type C, *tecí*, which is the loan word from Japanese *tetu* 鉄, Japanese *tu* [tsu] was borrowed into Ainu *ci* [tɕi], since Ainu does not possess the sound [tsu]: i.e., the word for "cabbage," *káypeci*, was borrowed from *kaibetu* カイベツ in the Hokkaido and Akita dialects of Japanese, and the word

for "New Year," *sónkaci*, came from *syoogatu* 正月 in Japanese (Tamura 1996: 291, 675).

Map 2 shows differences in accent among the dialects. In the most of the dialects, the words for "metal" are accented on the first syllable, i.e., *káni, káne,* and *kaani*. The word *kaani* of the Sakhalin dialects would be borrowed from the word *káni* of the Hokkaido dialects, following the correlation between a long vowel *aa* in Sakhalin and a high pitch *á* in Hokkaido.

According to the basic accent in the Hokkaido Ainu dialects, a high pitch falls on the second syllable, CVCV́. Also, in the Aomori dialects (Japanese) of northeastern Japan, the word for "metal" has a high pitch on the second syllable, [kan] LH (Hirayama (ed.) 1993: 3376). However, the word accented on the second syllable, *kaní*, would be newer than the others and adopt the basic accent rule in the Hokkaido Ainu dialects. Map 2 shows the local distribution of Type B words. Vovin (1993 :73-74, 98) reconstructs the proto-Ainu form **kaani* HHH "metal," which comes from the Old Japanese word *kane* HH "metal"; I suggested a long vowel form is not old above. For example, in the Kyoto dialect of Japanese, the accent-less *kane* HH, may be borrowed into Ainu with the high pitch falling on the first syllable, *káni*. The unaccented form of Type C are only distributed in the unaccented dialects of Hokkaido (as seen on Map 2).

Reference	Word	Meaning and source
copper	*húrekani*	"red metal"
silver	*sirókani*	< J. *sirokane* 白金 "white metal"
silver	*tetara kaani*	"white metal"
gold	*kónkani*	< J. *kogane* 黄金 "yellow metal"
gimlet	*ikísakani*	"metal for drilling a hole in something"
hammer	*kánituci*	< J. *kanaduci* 金槌 "metallic hammer"
gun	*hecawé kani*	"bursted metal"
gun	*téppo*	< J. *teppô* 鉄砲 "metallic gun"

Table 1. Metals and metallic tools
(Hattori 1964: 208, 122; "J." means Japanese)
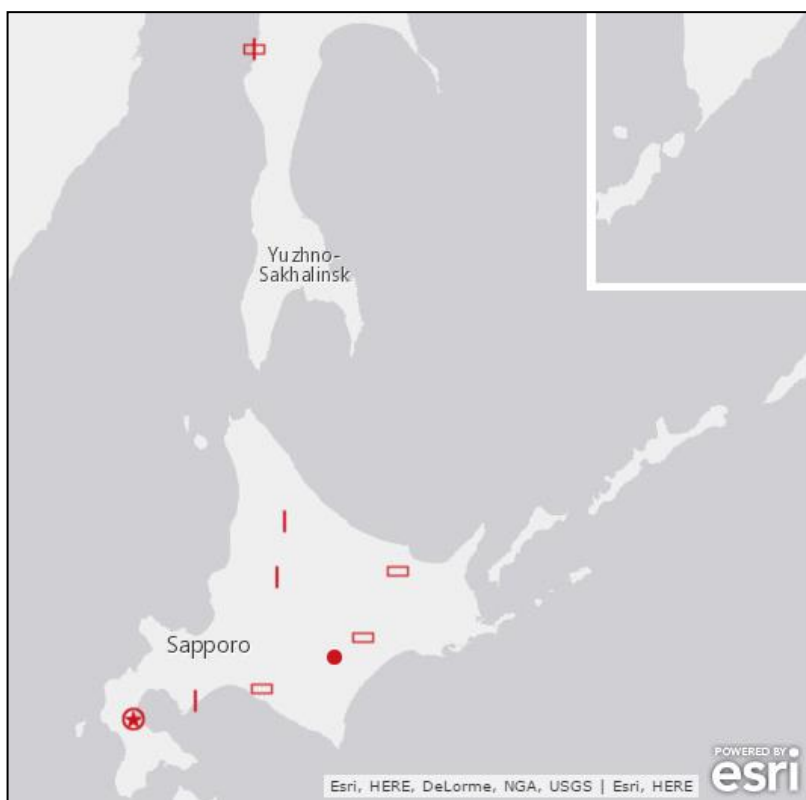
A. *kani* type

B. X *kani* type
   B-1. "General metal"
   B-2. "Real metal"
   B-3. "Rock metal"

C. loan word

Map 1. *"Iron" in Ainu*

A. Accent on the first syllable
   A-1. *káni*
   A-2. *káne*
   A-3. *kaani*

B. Accent on the second syllable
     kaní

C. None   *kani*

Map 2. *"Metal" in Ainu*

(Mika Fukazawa)

"Iron" in Mongolic and Turkic

The word forms representing "iron" in Mongolic and Turkic are all cognates of the Old Turkic word *temir* except the one used in a Mongolic language called Dagur. Metallurgical technology is considered to have transmitted from the Scythians in western Eurasia to eastern Eurasian peoples. The Turks were known as skilled ironworkers as early as the 6th century when they were subjects of Róurán (柔然).

A) *temir* type

The Turkic forms can be divided into two categories in terms of the tenseness of the initial consonant. The forms are (1) *temir* (Karachay, Kumyk, Kazakh, Karakalpak, Kirghiz, Nogay, Uzbek, Tuvan, Tofalar, Altai), *tämär* (Khalaj), *tämir* (Chuvash), *tēmir* (Chulym), *timir* (sakha, Dolgan), and *tömür* (Uighur) and (2) *demir* (Turkish, Turkmen, Gagauz, Karaim, Crimean Tatar), *dəmir* (Azeri), *demər* (Sarïg Uighur), and *dimur* (Salar).

The lax variants, which are marked with a diamond sign on the map, are distributed only along the southern periphery.

The Mongolic forms are considered to be a loanword from Turkic. (Činggis Qan was named *Temüjin* "ironsmith" after a Tatar leader.) Modern Mongolic forms are *təmər* (Mongol: Khalkha, Karachin, etc.), *tömör* (Mongol: Ordos, Alxa, etc.), *təmər* (Mongol: Chakhar), *tömür* (Oyirad), *tɯmər* (Buriad), *temər* (Shera Yughur), *tamər* (Bonan), *tumər* (Monguor), and *tɕiəmu* (Dongxiang).

B) *kasō* type

Dagur alone has a form of completely different origin, *kasō*, for "iron." The etymology of the word is unknown. Because the Tachen dialect in Xīnjiāng, which is marked with an arrow symbol in the center of the map, is spoken by the descendants of the Dagur soldiers sent from northeastern China in the 18th century, we can say that only one language in the eastern periphery obtained this form in history.

(Yoshio Saitô)

"Iron" in Mongolic and Turkic

"Iron" in Sinitic

1. Classification of word forms

We classified word forms for "iron" into two types: A *tie* 鐵 and B *tieba* 鐵巴. The latter comprises a root (*tie* 鐵) and a suffix (*ba* 巴). According to the initials of the phonetic forms, A *tie* 鐵 is classified into two types: A-1 [tʰ-] and A-2 [h-]. The former type is classified into four types according to endings:

A *tie* 鐵
  A-1 initial [tʰ-]
    A-1-1 open: tʰie, tʰi:e, tʰiɛ, tʰiə, tʰia, tʰe, tʰi, tʰa, tʰei, tʰɛi, tʰai
    A-1-2 glottal stop [-ʔ]: tʰieʔ, tʰiɛʔ, tʰiæʔ, tʰiəʔ, tʰiɐʔ, tʰiaʔ, tʰiʌʔ, tʰiʔ, tʰiɪʔ, tʰeʔ, tʰaʔ, tʰɯʔ
    A-1-3 [-t]: tʰiet, tʰiɛt, tʰyet, tʰit, tʰet, tʰɛt
    A-1-4 [-k]: tʰik, tʰɛk
  A-2 initial [h-]: hi, hiɛʔ, hiet, hit, het
B *tieba* 鐵巴: tʰie pa, tʰi pa

2. Geographical distribution and interpretation

The word forms denoting "iron" in Chinese dialects essentially show a unanimous distribution of A *tie* 鐵. People in a few places use B *tieba* 鐵巴, which collocates always with A *tie* 鐵. However, in some places, *tieba* 鐵巴 is exclusive to mean "a lump of iron." This suggests that *tieba* 鐵巴 was originally derived from an iron object, and later generalized to mean "iron."

The phonetic forms of A *tie* 鐵 are consistent with the phonological system of each dialect. The dominant initial consonant is the aspirated voiceless alveolar A-1 [tʰ-]. A-2 [h-] is distributed in Jiangxi and Guangdong provinces. This feature is observed in the Middle Chinese (MC) *tou* 透 initial in areas speaking the Yue dialect *siyi* 四邑 subgroup and is a part of the Gan dialect. A remarkable diversity is observed in the behavior of the endings. The endings of *tie* 鐵 can be classified into four types. Excluding the A-1-1 type, the other three types belong to the *ru* 入 tone. The A-1-1 open type is mainly distributed in Mandarin-speaking areas but with varying tone types. For example, it merged into the *shang* 上 tone in the Beijing 北京 dialect, the *yinping* 陰平 tone in Xi'an 西安, and the *qu* 去 tone in Yinchuan 銀川. This can be attributed to the systematic changes of the phonological system, which occurred recently. In the Xiang dialect, the *tie* 鐵 forms have no coda but retain the *ru* 入 tone independently of the other tone types. A-1-2 glottal stop [-ʔ] is distributed in areas speaking the Jin, Wu, and Jianghuai Mandarin dialects. A-1-3 [-t] is typically distributed in Guangdong and Guangxi provinces. A-1-4 [-k] shows a scattered distribution in the Yue dialect areas.

Table 1

ending	place	word form
open	Beijing (Mandarin)	tʰiɛ
	Xi'an (Mandarin)	tʰiɛ
	Yinchuan (Mandarin)	tʰie
	Changsha (Xiang)	tʰie
[-ʔ]	Taiyuan (Jin)	tʰiəʔ
	Nantong (Jianghuai)	tʰiʔ
	Suzhou (Wu)	tʰiəʔ
[-t]	Guangzhou (Yue)	tʰit
[-k]	Zengcheng (Yue)	tʰɛk

The reconstruction of MC for "iron" by Schussler (2007: 497) is *tʰiet. According to Baxter and Sagart (2014), the Old Chinese (OC) form is *l̥ˤik (OC) > thet (MC) (http://ocbaxtersagart.lsait.lsa.umich.edu/). Shuowen jiezi 説文解字 defined *tie* 鐵 as "黑金也"(black metal). Wang Li (1982: 469) and Sagart (1999: 200–201) showed the derivation of *tie* 鐵 from the word-family of *(h)l[i]k (black). However, the leading word form for black is *hei* 黑, which is reconstructed as *m̥ˤək (OC) > xok (MC) (Baxter and Sagart 2014). The possibility that *l̥ˤ- and *m̥ˤ- belongs to the same word-family needs to be clarified in future analysis.

Table 2

	OC	meaning
tie 驖	*lik>det	black horse
dai 黛	*lɨk-s>dojH	black pigment for the eyebrows
yi 黓	*lɨk>yik	black

In China, meteoric iron objects were found in the sites of the middle of Shang dynasty (1300BC). As for iron manufacturing, the estimated 1000BC ironware discovered in the Xinjiang district is the earliest evidence presently (Lu 2003: 122). Iron use in China was earlier than the other areas in East Asia, and its use later spread more swiftly than bronze. Sagart (1999: 201) showed that the Chinese loan words in Written Tibetan (*lčags*<hlyak-s) and Tai (Proto-Tai: *hlek (Li 1977: 136)) must have been made very early, that is, before the changes of initials and codas.

Keywords: word-family, loan word

(Fumiki Suzuki, Takashi Ueya, Kenji Yagi)

"iron" in Sinitic

A *tie* 鐵   B *tie ba* 鐵巴

A-1 initial [tʰ-]   A-2 initial [h-]

A-1-1 open	A-1-2 [-ʔ]	A-1-3 [-t]	A-1-4 [-k]		
○ tʰie	△ tʰieʔ	Ψ tʰiet	∧ tʰik	◆ hi	☆ tʰie pa
◑ tʰiːe	◭ tʰiɛʔ	⅄ tʰiɛt	∨ tʰɛk	◒ hiɛʔ	☆ tʰi pa
◎ tʰiɛ	▲ tʰiæʔ	✝ tʰyet		◈ hiet	
◐ tʰiə	△ tʰiəʔ	✝ tʰit		◇ hit	
◑ tʰiɤ	◮ tʰieʔ	Υ tʰɛt		◈ het	
⊘ tʰia	◭ tʰiaʔ	⅄ tʰɛt			
⊖ tʰi	◭ tʰiʌʔ				
⊙ tʰe	◢ tʰiʔ				
⊘ tʰa	◢ tʰiɤʔ				
⊗ tʰei	◿ tʰeʔ				
⊕ tʰɛi	◢ tʰaʔ				
● tʰai	◣ tʰɯʔ				

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Iron in Tibeto-Burman

1. Classification of word forms

Our data on 517 languages and dialects, including primary data on many Tibetic languages and dialects, can be abstracted into three major types. Among these Types, A and B are especially widespread in terms of the diversity of branches.[1]

Type A-1[2]

εam⁵⁵, ʃam, ʂam⁵⁵, sam, ɕam⁵³, ɕəm, shv̀m, ɕiam⁵³
From WrB sam: t̪an, t̪aN, thang, than, thæn
ʃim⁴⁴, siŋ
ɕom, ʃom⁵⁵, ʃon, somu, suˀmu

Type A-2

ɕɛ⁴², ʃɛ⁴², ɕe¹¹, xe²¹, ɕɪ²¹, xɪ²¹, ɕi², xi¹³, ɕiə²¹
xɒ²¹, ʂhɔ³¹, sɔ⁵⁵, ɕo⁵⁵, xo⁴⁴, so³³, ʂɯ⁵³, xɯ³³, ʃu⁵⁵, ʂu⁵³
ɕy⁵⁵, xy⁵⁵, xɤ¹¹, xə⁵⁵, hə²¹

Type A-3

ɕɛ̃³⁵, ɕĩ⁵⁵, ʃã³¹, ʃɔ̃⁵³, ʂõ³⁵, ʂə̃⁵⁵

Type B

sya:l, syel, sél, sel, sil, syl
śir, sher, sər
thĩir, thĩir, thǐir, thĩʔ, thúa
jən², jan, yan

Type C-1

From WrT lcags: ltɕak(s), ɬtʃaks, ˡtɕək, ˡtɕəq, ˡtɕeq,
ˡtɕəχ, htɕak, ʰtɕaʔ, ʰtʂaʔ, ʰtɕəχ, ʰtɕaʕ, ʰtɕa, ʰtɕeʔ, ˢtɕəq,
ʱdʑa:, dʑa⁵³

Type C-2

thaʔ²¹, thaʔ⁴⁴, thaʔ⁵⁵, tha¹¹, tha²¹, tha⁴²

These three widespread types have good etyma in Proto-Tibeto-Burman (PTB).[3] Type A reflects a PTB etymon *syam 'iron', which gave rise to myriad forms via "feature shuffling" and/or various phonological processes, including: (a) fortition of the initial fricative, e.g. Burmese t̪an; (b) progressive assimilation, e.g. Tshobdun rGyalrong ʃim⁴⁴, Guoke Nusu ɕɛ̃³⁵, Fumin Alo ɕe²¹; (c) regressive assimilation, e.g. Japhug rGyalrong ɕom, Qianxi Guiqiong ʃɔ̃⁵³, Lancang Lahu ɕo³³; (d) deletion of the final nasal (which sometimes left its trace in the vowel), e.g. Southern Prinmi ɕĩ⁵⁵, Maibeng Guiqiong ʃã³¹, Jinuo ɕɛ⁴², Queyu ɕo⁵⁵; (e) retroflexivization, e.g. Longchuan Achang ʂam⁵⁵; (f) debuccalization, e.g. Longlin Yi hə²¹; and (g) diphthongization, e.g. Shuangbo Yi ɕiə²¹. In this paper, we divide Type A into three subtypes based on the degree of erosion of the final nasal, which shows some areal patterns (see Section 2).

Type B reflects a PTB etymon *sya:l ⋊ *syi:r 'iron', from which various modern forms have arisen via processes such as: (a) progressive assimilation, e.g. Sampang syel; (b) fortition of the fricative, e.g. Falam Lai thĩir; (c) deletion of the initial, e.g. Ao jən²; and (d) nasalization of the final liquid, e.g. Nocte jan.

Type C originates from the PTB etymon *l-tsyak 'iron', which gave rise to diverse forms via processes such as: (a) devoicing and fricativization of the prefix, e.g. rNgawa Tibetan ˡtɕək, Askyirong Tibetan ʰtɕaʕ, Rongdag Tibetan ʱdʑa:; (b) retroflexivization, e.g. sProsnang Tibetan ʰtʂaʔ; (c) progressive assimilation, e.g. Wache Tibetan ˡtɕeq; (d) lenition of the final, e.g. Dartsendo Tibetan ʰtɕaʔ, Mroha Tibetan ˡtɕəχ, Xinchengzi Tibetan dʑa⁵³; and (e) fortition of the initial affricate, e.g. Pa-O thaʔ²¹. We divide Type C into two subtypes based on the initial consonant, as they are well grounded in terms of both areal and genetic perspectives. Type C-1 mainly represents all modern Tibetic languages and dialects that have their diachronic sources in WrT lcags, while Type C-2 represents Karenic languages that have their sources in PKar *thaʔᴰ. Note further that PTB *l-tsyak is related to Old Chinese *l̥ˤik 'iron', which was an early loan into many Southeast Asian languages, e.g. Proto-Tai *hlek D, Proto-Palaungic *hlek, Proto-Hmongic *l̥uwC, and Proto-Mienic *r̥ŭɛk (see Tai-Kadai, Austroasiatic, and Hmong-Mien in this volume).

In addition to the three major types, there are some infrequent roots that carry the meaning 'iron', which cannot be traced back to the PTB stage, including:

Type D

tɕo, tɕu⁵³, tɕɯ˞⁵³, ʰtɕu⁵³

---

[1] Abbreviations used in this paper are as follows: PBG (Proto-Bodo-Garo), PCN (Proto-Central Naga), PKar (Proto-Karenic), PKC (Proto-Kuki-Chin), PLo (Proto-Loloish), PNN (Proto-Northern Naga), PTa (Proto-Tani), PTB (Proto-Tibeto-Burman), PTk (Proto-Tangkhulic), TB (Tibeto-Burman), WrB (Written Burmese), and WrT (Written Tibetan).

[2] Superscripts on lexical items indicate their tones.

[3] Forms of PTB, Old Chinese, Proto-Tai, Proto-Palaungic, Proto-Hmongic, and Proto-Mienic are based on the following sources, respectively: Matisoff (2003), Baxter and Sagart (2014), Li (1977), Sidwell (2010), Ratliff (2010), and Ratliff (2010).

Type E
²pʰai, ²pwe, ²pʰeː, phrì

Type F
the⁴⁴, thɛ³³, thɛ⁴⁴, tɕhi⁴⁴, tɕhi⁵⁵, tɕhi⁴²

Type G
nã̄ː, nyā, ne

Type H
ꜞʑa

2. Geographical distribution and interpretation

Primary distribution of Type A, found in TB branches such as Burmish (WrB *sam*), Loloish (PLo *xam[1], Bradley 1979:332), [4] Naxi, Nungic, Qiangic, and rGyalrongic, is located throughout Burma, Yunnan, Sichuan, Guizhou, and northern Thailand. Type A, as illustrated above, shows variation in the degree of erosion of the final nasal. The deletion of the final nasal is predominant especially in Loloish and some Qiangic languages located in the eastern parts of the distribution of Type A (Type A-2). The final nasal is retained elsewhere (Type A-1). It is of interest to note that languages that retain the trace of the final nasal as a nasal vowel (Type A-3) appear to be located at the boundaries between Types A-1 and A-2. Note also that Type A shows variation in vowels (such as fronting and backing), as demonstrated in the previous section. Forms with the vowel /a/ are located in peripheral areas, suggesting their oldness, which is confirmed by their reconstructed form, i.e. PTB *syam. The distribution of varieties involving front and back vowels does not appear to exhibit areal patterns.

Type B, found in Kuki-Chin (PKC *thiir, VanBik 2009:132), Central Naga (PCN *jən, Bruhn 2014:414), Tangkhulic (PTk *tʰir, Mortensen 2012), Northern Naga (PNN *yaːn, French 1983:506), Bodo-Garo (PBG *sur[1], Joseph and Burling 2006:130), Luish (PLu *selʔ, Huziwara 2012:54), and Kiranti languages and dialects, is concentrated in western Burma, northeastern India, and eastern Nepal. Type B, as illustrated above, shows variation in its finals. Although more data are needed for confirmation, it

does not seem as though Type B can be reduced to any areal patterns. The fortition of the initial fricative found in some items of Type B (i.e. PTB *s/sy > *th*) is a well-established innovation shared by Kuki-Chin languages in western Burma, northeastern India and eastern Bangladesh (VanBik 2009:16–7).

Type C is found in northern and southern parts of the TB distribution. It is prevalent in Tibetic (WrT *lcags*), Karenic (PKar *thaʔ[D], Luangthongkum 2013), and Tani languages and dialects (PTa *rjok, Sun 1993:391), in which the Tani form is a possible early loan from Tibetan (Sun 1993:297). Among the two major subtypes, Type C-2, which has an alveolar stop, is restricted to Karenic languages in Lower Burma. Type C-1, mostly found in Tibetic languages, shows various kinds of reflexes for the PTB prefix *l-. This prefix is retained in regions where Western Archaic Tibetan is spoken, and in some parts of the Amdo region, but lost in Ü-Tsang. It became *ʰ-* in most parts of the Khams region and many parts of Amdo, and *ˢ-* in some parts of Khams and Amdo.

Type D, which occurs only in sTau dialects, appears to reflect a PTB etymon *syam (Type A), as in other Qiangic languages, but also exhibits the feature of Type C. This may be accounted for in terms of their distribution, in regions where Types A and C converge.

Type E is found in Tamangish (TGTM) languages of Nepal (PTGTM *ᴮpʰai, Mazaudon 1994) and in Jinghpaw of northern Burma and western Yunnan. The cognacy of them, however, is unknown.

Type F is only attested in Bai dialects. It appears to be a loan from Chinese, given that Bai is heavily influenced by it. Although the Bai forms show a superficial similarity to Kuki-Chin languages of Type B, unlike in Kuki-Chin, the sound change from PTB *s/sy to Bai *th* is not well established in Bai.

Type G, which is distributed in central Nepal, only appears in Newar dialects in our data.

Type H, which is not shown in our maps, is only found in lCangdzong Tibetan spoken in Jiangzhong (Chamdo) of eastern Tibet. This item, possibly having arisen as a result of a semantic shift, may be related to WrT *zha (nye)* 'lead'.

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[4] For reconstructed mesoroots and their references, see STEDT Database (Accessed 11 January 2017). URL: http://stedt.berkeley.edu/~stedt-cgi/rootcanal.pl

Map 1: "Iron" in Tibeto-Burman

A-1	⊖	ɕam⁵⁵, ʃam, ʈan, ʈaɴ, ʃim⁴⁴, siŋ, ɕom, ʃom⁵⁵
A-2	○	ɕɛ⁴², ʃɛ⁴², ɕe¹¹, xɒ²¹, ʂhɔ³¹, sɔ⁵⁵, ɕy⁵⁵, xy⁵⁵
A-3	⊕	ɕɛ̃³⁵, ɕĩ⁵⁵, ʃɑ̃³¹, ʃɔ̃⁵³, ʂõ³⁵, ʂə̃⁵⁵
B			sya:l, syel, śir, sher, thíir, thîir, jən², jan
C-1	⌒	lʨak(s), ɬʧaks, ˡʨək, ʰʨɑʔ, ʰʈʂaʔ, ʰʨəχ
C-2	⌣	thaʔ²¹, thaʔ⁴⁴, thaʔ⁵⁵, tha¹¹, tha²¹, tha⁴²
D	⊗	ʨo, ʨɐu⁵³, ʨɤu⁵³, ʰʨɐu⁵³
E	Ϻ	²pʰai, ²pwe, ²pʰe:, phrì
F	ϟ	the⁴⁴, thɛ³³, the⁴⁴, ʨhi⁴⁴, ʨhi⁵⁵, ʨhi⁴²
G	□	nã:, nyā, ne

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Map 2: "Iron" in Tibeto-Burman (detailed)

A-1	⊖	ɕam⁵⁵, ʃam, ʈan, ʈaɴ, ʃɨm⁴⁴, siŋ, ɕom, ʃom⁵⁵
A-2	◯	ɕɛ⁴², ʃɛ⁴², ɕe¹¹, xʋ²¹, ʂhɔ³¹, sɔ⁵⁵, ɕy⁵⁵, xy⁵⁵
A-3	⊕	ɕɛ̃³⁵, ɕɨ̃⁵⁵, ʃã³¹, ʃɔ̃⁵³, ʂõ³⁵, ʂə̃⁵⁵
B	❙	sya:l, syel, śir, sher, thíir, thîir, jən², jan
C-1	⌒	ltɕak(s), ɬtʃaks, ˡtɕək, ʰtɕaʔ, ʰtʂaʔ, ʰtɕəχ
D	✪	tɕo, tɕu⁵³, tɕɯ⁵³, ʰtɕu⁵³
E	ᴟ	²pʰai, ²pwe, ²pʰe:, phrì
F	⚡	the⁴⁴, thɛ³³, thɛ⁴⁴, tɕhi⁴⁴, tɕhi⁵⁵, tɕhi⁴²

"Iron" in Hmong-Mien

1. Classification of word forms

The word for "iron" in Hmong-Mien is considered a loan from Chinese. Although Ratliff (2010) considers that the words in all the Hmong-Mien lects are loans from an Old Chinese word, which is reconstructed as *l̥ˤik (Baxter and Sagart 2014), she divides them into two groups: The Hmongic forms deriving from Proto-Hmongic *hluwC, and the Mienic forms from Proto-Mienic (PM) *hrŭɛk. However, there are some comparative evidences to indicate that the word forms of Hmongic and Mienic ultimately derive from a single Proto-Hmong-Mien (PHM) etymon. First, the Proto-Mienic onset consonant should also be reconstructed as a lateral. As indicated in Table 1, a velar plosive reflex in Luoxiang (LX) is observed not only in the case of *hr (as in MEASURE) but also in the case of palatalized lateral *lj (as in PADDY). In addition, we must note that the most important test for a proto-rhotic (*ʔr, *hr, and *r) is the reflex of Daping (DP): a dental affricate /ʣ/ (as in MEASURE). What Daping indicates in IRON is not /ʣ/ but /lj/, which is the regular reflex of the palatalized lateral in Ratliff (2010).

Table 1

	PM	GZ	LX	DP
IRON	*hr-	lje7	qja7	ljɛ7
PADDY	*lj-	li:ŋ2	giŋ2	ljaŋ2
MEASURE	*hr-	ła:u1	ga:u1	ʣau1

Thus, the form for "iron" in Proto-Mienic is best reconstructed as having a lateral onset. Turning to rhyme, we find a good correspondence set including the two items IRON and ENTER, the latter of which is an indigenous Hmong-Mien word (see Table 2). As indicated in Table 2, which includes two Hmongic lects, Yanghao (YH) and Jiwei (JW), along with one Mienic lect, Daping, the two items exhibit a perfect correspondence.

Table 2

	PHM	YH	JW	DP
IRON	-	l̥hə5	l̥hɔ5	ljɛ7
ENTER	*bjŭɛk	pə6	pɔ6	pjɛ8

If we use Ratliff (2010)'s reconstruction of rhyme, we can posit a PHM form as *hljŭɛk.[1] A difference observed between the Hmongic and Mienic forms, in terms of tone, can be explained by later development: Tone 5 in the Hmongic forms and Tone 7 in the Mienic forms are the regular reflexes of PHM Tone D in syllables with a coda *-k.

Although we conclude that all the forms in Hmong-Mien are treated as reflexes of a single etymon, we treat the Tone 5 forms and the Tone 7 forms separately as Type A and Type B in the map of this article, to indicate their different history. The subtypes under each type reflect the presence or absence of a prefix.

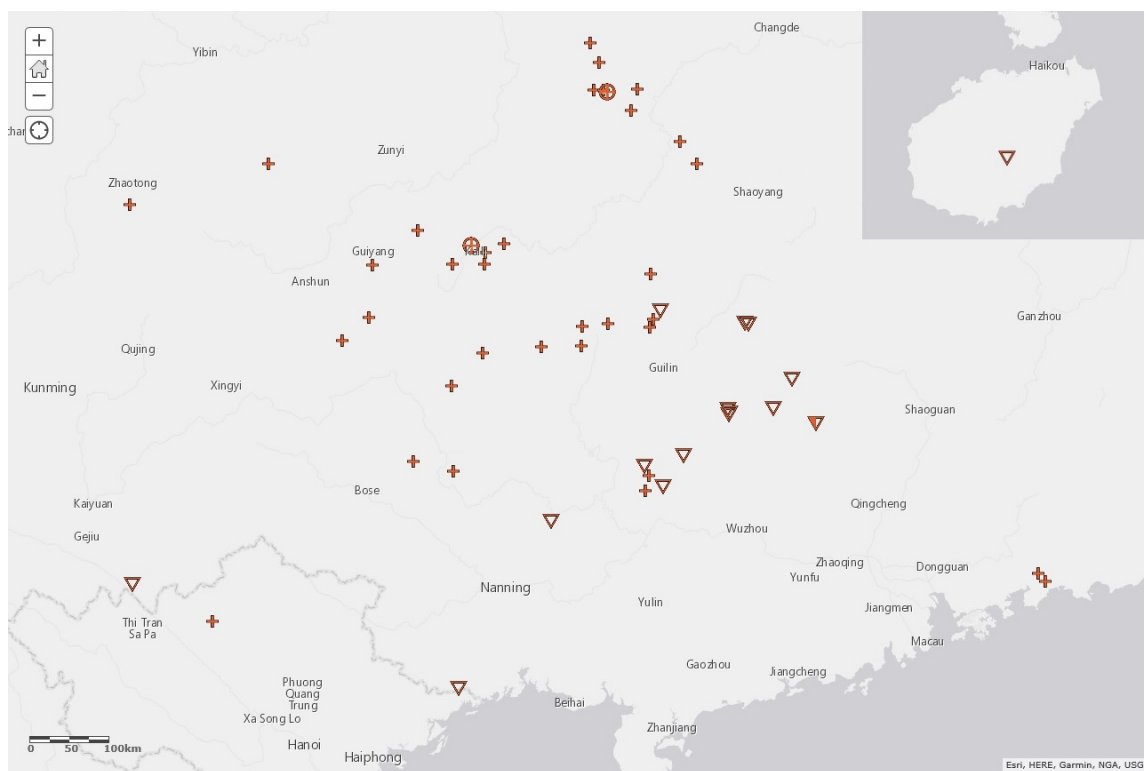A: forms with Tone 5
 A1: l̥o5
 A2: qo l̥o5

B: forms with Tone 7
 B1: hlje7
 B2: a hlje7

2. Geographical distribution and interpretation

As all forms for "iron" come from the same origin, and they seem to be quite regular in comparative perspective, we see a uniform distribution in the map of "iron." We notice that some Hmongic lects in Hunan and Guizhou have qo l̥o5 (A2), a prefixed form, but this may only mean that these lects preserve a more conservative feature, i.e., prefixation, in nominal morphology. If the word was borrowed from Old Chinese, the contact would have occurred in the period of PHM.

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[1] This does not mean that the present author makes a commitment for this particular reconstruction. The point here is that a single PHM etymon with a lateral initial should be reconstructed.

"Iron" in Hmong-Mien

A
A-1: l̥o5
A-2: qo l̥o5

B
B-1: hlje7
B-2: a hlje7

Iron: Tai-Kadai

1. Classification of word forms

In this map, word forms are classified into 7 large categories: *lek* type, *khjak* type, *khət* type, *thi:t* type, *va type*, *go:i* type, and *maa type.*

A. *lek* type

  A-1 *lek* with higher tone type

    lek7, lik7, lək7, luɯk7, le:k7, lɛ:k7, liak7, lek1, lyak3, la4, lɛ4.

  A-2 *lek* with lower tone type

    lek2, lek4, lik2, lɛk6.

B. *khjak* type

  khjãk7.

C. *khət* type

  khwət7', khɣət7, chit7, ɕət7.

D. *thi:t* type

  D-1 *thi:t* type (with aspirated initial)

    thi:t9.

  D-2 *ti:t* type (with unaspirated initial)

    ti:t9, ti:t9', tiət7.

E. *va* type

  E-1 *va2* type

    va2, wa2.

  E-2 *fa2* type

    fa2, fa4.

F. *go:i* type

  go:i1, ra:i1, xo:i1, huai1, khu:i1, ga:i4, ha:i4, kui1.

G. *maa* type

  maa4.

2. Geographical distribution and interpretation

The proto Tai form for "iron" is reconstructed as *hlek D by Li (1977). This form is preserved in the Central Tai area except for the initial consonant *h, which left its trace as a form of a higher tone (A-1). In Southwestern Tai, its tone changed into the lower series for an unknown reason (A-2).

Sagart (1999: 200-201) pointed out that this proto Tai form is close to the Old Chinese form *[a]hlik; hence it was borrowed into Tai as well as other Southeast Asian languages after the manufacturing of iron in this area took place. This occurred not earlier than 700-600 BCE, before the regular change *hl- > th- and *-ik > -it took place prior to the age of Middle Chinese.

B type *khjak* type is seen in Lakkia as khjãk7. Its coda preserves -k, while the onset changed into kh-.

C type *khət* is found among the Kadai languages, Dong, Sui, Mulao, and Maonan. This sound shape can be considered as an intermediate form, in which the initial changed from *hl- to kh-, while the final consonant experienced the change from *-k to -t. The palatalized forms *chit7* and *ɕət7* can be the trace of the *i*-like vowel which caused palatalization of the initial consonant as well as the final consonant.

D type is obviously the borrowed form from the Yue or Hakka dialects just next to the western border of the Northern Tai area. D-1 *thi:t* type preserves the aspirate initial consonant, while D-2 *ti:t* type lost aspiration, which is the regular sound change among Northern Tai.

All of the types A, B, C, and D above are considered loan forms from Chinese of different chronological strata and areas.

However, it seems that Type E *va* is not related to Chinese. E-1 *va2* preserves voicedness of the initial consonant as the tone 2 denotes. While E-2 *fa2* is a devoiced form, probably due to the later change. This Type F is dominant in the Northern area of Northern Tai, especially in Poai and Northern Zhuang.

The Hlai language in the Hainan Island shows a totally different form, as seen in the F. *go:i* type. The forms in this category basically show similarity. Detailed changing processes for each form should be studied further.

G. *maa* type is found in Saek. As is well known, this language generally shows an archaism. The origin of this sole form rests unknown.

Ni (2010: 170) postulates a possible link between *fa2, lek7* in Tai and *besi* in Indonesian. According to him, *fa2* is related to the first syllable *ba-* of the Early Austronesian *bati, *basih, *besih, while *lek7* is related to the second syllable *-sih*.
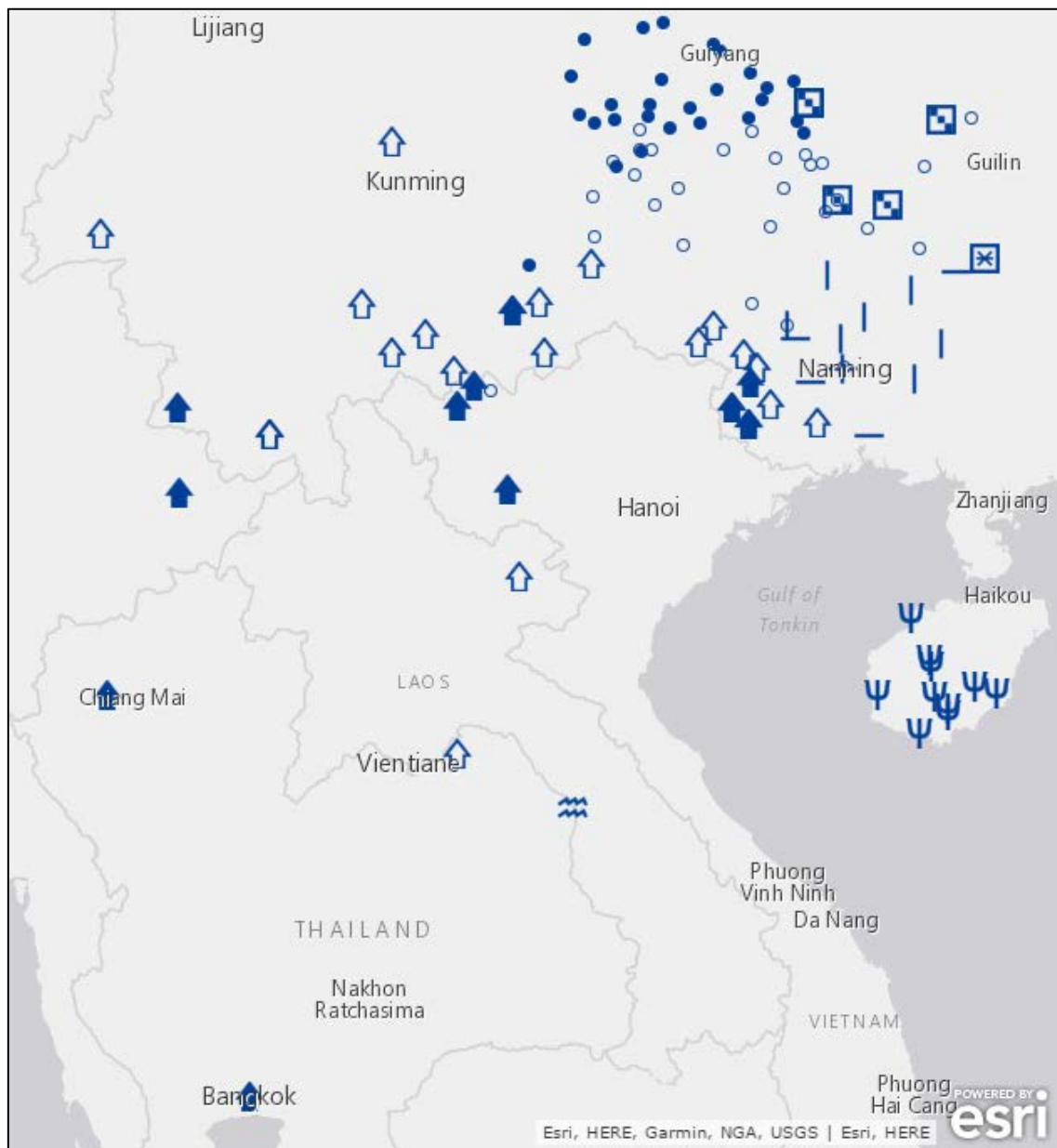
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(Mitsuaki ENDO)

Symbol	Code	Word
⬆ (outline)	A1	*lek* with higher tone
⬆ (filled)	A2	*lek* with lower tone
⊠	B	*khjak*
⊡	C	*khət*
—	D-1	*thi:t*
|	D-2	*ti:t*
●	E-1	*va2*
○	E-2	*fa2*
Ψ	F	*go:i*
≋	G	*maa* type

Iron: Austroasiatic

1. Classification of word forms

In this map, word forms of "iron" are classified as 15 categories as follows:

A. **bəsiʔ** type

   bəsiʔ (Aslian)

B. **ma:m** type

   ma:m (Bahnaric: Bahnar, Brao, Tarieng, etc.)

   mə:m (Bahnaric: Laven)

C. **lɔ:s** type

   lɔ:s (Bahnaric: Chrau), lɔs (Bahnaric: Sre)

D. **ta:ʔ** type

   ta:ʔ~tə:ʔ (Katuic: Bru, Ngeq, Kui, Souei),

   ta:ʔ (Katuic: Katang, Ong, Pacoh)

   ta:k (Katuic: Bru, Sô; Mangic: Mang)

   tɛ:k (Bahnaric: Stieng)

   daek (Khmeric: Khmer; Pearic)

       (Chong of Kompong Som < Khmer)

   dɛ:k (Pearic: Chong of Samray, Chong of Western

       Pear < Khmer)

   dɛ:ʔ (Khmeric: Surin Khmer)

E. **tamɨ:** type

   tamɨ (Bahnaric: Brao), təmɨa (Bahnaric: Su')

F. **nar** type

   nar (Khasic: Khasi)

G. **bərsɔɣ** type

   pəsoa (Monic: Mon)

   pəchɤj~kəchɤj (Monic: Nyah Kur)

   phcɔj (Bahnaric: Tampuan)

H. **karaw** types

   karaw (Nicobaric: Nancowry)

I. **hlek** type

   hlek (Khmuic: Mlabri)

   hləic (Palaungic: Lawa)

   hlaik (Palaungic: Palaung)

   lek (Palaungic: En, Tai Loi, Wa [South])

   lik (Palaungic: La, Wa)

   l̥hét (Palaungic: Samtau)

J. **rŋaŋ** type

   kaŋáŋ (Palaungic: Hu)

   rəŋaŋ (Palaungic: Lamet)

   ʔaŋàʕ (Palaungic: U)

K. **hrɛm** type

   yīm (Palaungic: K'ala)

   rum (Palaungic: Kentung-Wa, Son)

   hriam~h'riem~rièm²~rhem (Palaungic: Wa)

L. **si(i)r** type

   si: (Bahnaric: Mnong)

mæ⁴'² θi¹ (Palaungic: Danaw)

   hir (Palaungic: Palaung), hir¹ (Palaungic: Riang)

M. **kahɔ:ŋ** type

   kahɔ:ŋ~rəhɑ:ŋ~hɔ:ŋ (Pearic: Chong)

   rəhɑ:ŋ (Pearic: Pear)

N. **k-rac** type

   N-1. kʰlat⁷ (Vietic: Chứt [Rục], Malieng), kʰac⁷

       (Vietic: Muong), lac (Pong), kʰrat⁷ (Tho [Cuoi

       Cham]

   N-2. ʂat⁷ (Vietic: Viet, Tho [Lang Lo], Chứt [Sách])

O. The other types

   cndroh (Khmuic: Khmu [Cuang])

   cet (Khmuic: Khsing-Mul)

   jɔ:ŋ (Khmuic: Phong), dɔ:p (Khmuic: Tai Hat)

2. Geographical distribution and interpretation

In general, each branch has its own form and it is quite difficult to find some phonological relationship among them: Aslian: A, Katuic: D, Khasic: F, Khmeric: D, Monic: G, Nicobaric: H, Pearic: M, and Vietic: N. Those branches that have plural forms are: Bahnaric: B, C, D, E, G, L, and Palaungic: I, J, K, L. And each language of Khmuic has its own form.

ta:ʔ type (D), and *k-rac* type (N) present the a-b-a distribution, which could show that the form D is older than the form N. The Proto-Vietic form **k-rac* is likely to be borrowed from the OC **l̥ˤik* 鐵, which is related to Tai-Kadai *khət* type.

It is more obvious that the forms of *hlek* type (I) are closely related to the Tai-Kadai *lek* type (Endo 2016), and both of them can be related to the OC **l̥ˤik* (Baxter-Sagart 2014). *ma:m* type (B) is also related to Tai-Kadai *maa* type (Endo 2016).

The distribution of *si(i)r* type (L) is peripheral and closely related to the Tibet Burman **sya:l* ⋈ **syi:r* type (Kurabe 2016).
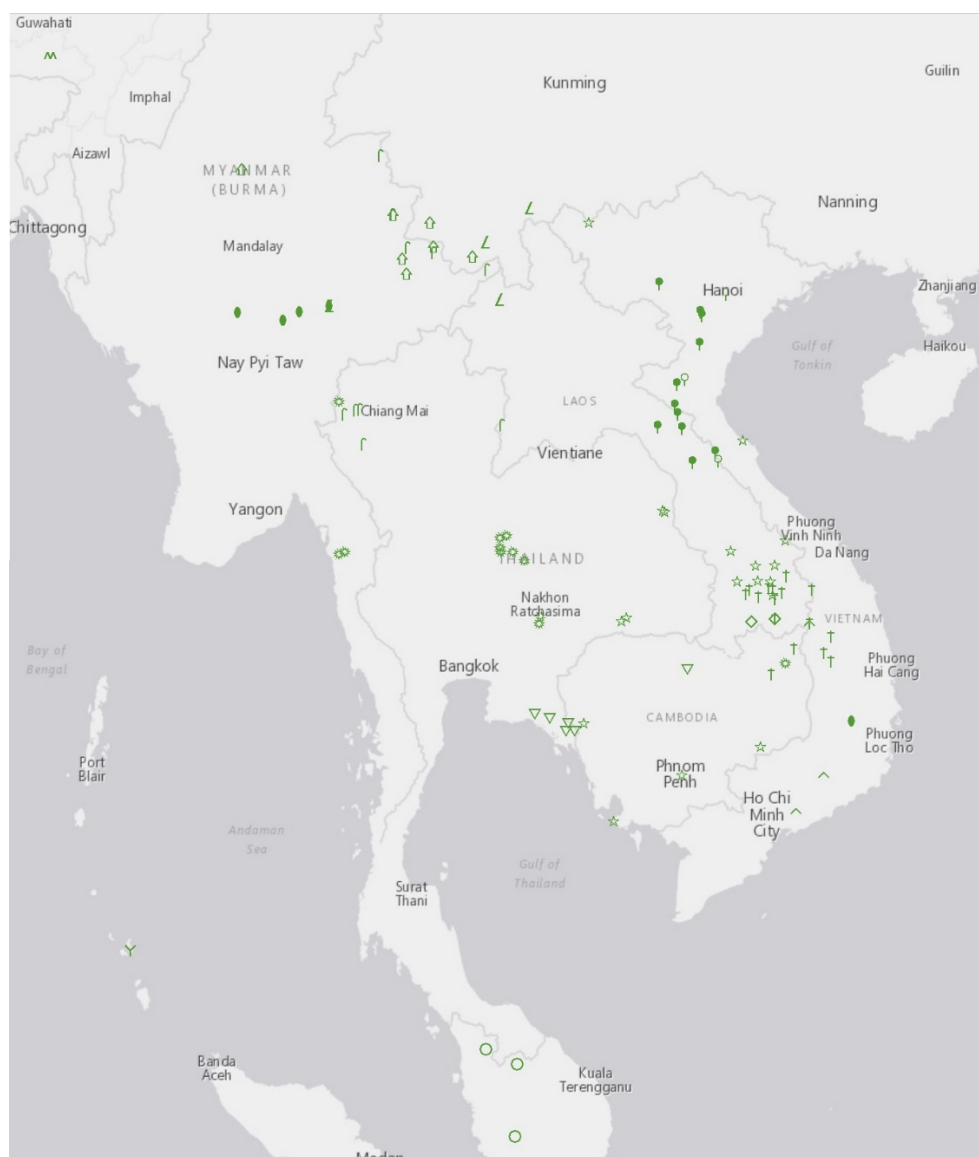
tamɨ: type (E) could be related to the Mongolic and Turkic *temir* type (Saito 2016).

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Saito, Y. (2016) *"Iron" in Mongolic and Turkic*.

Keywords: iron, Austroasiatic

(Masaaki Shimizu)

A. **bəsiʔ** type ⬤ bəsiʔ (Aslian)

B. **ma:m** type † ma:m / mə:m

C. **lɔ:s** type ◆ lɔ:s / lɔs

D. **ta:ʔ** type ☆ ta:ʔ~tə:ʔ / ta:k / tɛ:k / daek / dɛ:k / dɛ:ʔ

E. **tami:** type ◇ tami: / təmɨa

F. **nar** type ⋀⋀ nar

G. **bərsɔy** type ▨ pəsoa / pəchɤj~kəchɤj / phcɔj

H. **karaw** types Y karaw

I. **hlek** type ⌐ hlek / hləic / hlaik / lek / lik / l̥hét

J. **rŋaŋ** type ◪ kaŋáŋ / rəŋaŋ / ʔaŋàʕ

K. **hrɛm** type ⬠ yīm / rum / hriam~h'riem~rièm²~rhem

L. **si(i)r** type ⬤ si: / mæ⁴'² θi¹ / hir / hir¹

M. **kahɔ:ŋ** type ▽ kahɔ:ŋ~rəhɑ:ŋ~hɔ:ŋ / rəhɑ:ŋ

N. **k-rac** type

   O-1. ⬤ kʰlat⁷ / kʰac⁷ / kʰrat⁷

   O-2. ⚲ ṣat⁷

O. The other type

Iron: Semitic languages

1. Classification of word forms

The word forms of "iron" are classified as follows.

A. *parzillu* type

parzillu, parzəlā, parzlā, prizlə, frzn
brðl, brzl, barzel

B. *ħadi:d* type

ħadi:d, ħdi:d, hadíd, hádíd, hədájd, ħatīta, ladíd,
hadíd, lħdid, lħðið

C. *brāt* type

brāt, bərāt

D. *ħaṣi:n* type

ħaṣin, ħaṣṣin, ħáṣhin, xaṣi:n,

E. *w-zz-l* type

wəz:āl, uz:āl, uz:al, z:el,

F. *benipe, penipe*

2. Geographical distribution and interpretation

A. *parzillu* type

parzillu type is distributed in the Mesopotamia and Syria area: **barzel** in Hebrew (בַּרְזֶל), **parzəlā** in Modern Mandaic, **prizlə** in Urmi, the Neo-Aramaic dialect spoken in north western Iran.

The earliest use of this word is **parzillu** in Akkadian (𒀭𒁇, mostly written with the Sumerian signs 𒀭𒁇 AN-BAR 'iron') in a fragment of a tablet of the first dynasty of Susa (Valério & Yakubovich 2010). And then **b-r-ð-l** in Ugaritic (𐎁𐎗𐎏𐎍), **b-r-z-l** in Phoenician (𐤁𐤓𐤆𐤋), **parzlā** in Syriac (ܦܪܙܠܐ). **f-r-z-n** (𐩰𐩧𐩹𐩬) in Sabaean, an epigraphic South Arabian . In Arabic **firzil** (فرزل) is 'fetter'.

These forms were borrowed from non-Semitic, probably Anatolian languages such as Hittite or Luvian as a result of the large-scale Assyrian trade (Forbes 2010).

B. *w-zz-l* type

w-zz-l type is Berber forms. **wəz:āl** in Ghadamsi (western Libya), **z:el** in Nefusa (northern Libya), **uz:al** in Wargla (central Algeria) and Kabyle (northern Algeria), **uz:āl** in Ayt Seghrouchen (eastern Morocco).

Some Berber languages use also *ħadi:d* type.

C. *ħadi:d* type

ħadi:d (حديد) in Classical Arabic, Damascus, Cairo, Baghdad, UAE, Yemen, Bukhara (Uzbekistan); **ħdi:d** in Tunis, Morocco. **hadid** [hadi:d] in Maltese. **ladíd** and **hadíd** 'hard iron, steel' in Ki-Nubi (Kenya, Uganda).

The consonantal root **ħ-d-d** originally has meaning of 'sharp' (**ħa:dd** حاد in Arabic, **had** חַד in Hebrew). **ħadi:d** is the Arabic word and is not borrowed, because morphologically the meaning of **ħadi:d** is 'be sharpen' and this form is not shared with other Semitic languages.

South Arabian languages borrow from Arabic *ħadi:d*: **hádíd** in Jibbali (Oman), **hədájd** in Mehri (Yemen). But Soqotri form is identical with Ethiopic.

Berber languages also use the *ħadi:d* type borrowed from Arabic with the Arabic definite article **l** along with the Berber word: **lħdid** in Wargla and Ayt Seghrouchen, **lħðið** in Sanhaya (northern Morocco).

D. *ħaṣi:n* type

ħaṣi:n type is distributed in Ethiopic and Soqotri (South Arabian in Yemen). **xaṣi:n** (ኀጺን) in Ge'ez (the ancient Ethiopic), **ħaṣṣin** in Tigrinya (Eritrea), **ħaṣin** in Tigre (Eritrea), **háṣhin** in Soqotri (a South Arabian language in Yemen).
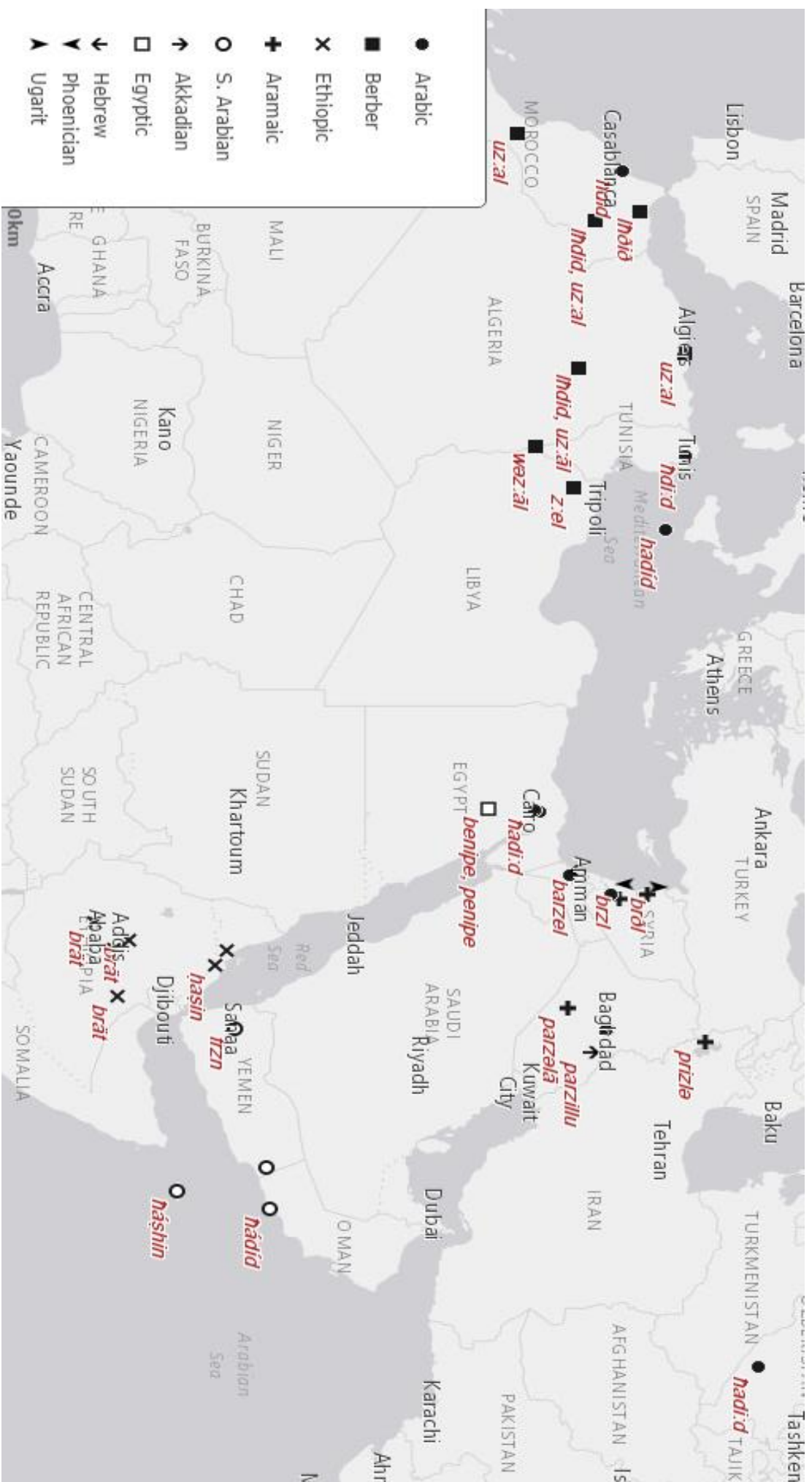
E. *brāt* type

brāt type is distributed in Ethiopic except the ancient Ethiopic Ge'ez. **brāt** (ብረት) in Amhara, Chaha and Harari. In Tigrinya **bərāt** also is used along with **ħaṣṣin**.

F. *benipe, penipe*

benipe (ⲃⲉⲛⲓⲡⲉ), **penipe** (ⲡⲉⲛⲓⲡⲉ) in Coptic.

(Youichi Nagato)

Legend:

- ● Arabic
- ■ Berber
- ✕ Ethiopic
- ✚ Aramaic
- ○ S. Arabian
- → Akkadian
- □ Egyptic
- ← Hebrew
- ◄ Phoenician
- ➤ Ugarit

0 km

Map labels:

- MOROCCO — *uz:al*
- Casablanca — *ħdid*, *ħdid*
- *ħdid, uz:al*
- *ħdid, uz:al*
- *ħdid, uz:al, z:el*
- *wez:al*
- Algiers — *uz:al*
- Tunis — *ħdi:d*
- *hadid*
- Tripoli
- Cairo — *hadi:d*
- *benipe, penipe*
- Amman — *bazel*
- *brzl*
- *brdi*
- Baghdad — *parzillu*, *parzelā*
- *priza*
- Addis Ababa — *brät*, *brät*
- Sanaa — *ħasin*, *ffzn*
- *ħadid*
- *ħaṣhin*
- Tashkent — *ħadi:d*

SPAIN — Madrid, Barcelona, Lisbon
ALGERIA, TUNISIA, LIBYA, MALI, NIGER, CHAD, SUDAN, SOUTH SUDAN
BURKINA FASO, GHANA, NIGERIA (Kano), CAMEROON (Yaounde), CENTRAL AFRICAN REPUBLIC, SOMALIA
Khartoum, Jeddah, SAUDI ARABIA, Riyadh, YEMEN, OMAN, Dubai, Karachi
GREECE, Athens, Ankara, TURKEY, SYRIA, Baku, Tehran, IRAN, TURKMENISTAN, AFGHANISTAN, PAKISTAN, TAJIK
Kuwait City, Djibouti, ETHIOPIA, Accra
Mediterranean Sea, Red Sea, Arabian Sea

Wind and Iron in Nivkh

1. Classification of word forms

'Wind' is *la* in all dialects. No other forms are reported.

The Nivkh word for 'iron' is [ʋitʃ] or [wat]. Some literature list *molok, malak*, *malako* (e.g. Savel'eva and Taksami 1965), which are from the Russian word *moloko* молоко 'milk'. This is also the form that our Nivkh consultants give when they are asked to translate молоко [məlʌˈko], though it should be noted that the primary stress shifts to the first syllable [ˈmalak], following the default trochaic stress pattern in Nivkh.

In this paper we have decided to use 'breast (bust, mother's milk)' instead since it exhibits broader variety among words that are semantically close to milk.

2. Geographical distribution and interpretation

There are six forms for 'breast'. We classify them into two types.

	Type A	Place & Source
1.	ʋitʃ	Kal'ma (Savel'eva and Taksami 1965)
2.		
3.		

	Type B	Place & Source
4.	wat	Poronaisk (Yamaguchi and Izutsu 2004)
5.	ʋat	Tygmyc (Tangiku, Tanzina and Nitkuk 2008)
6.	wat	Agnevo? Kreinovich
7.	wat	Poronaisk (Austerlitz 1984)

Type A is presumably related to the verb *momo-* 'to suck' or/and to *mot-* 'to kiss'. The final *-k* is a nominalizer. Related words are *momos* 'soother' (*-s*: nominalizer) and *motʃ soX* 'mother's milk' (Savel'eva and Taksami 1970). The vocalic correspondence o:ɨ is unheard of, but the consonantism (m-tʃ-k) provides evidence for *motʃk* and *mitʃik* being related forms.

Type B has either *miz-* or *miN-* as roots. It remains to be seen whether these forms are associable to the verb 'to suck', since this verb is *momo-* in these dialects as well. If that could be the case, the transparency with *momo-* should have been lost at some time in the course of history.

The geographic distribution of Type A and B follows the classic taxonomy of Nivkh dialects which dates back to Shternberg (1900) and Kreinovich (1934): the Amur dialect, spoken in the lower reaches of the Amur River and the west coast of northern Sakhalin, and the Sakhalin dialect spoken on the rest of Sakhalin. [1] The geographic distribution of Type A and B forms agrees with this taxonomy: Type A – the Amur dialect and Type B – the Sakhalin dialect.

Among the forms in Type A, *mitʃik* (Ten'gi) resembles the forms in Type B the most. This is expected since in our investigation Ten'gi is the only Amur dialect speaking spot located on Sakhalin. Thus *mitʃik* could be an intermediary form between a proto-type A form *motʃ* and a proto-type B form *miXX*. This could be investigated by comparing similar parallels between an intermediary form in Ten'gi and those forms reported in other dialects.

(Hidetoshi Shiraishi)

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[1] Kreinovich (1934) reported the number of speakers to be 3,200 for the Amur dialect and 850 for Sakhalin.
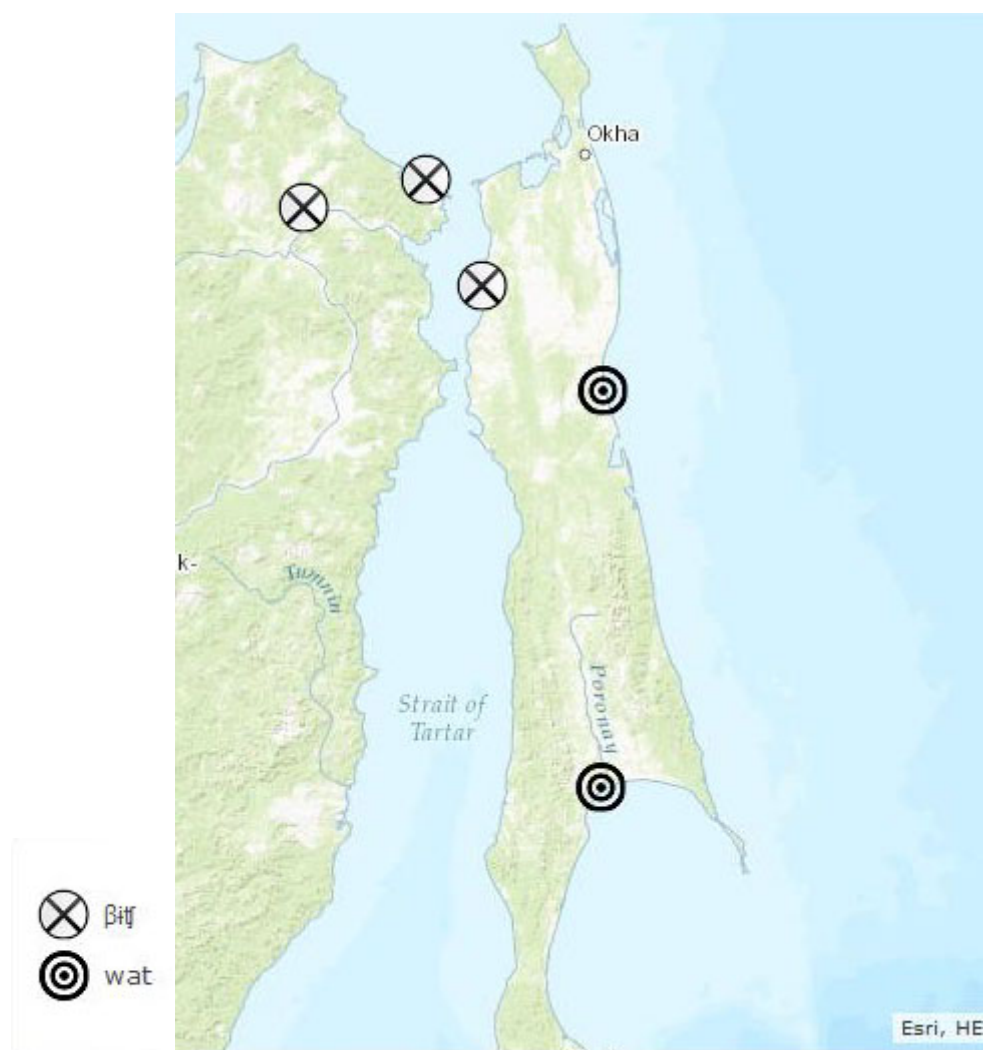
'iron' in Nivkh

Iron: South Asia (IE (Aryan, Iranian, Nuristani), Dravidian, Andamanese, Nihali, Burushaski)

1. Classification of word forms

There are four major categories of word forms – *lōhá*, *cīmara*, *áyas*, and *irumpu* – and two minor categories.

A. **_lōhá_**: *lōhá, lōhā, lohā, lōha, loho, lohu, ḷuhā, lōh, loh, luwā, lə̃u, lõ, lō, lo, no*; **[+*upaskara*]**: *lokhãḍ, lokhaṇḍo, lonkāḍ*; **[*lauhabhāṇḍa*]**: *loḍhũ*

B. **_cīmara_**: *čímar, čimar, čimárr, čimã␣r, čimɛr, čīmbar, čhimá, čimu, čhumár, čumár, čümã␣r, čumur, ċimár, ċímä, ċimə, ʦamuru, zime, sẽ␣war*

C. **_áyas_**: *ayas, āhan, āhin, ahyn, ahan, ohan, āsin, āsín, yišn, ya, da*, ˀ**[+*upaskara*]**: *ōspána*; **[+*kāṇda*]**: *yákaḍa, yakaḍapojja, dagaṇḍu*

D. **_irumpu_**: *irumpu, irimpu, irïmbï, inupu, inumu, inum, ib*

E. **_rao_**: *remo, lé e, rɛoṭɔy, rāō tul*

F. **_karbin_**: *karba, kabbiṇa, kabïn*

G. **_poṉ_**: *poṉ, pannā*

H. **others**: *šěšitar, phalam, ayil, kacci, tāūl bód da, póht-da*

2. Geographical distribution and interpretation

The lexical forms representing the word 'iron' can be classified into A) *lōhá* type, B) *cīmara*, C) *áyas*, D) *irumpu*, E) *rao*, F) *karbin*, G) *poṉ*, and H) others.

The distribution of 'iron' words is quite simple. On the one hand, most of Indo-European, Burushaski, and Nihali employ the types A, B, or C. On the other hand, Dravidian languages employ D, F, and G types. Type E is for Andamanese.

The most major type is *lohá* (with ● symbols). This type is derived from Sanskrit *lōhá* लोह 'reddish metal (iron ~ copper)'. Forms of this type are used by Indo-Aryan and Nihali languages, exclusive of the Dardic group, a subgroup of Northwestern Aryan. Historically, the form *lōhá* in Sanskrit, *lōha* in Prakrit, and now, for example, *lōha* ଲୋହ in Oriya, has not changed. Some languages use forms derived from Sanskrit *lōhōpaskara* लोहोपस्कर 'tool made of lōhá'. This kind of compound form can be found in type C

áyas later, too. Another original form is *lauhabhāṇḍa* लौहभाण्ड 'lōhá pot, lōhá mortar', and its meaning, such as 'iron tools', has surely become vaguer over time.
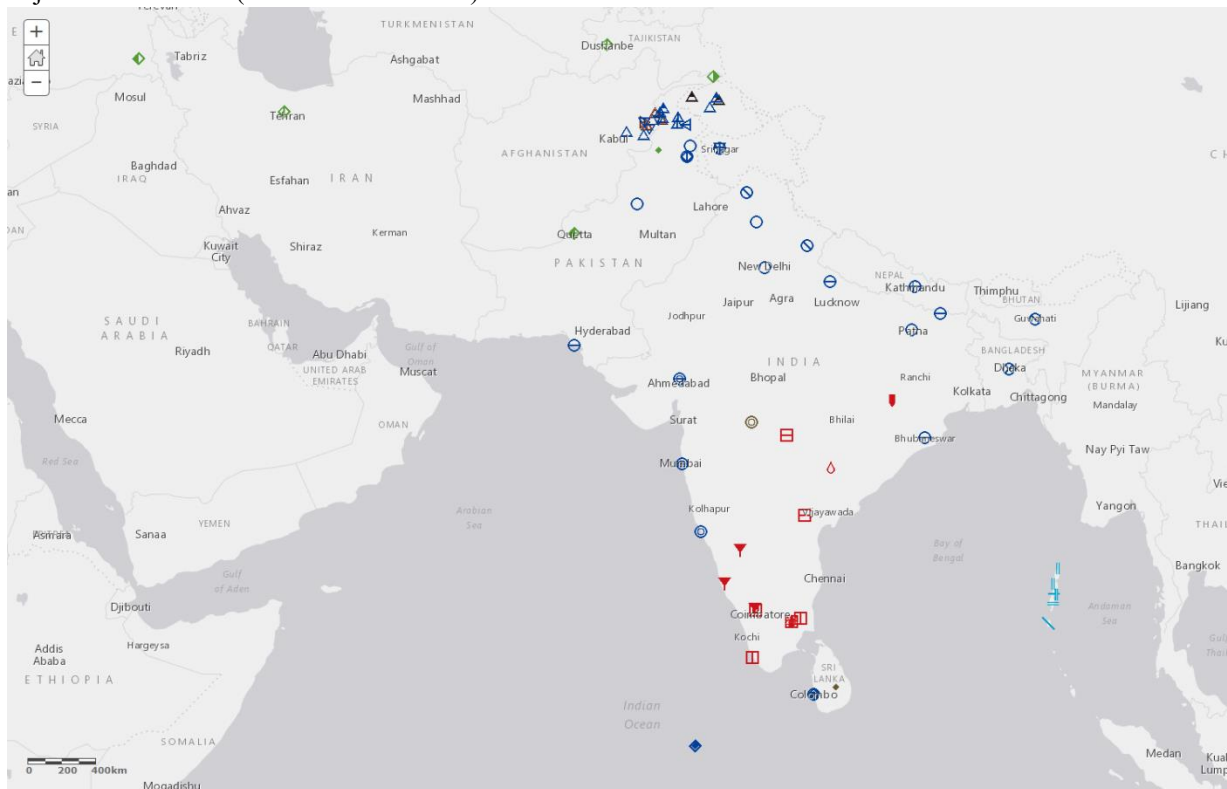
The *cīmara* type (with ▲ symbols) appears in Aryan, Nuristan, and Burushaski languages, which are concentrated in the area of Himalaya, Karakorum, and Hindukush mountain ranges (see Map 2). The original Sanskrit form *cīmara* चीमर might mean 'copper', for example in *cīmarakāra* चीमरकार 'coppersmith' in Saṁghāṭa-sūtra in Gilgit, but its Chinese version is described as *t'ie* 鐵 'iron' (Turner 1966: 828). Interestingly, this type is distributed between most *lōhá* forms of Aryan and the *áyas* forms of Iranian, but neither any Iranian language nor any Aryan language south of Swat and Kohistan employ a form of this type. Moreover, the sample Sanskrit record is found out in Gilgit, Shina speaking area, and the recent distribution is still just around the place.

The third major type *áyas* (with ◆ symbols) can be seen in all Iranian, southernmost Aryan (Sinhala and Dhivehi), and Vedda languages. The forms originate in Sanskrit *áyas* अयस् 'metal'. Historically, this form has changed, on the Aryan hand into *ayō* in Pali and then *aya* in Prakrit, while on the Iranian hand into *ayaṅh* in Avestan and then *aśin* or *āhen* اسون in Pahlavi. Some forms come from the Sanskrit compounds *áyasupaskara* अयसुपस्कर 'tool made of áyas', perhaps, or *áyaskāṇḍa* अयस्काण्ड 'a quantity of áyas', surely.

Next, the *irumpu* type (with ■ symbols) is used in Dravidian languages, except for western ones. Western languages of the Dravidian family use forms of the *karbin* type. It is suggestive that the Tamil *karbin* form is analytic: *karum poṉ* கரும் பொன். The *poṉ* part can be detected in the minor *poṉ* type, which has another candidate, *panna*, from Kurux. This type comes from Proto-Dravidian, something like *poṉ 'gold'. It indicates that the *karbin* type has been derived from Proto-Dravidian expressions composed like *karum poṉ* 'black gold', and the *irumpu* type is also possibly of the ancient form *cirum poṉ 'dark gold' or the like (cf. Tamil *iru* இரு 'black', Kolami *ciruṇ* 'very dark', and Malayalam *iravu* ഇരവു 'night').
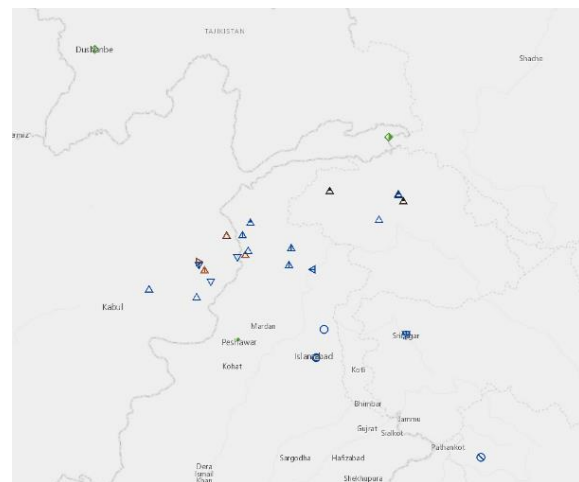
Rao is a minor type in Andamanese. The word *rɛo* of *rɛoṭɔy* in Great Andamanese originally meant 'iron' and *ṭɔy* meant 'sharp'. *Tul* in Áka Cháriár and Áka Kédé may be from the same origin as *ṭɔy*, and the morpheme looks like the initial part of *tāūl bód da* in Áka Bía-da. While the latter part is similar to *póht-da* in Áka

Bójihiáb.   (YOSHIOKA Noboru)

Map 1. ‘Iron’ in South Asia

Aryan

- lohā
- lōhā
- lōha
- lōh
- loh
- lohu
- loho
- ḷuhā
- luwā
- lə̃u
- lõ
- lō
- lo
- no
- lokhã́ḍ
- lonkāḍ
- loḍhũ
- čímar
- čimâr
- čimɛr
- čimbar
- čimu
- čhumár
- čumur
- čimár
- čímä
- čimə
- tsamuru
- sẽwar
- ayas
- āhan
- ya
- da
- yákaḍa
- dagaṇḍu
- šẽšitar
- phalam

Iranian

- ahan
- ohan
- ahyn
- āhin
- āsín
- āsin
- yišn
- ōspéna

Nuristani

- čimárr
- čhimá
- čũmâr
- zíme

Dravidian

- irumpu
- irimpu
- irïmbï
- inupu
- inumu
- inum
- ib
- karum pon̠
- karba
- kabbiṇa
- kabin
- pon̠
- pannā
- kacci
- ayil

Burushaski

- čhumár
- čumár

Nihali

- lokhaṇḍo

Vedda

- yakaḍapojja

Andamanese

- remo
- lé e
- rɛoṭɔy
- rāō tul
- tāūl bód da
- póht-da

Map 2. *cīmara* type

Notes on the Word Form for 'Iron' with a Voiced Initial in Tibetic Languages of the Eastern Tibetosphere

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Abstract

This article attempts to explain an existence of a word form 'iron' of Tibetic languages with a voiced initial which is likely to correspond to Written Tibetan (WrT) *lcags* 'iron'. This form is just attested in some linguistic areas within Gannan Prefecture, and a part of the dialects have also a voiced initial for the words like *lce* 'tongue' and *bcu* 'ten'. Therefore, the form of 'iron' with a voiced initial is also one of the series of exceptions of voicing, and no need to look for another etymon in WrT is assumed.

1   Introduction

This article provides a detailed explanation regarding the word form 'iron' of Tibetic languages with a voiced initial, which still corresponds to *lcags* in Written Tibetan (WrT). It examines the case of Tibetic languages spoken in the eastern Tibetosphere, which Kurabe et al. (this volume) did not describe in detail due to their focus on the whole of the Tibeto-Burman linguistic area. The geographical scope of the eastern Tibetosphere follows the definition of Suzuki (2015).

The data used to create the linguistics maps at the end of this article only includes first-hand materials collected by the author from 2003 to 2016. Because of this, as well as because of time constraints on the part of the author, the data points are not equally distributed within this area, and the points on the map only reflect the current research situation. The present map contains 235 points.

The linguistic maps reflect so-called 'regiolects', i.e. dialects with regional differences. Sociolects, which certainly exist in the given area, are not dealt with in this article.

2   Word forms of 'iron' in Tibetic languages

In most Tibetic languages, the word form for 'iron' corresponds to WrT *lcags*, with many phonetic realisations, such as [ʰtɕɑʔ], [ʰʈʂɑʔ], [ʰcçɑʔ], [ˢtɕəq], [ʰtɕəχ], and so on.[1] WrT distinguishes *khro* 'pig iron' from *lcags*, and I did not obtain any data which shows a form corresponding to *khro* employed as 'iron'. Hence, it is not necessary to classify word forms depending on etyma. However, there are some dialects which employ a phonetic form of a voiced initial. They are following:

Rongthag: /ɦdzɑ:/
sDedgudgon: /ɦdzɑ:/

These dialects are distribtuted in Thewo County, Gannan Prefecture, Gansu Province, and they belong to Thewo-smad Tibetan. We should note that similar cases are found in one previous work: Yang (1995) provides a word form for 'iron' in five dialects from Gannan Prefecture, among which Liping-Jiuyanzhai and Xinchengzi-Yebei have a voiced initial, as /dzɑ^{53}/ and /dʐɑ^{53}/ respectively.

Therefore I will classify in this article the word forms for 'iron' into two large groups for the map: C-type is a straightforward sound correspondence with *lcags*, and J-type is an irregular form. In addition, there is one dialect which employ a form corresponding to *lcags* with a suffix, as in /ɕtɕɑː rə/ (C+-type).

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[1] A suprasegmental description is uniformly omitted except for citations.

Furthermore, only the lCanggrong dialect spoken in sMarkhams use another root /ʱza/, which seems to be related to the first syllable of WrT *zha nye* 'lead', which is classified here as Z-type. A semantic change might have occurred, or, possibly, it is a mere misunderstanding when the fieldwork. It is less interesting to provide a map without much information regarding the lexical difference, however, we should note that not all the word forms display a lexical variation in Tibetic languages.

3　Potential explanation

A voiced initial is certainly an exceptional sound if it corresponds to *lc* initial in WrT. Then, how do we understand the existence of examples with a voiced initial for the word 'iron'? Does it have another WrT etymon? I propose a possibility of an exceptional phonetic correspondence of WrT *c* with a preradical of the general word of WrT for 'iron' *lcags* because there are two more words with this type of exception attested in the same or other dialects surrounding Thewo-smad. The two words are WrT *lce* 'tongue' and WrT *bcu (tham pa)* 'ten'. Exceptional sound correspondences are following:

Word forms for 'tongue'
　　gZari: /ʱdʑa/
　　Braggamnang: /ʱdʐɑ:/
　　mBrirdzi: /ʱdʐɑ:/
　　Khaba: /ʱtɕa:/
　　sDedgudgon: /ʱtɕɑ/

Word forms for 'ten'
　　gZari: /ʱdʑa: ᵐba/
　　Braggamnang: /ʱdʑa: ᵐba/
　　mBrirdzi: /ʱdʑɯ tʰɑ: ᵐba/
　　Khaba: /ʱtɕɯ tʰɑ: ᵐba/

　　Note that these sound correspondences are also considererd as an exception. They merely mean that there are other examples that show a change of voicing of a WrT initial *c* with a preradical letter. As for the word form for 'tongue', it is also claimed that the form with a voiced initial corresponds to WrT *ljags*, a honorific word for 'tongue', however, seeing the examples provided in this article, we can consider another possibility, especially, the rhyme of gZari and Khaba does not suggest a relation to WrT *-ags*.

Acknowledgements

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Map
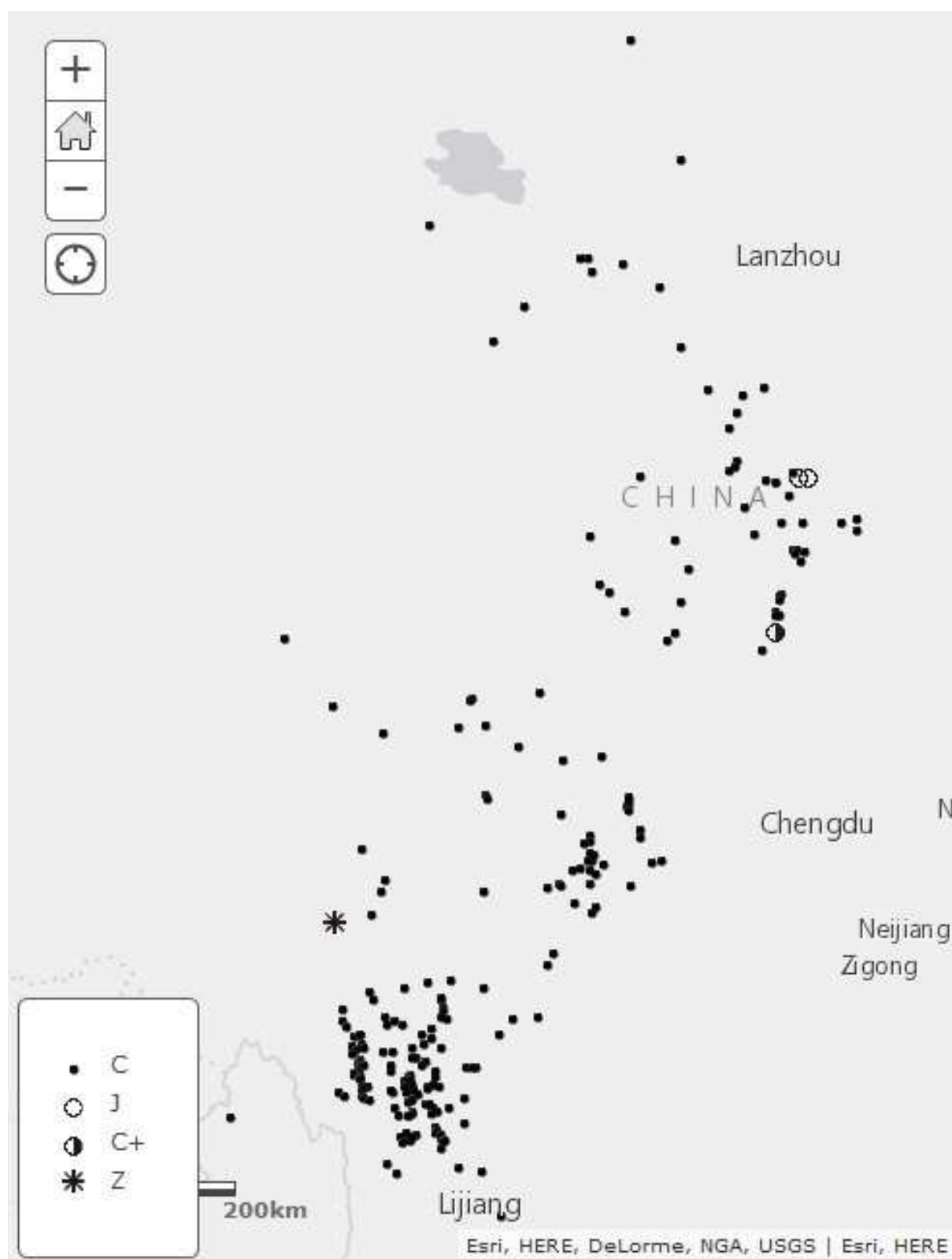
Legend ♠
Map 1: Overall distribution of word forms for 'iron'.

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