RELATIVISTIC RANK ANALYSIS OF KERNEL CONSISTENT CORRESPONDING WORDS BETWEEN CHINESE AND KAM-TAI

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ABSTRACT

In this study, we will first identify kernel consistent corresponding words (CW) between Chinese and Kam-Tai, then put forward a method of relativistic rank analysis to see if these corresponding words are the result of genetic relationship or of contact relationship.

Kernel consistent corresponding words between Chinese and Kam-Sui are those words which not only correspond between Chinese and Kam-Sui, but also belong to the class of kernel words both in Chinese dialects and in the Kam-Sui languages.

To determine what words in this category are more basic, we use the criterion of breadth of attestation, i.e., the wider a corresponding word distributes among different cognate languages, the more basic it is. We find that the rate of kernel consistent corresponding words between Chinese and Tai is lower for the most widely distributed items. In contrast, the rate of kernel consistent corresponding words among Tai, Kam, Sui and Li is higher for the most widely distributed items. Considering that there are numerous kernel consistent corresponding words between Chinese and Tai in early times, even more than those between Tai and Li, we conclude that the kernel consistent corresponding words between Chinese and Kam-Tai are the result of a deep contact, while the kernel consistent corresponding words among Tai, Kam and Li can be explained by genetic relationship. We have also discussed the theoretical foundation, the methodology and the operation of relativistic rank analysis.

1. OVERALL CORRESPONDENCE

Overall correspondence means a word must correspond in all of its constituents before we call it a corresponding word. If we fail to stick to this principle, we may put accidentally corresponding words in our sample, because *different languages always share some words that accidentally correspond in initials, finals or rhymes*. For example, we can find 6 initial-

corresponding words between English and Dai among the 1000 most basic words selected from our database:

	馬	有	手	牛	他	熱
Dai	ma^4	mi^2	$m\mw^2$	$ma:\eta^3$	man^2	mai^3
English	horse	have	hand	half	he	hot

Accidental correspondence.

Here the "m" of Dai corresponds to "h" in English. Clearly, we cannot say that these 6 words are genuine corresponding words between English and Dai, neither can we say by this kind of evidence that English and Dai have a genetic relationship.

In recent years, many scholars have been trying hard to find cognates between Chinese and Kam-Sui, although some of the cases they have found correspond only in initials, finals or rhymes. One might say that these words correspond imperfectly in this way because they are the oldest cognates, so that their correspondence is obscured. However, as we have just seen, apparent correspondences can also be due to accident. Therefore partial correspondence is not always sufficient evidence to establish genuine relationship. We shouldn't put in our samples words that correspond only in initials, finals or rhymes unless we can explain why these words fail to correspond overall.

2. KERNEL CONSISTENT CORRESPONDENCE

We have said that corresponding words were a necessary condition for determining genetic relationship, not a sufficient condition. This does not mean that we cannot use patterns of correspondence to get rid of loans at any time. Compare the following cases:

	ZW[1]	ZL	BY	DX	DD	DR	ML	SS	MN
	1	1	1	1	1	1	1	1	1
'rain'	$f\mw n^1$	$ph\mw n^1$	$v\mw n^1$	fun^1	fon^1	$pj\ni n^1$	$kw\ni n^1$	$f\ni n^1$	fin^1
'dog'	ma^1	ma^1	ma^1	ma^1	ma^1	$\eta wa^{1'}$	$h\eta wa^1$	hma^1	ma^1

A tonal correspondence of words within Kam-Tai.

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[1]   For the abbreviated names of languages, please see the "Explanation of Symbols and Abbreviations" at the end of this article.

	sound class	ZW	ZL	BY	DX	DD	DR	ML	SS	MN
	陰平	1	1	1	1	1	1	1	1	1
三 'three'	心談開 一平咸	sa:m¹	ɬa:m¹	sa:m¹	sa:m¹	sa:m¹	sa:m¹	ta:m¹	ha:m¹	sa:m¹
姜(生～) 'ginger'	見陽開 三平宕	hiŋ¹	khiŋ¹	jiŋ¹	xiŋ¹	xiŋ¹	çiŋ¹	hiŋ¹	siŋ¹	siŋ¹

A tonal correspondence between ancient Chinese and Kam-Sui.

Chinese	sound class	ZW	ZL	BY	DX	DD	DR	ML	SS	MN
	陰平	6	1	5	6	6	6	5	2	5
光（明） 'light/bright'	見唐合 一平宕	kva:ŋ⁶	kva:ŋ¹	kuaŋ⁵	kwa:ŋ⁶	kɔŋ⁶	kwa:ŋ⁶	kwa:ŋ⁵	kwa:ŋ²	
		miŋ²	miŋ²	Min⁴	min⁴	min⁴	mjəm²	min⁶	min⁴	
宣（傳） 'declare/ announce'	心先合 三平山	sen⁶	ɬen¹	çian⁵	sɛn⁶	sɛn⁶	çen³	søn⁵	sjen³	çwen⁵
		çen²	çen²	tsuan⁴	sɔn⁴	son³	tshon³	tshøn⁶	tshon⁴	tshon⁶

A tonal correspondence of loans from Southwest Mandarin to Kam-Tai.

All four Chinese characters above belong to tone 1. We can see that the correspondence between Tai and Old Chinese lexical items is different from that between Tai and Southwest Mandarin, because the former correspondence is the same as for words within Kam-Tai:

Languages	ZW	ZL	BY	DX	DD	DR	ML	SS	MN
1 Old Chinese CW	1	1	1	1	1	1	1	1	1
2 Southern Mandarin CW	6	1	5	6	6	6	5	2	5

The most important thing is that in group 1, the corresponding type is the same both with respect to the kernel words of Kam-Sui and Tai, as well as to the way in which words of Chinese dialects correspond to each other. We call the corresponding words in group 1 the *kernel consistent corresponding words*. These are very early corresponding words between Chinese and Kam-Sui. Our relativistic rank analyses are based on these words.

As we have seen, corresponding words in different times at different places have different rules of correspondence. If we stick to kernel consistent words, we can restrict our comparisons between Chinese and Kam-Sui to a certain time and place. These words represent quite a deep relationship between Chinese and Kam-Tai. Of course we are still not sure if these kernel corresponding words are cognates, because they might also be loans produced by contact between Proto-Chinese and Proto-Tai. Therefore, kernel consistent

corresponding words are a necessary condition for determining genetic relationship, not a sufficient condition.

If we limit ourselves to overall consistent correspondences, we shouldn't merely list random examples here and there and say they show sound correspondences. This method would lead us to quarrel endlessly and uselessly. Sound correspondences are systematic sound matches between two phonologies; a corresponding word needs the support of many parallel examples. We must list our words in an orderly fashion according to initials, finals and tones respectively. By this method, we can definitely determine whether a word really meets the criteria of overall and consistent correspondence. This method is followed in our *Table of Sino-Tai Corresponding Words, Arranged by Tone-class*.

1. GENERAL CORRESPONDENCE AND RANKS OF BASIC WORDS

In our earlier research (Chen 1995, 1996), we have found that both language division and language contact have ranks, and the two kinds of ranks are opposite. In language division, the correspondence rate between more nuclear or basic words is higher than that between less nuclear ones. In language contact, on the other hand, the correspondence rate between more nuclear words is lower than that of less nuclear ones. We divided Swadesh's 200 kernel words into two ranks, the first 100 and the second 100. We compared many important languages whose original relationship has been determined by historical evidence, finding that in genetic relationship the rate of correspondence in the first 100 words was higher than that in the second 100 words, while in contact relationship, the rate of correspondence words in the first 100 words was lower than that in the second 100 words. According to this criterion, we analyzed the ancient corresponding words between Old Chinese and Kam-Tai, the result being that the rate of correspondence in the first 100 words was lower than that in the second 100 words. We concluded that the strictly corresponding words between Old Chinese and Kam-Tai in early times were the result of deep contact. The key to this method is the idea that all languages in principle share a similar set of first 100 words and second 100 words. We call this method the universal rank analysis.

As many more words among different languages are compared, we face a key problem: how can we tell a basic word from an unbasic word? Generally speaking, basic words imply that there are certain recurrent things and situations, or kinds of things and situations, for which every community of human beings, regardless of differences of culture or environment, has words. However, this is not exactly true. For example, the word "sea" is basic for people living along the sea, but unbasic for people living inland. Therefore, the

concept of basic words is a relativistic idea. Different languages do not have exactly the same collections of basic words. We had to recognize the relativity of basic words as we were analyzing the kernel words. Fortunately, the problem of relativity was not so acute in kernel words as it was in basic words.

Considering the relativity of basic words, we will propose a method of relativistic rank analysis of kernel consistent corresponding words. This method is based on facts we have observed. When we were tracing the contemporary contact between Southwest Mandarin and Dai, we found that the more widely a morpheme is distributed in different cognate languages, the less chance the morpheme could be replaced by loans. Basing our approach upon this important fact, we first introduce the concept of "general correspondence" to classify ranks of words.

As we know, according to Li (1977), the Tai languages have been divided into three branches: the Northern Group (NT), the Central Group (CT), and the Southwestern Group (SW). Our recent genetic classification of Tai reaches the same result as Li did. Now we investigate the distribution of basic words in the three branches to start our rank classification. Let's first consider the following case:

	ZW (NT)	*ZL (CN)*	*DD (SW)*
'dog'	ma^1	ma^1	ma^1
'sheep'	ji:ŋ^2	be^3	me^3

General and non-general correspondences.

/ma^1/ "sheep" is distributed among all three Tai branches, while /be^3/ "sheep" is found only in the Central and Southern Groups, but not in the Northern group. /ji:ŋ^2/ "sheep" is attested only in the Northern Group. Since /ma^1/ has the widest distribution, we say that /ma^1/ generally corresponds among all three Tai branches. /be^3/ has a wider distribution than that of /ji:ŋ^2/, however neither of these two distributes generally. We say /ji:ŋ^2/ or /be^3/ "ungenerally" corresponds among the three Tai branches. Here we transform the concept of "basic" to the concept of "general correspondence". Thus the "basic" concept can be observable through word distribution among cognate languages. Phonologically corresponding words are classified into the high rank group if they distribute generally and into the low rank group if they distribute non-generally. In more concrete words, we classify the corresponding words of Tai into two ranks: those which distribute among all three branches (e.g. /ma^1/ "dog"), belong to the high rank (HR), the rest belong to low rank (LR), such as /be^3/ "sheep" and /ji:ŋ^2/ "sheep". Obviously, the corresponding words belonging to HR are more basic because it is difficult to replace them with

substitutes. According to this viewpoint, we have compared more than 3000 words in the Tai languages,[2] identifying more than 1800 kernel consistent corresponding words among them. Of these, 1051 can kernel-consistently correspond to words of Old Chinese, Kam-Sui or Li. In other words, there are 1051 Tai words which can all find their kernel consistent correspondence in Old Chinese, Kam, Sui or Li. We use the 1051 words as our sample for rank analysis. Of the 1051 corresponding words, 446 words distribute among three branches of Tai, 605 words distribute only in one or two branches. We say the 446 words are high rank words or our high rank sample (HR), while the 605 are low rank words or the low rank sample (LR). Here are the distributions of corresponding words in some key Tai languages we have studied:

		HRCW	*rate of HRCW*	*LRCW*	*rate of LRCW*	*rate index*
SW	Thai	414	0.93	130	0.21	4.32
	DX	376	0.84	156	0.26	3.27
	DD	396	0.89	174	0.29	3.09
CT	ZL	345	0.77	238	0.39	1.97
NT	ZW	401	0.90	454	0.75	1.20
	BY	350	0.78	306	0.51	1.55

Distribution of corresponding words in some key Tai languages.[3]

Here the rates of high rank corresponding words (HRCW) are higher than those of low rank corresponding words (LRCW). This kind of distribution can be represented like this:
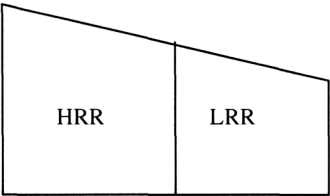
Distributional figure of corresponding words in some Tai languages.

Since we know through historical evidence that Thai, DX, DD, ZL, ZW, BY and other Tai languages are genetically related, these distributions reflect the

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[2]   Since we have been continually searching for the oldest corresponding words, the number of these words and the data about them are not always just the same as in our previous studies. If there are any differences, the forms in the *Table of Sino-Tai Corresponding Words* (below) are to be taken as our most up-to-date list.

[3]   HR sample: 446, LR sample: 605.

fact that in genetic relationship the rate of HRCW is higher than that of LRCW. This kind of distribution is the same as we have found in living language division. Thus the genetic relationship is manifested in the type of distribution of corresponding words. The "rate index" in the last column above means the rate or percentage of HRCW divided by the rate of LRCW. If the rate of HRCW is higher than the rate of LRCW, the rate index is greater than 1, otherwise it is less than 1.

We have noticed that in Thai, DX or DD, the rate index is very large, while in BY, ZL or ZW the rate index is not so large. The reason may be that ZW, ZL or BY borrowed more Chinese words than Thai, DX or DD has. As we can see in contemporary contact between Southwest Mandarin and Dai, loans are found more among the low rank words than among high rank words. If these loanwords are disregarded, the distributions more clearly reflect the genetic relationship.

2. RELATIVISTIC RANK ANALYSIS

2.1. Single relativistic rank analysis

Now suppose we didn't know whether Tai has any genetic relationship with Kam, Sui, Li or Old Chinese. Let us compare Tai with Kam, Sui, Li and Old Chinese, respectively, in order to observe the distributional difference among the corresponding words in these languages.

	HRCW	rate of HRCW	LRCW	rate of LRCW	rate index
Sino-Tai	115	0.26	318	0.53	0.49
Tai-Kam	355	0.80	440	0.73	1.09
Tai-Sui	372	0.83	422	0.70	1.20
Tai-Li	150	0.34	68	0.11	2.99

Distribution of corresponding words of Tai with Chinese, Kam, Sui and Li.[4]

Among Tai-Kam, Tai-Sui, Tai-Li, all the rates of HRCW are higher than those of LRCW, while in Sino-Tai, the rate of HRCW is lower than that of LRCW. Thus we arrive at a distributional figure of Sino-Tai CW quite different from those of Tai-Kam, Tai-Sui, Tai-Li:

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[4]   HR sample: 446, LR sample: 605.
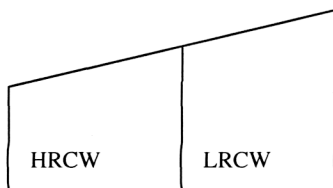
Distributional figure of Sino-Tai CW.

This kind of distribution is the same as we have observed in live contact situations between modern languages. We may conclude that the kernel consistent corresponding words we have found between Tai and Kam, Sui, Li respectively can be explained by genetic relationship, while those between Old Chinese and Tai can be explained by contact relationship.

We have noticed that the opposite distributions between Sino-Tai and Kam-Tai, Tai-Li can not be explained by the different quantity of corresponding words. In our sample, the number of corresponding words in Sino-Tai is 433, while that in Tai-Li is only 218. Therefore, the quantity of basic corresponding words is also not a sufficient condition to distinguish genetic relationship from contact relationship.

When we say that Tai has a genetic relationship with Kam, Sui and Li, we don't mean that all the corresponding words among Tai, Kam, Sui and Li are cognates. Two cases must be considered. First, some loans borrowed from proto-Chinese to Proto-Yue (the proto-language of Tai, Kam, Sui and Li) have still remained in the lexicons of Tai, Kam, Sui and Li. Second, Tai, Kam, Sui and Li have had chances to contact, resulting in some loans among them. Some of these two kinds of loans can be distinguished from true cognates by strict sound correspondence laws, but some cannot because the rules of correspondence among old loanwords can sometimes coincide with correspondence laws among true cognates. Now let's see the distribution of kernel consistent corresponding words only among Tai, Kam, Sui and Li after we get rid of words which correspond to Chinese lexical items:

	HRCW	*rate of HRCW*	*LRCW*	*rate of LRCW*	*rate index*
Tai-Kam	258	0.58	211	0.35	1.66
Tai-Sui	279	0.63	226	0.37	1.67
Tai-Li	118	0.26	42	0.07	3.81

Remnant distribution among Kam-Tai without Sino-Tai.[5]

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[5]   HR sample: 446, LR sample: 605.

After getting rid of Sino-Tai kernel consistent corresponding words, the rates of HRCW in Tai-Kam, Tai-Sui, and Tai-Li are still higher than the rate of LRCW, i.e. the rate index is still greater than 1. What is more important, the index of rank after getting rid of Sino-Tai kernel consistent corresponding words has increased:

	rate index before getting rid of Sino-Tai CW	rate index after getting rid of Sino-Tai CW
Tai-Kam	1.09	1.66
Tai-Sui	1.20	1.67
Tai-Li	2.99	3.81

Comparison of rank analysis and remnant rank analysis.[6]

This means there is a group of original genetically related words among Yue languages. After we eliminate the Sino-Tai kernel consistent corresponding words which distribute mostly in LR, the rate of HRCW among Yue languages has increased and the rate of HLCW has decreased. This situation can be represented like this:
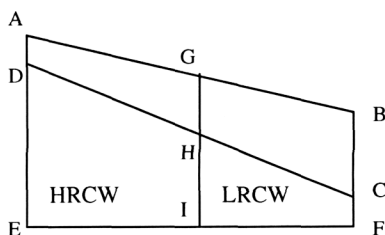
Remnant distribution figure of Yue CW after eliminating Sino-Tai CW.

As Sino-Yue CW (area ABCD) are disregarded, the ratio of HRCW to LRCW will increase. In other words, the ratio of area DHIE to area HCFI is greater than that between area AGIE and area GBFI. This situation demonstrates further that the corresponding words of Sino-Tai that we have found are loans.

Let us now examine the distribution of corresponding words within Yue after we get rid of words belonging to one branch of Kam-Tai.

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6   HR sample: 446, LR sample: 605.

	HRCW	rate of HRCW	LRCW	rate of LRCW	rate index	words removed
Tai-Li	38	0.09	19	0.03	2.71	Tai-Kam
Tai-Li	34	0.08	24	0.04	1.92	Tai-Sui
Tai-Sui	52	0.12	83	0.14	0.85	Tai-Kam
Tai-Sui	256	0.57	378	0.62	0.92	Tai-Li
Tai-Kam	35	0.08	101	0.17	0.47	Tai-Sui
Tai-Kam	243	0.54	391	0.65	0.84	Tai-Li

Distributions of corresponding words inside Yue after getting rid of corresponding words in one pair of Yue branches.[7]

This time, the situation is opposite to what we found when we eliminated Sino-Yue corresponding words. The rate index in Tai-Li has become less, the rate index in Tai-Sui or Tai-Kam has even become less than 1. All these distributions imply that Yue languages share common cognates. Once we get rid of corresponding words between any two Yue languages, the distributions of corresponding words in other Yue languages will change greatly. These relationships can also be represented diagramatically:
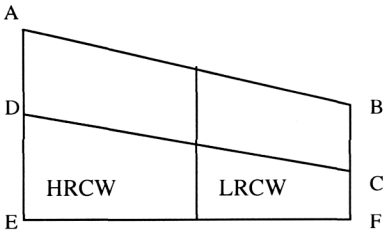
The index of rank in Tai-Li has become smaller (DCFE) after getting rid of Thai-Sui SW (ABCD).
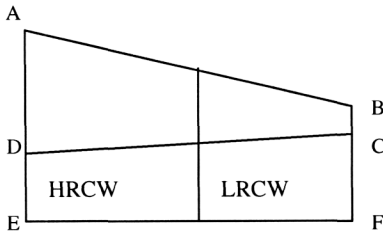
The index of rank in Tai-Sui has become even smaller than 1 (CDEF) after getting rid of Tai-Kam CW (ABCE).

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[7] HR sample: 446, LR sample: 605.

2.2. Double relativistic rank analysis

We have only classified the kernel consistent corresponding words into ranks from the Tai end. This method can be called single relativistic rank analysis. In fact, the corresponding words can also be classified from the Chinese side. If a corresponding word distributes not only in ancient Chinese texts, but also in both southern and northern Chinese dialects, it belongs to HR words of Chinese. "三, sam[1]" 'three' is such a word. Some corresponding words belonging to the high rank on the Tai side, but the low rank on the Chinese side, include: 餓 ʔjak[9]; 紺 kləm[5]; 鑊 khwak[7]; 蚰 hnɔn[1]; 拑 kəm[1]; 羕 thruŋ[1]; 特 thɯk[7]; 汋 tok[7]:

	Proto-Tai	SW	CT	NT	Chinese character	classification of sound constituents
hungry	*ʔjak[9]	jaak[9]	jaak[7]	jiik[9]	餓	影入梗開二麥
purple	*kləm[5]	klam[5]	dam[1]	tsam[5]	紺	見去咸開一勘
hue	*khwak[7]	khwaak[7]	kuuk[7]	jaak[9]	鑊	見入宕合三藥
maggot	*hnɔn[1]	nɔɔn[1]	noon[1]	noon[1]	蚰	見平臻合一魂
hold	*kəm[1]	kam[1]	kam[1]	kam[1]	拑	群平咸開三鹽
boil	*thruŋ[1]	huŋ[1]	huŋ[1]	luŋ[1]	羕	書平宕開三陽
male	*thɯk[7]	thɯk[7]	tɯk[8]	tak[8]	特	定入曾開一德
fall	*tok[7]	tok[7]	tuk[7]	tɔk[7]	汋	透入宕開一鐸

Therefore, a kernel consistent corresponding word that belongs to the high rank in one group of languages may belong to the low rank in another group of languages, and vice versa. If we want to get a more exact rank distribution of kernel consistent corresponding words between Chinese and Tai, we should classify these words both from the Tai and the Chinese sides. Similarly, if we want to get a more exact distribution of kernel consistent corresponding words between Tai and Kam-Sui, we should also classify the corresponding words both from the Tai and the Kam-Sui sides. We call this kind of analysis the double relativistic rank analysis. Each language group for double relativistic rank analysis should include enough languages or dialects to observe word distribution. Chinese, Tai and Kam-Sui meet this condition, Li does not. So let us proceed to a double relativistic rank analysis of Chinese, Tai and Kam-Sui.

In single relativistic rank analysis, the distribution of any kernel consistent corresponding word has only two possible outcomes, i.e. high or low rank. In double relativistic analysis, we face many more difficulties, because the

distribution of any corresponding word can have four possible outcomes. Tak
the Tai and Kam-Sui case as an example:

Tai HRCW / Kam-Sui HRCW   Tai LRCW / Kam-Sui HRCW
Tai HRCW / Kam-Sui LRCW   Tai LRCW / Kam-Sui LRCW

In the field of probability and statistics, the method of "chi-squar
distribution" is used to analyze the more than two distributions. Now I will us
this method to calculate the distributions of kernel consistent correspondin
words between different pairs of languages. Let's first look at patterns o
double rank distribution of corresponding words between Tai and Kam-Sui.

	Tai HRCW	*Tai LRCW*	*Sum*
Kam-Sui HRCW	318	341	659
Kam-Sui LRCW	87	184	271
Sum	405	525	930

The rank of Kam-Sui kernel consistent corresponding words is classified i
this way: if a word appears both in Kam and Sui, it belongs to the high rank
otherwise it belongs to the low rank.

The distribution above is the result of observation (abbreviated to "o"), an
it is uneven. What does this mean? By using the chi-square test we wil
compare this observed distribution based on 930 corresponding words with th
expected distribution (abbreviated to "e") based on the same 93(
corresponding words, and try to explain the two different kinds o
distributions. Let's first calculate the expected distribution of these 93(
corresponding words. The expected numbers in the four cases can b
calculated from this matrix:

	Tai HRCW	*Tai LRCW*	*Sum*
Kam-Sui HRCW	w	x	659
Kam-Sui LRCW	y	z	271
Sum	405	525	930

The result of expected numbers is:

Kam-Sui HRCW / Tai HRCW (w)	w: 405=658: 930	w=286.98
Kam-Sui HRCW / Tai LRCW (x)	x: 525=659: 930	x=372.02
Kam-Sui LRCW / Tai HRCW (y)	y: 405=271: 930	y=118.02
Kam-Sui LRCW / Tai LRCW (z)	z: 525=271:930	z=152.98

Then we can proceed to the chi-square analysis:

	o	e	o-e	(o-e)^2	((o-e)^2)/e
Kam-Sui HRCW / Tai HRCW	318.00	286.98	31.02	962.00	3.35
Kam-Sui HRCW / Tai LRCW	341.00	372.02	-31.02	962.00	2.59
Kam-Sui LRCW / Tai HRCW	87.00	118.02	-31.02	962.00	8.15
Kam-Sui LRCW / Tai LRCW	184.00	152.98	31.02	962.00	6.29
the value of chi-square					20.38

Chi-square distribution of Kam-Tai kernel consistent corresponding words.

In Kam-Sui HRCW / Tai HRCW, the observed number is greater than the expected number. This distributional difference is the key factor in explaining the original relationship, as shown by the chi-square distribution of corresponding words between Tai and Chinese:

	o	e	o-e	(o-e)^2	((o-e)^2)/e
Chinese HRCW / Tai HRCW	105.00	110.91	-5.91	34.93	0.31
Chinese HRCW / Tai LRCW	309.00	303.09	5.91	34.93	0.12
Chinese LRCW / Tai HRCW	11.00	5.09	5.91	34.93	6.86
Chinese LRCW / Tai LRCW	8.00	13.91	-5.91	34.93	2.51
the value of chi-square					9.80

Chi-square distribution of kernel consistent corresponding words in Sino-Tai.

Here in Chinese HRCW / Tai HRCW, the observed number is less than the expected number. The opposite results between Kam-Sui HRCW / Tai HRCW and Chinese HRCW / Tai HRCW are not accidental, because both in Kam-Tai and in Sino-Tai, the value of chi-square is very high, 20.38 and 9.80 respectively. In probability and statistics, the higher the value of chi-square, the lower the probability of accident. Also in probability and statistics, it is a commonly accepted convention to consider a result significant if the calculated probability is less than 0.05 and to term it highly significant if the calculated probability is less than 0.01. Here are some matches between probability and the value of chi-square:

value of chi-square	3.84	5.41	6.64	10.83
probability	0.05	0.02	0.01	0.001

Clearly, a probability of either 20.38 or 9.80 is less than 0.01. We feel confirmed in our finding that the kernel consistent corresponding words we have found so far between Tai and Kam-Sui can be explained by genetic relationship, while those between Chinese and Tai can be explained by contact relationship.

There are some problems that need to be explained. The corresponding words in Kam-Sui HRCW / Tai LRCW are 341, many more than those of Kam-Sui LRCW / Tai HRCW (87). One reason may be that Kam-Sui retains many more old Chinese loans than Tai does. The other reason may be that some branch of Tai lost more common words of Kam-Tai than Kam-Sui did, perhaps during the contact with Mon-Khmer languages, because when we get rid of Chinese loans from Yue, the corresponding words in Kam-Sui HRCW / Tai LRCW are 165, still more than those of Kam-Sui LRCW / Tai HRCW (69).

	o	e	o-e	$(o\text{-}e)^2$	$((o\text{-}e)^2)/e$
Kam-Sui HRCW / Tai HRCW	230.00	206.84	23.16	536.44	2.59
Kam-Sui HRCW / Tai LRCW	165.00	188.16	-23.16	536.44	2.85
Kam-Sui LRCW / Tai HRCW	69.00	92.16	-23.16	536.44	5.82
Kam-Sui LRCW / Tai LRCW	107.00	83.84	23.16	536.44	6.40
the value of chi-square					17.66

Chi-square distribution of Kam-Tai corresponding words after getting rid of Chinese loans.

Considering that the kernel consistent corresponding words in Kam-Sui HRCW / Tai LRCW are more numerous than those of Kam-Sui LRCW/ Tai HRCW, i.e. 184 is more than 87, or 107 is more than 69 (after getting rid of Chinese loans), Kam-Sui and Tai might have been in contact and some sound laws applying to loanwords might have merged with sound laws among cognates.

Another problem needing to be explained is, that the kernel consistent corresponding words in Chinese HRCW / Tai LRCW are 309, many more than those of Chinese LRCW / Tai HRCW, i.e. 11. This may imply that many more kernel consistent corresponding words were transferred from Chinese to Tai, rather than from Tai to Chinese. This implication is opposite to the hypothesis proposed by Benedict (1975) that most of the loans between Old Chinese and Tai were borrowed from Tai to Chinese.

3. CONCLUSION AND MORE DISCUSSION

The results we have obtained from the relativistic rank analysis is the same as that from universal rank analysis, i.e. among Yue languages, both according to universal rank analysis of sample of kernel words and according to relativistic rank analysis of samples of basic words, the rates of high rank corresponding words are higher than those of low rank corresponding words, while between Chinese and Tai, the rates of high rank corresponding words

are lower than those of low rank corresponding words. The two analyses were independently made, so the similarity of the two results cannot be explained by accident. We may say once more that the kernel consistent corresponding words we have found among Yue languages can be explained by genetic relationship, while the kernel consistent corresponding words we have found so far between Chinese and Tai can be explained by contact relationship.

Up to now, we have analyzed the distributions of kernel corresponding words and kernel consistent corresponding words. As we have observed more than once in our previous articles, words with systematic and strict correspondences are a necessary but not sufficient condition for our rank analysis. Therefore, we face three tasks in investigating original relationship among different languages:

1. Determination of corresponding words from the earliest time period
2. Determination of genetic relationship
3. Determination of cognates

These three aims have an implicative relation. If we can determine the cognates, we can also decide on the genetic relationship. If we can figure out the genetic relationship we can also decide which are the corresponding words from the earliest time period. This is not true in the opposite direction, i.e. if we can figure out the corresponding words, it doesn't mean that we can determine the genetic relationship; if we can decide on the genetic relationship, it doesn't mean that we can determine the cognates. It is the strongest claim to say a pair of words are cognates. It is a stronger claim to say two languages have genetic relationship. It is a weak claim to say that a word is a corresponding word. What we have done so far still remains in the scope of the first two aims. Can we at last get a method to tell cognates from loans? As we have seen in live contact situations between Southwest Mandarin and Dai, any word, including kernel words and basic words, can be borrowed, so it is quite difficult to arrive at a foolproof method. We may fail to reach the last aim.

A good sample of strictly corresponding words is important for us to get down to relativistic rank analysis, the stricter the corresponding words are, the more exact the results of relativistic rank analysis will be. So we face two situations:

1. As we continue our work, more and more corresponding words will be found, at the same time that more and more loans will be distinguished from our corresponding words. Our corresponding words will be more and more strict, so that the number of our corresponding words will be changing as time passes.

2. In our database, there are still many corresponding words which we failed to use in our samples for relativistic analysis because these words do not show overall correspondence or kernel consistent correspondence according to the evidence in our hands. Some day, if we get more evidence, some of these words might fit into the two corresponding conditions, then we should include them in our samples for relativistic analysis.

    According to these two new situations, the distribution of corresponding words will change. If the distribution of corresponding words has changed from HR>LR to HR<LR, or vice versa, we should report these new results.

TABLE OF SINO-TAI CORRESPONDING WORDS, ARRANGED BY TONE CLASS.

1. Method of sorting: Chinese tones + Tai tones + Chinese initials + Tai initials + Chinese finals + Tai finals.

2. The method of Tai reconstruction is based on Li Fang-kuei (1977), the method of Old Chinese reconstruction is based on Wang Li (1957). The *representative languages for SW, CT and NT are Thai, Longzhou Zhuang and Wuming Zhuang respectively. If a word is not attested in one of these* languages, another language of the same branch will be used, with the form enclosed in square brackets.

3. All the Chinese characters appear in *Shuo Wen* 《說文》 or in texts before 《說文》.

4. For comparison, Old Chinese tone classes are expressed by numbers:

陰平	陽平	陰上	陽上	陰去	陽去	陰入	陽入
1	2	3	4	5	6	7	8

	語意	漢字	等韻					上古音	中古音	原始台語	台語分布
custom	風俗	風	陰平	幫	東	合	三	pǐwəm	pǐuŋ	fuŋ¹	N
fence	籬笆	笆	陰平	幫	麻	開	二	pea	pa	fa¹	SCN
square (adj.)	方 [形容詞]	方	陰平	幫	陽	合	三	pǐwaŋ	pǐwaŋ	fuŋ¹	CN
soldier	兵	兵	陰平	幫	庚	開	三	pǐaŋ	pǐɐŋ	piŋ¹	CN
queue	辮	編	陰平	幫	仙	開	三	pǐen	pǐen	pien¹	CN
whip	鞭子	鞭	陰平	幫	仙	開	三	pǐan	pǐen	pien¹	CN
ice	冰	冰	陰平	幫	蒸	開	三	pǐəŋ	pǐəŋ	piŋ¹	C
package	包	包	陰平	幫	肴	開	二	peəu	pau	pau¹	N
collapse	倒榻	崩	陰平	幫	登	開	一	pəŋ	pəŋ	phəŋ¹	S
vehicle	車	車	陰平	昌	麻	開	三	ʈhǐa	tɕhǐa	tshe¹	CN
spring	春	春	陰平	昌	諄	合	三	ʈhǐwən	tɕhǐuĕn	tshin¹	CN
window	窗	窗	陰平	初	江	開	二	tʃheoŋ	tʃhɔŋ	tshuŋ¹	N
first	初一	初	陰平	初	魚	開	三	tʃhǐa	tʃhǐo	tshɔ¹	CN
copy	抄寫	抄	陰平	初	肴	開	二	tʃheau	tʃhau	tshau¹	N
lantern	燈	燈	陰平	端	登	開	一	təŋ	təŋ	tuŋ¹	CN
east	東	東	陰平	端	東	合	一	tuoŋ	tuŋ	toŋ¹	CN
winter	冬	冬	陰平	端	冬	合	一	tuəm	tuoŋ	toŋ¹	CN
pile	堆	堆	陰平	端	灰	合	一	tuəl	tuɒi	tɔi¹	CN
geld (v.)	閹	騬	陰平	端	魂	合	一	tuən	tuən	tɔn¹	SN
all	都	都	陰平	端	模	合	一	tua	tu	tu¹	C
nail	钉	钉	陰平	端	青	開	四	tieŋ	tieŋ	tenŋ¹	CN

maggot	蛆	蛆	陰平	見	魂	合	一	kuən	kuɑn	hnən¹	SCN
sweet	甜	甘	陰平	見	談	開	一	kam	kɑm	hwan¹	SCN
bow	弓	弓	陰平	見	東	合	三	kĭwəŋ	kĭuŋ	koŋ¹	SCN
song	歌	歌	陰平	見	歌	開	一	ka	kɑ	kɔ¹	CN
hook	鉤	鉤	陰平	見	侯	開	一	ko	kəu	kəu¹	N
street	街	街	陰平	見	佳	開	二	kee	kai	kai¹	N
vat	缸	缸	陰平	見	唐	開	一	kaŋ	kaŋ	kaŋ¹	N
steel	鋼	鋼	陰平	見	唐	開	一	kaŋ	kaŋ	kaŋ¹	SCN
catty	斤	斤	陰平	見	欣	開	三	kĭən	kĭən	kən¹	CN
kerchief	帕	巾	陰平	見	真	開	三	kĭən	kĭɛn	khun¹	SCN
shut	關閉	關	陰平	見	删	合	二	kean	kwan	klɔn¹	SCN²
melon	瓜	瓜	陰平	見	麻	合	二	koɑ	kwa	kwa¹	CN
turtle	龜	龜	陰平	見	脂	合	三	kĭwə	kwi	kwi¹	CN
punt-pole	篙子	篙	陰平	見	豪	開	一	kau	kau	xau¹	N
official	官	君	陰平	見	桓	合	一	kuan	kuɑn	xun¹	SN
ginger	薑	薑	陰平	見	陽	開	三	kĭaŋ	kĭaŋ	xin¹	SCN
pan-fry	煎	煎	陰平	精	仙	開	三	tsĭan	tsĭɛn	tsien¹	SN
store	舖	舖	陰平	滂	模	合	一	phuɑ	phu	pu¹	SCN
waft	飄	飄	陰平	滂	宵	開	三	phĭau	phĭɛu	pliu¹	SN
scallion	葱	葱	陰平	清	東	合	一	tshuoŋ	tshuŋ	tshuŋ¹	CN
smart	聰	聰	陰平	清	東	合	一	tshuoŋ	tshuŋ	tshuŋ¹	CN
coarse	粗	粗	陰平	清	模	合	一	tshuɑ	tshu	tshɔ¹	CN
granary	糧倉	倉	陰平	清	唐	開	一	tshaŋ	tshaŋ	tshaŋ¹	SCN
autumn	秋	秋	陰平	清	尤	開	三	tshĭəu	tshĭəu	tshĭəu¹	CN
birth	生育	生	陰平	山	庚	開	二	ʃeeŋ	ʃɐŋ	seŋ¹	N
sand	沙子	沙	陰平	山	麻	開	二	ʃea	ʃa	sa¹	N
teacher	老師	師	陰平	山	脂	開	三	ʃĭei	ʃi	səi¹	CN
sound	聲音	聲	陰平	書	清	開	三	ɕĭeŋ	ɕĭeŋ	seŋ¹	SCN
wound (n.)	傷	傷	陰平	書	陽	開	三	ɕĭaŋ	ɕĭaŋ	sieŋ¹	N
receive	收	收	陰平	書	尤	開	三	ɕĭəu	ɕĭəu	sĭəu¹	CN
boil (v.)	煮	羔	陰平	書	陽	開	三	ɕĭaŋ	ɕĭaŋ	thruŋ¹	SCN
s/he, it	他	他	陰平	透	歌	開	一	tha	thɑ	te¹	N
swallow	吞	吞	陰平	透	痕	開	一	thən	thən	tən¹	N
soup	湯	湯	陰平	透	唐	開	一	thaŋ	thaŋ	tha:ŋ¹	SCN
add	加	添	陰平	透	添	開	四	thiam	thiem	them¹	SCN
bloom (v.)	開花	開	陰平	溪	咍	開	一	khəi	khɒi	khai¹	CN
empty	空	空	陰平	溪	東	合	一	khuoŋ	khuŋ	klɔŋ¹	SN
pull	拉	牽	陰平	溪	先	開	四	khien	khien	xen¹	SCN
open	開	開	陰平	溪	咍	開	一	khəi	khɒi	xəi¹	SCN²
ash	石灰	灰	陰平	曉	灰	合	一	xuə	xuɒi	hɔi¹	CN
blurry	花 (眼-)	花	陰平	曉	麻	合	二	xoɑ	xwa	hwa¹	N
west	西	西	陰平	心	齊	開	四	siei	siei	səi¹	CN

heart	心	心	陰平	心	侵	開	三	sĭəm	sĭĕm	sim^1	CN
fishy	腥	腥	陰平	心	青	開	四	sieŋ	sieŋ	siŋ^1	N
three	三	三	陰平	心	談	開	一	sɑm	sɑm	sam^1	SCN
silk	絲	絲	陰平	心	之	開	三	sĭə	sĭə	si^1	N
saddle	鞍	鞍	陰平	影	寒	開	一	ʔan	ʔan	ʔan^1	SCN
rely	依	依	陰平	影	微	開	三	ʔĭəi	ʔĭəi	ʔi^1	N
take	拿	要	陰平	影	宵	開	三	ʔĭau	ʔĭeu	ʔəu^1	SCN
waist	腰	腰	陰平	影	宵	開	三	ʔĭau	ʔĭeu	ʔeu^1	SN
smoke	煙	煙	陰平	影	先	開	四	ʔien	ʔien	ʔjien^1	CN
castrate	閹	閹	陰平	影	鹽	開	三	ʔĭam	ʔĭem	ʔjiem^1	CN
curved	彎	彎	陰平	影	刪	合	二	ʔoan	ʔwan	hwan^1	N
straight	正	正	陰平	章	清	開	三	ȶĭɛn	tɕĭɛn	tsen^1	SCN
brick	磚	磚	陰平	章	仙	合	三	ȶĭwan	tɕĭwen	tsin^1	N
true	真	真	陰平	章	真	開	三	ȶien	tɕĭĕn	tsən^1	CN
steam (v.)	蒸	蒸	陰平	章	蒸	開	三	ȶĭəŋ	tɕĭəŋ	tsəŋ^1	C
clock	鐘	鐘	陰平	章	鍾	合	三	ȶĭwoŋ	tɕĭwoŋ	tsuŋ^1	C
sickle	鐮刀	鉤	陰平	見	侯	開	一	ko	kəu	giau^2	SCN
curved	彎	鉤	陰平	見	侯	開	一	ko	kəu	go^2	CN
yoke	枷鎖	枷	陰平	見	麻	開	二	kea	ka	ga^2	SN
gold	金	金	陰平	見	侵	開	三	kĭəm	kĭĕm	ɣəm^2	SC^{3}N^{13}
box	箱	箱	陰平	心	陽	開	三	sĭaŋ	sĭaŋ	suɐŋ^2	C
brace	撐	撐	陰平	徹	庚	開	二	theaŋ	ȶheŋ	tsheŋ^3	N
scramble for	爭搶	搶	陰平	清	陽	開	三	tshĭaŋ	tshĭaŋ	tshuɐŋ^3	CN
creek	溪	溪	陰平	溪	齊	開	四	khie	khiei	xruəi^3	SCN
aunt (patern.)	姑	姑	陰平	見	模	合	一	kua	ku	ku^5	C
chicken	雞	雞	陰平	見	齊	開	四	kie	kiei	kəi^5	SCN
hard	硬	堅	陰平	見	先	開	四	kien	kien	ken^5	SN
foam	泡沫	泡	陰平	滂	肴	開	二	pheəu	phau	pok^7	SN
seam	縫	縫	陽平	並	鍾	合	三	bĭwoŋ	bĭwoŋ	fuŋ^1	SNC
rake	耙	杷	陽平	並	麻	開	二	bea	ba	phə^1	SCN
sink (v.)	沉	沉	陽平	澄	侵	開	三	ȡĭəm	ȡĭĕm	tsom^1	SN
long timed	久	長	陽平	澄	陽	開	三	ȡĭaŋ	ȡĭaŋ	huɯŋ^1	
hole, pit	坑	塘	陽平	定	唐	開	一	daŋ	daŋ	thaŋ^1	S
thunder	雷	雷	陽平	來	灰	合	一	luəi	luɐi	lɔi^1	C
pus	膿	膿	陽平	泥	冬	合	一	nuəm	nuoŋ	hnɔŋ^1	SCN
paste (v.)	粘，粘貼	黏	陽平	泥	鹽	開	三	nĭam	nĭem	hnem^1	CN
pick up	拿	拈	陽平	群	鹽	開	三	gĭam	gĭem	kəm^1	SCN
eggplant	茄子	茄	陽平	群	戈	開	三	gĭa	gĭa	khuɐ^1	SCN
hold in mouth	含	含	陽平	匣	覃	開	一	ɣəm	ɣɒm	ʔom^1	SN^3
big	大	宏	陽平	匣	耕	合	二	ɣoŋ	ɣwæŋ	hluɐŋ^1	SCN
horizontal	橫	橫	陽平	匣	庚	合	二	ɣoaŋ	ɣwɐŋ	xwaŋ^1	SCN
soul	魂魄	魂	陽平	匣	魂	合	一	ɣuən	ɣuən	xwən^1	SCN

friend	朋	朋	陽平	並	登	開	一	bəŋ	bəŋ	bəŋ²	CN
shed	棚	棚	陽平	並	登	開	一	bəŋ	bəŋ	buŋ²	N
flat, even	平	平	陽平	並	庚	開	三	bĭeŋ	bĭɛŋ	beŋ²	
platter	盤子	盤	陽平	並	桓	合	一	buan	buɑn	ban²	SCN
coil	盤繞	盤	陽平	並	桓	合	一	buan	buɑn	bun²	SN
basin	盆	盆	陽平	並	魂	合	一	buən	buən	bun²	CN
vase	瓶	瓶	陽平	並	青	開	四	bieŋ	bieŋ	biŋ²	CN
fat (adj.)	胖	肥	陽平	並	微	合	三	bĭwəi	bĭwəi	bi²	SCN
duckweed	浮萍	藻	陽平	並	宵	開	三	bĭau	bĭɛu	biau²	N
tomb	墳	墳	陽平	並	文	合	三	bĭwən	bĭuən	vən²	C
float	浮	浮	陽平	並	尤	開	三	bĭəu	bĭəu	vu²	SCN
city	城	城	陽平	禪	清	開	三	ʑĭeŋ	ʑĭɛŋ	dzeŋ²	SCN
time	時	時	陽平	禪	之	開	三	ʑĭə	ʑĭə	zi²	CN
tea	茶	茶	陽平	澄	麻	開	二	dɛɑ	ɖa	dza²	SCN
hammer	錘	錘	陽平	澄	支	合	三	dĭwa	ɖĭwe	dzui²	CN
be late	遲	遲	陽平	澄	脂	開	三	dĭei	ɖi	dzi²	C
bed	牀	牀	陽平	崇	陽	開	三	dʒĭaŋ	dʒĭaŋ	zɔŋ²	CN
money	錢	錢	陽平	從	仙	開	三	dzĭan	dzĭen	dzien²	CN
wall	牆	牆	陽平	從	陽	開	三	dzĭaŋ	dzĭaŋ	dzieŋ²	CN
copper	銅	銅	陽平	定	東	合	一	duoŋ	duŋ		N
copper	銅	銅	陽平	定	東	合	一	duoŋ	duŋ	dɔŋ²	SCN
bucket	桶	筒	陽平	定	東	合	一	duoŋ	duŋ	duŋ²	S
measuring weight	稱砣	砣	陽平	定	戈	合	一	dua	suɑ	do²	N
peach tree	桃樹	桃	陽平	定	豪	開	一	dau	dɑu	dau²	N
escape	逃	逃	陽平	定	豪	開	一	dau	dɑu	deu²	N
coat (v.)	塗	塗	陽平	定	模	合	一	duɑ	du	da²	SC
sweet	甜	甜	陽平	定	添	開	四	diam	diem	diem²	N
line	條	條	陽平	定	蕭	開	四	dĭəu	dieu	dɛu²	CN
pond	池塘	潭	陽平	定	覃	開	一	dəm	dɒm	dəm²	C²³N
lg. bamboo basket	籮筐	籮	陽平	來	歌	開	一	la	lɑ	la²	N
block way	攔	欄	陽平	來	寒	開	一	lan	lɑn	lan²	N
building	樓	樓	陽平	來	侯	開	一	lo	ləu	ləu²	N
drip	淋	淋	陽平	來	侵	開	三	lĭəm	lĭɛm	ləm²	C
zero	零	零	陽平	來	青	開	四	lieŋ	lieŋ	liŋ²	CN
blue/indigo	藍	藍	陽平	來	談	開	一	lam	lɑm	lam²	CN
wolf	狼	狼	陽平	來	唐	開	一	laŋ	lɑŋ	laŋ²	C
sickle	鐮刀	鐮	陽平	來	鹽	開	三	lĭam	lĭɛm	liem²	CN
cool (adj.)	涼	涼	陽平	來	陽	開	三	lĭaŋ	lĭaŋ	luɛŋ²	C²N
house-beam	梁	梁	陽平	來	陽	開	三	lĭaŋ	lĭaŋ	luɛŋ²	CN
depart	離開	離	陽平	來	支	開	三	lĭa	lĭe	li²	SN

pear tree	梨樹	梨	陽平	來	脂	開	三	lĭei	li	li²	N
dragon	龍	龍	陽平	來	鍾	合	三	lĭwoŋ	lĭwoŋ	luŋ²	CN
grind/whet	磨	磨	陽平	明	戈	合	一	mua	muɑ	mu²	N
bright	明	明	陽平	明	庚	開	三	mĭaŋ	mĭeŋ	miŋ²	CN
matchmaker	媒人	媒	陽平	明	灰	合	一	muə	muɒi	mɔi²	N
forename	名	名	陽平	明	清	開	三	mĭen	mĭeŋ	miŋ²	CN
cat	猫	猫	陽平	明	宵	開	三	mĭau	mĭeu	meu²	SC³N
insect	蟲	虹	陽平	明	庚	開	二	meaŋ	mɐŋ	ml/rɛŋ²	SCN
be able	能	能	陽平	泥	登	開	一	nə	nəŋ	nəŋ²	N
be difficult	難	難	陽平	泥	寒	開	一	nan	nɑn	nan²	CN
south	南	南	陽平	泥	覃	開	一	nəm	nɒm	nam²	CN
bridge	橋	橋	陽平	群	宵	開	三	gĭau	gĭeu	giu²	CN
tongs	鉗	鉗	陽平	群	鹽	開	三	gĭam	gĭem	gim²	SCN
fin (fish)	魚鰭	鰭	陽平	群	脂	開	三	gĭei	gi	gi²	N
banner	旗	旗	陽平	群	之	開	三	gĭə	gĭə	gi²	CN
salty	鹹	鹹	陽平	匣	咸	開	二	ɣeəm	ɣɐm	gem²	SC
rainbow	虹	虹	陽平	匣	東	合	一	ɣuoŋ	ɣuŋ	ɣuŋ²	S
shoe	鞋	鞋	陽平	匣	佳	開	二	ɣee	ɣai	ɣai²	CN
pine tree	松樹	松	陽平	邪	鍾	合	三	zĭwoŋ	zĭwoŋ	dzuŋ²	CN
sprout	芽	芽	陽平	疑	麻	開	二	ŋea	ŋa	ŋa²	N
ivory	象牙	牙	陽平	疑	麻	開	二	ŋea	ŋa	ŋa²	SCN
cattle	黃牛	牛	陽平	疑	尤	開	三	ŋĭə	ŋĭeu	ŋue²	SC
silver	銀子	銀	陽平	疑	真	開	三	ŋĭən	ŋĭĕn	ŋən²	SCN
melt	融化	融	陽平	余	東	合	三	ʎĭwəm	jĭuŋ	juŋ²	N
sheep	羊	羊	陽平	余	陽	開	三	ʎĭaŋ	jĭaŋ	jieŋ²	N
swim	游	游	陽平	余	尤	開	三	ʎĭəu	jĭeu	ju²	N
oil	油	油	陽平	余	尤	開	三	ʎĭəu	jĭeu	ɲu²	CN
rock (v.)	搖	搖	陽平	余	宵	開	三	ʎĭau	jĭeu	ŋau²	CN
win (v.)	贏	贏	陽平	余	清	開	三	ʎĭeŋ	jĭeŋ	ɣiŋ²	CN
overflow (v.)	溢出	溢	陽平	並	魂	合	一	buən	buən	ʔbən⁴	C
platform	壇子	壇	陽平	定	寒	開	一	dan	dɑn	dəm⁴	S
basket	籠	牢	陽平	來	豪	開	一	ləu	lɑu	lau⁴	S
diligent	勤快	勤	陽平	群	欣	開	三	gĭən	gĭən	gən⁴	CN
powder	粉	粉	陰上	幫	吻	合	三	pĭwən	pĭuən	fən³	CN
axe	斧	斧	陰上	幫	麌	合	三	pĭwo	pĭu	fu³	CN
board	板子	板	陰上	幫	潸	開	二	pean	pan	pɛn³	S
shovel	鏟子	鏟	陰上	初	產	開	二	tʃhean	tʃhæn	tshan³	N
stir-fry	炒	炒	陰上	初	巧	開	二	tʃheo	tʃhau	tsheu³	CN
wait	等	等	陰上	端	等	開	一	təŋ	təŋ	təŋ³	C
courage	膽量	膽	陰上	端	敢	開	一	tam	tɑm	tam³	CN
peck (meas.)	斗	斗	陰上	端	厚	開	一	to	təu	to³	CN
bottom	下面	底	陰上	端	薺	開	四	tiei	tiei	te³	SC

point	點	點	陰上	端	忝	開	四	tiam	tiem	tiem³	CN
select	揀	揀	陰上	見	產	開	二	kean	kæn	ken³	N
dare	敢	敢	陰上	見	敢	開	一	kam	kɑm	kam³	CN
change	改	改	陰上	見	海	開	一	kə	kɒi	ke³	C
stem, stalk	莖	稈	陰上	見	旱	開	一	kan	kɑn	kan³	SCN
tube	管	管	陰上	見	緩	合	一	kuan	kuɑn	kun³	N
twine (v.)	纏繞	絞	陰上	見	巧	開	二	keau	kau	kiau³	SCN
(how) many	幾	幾	陰上	見	尾	開	三	kĭəi	kĭəi	ki³	SCN
loosen	解	解	陰上	見	蟹	開	二	keek	kai	kɛ³	SCN
nine	九	九	陰上	見	有	開	三	kĭəu	kĭəu	kĭəu³	SCN
subtract	減	減	陰上	見	賺	開	二	keəm	kɐm	kem³	N
tight	緊	緊	陰上	見	軫	開	三	kĭen	kĭěn	khɛn³	SN
speak	講	講	陰上	見	講	開	二	keoŋ	kɔŋ	kla:ŋ³	CN
false	假	假	陰上	見	馬	開	二	keɑ	ka	kla³	CN
broad	寬	廣	陰上	見	蕩	合	一	kuaŋ	kuɑŋ	kwaŋ³	SCN³
well	井	井	陰上	精	靜	開	三	tsĭeŋ	tsĭeŋ	tsiŋ³	CN
date tree	棗樹	棗	陰上	精	皓	開	一	tsəu	tsɑu	tsau³	N
liquor	酒	酒	陰上	精	有	開	三	tsĭəu	tsĭəu	hləu³	SCN
be few	少	少	陰上	書	小	開	三	çĭau	çĭeu	siu³	N
rinse (v.)	清洗	水	陰上	書	旨	合	三	çĭwəi	çwi	suai³	SCN
head	頭	首	陰上	書	有	開	三	çĭəu	çĭəu	thrəu³	SCN
bucket	桶	桶	陰上	透	董	合	一	thuoŋ	thuŋ	thuŋ³	CN
poor	窮	苦	陰上	溪	姥	合	一	khuɑ	khu	kho³	CN
sea	海	海	陰上	曉	海	開	一	xə	xɒi	hai³	CN
lock	鎖	鎖	陰上	心	果	合	一	sua	suɑ	sa³	C
write	寫	寫	陰上	心	馬	開	三	sĭa	sĭa	se³	CN
think, want	想	想	陰上	心	養	開	三	sĭaŋ	sĭaŋ	suɛŋ³	CN
awaken	醒	醒	陰上	心	迥	開	四	sieŋ	sieŋ	siŋ³	C
sister-in-law	嫂	嫂	陰上	心	皓	開	一	səu	sau	sau³	CN
chair	椅	倚	陰上	影	紙	開	三	ʔĭa	ʔĭe	ʔi³	CN
boil (v.)	煮	煮	陰上	章	語	開	三	ʈĭa	tçĭo	tsu³	CN
paper	紙	紙	陰上	章	紙	開	三	ʈĭe	tçĭe	tsi³	S²CN
host	主人	主	陰上	章	麌	合	三	ʈĭwo	tçĭu	tsĭəu³	SCN
arch (v.)	拱	拱	陰上	見	腫	合	三	kĭwoŋ	kĭwoŋ	koŋ⁵	S
cry out	喊	喊	陰上	曉	敢	開	一	xəm	xɑm	xem⁵	N
scatter	散開	散	陰上	心	旱	開	一	san	sɑn	san⁵	SCN
bowl	碗	碗	陰上	影	緩	合	一	ʔuan	ʔuɑn	hwan⁵	S
broom	帚	帚	陰上	章	有	開	三	ʈĭəu	tçĭəu	sau⁵	N
grotto	岩洞	窨	陽上	定	感	開	一	dam	dɒm	thəm³	SN
(cross)bow	弓	弩	陽上	泥	姥	合	一	nuɑ	nu	hna³	SCN
that	那	那	陽上	泥	哿	開	一	na	nɑ	hna³	S
flatten	碾	碾	陽上	泥	獮	開	三	nĭan	nĭen	hn/hnɛn³	N

English											
five	五	五	陽上	疑	姥	合	一	ŋuɑ	ŋu	ha³	SCN
old	老	老	陽上	來	皓	開	一	ləu	lɑu	lau⁴	N
finish (v.)	完	了	陽上	來	彼	開	四	liau	lieu	lɛu⁴	SN
willow tree	柳樹	柳	陽上	來	有	開	三	lĭəu	lĭəu	ljəu⁴	CN
hectare	畝	畝	陽上	明	厚	開	一	mə	məu	mĭəu⁴	CN
horse	馬	馬	陽上	明	馬	開	二	mea	ma	ma⁴	SCN
net	網	網	陽上	明	養	合	三	mĭwaŋ	mĭwaŋ	mɔŋ⁴	N
uncle (maternal)	舅	舅	陽上	群	有	開	三	gĭəu	gĭəu	gau⁴	C
dye (v.)	染	染	陽上	日	琰	開	三	ȵiam	ȵiem	nʑɔm⁴	SCN
endure	忍	忍	陽上	日	軫	開	三	ȵĭən	ȵĭěn	nən⁴	N
threshold	門檻	檻	陽上	匣	檻	開	二	ɣeam	ɣam	kliem⁴	N
elephant	象	象	陽上	邪	養	開	三	zĭaŋ	zĭaŋ	dzaŋ⁴	SCN
lotus root	藕	藕	陽上	疑	厚	開	一	ŋo	ŋəu	ŋəu⁴	SN
father	父親	父	陽上	並	麌	合	三	bĭwa	bĭu	bɔ⁶	SCN
be	是的	是	陽上	禪	紙	開	三	ʑie	ʑie	dzeɯ⁶	SCN
kneel	跪	跪	陽上	群	紙	合	三	gĭa	gĭwe	gwi⁶	CN
you (sg.)	你	尔	陽上	日	紙	開	三	ȵĭei	ȵie	ni⁶	C
kernel	仁儿	蕊	陽上	日	紙	合	三	ȵĭwa	ȵĭwe	nɯi⁶	N
I	我	我	陽上	疑	哿	開	一	ŋa	ŋa	ŋɔ⁶	C
also	也	也	陽上	余	馬	開	三	ʎia	jia	je⁶	CN
come	來	到	陰去	端	號	開	一	tau	tɑu	təu³	SN
story	故事	故	陰去	見	暮	合	一	kuɑ	ku	kɔ³	N
see	看	覩	陰去	見	遇	合	三	kĭwo	kĭu	kəu³	N
seedling	苗	稼	陰去	見	--	開	二	kea	ka	kla³	SCN
platform	壇子	甕	陰去	影	送	合	一	ʔuoŋ	ʔuŋ	ʔaŋ³	N
manure	糞	糞	陰去	幫	問	合	三	pĭwən	pĭuən	fun⁵	SN³
rich	富	富	陰去	幫	宥	開	三	pĭə:k	pĭəu	fu⁵	N
tell, inform	告訴	報	陰去	幫	號	開	一	pəu	pɑu	pau⁵	SCN
half	半	半	陰去	幫	換	合	一	puan	puɑn	pɔn⁵	CN
leopard	豹	豹	陰去	幫	效	開	二	pea:uk	pau	phau⁵	CN
change	變	變	陰去	幫	線	開	三	pĭan	pĭɛn	plien⁵	SCN
song	歌	唱	陰去	昌	漾	開	三	ʨʰĭaŋ	tɕʰĭaŋ	tshjɯeŋ⁵	CN
agree	齊	對	陰去	端	隊	合	一	tuə:t	tuɒi	tɔi⁵	N
pair	對,雙	對	陰去	端	隊	合	一	tuə:t	tuɒi	tɔi⁵	N
face (v.)	對著	對	陰去	端	隊	合	一	tuə:t	tuɒi	tɔi⁵	N
be correct	正確	對	陰去	端	隊	合	一	tuə:t	tuɒi	tɔi⁵	N
be certain	確	確	陰去	端	隊	合	一	tuəi	tuɒi	tɔi⁵	N
topple	倒	倒	陰去	端	號	開	一	tau	tɑu	tau⁵	N
break	斷	斷	陰去	端	換	合	一	tuan	tuɑn	tɔn⁵	N
lead, guide	帶領	帶	陰去	端	泰	開	一	ta:t	tɑi	tai⁵	N
hang	吊	吊	陰去	端	嘯	開	四	tiau	tieu	tiu⁵	N
underneath	底下	墊	陰去	端		開	四	tiəm	tiem	təm⁵	S

jar	罐子	罐	陰去	見	換	合	一	kuan	kuɑn	kun⁵	N
pour, irrigate	灌	灌	陰去	見	換	合	一	kuan	kuɑn	kun⁵	N
prohibit	禁	禁	陰去	見	沁	開	三	kĭəm	kĭɐm	kim⁵	N
mirror	鏡子	鏡	陰去	見	映	開	三	kĭaŋ	kĭɐŋ	kiŋ⁵	CN
saw (n.)	鋸	鋸	陰去	見	御	開	三	kĭa	kĭo	ku⁵	CN
remember	記	記	陰去	見	志	開	三	kĭə	kĭə	ki⁵	CN
tell	告訴	告	陰去	見	號	開	一	kə:uk	kɑu	klau⁵	S
purple	紫	紺	陰去	見	勘	開	一	kam	kɒm	kləm⁵	SCN
straightsword	劍	劍	陰去	見	梵	合	三	kĭwam	kĭwɐm	kliem⁵	N
strange	怪	怪	陰去	見	怪	合	二	koə	kwɐi	kwai⁵	N
pass by	經過	過	陰去	見	過	合	一	kua	kuɑ	kwa⁵	CN
marry (of a woman)	嫁	嫁	陰去	見	禡	開	二	keɑ	ka	xa⁵	SCN
again	再	再	陰去	精	代	開	一	tsə	tsɒi	tsai⁵	CN
arrow	箭	箭	陰去	精	線	開	三	dzĭan	tsĭen	tsien⁵	N
borrow/lend	借	借	陰去	精	禡	開	三	tsĭa:k	tsĭa	tse⁵	SN
stove	灶	灶	陰去	精	號	開	一	tsəu:k	tsɑu	səu⁵	S
hack	劈	破	陰去	滂	過	合	一	phua	phuɑ	pha⁵	SCN
piece	块,片	片	陰去	滂	霰	開	四	phian	phien	phen⁵	SCN
tax	稅	稅	陰去	書	祭	合	三	çĭwa:t	çĭwei	suəi⁵	S
hear, listen	聽	聽	陰去	透	徑	開	四	thieŋ	thieŋ	tiŋ⁵	CN
shave	剃	剃	陰去	透	霽	開	四	thiei	thiei	təi⁵	CN
replace	替	替	陰去	透	霽	開	四	thie:t	thiei	ti⁵	N
retreat	退	退	陰去	透	隊	合	一	thuə:t	thuɒi	thɔi⁵	S³CN
charcoal	木炭	炭	陰去	透	翰	開	一	than	thɑn	than⁵	SCN
rabbit	兔	兔	陰去	透	暮	合	一	thua	thu	thɔ⁵	CN
jump	跳	跳	陰去	透	嘯	開	四	thiau	thieu	thiu⁵	CN
rely	靠	靠	陰去	溪	號	開	一	khə:uk	khɑu	khəu⁵	C
heated bed	炕	炕	陰去	溪	宕	開	一	khaŋ	khɑŋ	khaŋ⁵	CN
fast	快	快	陰去	溪	夬	合	二	khoa:t	khwæi	xwai⁵	SCN
drama	戲	戲	陰去	曉	寘	開	三	xĭa	xĭe	xi⁵	N
garlic	蒜	蒜	陰去	心	換	合	一	suan	suɑn	sun⁵	CN
calculate	算	算	陰去	心	換	合	一	suan	suɑn	sun⁵	CN
temperament, nature	脾氣	性	陰去	心	勁	開	三	sĭeŋ	sĭɛŋ	siŋ⁵	N
surname	姓	姓	陰去	心	勁	開	三	sĭeŋ	sĭɛŋ	siŋ⁵	N
send	送	送	陰去	心	送	合	一	suoŋ	suŋ	soŋ⁵	SCN
believe	相信	信	陰去	心	震	開	三	sĭen	sĭĕn	sin⁵	CN
letter (epistle)	書信	信	陰去	心	震	開	三	sĭen	sĭĕn	sin⁵	CN
four	四	四	陰去	心	至	開	三	sĭe:t	si	si⁵	SCN
embroider	繡	繡	陰去	心	宥	開	三	sĭəu	sĭəu	siu⁵	SCN
fine, thin	細	細	陰去	心	霽	開	四	siei	siei	səi⁵	CN
love	愛	愛	陰去	影	代	開	一	ʔə:t	ʔɒi	ʔai⁵	C

gloss			tone				div	form 1	form 2	form 3	code
swallow (n.)	燕	燕	陰去	影	霰	開	四	ʔian	ʔien	ʔɛn^5	SCN
correct	正	正	陰去	章	勁	開	三	tĭeŋ	tɕĭeŋ	tsiŋ^5	CN
tremble	發抖	顫	陰去	章	線	開	三	tĭan	tɕĭen	sən^5	SCN
hit (a mark)	中	中	陰去	知	送	合	三	tĭwəm	ʈuŋ	tsuŋ^5	C
mosquito net	蚊帳	帳	陰去	知	漾	開	三	tĭaŋ	ʈĭaŋ	tsɯen^5	C
cloth	布	布	陰去	幫	暮	合	一	pua	pu	bu^6	N
nail	釘	釘	陰去	端	徑	開	四	tieŋ	tieŋ	diŋ^6	SN^3
pillar	棟	棟	陰去	端	送	合	一	tuoŋ	tuŋ	dɔŋ^6	N
dear, expensive	貴	價	陰去	見	禡	開	二	kea	ka	ga^6	SCN
call	叫	叫	陰去	見	嘯	開	四	kiəu	kieu	hjeu^6	N
mustard green	芥菜	芥	陰去	見	怪	開	二	kea:t	kɐi	kat^7	SN
be near	近	比	陽去	並	至	開	三	bĭei	bi	phjai^5	S
bean	豆子	豆	陽去	定	候	開	一	do	dəu	thue^5	SCN^3
10,000	万	万	陽去	明	願	合	三	mĭwan	mĭwɐn	hmɯn^5	S
old (of things)	舊	舊	陽去	群	宥	開	三	gĭə	gĭəu	kəu^5	SCN
hate	恨	恨	陽去	匣	恨	開	一	ɣən	ɣən	xon^5	N
kind, type	種類	樣	陽去	余	漾	開	三	ʎĭaŋ	jĭaŋ	ʔjaŋ^5	SCN
illness	病	病	陽去	並	映	開	三	bĭaŋ	bĭeŋ	beŋ^6	CN
2 sided comb	箆子	箆	陽去	並	至	開	三	bĭei	bi	bəi^6	N
matter, affair	事情	事	陽去	崇	志	開	三	dʒĭə	dʒĭə	zəi^6	CN
clean	乾淨	淨	陽去	從	勁	開	三	dzĭeŋ	dzĭeŋ	dziŋ^6	N
carpenter	匠	匠	陽去	從	漾	開	三	dzĭaŋ	dzĭaŋ	dzaŋ^6	SCN
name	名字	字	陽去	從	志	開	三	dzĭə	dzĭə	dzu^6	SCN
accomplish	就	就	陽去	從	宥	開	三	dzĭəu	dzĭəu	dzĭəu^6	C
joint	節	段	陽去	定	換	合	一	duan	duan	dɔn^6	SCN
ford (v.)	渡	渡	陽去	定	暮	合	一	dua:k	du	da^6	SCN
earth, ground	地	地	陽去	定	至	開	三	dĭa	di	di^6	CN
inflammation	淡	淡	陽去	定	闞	開	一	dam	dam	dam^6	N
chaos	亂	亂	陽去	來	換	合	一	luan	luan	lun^6	N
road	路	路	陽去	來	暮	合	一	lua:k	lu	lo^6	CN
rely	賴(-人)	賴	陽去	來	泰	開	一	la:t	lɑi	lai^6	N
grindstone, mill	磨	磨	陽去	明	過	合	一	mua	mua	mu^6	CN
hat	帽子	帽	陽去	明	號	開	一	məu	mau	mau^6	CN
grave	墓	墓	陽去	明	暮	合	一	mua:k	mu	mɔ^6	CN
slow	慢	慢	陽去	明	諫	開	二	mean	man	man^6	CN
trouble (v.)	鬧	鬧	陽去	泥	效	開	二	neau	nau	nau^6	N
palanquin	轎子	轎	陽去	群	笑	開	三	gĭau	gĭeu	giu^6	N
two	二	二	陽去	日	至	開	三	ȵĭei	ʐi	ni^6	SCN
be broken	壞	壞	陽去	匣	怪	開	二	ɣoəi	ɣwɐi	wai^6	CN
picture	畫	畫	陽去	匣	卦	開	二	ɣɒe:k	ɣwəi	we^6	N
speak	說	話	陽去	匣	夬	合	二	ɣoa:t	ɣwæi	wa^6	SCN
sweat	汗	汗	陽去	匣	翰	開	一	ɣan	ɣan	ɣan^6	N

neck	脛	脛	陽去	匣	徑	開	四	ɣieŋ	ɣieŋ	ɣɛŋ⁶	SCN
delay	耽誤	誤	陽去	疑	暮	合	一	ŋua	ŋu	ŋu⁶	N
mugwort	艾	艾	陽去	疑	泰	開	一	ŋaːt	ŋai	ŋai⁶	N
use	用	用	陽去	余	用	合	三	ʎĭwoŋ	jĭwoŋ	juŋ⁶	CN
eagle	鷹	鵰	陽去	余	笑	開	三	ʎĭau	jĭeu	nĭəu⁶	SN
drop, fall	掉	掉	陽去	定	嘯	開	四	diaːuk	dieu	tok⁷	SCN
north	北	北	陰入	幫	德	開	一	pək	pək	pək⁷	CN
foot (meas.)	尺	尺	陰入	昌	昔	開	三	ʈhĭak	tɕhĭek	tshik⁷	CN
take apart	拆	拆	陰入	徹	陌	開	二	theak	ʈhɐk	tshek⁷	N
stick into	插	插	陰入	初	洽	開	二	tʃheap	tʃhɐp	tshap⁷	SCN
hang a canopy	搭棚	搭	陰入	端	合	開	一	təp	tɒp	tap⁷	N
take (transportation)	搭(-車)	搭	陰入	端	合	開	一	təp	tɒp	tap⁷	N
squeeze	夾	夾	陰入	見	洽	開	二	keap	kɐp	hnɐp⁷	SN
country	國	國	陰入	見	德	合	一	kuək	kuək	kuk⁷	CN
pigeon	鴿	鴿	陰入	見	合	開	一	kəp	kɒp	kap⁷	CN
horn	角	角	陰入	見	覺	開	二	keok	kɔk	kɔk⁷	C
be separated by	隔	隔	陰入	見	麥	開	二	keek	kæk	kek⁷	N
freeze	結冰	結	陰入	見	屑	開	四	kiet	kiet	kiet⁷	SCN
spade	鋤頭	钁	陰入	見	藥	合	三	kĭwak	kĭwak	khwak⁷	SC²N
tortoise shell	龜甲	甲	陰入	見	狎	開	二	keap	kap	klap⁷	CN¹
receive	接	接	陰入	精	葉	開	三	tsĭap	tsĭep	tsip⁷	N
slap	拍	拍	陰入	滂	陌	開	二	pheak	phɐk	phak⁷	N
chop	劈	劈	陰入	滂	錫	開	四	phiek	phiek	phik⁷	C
seven	七	七	陰入	清	質	開	三	tshĭet	tshĭɐt	tset⁷	SCN
lacquer	漆	漆	陰入	清	質	開	三	tshĭet	tshĭɐt	tshit⁷	CN
uncle (patern., yngr.)	叔	叔	陰入	書	屋	合	三	ɕĭwəuk	ɕĭuk	ɕuk⁷	CN
iron	鐵	鐵	陰入	透	屑	開	四	thiet	thiet	tiet⁷	N
drop, fall	掉	沰	陰入	透	鐸	開	一	thak	thak	tok⁷	SCN
take off	脫	脫	陰入	透	末	合	一	thuat	thuɑt	thɔt⁷	N
paste (v.)	貼	貼	陰入	透	帖	開	四	thiap	thiep	thiep⁷	CN
uncover	揭	揭	陰入	溪	薛	開	三	khĭat	khĭɛt	kɯt⁷	N
box	盒	殼	陰入	溪	覺	開	二	kheok	khɔk	klək⁷	S
plug	塞	塞	陰入	心	德	開	一	sək	sək	sak⁷	CN
snow	雪	雪	陰入	心	薛	合	三	sĭwat	sĭwɛt	sit⁷	C
tin	錫	錫	陰入	心	錫	開	四	siek	siek	thrik⁷	SCN
one	一	一	陰入	影	質	開	三	ʔĭet	ʔĭɛt	ʔet⁷	SCN
bad	壞	惡	陰入	影	鐸	開	一	ʔak	ʔak	ʔjɔk⁷	S
dig	挖	挖	陰入	影	黠	合	二	ʔoət	ʔwæt	hwat⁷	CN
congee	粥	粥	陰入	章	屋	合	三	tĭwəuk	tɕĭuk	tsuk⁷	CN
ladle (v.)	舀	酌	陰入	章	藥	開	三	tĭauk	tɕĭak	tək⁷	SCN
narrow	窄	窄	陰入	庄	陌	開	二	tʃeak	tʃɐk	tsek⁷	C

thresh (grain)	剝殼	剝	陰入	幫	覺	開	二	peok	pɔk	pɔk^9	SCN
eight	八	八	陰入	幫	點	開	二	peet	pæt	pɛt^9	SCN
contradict	抵觸	觸	陰入	昌	燭	合	三	tɕhĭwok	tɕhĭwok	thjuk^9	S
answer	答	答	陰入	端	合	開	一	təp	tɒp	tɔp^9	SCN
armpit	腋下	胳	陰入	見	鐸	開	一	kɑk	kɑk	hak^9	
cut (snip)	剪	鋏	陰入	見	帖	開	四	kiap	kiep	kip^9	S
cut (chop)	砍	割	陰入	見	曷	開	一	kat	kɑt	kat^9	CN
shave hair	刮毛	刮	陰入	見	鎋	合	二	koat	kwat	xut^9	SCN[12]
sparrow	麻雀	雀	陰入	精	藥	開	三	tsĭauk	tsĭak	tsɔk^9	SC
magpie	喜鵲	鵲	陰入	清	藥	開	三	tshĭak	tshĭak	tsak^9	SCN
lack	缺	缺	陰入	溪	屑	合	四	khiwat	khiwet	khat^9	S
carve	刻	契	陰入	溪	屑	開	四	khiat	khiet	khit^9	SN
guest	客人	客	陰入	溪	陌	開	二	kheak	khɐk	xɛk^9	S
tear (v.)	撕	析	陰入	心	錫	開	四	siek	siek	sik^9	SCN
yoke	軛	軶	陰入	影	麥	開	二	ʔeek	ʔæk	ʔɛk^9	SCN[3]
hungry	餓		陰入	影	麥	開	二	ʔeek	ʔæk	ʔjak^9	SCN
pour out	倒(一掉)	酌	陰入	章	藥	開	三	tɹ̆ĭauk	tɕĭak	thɔk^9	S
white	白	白	陽入	並	陌	開	二	beak	bɐk	phɯek^7	SCN
ten	十	十	陽入	禪	緝	開	三	ʑĭəp	ʑĭep	sip^7	SCN
cooked	熟	熟	陽入	禪	屋	合	三	ʑĭwəuk	ʑĭuk	suk^7	SCN
male (of animals)	公(雄)	特	陽入	定	德	開	一	dək	dək	thɯk^7	SCN
shut	關閉	闔	陽入	匣	盍	開	一	ɣap	ɣap	həp^7	SCN
flute	笛子	笛	陽入	定	錫	開	四	diəuk	diek	dik^8	N
poison, drug	毒	毒	陽入	定	沃	合	一	duəuk	duok	tok^8	N
green	綠	綠	陽入	來	燭	合	三	lĭwok	lĭwok	lok^8	N
wheat	麥子	麥	陽入	明	麥	開	二	meək	mæk	mek^8	N
wood	木	木	陽入	明	屋	合	一	muok	muk	mok^8	N
sock(s)	襪	襪	陽入	明	月	合	三	mĭwat	mĭwɐt	mat^8	CN
seam	縫	衲	陽入	泥	合	開	一	nəp	nɒp	nɛp^8	SCN
box	盒	盒	陽入	匣	合	開	一	ɣəp	ɣɒp	ɣap^8	N
tell, say	告訴	白	陽入	並	陌	開	二	beak	bɐk	ʔbɔk^9	S
measure	量, 比較	度	陽入	定	鐸	開	一	dɑk	dak	dak^9	SCN
pincers	鑷子		陽入	泥	葉	開	三	nĭap	nĭep	hnɛp^9	SN
hot	熱	熱	陽入	日	薛	開	三	nʑĭat	ɹ̆ĭet	nat^9	N
fold	疊	疊	陽入	定	帖	開	四	diap	diep	dap^{10}	SN
alone	單獨	獨	陽入	定	屋	合	一	duok	duk	dɔk^{10}	SCN
read	讀	讀	陽入	定	屋	合	一	duok	duk	dɔk^{10}	CN
narrow	窄	狹	陽入	匣	洽	開	二	ɣeap	ɣɐp	gɛp^{10}	SCN

SYMBOLS AND ABBREVIATIONS

BY	Buyi, a NT language, distributed in Guizhou Province
C	Central
CT	Central Tai
CW	corresponding words
DD	Dai Dehong, a SW language of Tai, spoken in Dehong, Yunnan Province
DR	Dong Rongjiang, a Kam language, distributed in Rongjiang, Guizhou Province
DX	Dai Xishuangbanna, a SW language of Tai, spoken in Xishuang Banna, Yunnan Province
HR	high rank words
HRCW	high rank corresponding words
Kam	a language group, including Dong and Mulao
Kam-Tai	a language group, including Tai and Kam-Sui languages
Lao	a SW language of the Tai groups
LB	a dialect of Li, distributed in Baoding in Hainan Province
LR	low rank words
LRCW	low rank corresponding words
LT	a dialect of Li, distributed in Tongshi, Hainan Province
ML	Mulao, a Kam language distributed in Luocheng, Guangxi Province
MN	Maonan, a Sui dialect distributed in Huangjiang, Guangxi Province
N	Northern
NT	Northern Tai
Poai	a NT language of Tai, distributed in Funing, Yunnan Province
Proto-Yue	proto-language of Tai, Kam, Sui and Li
S	Southern
SS	Sui Sandu, a Sui language, distributed in Sandu, Guizhou Province
Sui	a language group, including Sui and Maonan
SW	Southwestern Tai
Tay	a CT language of Tai, distributed in North Vietnam
Thai	A SW language of Tai, spoken in Thailand
WT	White Tai, a SW language of Tai, distributed in Yunnan Province
Yue	language group including Tai, Kam, Sui and Li
ZL	Zhuang, a CT language, distributed in Longzhou, Guangxi Province
ZW	Zhuang, a NT language, distributed in Wuming, Guangxi Province

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