Studies in Asian Geolinguistics

III

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Studies in Asian Geolinguistics III

— MILK —

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Cover photo: A Tibetan woman milking a yak in Qinghai Province, China;
taken by Shiho EBIHARA on August 12, 2014.

“Rice (plant)” in Asia

Despite many debates, one can say that Asia contains the homeland for domesticated rice species: China. Because of divergence of climate conditions, rice cultivation is not pervasive there, and Asian languages thus do not always have any word forms concerning ‘rice’; however, those spoken in the rice cultivation region have various semantic categories regarding the word ‘rice’ in English. ‘Rice plant’ is described here.

1. Origin and expansion of ‘rice’

Oryza sativa, edible rice, has two major subspecies: *japonica* and *indica*. *Japonica* varieties are usually cultivated in dry fields, in temperate East Asia, upland areas of Southeast Asia, and high elevations in South Asia, while *indica* varieties are mainly lowland rices, grown mostly submerged, throughout tropical Asia (Wikipedia ‘*Oryza sativa*’).

There are numerous debates regarding the origin of cultivated rice. With an analysis of a map of rice genome variation, Huang et al. (2012) claim that the domestication of rice occurred in the China’s Pearl River Delta valley region, and rice was spread from East Asia to South and Southeast Asia.

Many cultures have evidence of early rice cultivation, including China, India, and the civilisations of Southeast Asia. However, the earliest archaeological evidence comes from central and eastern China and dates to 7000-5000 BC (Encyclopaedia Britannica ‘Rice’). In India, agricultural activity during the second millennium BC included rice cultivation in the Kashmir and Harrappan regions (Smith 2000). In Korea and Japan, rice agriculture was firstly introduced into Korea circa 850-550 BC, and then reached Japan by circa 300 BC (Crawford and Lee 2003). In South-east Asia, rice cultivation may date back over 1500 years in Indonesia, from the first to second millennium BC in the Philippines, and to 2200 BC in Thailand.

2. Classification of word forms

Sinitic languages, spoken in rice’s homeland, possess many roots for various kinds of ‘rice’, for example, 粳 *jing* ‘non-glutinous *japonica* rice’, 籼 *shan* ‘non-glutinous *indica* rice’, 糯 *nuo* ‘glutinous rice’, 稻 *dao* ‘rice plant’, 穀 *gu* ‘rice grain crop’, and 米 *mi* ‘ready-to-cook rice’ (pronunciation in pinyin). This fact implies that these words date back to their ancient stratum which already classified ‘rice’ into many subcategories. Around half of language groups have multiple subcategories of ‘rice’.

Table 1: Main word forms for ‘rice plant’.

Languages	Word forms
Japonic	*ine* 稲 *mai* 米 (< Sinitic *mi* 米)
Korean	*pjɔ* *na-rak*
Sinitic (SN)	*dao* 稻(*3) *tiu* *he* 禾 *gu* 穀(*1)
Hmong-Mien (HM)	PHM **njau*/**njua[t]* *mple*
Tibeto-Burman (TB)	PTB **b-ras* (WrT *’bras*) PB **čan1* (WrB *chan*) PTB **bu* PTB **ma-y* ≍ **mey* PTB **kuk*(*1)
Tai-Kadai (TK)	*ɣau* *k^{h}au* *mV*(*2)
Austroasiatic (AA)	*ba:ʔ* *cɛh* *maw*(*2) *alɔ:ɜ*(*3)
Austronesian (AN)	PAN **pajay* PAN **b.Ras* (bəras)
Ainu	*amám*
Tungusic	*kandu*(*4)
Mongolic	*tuturkan* (< Turkic *tuturqan*) *kans*(*4)
Turkic	*döge* *küriš* (< Farsi *gurinj*) *pirinč*(*5) (< Farsi *birinj*)
Indo-Iranian (II)	*vrīhi*(*5) *taṇḍula* *bhāt* *dhāna*
Dravidian	*nell* *varči*
Arabic	*ruzz* (< Greek *ὄρυζα*)

N.B. The numbers such as (*1) and (*2) mean that the forms with the same number have a mutual relationship.

Some examples underwent a semantic change.

1) within the 'rice' category

II *šāli* : original Sanskrit meaning 'grain in the husk'. > Modern Uighur *šal*.

SN *gu* : original Chinese meaning 'grain' > TB Bai *kuo21* 'rice plant'.

2) over the species of grain crops

II *dhāna* : original Sanskrit meaning 'corn grain' > Nepali *dhān* 'rice'.

TB **k^{h}r/*q^{h}r*-type probably corresponds to WrT *khre* 'millet'.

Some languages in Asia, especially spoken in the non-rice-cultivation area, do not have their own words for 'rice', such as many Arabic languages (using a loan of Greek *ὄρυζα* or a word with a semantic change) and many Uralic languages (using a loan of Russian *рис*).

3. Geographical relationship over language families

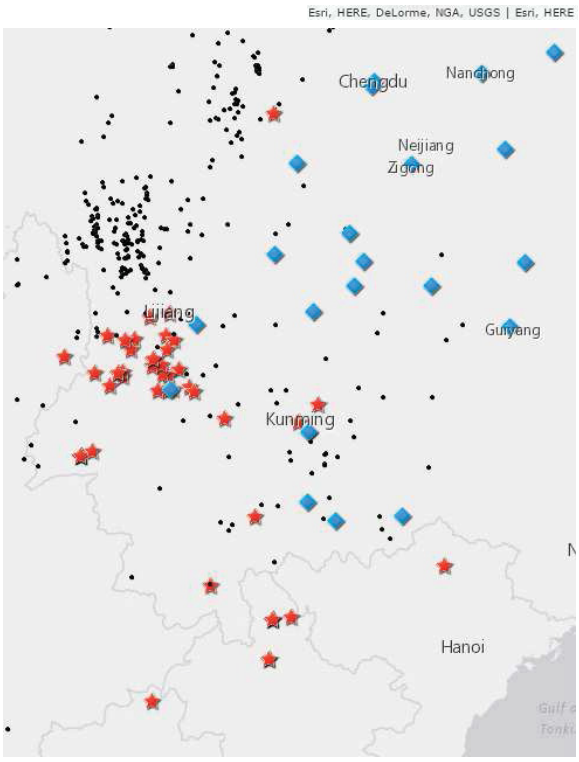
A number of word forms for 'rice (plant)' provided above can make a geolinguistic description complicated. Rather, it is very interesting to analyse common word origins as well as loans attested in the languages of Asia. See SAG articles of each language group regarding 'rice' for detailed explanations.

3.1. Sinitic *gu vs*. Tibeto-Burman **kuk*

Even though Sinitic and Tibeto-Burman belong to the Sino-Tibetan macrofamily, they possess various different roots for 'rice', among which they share a common root Sinitic *gu* - Tibeto-Burman **kuk* (see STEDT 'rice'). These word forms are mainly attested in Southwest Mandarin and Loloish languages in Yunnan. This distribution implies a mutual linguistic relationship in that region. Another view regarding the origin of Sinitic *gu* is provided by Matsumoto (2012:91), claiming that it is a loan of Austroasian **kauk*.

3.2. Ryukyuan *mai vs*. Sinitic *mi*

The *mai*-type attested in Ryukyuan varieties might be a loan of Sinitic *mi* '(rice) grain', and this Ryukyuan form denotes not only 'rice plant' but also 'rice grain'. It implies that people inhabiting Ryukyuan islands do not belong to a rice-cultivation culture. Note that Sinitic *mi*, which does not denote 'rice plant' in any varieties, is related to PTB **ma-y* ≍ **mey*, of which derived forms are also used for 'rice plant' in some TB languages as Jinghpaw and Trung, which have originally been spoken in the non-rice cultivation culture. Another view regarding the origin of Sinitic *mi* is provided by Matsumoto (2012:91), claiming that it is a loan of Austroasian **may* or Austronesian **[xu-]may*.



Blue: SN *gu(zi)* Red: TB **kuk* Black: others

Map 1: Distribution of SN *gu* and TB **kuk* in South-western China

3.3. Tai-Kadai *mV vs*. Austroasian *mau*

These two forms are mainly attested in the Southeast Asia. Language contact is highly expected. The origin of the form with a /m/-initial is unclear.

3.4. Austroasian *alɔː³ vs*. Sinitic *dao*

Based on Ferlus' (2010) claim, the Vietic form *alɔː³* is supposed to have been borrowed from the Old Chinese *dao*. However, the present distribution of the Sinitic word form connecting *dao* is mainly the northern area of China, not the southern area. Any links between these two forms are currently missing.

3.5. Indo-Iranian *vrīhi vs*. Turkic *pirinč*

The *pirinč*-type found in Turkic is distributed at the western Turkic linguistic area. The expansion of this word form is from Farsi (Persian), and it was west-oriented. In Turkic language, another word form *küriš* is also borrowed from Farsi. Even in Modern

Uighur, *šal* is a Farsi loan.

3.6. Mongolic *tuturkan vs*. Turkic *tuturqan*

Mongolic *tuturkan* is regarded as a Turkic loan, but modern Turkic languages do not use this word form any more. An Old Uighur text (ca. 13th c.), however, uses the form *tuturqan* for 'rice straw' (UiO Polyglotta). The word form in many Turkic languages has been replaced by a Farsi word.

3.7. TB **b-ras vs*. Hunza Burushaski, Domaaki *bras*

The form derived from PTB **b-ras* for 'rice' is mainly found in Tibetic languages among TB. The westernmost Tibetosphere almost contacts the Burushaski area; however, any intense language contact between them has not been attested. See also Ryavec (2015) for the local geography. Their historical background would help for understanding this lexical borrowing. It is also noteworthy that the donor language is Tibetic, which does not belong to a rice cultivating culture.

3.8. Note regarding PAN **b.Ras* and its expansion

It is noteworthy that Ferlus (2010) claims that Proto-Austronesian **b.Ras* might be a common origin of 'rice' in Indo-European languages. However, the present geolinguistic analysis does not provide any evidence to support or protest this hypothesis. Note also that according to Blust and Trussel (2010-ongoing) the proto-form **beRas* designates 'rice between harvesting and cooking'.

3. Conclusion

We can find nearly 40 roots which designate 'rice (plant)' in Asian languages. Due to difficulty to provide presice history and chronological order of all the roots, the present article concentrated on an explanation regarding the semantic change and the loan process of 'rice' in Asia based on the data available at present.

Keywords: semantic category, semantic change, loan

(Hiroyuki Suzuki)

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“Rice” in Ainu

1. Classification of word forms

In Ainu folklore, *amám* “cereal grains” were stolen by the progenitor of Ainu from the place of either *kamúy mosír* “the land of gods” or *sísam mosír* “the main land of Japan” (Yoneda 1995). In fact, Ainu people have gotten rice from Japanese for a long time. At the end of the 17th century, it was the first time a Japanese man harvested rice plants in Hokkaido, c.f., “Matsumaeshi 松前志” (1692).

Hattori (eds.) (1964) reported that there were two types of terms for “rice plant” (*ine* 稲 in Japanese), which must be the extended use of the words for “cereal grains” and “rice”:

A) *amám*

B) *siámam*

2. Geographical distribution and interpretation

Form A, *amám*, originates from the generic term for “cereal grains,” such as foxtail millet, barnyard millet and rice (*awa* 粟, *hie* 稗, *kome* 米 in Japanese, respectively). It was distributed over all dialects of Ainu. In the Japanese works of the 17th century, アマモ, the presumable form *amam*, was always translated as 米 “rice” (Hirayama 2013), probably because rice was the typical grain for Japanese people and society.

The words *X amám* could occur for distinction among grains, as in Table 1. For example, although Ainu were basically hunter-gatherers, they have cultivated *múnciro* “foxtail millet” and *piyápa* “barnyard millet.” Therefore, in some dialects, these grains are called *tóyta amám* (lit. “cultivated grain”).

	amám	*X amám*	*Original form*
Rice (plant)	*amám*	*siámam* *tonó amam* etc.	—
Foxtail millet		*tóyta amám* *áynu amam*	*múnciro*
Barnyard millet		*mancuu amam* etc.	*piyápa*

Table 1: The word *amám*

Form B, *siámam*, consists of the prefix *sí-* “real, the very” and *amám* “grain.” Chiri (1976[1953]) suggested that its original form would be *sísam amam* “Japanese grain.” There is no evidence for Chiri’s suggestion; however, “rice” is certainly called *tóno amam* in the Horobetsu dialect. The word *tonó*, which was borrowed from Japanese *tono* 殿, means “a Japanese government official; *yakunin* 役人 in Japanese.” In contrast, foxtail/barnyard millets are called *áynu amam* (lit. “Ainu’s grain”) in Hokkaido, and *mancuu amam* (lit. “grain in Manchuria 満州) in Sakhalin.

In Hattori (eds.) (1964), the words for “rice” basically use the same words as “rice plant,” *siámam* and *amám*, but *siámam* has a special meaning of “unpolished rice” (lit. the very grain). The related words for “polished rice” are represented as *pírke amám* (lit. “polished grain”) and *retár amám* (lit. “white grain”). The word *mesí* 飯 in Japanese is borrowed in the term for “cooked rice” in a few Ainu dialects.

Keywords: grain, foxtail millet, barnyard millet

(Mika Fukazawa)

Map. *“Rice plant” in Ainu*

A. *amám*

B. *siámam*

“Milk” in Tungusic and Uralic

Northern people in Siberia have their livelihood by pasturing reindeer, hunting and fishing. Other Tungusic and Uralic people, who are dwelling relatively in south and west area, farming and agriculture.

In their culture of reindeer pasturage the use of milk is not much common. Tugolukov (1969)[1] wrote that Evenki usually milk reindeer only after the female bear calves. They drink it with tea, or they make kinds of cheese, cream, butter. On the other hand Nenets in Tundra do not use reindeer milk in general[2].

As fas as I researched, there is no language which distinguishs the milk between human and animals.

1. Tungusic

Tungusic languages have a common word for “milk” though there are a few different forms with several suffixes.

> Ev. *ukumnī, ukumnmī, ukunʲə~u,* Ew. *əkən, ukunʲ,* Neg. *okonʲo,* Udh. *kos'o,* Ulc. *kūn,* Or. *uku,* Uil. *kөө,* Nn. *kū(n)* // Sol. *uxun*, Oro. *ukun*

The root common in these word is *uku-*, which means “to suck milk, to sip” (cf. *sir-* “to milk”). In some languages the word for “milk” also means “woman’s breast, a nipple”. “Milk” was made by metonymic use:

uku- (v.) > ***uku-n*** (n.)
“to suck” > the organ which a baby suck = “breast”
> the secretion of the organ = “milk”

Other words are found only in Nanay and Sibe.

In Nanay, which lives mainly by fishing, *moloko* (< Rus.) is more popular in use. In China Hezhe uses *məmə*, which origin is unknown.???

Sibe people use *sun* for milk. Obviously it is likely that it came from Mongolian *suu* as a borrowing.

2. Uralic

In Uralic there are 4 forms for “milk” goegraphically. The fact that the common word is unable to go up to the proto language would reflect that the word for “milk” was affected by their livelihood.

2.1 Samoyed

Nenets have a few expressions for “milk”:

molka, malaka, < Rus. *moloko*

ŋamʲandʲer (breast-G.+content), *ŋamʲa iʔ* (breast.N. water)

Nenets is the unique language which uses a compound for “milk”.

Other Samoyed, Nga. nimiŋ, Sel. nʲimä means “milk” and “woman’s breast”, and the root **ńim-* means “to suck”. It is not sure if it is borrowed from the neighbor languages, the semantic metonymy is same as in Tungusic.

2.2 Permiac

The form with **jal-* is widely used, which means “sap, tree juice” in original, and the cognates are used even in other Uralc: Fi. *jälsi*.

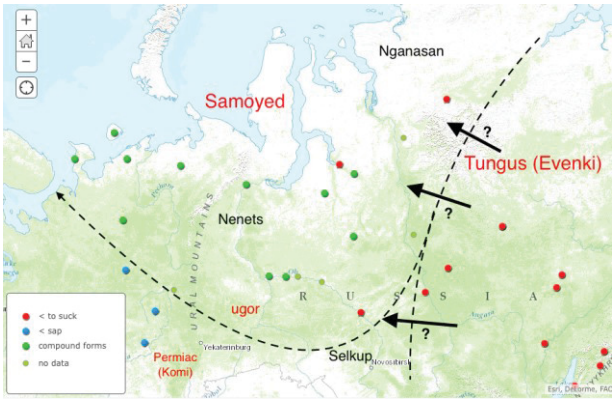
2.3 Volga-Finnic

In Mordovian *lovso~lofca* is used for “milk”. The cognate form is also found in Baito-Finnic: Fin. *lypsää* “to milk”.

2.3 Balto-Finnic

2 forms *piimä* (Est.) and *maito* (Fin., Veps, Kar.) are found. As *maito* is used only in Finnish and its surrounding area, *maito* newly replaced the preceding word *piimä*[3].

(Ryo MATSUMOTO)

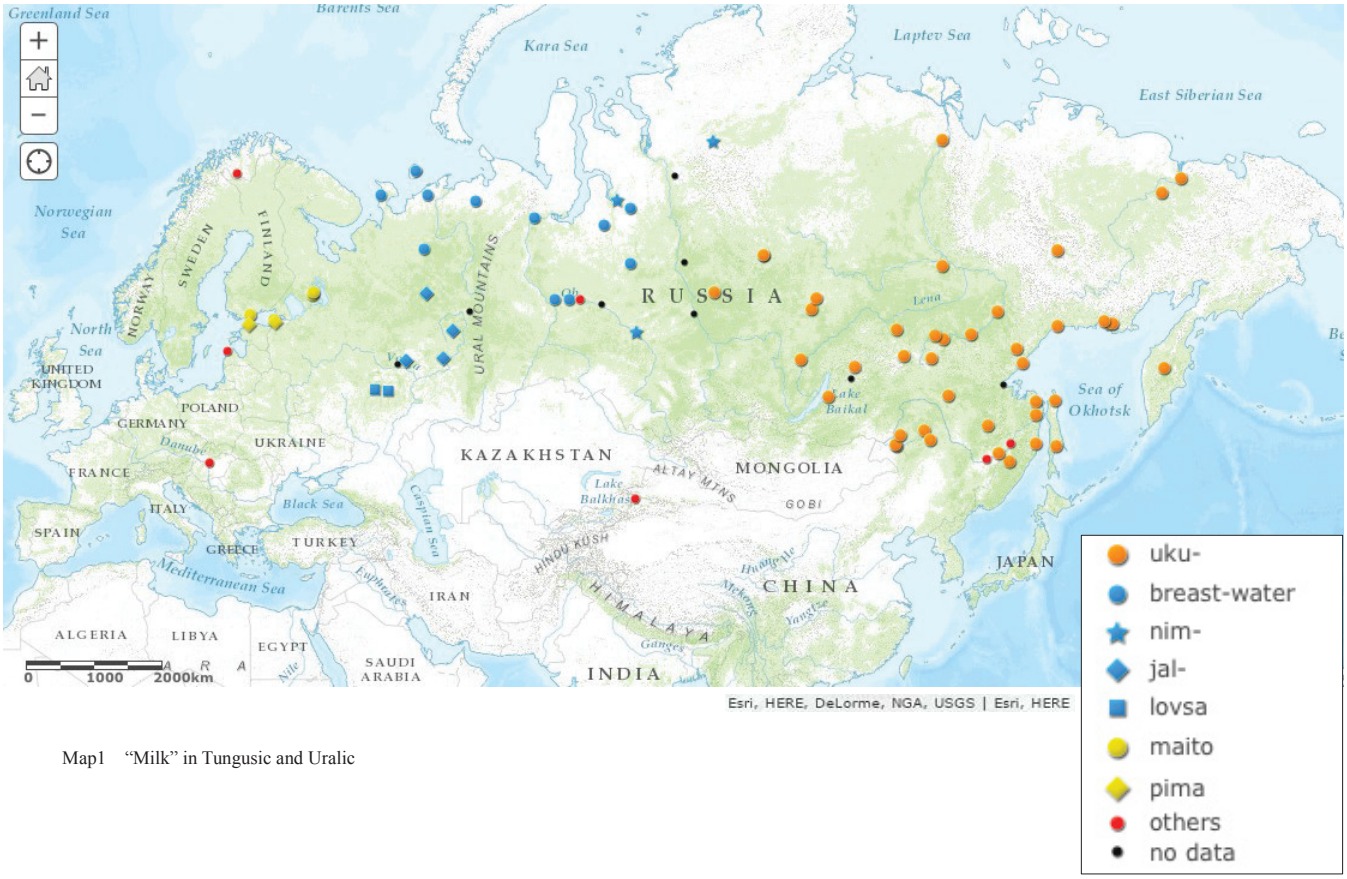


Map2 Distribution as to the word derivation

[1] 『トナカイに乗った狩人たち―北方ツングース民族誌』(B.A. トゥゴルコフ著(1969)、加藤九祚解説、斎藤晨二訳、1981年、刀水書房)

[2] 『トナカイ牧畜民の食の文化・社会誌』(吉田陸著、2003年、彩流社)

[3] cf. Nilsson, T.K. 1993. “The Indo-European Etymology of Finnish maito “milk””, *Ural-Altaische Jahrbücher* Band 12, pp.58-73.



Map1 “Milk” in Tungusic and Uralic

Rice and Milk in Nivkh

1. Classification of word forms

'Rice' is *raq* in all dialects. No other forms are reported.

There are no native words for 'milk'. 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 [ˈ*malak*], 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.	moʧ	Kal'ma (Savel'eva and Taksami 1965) Khuzi (Shiraishi and Tangiku 2014)
2.	moʧk	Kol'-Nikol'sk [1] (Shiraishi and Tangiku 2015) Novo-Troitskoe (Shiraishi and Tangiku 2015)
3.	mɨʧik	Ten'gi (Shiraishi and Lok 2002)

	Type B	Place & Source
4.	mɨzx	Poronaisk (Yamaguchi and Izutsu 2004)
5.	mɨŋX	Tygmyc (Tangiku, Tanzina and Nitkuk 2008)
6.	mɨŋk	Tyk (Nakagawa, Sato and Saito 1993)

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 *moʧ soX* 'mother's milk' (Savel'eva and Taksami 1970). The vocalic correspondence o:ɨ is unheard of, but the consonantism (m-ʧ-k) provides evidence for *moʧk* and *mɨʧik* being related forms.

Type B has either *mɨz-* or *mɨN-* 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. [2] The geographic distribution of Type A and B forms agrees with this taxonomy: Type A – the Amur dialect and Type B – the Sakhalin dialect.

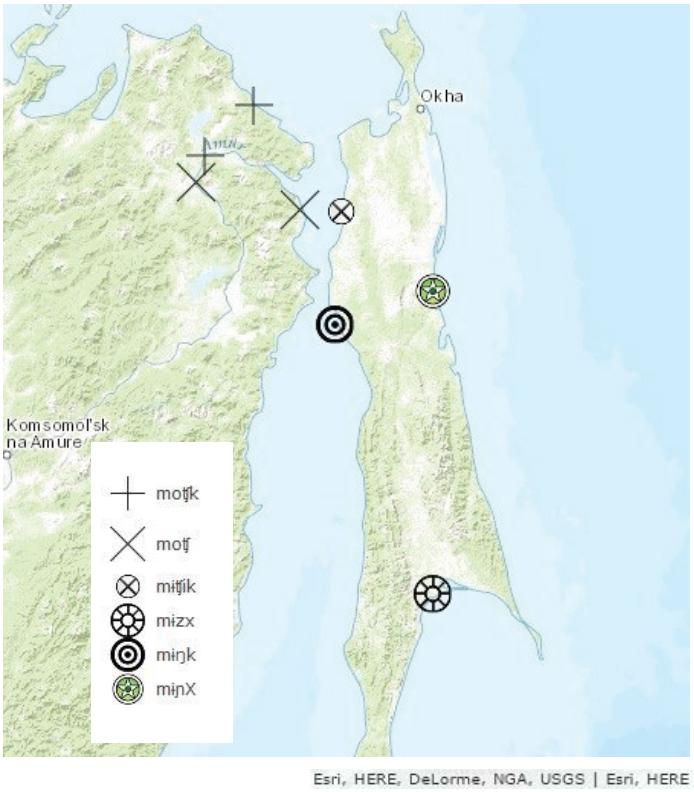
Among the forms in Type A, *mɨʧik* (Ten'gi) resembles the forms in Type B the most. This is expected since in our investigation Ten'gi is the only Amur dialect speaking spot located on Sakhalin. Thus *mɨʧik* could be an intermediary form between a proto-type A form *moʧ* and a proto-type B form *mɨXX*.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

Keywords: Nivkh, breast, Amur dialect, Sakhalin dialect

(Hidetoshi Shiraishi)

[1] This speaker might be a speaker of the Kal'ma dialect, as she has left Kol'-Nikol'sk for Kal'ma at the age of five.

[2] Kreinovich (1934) reported the number of speakers to be 3,200 for the Amur dialect and 850 for Sakhalin.



‘breast’ in Nivkh

“Milk” in Ainu

1. Geographical distribution and interpretation

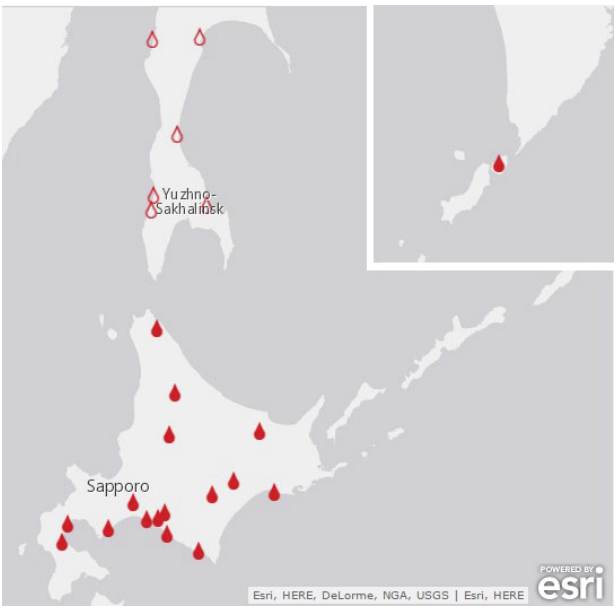
Ainu has only one form, *pekótope* (lit. “cow’s milk”), for “milk,” reported by Tamura (1996) and Sunazawa (1983). The word *pekó* originates from the word *beko* べこ, which means “cows” in the northern Japanese dialects. There were no dairy cattle in Hokkaido until the 19th century. In 1857, Elisha E. Rice, the first American consul at Hakodate, tried milking in private. This is said to have triggered the introduction to dairying in Hokkaido (c.f. Hokkido 1970: 747). In “Ezogo shuroku 蝦夷語集録” (1864), “ベコ,” the presumable form *pekó*, was reported as an Ainu word.

The word *tópe* means “milk” and is composed of *tó*, “breast,” and *pe* “juice, liquid, or dew.” The Sakhalin dialect of Raichishka includes the word *toope*, which uses the long vowel *oo* [oː]. We can see similar compound nouns with *pe* in the words *nú-pe* (lit. “eye liquid”) for “tear,” *etú-pe* (lit. “nose liquid”) for “snivel,” and *mún-pe* (lit. “grass liquid”) for “dew on the grass.” In the Japanese-Ainu vocabularies in the 19th century, the word *tópe* often was contained and translated as “*chichi-jiru* 乳汁” in Japanese. Tamura (1996: 725) suggested that the word *tópen*, meaning “sweet,” might be derived from *tópe*, “milk,” and *un*, “to belong (there).”

Sunazawa (1983: 58–60) wrote her memoir of her life in the 20th century in the Ainu language. She describes one of her stories about milk as follows: after my mother went to work, my little sister began crying because she craved milk. I went to the Japanese man raising cattle and explained this circumstance. Then he gave me a lot of cow milk and I gave it to my little sister (“*pekótope porónno én=kore. pón turési ku=kúre*”).

Keywords: cow, breast, sweet

(Mika Fukazawa)



Map. *“Breast milk” in Ainu*

A *tópe* type

A-1 tópe

A-2 toope

“Milk” in Mongolic and Turkic

1. Mongolic

The word forms representing “milk” in Mongolic can be divided into the following three types:

A) *sün*-type

The word for “milk” was *sün* in Preclassical Mongolian, and some modern languages retain the form with little change.

Monguor, Shera Yughur[1] and Moghol have *sun*. Buriad has undergone the sound change *s* > *h*, so the Khori dialect has the form *huŋ*.

Some languages have lost the word-final nasal and have such forms as *sū* (Dagur), *sʉ̄* (Mongol: Khakha, Chakhar, etc.). Old Bargu has *xʉ̄* as a result of the sound change *s* > *x*.

B) *üsən*-type

Oirad in Xinjiang and its modern offshoot in the lower Volga region, Kalmyk, have *üsən*. The Alar dialect of the Buryad language has *ʉheŋ* with the sound change *s* > *h*.

Some Mongol dialects have lost the word-final nasal: *üs* (Alxā), *ʉsʉ* (Ordos).

C) *naidzï*-type

Some languages in Gansu Province use a Chinese loanword (< *nǎizi* 奶子): *naidzï* (Dongxiang), *nidzï* (Bonan).

If we leave out of consideration the languages with the Chinese loanword (Dongxiang, Bonan) and the languages of the modern emigrants (Kalmyk in Europe and Dagur in Xinjiang), the type A and type B forms are in an ABA-type distribution. A geolinguistic interpretation of the distribution pattern is that the type B word-forms are a later development, though Poppe[2] says that they are older.

In terms of the presence and absence of the word-final nasal, it is possible to say from the geographic distribution that the forms with the final nasal are older.

2. Turkic

The word forms representing “milk” in Turkic fall into the following two groups:

A) *süt*-type

Old Turkic had *süt*, and most modern languages have basically the same form: *süt*~*süd* (Azeri), *süjt* (Turkmen), *sut* (Uzbek), *süt* (Uighur), *sʉ̄t* (Khalaj), *sĕt* (Chuvash), etc.

Bashkir has undergone the sound change *s* > *h*, and has the form *höt*.

B) *ʉ̄t*-type

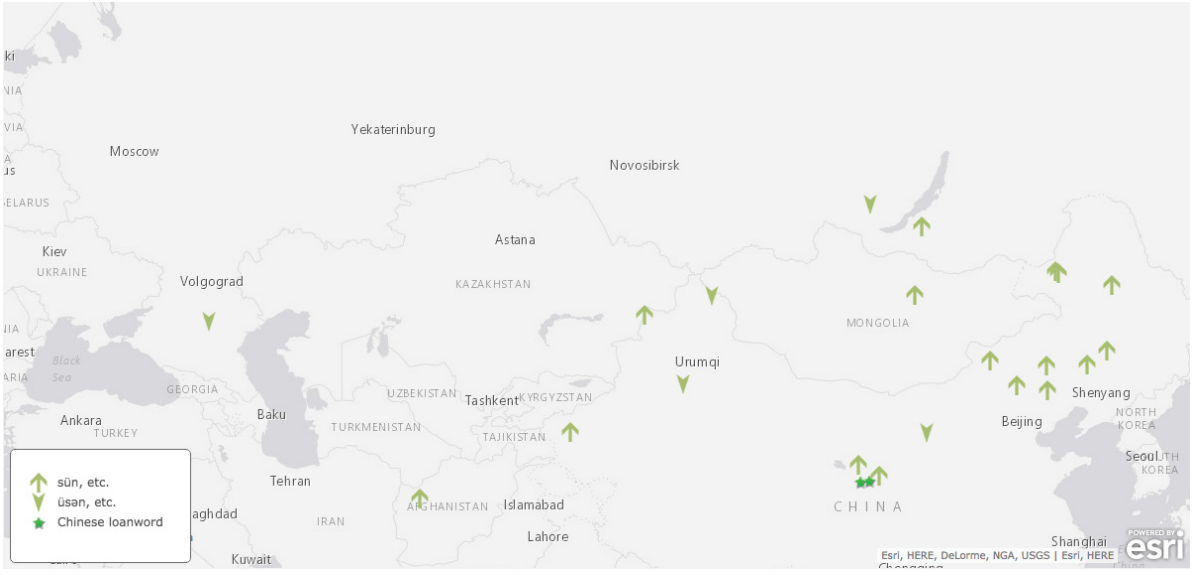
Sakha and Dolgan in northeastern Siberia have a form without the initial consonant, i.e. *ʉ̄t*.

These two types of words are in a simple AB-type distribution.

The Mongolic and Turkic words for “milk” are similar in form, and are usually considered to be cognates.

Keyword: milk

(Yoshio Saitô)

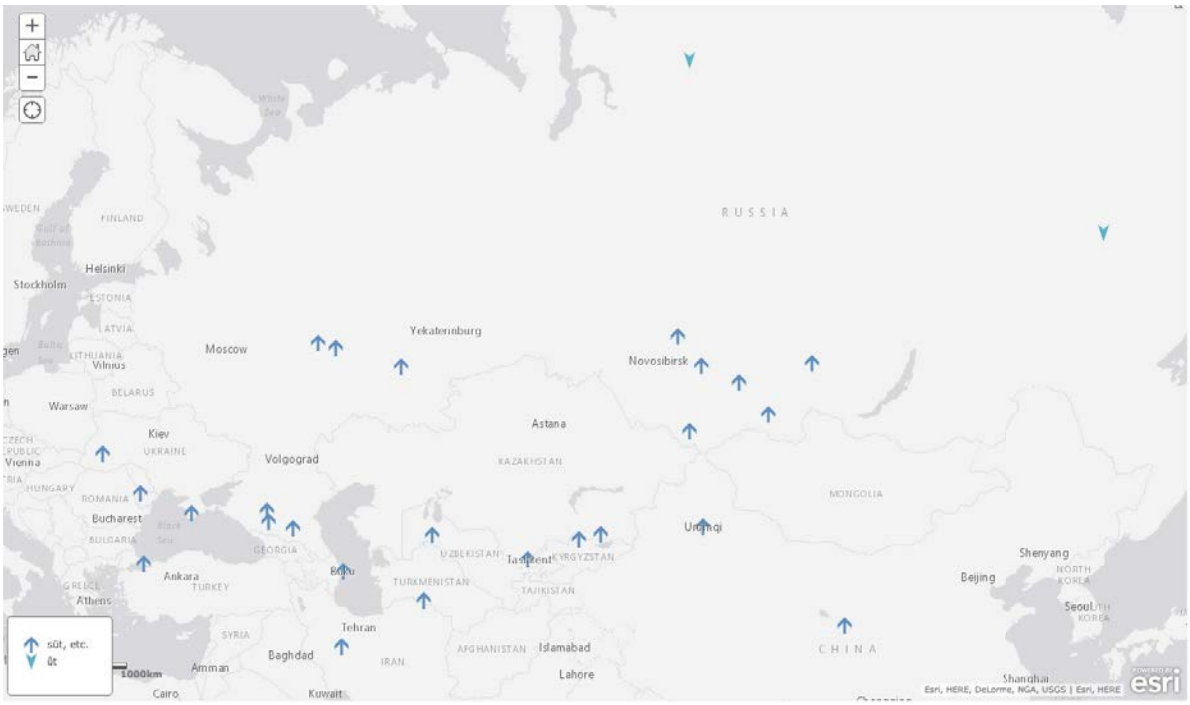


“Milk” in Mongolic (word-initial sound)

[1] Shera Yughur has the form *ʁomo* in addition to *sun.*

[2] Nicholas Poppe, *Introduction to Mongolian Comparative Studies.* MSFOu 110, Helsinki, 1955.

“Milk” in Mongolic (word-final nasal)



“Milk” in Turkic

Milk : Sinitic languages

1. Classification of word forms

The common theme of today's conference is animal milk, however the map we have created indicates distribution of words for the generic term, "milk." Because most of the survey reports revealed that there was no clear distinction between animal milk and human milk.

In this map, word forms are classified as 5 large categories: *nai* 奶 type, *nin* type, *mama* 妈妈 type, *tsa* 砸 type and the others.

A. *nai* 奶 type

A-1 nai 奶 type

nai 奶 [nɛ] [lɛ], nainai奶奶[nei nei] [nie nie]

A-2 naishui 奶水type：milk+water(squeeze)

奶水[nai suei]

A-3 naipo 奶婆[la bu]：nursing mother

A-4 niuniu 牛牛[niəu niəu]，捏捏[nie nie] : cow etc.

B. *nin*□ type:

B-1 nin □[nin] [lin][ndin]

B-2 nen □[nen][len][nden][niɛn][nɛŋ]

C. *mama*妈妈 type: "mother" type

C-1 mama 妈妈[ma ma] : mother

C-2 mimi 咪（咪）[mi mi]

C-3 manman 瞒瞒，□[me][mei][mo]

D. *tsa*砸 type: "suck" type

D-1 za 砸（儿）[tsa(r)]，砸砸[tsa tsa]

D-2 zhi 汁[tsɐp][tsi][ʧi][ʧɛ]

E. *pe*□ type

□[pɛ]

F. *others*

个个[kɤ kɤ]，□[ɐm]，□□[tou tour]

2. Geographical distribution and interpretation

Let me note that words referring to milk in Chinese are strongly related to or synonymous with words for "breast". With respect to terms for the breast in China, there is a previous study (Cao2008). Distribution of "milk" roughly corresponds to that of "breast".

A. nai 奶 type is widely distributed in whole of China, except for the coastal area in southeast China.

In Standard Chinese, there are two Chinese characters which refer to milk or breasts. Nai 奶 and ru 乳. Nai 奶 is primarily a spoken term, ru 乳 is used primarily in writing, and is rarely used among other dialects of Chinese.

Table 2 :The case of Modern Standard Chinese

milk	breast	
奶(汁)nai(zhi)	奶 nai	informal
乳汁 ruzhi	乳房 rufang	formal

Historically, there is another chinese character denoting Milk. 湩 dong(MC:*duŋ). Xu Shiyi 2007 stated that 湩 was a colloquial term in use during the Eastern-Han Dynasty(25-220), it originated as a foreign loan-word. He believes that the term originated in the North, and was brought to south. People from Jiangnan 江南 are recorded as having used dong 湩 to indicate milk in the historical documents.

ex. “江南人呼乳为湩。” 宋本《Yupian 玉篇》

But it is no longer found in modern dialects.

B type (nin □ type and B-2 nen □ type) is distributed in Guangdong(广东) and Guangxi(广西). In ”breast" map(Cao2008), it spread to Fujian and a limited area of Jiangxi.This type is believed to have been derived from Tai-Kadai (ne:n) . The change in pronounciation mirrors that of the change in pronounciation of the Chinese character “年”that has taken place in Cantonese. (年 *ne:n >niɛn>ni:n)

C. mama 妈妈 type is distributed in the central China. In ”Breast" map(Cao2008), nai 奶 type and 妈妈 mama type form an ABA distribution, suggesting that nai is the older term. Meanwhile, in "Milk" map, it is used togather with Type A nai 奶 at almost all of the observation points. This means that they are preserving A Type while coexisting with Type C in this area.

D-1 tsa 砸 type is distributed in the North-Eastern area. According to a survey report, this type is old term compared to Type A 奶.

E. pe□ type is distributed in Guangxi(广西). Much like the B-type pronunciation, this expression is found in Tai-Kadai. Please note the map of Tai-Kadai.

Xu Shiyi(徐时仪)2007, 乳、湩与奶及弃、丢与扔的兴替考，南京师范大学文学院学报，2007-04

Cao Zhiyun(曹 志 耘)2009, 汉 语 方 言 地 图 集 (*Linguistic atlas of Chinese dialects*), 商务印书馆

Keywords: ABA distribution

(Takashi Ueya, Kenji Yagi)

- A-1 nai 奶
- A-2 naishui 奶水
- A-3 naipo 奶婆
- A-4 niuniu 牛牛，捏捏
- B-1 nin □
- B-2 nen □
- C-1 mama 妈妈
- C-2 mimi 咪咪
- C-3 manman瞞瞞 ,me□ etc.
- D-1 za 砸
- D-2 zhi汁[t͡ʂap] ,□ [t͡ʂɛ] etc.
- E □[pɛ]
- F Others

Milk: Tibeto-Burman

1. Classification of word forms

The classification of "milk" in Tibeto-Burman (TB) is based on 533 languages and dialects. From the data, we found thirteen stems (word roots) to denote "milk." Many of them are etyma of the proto-level forms such as Proto-Tibeto-Burman (PTB; see STEDT), Proto-Qiangic (PQ; see STEDT), Proto-Lolo-Burmese (PLB; see STEDT), Indo-Aryan (IA), Proto-Loloish (PL; see Bradley 1979), Proto-Kuki-Chin (PKC; see VanBik 2009), Proto-Karen (PK; see Solnit 2013), and Written Tibetan (WrT) and Written Burmese (WrB). A list of stems follows:

N-type

N1: PTB etymon **s-nəw* (BREAST / MILK / SUCK), incl. reflexes of WrT *nu ma* (BREAST)
nau^{35}, no., nu^{2}, ʌ^{33} nɯ^{33}, nɯ^{55}nɯ^{31}, nɯ mɜ. nɯ ma, nəma, etc.

N2: PTB etymon **s-nya-n* (BREAST / MILK / SUCK)
a^{44} ne^{33}, ɳi^{55}ɳi^{33}, etc.

TS-type

TS1: PTB etymon **tsyuk ≍ *dzyuk* (SUCK / KISS / BREAST / MILK) or **m-ts(y)(u/i)p* (SUCK / KISS / BREAST / MILK)
a^{55} ʈʂɣ^{33}, a^{55} dʐi^{33}, tsu^{35} ɣɯ^{31}, tsəp, cúʔ, etc.

TS2: PTB etymon **dzy(ə/o)w* (SUCK / KISS / BREAST / MILK)
tsəu^{55}, a^{31} tɕhu^{55}, tɕhø^{55}, etc.

O-type: WrT etymon *'o ma* (MILK)
ʔã:, ɦɔ̃:, wã:, oma, ʔo ma, oma3, ɦo ma, ʔo wã, ʱɣo: mɜ, ʁo ma, wo ma, ɦa po, etc.

L-type: The PQ etymon **s-lu* (MILK) can be divided into three types: i) voiced l-initial (incl. rGyalrongic words beginning with prefix *tV-*) *lɤ^{35}, lə^{35}, lú, tə'lu, 'təlo, 'tə'loʔ, etc.*, ii) voiceless l-initial (incl. rGyalrongic words beginning with prefix *tV-*) *ɬa^{55}, ɬə, ɬ^{h}ə^{55}, ɛ^{h}ə^{53}, ʃə, ʁjə, ta'ɬə, ta'ɬə, etc.,* and iii) LC *la^{3}c^{h}i^{5}, la'c^{h}o*, etc.

ZH-type: WrT etymon *zho* (YOGURT) or *bzho* (SQUEEZE [for milk]), which might belong to the L-type in the PTB level
ʂo, ɛɔ, ʂu

PA-type: PTB etymon **pa* (BREAST / NIPPLE / MILK)
pa^{42}, pa^{55}, a^{55}bu, a^{55} pa^{21}, papə, m^{4}poʔ^{4}ʔɯ^{6}, pa^{55} mu^{2}, etc.

PAT-type: PLB etymon **pat* (CHEST)
bəʌ^{21} bəʌ^{55}

DUT-type: IA etymon **du-t* (MILK / BREAST)
duru, dudu

S-type: The etymon is not clear.
sa

M-type: The PTB etymon **mam* (BREAST)
M-types appear only in compounds.

PI-type: PTB etymon **(p/b)i* (ROUNDED PART / NIPPLE / FOREHEAD / SHOULDER)
PI-types appear only in compounds.

The PTB etyma mentioned above contain several meanings in addition to "milk": PTB **s-nəw* (BREAST / MILK / SUCK); PTB **s-nya-n* (BREAST / MILK / SUCK); PTB **tsyuk ≍ *dzyuk* (SUCK / KISS / BREAST / MILK); PTB **m-ts(y)(u/i)p* (SUCK / KISS / BREAST / MILK); PTB **dzy(ə/o)w* (SUCK / KISS / BREAST / MILK); PTB etymon **pa* (BREAST / NIPPLE / MILK); PTB **mam* (BREAST); PTB **(p/b)i* (ROUNDED PART / NIPPLE / FOREHEAD / SHOULDER); and PLB **pat* (CHEST) (see STEDT). The WrT etyma are *nu ma* (BREAST); *zho* (YOGURT), or *bzho* (SQUEEZE [for milk]).

In addition to the above-mentioned forms, most of which are monosyllabic (with an affix), we also found ten types of compound forms (excluding examples with an affix). A list of compound forms follows:

N1 + type
N1 + L: *ne ne lo^{ʔ}*
PA + N1: *βɛ^{35}niɛ^{35}*
N1 + water: *na tɕ^{h}ɯ, ɳɯ^{21} ʑi^{33}*
cow + N1: *ni^{11} ʌ^{33} nɤ^{33}* (cow + N1)
nuŋ^{31}ŋua^{53}nuŋ^{55} (N1 + cow + N1?)

N2 + type
N2 + PI: *a^{33} ne^{21} pi^{44}*
N2 + water: *a^{55} nu^{21} ʑi^{21}*
cow + N2: *kə^{3}rgu^{3}wu^{3}ɳu^{5}, k^{h}i'noŋ*

TS1 + type
PA + TS1: *ba^{33}dʒɣ^{33}, bɯ^{33} dʐi^{33} ʑi^{33}*
TS1 + N1: *dʐœ^{33}ɳʉ^{53}*
cow + TS1: *a^{55} ɳ^{21} a^{55} ʈʂɣ^{33}, nu^{53} tɛu^{35} ɣɤ^{31}*
TS1 + fruit: *sauʔshi, souʔɛi*

TS2 + type
TS2 + water: *tsɒ^{13} ʑi^{21}*
cow + TS2: *ŋi^{21} tɕhu^{33}*

O + type
O + water: *wo ʈʂ^{h}ɯ*

O + raw: *ordzen*

L + type

cow + L: *rgu'xjə, kərgu'wuloʔ*

PA + type

PA + water: a^{55} pa^{21} zi^{21}

PAT + type

PAT + water: $bɛ^{21}$ $bɛ^{55}$ zi^{21}

PI + type

PI + water: $ɚ^{51}$ bi^{51} $ʐi^{33}$

M + type

M + PA: $mɛ^{42}$ njo^{44} $mɛ^{44}$ po^{42}

M + water: mi^{55} mi^{55} $ʑe^{33}$, $mɛ^{44}$ ji^{33}

We found compounds of different roots for "milk," compounds of roots for "milk," and other roots ("water," "cow," "fruit," and "raw").

2. Geographical distribution and interpretation

The N-type is the oldest type because this form widely disperses from a geographic location and is found in broader language groups. This type is divided into two groups, one of which is N1, a cognate of the Old Chinese **ńi̯u*, for "breast" (see STEDT). This type is widely dispersed in the Lolo-Burmese (WrB *nui*[1]), Karenic, Kuki-Chin, Nungic, Tibetic, and Qiangic languages. N2 is a cognate of Old Chinese **niə* 'mother; breasts, milk' (see STEDT), which is found in the Loloish, Situ, Aiangic, and Tibetic languages. Compound forms (N1+ and N2+) are located closer to the center of distributions of N1 and N2, which indicates that compound forms are newer than plain forms (N1, N2).

The TS-type is divided into two groups, one of which is TS1, as found in Loloish and Jingpho-Asakian. According to STEDT, TS1 in Jingpaw is derived from PTB **tsyuk* ≍ **dzyuk*, and one in Loloish is from **m-ts(y)(u/i)p*. Another group is TS2, which is only found in Loloish. TS1 is surrounded by TS2, which suggests that TS2 is relatively older than TS1.

The O-type is the most widely distributed in terms of geography, however, it cannot be considered older than N1 since it is mainly found in Tibetic languages. Most of the Tibetic languages share it, and present extremely variegated phonetic forms. It is worth mentioning that most of the O-types appear with a suffix. Several non-Tibetic languages such as nDrapa (Qiangic) also share this type, which is regarded as a Tibetan loan.

The L-type is distributed in the eastern most area of Sichuan and found in non-Tibetic languages such as Minyag, Geshitsa, sTau, and rGyalrong. L + type is distributed in the center of the distribution of the plain type (L-type), which indicates the compound form is newer than the plain form.

The ZH-type is found in four Tibetic languages (Rongbrag, Sogpho, sProsnang, and Yotsa) spoken in the eastern part of the rGyalrong area.

The PA-type is found in Loloish, Bai, Lisu, and Qiangic languages. PA is surrounded by TS1 and TS2, which suggests that PA is newer than TS1 and TS2.

The PAT-type is only found in Yi Eastern (Loloish), which is spoken in the southeast of the TB area.

The DUT-type is the loan from Indo-Aryan, and only found in Newar. This is a result of the language contact between the Newar and the Indo-Aryan languages.

The S-type is found only in dGudzong Tibetan. The etymology of this root is not clear but might have some relation with the TS1-type, which includes reflexes with an s-initial.

The M-type appears only in compounds, which is found in Loloish (Polo and Jinuo) and spoken in the southeast of the TB area.

The PI-type also appears only in compounds, which is found in Sanni (Loloish).

3. Conclusion

In this study, we collected data from classifications of "milk" from 533 Tibeto-Burman (TB) languages and dialects and found thirteen stems. On the maps, we distinguished eleven plain forms and ten compound forms. We also described and analyzed its geographical distribution and tentatively conclude that two relative chronological orders of the stems for "milk" are as follows:

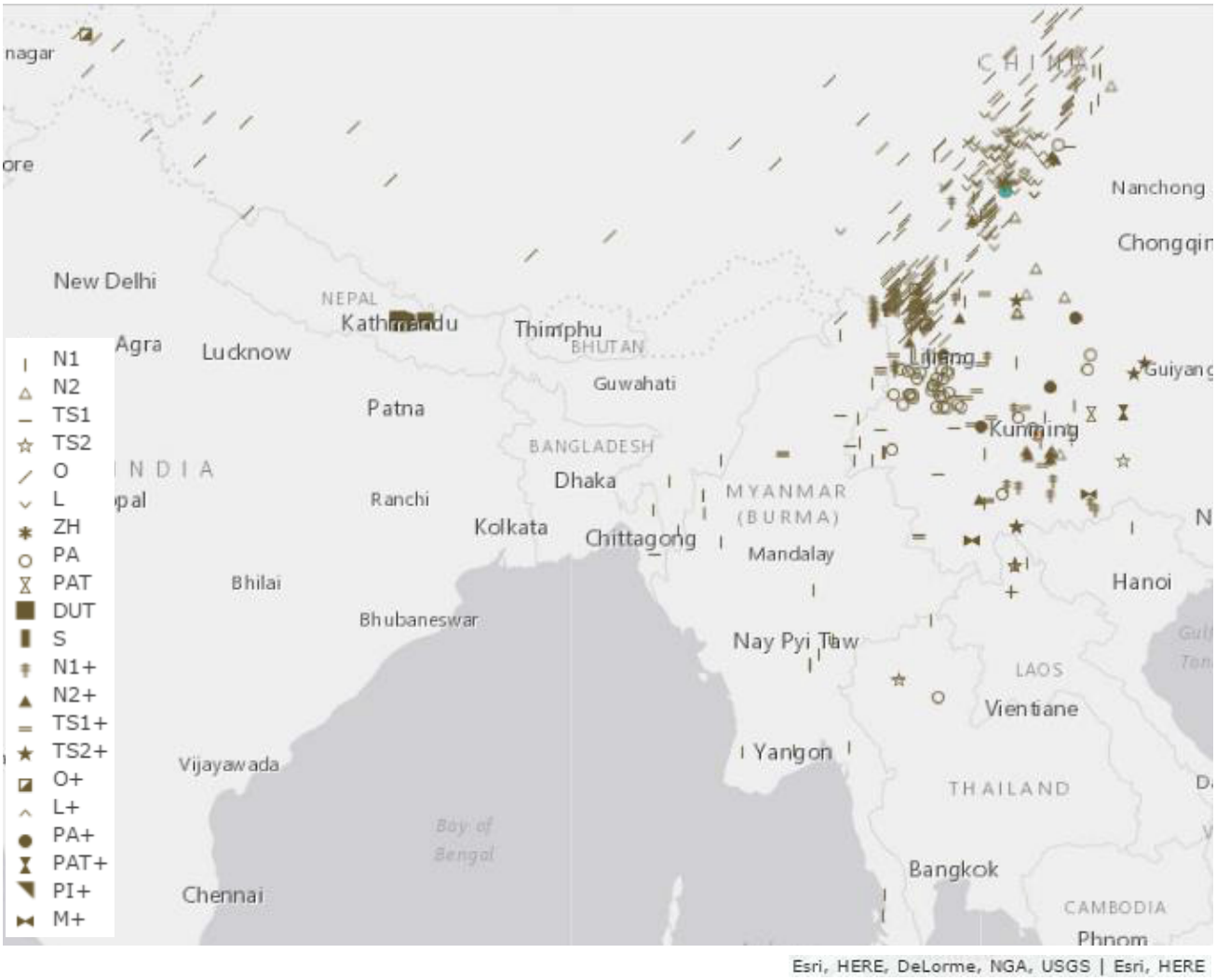
i) The N-type is older than the O- and L-type, and

ii) The TS-type is older than the PA-type. In the TS-type, TS2 is older than TS1.

We can see the interesting semantic changes with the roots for "milk," which originally referred to body parts such as "breast," "rounded part," "chest," etc., or actions such as "suck," "squeeze (for milk)," etc.

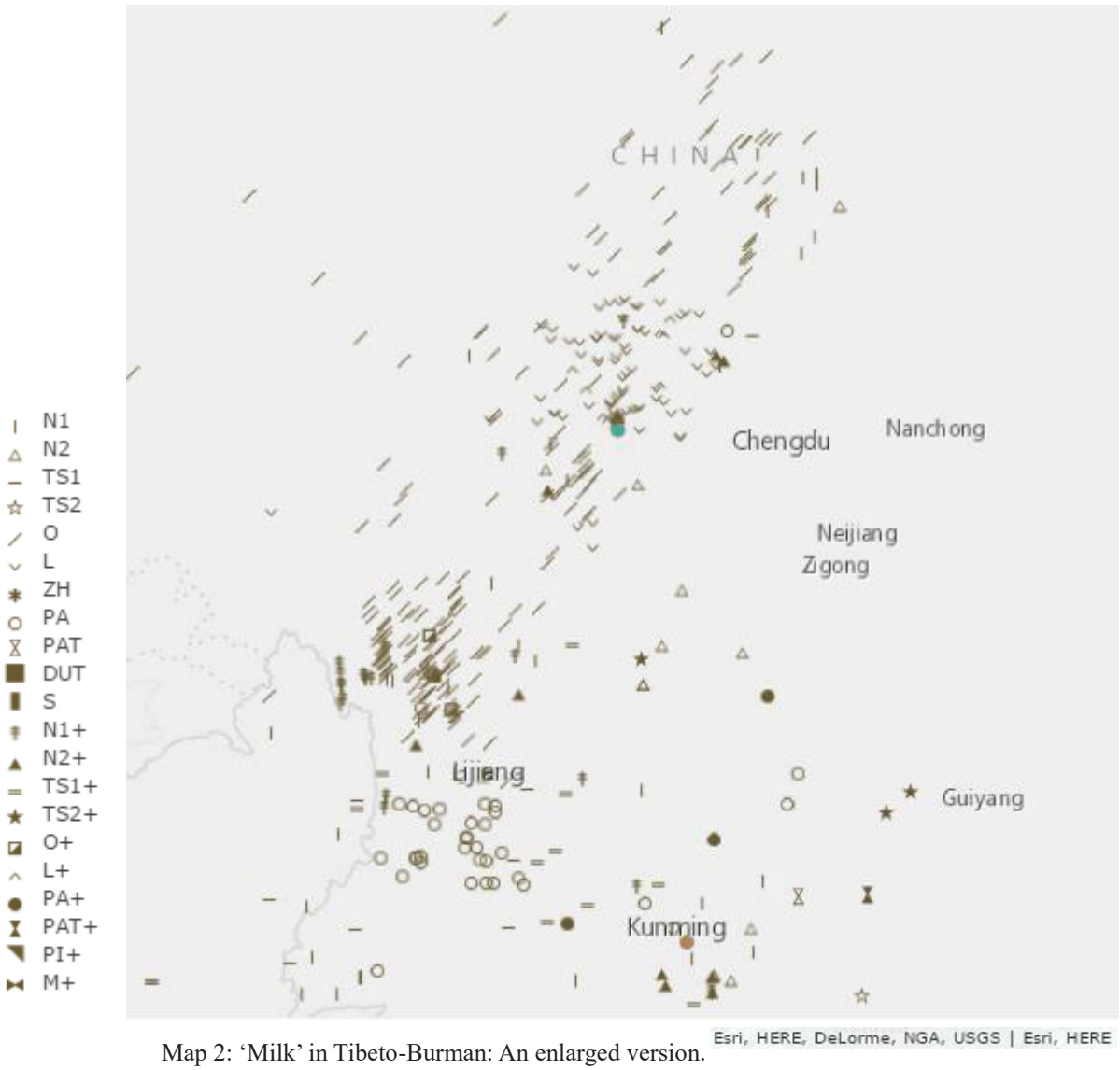
Keywords: Tibeto-Burman, milk, breast, semantic change, compound.

(Shiho Ebihara, K. Iwasa, K. Kurabe, S. Shirai, H. Suzuki, I. Matsuse)



Map 1: 'Milk' in Tibeto-Burman: The whole area.

N.B. The mark '+' in the legend means an existence of other morphemes.



Map 2: 'Milk' in Tibeto-Burman: An enlarged version.

N.B. The mark '+' in the legend means an existence of other morphemes.

Milk: Tai-Kadai

1. Classification of word forms

In the majority of Tai-Kadai languages, "milk" and "mammae" are expressed by the same word. Among them, 5 large types can be divided as follows:

A. *nom* type
  nom A1 นม, ນົມ, nom^{4}, num^{2}, nəm^{2}, nɯm^{2}

B. *u* type
  ʔu^{1}, ʔu^{3}, ʔu^{4}, ʔo^{2} ʔo^{2},

C. *n-* type
  C-1. *ne:n* type
    nɛːn^{3}, neːn^{3}, nen^{5}
  C-2. *ne* type
    ne^{1}, ne^{4}, ne^{5}, ʔne^{5}, ne^{6}, ni^{5}
  C-3. *ne:u* type
    naːu^{5}, neːu^{1}, neːu^{5}

D. *tsi* type
  D-1. *tsi* type
    tsi^{3}, tsi^{4}
  D-2. *ɕi* type
    ɕi^{3}, ɕia^{3}

E. Others (not shown in the maps)
  mɒ^{1}, mi^{3}, nu^{3}, nou^{4}, njo^{4}, tsu^{3}, tju^{4}, tɕəu^{35}, co^{22}, ʔɛm^{55}, ʔɛːm^{2}, pe^{6}

2. Geographical distribution and interpretation

As seen in Map 1, the whole area is clearly cut into 3 zones: in the southern zone, A type is distributed; in the northwestern zone, mainly in Yunnan, B type is distributed; and the rest, in the northeastern zone, types C-1, C-2, C3, D1, and D-2 consist a fivefold peripheral distribution which will be examined later. Miscellaneous forms collected under the category E are scattered in the whole area.

Map 2 shows the geographical distribution of the forms denoting "mammae". It is observed clearly that the distribution is essentially the same as that of "milk". It is also true for details as seen from the enlarged views of Maps 3 and 4. Since Map 4 contains more data especially in Hainan island, we interpret the chronological order basing on Map 4.

C-1. *ne:n* type is located the most peripheral places in isolated districts, for examples the easternmost, the westernmost, and the southernmost of this zone, as well as the southernmost of Hainan island. Therefore, this form should be the oldest form in this area.

C-2. *ne* type is located in the northernmost and almost southernmost of this zone, but in the inner part of C-1 type. Hence this type is newer than C-1 type. As for the sound shape, C-2 *ne* type can be caused by the drop of the final consonant of C-1. *ne:n* type.

C-3. *ne:u* type is located in the center of this district, in the inner side of C-2 and the outer side of D-1 and D-2. So it is newer than C-2 type and older than D-1 and D-2 types. This form can emmerge by adding -u ending to type C-2.

D-2 is located in the inside of D-1, so it presumably the newest form. The meanings of D-1 word *tsi* and D-2 word *ɕi* are unknown, however, form the phonetic point of view, D-2 can be derived from D-1 by palatalization and the change from an affricate to a fricative.

In sum, the chronological order of the types in this zone can be postulated as follows: C-1 > C-2 > C-3 > D-1 > D-2.

It is noteworthy that C-1 *ne:n* type is similar to a Sinitic word *nin* which is dominant in Min, Yue, and Kejia dialects (Cao 2008, Vocaburaly volume, 76 and Ueya 2016). They probably have the common origin. Since there is no Chinese characer for *nin* in Sinitic, it is even probable that the origin came from Tai-Kadai.

Furthermore, it is a striking fact that similar forms with C-3. *ne:u* type and *pe*^{6}, one form of E. type are found in Sinitic dialects spoken in the vicinity of the Zhuang language. They can have common origins.

Wu (2002: 316) presumed that A. *nom* type has a common origin with Burmese *no*^{1} *um*^{2}.

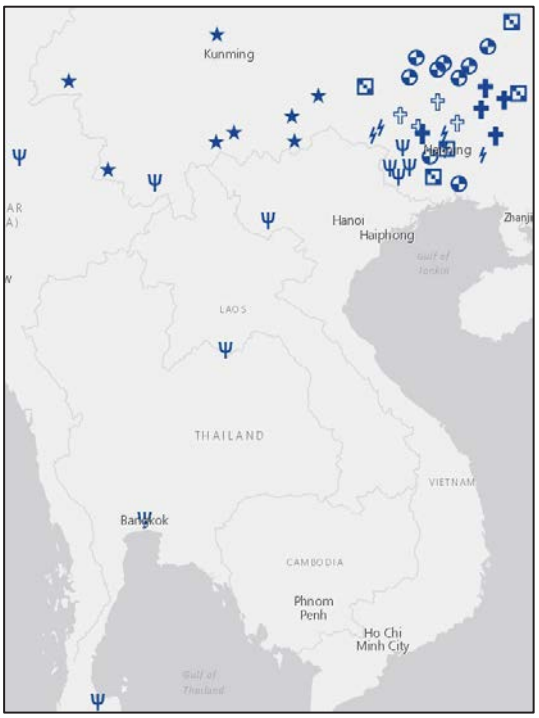
Liang and Zhang (1996: 288) reconstructed the initial consonant for C-2. *ne* type as *ml- considering *mi*^{3} as its cognate, since there are 9 other parallel examples. On the other hand, it is possible that C-2. *ne* type is an old borrowed word from Sinitic *nǎi* 奶.

Some materials describes word forms to distinguish "milk" and "mammae", as seen in Siamese น้ำนม "*nam* C2 water + *nom* A2" and เต้านม "*tau* C1 breast + *nom* A2". Such word forms are found in the places denoted by ＊(former type) and ◎ (later type).

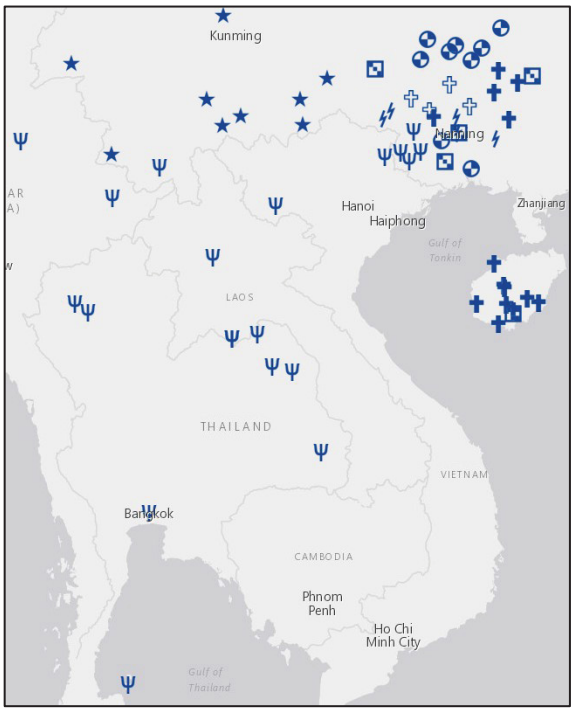
Esri, HERE, DeLorme, NGA, USGS | Esri, HERE

Keywords: borrowing accross language families, peripheral distribution

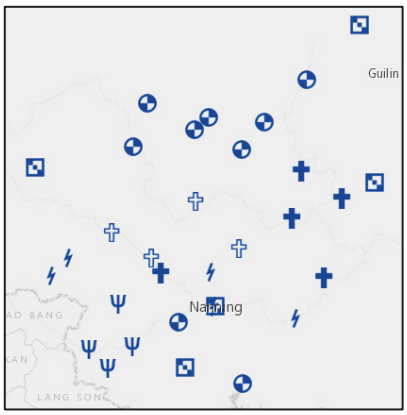
(Mitsuaki Endo)



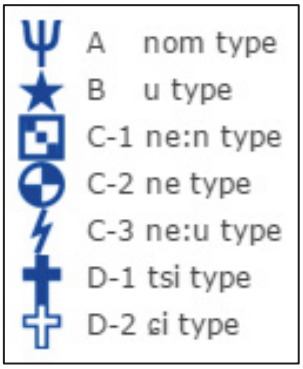
Map 1 Milk in Tai-Kadai



Map 2 Mammae in Tai-Kadai



Map 3 Enlarged view of the northeastern part of Map 1



Map 4 Enlarged view of the northeastern part of Map 2

Milk: Austroasiatic languages

1. Classification of word forms

Word forms for 'breast' or 'milk' in Austroasiatic languages are classified into six types, Type A to Type F, with or without subtypes.

Type A
A-1: *tɔh, toh, tu̯h, tah, tɛh*
A-2: *toa, toah*
A-3: *dɔh*
Type B
B-1: *mɛːm, məm, mʌm*
B-2: *ʔɛm, ʔam, ʔɨm*
Type C: *bu, buʔ, booʔ*
Type D: *ɲin, nin, nam, ɲo*
Type E: *thoːc, phanṵ̂ː, jɔk, bot, sɨ̤a*
Type F
F-1: *susuʔ, susuːʔ, susuh (from Malay)*
F-2: *dudh, duːt, dut, tuːt (from Hindi)*
F-3: *nom (from Thai)*

2. Geographical distribution and interpretation

The Austroasiatic language family comprises the Mon-Khmer languages in Southern China and mainland Southeast Asia, the Munda languages in India, and the Nicobarese languages in the Andaman Sea. Cow's milk or other dairy products have not been played a key role in these regions. "Milk is no part of the Munda's diet in any form", according to Hoffman *et al.* (1930-50:4427), even in India where use of butter or ghee overwhelms.

The word forms treated here, therefore, except loanwords denoting 'milk', mean 'breast', or 'mother's milk', unless explicitly indicated otherwise. In case of specifying 'cow's milk', use of compounding such as <<water+breast>+cow> is commonly found, as is found in Khmer.

Our main resources for examination are extracted from the SEAlang online Mon-Khmer Etymological Dictionary provided by SEALANG projects, which comprises only Mon-Khmer and Nicobarese languages. We therefore supplemented data of the Munda languages from Hoffman (1930-50) and Bodding (1929-36).

Type A shows broad distribution from Southeast Asia, Andaman Sea to India, thus regarded as the oldest form. Looking from east to west, subtype A-1 *tɔh* is found in Bru, Katuic in Northern Vietnam, Bahnaric in Southern Vietnam, and Monic Old Mon in Southern Myanmar, *tu̯h* in Pacoh, Katuic in Central Vietnam, *toh* in Tampuan, Bahnaric in Northeastern Cambodia, *tah* in Monic Middle Mon in Southern Myanmar, tɛh in Nicobaric Car in Andaman Sea. Subtype A-2 *toah* is in Nicobaric Nancowry in Andman Sea, and *toa* is in Mundari and Santali, both Munda group in Eastern India. Subtype A-3: *dɔh* in Khmer is a variant of A-1, since the historical change of ***t*** into ***d*** is common in Mainland Southeast Asia.

Type B has nasal ***m*** *at* the syllable final position. B-1, *mɛːm* in Semnam, *məm* in Jahai, *mʌm* in Semay, all of Aslian group, are found in Northern Malaysia. Subtype B-2, *ʔɛm* in Jahai and *ʔam* in Kensiu in Aslian, may be related to B-1 considering the distribution and genetic relations. If it is the case, change from ***m*** to ***ʔ*** might be more plausible than ***ʔ*** to ***m***. Although all these words are of Aslian group in Malay Peninsula, the rest *ʔɨm* of subtype B-2 in Khmuic Khsing-Mul in Northern Vietnam seems to be isolated.

Type C *bu* in Danaw and Palaung, and *buʔ* in Riang, both Palaungic, are found in Central and Northern Myanmar respectively. *booʔ* in Mlabri, Khmuic is in northern Thailand. These words may be cognate considering their geographic distribution.

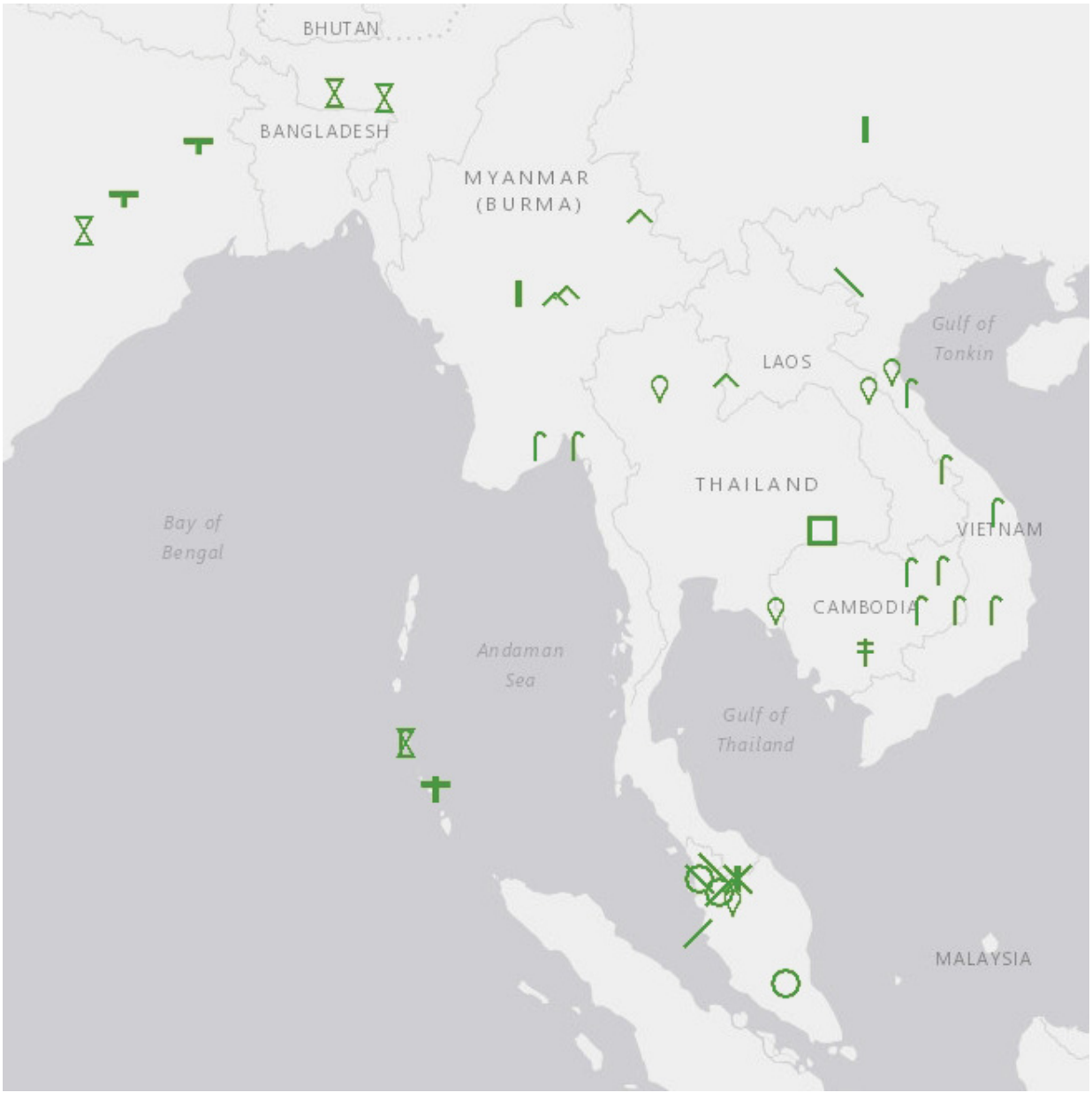
Type D, having a nasal consonant at the syllable initial position, *ɲin,* in Mangic Bolyu in Yunnan, Southern China. *nin* in Palaungic Riang in Central Myanmar, and *nam* in Aslian Tonga in Northern Malaysia, seem to have no relation with each other since they are far from one another. The rest *ɲo* of type D is isolated in Nancowry Island in Andaman Sea.

Words grouped in Type E, having miscellaneous forms with different consonants and rhymes, seem to be not related to one another. Regarding geographic distribution, *thoːc,* Lamet, Palaungic is in northern Thailad, *phanṵ̂ː,* Tavung, Vietic in Laos near Vietnamese border, *jɔk,* Chong, Pearic in Cambodia near Laos, *bot*, Temiar, Aslian in Malay, and *sɨ̤a,* Viet in Vietnamese are far from one another.

Type F, loans from Hindi in Khasi is found in Meghalaya State of Northeast India, and in Kharia, of Munda in East india. Loans from Thai (in Kuy), and Malay (in Semnam and Jahai) are in in Thailand near Cambodian border, and in Malay Peninsula, respectively. All are in the inland areas surrounded by major languages.

Keywords: breast, mother's milk

(Makoto Minegishi)



Map: Milk in Austroasiatic Languages

Type A	Those with initial ***t*** or ***d***	Type D	Those with initial nasal
⟮	A-1: *tɔh, toh, tu̯h, tah, tɛh*	❙	D: *nin, ɲin, nam, ɲo*
⊤	A-2: *toa, toah*	Type E	*Miscellaneous forms*
‡	A-3: *dɔh*	◊	E: *thoːc, phanûː, jɔk, bot, su̯a*
Type B	Those with syllable final ***m***	Type F	Loanwords
⟨	B-1: *mɛːm, məm, mʌm*	○	F-1: *susuʔ, susuːʔ, susuh (from Malay)*
⟨	B-2: *ʔɛm, ʔam, ʔɨm*	⧖	F-2: *duːt, dut, tuːt (from Hindi)*
Type C	Those with initial ***b***	□	F-3: *nom (from Thai)*
^	C: *bu, buʔ, booʔ*		

URLs for data extraction

http://sealang.net/monkhmer/dictionary/

http://www.ling.hawaii.edu/austroasiatic/

Milk: Austronesian languages

1. Classification of word forms

The word form for "milk" can be categorized into four main groups: Type A consists of *susu* and other similar word forms, including forms containing an alveolar consonant such as *tutu, ruru*, or *nunu/ňoňo*. All of these forms denote "breast (of the women)." Type B has a form *dadiəh,* which also means "breast." Although it is found in only one language in this data, it is assumed that more languages employ a similar form. Type C consists of *gatas* or similar forms. This also means "breast" in some languages; it primarily means "coconut milk." Word forms that belong to Type D have two morphemes: one denoting "water" and the other denoting "breast." The forms belonging to this group have a glide or a high vowel /w, y, i, e/ or a fricative /ɸ, h/ as the onset of the first syllable, followed by similar forms that are found in Type A. Languages that belong to Type E are loan forms from English "milk," whereas those belonging to Type F adopt the French word "du lait".

A. "susu" type

A-1. disyllabic form with fricative consonants: susu, sūsu, suðu, uhu, xuxuʔ 

A-2. monosyllabic form that takes a part of A-1: su, sur, ū

A-3. disyllabic form with non-fricative alveolar consonants: tutu, ruru, rata, nunu, ňoňo 

B. "dadiəh" type

C. "gatas" type: gatas, gātas, gɔtɔs 

D. "Breast water" type (two morphemes)

D-1. The first consonant is a glide or a high vowel: iə tɛʔ, yeh ňoňo, ere susu, wa-yu, etc.

D-2. The first consonant is a fricative: vae čuču, ɸola kwasir, huʔakau etc.

D-3. Others with two morphemes: na-süs, nahui-nah, kapa oe, polo-na-ū, etc. 

E. Loan forms from English "milk": meleke, milika, mimi

F. Loan froms from French "du lait": dadiəh, dile, dûhi-tí 

2. Geographical distribution

2-1. Formosan languages show two different types: Type A and Type D-3. Both of these adopt the form for "breast." Type D-3 forms mean "water of (from) breasts."

2-2. Philippine languages and North Kalimantan: Most languages in the Philippines adopt the Type C form: *gatas* and other similar forms.

2-3. Indonesian languages: Most languages in Indonesia use the same form for "milk" and "breast"; largely type A and one instance of type B was found in this data. Type A has *susu* or similar forms that adopt alveolar consonants as onsets, such as *tutu* in Gorontalo (Sulawesi) or shortened form such as *uhu* in Sika (Nusa Tenggara). The phonemes /s/, /t/, and /r/ frequently correspond to one another.

2-4. Papua New Guinea and the Solomon Islands: Type A is also prevalent in Papua New Guinea and in some parts of the Solomon Islands. One can find not only the form similar to *susu* but also the monosyllabic shortened form (*sur* in Nyindrou or *tui* in Mbula) or forms that adopt consonants /t/ or /r/ instead of /s/ (ex. *ratu* in Motu). Instances of loan forms from English "milk" can also be found, for example, *milika* in Mekeu. "Water of breast" expression is also found as in Tolai (*polo na-ū*).

2-5. Oceanic languages and Madagascar: Various types are found in Oceanic languages, including Type A, D, E, and F. Type A is found in Fiji (*suðu*), Type D in North Tanna (*nahi-nah*), Type E in Nengone (*mimi*), and Type F in Cémuhî (*dûhi-tí*).

3. Word Forms for "milk"

In areas where Austronesian languages are spoken, pasturage and dairy products are seldom found. Cattle, buffalos, and goats are sometimes found but their milk is usually unused. Many languages use the same form for "breast (or 'breast of a woman')" and "milk." Forms belonging to types A and B mostly have the above two meanings. Because of the similarity in color and texture, many Philippine languages use the same form for "coconut milk" and "dairy milk" (Type C). Some languages use the expression "breast water (or 'water of/from breast')," which is categorized in type D. Due to the lack of utilizing livestock's milk as diet in these areas, loan forms from English or French (languages of the former suzerain states) are adopted in some languages, mostly in the Pacific islands.

Keywords: forms for "milk": "breast" type, "coconut milk" type, "breast water" type, loan word type.

References: Tryon, Darrell T. (eds.) *1995. Comparative Austronesian Dictionary. Berlin and New York: Mouton de Gruyter.*

(Atsuko Utsumi)

- susu, sūsu, suðu, uhu, xuxuʔ
- su, sur, ū
- tutu, ruru, rata, nunu, ňoňo
- dadiəh
- gatas, gātas, gɔtɔs
- iə tɛʔ, yeh ňoňo, ere susu, wa-yu etc.
- vae čuču, ɸola kwasir, huʔakau etc.
- na-süs, nahui-nah, kapa oe, polo-na-ū, etc.
- meleke, milika, mimi
- dadiəh, dile, dûhi-tí

Map 1: Taiwan and North Kalimantan and North Sulwesi

Map 2: Papua New Guinea and Oceanic languages

Map 3: Papua New Guinea and Pacific

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

1. Classification of word forms

In this map, there are four major categories of word forms: *dugdhá*, *kṣīrám*, *pāl*, and *paya*, and three minor categories. Additionally, there is also an ostensible category, *mama*.

A. ***dugdha***: *dugdha*, *dugdh*, *dūdh*, *dudha*, *dudhwā*, *dudh*, *ḍudhu*, *dúdd*, *dūd*, *dūdā*, *duːde*, *dud*, *dʊd*, *dʊt*, *dŏd*, *dudu*, *dude*, *dudi*, *ḍuḍ*, *didom*, *dedum*

B. ***kṣīram***: *kṣīram*, *kṣīramu*, *kṣīr*, *kṣir*, *kṣīra*, *khīru*, *khira*, *kiri*, *kiru*, *xšira*, *xʌšira*, *ṣhīr*, *ṣhir*, *ṣīr*, *ṣir*, *ṣir*, *šīdē*, *šuʌ*, *x̌īr*, *xīr*; *gakhir*; *šipi* (compounding with **pi* in D. *paya* group); *kiritana* (with *stanya* in H. others?)

C. ***pāl***: *pāl*, *pa·l*, *pa·lï*, *pālu*, *pālū*, *pālatō*, *pālh*, *hālu*, *pāḍu*, *pā̃ḍi*, *pēl*, *pērụ*, *po·s̲*

D. ***paya***: *paya*, *pai*, *pəi*, *pā*, *pey, pe*, *payṭhah*

E. ***pāčči***: *pāčči*, *pāči*

F. ***kam réis***: *kam réis*, *kam rás-da*

G. ***mama***: *mama*, *mamú*, *ír máma tí óné*, *ír mamát tí jöné*

H. others: *samundar*, *stanya*, *žarž*, *zu*, *amuθam*, *kaṛ*

2. Geographical distribution and interpretation

The lexical forms representing the word 'milk' can be classified into A) *dugdha* type, B) *kṣīram*, C) *pāl*, D) *paya*, E) *pāčči*, F) *kam réis*, G) *mama*, and H) others.

The most major types are *dugdha* and *kṣīram*.

The former can be verified in Sanskrit *dugdhá* दुग्ध 'milk', derived from the verbal root √*dúh* दुह् 'to milk'. Forms of this type are located all over the Indian subcontinent, within Indo-Aryan and Dravidian languages, and even in the Nihali language (see Map 2). Historically the form became *duddha* in Pali. Later some languages, most of them located in northern part of the Indo-Aryan distribution, lost the aspiration of the latter consonant /dh/ to /d/. Nonetheless, the variations of this type retain the fundamental form. Examples are distributed over the map in all four cardinal directions: the northernmost example is the Naltar Gujari *dʊd*, the southernmost is the Sinhala *dudu* දුදු, the easternmost is the Assamese *dudh* দুধ, and the westernmost is the Sindhi *ḍudhu* ڈڈھ.

Forms of the latter *kṣīram* type are observed around the area of the *dugdha* type, i.e. on the geographic periphery of India, Pakistan, and Sri Lanka, and in most Iranian languages (see Map 3). The forms of this type are derived from the Sanskrit word *kṣīrám* क्षीरम् 'milk, thickened milk'. Forms of this type vary quite widely. It changed into *khīra* in Pali, while westwards became *xšīra* in Old Persian and then *šīr* in Pahlavi. Modern languages in central and southern India retain the onset consonant cluster *kṣ* (but the actual sound is /kš/, not /kṣ/): Tamil *kṣīram* க்ஷீரம், whereas farther south and east th claster changed into /kh/ or /k/: Assamese *gakhir* গাখীৰ (compounding with *ga* গা 'cow') and Dhivehi *kiru* ކިރު. In the west, the consonant cluster changed into some fricatives, that is /ṣ/, /š/, /x̌/ or /x/: e.g. Tajik *šir* шир and Laghman Pashayi *x̌īr*. In the north, the claster became affricates such as /ʈʂʰ/, /ʈʂ/, or /č/: e.g. Domaaki *ṣhīr* and Palula *čir*. Two Pamir languages at the border between north-eastern Afghanistan and north-western Pakistan include a consonant claster *xš* inherited from Old Persian: the Munji *xšira* and the Yidgha *xʌšira*.

The third major type, *pāl*, contains many variants, but they can be seen only in Dravidian languages. The forms certainly originate in the Proto-Dravidian word **pāl* 'milk'. Even today, there are eight languages that keep the exact form *pāl* (two of them are recorded as *pa·l* for perhaps the same pronunciation).

The *paya* type is observed in the Marathi *paya* पय, the Maithili *pai*, the Oriya *payṭhah* ପଘ୍ଠ, the Sinhala *paya* පය and *pā* පා, and the Pashto *pəi* پې (among others). This minor type comes from Sanskrit *páyas* पयस् 'any fluid (especially, milk)'. The Pali *paya* 'milk, juice', the Prakrit 'milk, water', and Sinhala forms, which also mean 'water', keep somewhat wider semantic ranges.

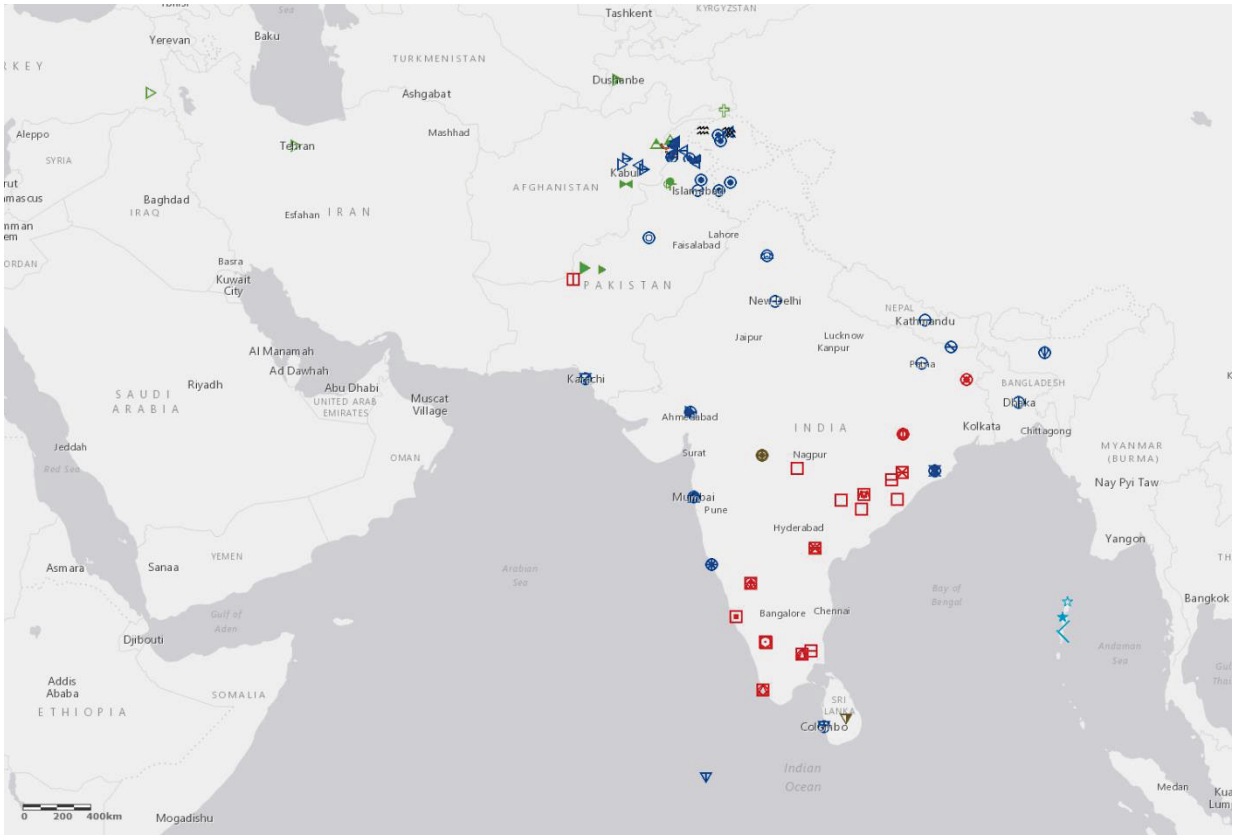
Pāčči is a minor type in Dravidian. The word originally means 'milk' as a nursery word. Sometimes a word of this type is used for 'mother's milk' specially.

Kam réis and *kam rás-da* are Andamanese words from Áka Bójihiáb and Áka Bía-da, respectively. These words certainly mean 'broth of breasts': Áka Bójihiáb *ír kám-da* 'breasts' + *réis-da* 'broth'. These types are employed by Aryan languages.

The *mama* type is not an etymological group. The Parji (Dravidian) *mama* is a nursery word that means 'milk, food'. Three Burushaski dialects commonly have

the inherent word *mamú* ‘milk’. I cannot understand the original meaning of the Áka Kédé *ír máma tí óné* and the Áka Cháriár *ír mamát tí jöné*. The last part of these phrases (or compounds?) might be something related to ‘food’, AK *te jó* and ACh *áka jéo*. I think they are unconnected but similar to each other because of the universal pattern of language acquisition.

(YOSHIOKA Noboru)



Map 1. ‘Milk’ in South Asia

Aryan

- dugdha
- dugdh
- dūdh
- dudha
- dudh
- dudhwā
- dudhu
- dúdd
- dūd
- dūdā
- dud
- ḍud
- ḍut
- dŏd
- dudu
- dedum
- kṣīr
- kṣir
- kṣīra
- khīru
- khira
- kiri
- kiru
- gakhir
- ċhīr
- ċhir
- ċir
- ċīr
- čir
- čɪr
- ċi
- ṣīr
- ṣir
- xīr
- xĭr
- paya
- pai
- pā
- paṯhah
- samundar
- stanya

Iranian

- xšīrɑ
- xʌšīrɑ
- šīr
- šir
- šīdē
- šuʌ
- šipi
- pəi
- pey
- pe
- žarž

Nuristani

- ćīr
- zu

Dravidian

- pāl
- pa·l
- pa·lī
- pālu
- pālū
- pālatō
- pālh
- hālu
- pāḍu
- pāḍi
- pēl
- pēruṯ
- po·sṯ
- pācci
- pāci
- dugdha
- dudh
- du:de
- dude
- dudi
- didom
- kṣīram
- kṣīramu
- kṣīra
- mama
- amuθam
- kaṟ

Burushaski

- mamú

Nihali

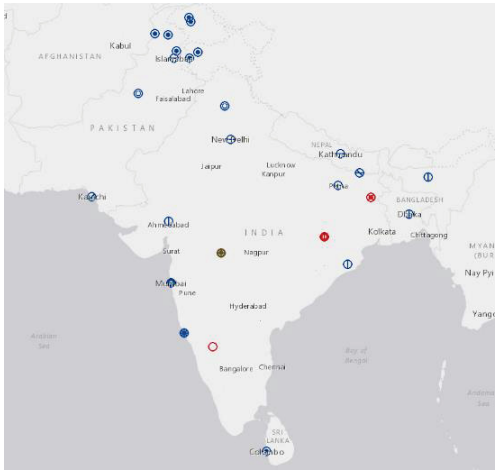
- dud
- ḍuḍ

Vedda

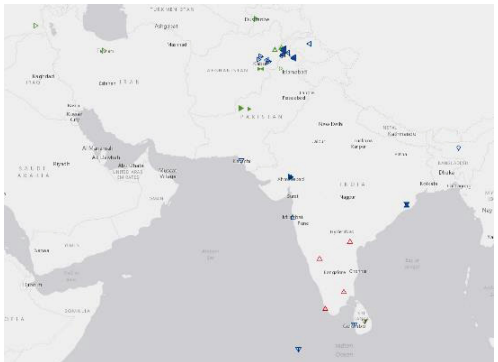
- kiritana

Andamanese

- kam rás-da
- kam réis
- ír mamát tí jöné
- ír máma tí óné



Map 2. *dugdhá* type



Map 3. *kṣīram* type

Milk: Arabic languages

1. Classification of word forms

The word forms of "milk" are classified as 2 categories: *laban* and *ħaliːb*.

A. *laban* type (لبن)(◇)

laban, *labanu*, *labán*,

liban, *lban*, *lbejn*, *lben*, *lbān*, *leben*, *libán*,

B. *ħaliːb* type (حليب)(○)

B-1. *ħaliːb*, *haliːp*

B-2. *ħiliːb*, *ħliːb*, *xlip*

2. Geographical distribution and interpretation

Although in Persian gulf area camel milk is sold in supermarket but usually cow milk is drunk. *ħaliːb* denotes "fresh milk", and *laban* is mainly denote "yoghurt" or "sour milk" in the urban dialects.

A. *laban* type (لبن)

In Egypt *laban* denotes "fresh milk". *ħaliːb* is added to *laban* to clearify "fresh".

laban ***ħaliːb*** "fresh milk"

laban ʀaːjib "curdled milk"

ħaliːb is found in some points such as Awlād ʿAli in Saidi. In North-Sinai both *laban* and *ħaliːb* are found. *ħaliːb* is used by Biyyāḍiy, Axrasiy, Dwēġriy, ʿGēliy, Smēʿniy, and *laban* is used by Balawiy, Rmēliy, Swērkiy.

In Sudan both *laban* and *ħaliːb* are found.

laban type : Obeid Sudan (***laban***), Chad and Nigeria (***laban***), Juba (***leben***), Ki-Nubi (***lében***).

ħaliːb : Khartum, Šukriyya "gemolkene Milch", Darfur (Sudan), Shuwa in Bornu "fresh" (Nigeria), Nigeria.

In other areas *laban* type is found in some spots.

leben Rwala Saudi Arabia

liban Ḥarb Ḥiğāz, Ḍufār Oman, Abu Ḍabi, Qatar

lben, lben ħaliːb Mauritania

lban Ḥassaniya Arabic in Mali

And in some particular contexts *laban* is used as "fresh milk": *ʃaːhi lah* ***liban*** "Tee mit Milch" in North Yemen.

laban mailnly denote "sour milk", or "curdled milk".

- "petit-lait": Morocco (***lbən***), Cherchell (***lben***), Libya (***leban***),
- "lait aigre": Algier (***leben***, ***lbən***), East Chad (***leben***), Libya (***lben***)
- "lait écrémé": Marāzīg Tunisia (***lᵉbán***)
- "Sauermilch": Maghniyya (***lben***), Palestine (***läbän***), Yemen (***laban***)
- "yoghurt": Mekka Saudi Arabia (***laban***), Tripoli Lebanon (***laban***), Soukhne (***laban***), Emirate (***laban***), Iraq (***laban***), Khuzistan (***ləban***), Anatolia (***laban***)
- "curds" Palestine (***laban***)
- "sorte de lait caillé" Syria (***laban***)
- "butter-milk" Bahrain (***laban***), Kinderib in Anatolia (***laban***), Urfa beduin (***liban***)

B. *ħaliːb* type (حليب)

B-1. ***ħaliːb***. The form *ħaliːb* is widely distributed.

Fezzan Libya, Tripoli Lebanon, Syria, Iraq, Oman (Ristāq, Khābūra, Bahla, Āl Wahība)

Peripheral dialects : Khorasan/Iran, Qašqa Daryaā/ Uzbekistan, Bukhara/Uzbekistan

B-2. ***ħiliːb***, ***ħliːb***, ***xlip***

In Maghreb *a* in *ħa* became *i* (***ħiliːb*** in Bou Saada Algeria) as a resuslt of assimilation to *iː*, or droped (***ħliːb*** such as in Morokko, Takrouna, Tripoli Libya. This assimilation is found in some other areas too: *ħiliːb* in Negev Palestine, *ħliːb* in Taṣāwīr Saudi.

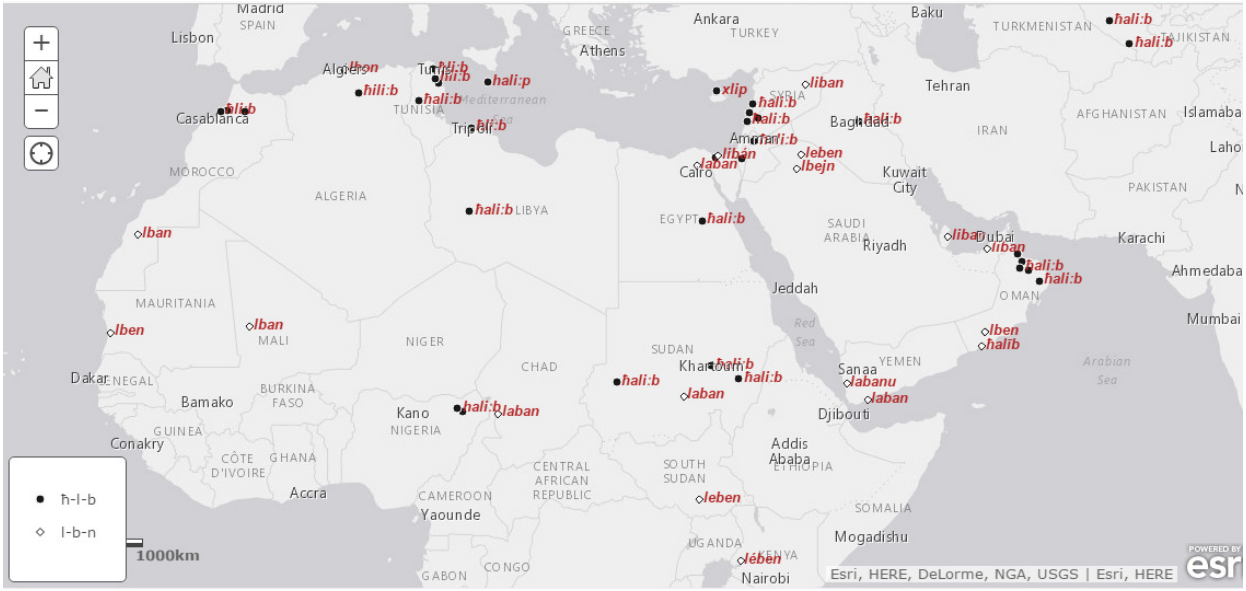
haliːp is in Maltese. In Maltese *a* does not drop and *ħ* changed to *h* historicaly, and voiced consonants devoice at the end of words. Note that in Maltese a vowel on which the accent falls is long and there is no phonological distinction between short and long . So phonological /halíp/ (in orthography ħalib) is realized as [halíːp]. In Cyprus ***xlip*** as the result of the merger of *ħ* and *χ*.

The consonat root of *ħaliːb* is *ħ-l-b*. This is shared with other Semitic languages: ***ħālāb*** (חלב) in Hebrew (modern pronunciation [χalav]), ***ħalbā*** (ܚܠܒܐ) in Syriac, ***ħaliːb*** (ሐሊብ፡) in Geʿez, ***ħ-l-b*** ( ) in Ugaritic. But ***šizbu*** ( )

The form *ħalibːb* is a form of passive participle (*CaCiːC*) of the verb *ħalaba* "to milk". Its meaning is "(a thing) be milked".

The words with the consonant root of ***laban*** (*l-b-n*) have meaning of "white" in other semitic languages: ***lābān*** (לבן) in Hebrew (modern pronunciation [lavan]), ***labanu*** ( ) in Ugaritic.

(Youichi Nagato)


Madrid
SPAIN
Lisbon
Athens
GREECE
Ankara
TURKEY
Baku
TURKMENISTAN
TAJIKISTAN
Algiers
TUNISIA
Mediterranean
Casablanca
Tripoli
SYRIA
Tehran
IRAN
AFGHANISTAN
Islamaba
Baghdad
Amman
Cairo
Kuwait
City
MOROCCO
ALGERIA
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SAUDI
ARABIA
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Karachi
Jeddah
OMAN
Ahmedaba
MAURITANIA
MALI
NIGER
Red
Sea
Mumbai
SUDAN
Khartoum
CHAD
YEMEN
Sanaa
Arabian
Sea
Dakar
SENEGAL
Bamako
BURKINA
FASO
Kano
NIGERIA
Djibouti
GUINEA
Conakry
Addis
Ababa
ETHIOPIA
CÔTE
D'IVOIRE
GHANA
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REPUBLIC
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Yaounde
SOMALIA
Mogadishu
UGANDA
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Distribution of Dialectal Word-forms Associated with the Word *Chichi* (Milk) in Japanese

1. Prologue

The word-form *chichi* [tʃitʃi] bears the meaning of both *milk* and *breast* not only in the standard Japanese but also in its dialects pervaded whole country. Moreover *chichi* refers not only to the breast milk but also to other milks like cow-milk, the dialectal trend of this kind can be found in the dialects pervaded whole country in the study of, for example, Hirayama et al. (1992). In addition, the word *chichi* (milk) has likely a connotation with the word *chi* [tʃi] (blood). Both being fluids of human body, *chi* (blood) has likely been older than *chichi* (milk) on the literature. This hypothesis can be confirmed with the dialect distribution pervaded whole country.

The dialectal variation reflects that there is almost no dialectal forms associated with the word *chichi* [tʃitʃi] in Japanese. The reason for this scarcity of the dialectal forms probably lie with the late development of milk drinking practice as a mass culture in the early modern era or after the Meiji era.

We will reveal the characteristics of the above-mentioned projected distribution of dialectal words for *chichi* by investigating the dialects of whole country.

2. Distribution of Dialectal Words Representing the *Chichi* in Japanese

In the dialects of Japanese, both *chichi* (milk) and *mune* (*nyubou*) (breast) are usually represented with the same word-form. As like as the practice of representation of both *milk* and *breast* with the same word-form in Japanese is also found in the various dialects of Eurasian countries. Accordingly an investigation is required to know the detail distribution of these dialectal forms. As we have already mentioned that *chi* [tʃi] has been older than *chichi* [tʃitʃi] on the literature. We find such examples include, 'tʃinomigo' a child at the breast and 'tʃikjodai' foster brother. Hence *chi* [tʃi] is considered to be connoted with *blood*. In this way, we can formulate a hypothesis whether there are dialects of languages bearing the word-form for milk to express both *milk* and *blood* as the word-form *chi* does in Japanese.

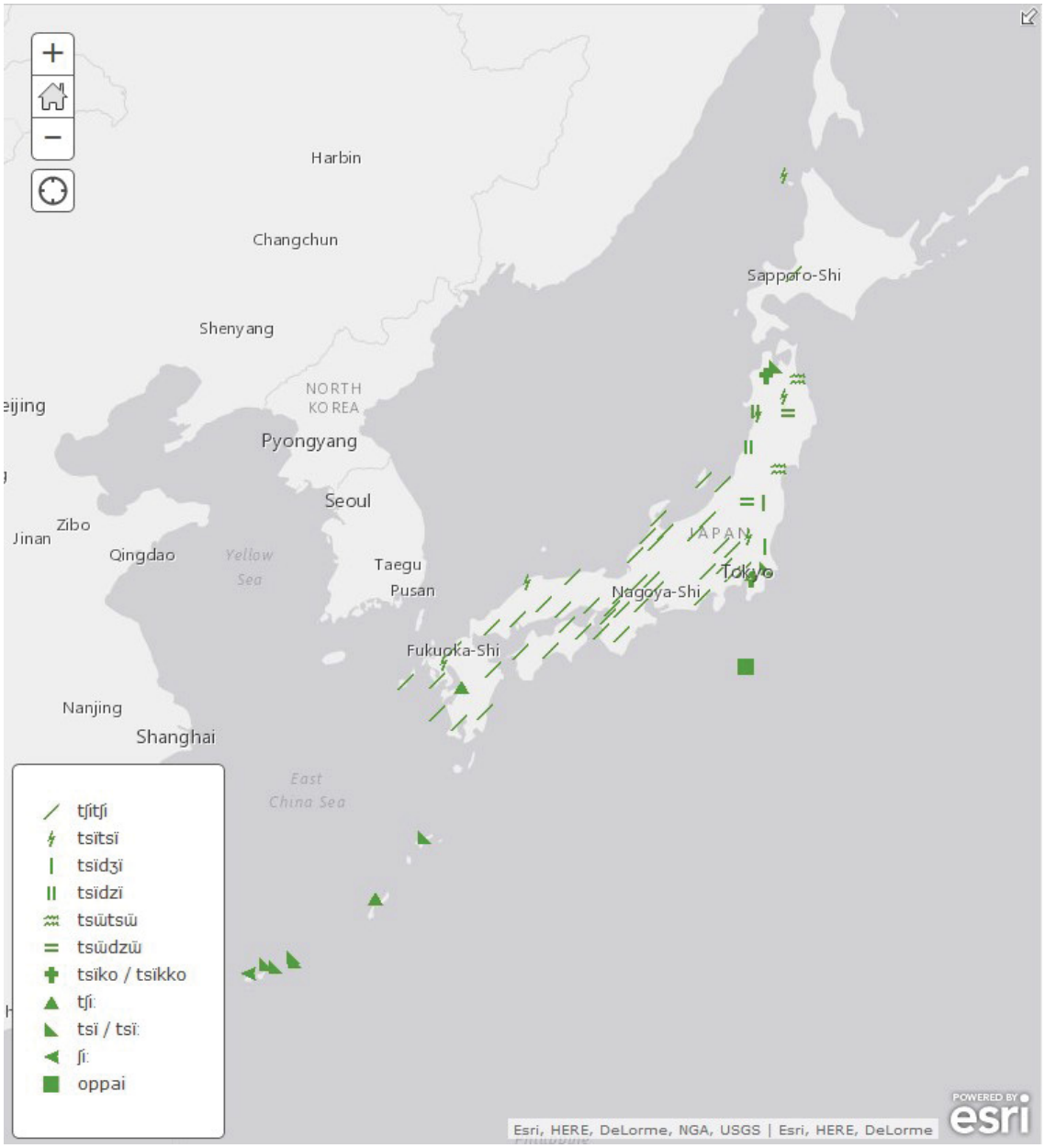
Hence the distribution of dialectal word- forms associated with word *chichi* (milk) has been as shown in the dialect map-1. It has been drawn on the basis of the dialectal-forms for the word *bonyuu* (breast milk) found in the *Gendai nihongo hōgen dai jiten*. The dialect map-1 depicts that the word *chichi* [tʃitʃi] is distributed in the centre of archipelago, while the dialecta -forms having lineage to *chi* [tʃi] are collectively distributed in the Ryukyu Islands.

In addition, the dialectal-forms having lineage to the word *chi* ［tʃi］ are distributed in the regions of Aomori as well as a part of northern Tohoku and Kumamoto prefecture of Kyushu island. According to the dictionary like *Nihon Hōgen Dai jiten*, the distribution of dialectal forms having lineage to the word *chi* [tʃi] further covers the region Hachijo Island and Saga prefecture. Taken together these facts into consideration, *chi* [tʃi] is found to be distributed around the archipelago. This finding reflects that dialectal forms for *chi* [tʃi] are distributed in accordance with the *dialect radiation theory*. That is, in Japanese, the change of the form *chi* [tʃi] to the form *chichi* [tʃitʃi] has occurred having aroused at the centre of the archipelago leading to the current distribution of dialectal forms of it.

It should be noted that, according to Nakamoto (1985), the ancient pronunciation of the Japanese word *chichi* (milk) was *ti* [ti], which has become *titi* [titi] by the process of syllable repletion.

Keyword: milk, breast, blood, dialect radiation theory (Hogen Shukenron)

(Kishie Shinsuke, Faquire Razaul Karim, Shimizu Yukichi, Sakoguchi Yukako)



Map 1: Hirayama (1992)et al: Contemporary Japanese dialects Dictionary
(Gendai Nihongo Hōgen Daijiten)

A Geolinguistic Description of Terms for 'Milk' in Tibetic Languages of the Eastern Tibetosphere

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Abstract

This article attempts to describe a dialectal difference of the word 'milk' attested in around 220 dialects of the eastern Tibetic languages. The word 'milk' generally corresponds to Written Tibetan (WrT) *'o ma* or *nu ma*. The former form has several phonetic differences, such as the number of syllables and the initial consonant. Other than them, there are also compound forms with a morpheme 'water' (corresponding to WrT *chu*), which are distributed in a small area.

1 Introduction

This article provides a detailed description of the geolinguistic analysis of the word forms for 'rice' in the Tibetic languages spoken in the eastern Tibetosphere, which Ebihara 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 paper only includes first-hand materials collected by the author from 2003 to 2015. 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 223 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 Classification of semantic categories and word forms

This section provides a classification of word forms of 'milk' based on Written Tibetan (WrT) forms and their various phonetic realisations. There are three principal types:

(A) WrT *'o ma*-type.
(B) WrT *nu ma*-type.
(C) WrT *zho*-type.

The A-type is attested more widely than the B-type. In addition, the A-type and the B-type can be classified into different subcategories based on its phonetic realisations. The C-type is rarely found, however, the word form *zho* can be connected with the /l/-form of 'milk' attested in rGyalrongic languages, for instance, in an aspect of historical linguistics (see Section 2; Ebihara et al. this volume). Examples are as follows:[1]

A-type
A1: disyllabic form: /CV mV/
[ɦo ma], [ʁo ma], [ɣo ma], [^{ɦ}ɣo: mɜ], [wo ma], [ɦu mɑ̃], etc.
A2: disyllabic form: /ɦV wṽ/
[ɦo wɑ̃], [ɦo wɑ̃], [ɦo wɑ̃:], etc.
A3: monosyllabic form: /wṽ/
[wɑ̃:].

[1] A suprasegmental description is uniformly omitted.

A4: disyllabic form: /ʔV mV/, /ʔV wV/
[ʔo mã], [ʔo wã], etc.
A5: monosyllabic form: /ʔṽ/
[ʔɑ̃:], [ʔɔ̃:]
A+: WrT *'o ma* + WrT *chu* 'water'
[ɦo ma ʈʂʰɯ], [wɑ̃: ʈʂʰɯ], [wo ʈʂʰɯ]

B-type
B1: disyllabic form: /nV mV/
[nɯ ma], [nɯ mɜ], [nɯ ʱma], etc.
B2: monosyllabic form: /nV/
[nɵ:], [nɯ:].
B+: monosyllabic form /nV/ + WrT *chu* 'water'
[na tɕʰɯ], [ne: cçʰu], [ne: tɕʰɯ].

C-type
[ʂo], [ɛɔ], [ʂu].

M-type (miscellaneous; neither classification nor discussion provided)
[sa], [ŋɵ: ʈʂʰʉ], [ɦa po]

Note that the difference within the A-type and B-type belongs to the phonological process of coalescence, and similar examples should be considered if we treat it in the aspect of phonological development. The chronological order should be: A1 > A2 > A3; A4 > A5; B1 > B2. The compound type is mentioned as "A+" and "B+2". The second element of a compound is generally a morpheme 'water' (WrT *chu*).

3 Geographical distribution and interpretation

I present two linguistic maps (see the end of the article). Map 1 displays an overall distribution of the word forms for 'milk', reflecting the classification provided in Section 1. Map 2 is an enlarged version of the southeastern Khams area, respectively. The linguistic maps here were designed with ArcGIS online.

First of all, the minority of examples is to be explained: the C-type (WrT *zho*). It is only attested in Rongbrag Khams, spoken in Danba (Rongbrag) County, the easternmost area of Khams around the centre of Map 1. The word form of WrT *zho* originally denotes 'yogurt', not 'milk'. However, the same usage is also found in Chocha-ngachakha (Tsamang), spoken in eastern Bhutan (Tournadre and Karma Rigzin 2015). Furthermore, the WrT *zho* might be related to Proto-Tibeto-Burman (PTB) initial *ly-, as there are some parallel examples between WrT *zh* and PTB *ly-: WrT *bzhi* and PTB *b(ə)-lyi, and WrT *zhing* and PTB *lying.[2] This means that WrT *zho* is possibly related to the L-type of 'milk' (Ebihara et al. 2016), attested in many rGyalrongic languages. Rongbrag Khams and rGyalrongic languages are just neighbour with each other, however, this vicinity of distribution should be considered as an accident because of the phonetic realisation corresponding to WrT *zh*, not to /l/. The sound development in Tibetic languages from PTB *l > WrT *zh* might have completed in an earlier stage of the Tibetic languages called Proto-Tibetic (Tournadre and Suzuki forthcoming).

Secondly, the overal distribution of the A-type and the B-type is discussed. It is obvious that the A-type is dominant in the eastern Tibetosphere, whereas the B-type is geographically marginal, which is distributed at the both directions of north and south of this region (see Map 1). This distribution reminds us of an ABA-distribution, which means that the marginal type (the B-type here) is more archaic than the other. If we take the whole Tibetic languages in this region as a language derived from one single root, this hypothesis is comprehensive. Contrary to the general understanding that the dialects spoken in Sichuan-Gansu border are related to those in Khams, several results of Tibetan dialectology such as

[2] This sound law has been dubbed 'Benedict's law' by Hill (2011:445). See also Hill (2013) for a relative chronology of Tibetan sound laws including Benedict's law.

Suzuki (2016) do not positively support the hypothesis, hence the ABA-like distribution attested in Map 1 may not represent a historical development following the theory of the geolinguistics.

Thirdly, the order of sound change (A1 > A2 > A3; A4 > A5; B1 > B2) and its distribution are discussed. This case is mainly applicable to the south-eastern Khams area (see map 2). The first type is the order A1 > A2 > A3. The A1 form is a straightforward sound correspondence with the WrT form *'o ma*, and the A3 form is a coalescent form of these two syllables. Looking at the distribution of the A3 form, we see that the easternmost part of the south-eastern Khams (Muli, Daocheng, Xiangcheng, Xianggelila) and a part of Deqin County (from Shengping to Yanmen) dominantly have this type, and a small number of places have the A1 and A2 forms in these areas. This distribution implies that the same process of sound change occurred in these two areas differently; the order A3 > A1 is unimaginable even if we consider that there is an ABA distribution in Yunnan. The second type, A4 > A5, is found in Zhuoni County, Gansu. Based on the present data, it is difficult to explain how this change occurred, however, this type is regarded as a regional feature attested in Zhuoni. The third type, B1 > B2, is also attested in Yunnan, however, the distribution is scattered. Interestingly, the B1 form (a dissyllabic form) is found in the places close to the A1 form (a dissyllabic form), whereas the B2 form (a monosyllabic form) is found in the places close to the A3 form (a monosyllabic form). This situation suggests that the phonetic realisation is related in a given region even though the word stems are different.

Finally, the compound forms (A+ and B+) are discussed. They accidentally use the same morpheme as a part of compound: WrT *chu* 'water'. In many Asian languages, 'milk' is related to 'breast', and it implies 'liquid produced from the breast'; hence, the use of the morpheme 'water' for 'milk' is reasonable to make a compound. Another possibility in the Tibetic languages is a borrowing from a Chinese expression *nai-zhi* 'milk/breast-juice'. As for the geographical distribution of the compound forms, they are attested in Yunnan, however, scattered. The forms attested in Gongshan County (B+) may be related to that attested in one place alongside Lancangjiang, because there is a migration relationship between these two areas (Suzuki 2014). It is still complicated to give a geolinguistic explanation regarding the forms attested in Xianggelila Municipality (A+), for the distribution is scattered.

4 Conclusion

The word form of 'milk' in the eastern Tibetic languages mainly corresponds to WrT *'o ma* and *nu ma*, and their geographical distribution covers most parts of the eastern Tibetosphere. The lexical variation of morphemes is therefore not rich; there are a few other forms: WrT *zho* (the original meaning is 'yogurt'), [sa], [ŋɵ: ʈʂʰʉ], and [ɦa po]. They are used in isolation or in a limited geographical area.

Acknowledgements

I should like to express my gratitude to my Tibetan friends who helped me and taught me their mother tongue. Field research was funded by four Grants-in-Aid for Scientific Research from the Japan Society for the Promotion of Science [JSPS]: "Linguistic Substratum in Tibet" (headed by Yasuhiko Nagano, No. 16102001), "Dialectological Study of the Tibetan Minority Languages in the Tibetan Cultural Area in West Sichuan" (headed by the present author), "International Field Survey of the rGyalrongic Languages" (headed by Yasuhiko Nagano, No. 21251007), and "Study on the Dialectal Development of Tibetan Spoken in Yunnan, China, through a Description of the Linguistic Diversity" (headed by the present author, No. 25770167), as well as and a private financial support of Tibetan Studies Committee of Yunnan Ethnology Association headed by Xu Jianhua.

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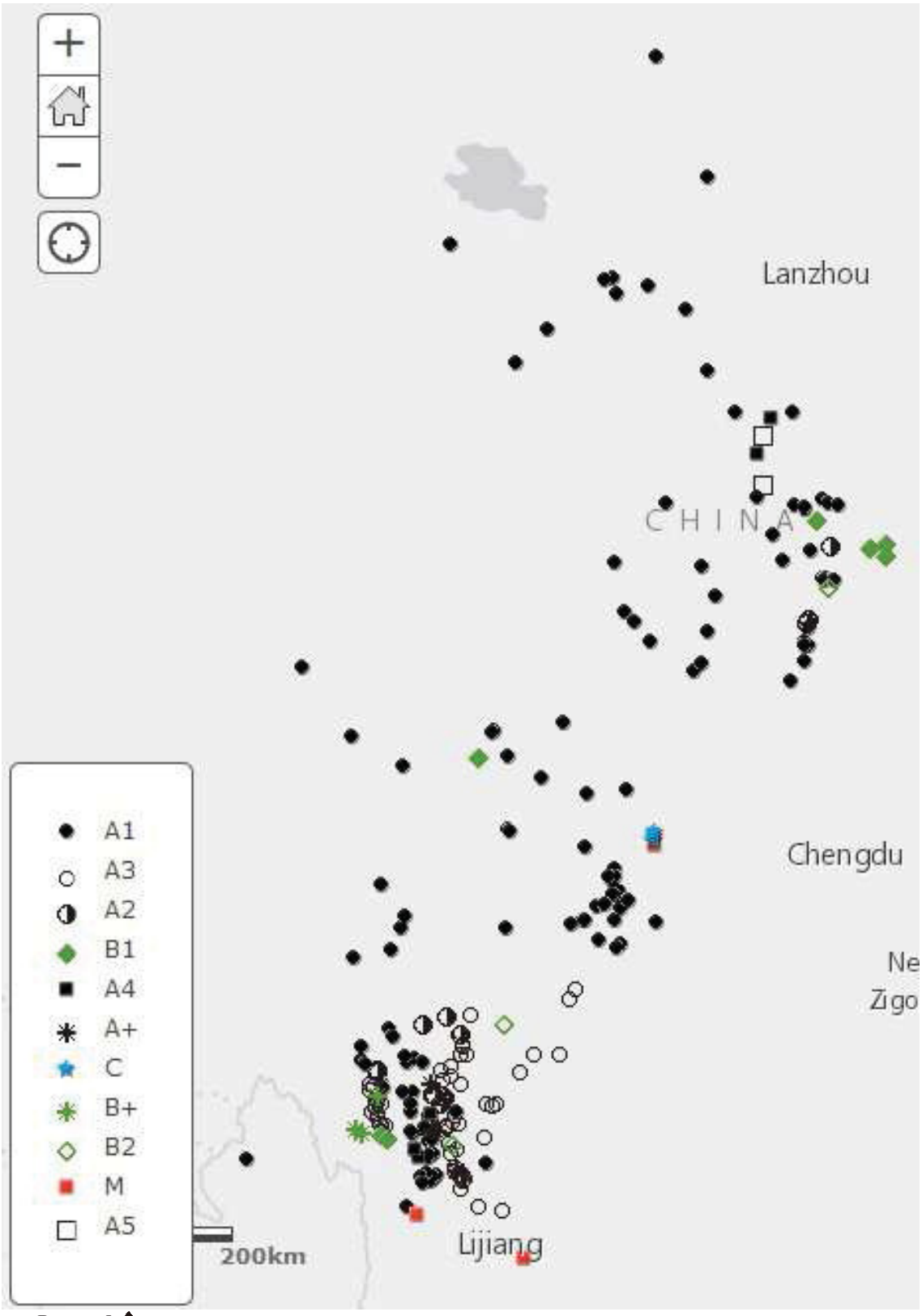
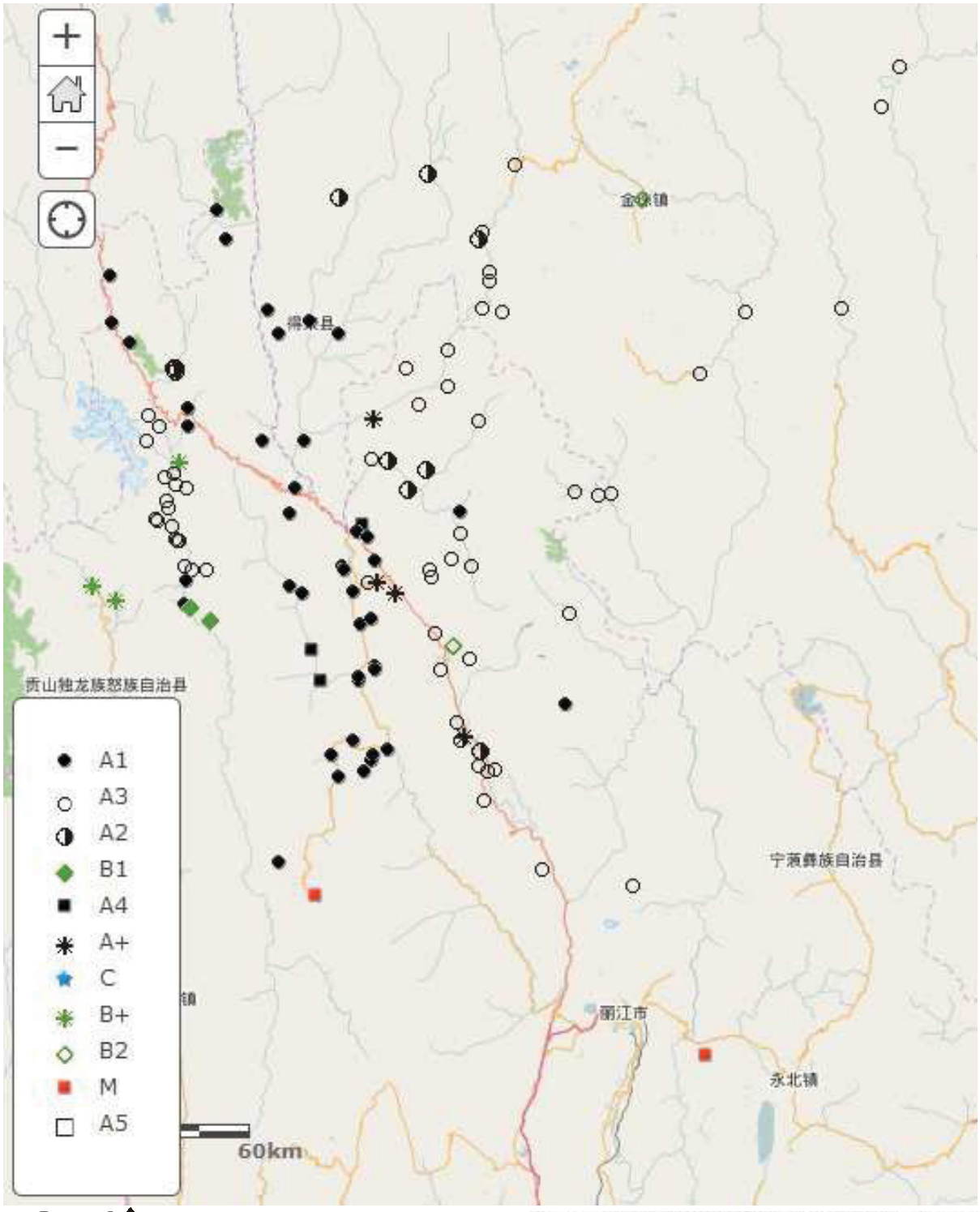
Maps



Legend

Map 1: Overall distribution of word forms for 'milk'.



Legend

Map 2: Distribution of word forms in the southeastern Khams region.

Rice and related words in Korean

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Abstract

Korean has a rich vocabulary of words related to rice. This paper gives a tentative synchronic comparison with that of Japanese, and then present linguistic maps for two important words representing rice plant and husked rice. Based on these maps and historical data, the history and etymology of these words will be discussed.

1 Introduction

Rice has been one of the main staple foods in Korea, in much the same way as in other east Asian countries, and vocabulary related to rice is abundant.

2 Modern standard Korean

Modern standard Korean has the following words related to rice:

pjɔ [pjɔ]	rice plant; unhusked rice
nwi [nɯi]	unhusked rice mixed in husked rice
s'ar [s'al]	husked rice (typically rice but not confined to it)
ips'ar [ips'al]	non-glutinous rice (as opposed to *s'ar* of grain other than rice, and also to glutinous rice)
meps'ar [meps'al]	non-glutinous rice (as opposed to glutinous rice)
c^haps'al [$tʃ^h$aps'al]	glutinous rice
pap [pap]	cooked rice (typically rice but not confined to it); meal

The distinction between /pjɔ/ and /s'ar/ is similar to that of Japanese /ine/ and /kome/ but there are slight differences. For example, /pjɔ/ can mean not only rice plant but unhusked rice which in turn is expressed by a separate word /momi/ in Japanese. The word /nwi/ can mean unhusked rice but it can be used only when it is mixed with husked rice. The word /s'ar/ largely corresponds to Japanese /kome/ but it is different from the latter in that it can mean various other kinds of grain, e.g., /cops'ar/ (foxtail millet), /poris'ar/ (husked barley) etc., by prefixing the name of grain other than rice. In this respect the word /s'ar/ resembles more like Chinese *mǐ* (米).[1]

A tentative comparison of Korean and Japanese vocabulary concerning rice is shown in the following table.

	Korean	Japanese
rice plant	pjɔ	ine
unhusked rice		momi

[1] This is pointed out in Ito (2008 : 272).

unhusked rice mixed in husked rice	nwi	
husked rice (in general)	s'ar	kome
husked grain (other than rice)	*-s'ar	
non-glutinous rice	ips'ar, meps'ar	uruci
glutinous rice	c^haps'al	moci-gome
cooked rice (and other grain); meal	pap	mesi, (archaic) ii

3 Dialectal variation

Among various words related to rice, linguistic maps for two important words, /pjɔ/ 'rice plant (稲)' and /s'ar/ 'husked rice (米)' are shown at the end of this paper, based on the data found in Ogura (1944).

First, various words used for 'rice plant (稲)' can be classified into the following two groups, each with a couple of phonetic varieties (see Figure 1).

A. *pjɔ* type
A1. pjɔ, A2. pe, A3. pø
B. *narak* type
B1. na-rak, B2. na-rok, B3. na-ruk, B4. no-rak

Based on this map, the following observations can be made for rice as plant (稲):

(1) Geographical distribution: we have a clear north vs. south contrast. *pjɔ*-type forms (north) and *narak*-type forms (south).
(2) The modern standard form /pjɔ/ is used only in a limited area and a phonetic variety /pe/ is more widespread[2].
(3) Among the four *narak*-type forms found in the southern half of the peninsula, the form /narok/ and its variety /naruk/ are located at several places, mainly at the borders, separated by the /narak/ area so that it can be said that the form /narok/ is the oldest among the four.

Next, we will discuss the data for husked rice (米) (see Figure 2).

A. *s'ar* type
A1. ʔsʌl, A2. ʔsal (Used in many places. Omitted in the map.)
B. *ips'a*r type
B1. ip-sal
C. *waŋ* type
C1. waŋ-dɛ, C2. waŋ

We have three groups of words for this item but the majority of places uses A type words, B and C being used only marginally. The most common word /s'ar/ [ʔsal] is not displayed in Figure 2, because it is used in many places and Ogura (1944) does not mention specific locations for this word.

Based on the map for this item, the following observations can be made on the geographical distribution of various forms used to mean husked rice (米).

(1) The standard form /s'ar/ (not marked in the map) and a phonetically more conservative variety /s'ʌr/ is widespread.

[2] The alternation between vowels /jɔ/ and /e/ are often observed in many dialects including Seoul.

(2) Other types of forms, /ips'ar/ and /waŋ/, are mainly located at the northern half of the peninsula. This can be interpreted that the rice was not originally cultivated in these areas.

4 History and etymology

The following table shows modern forms concerning rice and corresponding Middle Korean forms, and data from *Jīlín lèishì* recorded in the 12th century.

Modern forms	MK (15-16c.)	*Jīlín lèishì* (鷄林類事, 12c.)
/pjɔ/	/pje/ (H)	
/narak/		
/s'ar/	/psʌr/ (H)	菩薩 (*pʌsʌr)
/ips'ar/	/nipsʌr/ (RH)	
/meps'ar/	/moipsʌr/ (LH)	
/c^{h}aps'ar/	/c^{h}apsʌr/ (HH)	
/pap/	/pap/ (H)	

Ogura (1943) gives a detailed account on the etymologies of words related to rice, in which the main points are summarized as follows:

(1) Modern /ips'ar/ goes back to MK /nipsʌr/ and the morpheme /ni-/ is cognate with Japanese /ine/.
(2) According to a folk etymology, the /ni-/ in /nipsʌr/ was derived from *Li* '李', the family name of the Chosŏn dynasty, as opposed to another form /waŋ-mi/ ('王米') in which the element /waŋ/ is related to *Wangkŏn* (王建), the founder of the Koryŏ dynasty. But Ogura denies this theory because the prefix /waŋ/ is used simply to denote various things that are 'big'.
(3) Modern /s'ar/ goes back to MK /psʌr/ and it was recorded as '菩薩' in *Jīlín lèishì* (鷄林類事). But it has neither Chinese or Sanskrit origin, and it has its origin in another word /pjesɨr/ (official position in bureaucracy).
(4) The word '菩薩' is also used in some Japanese dialects but it was borrowed from Korean.
(5) The word /narak/ is related to the word /narah/ (nation, country), because rice was considered to be the foundation of politics in the old days.
(5) He also tries to find cognates in Austronesian and other language families for the word /s'ar/ but presents no definite conclusion.

I have the following questions on these points:

(1) No mention was made about the origin of the word /pjɔ/.
(2) /ni-/ included in MK /nipsʌr/ contained a rising tone (R). This must be taken into account in considering etymology of this word.
(3) It is difficult to admit the relationship between the word MK /psʌr/ (< '菩薩') and /pjesɨr/ because we have no other cases of the vowel /je/ dropped in such an environment.

Although I do not have answers to these questions, I would like to point out the possibility that the MK form /psʌr/ might be related to Austronesian (or other language family's) words for rice, for example *bras*, thereby supposing a metathesis occurred between the second liquid and final consonant.[3]

[3] This view was pointed out to me by Professor Ito Hideto (personal communication).

Acknowledgements

I would like thank Professor Endo Mitsuaki for inviting me to this conference and also to Professor Ito Hideto for valuable opinions about the origin of words for rice in Korean.

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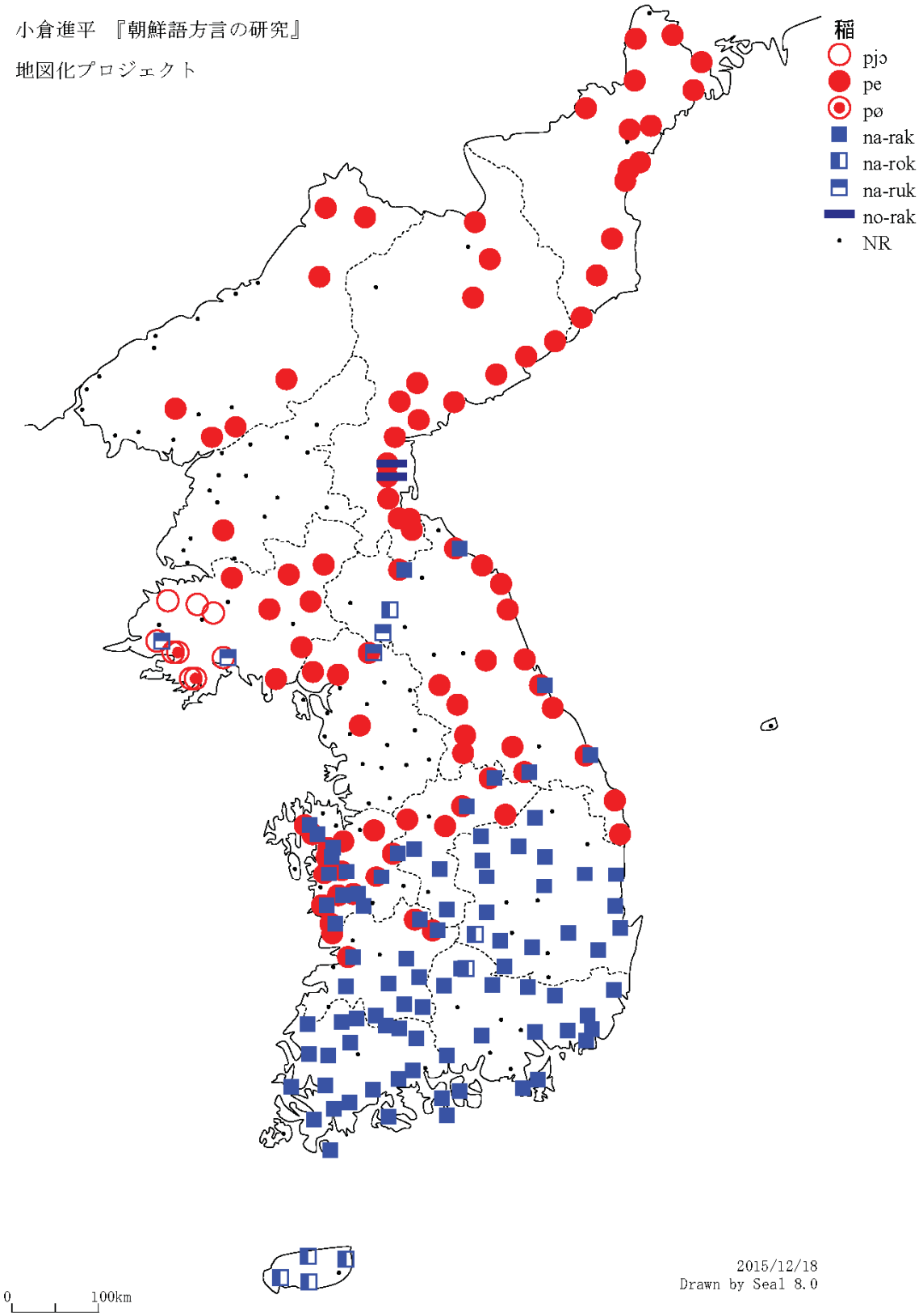

Figure 1. Geographical distribution of the words used for rice plant '(稲)'.

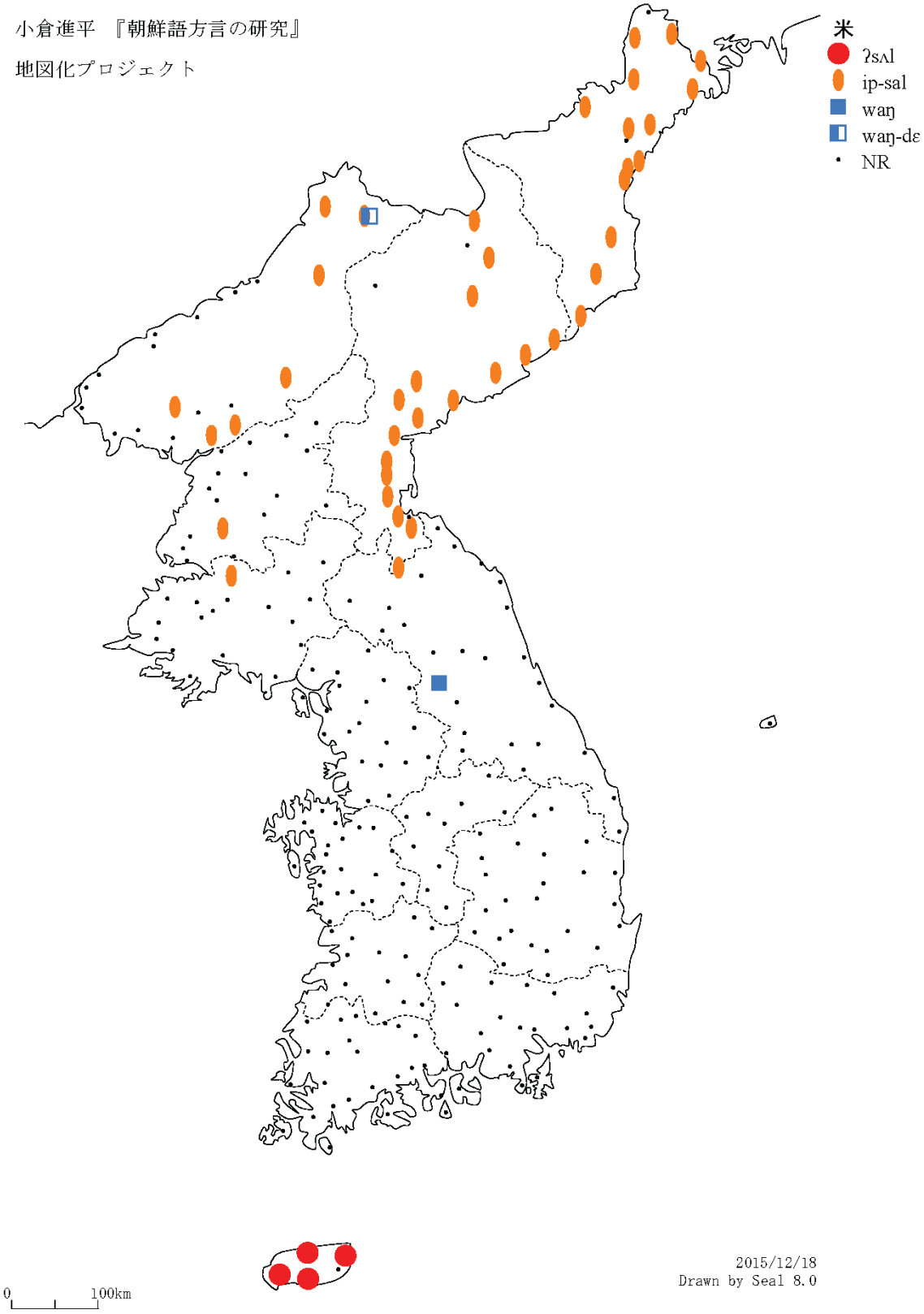

Figure 2. Geographical distribution of the words used for husked rice (米). Note that the most common word /s'ar/ [ʔsal] is omitted in this map.

Milk in Korean

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Abstract

This paper discusses various aspects of the Korean word for milk /cec/. After briefly reviewing its relationship with the corresponding Japanese word, phonological features and three kinds of meanings, namely breasts, human milk and milk of mammal for both Modern and Middle Korean will be discussed. It will be also shown that these three kinds of usages can be attested in the Middle Korean texts.

1 Introduction

The Modern Korean word for *milk* is /cec/. This word can be used with the meanings of both *milk* and *breasts* in much the same way as in the case of Modern Japanese /cici/.

There have been several researchers who tried to explain words for milk in Korean and Japanese as possible cognates in their attempts to show a genetic relationship between Korean and Japanese (e.g., Kanazawa (1910), Martin (1966), Whitman (1985), Starostin (1991), etc.). However, despite the surface resemblance of the modern Korean and Japanese forms there are two problems in this view. First, the original Japanese form was a monosyllabic /ti/ and /cici/ a reduplicated form, whereas the Korean form had originally a CVC structure and we have no evidence of reduplication. Secondly, the initial consonant was a plosive in Japanese but it was an affricate in Korean, throughout the known history of these words.

Aside from Japanese, however, Starostin (1991) presents various forms for Tungusic, Mongolian and Turkic languages that seem to show closer relationship to the Korean form (see Robbeets (2003) *Etymologycal indexes*. p. 383).

2 Modern standard Korean

Modern standard Korean form /cec/ shows almost no dialectal variation. The final affricate /c/ is morphophonemic in that it appears only when it is followed by a particle beginning with a vowel and otherwise it is phonetically realised as a [t].

(1) /cec/ (in isolation) [tʃɔt]
(2) /cec-i/ (nominative) [tʃɔdʒi], /cec-ul/ (accusative) [tʃɔdʒɨl]

However, the actual colloquial pronunciation of this final consonant has a variant [s] as shown in the following example.

(3) (nominative) [tʃɔʃi], (accusative) [tʃɔsɨl]

This kind of variation can be a dialectal one but it actually occurs within the Seoul dialect (see, for example, Umeda (1960)) so that it is difficult to describe in terms of geographical distribution.

3 Middle Korean

The Middle Korean form of this word was /cyec (H)/. The modern form is a regular development of this: semivowel dropped, the quality of the initial and final consonants and the vowel slightly changed and the high tone being no longer distinctive in the Seoul dialect. And there is one additional difference concerning the phonetic realization of the final consonant. Unlike modern [t], it was realized as an [s] in MK in isolation.

(4) /cyec/ (in isolation) [tsjəs]
(5) /cyec-i/ (nominative), /cyec-ul/ (accusative)

The modern phonetic final consonant [t] is a result of the merger between a syllable-final /s/ and /t/, then distinctive even in the syllable-final position.

The meaning of this word was the same as the modern word in that it can mean both 'milk' and 'breasts'. As for the former meaning 'milk', it can be either human or of mammal.

This word can be attested in a variety of MK texts written in Hangul script and among them examples from the following two pharmacological texts are the most interesting ones.

Kugŭppang ŏnhae (1466) '救急方諺解 (Prescriptions for emergency treatment, abbreviated as PE below)'
Kugŭp kani pang ŏnhae (1489) '救急簡易方諺解 (Simplified prescriptions for emergency treatment, abbreviated as SPE below)'

The above mentioned all three kinds of usage, i.e., breasts, human milk and milk of mammals can be attested in these two texts.

A. /cyec/ as breasts

(6) ᄒᆞ다가 겨지비어든 두 졋 가온ᄃᆡᆯ ᄯᅳ라 <PE 1: 40a>
hotaka kyecip-i-etun twu cyes kawondoy-l stu-ra
"if the patient is woman, apply cauterizing with moxa between breasts."

(7) 겨지비 져제 죵긔 나 져지 나디 아니ᄒᆞ야 …… <SPE 7: 70a>
kyecip-i cyec-ey cywongkuy na cyec-i na-ti aniho-ya
"if a woman had a tumor in her breast and no milk from breast ....."

(8) ᄆᆡᆰᄀᆞᄅᆞ 반 근을 봇가 누르거든 글힌 초애 ᄆᆞ라 졋 우희 ᄇᆞᄅᆞ면 즉재 스러디리라 <SPE7: 74b>
mil-s-kolo pan kun-ul pwosk-a nwuru-ketun kulhi-n chwo-ay mol-a cyes wuh-uy polo-myen cukcay suleti-li-la
"fry a half pound of flour until it becomes yellow and put it into boiling vinegar, and put it on the breasts. Then it will soon disappear."

(9) 과ᄀᆞᆯ이 답답ᄒᆞ야 뷘ᄇᆡ줌ᄒᆞ거든 졋 아래 ᄒᆞᆫ 치만ᄒᆞᆫ ᄃᆡ 닐굽 붓글 ᄯᅳ면 …… <SPE2: 41a>
kwakoli taptapho-ya puy-n-poy-com-ho-ketun cyes alay hon chi man-ho-n toy nilkwup pwusk-ul stu-myen
"if the patient feels bad and vomits, apply cauterizing with moxa seven times one inch below the breast."

B. /cyec/ as human milk

(10) 아기 나ᄒᆞᆫ 후에 졋 나게 홀뎬 …… <SPE7: 83a>
aki nah-on hwu-ey cyes na-key hwo-l-tyeyn

"in order to have milk after bearing a child"

(11) 또 사ᄅᆞᄆᆡ 졋 汁 ᄒᆞᆫ 잔을 머기면 됴ᄒᆞ리라 <PE 2: 59a>
stwo salom-uy cyes cup hon can-ul meki-myen tywohulila
"also, feeding a cup of human milk will make the patient better"

(12) 또 아ᄒᆡ 오좀과 사ᄅᆞᄆᆡ 졋 汁과ᄅᆞᆯ 各 半 中 잔ᄋᆞᆯ 섯거 데여 머그라 <PE 2: 46b>
stwo ahoy wocwum-kwa salom-oy cyes cup-kwa-lul kak pan tyung can-ol sesk-e tey-ye mek-ula
"also, mix and warm a half cup of child's urine and a half cup of human milk and feed it."

(13) 누니 物에 傷ᄒᆞ야 알ᄑᆞ닐 고툐ᄃᆡ 紛을 사ᄅᆞᄆᆡ 졋 汁에 프러 누네 브스라 <PE 2: 42a>
nwun-i mwul-ey syang-ho-ya alpho-n-i-l kwothy-wotoy, pwun-ul salom-oy cyes cup-ey phul-e nwun-ey puzu-la
"If a patient is hurt in his eyes, dissolve face powder in human milk and put it on his eyes."

C. /cyec/ as milk of mammals (cow and sheep)

(14) 누른 쇠 졋 두 홉과 힌 ᄡᆞᆯ 서 홉과로 몬져 쇠 져즈로 파ᄒᆞᆯ 봇가 닉게 ᄒᆞ고 …… <SPE 3: 90a>
nwulu-n sywo-y cyes twu hwop-kwa hoy-n psol se hwop-kwa-lo mwoncye sywo-y cyec-ulo phah-ol pwosk-a nik-key ho-ko
"prepare two cups of cow milk and three cups of white rice and then fry well welsh onion with cow milk and ....."

(15) 거믜 믈여 모매 대도히 시리 나거든 양의 져즐 마시면 됴ᄒᆞ리라 <SPE 6: 66b>
kem-uy mulG-ye mwom-ay taytwohi sil-i na-ketun yang-uy cyec-ul masi-myen tywohu-li-la
"if a patient is bitten by a spider and got welts allover his body, feed sheep milk and he will be better."

As for the last usage of this word, cows were bred officially in farms called 'Ywuwuswo (乳牛所)' which was first placed during the Koryŏ period and lasted in the early Chosŏn dynasty until its name was changed to 'Thalaksayk (駝酪色)' in 1438. It seems like cow's milk was only served for the King and royal family members, not served for ordinary people as can be seen in the following record at that time.

(16) The warrant officer told the King "The Ywuwuswo (lit. milk cow's place) was made solely for the sake of serving His Majesty with 200 officials who change positions every year, their highest rank being the fifth grade, without thinking this is adequate or not, only its name existing without substance. Please abolish Ywuwuswo. ..... (further details omitted) ……" He followed it. (*The Annals of King Sejong*, Feb. 9th, 1421)

○兵曹啓: 「乳牛所專爲供上而設, 置諸員二百, 每年遷轉, 官至五品, 而爲別坐者不考能否, 名存實無, 請罷乳牛所。 上王殿供上乳牛, 屬於仁壽府; 主上殿供上乳牛, 屬於禮賓寺, 其諸員令所在州郡充軍。」從之。(世宗実録11巻 (世宗3年(1421年)2月9日壬寅))

However, examples of pharmacological texts shown above, (14) and (15), indicates that it was not impossible for ordinary people to use cow's or other mammal's milk at least for medical treatment.

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