

SUBGROUPING OF NISOIC (YI) LANGUAGES: A STUDY FROM  
THE PERSPECTIVES OF SHARED INNOVATION  
AND PHYLOGENETIC ESTIMATION

by

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To my parents:

Qiumo Rico and Omu Woniemo

Who have always wanted me to stay nearby, but they have also wished me to go my own way!

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ABSTRACT

SUBGROUPING OF NISOIC (YI) LANGUAGES: A STUDY FROM  
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In southwest China and neighboring countries, including Thailand, Laos, Vietnam, and Myanmar, there live over 100 ethnic groups who speak languages known as Nuosu, Naxi, Hani, Lisu, Lahu, etc. These languages belong to the *Nisoic Branch* or the *Loloish Branch* of Tibeto-Burman (TB) subfamily of Sino-Tibetan. Though the Nisoic affiliation to TB is unquestionable, its internal subgrouping has not been settled. This dissertation aims to study the internal relationship of 34 Nisoic and three Burmic languages from two perspectives *shared innovation* and *phylogenetic estimation*.

Shared innovation has been regarded as the most reliable criterion in determining subgroups of language descent (Campbell 2004 *Historical Linguistics*). In this study, evidence from both shared sound changes and shared elements of word formation were used to establish the language relationship of Nisoic and Niso-Burmic as well. The shared innovations were extrapolated from a word database which is composed of 300 core words for each of these 37 languages. The procedure for arriving at Niso-Burmic subgrouping is a bottom-up approach with a belief that language development obeys a binary-split pathway. This comparative study yields 10 Nisoic clusters that can be further combined into eight groups: Nisoish, Lisoish, Kazhuoish, Nusoish, Naxish, Lahoish, Hanoish, and Mondzish. These eight groups and the Burmish group make up the nine members of the Niso-Burmic Branch.

Two phylogenetic approaches Bayesian inference and Neighbor-Net were used to estimate the evolution of the Nisoic descent and the Niso-Burmic descent. Of all the 300 words, 246 characters (glosses) were selected to build a database for 38 taxa (37 Niso-Burmic languages and Written Tibetan). The phylogenetic database is a matrix, which is comprised of these 38 taxa and 4099 character states generated from these 246 characters. Bayes Inference and Neighbor-Net were implemented with MrBayes 3.2.1 and SplitsTree 4.12.3 to compute the binary codes converted from this database. The results of the phylograms (trees) produced by MrBayes and networks generated by SplitsTree were almost identical to each other, and they are essentially the same as the subgroups of Nisoic or Niso-Burmic determined by shared innovations.

This dissertation suggests that Burmic and Nisoic are not the two language stocks that first split, instead, the Mondzish group split off from Niso-Burmic at the earliest date.

The results of this study represent the first comprehensive account of the Nisoic and Niso-Burmic subgrouping and also represent a hypothesis for further research in the field.

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## CHAPTER 1

### INTRODUCTION

#### 1.1 Purpose of This Study

China has a multilingual, multicultural society with 55 officially recognized minority nationalities and the Han majority. In SW China there live one of the largest of these minorities, the Tibeto-Burman people. These groups and their languages have been extensively studied, not only by scholars from China, but also by many foreign travelers, merchants, soldiers, missionaries, and others since the beginning of the 19<sup>th</sup> century. This dissertation will focus on one major branch of Tibeto-Burman speakers, the Nisoic or Nisoic Branch 尼叟语支. In former times this group was known as the Loloish, and more recently in Chinese literature they are known as the Yi Branch 彝语支, a major subgroup of Tibeto-Burman (TB) 藏缅语族 within Sino-Tibetan (ST) 汉藏语系. The Nisoic languages are genetically closely related to Burmic languages and, for that reason, these two language groups have often been treated together under the name *Lolo-Burmese* (Matisoff 1972 and 2003, for example). In parallel to the term Nisoic, the term *Niso-Burmic* or *Niso-Burmese* will be called for the Lolo-Burmese. Nisoic languages are spoken in Sichuan Yunnan, and Guizhou Provinces and Guangxi Zhuang Autonomous Region of China, Northern Vietnam, Northern Thailand, Northern Laos, East and Northern Burma, and Northeast India. The Nisoic speakers from all countries have a total population of about 12 million.

The main aim of this dissertation is to study the linguistic subgroupings of Nisoic. For this study I will use two research perspectives: (a) traditional comparative linguistics and (b) the computational methods of phylogenetics.

I would like now to provide more details about the methods to be used. I begin with a discussion of the comparative method and subgrouping by shared innovation.

The greatest achievement of linguists of the 19<sup>th</sup> century was the discovery of two major tools for determining the structure of relatedness among members of a language family, *the comparative method*

and *subgrouping by shared innovation*. The comparative method had the aim of reconstruction the set of roots that are ancestral to cognate sets in contemporary languages. Anttila (1989: 302) says, though, about the cognate sets, “It is relatively easy to establish a family of languages ...given by regular sets of correspondences. But correspondences put all units of each language on equal footing ...not a tree...Now this is the principle in drawing a family tree for languages. If two or more languages share a feature which is unlikely to have occurred spontaneously in each of them, this features must have arisen only once, when these languages were one and the same.” So the second and more powerful tool is to establish those subgroupings by shared innovation; with this method one can draw the tree of a language family based on the shared features found in daughter languages.

In Chapter 5 I will compare 34 Nisoic languages and dialects to determine correspondence sets for them. Then from each correspondence set of related languages the shared phonological and lexical innovations will be determined. Shared innovations means that there can be no parallel development of the same innovations, that it “took place in a single daughter language which has daughters of its own” Campbell (2004:191). It also means that rules that occur “spontaneously”, such as phonetically motivated rules such as final devoicing, or assimilations are not candidates for shared rules. The best shared rules are ones that are “unique” or unusual.

The second approach uses phylogenetic computation operating on contemporary language data to estimate the evolutionary histories of the Nisoic languages. The computation creates possible trees and evaluates them so as to create the most probable tree, or sometimes—when there is interaction among languages—to create networks of the languages.<sup>1</sup> Computational phylogenetic linguistics has been recently used with great success in uncovering language affiliations and proposing a language’s history. Gray and Atkinson (2003) have replicated an accepted tree for Indo-European, which has all the branching found in proposals using classical methods. In this study I will use phylogenetic approach to validate the subgrouping result of the comparative study.

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<sup>1</sup> I say *probable tree* because the number of possible trees to fit the data for 34 (Nisoic) languages is about  $7.3 \times 10^{45}$ , and for 37 (Niso-Burmic) languages is about  $2.4 \times 10^{51}$  (cf. Felsenstein 2004: 23).

To understand a bit more about how the phylogenetic estimation approach works, consider this example modified from Fernández-Baca (2000: 2-4), which shows how animal and language data can be digitized and how that data can lead to decisions about trees.

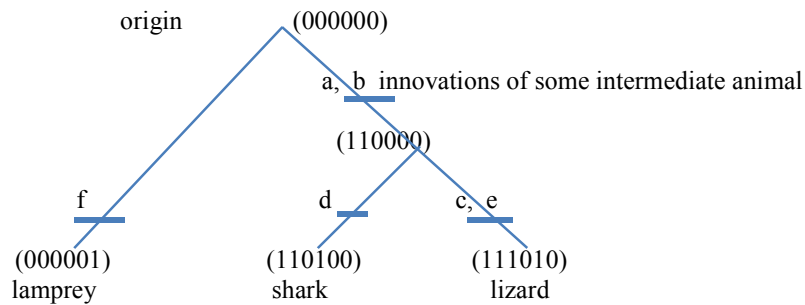
One begins with a group of animals: (1) the lamprey eel, (2) the shark, and (3) the lizard. These distantly related animals variably have the features (or characters), cf. Chapter 6): (a) *paired fins*, (b) *jaws*, (c) *large bones*, (d) *ray spines*, (e) *lungs*, and (f) *rasping tongue*. The distribution of these characters over taxa (animal types) is stated in the matrix of (1-1) below.

(1-1)

	a	b	c	d	e	f
lamprey	0	0	0	0	0	1
shark	1	1	0	1	0	0
lizard	1	1	1	0	1	0

The numbers 1 and 0 in this matrix mean 1 = ‘has the character’; and 0 = ‘does not have the character’. An arboreal way to represent the data in (1-1) is as in (1-2):

(1-2)



In (1-2) the lamprey has innovated the rasping tongue character, the shark the ray spines, and the lizard, the large bones and lungs (indicated by the underlining). The nodes of the tree in (1-2) are labeled by the row of character values or character states. They represent the character states used to put the animals into a tree of descent with the lamprey the most primitive. So the shark and lizard share (110000), the node above them and also the origin. One of the most-used approaches for calculating phylogenies is character-based, as is encoded in the branches of the tree above. The main point of (1-2) is to show that linguistic data can be digitized into characters and such data might be inputted into calculations of phylogenies.

In Chapter 6 the database of 246 characters and 4099 character states will be used to compute estimation of the Nisoic phylogeny.

### 1.2 Motivations of This Study

The accounts of Nisoic subgroupings proposed in previous work have not been universally accepted. That was a major motivation to conduct this research. Though, Nisoic is a ‘relatively well-studied’ group according to (Matisoff 2008: xxx), there remain still many issues in subgrouping. For examples, are the Naxi and Na, or Moso, members of the Nisoic languages? Do Nusu and Rouruo occupy a place between Nisoic and Burmic as claimed in Dai et al. 1989? What is the criterion for relating Nisoic to the larger Niso-Burmese? Is there a clear boundary between Nisoic and Burmic? Why do Chinese and western scholars have such difference views about the subgrouping of Nisoic languages? All these issues are very important and need to be resolved in a new Nisoic subgrouping. Further, as more and more languages have joined this subgroup, a detailed classification becomes more necessary. So the aim of this comparative study is to seek a clear picture of Nisoic family structure.

The second motivation arose from the great, though controversial, achievements of modern scholarship in applying computational phylogenetics or cladistics to the language subgrouping question. Over the last decade or so, some linguists, biologists, and computer scientists have successfully applied computational phylogenetic methods to linguistic questions. For example, Gray & Atkinson 2003, Nakhleh et al. 2005a have used cladistics to validate the Indo-European language classification with surprising precision and were able to put dates to the times of splitting. I hope this phylogenetic study can demonstrate its application to this large, but unwritten language group.

The existence of a parallel association between the autonyms of people groups and the distance between languages of those people groups has intrigued me to explore their connection. Like many other ethnic groups in the world, almost every Nisoic ethnic group possesses autonyms as well as exonyms. Over 160 Nisoic autonyms of Nisoic people groups have been reported in Lama 2011. Of all these people groups, 34 of them will be discussed in Chapter 4 of this dissertation. The Nisoic people groups, including *Nuosu, Nasu, Nesu, Niesu, Sani, Hani, Haoni, Yani, Lisu, Chesu, Gasu, mBisu or Bisu, Laloba, Lolopo,*

*Lipo*, and so forth, have been officially categorized as Yi, Hani, Lisu, Lahu, Jinuo, and Naxi minorities in China and in bordering countries with further complicated ethnicity terms.<sup>2</sup> Often, in Nisoic communities, people groups whose autonyms are similar also speak languages that are closely related. And, if autonyms are remotely related, their languages are also distant. For example, the Nisoic ethnic groups *Ni* (*Sani*), *Nuosu*, *Nasu*, *Nesu*, *Niesu*, *Hani*, *Haoni*, and so forth demonstrate a \**ni*- radical in their autonymic forms that signifies a close linguistic relationship as well as a similarity of cultural practices. However, the relationship between autonyms and languages is just a preliminary impression, and the autonymic classification cannot be used as a criterion to group languages. In this study, possible parallel relationships among language subgroupings and ethnic autonymic classification will also be investigated.

In the remaining of this chapter, I begin with the definition of terms that will be used throughout in this dissertation; then, introduce the speaker populations, geographical distributions, and traditional history of the Nisoic language.

### 1.3 Definitions of Terms Used in This Dissertation

#### *1.3.1 Definitions for Sino-Tibetan Taxonomy*

In this dissertation, the term Nisoic or Nisoic Branch will be used to replace traditional terms *Yi Branch*, *Loloish*, and *Yi-Pho*; also the term Niso-Burmese or Niso-Burmic, or the Niso-Burmic Branch will be used to substitute traditional terms Lolo-Burmese or Burmese-Lolo.<sup>3</sup> Following the conventions of nomenclatures for ST classification (Cf. Benedict 1972, Matisoff 1972 & 2003, Bradley 1979, Sun 1988 & 2002, Dai et al 1989 & 1990, among others), I redefined terms of language subgrouping as shown in (1-3) below:

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<sup>2</sup> The Kazhuo people of Yunnan Province, who officially belong to the Mongolian ethnicity, are linguistically a subgroup of Nisoic Branch.

<sup>3</sup> Note that sometimes linguists use a hyphen to connect two major closely related languages to express a branch sense, *Lolo-Burmese*, i.e., *Niso-Burmese*, for example, equals to *Lolo-Burmic* (i.e., *Niso-Burmic*, or *Niso-Myanmar*). In accordance with this tradition, I will use *Niso-Burmese* and *Niso-Burmic* interchangeably. Also, the term *Niso* is used to replace the traditional term *Lolo* because *Lolo* has a pejorative connotation for most Loloish ethnic groups in China.



(1-3) The taxonomic terms for ST family

<u>Suffix</u>	<u>Affiliation</u>	<u>Chinese term</u>	<u>Examples</u>
-an	Language Family	<i>Yuxi</i> 语系, <i>Yuzu</i> 语族	Tibeto-Burman
-ic, A-B	Language Branch	<i>Yuzhi</i> 语支	Niso-Burmic, Niso-Burmese, Nisoic
-(o)ish	Language Group	<i>Yuqun</i> 语群	Nisoish, Lisoish, Kazhuoish
-(o)id	Language Cluster	<i>Yuzu</i> 语组	Nisoid, Lisoid, Lahoid, Hanoid
---	Language	<i>Yuyan</i> 语言	Nuosu (language name)
---	<i>Fangyan</i> , <sup>4</sup> Dialect	<i>Fangyan</i> 方言	Niesu (dialect name)
---	<i>Tuyu</i> , Vernacular	<i>Tuyu</i> 土语	Suondi and Adu (vernacular name)

The nomenclatures *branch* and *group* in (1-3) cannot be treated in an ethnological sense. In order to avoid any confusion caused by terms used linguistically and ethnologically, an ethnic group is identified in this dissertation by adding the adjective word ‘ethnic’ before an ethnic group name. For example, *Nisoic Ethnic Group* refers to the people group and the *Nisoic Group* or *Nisoic Branch* stands for language classification. The people *ethnic group* is often called *Zhixi* 支系 in Chinese literature, literally meaning ‘branch’ and referring to an ethnic group who have their own unique ethnic culture under an official ethnicity. Finally, the linguistic sense of term *subgroup* has a larger application; it may refer to several languages or a language cluster, a branch, even a family. For example, Nisoic subgroup, Qiangic subgroup of TB, Tibeto-Burman subgroup of ST, etc.

### 1.3.2 Ethnic Terms

Several terms must be defined for this dissertation: *ethnic group*, *autonym*, *alloautonym*, *endonym*, *exonym*, *nationality*, *ethnicity*, and *ethnonym*. Matisoff 1996 gives detailed definitions for most of these terms which are adopted or adapted with a slight modification here. Throughout this dissertation, these terms will be used as defined below.

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<sup>4</sup> One must note that *fangyan* 方言 in Chinese means the language spoken in one geographic place, so it is not equivalent to *dialect* in English by not indicating a social class difference. In this dissertation *dialect* will be used as the sense of Chinese *fangyan*, and both will be used interchangeably.

**Ethnic group:** a broad concept for referring to certain people groups who have the same or similar identity, autonym, culture, history, and religion. People from the same ethnic group may communicate perfectly or may be intelligible with a little difficult in their own language or dialects if they speak several varieties.

**Autonym:** An appellation used by an ethnic group to refer to themselves or to distinguish themselves from outsiders. For example, *Nuosu*, *Lolo*, *Ni*, and *Maang* all are autonoms. Often, outsiders use different terms to call such an *autonymic ethnic group*. For example, Yi, Lolo, etc., have been used historically to call Nuosu people in Liangshan, Sichuan Province.

**Alloautonym:** An appellation variant of a proto-autonym, resulting from sound change; for example, *Nuosu*, *Niesu*, *Nasu*, *Nisu*, and so forth are assumed to have developed from proto-form *\*Niso*. While committing to its proto-autonym, such an alloautonym usually reflects a geographical distribution and cultural variation from these ethnic groups who share the same proto common autonym and same cultural heritage.

**Endonym:** An appellation only applicable among the ethnic branches of an ethnic group. These ethnic branches share a common autonym, which may vary slightly. For example, the terms *Adu* 阿笃, *Suondi* 松氏, *Shengzha* 圣乍, and *Yinuo* 日诺 subgroups are only used within the Nuosu ethnic group in Sichuan Province. An endonym may have developed historically from a *loconym*, a name for a place where an ethnic group used to live (for example, the term *Shengzha* was acquired from the name *Zuo* 桫 area when Nuosu people first entered the place about 2,000 years ago); an endonym may also refer to, in other cases, a name of a historical figure (e.g. *Adu* was named after the Headman Adu 阿笃土司).

**Exonym:** An appellation used by outside people to refer to an ethnic group or several ethnic groups. For example, *Yi* 夷 was once used by Han Chinese in traditional Chinese literature to refer to ethnic groups who have lived in southwest China, including contemporary Yi, Hani, Lahu, Lisu, and Dai, etc.

**Ethnonym:** A term for any name of ethnic groups or an officially recognized ethnic group.

**Ethnicity:** Equivalent to *ethnonym*.

**Nationality:** A term used for official ethnicities in ethnographical and ethnolinguistic literature. This term is equivalent to Chinese name *Shaoshu Minzu* 少数民族.

#### 1.4 Nisoic Distribution and Population

The Nisoic people have a widespread distribution, a large population, and a very complex multi-stranded linguistic history.

The Nisoic people live in southwest China (in Sichuan, Yunnan, and Guizhou Provinces as well as in Guangxi Zhuang Autonomous Region), northern Vietnam (in Lai Châu, Lào Cai, Hà Giang, Cao Bằng, and Sơn La provinces), northern Laos (Phongsali, Luang Nam Tha, Udomsai, Bokeo, Luang Prabang, and Hua Phan provinces), northern Thailand (Chiang Rai, Chiang Mai, Mae Hong Son, Tak, Lampang, Kamphaeng Phet, Phetchabun, Phrae, Phayao, Sukhothai, and Nan provinces), eastern and northern Myanmar (Kachin and Shan states), and northeast India (Arunachal Pradesh, Assam, and Meghalaya states).<sup>5</sup> They are dispersed over the territory spanning latitude 15° ~ 31° N. and spanning longitude to 94° ~ 110° E. In this mountainous land, there reside about 13.7 million Nisoic people in 2010 (personal estimate). The location of homeland of the Nisoic people is shown in Figure 1.1. Also, a detailed map showing the topography of this area is given in Figure 1.2.

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<sup>5</sup> The Nisoic people who live in northeast India are Lisu. Maitra (1993:11) numerates 1293 Lisu persons living in eastern Arunachal Pradesh in India; he also mentions that there may Lisu people live in Bhutan, but it has not been confirmed elsewhere.



Figure 1.1 The homeland of the Nisoic People in SE Asia

As is shown in Figure 1.1, the Nisoic people live in the northwest of SW Asia, mainly in SW China, NE India, Northern and Eastern Myanmar, Northern Thailand, Northern Laos, and Northern Vietnam. This is the area where mountains and rivers are main landscape in the region.

While the Nisoic people have lived in this region, it is not necessarily that they are the only ethnic groups reside in the area. As matter as fact, the Nisoic people just take a small portion of population in the region; there live other major ethnic groups such as Han Chinese, Tibetan, Thai / Dai, Laos, Vietnamese, Miao-Yao, and Zhuang, etc. In this SW China, local Mandarin is the lingua franca for the region.



Figure 1.2 The Homeland of the Nisoic People

#### 1.4.1 Nisoic Distribution and Population in China

The Nisoic in China are mainly found in southwest China in Sichuan, Yunnan, and Guizhou provinces, and Guangxi Zhuang Autonomous Region. Specifically, in Sichuan Province, they are concentrated in Liangshan Yi Prefecture 凉山彝族自治州, including all of its 16 counties and Xichang City 西昌市; in Luzhou City 泸州市 at Xuyong County 叙永县 and Gulin County 古蔺县; in Leshan City 乐山市 at Jinkouhe District 金口河区, Mabian County 马边县, and Ebian County 峨边县; in Yibin City 宜宾市 at Pingshan County 屏山县; in Ya'an City 雅安市 at Shimian County 石棉县 and Hanyuan County 汉源县; in Ganzi Tibetan Prefecture 甘孜藏族自治州 at Jiulong County 九龙县 and Luding County 泸定县. In Yunnan, almost all counties are inhabited by Nisoic people, but they are concentrated in Chuxiong Yi Prefecture 楚雄彝族自治州; Honghe Hani-Yi Prefecture 红河哈尼族彝族自治州; Nujiang Lisu Prefecture 怒江傈僳族自治州; Kunming City 昆明市 at Luquan 禄劝县 and Shilin County 石林县; Yuxi City 玉溪市 at Xinping County 新平县 and Eshan County 峨山县; Lijiang City 丽江市 at Ninglang County 宁蒗县, Yongsheng County 永胜县, and Huaping County 华坪县; Simao City 思茅市 at Jingdong County 景东县, Zhenyuan County 镇沅县, Jiangcheng County 江城县, Jinggu County 景谷县, Pu'er County 普洱县, Mojiang County 墨江县, Menglian County 孟连县, and Lancang County 澜沧县; Zhaotong City 昭通市; and Wenshan Zhuang-Miao Prefectures 文山壮族苗族自治州. In Guizhou, they are mainly distributed in west Guizhou with the greatest density in Bijie Prefecture 毕节地区 and Liupanshui City 六盘水市 areas. In Guangxi, they are only seen in Baise City 百色市 at Longlin County 隆林县, Napo County 那坡县, Tianlin County 田林县, and Xilin County 西林县.

The Nisoic people in China have been officially recognized under the designators Yi, Hani, Lisu, Lahu, Naxi, Jinuo, Nu (the *Nusu* and *Rouruo*),<sup>6</sup> and Mongolian (only the *Kazhuo ethnic* group in Yunnan

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<sup>6</sup> The *Nusu* language is generally treated as a Nisoic member (Sun et al. 1986) or a language lying between Nisoic languages and Burmic languages (Fu 1989 and 1991). Sun et al. (2002: 2) considers *Rouruo* [zɔ55zɔ33tɛhi33] as a Nisoic language; the initial [z] of this autonym phonetically corresponds to [l] of the ancient Yi branch's term *Luoluo* 罗罗 or *Lulu* 鹿鹿.

Province)<sup>7</sup> among 55 minority nationalities. According to the 1990 Chinese national census, there were about 9,132,000 Nisoic people; in the 2000 national census, this number reached 10,638,000; and the number of Nisoic people in China is estimated to be 12.4 million in year 2010. Table 1.1 gives the population of each individual Nisoic ethnicity in China using the official ethnonyms for these groups.

Table 1.1 Estimation of Nisoic Populations in China

<u>Ethnonym</u>	<u>1990</u>	<u>2000</u>	<u>Pct (yr)</u>	<u>2010 est.</u>
Yi	6,578,524	7,762,286	1.67%	9,160,473
Lisu	574,589	634,912	1.00%	701,338
Hani	1,254,800	1,439,673	1.38%	1,651,151
Lahu	411,545	453,705	0.98%	500,181
Naxi	277,750	308,839	1.07%	343,522
Jinuo	18,022	20,685	1.39%	23,747
Nu <sup>8</sup>	11,100	<i>11,900</i>	1.40%	13,675
Mengu <sup>9</sup>	5,339	<i>5,500</i>	1.50%	6,383
<u>Total</u>	9,131,669	10,637,500	1.54%	12,400,470

**Sources and Notes:**

1. All the italicized numbers are estimated ones in terms of population growth rate model:  $fp = pp \cdot (1 + pct)^{yrs}$ , where *fp* stands for ‘future population’, *pp* for ‘present population’, *pct* for ‘percentage’, and *yrs* for ‘years’.
2. Exception for Nu and Menggu, all other ethnic minority population data is taken from the 1990 census (cf. website <http://www.stats.gov.cn/ndsj/information/zh1/b261a> of National Bureau of

<sup>7</sup> *Mongolian* here refers to the people living in Tonghai County (通海) at Xingmeng Xiang (兴蒙) in Yunnan Province. This people group call themselves as Kazhuo ([kha55tso31] or [ka55tso31]) and their language is regarded as a member of Nisoic, and they do not speak Mongolian (Mu 2003).

<sup>8</sup> The population of the Nu minority nationality was 27,123 in the 1990 census and 28,759 in the 2000 census. But here we only account for the *Nusu* and *Zaozuo* branches of the Nu nationality, which has four branches in total, because only these two Nu languages have been regarded as members of Nisoic Group; the *Nusu* had 9,000 speakers and the *Zaozuo* had 2,100 language users in 1995 (Sun et al. 2002).

<sup>9</sup> The population estimate of Mongolian people (*Kazhuo*) refers to the 1998 data (Mu 2003).

Statistics of China). The 2000 census data is extracted from the website of the State Ethnic Affairs Commission of PRC (cf. <http://www.seac.gov.cn/gjmw/index.htm>).

#### 1.4.2 Nisoic Distribution and Population in Vietnam

In Vietnam, six among the 54 officially recognized ethnic groups, including the Lô Lô,<sup>10</sup> Phù Lá,<sup>11</sup> Hà Nhì, La Hủ, Cống, and Si La speak Nisoic languages. They are mainly distributed in the borderland of Vietnam and China, in Lai Châu, Lào Cai, Cao Bằng, Hà Giang, Sơn La Provinces (Diễn Khăng 2002, Edmondson 2003). In the 1989 national census, there were about 29,000 Nisoic people in Vietnam, and in 1999 this number reached 39,000. The latest Vietnamese Nisoic population figures showed about 43,000 in the year 2003 (*Vietnam Ministry of Foreign Affairs'* website at [http://www.mofa.gov.vn/en/tt\\_vietnam/nr040810154926/](http://www.mofa.gov.vn/en/tt_vietnam/nr040810154926/) [accessed on July 25, 2005]). Table 1.2 shows the development of the Nisoic population of Vietnam since 1989.

Table 1.2 Estimation of Nisoic Populations in Vietnam

<u>Ethnonym</u>	<u>1989</u>	<u>1999</u>	<u>2003</u>	<u>Pct (yr 89-99)</u>	<u>Pct (yr 89-03)</u>	<u>Pct (yr 99-03)</u>	<u>2010 Est.</u>
Hà Nhì	12,489	17,535	20,000	3.45%	2.99%	3.34%	25,274
Phù Lá	6,424	9,046	9,000	3.48%	2.13%	-0.13%	11,435
La Hủ	5,319	6,874	7,600	2.60%	2.26%	2.54%	9,059
Lô Lô	3,134	3,307	3,400	0.54%	0.51%	0.70%	3,570
Cống	1,261	1,676	1,900	2.89%	2.60%	3.19%	2,367
Si La	594	840	1,010	3.53%	3.37%	4.72%	1,395
<u>Total</u>	29,221	39,278	42,910	3.00%	2.43%	2.24%	53,100

#### Sources and Notes:

1. 1989 and 1999 population figures are taken from Diễn Khăng 2002 *Population and Ethnography in Vietnam* (Page174), which are based on April 1, 1989 and April 1, 1999 national censuses,

<sup>10</sup> In Vietnam, the Lô Lô minority consists of two branches: *Nisu* and *Mo'ang* or *Manjin*, *Manzi*; the *Mo'ang* are divided into the *Flower Lolo* and *Black Lolo* subgroups; it is said that both the *Nisu* and *Black Lolo* have the Yi script (Yang 2001, Shi 2001, Edmondson 2003 and his website: [www.ling.uta.edu/~jerry/](http://www.ling.uta.edu/~jerry/)).

<sup>11</sup> The Phù Lá minority consists of *Puktha*, *Pula*, and *Laguu* or *Xá Phó* (Edmondson and Lama 1999, Edmondson 2003 and his website: [www.ling.uta.edu/~jerry/](http://www.ling.uta.edu/~jerry/)).



respectively. The Phù Lá 1989 data is taken from Edmondson 2003 since it is not available in Diễn Khểng 2002.

2. The 2003 data is taken from URL [http://www.mofa.gov.vn/en/tt\\_vietnam/nr040810154926/](http://www.mofa.gov.vn/en/tt_vietnam/nr040810154926/) [Accessed on July 25, 2005].

3. All the 2010 estimated population growth rate is based on the annual percentage rate of 99~03, excepting the Phù Lá, which is based on that of 89~99.

#### *1.4.3 Nisoic Distribution and Population in Lao PDR*

The Nisoic people of that Lao PDR, including Akha, Sila, Phunoi, Phana, Ha Nhi (Hani), Lolo, Lahu, Kongsat, Poussang, and Kado groups, are mainly distributed in Phongsali, Luang Nam Tha, Boke, Udomsai, Luang Prabang, and Hua Phan provinces. The number of official minorities has gone through a convergence. There were 68 ethnic groups in the Lao PDR according to the 1985 census, however, this number dwindled to 47 in the 1995 census and slightly increased to 49 in 2000. All these officially recognized ethnic groups may be assigned to four major ethno-linguistic families: Tai-Kadai, Mon-Khmer, Sino-Tibetan, and Hmong-Mien. Seven of these 47 officially recognized ethnic groups, which, according to Chazée 1999, subdivides into 149 small groups that speak Nisoic languages: Ko (Akha), Phu Noy (Phunoi), Mou Xoe (Lahu), Kuy (Lahu group), Sy La (Sila), Lo Lo (Lolo), and Ha Nhy (Hani) (Bradley 1996, Chazée 1999, Schliesinger 2003a,b).<sup>12</sup> These seven Nisoic peoples are reported to contain 33 subgroups (Chazée 1999). The Nisoic people together with other Sino-Tibetan minorities of the Lao PDR make up a mere 2.52% of the total national population (Lasoukanh 2003). In 2000, a 49-ethnic-group classification was proposed by the Lao Front for National Construction and the Lao government is now reportedly considering legislation to incorporate these 49 groupings as the official system of ethnic classification (Schliesinger 2003a&b; also cf. Yokoyama's Home Page and UNCHR 2003).<sup>13</sup> In this new system of ethnic classification, the Nisoic ethnonyms have altered somehow: Akha (has replaced the name *Ko*, and the *Kheu* has been integrated into *Akha*), Singili (has changed from *Phou Noy*), Lahu (the names

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<sup>12</sup> Bradley 2003b mentions that there are several Lisu living in Laos PDR, but detailed information is not available.

<sup>13</sup> Yokoyama's Home Page is found at [http://www.h7.dion.ne.jp/~yokoyama/ethnic\\_minority.pdf](http://www.h7.dion.ne.jp/~yokoyama/ethnic_minority.pdf) [accessed on August 24, 2005]. However, this URL address was not accessible anymore. The UNCHR 2003 report can be reached at this URL: [http://www.unhcr.ch/huridocda/huridoca.nsf/e06a5300f90fa0238025668700518ca4/a3b73f0a01d93339c1256d27002d0249/\\$FILE/G0314159.pdf](http://www.unhcr.ch/huridocda/huridoca.nsf/e06a5300f90fa0238025668700518ca4/a3b73f0a01d93339c1256d27002d0249/$FILE/G0314159.pdf) [accessed on December 16, 2010].

*Muxoe* and *Kouy* have been changed to *Lahu*), Sila (has changed from *Sida*), Hayi, and Lolo (Schliesinger 2003a, b, and Yokoyama's Home Page). Accordingly, the original seven Lao PDR Nisoic ethnic minorities have now been resolved into six ethnic groups in this new system of ethnic classification due to the combination of Lahu Muxoe and Lahu Kouy, which were treated as two ethnic minorities in 1995 census. Other than these officially recognized ethnic groups, there are several other TB language groups who might possibly belong to Nisoic as well: Kado, Phana, Kongsat, and Poussang (Schliesinger 2003a&b).<sup>14</sup> There is no doubt that the Kado belong linguistically to Nisoic (it has been regarded as a part of the Hani ethnic minority in China, and called Kaduo 卡多, whose language together with another Hani variety, Biyue 碧约, is termed as the Bi-Ka dialect 碧卡 方言 of Hani). The Phana, also as the Pa Na, Panna, or Bana, is included within Ko (Akha) in Lao PDR (Bradley 2003a). Vietnam ethnographer Nguyen Duy Thien also regards the Phana as part of Akha, and they used to be treated as part of Akha in the early 1980s (Schliesinger 2003b: 79). This change confirms that the Phana people are part of Nisoic Branch without doubt and must be affiliated with Akha than other Nisoic ethnic groups; however, it is not clear whether their population was accounted for in the Akha ethnic minority in Lao PDR 1995 national census. Schliesinger 2003a regards both the Kongsat and Pousang groups as members of Nisoic Branch, even though there is no linguistic evidence available. The Kongsat, according to Chazée 1999 and Schliesinger 2003a, have the *Suma* autonym and is closer to Phunoi people in their customs and practices. The Pousang, titled *Ko Phusang* or *Ko Pu Sang*, is likely a member of the Akha (cf. Schliesinger (2003a, b) and AMO (2000)). From the point of designatory similarity and geographic proximity, the Pousang may be the same as the language called Sangkong 桑孔 [saŋ55qhoŋ55] spoken in Xiaojie commune 小街乡, Jinghong city 景洪市, Yunnan Province (Li 2002), which uses the Buxia 布下 [pu31ea55] or Busa [pu31sa55] exonym. Obviously, Buxia or Busa and Pousang are appellatively similar to each other. Li 2002 definitely regards the Sangkong as being linguistically close to Hani, possibly having developed from the Hani *Tongpengli* 同朋里 branch.

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<sup>14</sup> In addition to these small ethnic groups, there is another Nisoic ethnic group called Pounyot with 900 persons in 1995, who turns out to be ethnic Pounyot, a subgroup of the Phunoi (Schliesinger 2003a).

From the data the present researcher has pieced together an estimate of about 124,000 Nisoic people in the Lao PDR in 1995, and this number is estimated to be 159,000 in year 2010 with a population growth rate at 2.5%,<sup>15</sup> as shown in Table 1.3.

Table 1.3 Estimation of Nisoic Populations in Lao PDR

<u>Ethnonym</u>	<u>1995</u>	<u>2010 Est.</u>
Akha	66,108	95,744
Hayi	1,122	1,625
Sila	1,772	2,566
Singsili	35,635	51,610
Lahu <sup>16</sup>	14,970	21,681
Lolo	1,407	2,038
Phana	380 (2001 est.)	486
Kado	200 (2001 est.)	256
Kongsat	110 (1999 est.)	148
Poussang	1,850 (1999 est.)	2,488
<u>Total</u>	<u>121,704</u>	<u>178,642</u>

**Sources and Notes:**

1. Data under 1995 category is taken from Schliesinger 2003a *Ethnic Groups of Laos VI. 4 Sino-Tibetan-Speaking Peoples*.
2. The Lahu data of 1995 is a combination of two Lahu branches: Lahu Na 8,702 and Lahu Kui 6,268.
3. All the 1999 estimated data are from Chazee 1999's; others are Schliesinger's estimate.

<sup>15</sup> The UN Human Settlements Programme estimates that the average population growth rate in Laos PDR between 1985 and 1995 was around 2.9% per year (<http://www.unhabitat.org/> [accessed on August 24, 2005]). However, our estimate is a little lower than this. Other than China and Vietnam, whose reliable national censuses allow us to calculate a reasonable estimate rate, the Nisoic population growth rate in other countries will be assumed to be 2.5% because these countries, unlike China which has an average population growth rate of 1.54% due to its birth control policy, neither have a birth control policy nor reliable census data available; thus, their birth growth rate must be higher than that of China, even though our estimate rate of 2.5% is conservative compared with that of the UN.

<sup>16</sup> The Lahu data of 1995 is combined number of both Lahu Na 8,702 and Lahu Kui 6,268.

4. According to AMU 2000, the Poussang's population figure was already included in Akha in the 1995 census, but the cases of other ethnic groups Phana, Kado, and Kongsat with no an official minority status, are not clear. Here I add these non-official ethnic groups' population numbers to the total of Nisoic population in case they have not had been added to official minorities in the 1995 census.

#### 1.4.4 Nisoic Distribution and Population in Thailand

In Thailand, the Nisoic ethnicities, including Akha, Lahu, Lisu, Bisu, and Mpi,<sup>17</sup> mainly settled in northern Thailand, specifically in Chiang Rai, Chiang Mai, Mae Hong Son, Lampang, Nan, Tak, Kamphaeng Phet, and Phrae Provinces; they, together with other ethnic groups — Karen, Hmong, Lawa, Palng, Yao, and Lanna, are called *hill tribes* (Schliesinger 2000). The two different data sources did not agree on the population numbers of Thailand's hill tribes. One of them is the TRI (Tribe Research Institute), which lists the population of the Nisoic in Thailand at 149,609 in its 1995 census; the other source is from the DPW (Department of Public Welfare), which counts 166,224 Nisoic people in the same year census. Both sources of data with their respective estimated growth figures of 2.5% are given in Table 1.4. As shown in this table, there were about 150,000~166,000 Nisoic people in Thailand in 1995, and these numbers are projected to grow to levels between 192,000~258,972 in the year of 2010.

Table 1.4 Estimation of Nisoic Populations in Thailand

<u>Ethnonyms</u>	<u>1995 (TRI)</u>	<u>1995 (DPW)</u>	<u>2010 Est.(TRI)</u>	<u>2010 Est. (DPW)</u>
Lahu	73,252	82,158	106,091	118,989
Lisu	27,889	31,463	40,392	45,568
Akha	48,468	49,903	70,196	72,274
Bisu	--	1,000		1,448
Mpi	--	1,500		2,172
Total	149,609	166,224	216,678	240,451

<sup>17</sup> We cautiously exclude another TB ethnic group called Gong here, which has been regarded as Southern Nisoic by Schliesinger 2000 without any linguistic evidence, but Bradley 1997 treats it as a separate unit under his Burmese-Lolo with Mru, Burmic, and Nisoic at the same level; again, there is no linguistic evidence available.

### Source and Notice:

1. The data under 1995 (TRI) is taken from *The Hill Tribes of Thailand* (1995). Tribal Research Institute, Service and Publicity Section, Chiang Mai.
2. The data under 1995 (DPW) is taken from Schliesinger 2000 *Ethnic Groups of Thailand: Non-Thai-Speaking peoples*, whose source is based on the DPW (Department of Public Welfare) 1995 census. The Bisu and Mpi figures under the same category are his estimates. These small ethnic groups have not been officially recognized by Thai government.

#### 1.4.5 Nisoic Distribution and Population in Myanmar

The Nisoic in Myanmar, including Lisu, Kaw (Akha), Lahu, and Kwi (Lahu Shi or Yellow Lahu), Nusu, Lolo, are mainly located in north Myanmar (Kachin State) and east Myanmar (Shan State). Detailed ethnic information for people in Myanmar is not clear at the present time due to limited data and access; however, major ethnic groups such as Akha, Lisu, and Lahu are likely to be classified as such. Many sources show that there are 135 ethnic groups in Myanmar (Hlamin 2001, also cf. websites <http://www.myanmar-information.net/political/politic.htm> [accessed on December 16, 2010] and <http://www.myanmars.net/people/ethnic.groups.htm> [accessed on December 16, 2010]), but these different ethnic groups are actually under three major linguistic families: the Mon-Khmer, Tibeto-Burman, and Tai (Shan). Among the 135 ethnic minorities, the Nisoic people are Lisu, Lahu, Kaw (Akha), and Kwi (Lahu Shi or Yellow Lahu). It seems that the Hani, Lolo, and Nusu<sup>18</sup> ethnic groups have not been counted as individual members within contemporary classifications (they may have been grouped under some other major ethnic groups: such as Kaw (Akha), Lisu, Lahu, or they may have been designated with local names not identifiable to outsiders), but sources show these people exist in Myanmar. Both of the websites (<http://www.explore-myanmar.com/EthnicTribes.asp> [accessed on July 08, 2005]) and <http://www.nirvanatour.de/burma/burma.html> [accessed on August 15, 2005]) say that the Lolo ethnic group exists in Myanmar but do not provide detailed information; the most reliable data about the Lolo in

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<sup>18</sup> Jimmy Harry (p.c) provided Dr. Jerold A. Edmondson and me with some Putao *Nusu* audio data; it tells that the Nusu people were also found in northern Myanmar Putao area in the 1960s, but the number of Putao Nusu speakers is not known. Also, to the best of my knowledge, the Putao *Nusu* is different from the *Nuosu* (Yi) in Sichuan and elsewhere, though their autonyms are closely related.

Myanmar is Enriquez 1933, which records 769 Lolo people in Burma in the Census of 1921 but fails to indicate where this ethnic group is located. The Nusu people was confirmed to exist in northern Myanmar near the Putao area of Kachin State in the 1950s, as evidenced by recorded Nusu language data from the 1950s by Robert Morse and Jimmy Harris. In addition, Sun et al. 2002 mentions that there are Nusu people living in Myanmar without further elaboration. The Putao Nusu, which has been transcribed by Edmondson and the present writer, is closely related to those Nusu people of the Nu nationality of Nujiang Lisu Prefecture in northwest Yunnan, China, especially close to the Southern Nusu Dialect of Sun et al. 1986. It is highly possible that the Putao *Nusu* may be the same people as the *Nusu* people of Nu nationality in China in regard to language. It is strange, however, that such an ethnic group has not been mentioned in several important ethnographic sources cited here, i.e., U Min Naing 2000, Diran 1997, Lowis 1949, and Enriquez 1933. According to Eilam and Debby 2004, there exists a Hani population of 180,000 people (it is not clear which year this figure represents) in northern Shan State, but this source is questionable since there are no reports regarding the proven existence of Hani (other than Akha) in Myanmar. Among various ethnographic sources, the most reliable data about the Nisoic population in Myanmar is Enriquez 1933's, as shown in Table 1.5. Based on Enriquez 1933, the present writer estimates the 2010 Nisoic population in Myanmar at a rate of 2.5% annual population growth, resulting in 668,000 people.

Table 1.5 Estimation of Nisoic Populations in Myanmar

<u>Ethnonym</u>	<u>Population</u>	<u>Year</u>	<u>2010 Est.</u>
Lolo	769	1921 <sup>19</sup>	7,097
Lisu	35,000	1931	252,335
Lahu	27,184	1931	195,985
Kwi	3,832	1931	27,627
Kaw	40,512	1931	292,074
<u>Total</u>	107,297		775,118

<sup>19</sup> This data refers to the 1921 census according to Enriquez 1933 original source; it could be the 1931 census, like the rest of the data.

**Source and Note:**

1. Data is taken from Enriques 1933 *Races of Burma*.
2. This population data does not include the claimed Hani population and the Nusu people, since there are no sources that mention them.

*1.4.6 Nisoic Distribution and Population in India*

The only Nisoic who live in India are the Lisu people; they are mainly located in Arunachal Pradesh State at the boundary area of India, Myanmar, and China. According to Maitra 1993, there were 1293 Lisu people living in northeastern India mainly in Arunachal Pradesh State.<sup>20</sup> A website (<http://www.centralchronicle.com/index.htm> [accessed on October 10, 2005]) reports that the Lisu in India are mainly distributed in the villages of Gandhigram, Hazulu, Vijaynagar, Sidikhu, and Pritnagar in Changlang, Arunachal Pradesh State. They may also be living in Miao and Kharsang townships in Changlang (Maitra 1993). Other than these Lisu populated villages, Maitra 1993 reports that one Lisu family is still located around Ledo in the Dibrugarh district, Assam State and another one at Mawlai in Shillong city, Meghalaya State, which probably is the most westerly residence of the Nisoic people. Maitra 1993 also mentions that there could be Lisu people living in Bhutan, but this has not been confirmed by other sources. Based on the population data from Maitra 1993, the Lisu population in India currently could be estimated to be around 2,300 with a population rate of increase at 2.5%.<sup>21</sup> However, Arunachalam et al's 2004 reports that the Lisu population in 2001 was 3,037, as shown in Table 1.6. The current Lisu population could be about 3,400 if I follow the Arunachalam et al's 2004 report.

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<sup>20</sup> The 1293 Lisu figure could be based on Maitra's household census data collected either on Maitra's first trip (1981), second trip (1982) or last trip (1986) to Arunachal Pradesh. Bradley (1979, 1997) reports that there are several thousand *Lisu* people in northeastern India; but, he adjusted this number to be about 1,000 in his recent research (Bradley 2003b, also Bradley 1994). A website reports that there are about 3,000 Lisu people living in eight villages in northeastern India (<http://www.sruti.com/April02/aprn&n4.html> [accessed on October 10, 2005]).

<sup>21</sup> Interestingly enough, this estimated is coincidentally the same figure as given by the website at <http://www.centralchronicle.com/index.htm> [accessed on October 10, 2005].

Table 1.6 The Lisu Population inside Periphery of Namdapha Nature Reserve

<u>Village Name</u>	<u>2001</u>	<u>2010 Est.</u>
Gandhigram	2000	2,560
Sidikhu	183	234
Hozolo	280	358
Daudi	279	357
38 mile	165	211
52 mile	130	166
<u>Total</u>	3,037	3,888

**Source and Note:**

1. Other than the 2010 estimate data, all the information in Table 1.6 is taken from Arunachalam et al's 2004, in which the population data is based on India's 2001 census.
2. This population data does not include other possible Lisu populations in India, such as Ledo, Mawlai, Miao, and Kharsang, so the putative Lisu population must be higher than the total population given in Table 1.6; the present writer could imagine an estimate of about 3,500.

According to Arunachalam et al 2004, the Lisu villages Gandhigram, Sidikhu, Hozolo, and Daudi (Vijaynagar) in Table 1.6 are located in the southeastern periphery of Namdapha Nature Reserve and the other two villages are inside the core of it.

*1.4.7 Recategorization of the Nisoic Ethnic Groups*

Putting together all the information discussed above, a summary of different Nisoic ethnic groups with their population can be made according to major ethnic groups. See Table 1.7 below.



Table 1.7 Summary of Population Estimation of Nisoic People by Major Ethnicities in 2010

<u>Ethnonym</u>	<u>China</u>	<u>Myanmar</u>	<u>Thailand</u>	<u>Laos</u>	<u>Vietnam</u>	<u>India</u>	<u>Total</u>
Yi/Lolo/Pula	9,160,473	7,097	---	2,038	15,005	---	9,184,613
Hani/Akha/Kaw	1,651,151	292,074	72,274	97,369	25,274	---	2,138,142
Lisu	701,338	252,335	45,568	---	---	3,888	1,003,129
Lahu/Kwi	500,181	223,612	118,989	21,681	9,059	0	873,522
Naxi	343,522	---	---	---	---	---	343,522
Jinuo	23,747	---	---	---	---	---	23,747
Kazhuo	6,383	---	---	---	---	---	6,383
Nusu/Rouruo	13,675	---	---	---	---	---	13,675
Bisu	---	---	1,448	---	---	---	1,448
Mpi	---	---	2,172	---	---	---	2,172
Sila	---	---	---	2,566	1,395	---	3,961
Singsili	---	---	---	51,610	---	---	51,610
Phana	---	---	---	486	---	---	486
Kado	---	---	---	256	---	---	256
Kongsat	---	---	---	148	---	---	148
Poussang	---	---	---	2,488	---	---	2,488
Công	---	---	---	---	2,367	---	2,367
<u>Total</u>	12,400,470	775,118	240,451	178,642	53,100	3,888	13,651,669

Table 1.7 contains ethnic groups of different provenance, some from official and others from ethnolinguistic sources, and it is necessary to add them either in accordance with official categorization or ethnolinguistic classification. Table 1.8 gives the former groupings; for the ethnolinguistic classification, I will return to this point in Chapter 4. Regarding the grouping of different ethnic groups into one that has an official minority status, there is rarely much disagreement from country to country

due to political considerations and/or lack of adequate ethnic investigations. As such, a designation of an ethnic minority may vary from one country to another, making it necessary to recategorize them here by following a maximum minimization principle, i.e., maximally grouping related ethnic minorities into a higher category based on a country's ethnic classification, which has the minimum term(s) for these related ethnic groups in question. For example, owing to different official classifications of Akha and Hani in different countries, where countries like the Lao PDR treat Akha and Hani as separate ethnic minorities, while other countries like China regard them as one ethnicity, one cannot statistically distinguish how many Akha or Hani there are in China or in other countries that treat them as one ethnic minority. In order to avoid such a disagreement, I must regroup ethnic groups solely on their linguistic affinity regardless of their official designations in various countries. As such, I deliberately categorize these two ethnic groups as one, namely Hani/Akha. Similarly, the Lahu and Kwi are grouped as the Lahu/Kui category, and Yi, Lolo, Pula, Mo'ang or Maang, and other officially recognized Yi groups are grouped as Yi/Lolo/Pula, as shown in Table 1.8.

Table 1.8 Summary of Population Estimation of Nisoic People by Official Ethnicities in 2010

<u>Ethnonym</u>	<u>China</u>	<u>Myanmar</u>	<u>Thailand</u>	<u>Laos</u>	<u>Vietnam</u>	<u>India</u>	<u>Total</u>
Yi/Lolo/Pula	9,160,473	7,097	---	2,038	15,005	---	9,184,613
Hani/Akha	1,651,151	292,074	72,274	100,113	25,274	---	2,140,886
Lisu	701,338	252,335	45,568	---	---	3,888	1,003,129
Lahu/Kwi	500,181	223,612	122,609	24,247	12,821	---	883,470
Naxi	343,522	---	---	---	---	---	343,522
Singsili	---	---	---	52,244	---	---	52,244
Jinuo	23,747	---	---	---	---	---	23,747
Nu	13,675	---	---	---	---	---	13,675
Mongolian	6,383	---	---	---	---	---	6,383
<u>Total</u>	12,400,470	775,118	240,451	178,642	53,100	3,888	13,651,669

**Note:**

1. *Mongolian* includes only the Kazhuo ethnic group in Yunnan, and the Nu minority only includes the Nusu and Rouruo (or Zaozuo) ethnic groups.
2. Mpi and Bisu of Thailand have been grouped under the Lahu/Kwi category.
3. Kado and Pousang of Laos have been grouped under Hani/Akha.
4. Kangsat and Phana of Laos have been grouped under Singsili (Phunoi) minority.
5. Sila of Laos goes to Lahu/Kwi category.
6. Cồông and Si La of Vietnam have been grouped under Lahu/Kwi.

Ethnically speaking, in terms of recategorization in Table 1.9, the largest group among Nisoic ethnic groups is the Yi/Lolo/Pula, which represents about 67.28%, followed by Hani/Akha (15.68%), Lisu (7.35%), Lahu/Kwi (6.47%), Naxi (2.52%), Singsili (0.38%), Jinuo (0.17%), Nu (0.10%), and Mongolian (0.05%) in descending order, as shown in Table 1.9.

Table 1.9 Composition of Nisoic Populations by Official Ethnicities in 2010

<u>Ethnonym</u>	<u>Population</u>	<u>Percentage</u>
Yi/Lolo/Pula	9,184,613	67.28%
Hani/Akha	2,140,886	15.68%
Lisu	1,003,129	7.35%
Lahu/Kwi	883,470	6.47%
Naxi	343,522	2.52%
Singsili	52,244	0.38%
Jinuo	23,747	0.17%
Nu	13,675	0.10%
Mongolian	6,383	0.05%
<u>Total</u>	13,651,669	100.00%

Nationally speaking, the majority of Nisoic people (90.83% of the total population) reside in China, followed by Myanmar (5.68%), Thailand (1.76%), Laos (1.31%), Vietnam (0.39%), and India (0.03%) in descending order, as shown in Table 1.10.

Table 1.10 Composition of Nisoic Populations by Countries in 2010

<u>County</u>	<u>Population</u>	<u>Percentage</u>
China	12,400,470	90.83%
Myanmar	775,118	5.68%
Thailand	240,451	1.76%
Laos	178,642	1.31%
Vietnam	53,100	0.39%
India	3,888	0.03%
<u>Total</u>	13,651,669	100.00%

### 1.5 The Homeland and the Time-Depth of the Nisoic Ethnic Groups

This dissertation assumes, based on the information gathered from various previous studies (Yi 2000, Chen 1998, and Feng 1994, among others), that the original homeland of the Proto-Nisoic people was the west side of the *Chengdu Plain* 成都平原 and the mountainous region of its boundary, where the major rivers Min River 岷江, Dadu River 大渡河, and many small rivers run from north to south along the mountain valleys. It is from this region where the proto-Nisoic people started their outward expansion some time during the early *Old Shu Kingdom* 古蜀国 (2500 BC ~ 316 BC), which corresponds to the period from the Shang Dynasty 商 to the Qin Dynasty 秦 (cf. Yi 2000).

#### *1.5.1 The Discovery of the Dinggong Pottery Inscriptions and the Origin of the Yi People*

The origin of Proto-Yi, when the Proto-Nisoic people still dwelled together, may be dated back to as early as the late Neolithic time of the Longshan Culture 龙山文化 in present day Shandong Province. This assumption bases on associating the Yi minority writing system with the written symbols found on the *Dinggong Pottery Inscriptions* (DPI) 丁公陶文 (about 2,200 BC) of the ancient *East Yi* 东夷 groups

(Feng 1993 and 1994, Chen 1998, and Bian 1994).<sup>22</sup> Since the discovery of the DPI, some historians and archaeologists in China have endeavored to build a connection, at least in regard to writing, between the ancient East Yi groups and the modern Yi minority. According to ED 1993 and Feng 1993, the general idea is that the DPI are symbols with orthographic properties rather than assemblages of symbols from those found in other cultural sites, which do not as carry much writing information. Moreover, scholars agree that there is almost no inherent connection between these pottery inscriptions and *Jiaguwen* 甲骨文, the ancestor script of the contemporary Han Chinese writing system, which is regarded as a very well-developed writing at the time of the Shang Dynasty (ED 1993). Quite the opposite, they find that there is an inherent connection between the Yi writing system and DPIs (ED 1993, Feng 1993 and 1994, Chen 1998). Feng 1993 and 1994 have tried to decipher these DPI symbols by using ancient Yi writings to construe them successfully and convincingly (Chen 1998). There is indeed some similarity existing between the DPIs and classical Yi scripts in some respects, such as the radicals, the structure of graphs, the appearance of graphs (both having more rounded shapes), and the way of forming characters as shown in Figure 1.2, however; Feng (1993, 1994) seems to presuppose a linkage even before starting his interpretation, and this seriously jeopardizes his argument. This is manifested in two respects. First, deciphering a sentence connecting the name, *Dumu*, the common ancestor of contemporary Yi or Nisoic peoples, remains dubious because *Dumu* has been generally regarded as an emperor or a legend who lived in the period of the *Great Flood* 洪水泛滥 in the late West Zhou 西周 or early East Zhou 东周 (roughly about 800 BC ~ 600 BC) in the Old Shu Kingdom in what is in the present Chengdu Plain (Yi 2000, Long 1993); by contrast, the *East Yi* lived about 2200 BC in today's Shandong Province of east China where the DPI were discovered. Second, he assumes a figure of 32 years as the birth when calculating An's 115 patrilineal generations to infer the connection between modern Yi and the ancient East Yi.<sup>23</sup> This doubtful

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<sup>22</sup> The term *East Yi* 东夷 is a general name for ancient people living in the area of what is present Shandong Province and north Anhui Province, who have been regarded to have existed from legendary Wu Di 五帝 or Five Great Emperors to Shang Dynasty, i.e., in the period of mid or late Neolithic age; and the East Yi groups have been assumed of different cultures from other cultural types of Huaxia groups 华夏, Qiang-Rong groups 羌-戎, Baiyue 百越 groups or *Hundred Yue*, and Baipu groups 百濮 in ancient China.

<sup>23</sup> The general generation calculation for the *patrilineal father-son naming system* is 25 years. Some scholars suggest using 20 years for Yi generation calculation instead of 25 years in accordance to the Yi traditional early marriage practice. The most reliable document of calculating Yi generations is usually based on *An family's* paternal line in Guizhou Province, which counts 115

calculation of a common lineage not only weakens the outcome of his DPI interpretation, but also is not compatible with the Yi tradition of early marriage. Thus, these two aspects violate his interpretation of the DPI and a connection to the ancient Yi. They are more similar to the classical Yi scripts than to any other writings found in China. Obviously, the attempt to prove that the modern Yi or Nisoic people are descendants of *East Yi* groups necessitates further evidence.

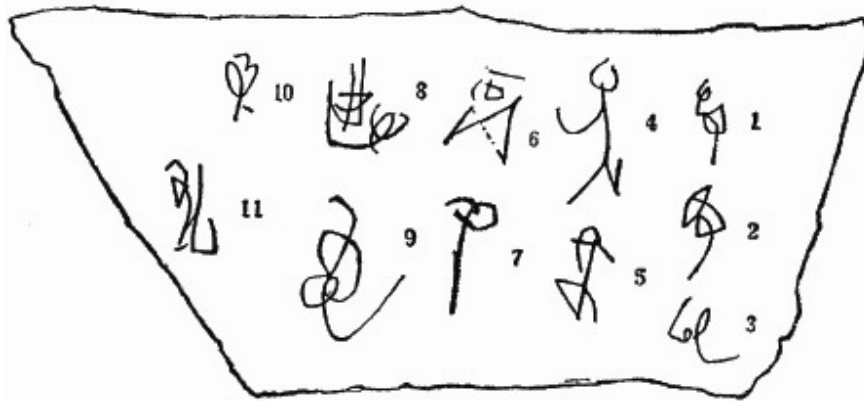


Figure 1.3 The Dinggong Pottery Inscriptions found in Zouping 邹平, Shangdong Province (Feng 1994)

### 1.5.2 The Supposed Westward Migration of the East Yi

Chen 1998, based on previous studies (Duan 1982, Yin 1985, Yi 1991, Feng 1993 and 1994, Bian 1994, and others), associates the origin of the modern Yi minority with the *East Yi* groups. In addition to evidence of the DPIs listed in Feng 1993 and 1994, Chen 1998 employs archeological evidence such as the similarity of making potteries found both several cultural sites in north Hubei 湖北 and the Siwa Culture 寺洼文化 in southeast Gansu 甘肃 as well as legends and myths recorded in ancient Chinese documents in the Spring and Autumn 春秋 and the Han Dynasty 汉代. He basically hypothesizes that for the Yi minority, from the site of the ancient *East Yi* to its current location in southwest China (Sichuan, Yunnan, Guizhou, and Guangxi), three huge migratory movements were involved: Shandong → Hubei → Gansu → SW China. First, he argues, several *East Yi* clans, mainly from the *Yun Family* 妘 (嬭)姓 and the *Kunwu Branch* 昆吾 of the *Ji Family* 己姓, moved southwestward to Edong 鄂东 (east Hubei Province 湖

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generations from the first ancestor, *Ximuzhe* 希幕遮 to the last one Efen Mingzong 额奋明宗 or An Shengzu 安胜祖 in Han Chinese (1698 A.D) (Cited from Yi 2000). Scholars often use this 25-year generation calculation to determine the history of the Yi.

北) at the *Yun River* 涇水 region late in the Neolithic period (about the early phase or middle phase of the Longshan Culture) and then formed, with the aboriginal *San Miao* 三苗 or *Three Miao*, a new *east Yi* group called *Zhurong Collective Grouping* 祝融集团. Second, from the *Yun River* region, the *San Miao* people,<sup>24</sup> including these descendants of *East Yi*, continued to travel northwestward to the *Sanwei* 三危 area,<sup>25</sup> i.e. the present *Tao River* 洮水 region in southeast Gansu Province 甘肃, during the legendary period of *Yao-Shun* 尧舜 or roughly when it was the late phase of Longshan Culture Period. This movement became what is called ‘Migrate the Three Miao to the Three Dangerous Areas’ (迁三苗于三危) in Chinese legends. At there, part of the *San Miao* became members of the *Quanyi* 畎夷 or *Quanrong* 犬戎 groups (their core members were *East Yi*: the *Xianyun Branch* 狴狴 or 狴狴 of the *Yun Family* 允 (妘) and *Kunyi Branch* 昆夷 of the *Ji Family* 釐 (己)), which were also termed the *Early Di People* 早期氐人 due to differences from aboriginal *Qiang* and *Rong* people and the fact that they had been very active over the course of the Xia, Shang, and Zhou dynasties.

However, treating or viewing the Early Di People as the ancestor of today’s Yi or Nisoic people is somehow not convincing as is seen from the archaic language residues in modern Yi language. Such an expression contains pejorative meanings toward the Di people and the *Pu people* 濮, for example, in the saying *O33phu21 mhu33ti33* ‘*Pu*’s head and *Di*’s tail’, i.e. ‘strange attires’. These kinds of expressions could have arisen from the time when the East Yi contacted the Di people in the today’s northwest Sichuan. If the East Yi were a member of the Early Di people, they would not have had expressions as such. Therefore, at least, I can deduce that Ni people did not regard themselves as a member of Di or Pu. Later when the East Yi moved further south and had a contact with more aboriginal Pu and the Ba people in the West Chengdu Plain, similar expressions has served in present Nuosu language, like *Phu21zu33 pa33zu33 su21* ‘(One’s behavior) likes a *Pu* or a Ba person’, i.e. ‘not civilized’. If the Yi or Nisoic people originated in Shandong in eastern China and migrated to southern Gansu in northwestern China or even to

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<sup>24</sup> The *San Miao* or *Three Miao* is a general term referring to the aboriginal *San Miao* people and those arrival *Yun* family and the *Kunwu* branch of *Ji* family of the *East Yi*,

<sup>25</sup> This migration is the so called ‘Migrate the Three Miao to the Sanwei Area’ (迁三苗于三危) in Chinese legendary documents.

the West Chengdu plain, they must have always strongly differentiated themselves from other tribes like the Di, the Pu, and Ba peoples. Third, according to Chen 1998, while part of these migrants formed the *Di* groups in northwestern China, some of them continued marching southward to present day southwest China, the current homeland of the Nisoic people, along the Min River 岷江, during the late Shang Dynasty and the beginning of the Qin Dynasty 秦朝. If Chen 1998's hypothesis holds, then, at the place where the second migration stopped, the East Yi, who later became the present Yi or Nisoic ancestors, must have stayed there for a considerable time and had intensive contact with the *Qiang* 羌 groups, the aboriginal people, and formed the so-called *Di-Qiang* 氐羌 groups or *Qiang-Rong* 羌戎 groups. If these united groups are not genetically related, then, an intensive contact between the *East Yi* descendants and the aboriginal people, probably including Tibetanic, Jiarongic, Qiangic, and Burmic people, could be the reason for forming the solid linguistic alliance between the Nisoic languages and the rest of the TB languages in the region.

Recent DNA studies (Wen et al. 2004 and Su et al. 2000) testify that there is a strong connection among these ethnic groups. With a limited number of TB ethnicities employed in their studies, Wen et al. 2004 finds that almost all TB populations, except for Naxi and Pumi, possess a high frequency of two M122-C mutations: O3\* and O3e haplogroups; also these TB ethnic groups share an extremely high frequency of M134-deletion derived from M122-C. These DNA studies suggest that TB ethnic groups should be derived from a common ancestor. Perhaps that common ancestor might be from NW China as suggested in Su et al (1999), which reports that the TB precursors arrived at the headwaters of the Yellow River about 8000-6000 BCE.

It is not certain whether today's Yi ethnicity and other Nisoic ethnic groups have had a direct connection to the East Yi evidence regarding their origin, at least there are no linguistic and genetic evidence to support this idea. Therefore, the assertion that Yi originated in Eastern Yi (East China) championed by Duan 1982, Yin 1985, Yi 1991, Feng 1993 and 1994, Bian 1994, and others is far from convincing. After all, legends and questionable DPI symbols appear very weak. The DPI, as discussed in Bian 1994, Feng 1993 and 1994, and Chen 1998, is the strongest evidence for them to favor the East



Origin of Yi or Nisoic people. But still scholars debate whether the DPI found in Shandong are a pre-form of Yi writing, though most scholars disagree whether these symbols are the ancestral form of Han Chinese writing due to the lack of an inherited connection between the DPI and oracle bone writing. Though new and unusual, the assertion that the Yi or Nisoic people originated from East China fails to persuade. Chen et al. 1982 also hold a similar view that the Yi people originated in Chu State, i.e., Hubei and Hunan provinces, by comparing the Yi traditional poems with *Songs of Chu* or *Chu Ci* 楚辞, a collection of poems sung as songs in local vernacular of Chu State during the Spring-Autumn Period. But this view is also not confirmed by other evidence.

### 1.5.3 *The Old Shu Kingdom: The Civilization of the Nisoic Ethnic People*

If there is any validity to the view expressed in Chen 1998, it must be his discussion of the *East Yi*'s third migration, for which he does not offer any detail or supporting evidence. Yi's work (2000) makes up for this shortcoming. Aided by Yi traditional documents and Chinese historical gazetteers and chronologies as well as archaeological discoveries, Yi 2000 takes Chen's hypothesis of *East Yi westward migration* and develops a completely new view regarding the origin of Yi minority people. He proposes that the present Yi people originated from two major sources: the matrilineal ancestor *Kunyi* 昆夷, descendants of migrated *East Yi* people, and the patrilineal ancestor *Shushan Clan* or *Family of Shu Mountain* 蜀山氏, the aboriginal people in the *Qionglai Mountain* 邛崃山 (which at that time included the present-day *Qionglai Mountain* as well as the *Min Mountain* 岷山), and the descendants of the legendary *Huangdi* 黄帝 family in *Central China* 中原. Without any supporting evidence, Yi 2000 states that far before the late Spring-Autumn Period 春秋时期 (770 BC ~ 476 BC), the *Kunyi* had contacted a branch of *Saka* people in the *Hexi Corridor* 河西走廊 who had migrated from central Asia in the late seventh century BC. According to Yi 2000, presumably during the period from late *Shang Dynasty* to early *Zhou Dynasty*, a branch of the *Shu Clan* or *Shu* people, who used to live in the *Min Mountain* region and who had close contact with *Huangdi* groups in *Central China*, entered into the *Lu area of Qiong* 邛之鹵 (i.e. the present northern region of the *Dadu River* (*Lu River*) 大渡河 (泸水) of western Sichuan as well as its

branch the *Qingyi* River 青衣江 in the east basin of *Qionglai* mountain) from 旄牛徼外 (i.e. the external-boundary of the *Maoni* area -- present Luding county in Sichuan) and then moved onto the *Chengdu Plain*. Then later came the *Kunyi* people, who had already acculturated and absorbed the Saka people by that time. In Chengdu Plain, the *Kunyi* and *Shu* became an ally or evolved as a unit, who together with aboriginal *Pu* people 濮人 developed into the *Early Shu People* 早期蜀人 and built their own Old Shu Kingdom 古蜀国. The first king of which is said a person named *Cancong* 蚕丛. Yi 2000 suspects that the first King *Cancong* was one of the old Yi ancestors named *Wuluocuo* 武洛撮 and almost asserts that the first emperor of *Duyu* 杜宇 was the same person, *Dumu* 笃慕, the legendary father of the six traditional branches of the Yi (Wu 武, Zha 乍, Nuo 糯, Heng 恒, Bu 布, and Mo 默) and the co-ancestor of modern Yi and Hani people.<sup>26</sup> Indeed, it is highly possible that *Duyu* and *Dumu* might have been the same person. This conjecture could be supported by the following: first their names are phonetically similar; second, both of them suffered the *deluge ignominy* in their time, as is reported in Chinese and Yi legendary documents as well as in the Yi people's memory of the past; third, both lived roughly in late West Zhou or early East Zhou Dynasty, as is attested in Chinese documents and roughly deduced from the *An Family* patrilineal generations based on an account of a 25-year generation.

#### 1.5.4 Evidence of the Yi or Nisoic People Originated from the West Chengdu Plain

The Yi people might have originally resided in West Chengdu Plain. Yi 2000 and many other scholars regard that the Yi or Nisoic ethnicities originated in the area that is located northwestern Sichuan and Southern Gansu. This area often sees snows in a year. Interestingly, this phenomenon is somehow reflected in a Yi people legend which says that human beings evolved and originated from snow.

However, much evidence support this view is not the 'legend', rather archeological discovery of written scripts found in Sichuan province. Tellingly, Yi 2000 doesn't mention this crucial evidence in his

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<sup>26</sup> The Yi people strongly regard themselves are descendants of *Dumu*, who, as has been documented in traditional Yi scripts and oral accounts passed generation by generation among Yi people, married three wives: *Chiyi Wutu* 蚩以武吐 who were the mother of *Wu* and *Zha* branches of Yi as well as Hani minority, *Nengyi Midou* 能以咪都 who were the mother of *Nuo* and *Heng* branches, and *Niyi Mibu* 尼以咪哺 who were the mother of *Bu* and *Mo* branches. The *Wu* and *Zha* branches' descendants have distributed into the west, central and south Yunnan; the *Nuo* and *Heng* branches' descendants have distributed into the northeast Yunnan and southern Sichuan; and the *Bu* and *Mo* branches' descendants have developed in east Yunnan, Guizhou and Guangxi area (XNYZHX 1982, XNYZH 1992, Long 1993, YZYL 1994, and Yi 2000).

work. Many written scripts called as *Bashu Ideograph* 巴蜀图语 have been found in west Sichuan in last century. Surprisingly, these graphs are much more like the Yi writing than anything else. The discovery of Bashu Ideograph may lead one to point out that the Yi people originated at West Chengdu Plain. In past decades, a lot of the inscribed symbols on the dagger-axes have been found in Sichuan at Pixian 郫县, Xindou 新都, Shifang 什邡, Emei 峨嵋, and other locations in Sichuan. Qian 1989, 1992, 1993a&b, 2005, and Feng 2004 strongly support the view of *East Yi* southward migration. The engraved dagger-axes, which have been found largely in Sichuan since the 1970s, not only show a physical resemblance and manufacture but also demonstrate a similarity of their writings as shown in Figure 1.4. The most significant discovery with respect to these dagger-axes is that their inscribed writings are almost the same as the scripts of the present Yi minority. Therefore, they could be viewed as vital evidence to support the *East Yi west migration hypothesis*, who became mixed or joined with the aboriginal *Shu* family in Chengdu Plain when they arrived there and built the Old Shu Kingdom (Gu Shuguo 古蜀国), and for centuries, continued moving southward to their current homeland in southwest China.

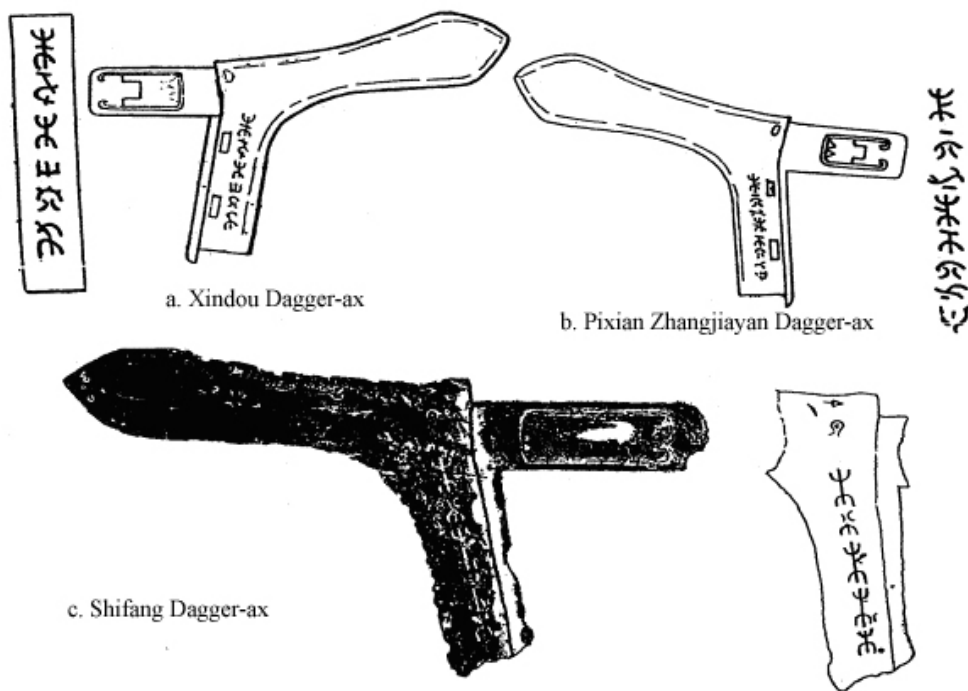


Figure 1.4 Dagger-ax inscriptions found in Xindu District 新都区, Zhangjiayan 张家碾, and Yuanshi Township 元石镇 (Shifang City 什邡市)

(This figure is taken from Feng 2004 with a minor change as noted by the present writer)

It is also reported by Feng 2004 that the seven similar writing symbols found in Emei at Fuxi 符溪 are mostly illegible due to serious rust and erosion. More and more reports about the Yi-script inscriptions have been published recently. According to Qian 2005, a triangular-dagger-ax with an *Old Shu* inscription collected in Sichuan belongs to the same type writing given in Figure 1.4, and the same kinds of dagger-ax inscriptions have been found in Dazhou city 达州市 at Qu county 渠县 and in Mianyang city 绵阳市 at Yanting county 盐亭县, which has 47 writing symbols inscribed on a stone stele. All these artifacts are believed to be produced during the Warring States period 战国时期 (475 BC ~ 221 BC).

The *Ba pictograph* or *Ba Symbol* maybe not directly connected to Yi writing, or at least, may not be as close to Yi writing as these Shu scripts shown in Figure 1.4. Other than the Shu Writing symbols on the dagger-axes given in Figure 1.4 above, there is another type of symbol, shown in Figure 1.4, found

largely in Sichuan, Chongqing 重庆, Hunan 湖南, Hubei 湖北, and Shanxi 陕西; this type of symbols is called as the *Ba Pictograph* (巴图形文) here. However, in the Bashu academic circle, both the Shu Writing and Ba Pictograph are together generally termed *Bashu Pictograph* 巴蜀图语, *Bashu Symbol* 巴蜀符号, or *Bashu Writing* 巴蜀文字.

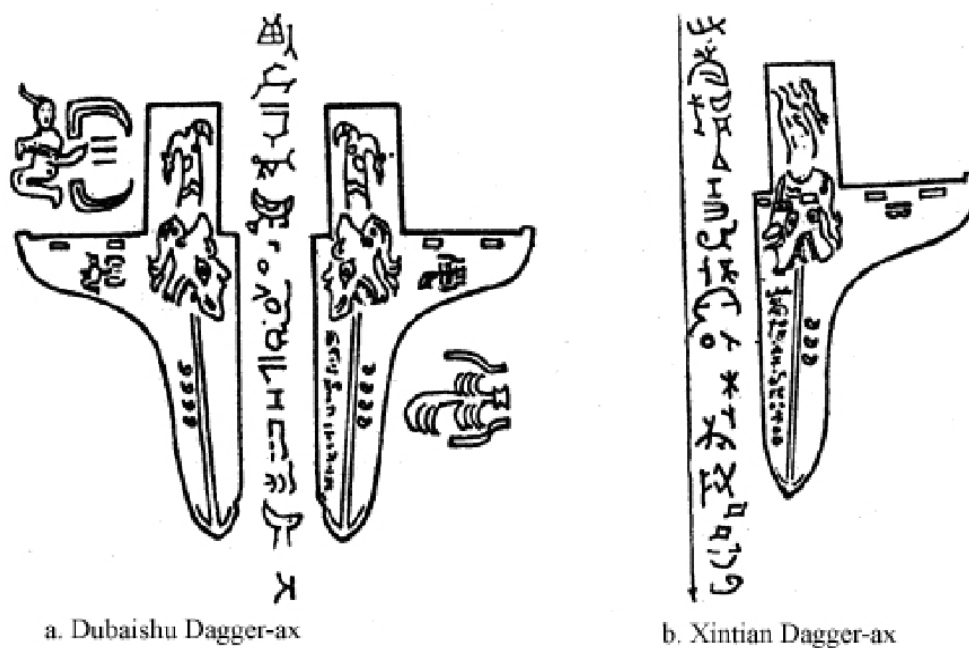


Figure 1.5 Dagger-ax inscriptions found in Dubaishu 独柏树 (Pi County 郫县) and Xintian 新田 (Wanzhou District 万州区)

(This figure is taken from Feng 2004 with a minor change as noted by the present writer).

The Shu writing and Ba pictograph are fundamentally different, since the Shu symbols as shown in Figure 1.4 are a mature, abstract, symbolic, and well developed orthography, like modern Yi writing. By contrast, the Ba symbols shown in Figure 1.5 are more picture-like, more primitive with a very strong pictographic orientation, like today's Naxi *Dongba* writing. Many scholars, including Bashu scholars, admit that the Bashu symbols are composed of two different types: the ideographic writing or Yi-script type in Figure 1.4 and the pictographic symbol like *Dongba* writing 东巴文 of the Naxi minority in Figure 1.5. It is not clear that there could be some common origins between these two writings. Moreover, it is

hard to explain why two different types of writing co-existed at the same time and mostly inscribed on the same or similar types of bronze dagger-axes and in the same geography with Shu writing almost found in the west and Bu symbols mainly in east. A plausible account for this is that the Old Shu Kingdom may have had at least two different constituents of its population with different civilizations and origins.

The Yi writing system may, at least, have originated in the Spring-Autumn period (770 BC ~ 476 BC), if not as early as the Shang Dynasty. Even I are still not certain that the DPI are the origin of the Yi writing system or that the DPI are remotely related to Yi scripts, I are very certain that the Shu writing symbols engraved on the dagger-axes found in Sichuan as shown in Figure 1.4 are among the ancestors of Yi writing. As one can see, these graphs are the same or almost identical to the traditional Yi scripts, suggesting that the Yi writing system has not gone through dramatic change over the past 2,500 years. Qian 1993a reports that there are two writing symbols inscribed on a pottery spinning-wheel 陶纺纶 found in a Shang Dynasty site in Chengdu at Shi'er Qiao 十二桥, and the first of these two pottery spinning-wheel inscriptions is almost identical to the Yi writing 𠄎. Duan 1991 argues that these two pottery spinning-wheel symbols have different originations from within the Han writing system, and they may be the ancestral form of the Bashu writing. If the view of Qian 1993 can be validated, then the origin of Yi writing must date back to the Shang Dynasty, since the site was determined to be about 3500 years old. The view that the Yi writing system originated before the Spring-Autumn period is also supported by Yi legends documented in *Southwest Yi Records Xinan Yizhi* (《西南彝志》), which states that the Yi writing originated in the 29<sup>th</sup> descendent generation from *Ximuzhe* 希慕遮, the first ancestor of the Yi authentic patrilineal father-son system, which corresponds to about 700 BC based on a calculation of twenty-five years as a generation. It is said that because a calamitous deluge occurred in the 31<sup>th</sup> descendent generation *Dumu* time, that is, *Duyu* of the Old Shu Kingdom in terms of the view of Yi 2000, the Dumu and his citizens moved southwestward into the triangle area of Sichuan, Guizhou, and Yunnan, where the six branches of the Yi people formed, developed and dispersed into the surrounding areas. Archeological evidence supports that the Yi people lived in this area at least not later than West Han period (205 BC ~ 25 AD) as shown in Figure 1.6.

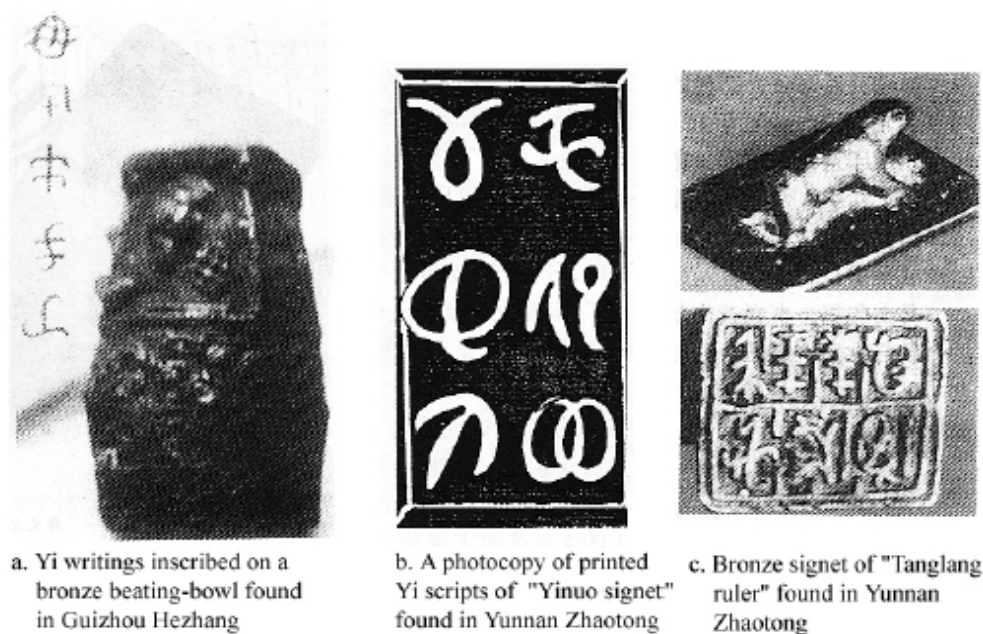


Figure 1.6 Yi scripts inscribed on a bronze beating-bowl and on signets

(Figure 1.6 a, b, and c are taken from Zhu 2003: 14, 21, and 23, respectively, with a minor change as noted by the present writer)

Figure 1.6 gives some examples of Yi script discoveries found in Guizhou at Hezhang and in Yunnan at Zhaotong. The ritual bronze bowl or 铜插钵 (Figure 1.6a) and the two signets (Figure 1.6 b & c) are believed to have been produced in the West Han period. Amazingly, unlike the Han Chinese writing system, the Yi writing symbols like those in Figure 1.6 have remained relatively constant over the past two thousand years.

#### 1.5.5 Language Evidence of the Origin of the Yi People in the West Chengdu Plain

Aside from discovery of evidence of the Yi writing scripts in Chengdu Plain, the linguistic archaeological evidence may serve as another piece of critical confirmation of the claim that the Yi people once lived in the Chengdu Plain before the Qin Dynasty 秦朝. Even today, the Yi people have some expressions in their language reflecting their contact with the aboriginal people *Pu* 濮 and *Ba* 巴, who have been regarded as the indigenous people of western and eastern Chengdu Plain, respectively. For example, the term *pu21zu33 ba33zu33 su21* refers to someone who is as stupid as a *Pu* or *Ba* person.

This expression signifies two things: (1) The Yi people were in contact with the *Pu* and *Ba* people, and (2) the Yi people themselves had, in their own eyes, a level of civilization higher than those aboriginal people before they entered the Chengdu Plain. Such words of contempt, preserved in modern Yi language, suggest that the Yi people historically had contact with the *Pu* and *Ba* people during East Yi occupation and acculturation of aboriginal people in the Chengdu Plain.

Yi 2000 believes the *Shu* people and the Yi or Ni (尼), the old autonym for the Yi people, group arrived in the Chengdu Plain one after another. However, it is highly possible that before the *Shu* people came in the Chengdu Plain by crossing over the Qionglai or Min Mountain, the Ni people and the *Shu* people had already been in an alley or evolved into a unit termed *\*Nishu*. This is why in the Yi languages there are no pejorative expressions for the *Shu* people, while there are many for the *Pu* and *Ba* people.<sup>27</sup> And, it is this compound autonym – *\*Nishu* – that is probably responsible for the development of various related autonoms of the present Nisoic ethnic groups. For example, the autonoms prefixed with *\*Ni/Na/Nuo-* and suffixed with *\*-Su/Shu/Hi* of the Nisoic people could be derived from the proto-autonym *\*Nisu*. I may surmise that the ancestors of many contemporary Nisoic people have evolved from this *\*Nisu* people before they arrived in the Chengdu Plain. The first branch was probably the Naxi people; then the other groups sprang off to yield the Lisu, Lahu, and Lolo (the west Yi), who all may have first migrated along the Dadu River before crossing or moving along the Yalong River (雅砻江), the Jinsha River (金沙江), the Lancang River (澜沧江) or Mekong River,<sup>28</sup> and the Nu River 怒江 or Salween River in southwest China and its neighboring countries. The cause of the Nisoic migration may be from a political coup that occurred during Dumu's (i.e., Duyu) control of the Old Shu Kingdom. Some Chinese legends document that Bieling 鳖灵, the state premier of Old Shu Kingdom, took power after he was successful in harnessing the flood prone Minjiang Rivers, and Emperor Dumu or Duyu and his loyal citizens were consequently forced into exile.

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<sup>27</sup> It should be noted that many Chinese sources cited from an incorrect translation of the Yi expression *o33ʂo33mu33ti33* to try to support their own claim of *Ni* and *Shu* being unrelated groups in Old Shu Kingdom in the Chengdu plain. However, this expression has been mistakenly translated as 'Shu head and Di tail'; the correct expression should be 'Shuo [probably it is derived from the *Ni* people calling of *Han* people of Shang Dynasty] head and Di tail', meaning 'bizarre attire'.

<sup>28</sup> The word Lancang, according to Dr. Edmondson, is loaned from Tai languages, meaning *Land of a Million Elephants = Laos*.



#### 1.5.6 Summary of the Nisoic People Origin

To summarize, the hypothetical proto-Nisoic unit, when the Proto-Nisoic peoples formed a relatively undifferentiated linguistic community, must have occurred after the merging of the *Kunyi* and the *Shu* clans and must have existed at least as early as the Shang Dynasty, if not before it—perhaps around 2000 BC, and their home territory was likely in the region of what is now northern Sichuan and southern Gansu, in the places between the Qionglai Mountain and the Min Mountain and in the valleys of the Min River. From there, the Nisoic peoples gradually fanned out along the rivers, valleys, and mountain bases, mainly in a southerly direction to southwest China. It should be noted, however, that the *Kunyi* and the *Shu* families may have spoken different languages and performed different cultures before they contacted and assimilated into one ethnic group, as suggested by their autonyms. These two major families may have formed an ethnic group *Nishu* in Min Mountain region of Old Shu Kingdom territory. While many of *Nishu* people branched off from this ancestral unit in the Min Mountain region and fanned outward, one group, mainly the ancestors of the Yi present-day Yi people, crossed over the Qionglai Mountain and marched to the West Chengdu Plain. They conquered the indigenous *Pu* people there, took power from the Old Shu Kingdom for centuries, and had been in contact with the *Ba* people to the east; however, they were later forced to leave, owing to political coups or by flood calamities, for the northeast region of Yunnan, under the leadership of King *Dumu*, leaving their dagger-axe inscriptions in the Chengdu Plain. In northeast Yunnan, *Dumu*'s descendants famed six branches—the basis of the modern Yi people.

#### 1.6 Organization of the Dissertation

This dissertation consists of seven chapters. Chapter 1 has introduced the purpose and motivation of this study; it has also briefly given the ethnic background of Nisoic people's population, distribution, originality, and migration. Chapter 2 surveys several major works that have had a strong influence on Nisoic language classification; it is intended to show the different opinions --- from perspectives of Chinese linguists and western linguists, on the Nisoic language subgrouping. It also addresses the issues of problems in Nisoic linguistic classifications. Chapter 3 introduces the methodology of writing this

dissertation; it chiefly discusses this dissertation's data collection, process, and analysis; it also introduces the approaches being used in Nisoic language subgrouping in chapters 5 and 6. Chapter 4 introduces the ethnolinguistic background of the languages studied in chapter 5 and 6; it also gives the charts of the phonemes of these languages. Chapter 5 is devoted to Nisoic language classification based on classical linguistic comparative method. It uses the criterion of shared phonological and lexical innovations to determine Nisoic language internal relationship. Chapter 6 further explores Nisoic subgrouping by using computational phylogenetic methods. It will confirm and reinforce language subgrouping of chapter 5. Chapter 7 concludes major discoveries in this study; it also discusses issues arisen from this study.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Introduction

It has been generally agreed that Niso-Bumic is a subgroup under TB, parallel to Tibetanic, Qiangic, and Jingpoic (Kachinic), etc. There remain however, some unresolved controversies about the delimitations of TB. First, the boundary between Niso-Burmic and other TB groups has not been completely settled. For example, Namuzi, a language closely related to Naxi of Nisoic, is considered a member of Qiangic Branch of TB by Sun (1983 and 1988), while others regard it as Nisoic (Huang 1992, Lama 1994). Li (2002) proposes a larger language subgroup connection called *Qiang-Burman* 羌缅语族 under TB, which consists of Qiangic and Niso-Burmic that is parallel to other TB branches. The second and the most debated issue is the internal relationship of languages under individual branches like Nisoic or Niso-Burmese. For example, Fu (1989 and 1991) and Dai et al (1989, also 1990) argue that Nusu is an independent subgroup positioned between Nisoic and Burmic, while not belonging to either of them. Other Chinese linguists assign Nusu to Nisoic (Sun et al. 2002).

Perhaps the most striking disagreement in Nisoic classification is the contrasting views between Chinese and western linguists. Western linguists embrace a tripartite view of Loloish, i.e., Nisoic subgroups: Northern, Central, and Southern (Bradley 1979),<sup>29</sup> while most Chinese linguists have not given a detailed internal classification of Nisoic languages. The differences about Nisoic language subgroupings may come from different criteria used for classification; the cause of the discrepancy may also lie in the understanding of the concepts *languages* vs. *dialects* among linguists.

Having talked general the background of Nisoic classification, we now turn discussion to matters of direct interest in this dissertation, the differences of perspective about Nisoic subgrouping.

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<sup>29</sup> Bradley (2002 & 2007) added yet a fourth Nisoic member, the Southeastern *Ngwi* (in his newly coined term) to his traditional three-way classification.

## 2.2 Different Views of Nisoic Subgrouping between Chinese Linguists and Foreign Scholars

There are two main proposals about the classification of *Nisoic* language with diversity both in nomenclature and in internal subgroups. The first point of difference is the name of the group. In China Nisoic is called the *Yiyuzhi* or the *Yi Language Branch* (YB), which is the account proposed and maintained by Chinese linguists. In the past foreign researchers have called the people groups and language groups Loloish or recently Ngwi.

The second point of difference is the gap between western and Chinese scholars on the internal structure; the differences of Nisoic here are multifaceted. Sino-Tibetan linguists East and West, such as Luo and Fu (1954), Bradley (1979, 1997, 2002, 2007), Ma (1991), Sun (1988&2002), Dai (1989), have carried out many field studies and investigations of the languages and how to put them into categories or subgroupings. All Nisoic experts agree that Nisoic is a subgroup of TB. For most Chinese linguists, the Nisoic (or the Yi Branch) Branch includes Yi, Hani, Naxi, Lisu, Jinuo, Kazhuo, Nusu, and Zaozou or Rouruo. There are few proposals that Nisoic has finer divisions. Some investigators have used the “big bang approach” in regard to language history, assuming research on the groups suffices if one can determine only the superstocks without determining any further organization between superstocks and contemporary languages. Research on contemporary languages has shown clearly that languages do not spawn their descendants at once, but rather with subgroups organized in treelike fashion. For western linguists Nisoic (or Loloish) has three or four subgroups: Southern Nisoic, Central Nisoic, Northern Nisoic, and Southeastern Nisoic, with each having subgroup consisting of 10 to 20 languages (Bradley 2004, 2005a & b, and 2007, among others). Neither East nor West has made a proposal with all the tree branches in place, from the trunk of the tree, Nisoic, down to the leaves (contemporary languages).

The discrepancy of Nisoic classification lies mainly in different understanding of the concepts *language* and *dialect*. For most Chinese ethnolinguists, one officially recognized nationality or *Minzu* must correspond to only one language; therefore, an ethnic nationality always possesses only a single language regardless of the distance among the varieties of this ‘language’. That is why the number of languages they put under the Nisoic nationality is so small (cf. Figure 2.2 and 2.3). In Contrast, western

scholarship on Nisoic is based on trees determined by linguistic evidence. Thus, some so-called “dialects” of an official ethnic minority according to Chinese classification may turn out to be different languages in this sense of language classification by western scholars (cf. Figure 2.9). In light of the different presuppositions, it is not surprising that one sees dramatically different numbers and organization of languages assigned to Nisoic by these two groups of scholars. It is to these questions we now turn.

### 2.3 Chinese Nisoic Language Subgrouping

For Chinese scholarship Nisoic subgrouping is rather straightforward: basically one official ethnicity corresponds to one language. Of course, such a manner of classification has been influenced by the policy of the 1950s used in ethnic classification (cf. Chapter 1). At the same time, Chinese scholars do rely on language data for the Nisoic subgrouping. As a result, two different criteria (*ethnic* and *linguistic*) for language classification can arise. As a consequence of the view “one ethnicity, one language”, the subgrouping of Nisoic by Chinese linguists is unavoidably contradictory. This view makes it impossible for Chinese linguists to provide a detailed classification that shows subgroups down to the language level. Nevertheless, there are many among Chinese scholars who have made elaborate proposals for the internal classification of Nisoic, and the work of these important figures is particularly important and influential.

#### *2.3.1 Luo and Fu's Proposal for the Nisoic (Yi) Branch (1954)*

As early as 1954 the first trained Chinese linguists, Luo Changpei and Fu Maoji, proposed a Yi Branch and established the basics of Yi-Burmese. Because the Yi ethnicity had the largest population among the YB minorities, so the term *Yi Branch* was chosen to represent the entirety of Nisoic languages. Luo and Fu's (1954: 30) Yi Branch include seven major languages: (1) Yi 彝语, including dialects Nuosu 诺苏, Naisu 乃苏, Shansu 山苏, Sani 撒尼, Talu 他鲁, among others, (2) Lisu 傈僳语, (3) Naxi 纳西语, (4) Hani 哈尼语, including Qidi 且地, Budu 布都, and others, (5) Lahu 拉祜语, (6) Achang 阿昌语, and (7) Minjia 民家语, including additional varieties Leimo 勒墨 and Nama 那马. In addition, the Tujia language spoken in west Hunan Province was tentatively assigned to this Yi Branch (The Tujia call themselves Biji 毕基, and speak a language that has some features similar to Yi). Today, Achang is now commonly regarded as a member of Burmic.

### 2.3.2 Sun's Proposal for the Nisoic (Yi) Branch (1988, 2002)

Sun 1988 and Sun et al 2002 give detailed accounts of TB subgrouping. Under his classification (cf. Figure 2.1), the TB (spoken in China) includes Nisoic (Yi Branch), Burmic (Burmese Branch), Tibetanic (Tibetan Branch), Qiangic (Qiang Branch), and Jingpoic (Jingpo Branch). As is shown in Figure 2.1, the Nisoic and Burmic are regarded as sister branches, and then Qiangic, is at the next level and then Jingpoic; Tibetanic is the most distant branch to Nisoic.

For the Nisoic Branch, Sun (1988: 33, cf. Figure 2.2) proposes three major subgroups under the Yi-Burmese: **Naxi-Yi** (including Naxi, Yi, Lisu, Lahu, Hani, and Jinuo), **Bai-Nusu** (including Nusu, Rouruo, and Bai), and **Tujia**. Later, this classification was slightly modified in Sun 2002 into **Naxi-Yi** (including Naxi, Hani, Jinuo, Lahu, Yi, Lisu, Nusu, and Zaozou or Rouruo), **Bai**, and **Tujia** three subgroups (cf. Figure 2.3).

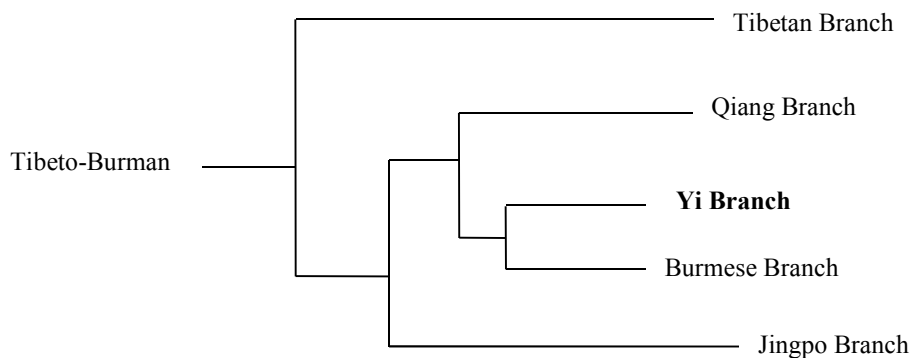


Figure 2.1 The position of the Nisoic (Yi) Branch under TB (Sun et al. 2002: 203)

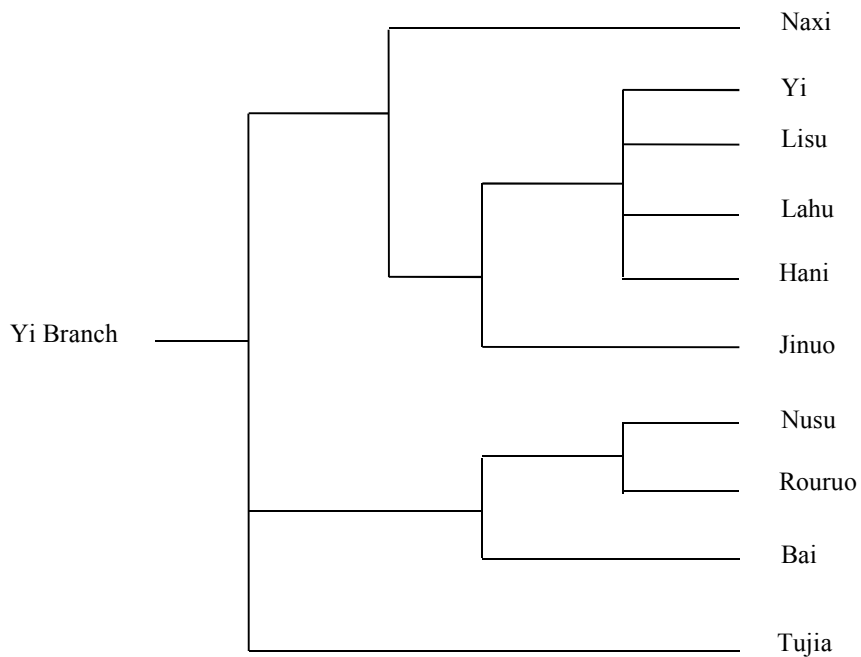


Figure 2.2 The taxonomy of the Nisoic (Yi) Branch (Sun 1988:33)

As is shown in Figure 2.2, the most noticeable feature of the subgrouping in Sun et al. 2002 is that Bai and Tujia languages are members of the Nisoic Branch. However, for many ST linguists, the affinity of Bai to Nisoic is very questionable. For example, Matisoff 2003 treats it as a singleton under TB. Dai et al. 1989 (Figure 2.4) treat Bai and Tujia as individual members under Southern TB, in a sister relationship to Niso-Burmic (*Burmese-Yi Branch* 缅彝语支) as well as to others like Qiangic, Jingpoic, etc. Bradley 2002 treats Bai and Tujia as Northeastern TB.

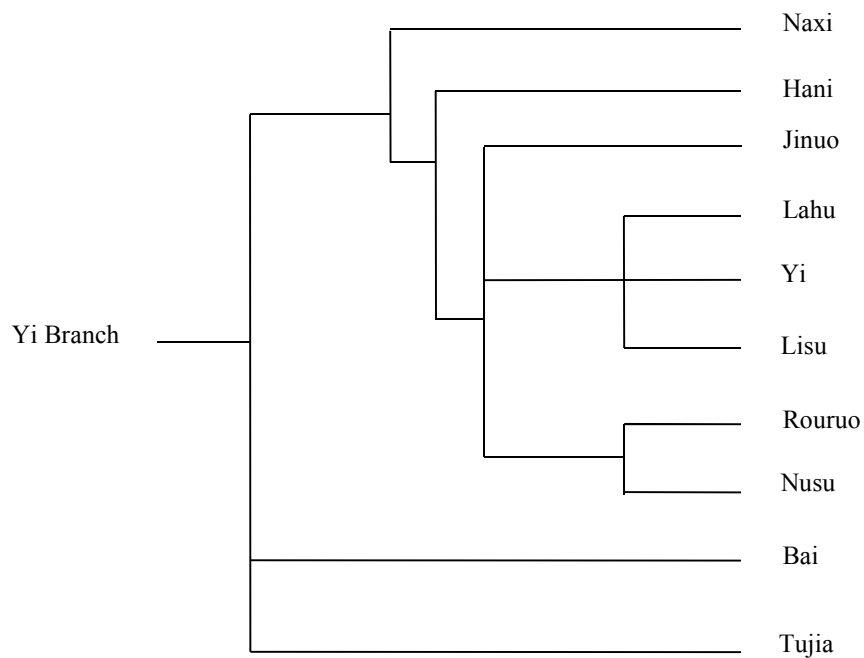


Figure 2.3 The language members of Nisoic (Yi) Branch (Sun 2002: 203)

In Figure 2.3, Naxi is viewed as the earliest branch-off of Nisoic. This treatment of Naxi is somewhat like Matisoff 1972 and Bradley 1979's subgroupings. Both Sun 1988 and 2002 do not give a detailed internal Nisoic classification.

### 2.3.3 Dai et al.'s Proposal for the Nisoic (Yi) Branch (1989, 1990)

Dai et al.'s (1989) proposes a classification scheme for TB, in which Nisoic belongs to the Southern TB family (南部语群), as is seen in Figure 2.4 below. Like many Chinese researchers, Dai et al.'s Nisoic classification doesn't specify internal members of the Nisoic Branch. As shown in Figure 2.4, the Nisoic (Yi-Set 彝语组), together with Burmic (Burmese-Set 缅语组) and Nusuic (Nu-Set 怒苏语组), comprises the Burmese-Yiic (缅彝语支). Under these three subgroups, the individual languages are listed. The significant difference of Dai et al.'s YB from others is that it treats Nusu as a connector language between Nisoic and Burmic.



The Nisoic classifications of Dai et al (1989, 1990) and Sun (1988, 2002) are distant from each other in the way of dealing with Bai and Tujia. Dai et al. assign independent status to Bai and Tujia at the same level as the Niso-Burmese under Southern TB family, while Sun’s Nisoic classification treats them as members of YB. In other words, Sun’s Nisoic Branch includes Bai and Tujia, but Dai excludes them.

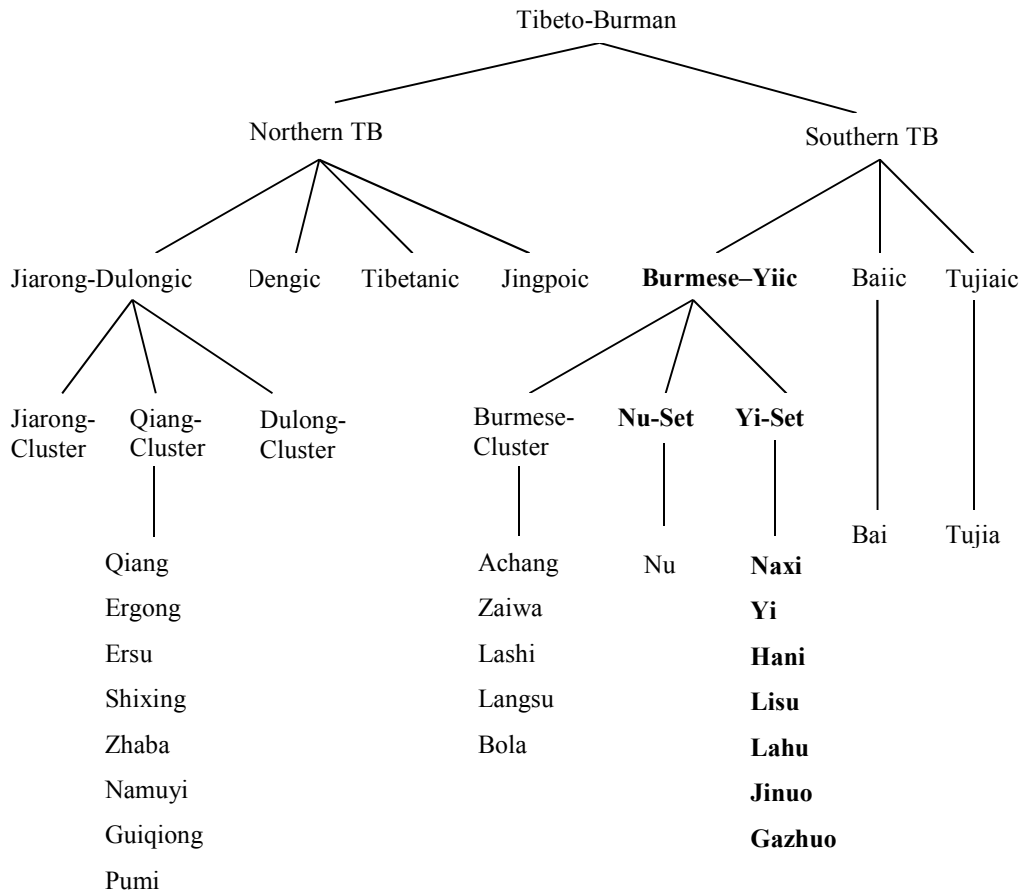


Figure 2.4 The Nisoic Branch under TB and its classification (Dai et al. 1990:434)

(Note: In this figure, *-ic* stands for *Yuzhi* 语支 and equivalent to *branch* in this dissertation, and *Yuzu* 语组 is equivalent of *cluster* suffixed with *-(o)id* in this dissertation)

Classification, like Sun et al. 2002, Dai et al.’s (1989), might have been influenced by the official minority categorization of the 1950s. Also, Dai et al. 1989/1990’s Yi, Hani, Lahu, and Lisu combines many ethnic subgroups, which Bradley placed under the different subgroups of Nisoic.

As will be shown in this research, the varieties of most Yi minorities, which are focal areas with shared innovation, can be grouped together as dialects of Yi language; but those with no shared innovation with others may or may not be a relic area). For example, the Mo'ang languages, though officially a member of Yi Nationality, are only distantly related to core Nisoic. According to Wu 1993, Mo'ang is clearly lexically close to Nisoic, but it is phonologically distant from it. He concludes that this language is relatively different from the Yi and the Nisoic Branch in general (Wu 1993: 63). It is obvious that the autonyms and cultural customs and practices of Mo'ang are very different from other branches among the Yi, therefore, Mo'ang and Maang must have separated quite early and have remained a relic area.

#### 2.3.4 *Li's Proposal for the Niso-Burmese Branch (2010)*

Li (2010: 44) proposes that the Niso-Burmese Branch 缅彝语支 is closely related to Qiang-Rong Branch 羌戎语支. In his view, the Niso-Burmese and Qiang-Rong make up an independent subgroup under TB called Qiang-Burmese Group 羌缅语群; other TB members at the same level are Tibeto-Himalaya 藏-喜马拉雅山语群, Jingpo 景颇语群, Kuki-Naga-Bodo 库基-那嘎-博多语群, and Karen 克伦语.

Like Bradley's (1979) earlier Nisoic subgrouping, Li's (2010) Nisoic consists of three major subgroups: Northern Cluster 北部语组, Central Cluster 中部语组, and Southern Cluster 南部语组. However, in an earlier version of Nisoic subgrouping, Li (1999: 19) classifies Nisoic into four subgroups: Northern Cluster 北部语组 (Yi), Northwestern Cluster 西北语组 (Naxi), Central Cluster 中部语组 (Nusu, Lisu, and Lahu), and Southern Cluster 南部语组 (Hani, Jinuo, Misu, and Sangkong). For Burmese, Li doesn't give a detailed subgrouping. For the detail of Li's TB classification, see Figure 2.5. While Li's Nisoic classification is basically the same as that of Bradley, he doesn't justify his taxonomy. In other words, there is no reasoned account of the subgrouping for Nisoic and Niso-Burmese. It is likely that his classification has been influenced by Bradley and other western scholars. However, some of the assumptions are very different from those of Bradley. For example, Li's proto tone configuration for Nisoic has 4 tones: \*A, \*B, \*C, and \*D, which is a checked tone, while both Bradley and Matisoff give a

three-way account of the tonal contrast for Nisoic non-checked syllables: \*1, \*2, and \*3 and two tones \*H and \*L for Nisoic checked syllables.

Li's idea to put Niso-Burmese and Qiang-Rong together to form a daughter under general TB is pretty new and differs from other classifications. But this subgrouping needs further investigation and argumentation to legitimize its status. Li's Qiang-Rong Branch includes languages Qiang 羌语, Pumi 普米语, Jiarong 加戎语, Muya 木雅语, Ersu 尔苏语, Ergong 尔龚语, Shixing 史兴语, Zhaba 扎坝语, Quye 却域语, Guiqiong 贵琼语, Lawurong 拉乌戎语, and Namuyi 纳木依语, etc. However, in this dissertation we argue that Namuyi is closely related to Naxi with an affiliation to Nisoic or Niso-Burmese.

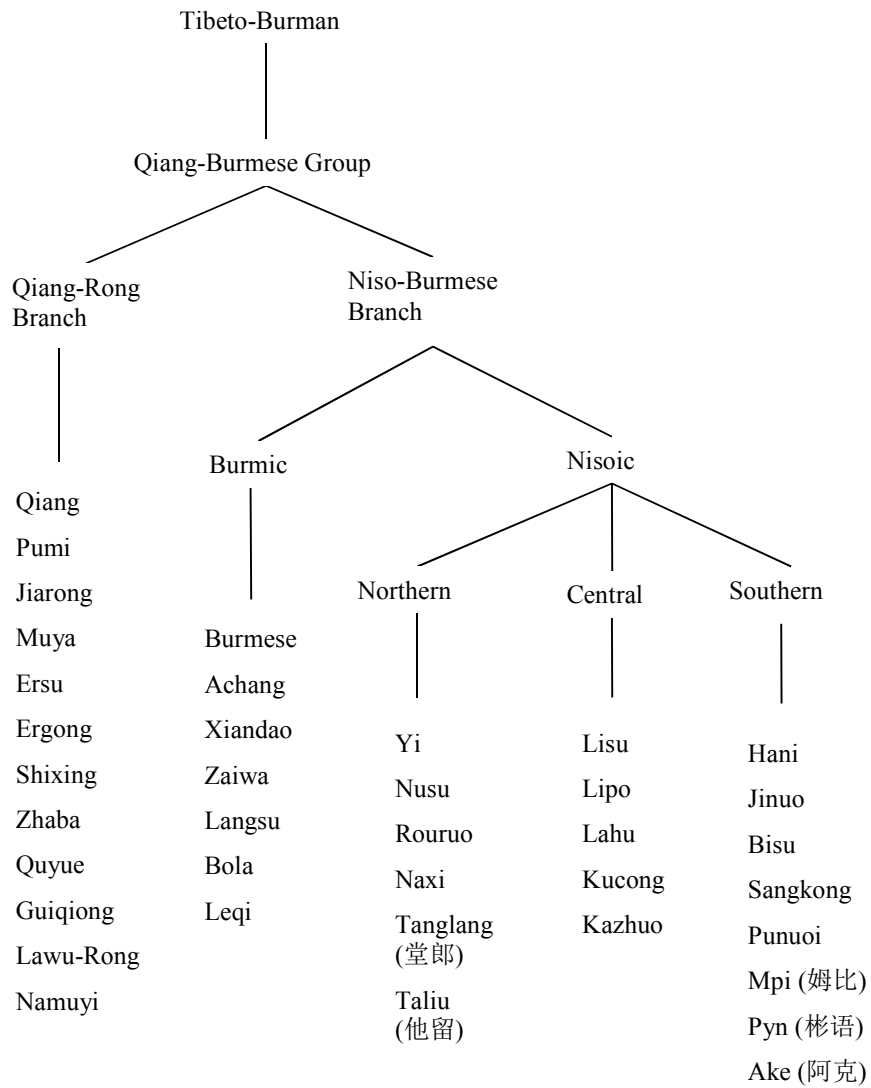


Figure 2.5 The Niso-Burmese and the Qiang-Rong under TB (Li 2010:44)

In addition to the classifications of Sun, Dai, and Li, Gai (1980, 2001) has proposed a Burmese-Nisoic Branch (缅彝语支), which consists of four subgroups: Nisoic (彝语支), Jingpoish (景颇语支), Burmic (缅语支), and Baiic (白语支), (Gai 2001: 14). Gai's Nisoic language Branch includes three clusters: 1) Yi, Hani, Lisu, Lahu, and Naxi, 2) Jinuo, and 3) Bai (Gai 2001: 27). But it is now much less clear what the affiliation of Bai is, cf. Wang 2006.

## 2.4 Western Nisoic Language Subgrouping

### *2.4.1 Bradley's Proposal for the Loloish Branch (1997, 2007)*

In western literature, Bradley's Loloish proposal has dominated since it was first proposed in 1979. Before Bradley, there were some scholars using the term *Loloish*, for example, Matisoff (1972) 'Loloish'. However, Bradley 1979 was the first to give a detailed internal classification for Loloish languages. Under his Loloish, there are three major components: Northern Loloish, Central Loloish, and Southern Loloish. Bradley (2002, 2004, 2005) and Pelkey (2005&2008) expand the Loloish stock to four subgroups with the newly added *Southeastern Loloish*. They also used a new term *Ngwi* to replade the old term *Loloish*. The fourth Loloish subgroup, according to Bradley (2002: 106), includes varieties of *Pu* (in China) or *Phula* (in Vietnam), *Muang*, *Kathu*, *Laghuu* and so forth.<sup>30</sup>

Bradley's Nisoic classification is represented here in his 1997's TB classification; as all his Nisoic classification remains unchanged except for terms. Bradley's Niso-Burmic (Burmese-Lolo) is shown in Figure 2.6 below:

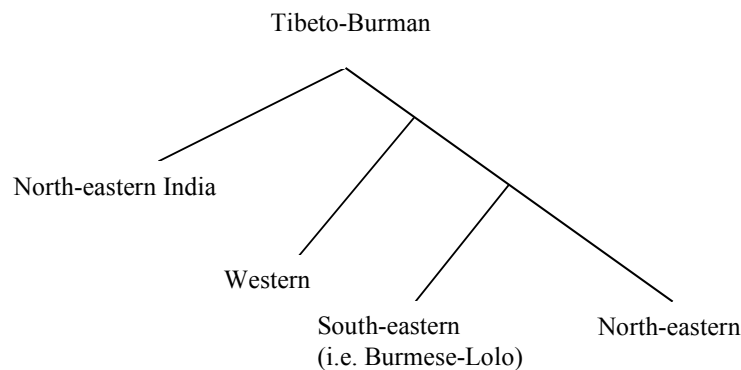


Figure 2.6 The Burmese-Lolo under TB (Bradley 1997: 2)

According to Bradley 1997, Burmese-Lolo belongs to South-Eastern TB. This TB taxonomy has been updated in Bradley 2002 to a model shown in Figure 2.7.

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<sup>30</sup> The *Pu* ethnic group in China has been assigned to a Yi category in early ethnic classification thus *Pu* becomes a *branch* of Yi nationality, but in Vietnam it is a separate nationality.

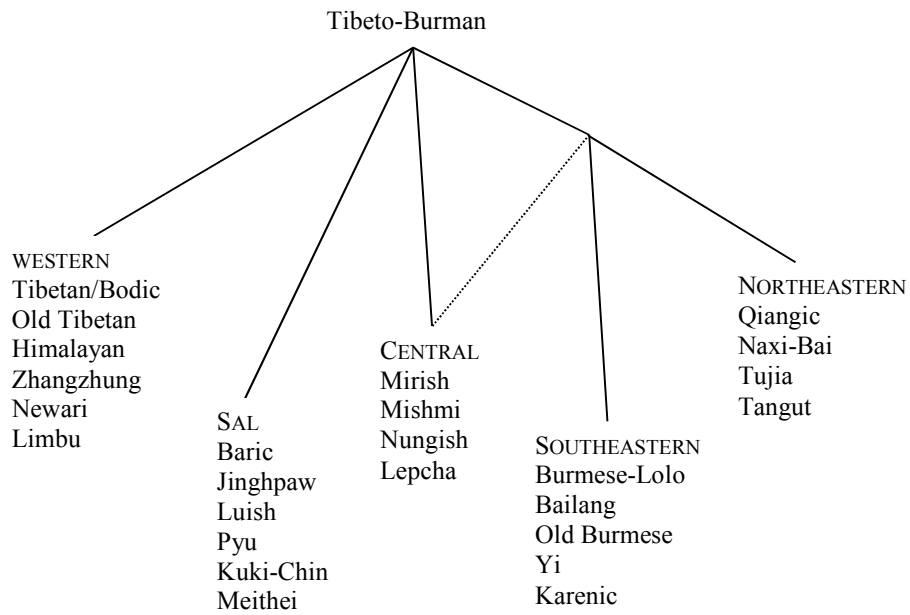


Figure 2.7 The Tibeto-Burman classification (Bradley 2002: 75)

In both Figure 2.6 and 2.7, Niso-Burmese, as well as Karen, is placed under Southeastern TB in Bradley's classifications

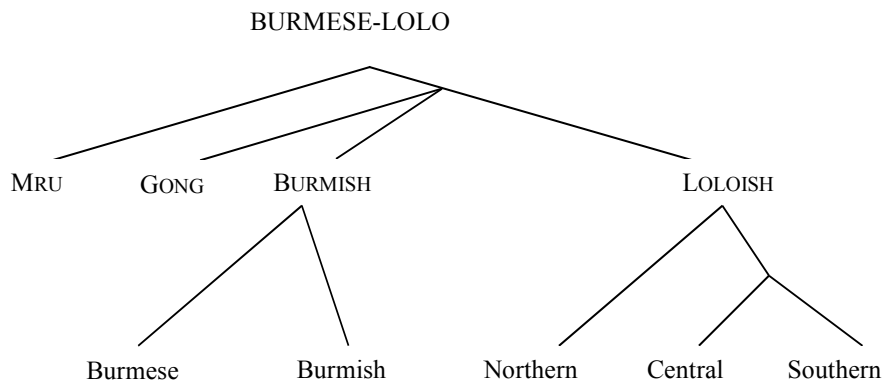


Figure 2.8 The Niso-Burmic (Burmese-Lolo) classification (Bradley 1997: 38)

As suggested in Figure 2.8, Bradley's Central Loloish and Southern Loloish are closer to each other than to Northern Loloish. Bradley's individual Loloish subgroups see figures 2.9, 2.10, and 2.11.

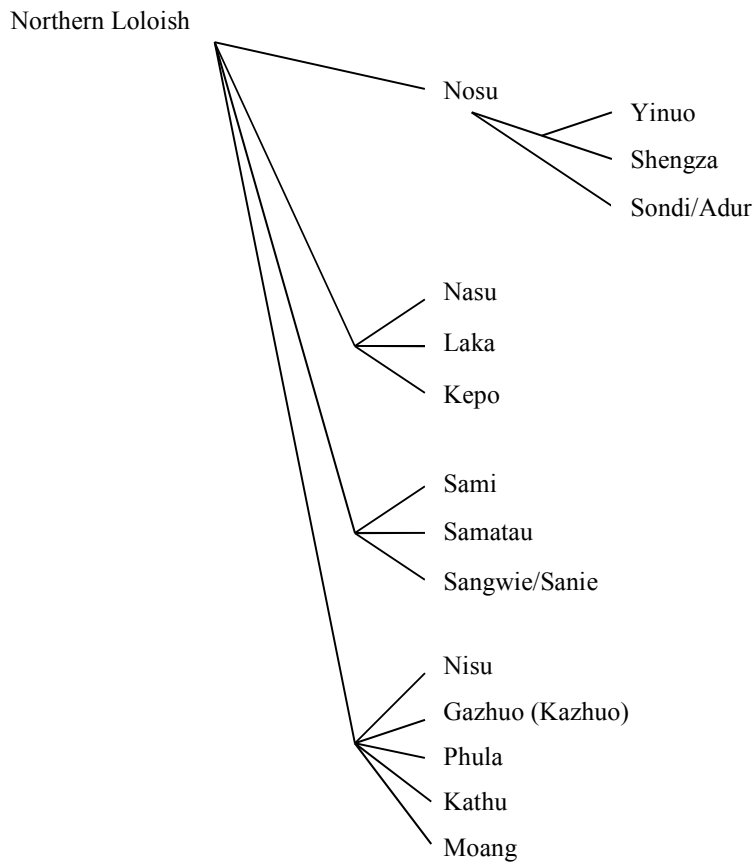


Figure 2.9 Bradley's Northern Loloish (1997: 39)

In this dissertation it will be argued that *Mo'ang* is a relic group that separated from the main grouping at an early time. *Mo'ang* demonstrates singular linguistic features, different from *Nuosu*, *Nasu* and *Nisu*; in regard to, its innovation, and from estimates of its phylogeny. Bradley 2007 moves Phula to his newly established Southeastern Ngwi subgroup. They seem to share only a southern location but do not have other properties similar enough to justify a subgroup as is shown above.

The latest Bradley's (2007) Northern Ngwi inventory includes: Nosu (Nuosu in this study), which consists of Tianba (Qumusú), Yinuo, Shengza (as Shengzha in this study), Muhxisu or Muhxi (or Shuitian), Sondi (as Suondi in this study), and Adur (as Adu in this study) varieties, Nasu, Naisu (Red Yi), Gepo, Ayizi (or Ge), Aluo (also as Laka, Gan Yi, Yala, Lila or Niluo), Chesu, Samei, Samataw (or Zijun),

Sanie (including Sa'ngwie), Kazhuo, Naluo (also as Shuitian), Ghomozo, and Nisu (with varieties like Niesu, Nasu, etc.).

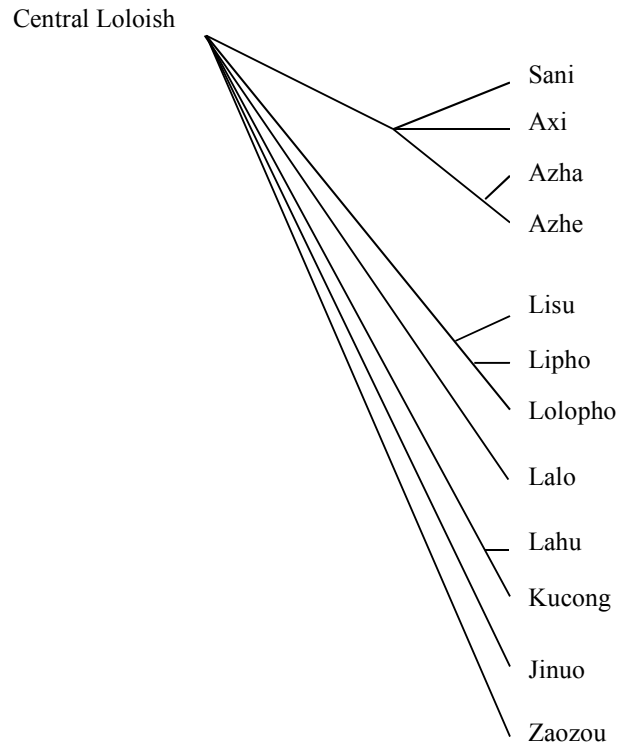


Figure 2.10 Bradley's Central Loloish (1997: 40)

Again, the comparative study in Chapter 5 shows that *Lisu*, *Lipo* (*Lipho*), *Lolopo* (*Lolopho*), and *Laluba* (*Lolo*) have strong affinity; however, *Sani*, *Axi*, *Azha*, and *Azhe* seem linguistically distant from this group. Also, it seems inappropriate to add *Jinuo*, which possesses extensive tonality, and *Rouruo* (*or Zaozou*) to the Central Loloish. According to Sun et al. (2002), *Rouruo* has a close relationship to *Nusu*, which has four tones.

The newly added languages in Bradley's Central Ngwi are the Lamu, other members of this subgroup are Micha, Hlersu, Naluo (also as Laluo and Naruo),<sup>31</sup> Maci, Talu, Tagu, Tazhi, Nazan, Liude,

<sup>31</sup> It is odd that Naluo is placed by Bradley (2007) in both Northern Ngwi and Central Ngwi.



Lang'e (or La'u), Tanglang, Samatu, and Nusu. The Lamu is fairly similar to Lisu (Bradley 2007).  
 Laomian, under Bisoid, is the only new language added to Southern Ngwi in Bradley 2007.

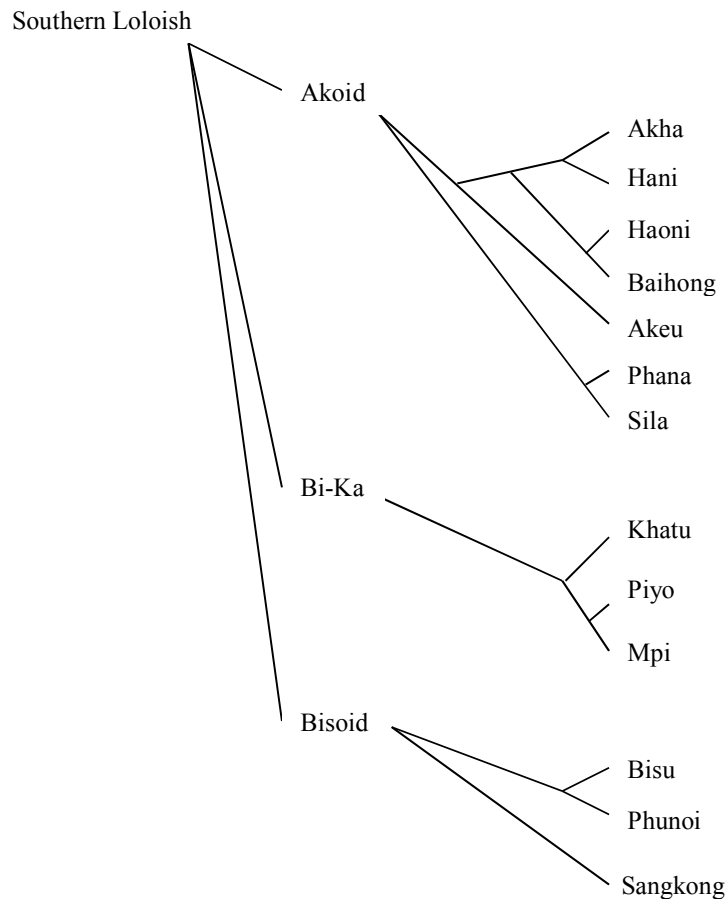


Figure 2.11 Bradley's Southern Loloish (1997: 40)

#### 2.4.2 Matisoff's Proposal for the Lolo (Yi)-Burmese-Naxi (2008)

Matisoff (2008: xxix) proposes a classification for TB languages, as shown in Figure 2.12. As we can see from this figure, Naxi and Jinuo have acquired the same status as Loloish and Burmish, they comprise together a subgroup of TB called Lolo (Yi)-Burmese-Naxi. In his view (Matisoff 2008: xxx), both Jinuo and Naxi/Moso are outside of the core Niso-Burmic stock. Detailed inner classification of this subgroup is not provided. However, one can find in Matisoff's early works *The Loloish Tonal Split*

*Revisited* (1972) and find incomplete Nisoic classification due to inadequate language data. Generally speaking, he doesn't think that there is much difference between Burmic and Nisoic (Personal communication 2007).

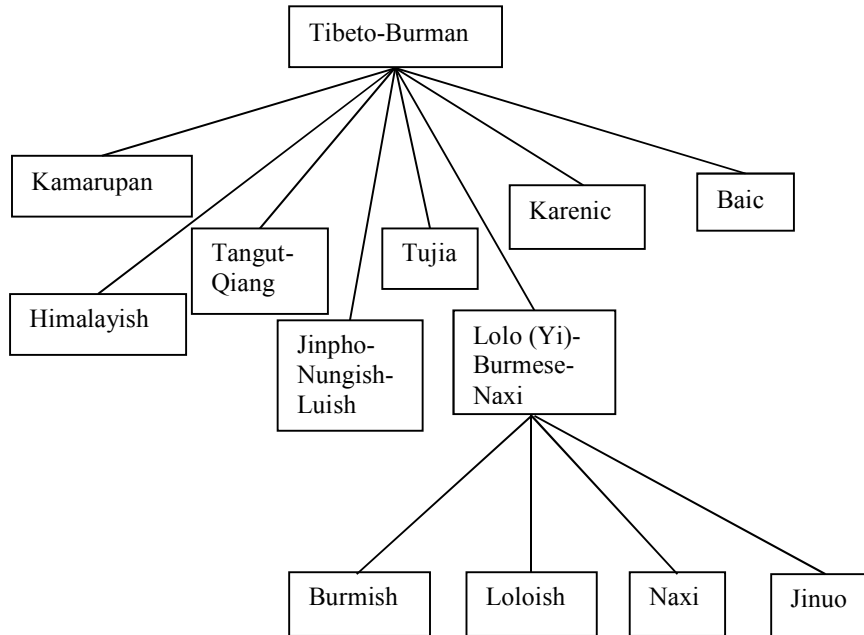


Figure 2.12 Matisoff's Lolo (Yi)-Burmese-Naxi under TB (2008: xxix)

### 2.5 Su's Yi Branch Proposal (1991): A Native Linguist View

Su (1991) proposes a very novel taxonomy for Niso-Burmese languages spoken within China. Su's proposal is the first to associate ethnic autonyms to language affiliation. In his taxonomy, some so-called "dialects" of Yi are treated as independent languages, as shown in Figure 2.13 below:

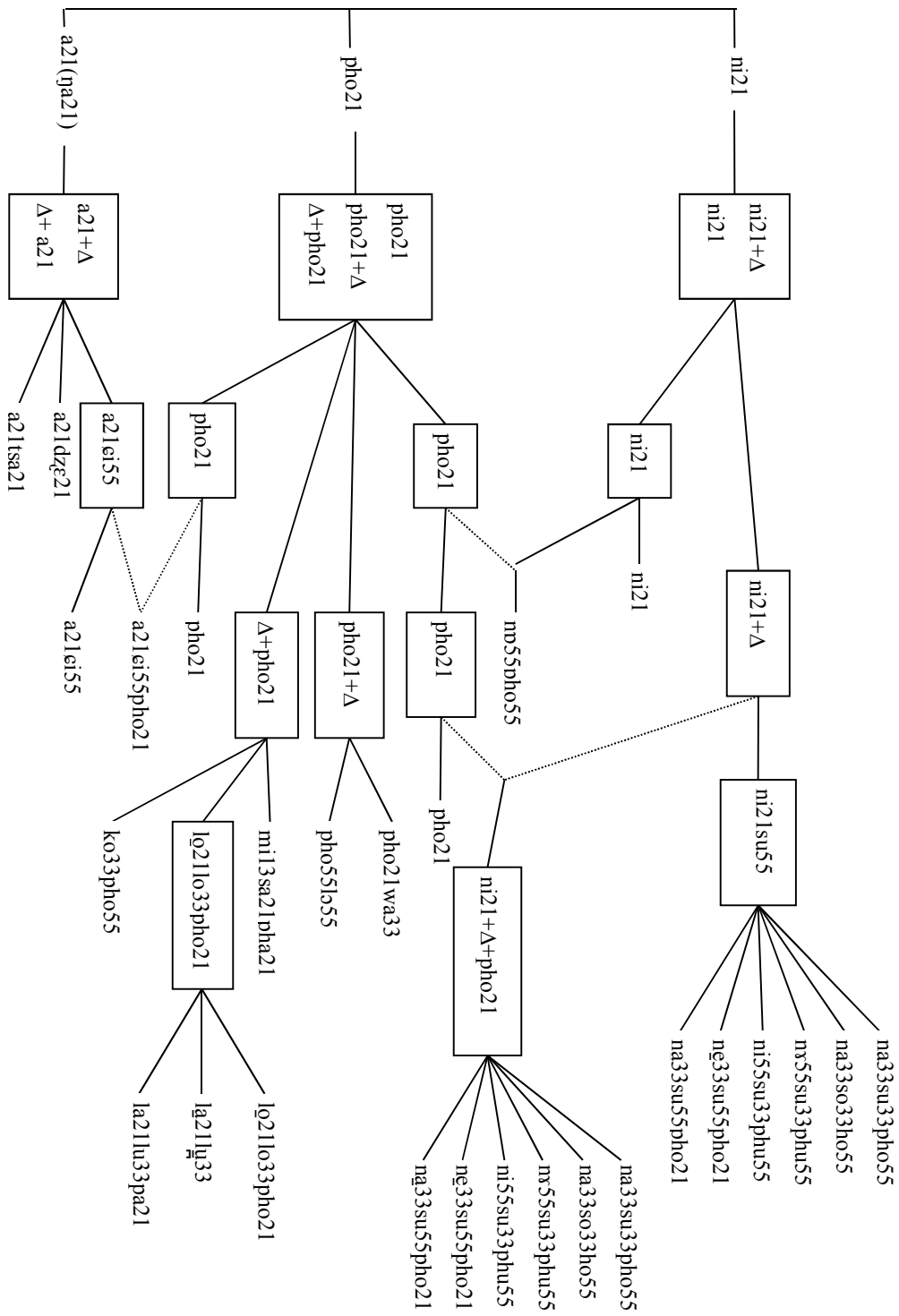


Figure 2.13 The taxonomy of the Yi autonyms (Su 1991: 13)

A linguistic classification for Niso-Burmese is given in Figure 2.14, which is based on Figure 2.13.

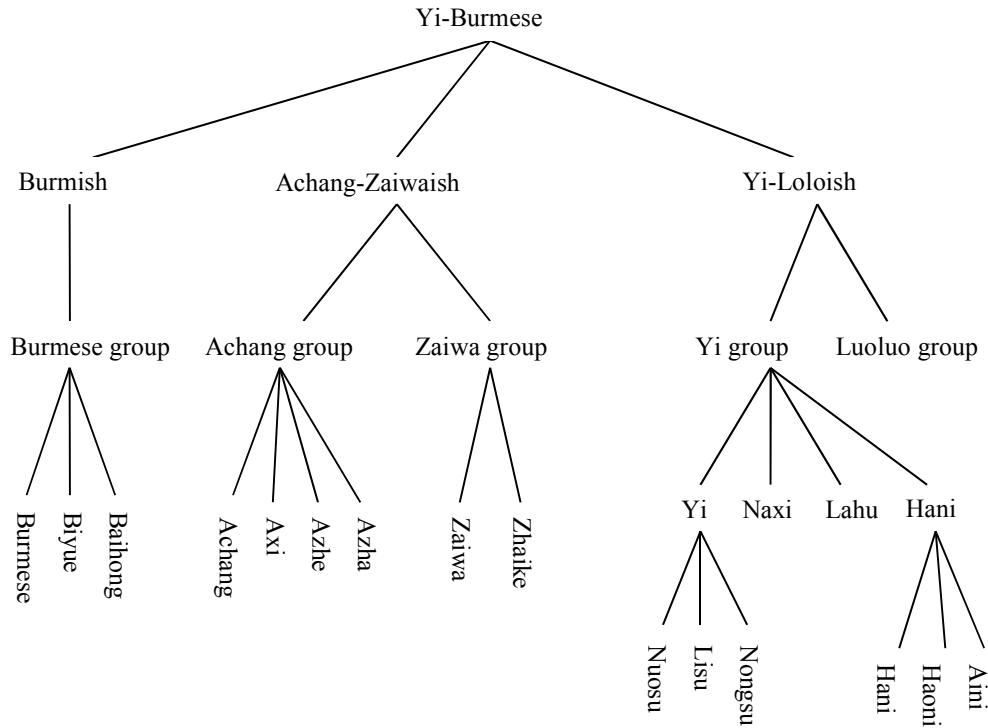


Figure 2.14 Taxonomy of the Niso-Burmese languages (Su 1991: 14)

As can be seen, *Azhe*, *Azha*, and *Axi* are treated as independent languages, rather than as part of Chen et al. 1985's Southeastern Yi. In addition, *Lolo* has been regarded as an independent subgroup, rather than as a member of the Central Yi of Chen et al. 1985. It seems that Su's Nisoic classification relies only on autonyms. As one can see, *Azhe* and *Azha*, *Axi* are assigned a position near *Achang*, which is believed to be a core member of the Burmic Branch, rather than the Nisoic Branch.

From this survey of view about Nisoic one can see an extreme diversity of views with respect to Nisoic internal classification. These differences seem to be determined by the availability of data, by the methodology applied, by the perspectives of research, by the understanding of the concepts of language and dialects, and so forth.

## 2.6 Assessing Nisoic Proposals and Future Study

This survey has shown the vastly different views of the descent of the Nisoic languages. Early Chinese studies of the 1950's was ethnologically based and later led to a taxonomic system that conflated linguistic data, customs and practices, political, and historical considerations. Not surprisingly western researchers have not until recently had access to large corpora of data, still today their information lack a comprehensive understanding of the diversity of the Nisoic language. They have also focused on issues of tonal development, since that has been so effective in unraveling other language groups such as Tai and other (S)E Asian groups. The scholarship also cannot be divided cleanly into Chinese vs. Western but all views; East vs. West seems to show a quite general lack of agreement. In this work we will be using two approaches to solve the taxonomy of Nisoic languages to show that there is strong agreement between the perspectives.

Language subgrouping in China is strongly influenced by ethnological factors. As reviewed above, in most cases, an ethnic minority is supposed to have only one language and all speech forms spoken by the ethnicity are accordingly assumed to be dialects of that minority language regardless of the distance among these 'dialects'. Thus, it is not surprising that one finds several distant languages or even language clusters (in the sense of western scholars) called the 'dialects' of some official ethnic minority in the Chinese linguistic literature. While one could argue that there are no quantity or quality indices for defining language and dialect, it seems that the Chinese perspective on language and dialect is more associated with tradition, history, as well as folklore. Probably, the most chaotic case in China is the Yi nationality, which has six regional major dialects with numerous subdialects and vernaculars (Chen 1985); many of these 'dialects' of Yi have been treated as independent languages in the western linguistic literature, but in Nisoic classifications of Luo & Fu (1954), Sun (1988, 2002), and Dai et al (1989, 1990) all the languages of Yi ethnicity have been lumped together as Yi dialects. However, in recent years, the definition of language has been loosened from an ethnically based criterion. Bisu, for example, is considered an independent language of the Lahu nationality rather as a 'dialect' of it (Xu 1998); another

good example is Sangkong, which is ethnically assigned to the Hani nationality but it is linguistically an independent language (Li 2002).

In contrast to the Nisoic proposals of Chinese scholars, the proposals for subgrouping Nisoic languages in the western literature have been based on the linguistic data. Sometimes the names differ though, so the Nisoic has been traditionally termed variously Loloish, Yi-Pho, Ni, and Ngwi among western linguists. The name *Loloish* has been justifiably rejected by modern Chinese scholars, because it contains a derogatory meaning and is offensive to most native speakers of Nisoic ethnicities.

Bradley's (1979, 1997, 2002, 2007) classification of Loloish or Ngwi relies much on several phonological criteria but these difference in our view are not sufficient for subgrouping. The often-cited criteria for Loloish subgrouping from Bradley's work are: for example, proto-checked tone flip-flop, \*Tone1 and \*Tone2 merger, \*Tone3 lower-falling and preservation of prenasalized initial consonants are the evidence for Northern Loloish; \*T1 and \*T2 splitting, glottal stop -ʔ innovation and complex tonal development for Central Loloish; medial, rhyme and final consonant preservation for Southern Loloish (Bradley 2002: 99). Later, Pelkey (2005&2008) adds lateral cluster reflexes and \*Low and \*High tone merger as evidence for Southeastern Loloish.

As noted in our discussion of innovation theory for language subgrouping (Chapter 5), preservation does not help language classification; thus, criteria such as the perseveration of prenasalized initial consonants in Northern Loloish and medial, rhyme and final consonant perseveration in Southern Loloish should not, in our view, be taken as reliable criteria for Nisoic subgrouping.

We must conclude that, despite much work by researchers inside and outside China, there is still very little agreement how the members of Nisoic languages relate to one another. In addition, its relationship to other TB members like Burmic, Qiangic, Tibetanic, Bai, and Tujia needs deeper study. This dissertation is concerned only with internal subgrouping of Nisoic, leaving its relationship with other TB members for future research. Details of the methods for this goal will be outlined in Chapter 3.

CHAPTER 3  
METHODOLOGY

3.1 Introduction

This chapter introduces the theoretical background for this dissertation and the methods it uses to collect and analyzed data.

3.2 The Theoretical Setting

The dissertation studies the subgrouping of the Nisoic languages of SW China and surrounding area from two perspectives. The first of these is a method that was developed in the 19<sup>th</sup> century by the linguists and philologists of that time. These scholars had just discovered that European languages like people had families, but the connection of the IE family was separated by thousands of years from the relatives in India. These careful scholars also developed two techniques to trace the descent; these techniques were (a) the comparative method and (b) subgrouping by shared innovation (Warnow 1997:6585-90).

The *comparative method* was focused on collecting correspondence sets from daughter languages. But from the collections of correspondences sets one cannot the draw the tree of descent of the languages. For that, one needs to employ the method of *Subgrouping of languages*, which has the focus of discovering relatedness among the languages on any one level. The technique is to find those daughter nodes on that level, which were joined to an immediate mother node from the next level above. Other daughters on that level might just be retained from the level above and were of no interest in the reconstruction. The emphasis on shared innovation was to discover relatedness among a group of languages and to discover what place each subgroup occupied in the overall tree.

There are also other conditions that apply to shared rules. Campbell (2004:188-99) says that shared innovation cannot involve a rule that is phonetically or typologically motivated, such as final devoicing, nasalization of a vowel followed by a nasal consonant, and other “natural processes.” Also,

shared innovation is not reliable if the shared rule is not confirmed by the reconstruction. As Campbell (p.198-9) says "...innovation depends crucially on what is reconstructed and if the reconstruction is wrong, there is a strong possibility that the subgrouping which depends on it will be wrong as well." That means any subgrouping from shared innovation remains a hypothesis until a reconstruction can confirm it.

One might take this claim to mean that one cannot develop subgroups until after the reconstruction is complete. If true, that would be a logical circle. (Hock 1991: 580) also considers this argument but concludes that one is able to "readily setup subgroups...by simple inspection" without a reconstruction of this level. Another consideration from Warnow (1997) is that I can establish subgroups within Basque or Japanese, for example, but—since they have no known relatives (at present)—a reconstruction is not possible. These two examples make clear that finding subgroups according to shared innovations, i.e. shared rules, is possible, but it is a process that is complete when a single origin, proto-language, is achieved.

In Chapter 5 I will show how subgrouping based on shared phonological and lexical innovations will lead to the successful hypothesis of 10 Nisoic language clusters and eight groups. I use a database of 300 lexical items from 34 Nisoic and three Burmic languages to discover the relatedness among them. As we will see, the Nisoic subgrouping of comparative approach follows a bottom-up procedure with an assumption of binary split of tree.

I now turn to the methods used in chapter 6. Comparison, of course, assumes without proof that unique features of the proto language are passed across time through mediating languages, which also at times, change some of their features. As far as "properties" concerned in language comparison, one could compare sounds, lexicon, and grammar features to reflexes in contemporary languages (as mentioned earlier), Nisoic languages do not have scripts that record earlier stages). For phonology, for example, consonants, vowels, tones, features, and syllables are its 'properties'. The only way to uncover the subgroups that have led to contemporary forms is to compare such properties. One can determine whether the languages being compared are related or not, and, if so, how closely they are related, upon the results of comparison. In this sense, the area of research is historical linguistics. This study must be more about



finding ‘subgroups than being ‘historical’. It cannot rely on historical documents that one can find in the Chinese annals of different dynasties over the thousands of years, nor like IE where can one use old documents to do comparative study. There is transmitted information about ethnic, cultural, and historical information, but there is not enough information to allow determining word histories. Thus, the only reliable source for reconstructing the proto-Niso language is to compare its daughter languages. By accounting for observed changes of sounds and words, one can determine the genetic relatedness of the Nisoic daughter languages and establish a tree of descent for them.

This study compares only phonological properties with an emphasis on consonants and lexical elements. Other language properties like grammar and semantics have not been touched in this research, not because they are not important but because of the limitation of data. By application of classical comparative theory, efforts will be made to look for *shared phonological innovations* and *lexical innovations* among Nisoic languages. Also, I will use computational phylogenetic methods to estimate the evolutionary history of Nisoic and Burmic languages. The result of language comparison will also consider the outcomes of subgrouping and calculation with the ethnic autonymic classification.

By combining these two different major applications (linguistic comparative study and computational phylogenetic research), I intend to draw a clearer picture of Nisoic language subgrouping.

Language change is not always straightforward; for example, natural barriers, migration, wars, and etc. can have dramatically affected language history in an unpredictable way. Indeed, structural feature can be transformed from one language to another (Thomason & Kaufman 1988). One might add that the Nisoic until recently were thought to have been largely isolated; many older persons still do not speak Chinese. For that reason I can expect language change to have operated more slowly than in urban contexts. Nevertheless, news gets around; words get borrowed, here, as everywhere. Chapter 6 will examine the question of subgrouping from a totally difference assumption; that computation can find subgroups in languages, as it does in biological systems. Since both languages and biological organism are alive, they must have changed over time; snakes are lizards without legs. The discipline of biology that studies how living things have descended by evolution in arboreal form is called systematics. After the

discovery of DNA, systematic biology needed to develop computer software to find the results of these changes, since the DNA data can be very large. Linguists face a similar problem of great amounts of data. Felsenstein (2004: 33) showed for 30 languages there are  $3.2 \times 10^7$  possible trees, so it is obvious that solving the problem for the number of trees in the 34 Nisoic languages completely would be far beyond human abilities to determine. Chapter 6 will show how to compute an estimate for the Nisoic clade (the tree of descent) using Bayesian inference implemented in MrBayes and also using the neighbor net algorithms implemented in Splits-Tree 4.0. As will be shown, the computational solutions for Nisoic will show very strong correlation with the solution obtained by shared innovation.

The computation will operate on files that are derived from a character matrix, where the rows correspond to the languages and the columns to features that describe the languages. These features can be taken from the lexical, phonological, semantic, or other traits, and are called *characters* in biology. For lexical characters, which are important in this work, cognates are important. A simple example might be the numbers for ‘two’. The character matrix for ‘two’ in several languages might look like (3-1), modified from Nichols & Warnow (2008: 764).

(3-1)	Language	1	2	3
	English		two	
	German			zwei [tswai]
	Spanish	dos		
	Latin	duo		
	Polish	dwa		

It is easy to see that Spanish, Latin, and Polish are in one character state with respect to the initial consonant, whereas English and German are in different states. The three columns are called *character states*. Finally, all the matrix positions filled with a lexical item are replaced with a ‘1’ and all the blank positions with ‘0’, in order to produce a small portion of the file that will be processed, cf. also Figure 2 of chapter 1. That file for the data in (3-1) would be as in (3-2):

(3-2)	Language	1	2	3
	English	0	1	0
	German	0	0	1
	Spanish	1	0	0
	Latin	1	0	0
	Polish	1	0	0

### 3.3 The Preparation of Data Collection

Before going to do linguistic fieldwork in April 2003 in southwest China, I studied many articles about Tibeto-Burman linguistics, especially, the ones about the Nisoic languages. Also, I surveyed Nisoic language data as much as possible. From the source materials, I took extensive notes, wrote brief introductions for individual ethnic groups or languages, and arranged data in accordance with autonyms. While reading extensive linguistic literature and ethnic documents, I realized that two kinds of data must be collected in the fieldwork. First, documents or publications regarding general background of a specific ethnicity in question must be collected by taking notes at a local libraries or talking with local scholars before investigating a language area. Second, languages, whose data were not available but very important for the purpose of this Nisoic comparative study, must be targeted to be investigated on site.

For the second task I composed a questionnaire and a 600-word list. First, the questionnaire was structured to elicit information about the informant, including age, education, place and about the language they speak, population, autonym, endonym, exonym, ethnic identity, language setting in the family and in the village, size of the language community, understandability with other neighboring groups, migration history, and so forth (See Appendix A). Second, following up with the questionnaire, the present writer used a 600 word-list specially designed to investigate Nisoic languages (See Appendix B). If an ethnic group's language has already been investigated with a satisfactory transcription, then there was no need to reinvestigate it again. Hence, languages like Hani, Akha, Nuosu, Lahu, and Naxi, were not the targets of investigation in this fieldwork.

### 3.4 The Method of Assembling Local Documents

The fieldwork was carried out from April 2003 to August 2003 in Yunnan, Sichuan, Guangxi, and Guizhou provinces in southwest China. Ethnic documents were mainly collected in local libraries and bookstores. Local gazetteers, which are updated every several years, if not annually, can be found in major libraries, like the Yunnan Library 云南图书馆 or in local libraries. Most general ethnic background information was collected in the Yunnan Library, either from *County Gazetteers* 县志 or *Ethnic Gazetteers* 民族志, such as the *Luquan County Gazetteer* 禄劝县志 and the *Lunan County Gazetteer* 路南县志. Some of this data comes from anthologies of field investigations of minorities carried out in the 1950s and 1960s by Chinese scholars. For example, *Investigation on Society and History of the Yi Minority in Sichuan, Guangxi, and Yunnan* 四川广西云南彝族社会历史调查 and *Investigation on Society and History of the Yi Minority in Sichuan and Guizhou* 四川贵州彝族社会历史调查, firsthand data which was invaluable in the writing of this dissertation. The present writer obtained sufficient background data of the ethnic groups regarding their history, autonym and exonym nomenclatures, customs, writing systems, and literature. Aside from collecting data from local gazetteers, the present writer also obtained some unpublished or domestically circulated documents (内部) through personal contacts with local scholars.

### 3.5 The Methods of Collecting Language Data

The investigation of Nisoic languages in field locations in Sichuan, Yunnan, Guangxi, and Guizhou provinces from April to August 2003 was first reviewed and authorized by UT Arlington IRB Board under Protocol # 03.128, titled as *Subgrouping Yi (Loloish) Languages of South-Western China*.

The language data collection always followed the completion of a survey of an ethnic group's social and historical background from an informant. The present writer used a SONY PCG-GRZ530 laptop computer to record the language data with Cool Edit 2000 audio software.<sup>32</sup> Normally, informants

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<sup>32</sup> Unfortunately, my computer malfunctioned after finishing two languages because of overheating of the CPU and I completed the data collection with an audio recorder, instead.

were asked to repeat three times for a word. A total of about 600 words were recorded for each language, but for some languages more than this number was elicited.

There 21 languages or dialects, listed in Table 3.1, were investigated from this field trip to southwest China, but only five languages of them, including Maang [mæŋ33], Azha [phu21] Samu [sa33mu33], Kepu [ko33phu44], and Lipo [li55pho21], are used in this dissertation research. First, many of these languages are closely related to one another, so I only choose a language that can represent all languages that are closely to it. For example, Manga and Maang are closer to each other than any languages investigated and thus only Maang is chosen; the same reason for Lipo (DY) and Lipo (YM), Sani and Sanyi. Nasupo (ES) is proved to be a Southern Yi even though its autonym is very close to Nasupo (LQ). Second, some languages were not fully recorded due to the informant's unavailability. For example, Pula informant could not tell many of the words elicited in her own native tongue; the same held for Zuoke (Note the Zuoke in our comparative database is taken from YYFC 1983). Third, many languages listed in Table 3.1 turns out to be a variety of a language that has already been well documented in literature. For example, Sani or Ni is the same as the Sani listed in TBL 1992; the same case for Lolopo, Luolopo, Nasupo (LQ), and Azhe.

Table 3.1 List of Languages or Dialects Investigated by Ziwo Lama in 2003

<u>Autonym</u>	<u>Afl.</u>	<u>Informant</u>	<u>Age</u>	<u>Date</u>	<u>Place</u>
Nyi (DF) [ŋi55]	EY	Chen Shijun 陈世军	51	08/01	Anle TW, Dafang CT, GZ 毕节大方县安乐乡
Manga [ma33ŋa33]	SEY	Zhang Zhengzhong 张正忠	40	07/27	Gedang VG, Xinhua TW, Funing CT, YN 富宁新华格当村
<b>Maang</b> [mæŋ33]	SEY	Li Weibing 李卫兵	40	07/27	Longyang VG, Banlun TW, Funing CT, YN 富宁板仑龙洋村
Pula [phu21la33]	SEY	Ma Xuefen 马学芬	35	07/21	Tieze VG, Dehou TW, Wenshan CT, YN 文山德厚铁则村
<b>Azha, Pu</b> [phu21]	SEY	Zhao Hongying 赵虹英	54	07/19	Panzhuhua TW, Wenshan CT, YN 文山县攀枝花镇
Zuoke [dzu21kho33]	SEY	Li Zhongtai 李忠泰	55	07/18	Zhuilijie TW, Wenshan CT, YN 文山县追栗街
Nasopo [na33so44pho21]	EY	Shi Zhengdong 施正东	49	07/17	Dazhai VG, Shede TW, Qiubei CT, YN 丘北县舍得乡石岩大寨

Table 3.1 – *Continued*

Azhe [a21tʂe21]	SEY	Wang Chengyou 王成有	46	07/16	Institute of Ethnicities of Honghe PF, YN 红河民族研究所
Nyi (SL) [ŋi55]	EY	Zhe Rongfa 者荣发	49	07/13	Muzhuqing VG, Shilin CT, YN 石林县亩竹箐村
<b>Samu</b> [sa33mu33]	SEY	Ke Fu 柯富	74	07/09	Zijun VG, Yiliu TW, Guandu DS, KM, YN 官渡区矣六乡子君村
Sanyi [sa2ŋi55]	SEY	Bao Haomei 保郝美	63	07/08	Chang VG, Ala TW, Guandu DS, KM, YN 官渡区阿拉乡常村
Lolopo [lo31lo31pho31]	CY	Zi Wenqing 自文清	36	07/03	Tianshentang TW, Nanhua TW, YN 南华县天申堂乡
Luolopo [lo21lo33pho21]	CY	Luo Juping 罗菊萍	24	07/01	Wujie TW, Nanhua CT, YN 南华县五街镇
Nasupo (LQ) [na33su33pho51]	EY	Zhang Jinzhi 张晋志	35	06/24	Ethnicity Bureau of Luquan CT, YN 禄劝县民宗局
<b>Kopu</b> [ko33phu44]	EY	Su Wenliang 苏文亮	44	06/23	Ethnicity Bureau of Luquan CT, YN 禄劝县民宗局
Lipo (YM) [li55pho21]	LISU	Yang Wenlin 杨文林	24	06/15	Jiangyi TW, Yuanmou CT, YN 元谋县姜驿乡
Sani, Ni [ni21]	SEY	Li Yanhui 李妍慧	23	06/11	Guishan TW, Shilin CT, YN 石林县圭山乡
<b>Lipo (DY)</b> [li55pho21]	CY	Pu Caihong 普彩虹	23	06/10	Zhaojiadian TW, Dayao CT, YN 大姚县赵家店乡
Nyisupo [ŋi55su33pho21]	EY	Lu Cuiling 卢翠玲	25	06/07	Luomian TW, Fumin CT, YN 富民县罗免乡
Nasupo (ES) [na33su33pho21]	SY	Zuo Jun 左军	23	05/31	Yumei VG, Chahe TW, Eshan CT, YN 峨山县岔河乡云美村
Nishu [ne33su55pho21]	SY	Zhou Decai 周德才	40	05/18	Laochang TW, Xinning CT, YN 新平县老厂乡

(Note: *Afl.*=Affiliation; *EY*=Eastern Yi, *CY*= Central Yi, *SEY*=Southeastern Yi, *SY*=Southern Yi; *VG*=Village, *TW*=Township, *DS*=District, *CT*=County, *PF*=Prefecture; *KM*=Kunming Metropolis, *YN*=Yunnan Province, *GZ*= Guizhou Province)

### 3.6 Sources of Language Data

I used 34 Nisoic languages and three Burmic languages to conduct this classical comparative study and phylogenetic study. Among the languages investigated only Gepu 葛濮 (Luquan 禄劝), Samu 撒慕 (Guandu 官渡), Lipo 俚泼 (Dayao 大姚), Maang 么昂 (Funing 富宁), and Azha 阿扎 or Phu 濮 (Wenshan 文山) are used in this study, which are boldfaced in Table 3.1. The data of Nuosu and Niesu of

Northern Yi varieties used in this dissertation are self-elicited data (Niesu is only used in the phylogenetic study). Other data come from different sources as described below:

- **YYFC 1983:** Includes languages Nesu (Weining 威宁), Nisu (江城), Nishu (Xinping 新平), Azhe (Mile 弥勒), Tuoloza (Lijiang 丽江), Lavu (Yongsheng 永胜), Mondzi (Funing 富宁), Zuoke (Wenshan 文山), Lope or Awu (Mile 弥勒), and Polo (Yanshan 砚山).
- **TBL 1992:** Include languages Nasu (Wuding 武定), Ni or Sani (Shilin 石林), Laloba (Weishan 巍山), Lolopo (Nanhua 南华), Lisu (Fugong 福贡), Lahu Na (Lancang 澜沧), Hani (Luchun 禄劝), Haoni (Mojiang 墨江), Namuzi (Muli 木里), Naxi (Lijiang 丽江), Nusu (Bijiang 碧江), Kazhuo (Tonghai 通海), Jinuo (Jinghong 景洪), Written Burmese, Achang (Long Chuan 陇川), Zaiwa (Luxi 潞西), and Written Tibetan (only used in the phylogenetic study in Chapter 6). [Note: Much of the Lisu data from TBL 1992 were disturbed from interchanging prompts; for example, the word for *father* was mistakenly put under the *mother*. A target word under position B was listed under position A, and position C is actually under position B, etc.].
- Most Axi items are taken from TBPL 1991; however, those which are not available from it are taken from YYFC 1982.
- The Bisu (Lancang 澜沧) data is taken from Xu 1998 *Bisuyu* 毕苏语.
- The Sangkong (Jinghong 景洪) data is taken from Li 2002 *Sangkongyu Yanjiu* 桑孔语研究.
- The Rouruo (Lanping 兰坪) data is taken from Sun, Huang, and Zhou 2002 *Rouruoyu Yanjiu* 柔若语研究.

### 3.7 Data Processing and the Database

To make the audio data comparable, several steps were involved. First was segmentation of the recorded data into lexical items for each of the languages investigated (editing help with Cool Edit 2000), second, transcription of these forms into IPA, and third, creation of a comparative database in Microsoft Word. This database includes the previously unstudied languages and other Nisoic languages available from other sources (see Section 3.5 of this chapter). There are 37 languages in total listed in this database

(See Appendix C), among of them, thirty-four of them have been regarded as Nisoic languages and three have been regarded as Burmic languages (Cf. Section 3.5 of this chapter). This word database is arranged as: The very first column of the left side is the language names, and first top line of it is listed words with each page containing three words. Individual IPA forms are filled in corresponding space after languages. There are 300 words listed in this database (Cf. Appendix C). The number of compared languages increased to 37 in Spread datasheet of Chapter 6. The glosses asked are arranged according to semantic fields, as this is the way the forms were elicited.

### 3.8 The Methods of Analyzing Data

After inputting all the data either from individual work or other sources, data analysis followed, which basically compares words among the languages to be compared. All of these comparisons are based upon a reconstructed proto forms. So first, a proto form is reconstructed. For detailed analysis, see Chapter 5 of this work. The second step is to find the two languages that are closest to each other by comparing one language with the rest of the Nisoic languages; this method will produce fewer than 10 language pairs. The third step is to find other languages that are closer to an established language pair --- this will produce a small subgroup. Fourth, several of those clusters can be joined to make a larger subgroup of Nisoic. By comparing word database in this way, the final subgroups of Nisoic language branch will be arrived (for detailed discussion of the comparative method and process see Chapter 5 of this dissertation).

This word database is converted into Excel format to be used in phylogenetic study carried out in Chapter 6. Written Tibetan is added into this Spreadsheet database in order to test the reliability of the software used in running codes. Written Tibetan is most distant to the Nisoic Branch and Niso-Burmic Branch. Since the Niesu is the closest language to Nuosu of Nisoic languages, it will be treated as a control, too. Bayesian inference, the most reliable of phylogenetic methods, as well as Neighbor-Net analysis were used to conduct this study, and two computer programs MrBayes and SplitsTree were used to compute the estimate of Nisoic language evolution for these two algorithms (for detailed discussion see Chapter 6 of this dissertation).



### 3.9 Creating the Database for the Phylogenetic Analysis

In order to process the lexical and phonological information in Chapter 6 with Bayesian inference and Neighbor Net, one must use a machine tractable method to encode language data.

There were several steps in the encoding process. First an MS-Excel database of the lexical items was prepared. The responses to the prompts, called *characters* here, were entered in rows in the first column and the corresponding languages were entered in the first row across the columns.

From the character database the character state database was constructed. This database records the changes in a character in the various languages. See details in Chapter 6.

Finally, from the character state database a binary database with 1 and 0 to represent the character states was constructed. These data files were edited to put computer instruction at the top and bottom of the binary database. These files are then ready for processing.

### 3.10 Summary

This project is to be a comparative investigation of 34 Nisoic languages (Chapter 5). Much of the material employed here is from original field work. After segmentation and then transcription, a database was constructed. This database was the key to producing the materials needed for the analysis for classical comparative study. A Spreadsheet database, which is based on the word database, is used for Nisoic and Niso-Burmese phylogenetic research in Chapter 6.

## CHAPTER 4

### A SKETCH OF NISOIC AUTONYMS, LANGUAGES, AND PHONOLOGY

#### 4.1 Introduction

This chapter discusses the etyma of 34 Nisoic autonyms of people groups first, and then surveys their ethnolinguistic background of these Nisoic ethnic groups; it finally provides a chart of the phonemic inventory for these 34 Nisoic languages represented by the autonyms.

#### 4.2 The Nisoic Autonyms and Ethnic Classification

Lama (2011) extensively reviewed over 160 Nisoic people groups; of all these ethnic groups, about 60 of them have language data available. But in this dissertation I will concentrate on only 34 of them by briefly discussing the origin of their autonyms and examining their ethnic-linguistic background.

The number of Nisoic people groups differ from source-to-source due to the different criteria used to define the people groups. YZJS (1987) lists 35 ethnic branches for the Yi ethnicity. Gerner 2002 estimates that there are 100 to 150 Yi languages according to the criterion of ‘intelligibility’ among the languages or dialects of the official Yi ethnicity. Hattaway 2000 lists about 150 ethnic groups for the Nisoic ethnicities, who speak 120 Yi languages, 18 Hani languages, six Naxi languages, three Lahu languages, two Lisu languages, two Nu languages, and two Jinuo languages. The different number of the Nisoic ethnic groups may have resulted from individual understanding about the ethnicities; for example, autonyms, exonyms, and even endonyms may have affected their decision about the status of ethnic groups. Despite the differing views concerning ethnic classification, the most important thing one can glean from the heterogeneous claims is that the Nisoic people are made up of a vast number of different ethnic divisions.

Some Nisoic ethnic groups have their own sub-varieties, as can be exemplified by ethnicities of the Nuosu ethnic group. The Nuosu [nɔ33su33] includes several subtypes: *Shengzha* [ʃɿ21ndza33] 圣扎,

*Yinuo* [zi44nɔ33] 义诺, *Qumususu* [tɛhu44mu33su33] 曲木苏 (exonym *Tianba* 田坝),<sup>33</sup> *Muhxi* [mu33hi44] 米西苏 (exonym *Shuitian Yi* 水田彝), and *Niesu* [nie33su33] 聂苏 which in turn encompasses *Suondi* and *Adu* two sub-components. These people groups speak Northern Yi fangyan according to Chinese linguistic classification. They share a common classical autonym *Ni* [ni21] and can be described as in Figure 4.1 below.

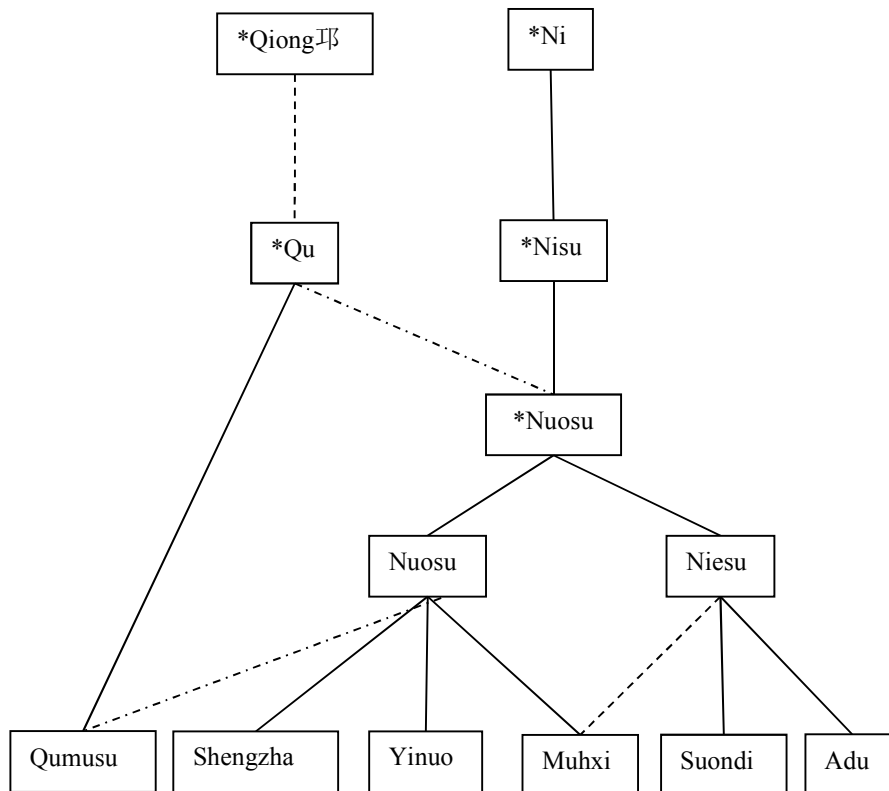


Figure 4.1 The structure of historical development among the Nuosu Yi

As seen from the Figure 4.1, the Qiong is an ancient aboriginal ethnic group, that once lived along the valley of the Anning River and around Lake Qionghai in present Xichang City of Liangshan

<sup>33</sup> The *Qumususu* or *People from White Area*, which refers to a special ethnic group who speak somehow different dialect of northern Yi in Guanluo, Yuexi, and Hanyuan counties in northern Liangshan of Sichuan, relatively contrast with *Nuomusu* or *People from Black Area*, which refers to Yi people out of non-*Qumususu* speech area in the region. The *Qumususu* people may be the residues of ancient Qiong people 邛人在 Liangshan area (Wuda 2003, p.c. Wuda 2005).

Prefecture, Sichuan Province. Most of them were conquered later by the Nuosu Yi people when they stepped to the region.

From the perspective of etymology, Nisoic autonyms are associated with proto-autonyms \*Ni, \*Pu, \*Man and \*Shu. The Ni, the Pu, and the Man have many varied autonyms today. These three terms often become an initial syllable of the Nisoic autonyms, while the Shu becomes a suffix in these autonyms. See detailed explanation below.

Many of the Nisoic autonyms often have a suffix \*-su ‘human being’, which might points to the sound *Shu* 蜀 of the name Old Shu Kingdom of today’s Sichuan province.<sup>34</sup> This may show a combination or a mixture in their self-designations between the ancient \*Ni ethnic group and the ancient \*Shu ethnic group when they once were residents of the Old Shu Kingdom. The \*-Su found in the many autonyms of Nisoic ethnic groups today has several varieties forms, including ‘-*Shu*’ or ‘-*Xi*’, ‘-*Hu*’, for example, Nuosu, Nasu, Lisu, Naxi, and Lahu, etc.

The etymon \*Ni is related to those Nisoic ethnic autonyms which have nasal initial ‘N-’ or varied lateral ‘L-’. The *Ni* groups, including the *Nuosu*, *Niesu*, *Nasu*, *Nesu*, *Nisu*, *Nishu*, *Sani*, *Hani*, and so forth, *Naxi*, and the *Li* groups, including the *Lisu*, *Lipo*, *Lahu*, *Laluba*, *Lolo*, and so on, share autonymic origins; they very likely originated in the region of the West Chengdu Plain of Sichuan Province. Presumably, this area could be the place where the *Li* and Naxi people first split off from the *Ni* or *Kun-Yi*, which originated farther to the northwest in Sichuan.

The *Pu* people, like the *Ba* people, were native to southwest China, when the *Ni* people came to conquer them and assimilate them into *Ni* culture (as recorded in ancient books and also because the *Ni* group use the term *Pu* for *slave*); the *Pu* must be descendants of the ancient *Pu* 濮人 in light of this autonymic etymon. They likely also lived in the West Chengdu Plain, too (Cf. Chapter 1).

Figure 4.2 shows schematically the ancient ethnic groups of the Old Shu Kingdom and their descent residents of ethnonyms *Ni*, *Li* and *Naxi*. It suggests that these three ethnic groups directly developed from ancient \*Ni ethnic group.

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<sup>34</sup> The *Shu* of the old Shu Kingdom was very likely pronounced as *So* or *Su*, *Sou* in ancient time, because the retroflex system didn’t existed until in middle Chinese.

The *Man* could be another indigenous people farther south in contemporary Yunnan Province and they might be associated to these ethnic groups who were termed as *Man* 蛮 in many early Chinese historical documents.<sup>35</sup> The \*Man is very likely to be the ancestor of today's Maang and Mondzi people of Wenshan Prefecture, Yunnan Province.

Some of Nisoic ethnic terms don't have these hallmark proto-autonyms. For example, Azhe, Axi, and Azha, so on, may have developed from a historical figure's name. An autonym, which was acquired from a person's name in ancient time or from a loconym that they once lived, cannot be directly associated to these autonymic etyma \*Ni, \*Li, \*Pu, \*man, and \*Su.

In addition, many of ethnic autonyms are suffixed with *-Po* or *-Pu*. Probably, the Nuosu, with an alloautonym, Niesu, is the only autonym that doesn't have such a suffix *-Po* or *-Pu* in among the Nisoic autonyms that have a relation to etyma \*Ni, and \*Li.

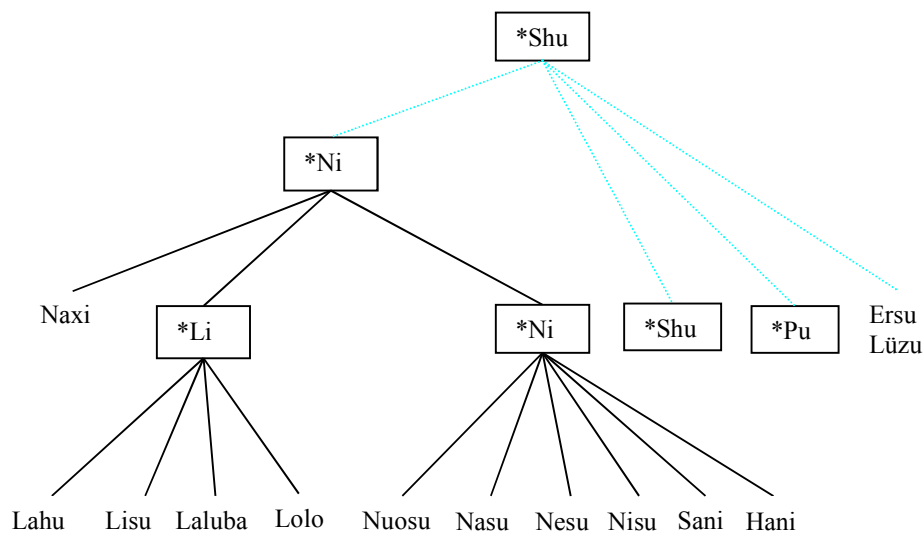


Figure 4.2 A presumed ancient ethnic groups of the Old Shu Kingdom and their descent

<sup>35</sup> The *Man* 蛮 is a generic term, which had been used to refer to these ethnic groups living in southern China throughout Chinese history, and it didn't point to a specific ethnic group.

In Figure 4.2, Ersu 尔苏 and Lüzu 吕苏语 are added here. Ersu and Lüzu are also probably descendants of the Old Shu Kingdom, which split off before \*Ni branched off from \*Su or \*Shu. According to Huang 1997, the Lüzu language is fairly close to Nisoic. Their linguistic affiliation is still in dispute.

Up to this point, I have assumed that the proto ethnic groups \*Ni, \*Pu, \*Man, and \*S(h)u are the ancestors of these contemporary Nisoic ethnic groups. The descent of these four ethnic relationships is shown schematically in Figure 4.3.

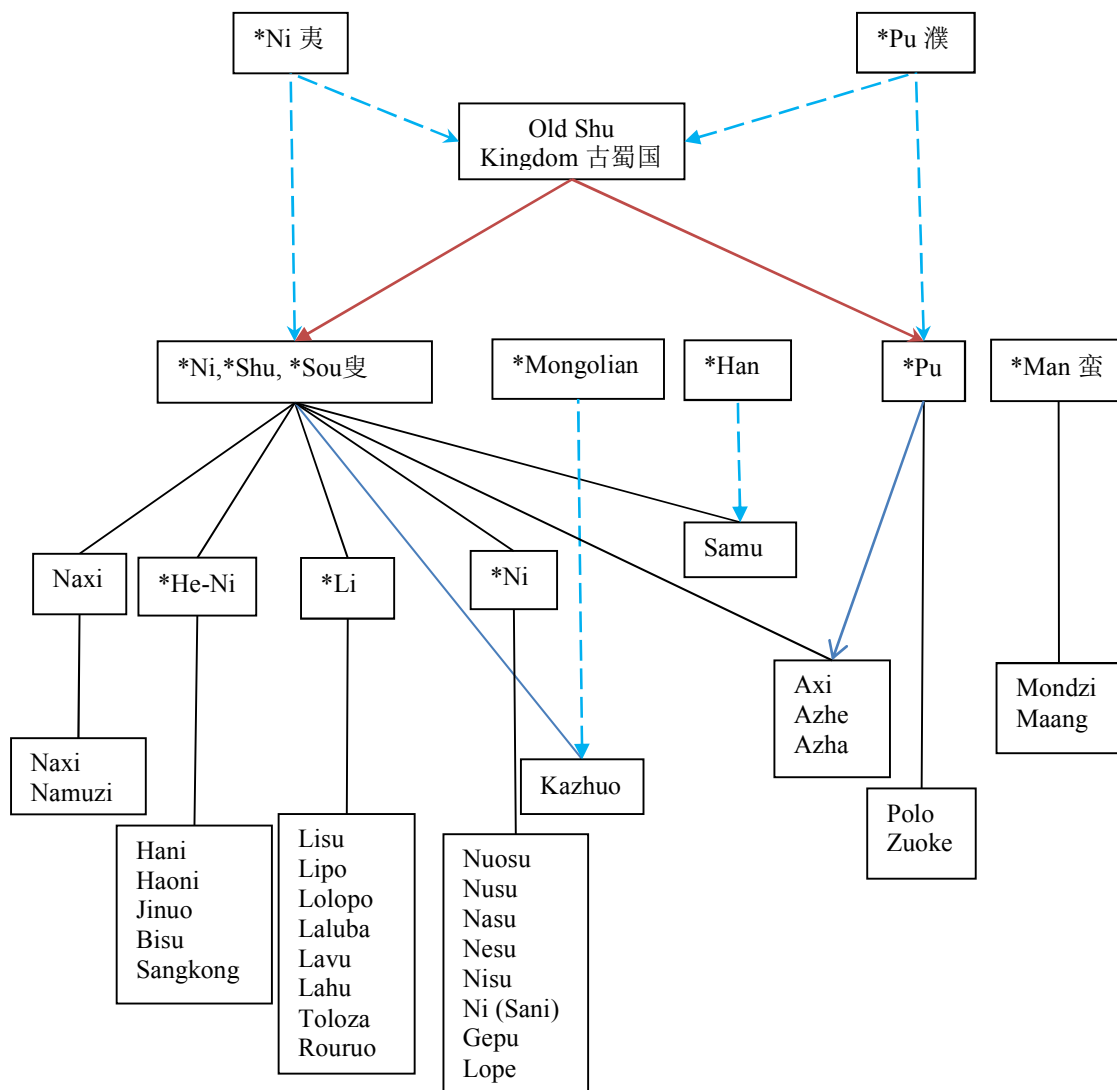


Figure 4.3 Nisoic Ethnic groups developed from ancient ethnic groups \*Ni, \*Pu, \*Man, and \*shu

As shown in Figure 4.3, the Kazhuo might be a mixture of the Mongolian and the ancient \*Ni ethnic group. Samu is also a mixture of the ancient \*Ni ethnic group and the Han Chinese. The Axi, Azhe, and Azha could have originated from the ancient \*Ni ethnic group but somehow mixed with the ancient \*Pu ethnic group.

#### 4.3 A Brief Introduction to the Nisoic Ethno-Languages

Now we turn to the ethno-linguistic background of the 34 Nisoic languages, which will be studied in Chapters 5 and 6.

#### **Nuosu 诺苏 (Shengzha 圣扎) / Niesu 聂苏 (Suondi 梭地):**

The Nuosu (aka Shengzha), together with Yinuo, Suondi, and Adu, Shuitian, and Muhxisu (aka Tianba), are spoken in Sichuan. The Nuosu varieties are called Northern Yi Dialects (Chen et al 1985). People from these ethnic groups can communicate with other without difficulty. The relationship among these varieties might be shown schematically in Figure 4.4. The Nuosu has 44 initials, 10 vowels, and 4 tones (/55/, /44/, /33/, /21/), with tone /44/ is seen largely in cases of tone sandhi and in particle words. The phonemic system of Niesu (Suondi) is pretty similar to that of Nuosu, the only different is seen the Suondi doesn't possess the voiceless nasals any more and developed a couple of diphthongs.

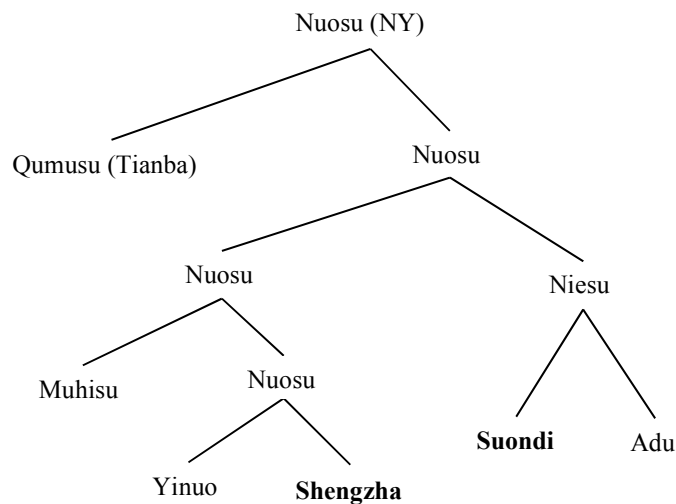


Figure 4.4 The internal relationship of Nuosu (Northern Yi)

**Nesu 呢苏 (Weining):**

The Nesu includes varieties Wusa Nesu [nu55su33] (Weining County of Guizhou), Wumeng, Mangbu, Shuixi Nesu [nu55su13] (or Dafang Nesu), Nasepho ([na55su21pho55] in Panxian County of Guizhou Province and Luoping County of Yunnan Province). These varieties have been termed Dian-Qian Cifangyan 滇-黔次方言 of East Yi (EY) Dialect by Chinese linguists. Figure 4.5 shows a temporal linguistic genetic relationship among these varieties of Guizhou Yi. Weining, Guizhou. Weining, Guizhou.

The Nesu has 46 initials, 8 vowels (7 monophthongs and 1 diphthong), 4 tones (/55/, /33/, /21/, and /13/) (cf. YYFC 1983).

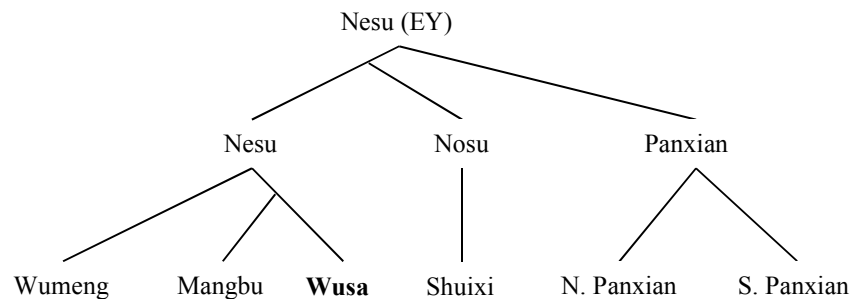


Figure 4.5 The internal relationship of Nesu (Eastern Yi)

**Nasu 纳苏 (Luquan):**

The Nasu includes Nasu [na33su33pho55] is spoken in Wuding, Yunnan. It belongs to the east Yi dialect. It has 46 initials, 20 vowels, 4 tones (/55/, /33/, /2/, and /11/) (cf. TBL 1992: 666).

**Gepu 葛濮 (Luquan):**

The Gepu ([ko33phu44] is spoken in Luquan County, Yunnan. It has 42 initials, 18 vowels (all of them are monophthongs), 4 tones (/55/, (/44/), /33/, and /21/; tone /24/ only seen in one disyllabic example and must be tone sandhi) (LM: Self-data 2003).

**Nisu 尼苏 (Jiangcheng)/ Nishu 尼蜀 (Xinping):**

The Nisu has three varieties: Nishu or Nyiesu [nɛ33sɯ55(pho21)] (i.e., the Northwest Vernacular, spoken chiefly in Xinping County), Nasu [na33su55 (pho21)] (or Eastern vernacular spoken in Honghe



area), and Nisu [nɛ33su55(pho21)] (or the Southwest vernacular spoken in Jiangcheng area). The Nisu varieties are called Southern Yi in Chinese literature. The Nisu in Jiangcheng County has 34 initial consonants, 22 vowels, which consists of ten pairs of monophthongs with laryngealization vs. lax (or regular) and one pair of diphthongs, and three tones (/55/, /33/, and /21/). The Nishu spoken in Xinning has 35 initials, 19 vowels (17 monophthongs and 2 diphthongs), and three tones (/55/, /33/, and /21/) (cf. YYFC 1983).

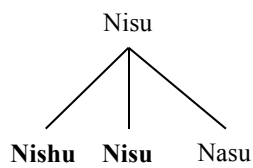


Figure 4.6 The internal relationship of Nisu (Southern Yi)

**Samu 撒慕 (Kunming):**

The Samu is spoken in Guandu District of Kunming City, Yunnan. It has 32 initials, 38 finals (14 monophthongs, 14 diphthongs, and 3 triphthongs, 4 rhoticized vowels, 3 finals with nasal codas), 7 tones (/55/, (/44/), /33/, /22/, /53/, /21/, and /25/, with tone /44/ only seen in tone sandhi) (LM: Self-data 2003).

**Sani 撒尼 or Ni 尼 (Shilin):**

The term *Sani* serves both as autonym and exonym today, but the people have an older autonym, often used in formal settings, *Ni* [ni21] 尼. The Ni term is exactly like literature autonym Ni of Nuosu Yi or Northern Yi speakers in Sichuan and Yunnan. Ethnically speaking, the Sani people are somehow closely related to their neighbors the Samei ethnic group, who call themselves *Sanyi* [sa21ŋi55] in Guandu District, Kunming City, Yunnan Province. It seems the Sani language doesn't have vernaculars. Sani is spoken in Shilin County, Yunnan Province. It belongs to the Southeastern Yi of Chen et al 1985; it has 44 initials, 19 finals, and 5 tones (/55/, /44/, /33/, /2/, and /11/) (cf. TBL 1992: 667-8).

**Azhe 阿哲 (Mile):**

The Azhe [a211dzɛ21] or Azhepo [a211dzɛ21pho21] is a single language like Sani and Axi. It is spoken in Mile County, Yunnan. Detailed internal sub-classification is unknown. Like Axi and Sani, Azhe

has been regarded as a member of Southeastern Yi Dialect by Chen et al. 1985 and a language of Central Loloish in Bradley 1979. The Azhe has 38 initials, 16 vowels (16 monophthongs and one diphthong), 4 tones (/55/, /33/, /22/, and /21/) (cf. YYFC 1983).

**Axi 阿细 (Mile):**

The Axi 阿细 [a21ei55], aka Axipo 阿细颇 [a21ei55pho21], is treated as an independent language like Sani. Its varieties differ in minor ways and are mutually intelligible (Wu 1985). Traditionally, Axi has been regarded as a member of Southeastern Yi Dialect, Chen et al. 1985 and is a language of Central Loloish in Bradley 1979. The Axi selected for this study is spoken in Mile County, Yunnan. It has 36 initials, 15 vowels (14 monophthongs and a diphthong), and 3 tones (/55/, /33/, and /21/) (cf. TBPL 1991: 256-8).

**Laluba 腊鲁拔 (Weishan):**

The Laluba includes Laloba [la21lo33pa2], Misaba [mi13sa21pa21], Laluba [la21lu33pa21], and other unknown varieties in west Yunnan. The Laluba belongs to the Western Yi in Chen et al. 1985 and the Central Loloish. Chen et al. 1985 divide the Laluba or Western Yi into two sub-varieties or vernaculars (Western Vernacular and East Vernacular). In this study, the Laluba spoken at Baiwudi, Wushan District, Weishan County, Yunnan (云南省巍山县五印区百物地) is chosen to represent all the varieties of Laluba. Figure 4.7 shows schematically the internal relationships of Laluba varieties. Laluba has 43 initials (38 singles and 5 clusters), 17 vowels, 3 tones (/55/, /33/, and /13/ (/21/)) (cf. TBL 1992: 685).

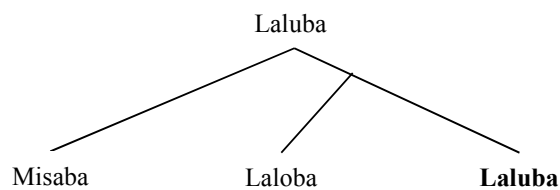


Figure 4.7 The internal relationship of Laluba language

**Toloza 妥罗扎 (Lijiang):**

Toloza [tho55lo33za33] is spoken in Tai'an of Lijiang County, Yunnan. It doesn't have any dialects or varieties. Toloza has 35 initials, 48 vowels (22 monophthongs, 15 diphthongs, 1 rhoticized, 1 triphthong, 2 nasalized vowels, and 7 finals with nasal coda), 3 tones (/55/, /33/, and /21/) (cf. YYFC 1983).

**Lavu 拉乌 (Yongsheng):**

Lavu [la55vu55] is spoken in Yongsheng County, Yunnan. Early Chinese ethno-language investigators regarded Lavu as closely related to other small ethnic subgroups nearby, including *Talu* 他鲁, *Tagu* 他谷, *Liude* 六得, and *Nazha* 纳渣 by using cognates that bear corresponding tonal contrast among them. According to Chinese linguistic investigation of the 1950s, the *Talu*, *Tagu*, *Liude*, and *Nazha* are mutually comprehensible. Both the *Talu* and *Lavu* can communicate with each other, and they also can communicate with *Shuitian* 水田, *Zhili* 支里, *Luo* 倮, *Ziyi* 子彝, and *Liming* 黎明. However, the detailed internal relationship of these languages needs a further study. Since most of these languages are mutually intelligible (even though their ethnonyms are unrelated), I choose *Lavu* to represent all of these ethnic groups in this study. The Lavu has 37 initials, 29 vowels, 4 tones (/55/, /33/, /13/, and /21/) (cf. YYFC 1983).

**Lolopo 罗倮泼 (Nanhua)**

Lolopo represents the varieties of Lolopo [lq21lo21pho21], Lolu [lq21ly33], Luolopuo [lo21lo33pho21] and others. Lolopo is spoken in Nanhua County at Wujie (云南省南华县五街) Yunnan. Chen et al. 1985 list two vernaculars under Lolopo: Nanhua 南华 and Dayao 大姚 but do not mention whether these two are intelligible. The Lolopo language is spoken in Nanhua and has 33 initials, 23 vowels, 3 tones (/55/, /33/, and /21/ (/13/)) (cf. TBL 1992: 665-6).

**Lipo 俚泼 (Dayao):**

The Lipo [li55pho21] language has two varieties: Eastern Lipo and Western Lipo. The Lipo people have a common autonym Lipo, but they are also called either Lisu or Yi, depending on whether

their official ethnicity is Lisu or Yi.<sup>36</sup> Detailed study of the Lipo varieties have not been fully carried out as yet, but it seems that these two Eastern Lipo and Western Lipo are not mutually intelligible. At least, my two Lipo subjects from Yuanmou County and Dayao County claimed that they were unable to communicate each other in their native tongues. The Western Lipo or the Dayao Lipo is chosen as the representative in this research. The Dayao Lipo has 37 initials, 35 vowels (26 monophthongs, 8 diphthongs, and 1 triphthong), and 3 tones (/55/, /33/, and /21/) (LM: Self-data 2003). In some literature, Lipo has been regarded as a Lisu dialect (cf. Xu et al. 1986).

**Lisu 傈僳 (Fugong):**

According to Bradley (2003b: 222), the Lisu people consist of three major subgroups: Lonie [lo35nɛ33] (i.e., ‘Black Lo’, who are also called Lowu [lo35wu55] ‘Northern Lo’ by other Lisu people), *Xiaxia* [ɛq44ɛq44] or the Flowery Lisu, and Loshi [lo35ʂ33] or the Yellow Lisu. Accordingly, the Lisu language is composed of three dialects, geographically corresponding to these three subgroups: Northern Lisu, Central Lisu, and Southern Lisu, respectively (Bradley 2006: xv). These varieties are mutually intelligible, but with some initial difficulty, as reported in Bradley (2003b: 222). The relationships of Lisu varieties can be shown schematically as in Figure 4.8.

Chinese linguists have also divided Lisu into three dialects: Nuijiang 怒江, Yongsheng 永胜, and Luquan 禄劝 (Xu et al. 1986: 108); however, this classification is different from that of Bradley’s (2003b and 2006). Both Nuijiang and Yongsheng dialects use Lisu as their autonym and exonym, but in Luquan the autonym is Lipo ([li55pho21]).<sup>37</sup> Despite that the Lipo possess a fairly different autonym, they have been called Lisu by outsiders. Linguistically, the Lipo is an independent language from Lisu.

The Lisu in this study belongs to the Northern Lisu type spoken in Chada Village of Jiakedi Township, Fugong County, Nuijiang Lisu Prefecture, Yunnan (云南省怒江傈僳族自治州福贡县架科底

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<sup>36</sup> In Luquan County and other areas of Chuxiong Yi Prefecture, the Lipo ethnic group was originally assigned to Yi nationality; however, many of them regard themselves as a kind of Lisu and have, in recent years, changed their official ethnic status to Lisu.

<sup>37</sup> Note that some areas like Luquan, the Lipo people are officially grouped under Yi nationality, while some other places under Lisu nationality.

乡差打村). It has 35 initials, 27 vowels (21 monophthongs and 6 compound finals), and 4 tones (/55/, /33/, /35/, and /31/) (cf. TBL 1992: 669).

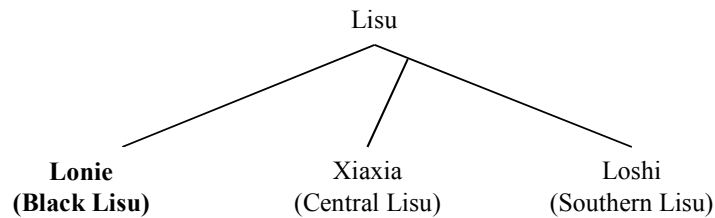


Figure 4.8 The internal relationship of Lisu language

**Lahu 拉祜纳 (Lancang):**

The Lahu has two major varieties: Black Lahu and Yellow Lahu according to *Lahuyu Jianzhi* (1986). Matisoff 2006 describes four major Lahu dialects spoken in Thailand, including Black Lahu, Red Lahu, Yellow Lahu, and Lahu Shehleh. Also, *Jianzhi* (1986: 2) mentions a group of Lahu people who identify themselves as White Lahu [la53xu31phy33] in Yunnan. The Black Lahu is selected in this comparative study. Matisoff (1972, 2003, etc.) has extensively researched on Lahu languages. Internal relationship of Lahu varieties has been well-established. Though the Lahu varieties are not mutually intelligible, their genetically close relationship is unquestioned.

The Lahu Na (Black Lahu) has 30 initials, 25 vowels (10 monophthongs and 15 diphthongs, which appear mainly in loan words from Chinese), 7 tones (/54/, /53/, /33/, /31/, /21/, /11/, and /35/ with both tones /54/ and /21/ belong to laryngealized category) (cf. TBL 1992: 671).

**Bisu 毕苏 (Lancang):**

Bisu, or mBisu, is spoken in Lancang County, Yunnan. Xu 1998 studies extensively this language. Bisu is linguistically close to the Sangkong language, though their autonyms show no obvious connection. Probably, their self-destinations have the same origin but one of them --- the Sangkong acquired a different one in a later stage.

Bisu has 30 initials (24 single consonants, 6 are palatalized consonants), 44 vowels (8 monophthongs and four diphthongs, 18 finals with nasal codas, and 14 finals with stop codas), and 3 tones (/55/, /33/, and /31/) (cf. Xu 1998: 16-17; 19; and 21-2).

**Hani 哈尼 (Lüchun):**

The Hani language includes varieties Hani [xa31ŋi31], Yani [za31ŋi31] (i.e., Akha), Haoni [xɔ31ŋi31], Baihong [pɤ31xɔ31], Enu [ŋɔ31ŋu31], Biyue [pi31jɔ31], and Kaduo [kha31tu55]. According to Li and Wang 1986, these Hani varieties can be grouped into three dialects: Ha-Ya, Bi-Ka, and Hao-Bai. Different dialects of Hani language are not comprehensible; however, varieties of the same dialect of Hani can be intelligible; especially, those ethnic groups who share the same autonyms are able to understand each other regardless how far they live from each other (Li and Wang 1986: 2). According to Li and Wang 1986, cognate percentage reveal that the Ha-Ya and the Hao-Bai share a slightly closer relationship than the Hao-Bai and the Bi-Ka, but much higher than the Ha-Ya and the Bi-Ka, suggesting that somehow the Ha-Ya and Hao-Bai split off recently. The relationships of Hani varieties can be shown schematically in Figure 4.9:

The Hani of this study is spoken at Dazhai, Lüchun County (绿春县大寨), Yunnan. It has 31 initials, 26 vowels (20 monophthongs and six diphthongs, which only appear in loan words from Chinese), and 4 tones (/55/, /33/, /31/, and /24/, with tone /24/ found only in loan words) (cf. TBL 1992: 669-70).

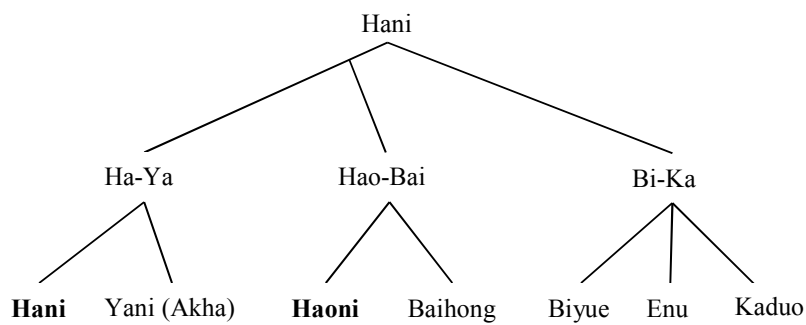


Figure 4.9 The internal relationship of Hani language

**Haoni 豪尼 (Mojiang):**

The Haoni, a variety of Hani, is spoken in Shuikui Village of Mojiang County (墨江县水葵村). It has 28 initials, 31 vowels (19 monophthongs and 12 diphthongs, which only appear in loan words from Chinese), 4 tones (/55/, /33/, /31/, and /35/, with tone /35/ found mainly in loan words) (cf. TBL 1992: 670).

**Sangkong 桑孔 (Jinghong):**

Sangkong [saŋ55qhoŋ55], hereafter as S.kong, is spoken in Jinghong County, Yunnan. Li 2002 gives a detailed description of this language. The S.kong is linguistically closely related to Punuoi or Singsali (Bradley 1979, Edmondson 2005). S.kong is autonymically close to Cồông of Mường Te, Lai Châu province, Vietnam and Singsali of Laos. Phonologically, Singsali has gone through a sound development *\*m-* > *\*mb-* > *b-*, while S.kong has undergone *\*m-* > *mb-* innovation; and Cồông retains the original nasal. I choose S.kong as the representative language for this small language subgroup. The relationship of these languages and Bisu see Figure 5.27 of Chapter 5.

The S.kong language has 31 initials, 54 vowels (18 monophthongs, 22 finals with nasal codas, and 11 finals with stop codas), 3 tones (/55/, /33/, and /31/) (cf. Li 2002: 17, 36, and 55).

**Mondzi 曼子 (Funing):**

Mondzi [mo21ndzi21] is spoken in Funing County, Yunnan and in Hà Giang province, Vietnam. There was no Mondzi data available until in 1983 when the YYFC project brought it to public attention. The Mondzi ethnically belongs to the proto *\*Man*, but it is officially classified as a Yi language. Its detailed inner classification is still unknown. Mondzi has 40 initials, 27 vowels (11 monophthongs and 13 diphthongs), 6 tones (/55/, /44/, /33/, /53/, /13/, and /21/) (cf. YYFC 1983).

**Maang 么昂 (Funing):**

Maang [maaŋ33] is also spoken in Funing County, Yunnan. Maang shows unusual phonological features, much different from other Nisoic languages (cf. Wu 1993). Maang is ethnically distant from the Yi ethnic subgroups but is officially classified with the Yi ethnicity. Its inner classification is still unknown.

Maang has 36 initials, 63 vowels (20 monophthongs, 20 diphthongs, 2 triphthongs, 17 finals with nasal codas, and 4 finals with stop codas), and 5 tones (/55/, /44/, /33/, /35/, and /21/) (LM Self-data 2003).

**Azha 阿扎 (Wenshan):**

The Azha [a33tʂa21] language is spoken in Wenshan County, Yunnan. The Azha are ethnically descendants of the proto \*Pu. Azha has been regarded as a member of the Southeastern Yi Dialect in Chen et al. 1985, while Bradley 2007 puts it under the Southeastern Ngwi. The detailed internal sub-classification of it is still unknown. Azha is probably closely related to the Pu [phu21] or [phø21] language. I use Azha to represent Azha and Pu spoken in Wenshan Prefecture, Yunnan Province.

Azha has 37 initials, 15 vowels (14 monophthongs and 1 diphthongs), 3 tones (/55/, /33/ (/44/), and /21/ (/35/); tones /44/ and /35/ appear only in tone sandhi cases) (LM Self-data 2003).

**Zuoke 作科 (Wenshan)**

The Zuoke people are a member of the Pula ethnic group, who mainly live in Wenshan Prefecture, Yunnan. Zuoke [dzu21khu33], also called Zuokuo [dzo21khu33a33], is spoken in Wenshan County, Yunnan Province. Its detailed internal relationship is still unknown. It has 28 initials, 30 vowels (25 monophthongs and 5 diphthongs), and 5 tones (/55/, /44/, /33/, /35/, and /21/) (cf. YYFC 1983).

**Lope 倮培 (Mile):**

The Lope [lɔ213phu21] people, or the Awu 阿务, live in Mile County, Yunnan. They are different from other Yi ethnic branches Axi, Azhe, and Sani who also live in the same county. The Lope language belongs to the Southeastern Yi Dialect according to Chen et al. 1985. Lope has one contour tone ([213] tonal value), which is not common in Nisoic languages. The internal classification of Lope is still unknown. Lope has 36 initials, 22 vowels (14 monophthongs, 7 diphthongs, and one triphthong), 5 tones (/55/, /44/, /33/, /213/, and /21/) (cf. YYFC 1983)

**Polo 泼倮 (Yanshan):**

The Polo [pho55lo55] people, also as the Poluo 泼倮 [pho55lo55], live in Yanshan County, Yunnan. The Polo language has been regarded as a member of the Southeastern Yi Dialect in Chen et al. 1985 and belongs to the Southeastern Ngwi subgroup in Bradley 2007. Its detailed internal sub-



classification is still unknown. Polo ethnically belongs to proto \*Pu ethnic group. The Polo language is probably closely related to Powa [pho21wa33]. The Polo language was chosen to represent both Polo and Powa. It has 32 initials, 17 vowels (all are monophthongs), and 4 tones (/55/, /33/, /13/, and /31/) (cf. YYFC 1983).

**Namuzi 纳木兹 (Muli):**

The Namuzi [næ55mu33z31] people live in Muli, Mianning counties of Sichuan. Both Huang 1991 and Lama 1994 have studied this language. Linguistically, it is more related to Naxi than to any other Nisoic languages. However, Sun 1982 regards it as a member of Qiangic, another branch of TB. The detailed internal classification of Namuzi is still unknown. The Namuzi language spoken in Muli County has 65 initials (42 single consonants and 22 clusters), 43 finals (19 monophthongs, 20 diphthongs, and 4 finals with nasal codas), and 4 tones (/55/, /53/, /35/ (/33/), and /31/ (/33/)) (cf. TBL 1992: 674).

**Naxi 纳西 (Lijiangba):**

The Naxi people live mainly in the northern Yunnan Province. Naxi includes varieties Na [na13] 纳, Mali Masa [ma33li55ma33sa33] 玛丽玛萨, Nari [na33zu33] 纳汝, Naxī [na33xi33] 纳恒, and **Naxi** [na21ei33] 纳西. According to He and Jiang 1985, the first three autonyms belong to the Eastern Naxi dialect, and the last one to the Western Naxi dialect. The Western Naxi varieties are mutually intelligible, but for the Eastern Naxi varieties communication is rather difficult. The internal relationship of Naxi varieties could be shown schematically in Figure 4.10. The *Naxi* speech of Lijiang Ba (丽江坝话) is chosen to represent all the Naxi varieties. It has 32 initials, 21 vowels (12 monophthongs and 9 diphthongs), and 4 tones (/55/, /33/, /21/, and /13/, with the rising tone found mainly in loan words) (cf. TBL 1992: 673).

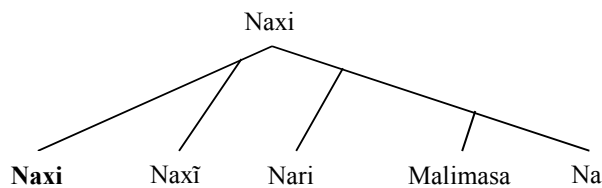


Figure 4.10 The internal relationship of Naxi language

**Nusu 怒苏 (Bijiang):**

The Nusu people are officially assigned to the Nu nationality. The Nusu [nu33su33] language is spoken in Bijiang County, Yunnan. Sun and Liu 1986 briefly describes the Nusu language and claims its affiliation is to Nisoic. Also, the Nusu language spoken in Putao, Myanmar, is closely related to this Nusu language in China. According to Sun and Liu 1986, Nusu has two dialects: the Northern Nusu and the Southern Nusu. The Bijiang Nusu has 50 initials, 54 vowels (23 monophthongs, 29 diphthongs, and 2 finals with a nasal coda), and 4 tones (/55/, /53/, /31/, and /33/) (cf. TBL 1992: 663).

**Rouruo 柔若 (Lanping):**

The Rouruo people are officially assigned to the Nu nationality. Rouruo [zao55zuo33] is spoken in Lanping County, Yunnan. Sun et al. 2002 gives a full description to this language. Rouruo has 23 initials, 66 vowels (34 monophthongs and 32 diphthongs), and 6 tones (/55/, /33/, /53/, /31/, /13/, and /35/) (cf. Sun et al 2002: 14, 16, and 21).

**Kazhuo 卡卓 (Tonghai):**

The Kazhuo people ethnically belong to the Mongolian. Kazhuo [kha55tso31] or [ka55tso31] is spoken in Tonghai County, Yunnan. Mu 2003 studies this language extensively. Kazhuo is treated as a member of the Central Loloish by Bradley (1997). It has 24 initials, 17 vowels (8 monophthongs and 9 diphthongs), and 8 tones (/55/, /44/, /33/, /53/, /31/, /24/, /35/, and /323/) (cf. TBL 1992: 674-5).

**Jinuo 基诺 (Jinghong):**

The Jinuo [tei33no33] people live in Jinghong County, Yunnan. Gai 1986 introduces this language and regards it as a member of Nisoic family. Jinuo has 42 initials (37 single consonants, 5

palatalized consonants, and 6 clusters), 27 finals (17 monophthongs, 7 diphthongs, and 3 finals with a nasal coda), and 7 tones (/55/, /44/, /33/, /42/, /31/, /35/, and /53/) (cf. TBL 1992: 672).

#### 4.4 An Overview of the Phonology of Nisoic Languages

Having done the general introduction to the background of Nisoic languages, we now turn to a summary of phonemic contrasts of Nisoic languages, which are directly concerned in this dissertation. We begin by listing the phonemes of Nisoic languages in tables, and then discuss the phonological features of Nisoic languages in detail.

##### *4.4.1 Phonemes of Nisoic Languages*

The phonemic initials of Nisoic languages is fairly simple compared to these found in other TB branches, such as Qiangic, in which one would often find a couple of hundred of initials and finals in the phonemic inventory. Nisoic languages often have a smaller number of initial consonants, ranging from 20 to 50; their phonemes of finals often range from 10 to 50; and their tonemes are from 3 to 8. Tables given in this section list all the phonemes of Nisoic languages studied in this dissertation. Also, Achang and Zaiwa languages of Burmic are included for the purpose of comparison. As is seen from these tables, the Burmic languages have a rather complicated finals compared to the Nisoic languages.

Table 4.1 List of Phonemes of Labials of Nisoic Languages

Lang	Labial, Prenasalized Labial, Preglottalized Labial												
	p	ph	b	mb	mph(mbh)	ᵐ	m	?m	f	fh	v	?v	w
Nuosu	p	ph	b	mb		ᵐ	m		f		v		
Niesu	p	ph	b	mb			m		f		v		
Nesu	p	ph	b	mb			m		f		v		
Nasu	p	ph	b		Mph		m		f		v		
Gepu	p	ph	b		Mbh		m		f		v		
Nisu	p	ph	b				m		f		v		
Nishu	p	ph	b				m		f		v		
Lope	p	ph	b				m		f		v		
Samu	p	ph	b				m		f		v		
Sani	p	ph	b				m		f		v		
Azhe	p	ph	b				m		f		v		
Axi	p	ph	b				m		f		v		
Laluba	p	ph	b				m	?m	f		v	?v	
Toloza	p	ph	b				m		f		v		
Lavu	p	ph	b				m	?m	f		v		
Lolopo	p	ph	b				m		f		v		
Lipo	p	ph	b	mb			m		f		v		w
Lisu	p	ph	b				m		f		v		w
Lahu	p	ph	b				m		f		v		w
Bisu	p	ph	b				m		f		v		
Hani	p	ph	b				m		f				
Haoni	p	ph					m		f		v		
S.kong	p	ph		mb			m						w
Mondzi	p	ph	b	mb			m		f		v		
Maang	p	ph	b	mb			m				v, v <sup>y</sup>		
Azha	p	ph	b	(mb)			m				v		
Zuoke	p	ph	b				m		f		v		
Polo	p	ph	b	mb			m		f		v		
Namuzi	p	ph	b	mb			m		f		v		w
Naxi	p	ph	b				m		f		v		
Nusu	p	ph	b			ᵐ	m	?m	f	fh	v		
Rouruo	p	ph					m		f		v		
Kazhuo	p	ph					m		f		v		w
Jinuo	p	ph					m		f		v		w
Achang	p	ph				ᵐ	m		f		v		
Zaiwa	p	ph					m		f		v		

Table 4.2 List of Phonemes of Palatalized/Retroflexized Labials of Nisoic Languages

Lang	Palatalized/Retroflexized Labial											
	pj	pɿ/pzɿ	phj	phɿ/phzɿ	bj	bɿ	mbj	mɿ/mzɿ	mj	mɿ/mzɿ	fɿ	vɿ
Nuosu												
Niesu												
Nesu												
Nasu												
Gepu												
Nisu												
Nishu												
Lope												
Samu												
Sani												
Azhe												
Axi												
Laluba												
Toloza												
Lavu												
Lolopo												
Lipo												
Lisu												
Lahu												
Bisu	pj		phj		bj				mj			
Hani	pj		phj		bj				mj			
Haoni												
S.kong	pj		phj				mbj		mj			
Mondzi												
Maang												
Azha												
Zuoke												
Polo												
Namuzi												
Naxi												
Nusu		pɿ		phɿ		bɿ		mɿ		mɿ	fɿ	vɿ
Rouruo												
Kazhuo												
Jinuo	pj	pɿ	phj	phɿ					mj	mɿ		
Achang		pzɿ		phzɿ				mzɿ		mzɿ		
Zaiwa	pj		phj						mj			

Table 4.3 List of Phonemes of Alveolars (Affricates and Fricatives) of Nisoic Languages

Lang	Alveolar (Affricates and Fricatives)										
	ʈ	ʈʂ	ʈʂh	ʈʂhʂ	ʈʂl	ʈʂ	ndʂ	ntʂh/ndʂh	s	ʂj	ʂ
Nuosu	ʈ		ʈʂh			ʈʂ	ndʂ		s		ʂ
Niesu	ʈ		ʈʂh			ʈʂ	ndʂ		s		ʂ
Nesu	ʈ		ʈʂh			ʈʂ	ndʂ		s		ʂ
Nasu	ʈ		ʈʂh			ʈʂ		ntʂh	s		ʂ
Gepu	ʈ		ʈʂh			ʈʂ		ndʂh	s		ʂ
Nisu	ʈ		ʈʂh			ʈʂ			s		ʂ
Nishu	ʈ		ʈʂh			ʈʂ			s		ʂ
Lope	ʈ		ʈʂh			ʈʂ			s		ʂ
Samu	ʈ		ʈʂh			ʈʂ			s		ʂ
Sani	ʈ		ʈʂh			ʈʂ			s		ʂ
Azhe	ʈ		ʈʂh			ʈʂ			s		ʂ
Axi	ʈ		ʈʂh			ʈʂ			s		ʂ
Laluba	ʈ		ʈʂh			ʈʂ			s		ʂ
Toloza	ʈ		ʈʂh			ʈʂ			s		ʂ
Lavu	ʈ		ʈʂh			ʈʂ			s		ʂ
Lolopo	ʈ		ʈʂh			ʈʂ			s		ʂ
Lipo	ʈ		ʈʂh			ʈʂ			s		ʂ
Lisu	ʈ		ʈʂh			ʈʂ			s		ʂ
Lahu	ʈ		ʈʂh			ʈʂ			s		ʂ
Bisu	ʈ		ʈʂh						s		ʂ
Hani	ʈ		ʈʂh			ʈʂ			s		ʂ
Haoni	ʈ		ʈʂh						s		ʂ
S.kong	ʈ		ʈʂh						s		
Mondzi	ʈ		ʈʂh			ʈʂ	ndʂ		s		ʂ
Maang	ʈ		ʈʂh			ʈʂ			s		
Azha	ʈ		ʈʂh		ʈʂl				s		ʂ
Zuoke	ʈ		ʈʂh			ʈʂ			s		ʂ
Polo	ʈ		ʈʂh			ʈʂ	ndʂ		s		ʂ
Namuzi	ʈ		ʈʂh			ʈʂ	ndʂ	ntʂh	s		ʂ
Naxi	ʈ		ʈʂh			ʈʂ			s		ʂ
Nusu	ʈ		ʈʂh			ʈʂ			s		ʂ
Rouruo	ʈ		ʈʂh						s		ʂ
Kazhuo	ʈ		ʈʂh						s		ʂ
Jinuo	ʈ	ʈʂj	ʈʂh	ʈʂhj					s	ʈʂj	ʂ
Achang	ʈ		ʈʂh						s		
Zaiwa	ʈ		ʈʂh						s		

Table 4.4 List of Phonemes of Alveolars of Nisoic Languages

Lang	Alveolar																		
	t	tj	tʃ	th	thj	thʃ	d	ʔd	dl	nd	nth/ndh	ɲ	n	ʔn	nj	ʃ/ʃ̣	l	ʔl	lj
Nuosu	t			th			d			nd		ɲ	n			ʃ	l		
Niesu	t			th			d			nd			n			ʃ	l		
Nesu	t			th			d				nth		n			ʃ	l		
Nasu	t			th			d				ndh		n			ʃ	l		
Gepu	t			th			d				ndh		n			ʃ	l		
Nisu	t			th			d						n			ʃ	l		
Nishu	t			th			d						n			ʃ	l		
Lope	t			th			d						n			ʃ	l		
Samu	t			th			d						n				l		
Sani	t		tʃ	th			d		dl				n			ʃ	l		
Azhe	t			th			d						n			ʃ	l		
Axi	t			th			d						n			ʃ	l		
Laluba	t			th			d						n	ʔn			l	ʔl	
Toloza	t			th			d						n				l		
Lavu	t			th			d						n	ʔn			l	ʔl	
Lolopo	t			th			d						n				l		
Lipo	t			th			d						n				l		
Lisu	t			th			d						n				l		
Lahu	t			th			d						n				l		
Bisu	t			th			d						n				l		
Hani	t			th			d						n				l		
Haoni	t			th									n			ʃ	l		
S.kong	t			th						nd			n				l		
Mondzi	t			th			d			nd			n				l		
Maang	t			th			d	ʔd		nd			n	ʔn		ʃ	l		
Azha	t			th		thʃ	d						n				l		
Zuoke	t			th			d						n				l		
Polo	t			th			d			nd			n				l		
Namuzi	t			th			d			nd	nth		n				l		
Naxi	t			th			d						n				l		
Nusu	t			th			d					ɲ	n			ʃ	l		
Rouruo	t			th									n				l		
Kazhuo	t			th									n				l		
Jinuo	t	tj		th	thj								n		nj	ʃ	l		lj
Achang	t			th								ɲ	n			ʃ	l		
Zaiwa	t			th									n			ʃ	l		

Table 4.5 List of Phonemes of Retroflexes of Nisoic Languages

Lang	Retroflex														
	t	th	d	ŋh/ŋd	l	tʂ	tʂh		dz	ŋdz	ŋtʂh/ŋdzh	ŋ	ʂ	ʂh	z
Nuosu						tʂ	tʂh		dz	ŋdz			ʂ		z
Niesu						tʂ	tʂh		dz	ŋdz			ʂ		z
Nesu	t	th	d	ŋd		tʂ	tʂh		dz	ŋdz		ŋ	ʂ		z
Nasu	t	th	d	ŋh		tʂ	tʂh		dz		ŋtʂh	ŋ	ʂ		z
Gepu			d			tʂ	tʂh		dz		ŋdzh	ŋ	ʂ		z
Nisu						tʂ	tʂh		dz				ʂ		z
Nishu						tʂ	tʂh		dz				ʂ		z
Lope						tʂ	tʂh		dz				ʂ		z
Samu															
Sani						tʂ	tʂh		dz				ʂ		z
Azhe			d		l	tʂ	tʂh		dz				ʂ		z
Axi	t	th	d			tʂ	tʂh		dz				ʂ		z
Laluba						tʂ	tʂh		dz				ʂ		z
Toloza						tʂ	tʂh		dz				ʂ		z
Lavu						tʂ	tʂh		dz				ʂ		z
Lolopo						tʂ	tʂh		dz				ʂ		z
Lipo						tʂ	tʂh		dz				ʂ		z
Lisu															
Lahu															
Bisu															
Hani															
Haoni															
S.kong															
Mondzi						tʂ	tʂh		dz	ŋdz			ʂ		z
Maang															z
Azha						tʂ	tʂh	tʂl					ʂ		z
Zuoke															
Polo			d		l										
Namuzi						tʂ	tʂh		dz	ŋdz	ŋtʂh		ʂ		z
Naxi						tʂ	tʂh		dz				ʂ		z
Nusu						tʂ	tʂh		dz				ʂ		z
Rouruo															
Kazhuo															
Jinuo															
Achang						tʂ	tʂh						ʂ		z
Zaiwa															



Table 4.6 List of Phonemes of Alveolo-Palatals and Palatals of Nisoic Languages

Lang	Alveolo-Palatal, Palatal													
	tʃ/te	c	tʃh/teh	ch	dʒ/dz	ʃ	ɲdz	ɲteh/ɲdzh	ɲ̥	ɲ/ɲ	?ɲ	ɛ/ʃ	eh	z/ʃ/ʒ
Nuosu	te		teh		dz		ɲdz		ɲ̥	ɲ		ɛ		z
Niesu	te		teh		dz		ɲdz			ɲ		ɛ		z
Nesu	te		teh		dz		ɲdz			ɲ		ɛ		z
Nasu	te		teh		dz			ɲteh		ɲ		ɛ		j
Gepu	te		teh		dz			(ɲdzh)		ɲ		ɛ		z
Nisu	te		teh		dz					ɲ		ɛ		z
Nishu	te		teh		dz					(ɲ)		ɛ		z
Lope	te		teh		dz					ɲ		ɛ		z
Samu	te		teh		dz					ɲ		ɛ		z
Sani	te		teh		dz					ɲ		ɛ		j
Azhe	te		teh		dz					ɲ		ɛ		z
Axi	te		teh		dz							ɛ		z
Laluba	te	c	teh	ch	dz	ʃ				ɲ	?ɲ	ɛ		z
Toloz	te		teh		dz					ɲ		ɛ		z
Lavu	te		teh		dz					ɲ		ɛ		z
Lolopo	te		teh		dz					ɲ		ɛ		z
Lipo	te		teh		dz					ɲ		ɛ		z
Lisu	tʃ/te		tʃh/teh		dʒ/dz					ɲ		ɛ/ʃ		ʒ/z
Lahu <sup>38</sup>	te		teh		dz							ɛ		z
Bisu	te		teh									ɛ		z
Hani	te		teh		dz					ɲ		ɛ		j
Haoni	te/tʃ		teh/tʃh							ɲ		ɛ/ʃ		j/ʒ
S.kong	te		teh							ɲ		ɛ		z
Mondzi	te		teh		dz		ɲdz					ɛ		z
Maang	te		teh		dz							ɛ		z
Azha	te		teh				ɲdz			ɲ		ɛ		z
Zuoke	te		teh		dz							ɛ		z
Polo	te		teh		dz		ɲdz			ɲ		ɛ		z
Namuzi	te		teh		dz		ɲdz	ɲteh		ɲ		ɛ		j
Naxi	te		teh		dz					ɲ		ɛ		
Nusu	te		teh		dz				ɲ	ɲ		ɛ		z
Rouruo	te		teh							ɲ		ɛ		
Kazhuo	te		teh							ɲ		ɛ		j
Jinuo	tʃ/te		tʃh/teh									ɛ/ʃ		j
Achang	te		teh						ɲ	ɲ		ɛ		z
Zaiwa	tʃ		tʃh									ɛ		ʒ/j

<sup>38</sup> Lahu /ts/, /tʃh/, /dz/, /s/, and /z/ before front vowels [i], [e], and [ɛ] are pronounced as alveolo-palatals [tʃ], [tʃh], [dz], [ɛ], and [z], respectively, while before back vowels [a], [ɔ], [u] [ɤ], [u], and [ɤ], they are articulated as [tʃ], [tʃh], [dz], [ʃ], and [ʒ], respectively (Chang et al. 1986. *Lahuyu Jianzhi*: 5).

Table 4.7 List of Phonemes of Velars, Palatalized Velars, and Retroflex Velars of Nisoic Languages

Lang	Velar, Palatalized Velar, Retroflexized Velar															
	k	kj/kɿ/kzɿ	kh	khj/khɿ/khzɿ	g	gh	gɿ	ŋg	ŋkh/ŋgh	ŋ̊	ŋ	ŋj	x	xj/xɿ	ɣ	ɣɿ
Nuosu	k		kh		g			ŋg			ŋ		x		ɣ	
Niesu	k		kh		g			ŋg			ŋ		x		ɣ	
Nesu	k		kh		g			ŋg			ŋ		x		ɣ	
Nasu	k		kh		g				ŋkh		ŋ		x		ɣ	
Gepu	k		kh		g				ŋgh		ŋ		x		ɣ	
Nisu	k		kh		g						ŋ		x		ɣ	
Nishu	k		kh		g						ŋ		x		ɣ	
Lope	k		kh		g						ŋ		x		ɣ	
Samu	k		kh		g	gh					ŋ		x		ɣ	
Sani	k		kh		g						ŋ		x		ɣ	
Azhe	k		kh		g						ŋ		x		ɣ	
Axi	k		kh		g						ŋ		x		ɣ	
Laluba	k		kh		g								x		ɣ	
Toloza	k		kh		g						ŋ		x		ɣ	
Lavu	k		kh		g						ŋ		x		ɣ	
Lolopo	k		kh		g						ŋ		x		ɣ	
Lipo	k		kh		g						ŋ		x		ɣ	
Lisu	k		kh		g						ŋ		x		ɣ	
Lahu	k		kh		g						ŋ		x		ɣ	
Bisu	k	kj	kh	khj	g						ŋ		x			
Hani	k		kh		g						ŋ		x		ɣ	
Haoni	k		kh								ŋ		x		ɣ	
S.kong	k		kh					ŋg			ŋ		x			
Mondzi	k		kh		g			ŋg					x		ɣ	
Maang	k		kh		g			ŋg			ŋ		x		ɣ	
Azha	k		kh					ŋg			ŋ		x		ɣ	
Zuoke	k		kh		g						ŋ		x		ɣ	
Polo	k		kh		g						ŋ		x		ɣ	
Namuzi	k		kh		g			ŋg	ŋkh		ŋ		x		ɣ	
Naxi	k		kh		g						ŋ		x		ɣ	
Nusu	k	kɿ	kh	khɿ	g		gɿ			ŋ̊	ŋ		x	xɿ	ɣ	ɣɿ
Rouruo	k		kh		g						ŋ		x		ɣ	
Kazhuo	k		kh								ŋ		x		ɣ	
Jinuo	k	kɿ	kh	khɿ							ŋ		x		ɣ	
Achang	k	kzɿ	kh	khzɿ						ŋ̊	ŋ		xzɿ			
Zaiwa	k	kj	kh	khj							ŋ	ŋj	x	xj		

Table 4.8 List of Phonemes of Uvulars, Glottals, and other Clusters of Nisoic Languages

Lang	Uvular, Glottal, Clusters															
	q	qh	g	ng	χ	ʁ	ʔ	ʔh	h	fi	lk	lkh	lg	kw	khw	xw
Nuosu									h							
Niesu									h							
Nesu									h							
Nasu									h							
Gepu									h							
Nisu							ʔ		(h)							
Nishu							(ʔ)		h							
Lope									h	fi						
Samu							(ʔ)		h							
Sani							(ʔ)		h					kw	kw	xw
Azhe							ʔ		h							
Axi																
Laluba							ʔ		h							
Toloza							ʔ		h							
Lavu							ʔ		h							
Lolopo																
Lipo							ʔ		h							
Lisu									h							
Lahu	q	qh														
Bisu																
Hani																
Haoni																
S.kong	q	qh					ʔ		h							
Mondzi											lk	lkh	lg			
Maang	q	qh														
Azha							ʔ		h							
Zuoke							ʔ									
Polo							ʔ									
Namuzi <sup>39</sup>	q	qh	g	ng	χ	ʁ	ʔ	ʔh	h	fi						
Naxi																
Nusu																
Rouruo							ʔ									
Kazhuo																
Jinuo							(ʔ)									
Achang																
Zaiwa																

<sup>39</sup> The Namuzi also has initial clusters *phs*, *bz*, *phz*, *bz*, *mphs*, *mbz*, *mphz*, and *mbz* according to TBL 1992, which is probably due to individual phonemicization. One would treat these sounds as *ph*, *b*, *ph*, *b*, *mph*, *mb*, *mph*, and *mb* respectively (cf. Lama 1994).

Table 4.9 List of Phonemes of Regular and Laryngealized Monophthongs of Nisoic Languages

Lang	Regular Vowel/Laryngealized Vowel																						
	ɿ	ɨ	y	ɪ	e	ø	ɛ	œ	æ	a	ɨ̥	ɥ	ə	ʉ	u	v	o	ɤ	ʌ	ɔ	ɑ	ɒ	
Nuosu	ɿ	ɨ	-	-	e	-	-	-	-	a	-	-	-	ʉ	u	-	-	-	o	-	ɔ	-	-
Niesu	ɿ	ɨ	-	-	e	-	-	-	-	a	-	-	-	ʉ	u	-	-	-	o	-	ɔ	-	-
Nesu	-	ɨ	-	ɪ	e	-	-	-	-	a	-	-	-	-	u	-	-	ɤ	o	-	-	-	-
Nasu	ɿ	ɨ	-	-	-	-	-	-	-	a	-	-	-	ʉ	u	v	-	ɤ	o	-	ɔ	-	ɒ
Gepu	ɿ	ɨ	-	-	-	-	ɛ	-	-	a	-	-	ə	-	u	-	-	-	o	-	ɔ	-	-
Nisu	ɿ	ɨ	-	ɪ	e	-	ɛ	-	-	a	-	-	-	ʉ	u	-	-	ɤ	o	-	-	-	-
Nishu	ɿ	ɨ	-	-	e	-	-	-	-	a	-	-	ə	ʉ	u	-	-	-	o	-	-	-	-
Lope	ɿ	ɨ	-	ɪ	-	-	ɛ	-	æ	a	-	-	ə	ʉ	u	v	-	ɤ	o	-	-	-	-
Samu	ɿ	ɨ	-	-	e	-	-	-	-	a	-	-	-	ʉ	u	-	-	-	o	-	ɔ	ɑ	-
Sani <sup>40</sup>	-	ɨ	-	ɪ	e	-	ɛ	-	-	a	-	-	-	ʉ	u	-	-	ɤ	o	-	-	-	ɒ
Azhe	-	ɨ	-	ɪ	-	-	ɛ	-	-	a	-	ɥ	-	ʉ	u	-	-	-	o	-	-	-	-
Axi	-	ɨ	-	-	e	-	ɛ	-	-	a	-	-	-	ʉ	u	-	-	-	o	-	-	-	-
Laluba	ɿ	ɨ	y	-	-	-	ɛ	-	-	a	-	-	-	ʉ	u	ɥ	-	-	o	-	-	ɑ	-
Toloza	ɿ	ɨ	y	-	-	ø	ɛ	œ	-	a	-	-	ə	ʉ	u	ɥ	-	-	o	-	-	ɑ	-
Lavu <sup>41</sup>	ɿ	ɨ	y	-	e	ø	ɛ	-	-	a	-	ɥ	ə	ʉ	u	ɥ	-	-	o	-	-	ɑ	-
Lolopo	ɿ	ɨ	y	-	e	-	-	-	æ	a	-	-	ə	ʉ	u	-	-	-	o	-	-	-	-
Lipo	ɿ	ɨ	-	-	e	-	-	-	æ	a	-	-	ə	ʉ	u	-	-	-	o	-	ɔ	ɑ	-
Lisu <sup>42</sup>	-	ɨ	-	-	e	-	ɛ	-	-	a	-	-	-	ʉ	u	-	-	-	o	-	-	-	-
Lahu	-	ɨ	-	-	e	-	ɛ	-	-	a	-	-	-	ʉ	u	v	-	ɤ	o	-	ɔ	-	-
Bisu	ɿ	ɨ	-	-	e	-	-	-	-	a	-	-	-	ʉ	u	-	-	ɤ	o	-	-	-	-

<sup>40</sup> Sani *i*, *y*, *u*, *ɯ*, *ɹ̥*, *ɹ̥̄*, *ɹ̥̄̄*, and *ɹ̥̄̄̄* treated as fricativized vowels (TBL 1992: 667). Note: *Yiyu Jianming Cidian* (Wu et al. 1982: 16) regards that Sani has 26 monophthongs and 12 diphthongs; these vowels include laryngealized and nasalized finals.

<sup>41</sup> Lavu vowel *ɥ* is originally written as labial-palatal approximant *ɥ*.

<sup>42</sup> The laryngealized Lisu vowels are treated as syllables having tonal features (/44/ and /42/).

Table 4.9 – Continued

Hani	ɿ	i	-	-	e	ø	-	-	-	a	-	-	-	ɯ	u	-	-	ɣ	o	-	ɔ	-	-
	ɿ̣	ị	-	-	ẹ	ø̣	-	-	-	ạ	-	-	-	ɯ̣	ụ	-	-	ɣ̣	ọ	-	ɔ̣	-	-
Haoni	ɿ	i	-	-	-	-	ɛ	-	æ	a	-	-	-	ɯ	u	ɣ	-	ɣ	o	-	ɔ	-	-
	ɿ̣	ị	-	-	-	-	ɛ̣	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S.kong	ɿ	i	-	-	e	ø	-	-	-	a	-	-	-	ɯ	u	-	-	ɣ	o	-	-	-	-
	ɿ̣	ị	-	-	ẹ	ø̣	-	-	-	ạ	-	-	-	ɯ̣	ụ	-	-	ɣ̣	ọ	-	-	-	-
Mondzi	ɿ	i	-	-	e	ø	ɛ	-	-	a	-	-	-	-	u	-	-	-	o	-	ɔ	ɑ	-
	ɿ̣	ị	-	-	ẹ	ø̣	ɛ̣	-	-	ạ	-	-	-	-	ụ	-	-	-	ọ	-	ɔ̣	ɑ̣	-
Maang	-	i	-	ɿ	e	-	-	-	-	a	-	-	ə	ɯ	u	-	-	-	o	-	ɔ	ɑ	-
	-	ị	-	ɿ̣	ẹ	-	-	-	-	ạ	-	-	ə̣	ɯ̣	ụ	-	-	-	ọ	-	ɔ̣	ɑ̣	-
Azha	ɿ	i	y	-	e	-	-	-	-	a	-	-	-	ɯ	u	-	-	-	o	-	ɔ	ɑ	-
	-	-	-	-	ẹ	-	-	-	-	-	-	-	-	ɯ̣	ụ	-	-	-	-	-	ɔ̣	-	-
Zuoke	ɿ	i	-	ɿ	e	-	ɛ	-	-	a	-	-	ə	ɯ	u	-	ɔ	-	o	-	-	ɑ	-
	ɿ̣	ị	-	ɿ̣	ẹ	-	ɛ̣	-	-	ạ	-	-	ə̣	ɯ̣	ụ	-	ɔ̣	-	ọ	-	-	ɑ̣	-
Polo	-	i	-	-	e	-	ɛ	-	-	a	-	-	-	-	u	-	-	ɣ	o	-	-	ɑ	-
	-	ị	-	-	ẹ	-	ɛ̣	-	-	ạ	-	-	-	-	ụ	-	-	ɣ̣	ọ	-	-	ɑ̣	-
Namuzi	ɿ	i	-	-	e	-	-	-	æ	a	-	ɯ	ə	-	u	-	-	-	o	-	ɔ	-	-
	-	-	-	-	-	-	-	-	æ̣	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naxi	ɿ	i	y	-	e	-	-	-	æ	-	-	ə	ɯ	u	ɣ	-	-	-	o	-	-	ɑ	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nusu	-	i	-	-	e	-	ɛ	-	-	a	-	-	ə	ɯ	u	-	-	-	o	-	ɔ	-	-
	-	ị	-	-	ẹ	-	ɛ̣	-	-	ạ	-	-	ə̣	ɯ̣	ụ	-	-	-	ọ	-	ɔ̣	-	-
Rouruo	ɿ	i	y	-	e	-	ɛ	-	-	a	-	-	ə	ɯ	u	-	-	-	o	-	ɔ	-	-
	ɿ̣	ị	-	-	ẹ	-	ɛ̣	-	-	ạ	-	-	ə̣	ɯ̣	ụ	-	-	-	ọ	-	ɔ̣	-	-
Kazhuo	ɿ	i	-	-	-	-	ɛ	-	-	a	-	-	-	ɯ	-	-	v	ɣ	o	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jinuo	-	i	y	-	e	ø	ɛ	œ	-	a	-	-	ə	ɯ	u	-	-	ɣ	o	-	ɔ	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Achang	ɿ	i	-	-	e	-	-	-	-	a	-	-	ə	-	u	-	-	-	o	-	ɔ	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zaiwa	-	i	-	-	e	-	-	-	-	a	-	-	-	-	u	-	-	-	o	-	-	-	-
	-	ị	-	-	ẹ	-	-	-	-	ạ	-	-	-	-	ụ	-	-	-	ọ	-	-	-	-

Table 4.10 List of Phonemes of Nasalized Monophthongs of Nisoic Languages

Lang	Nasalized monophthong																		
	ĩ	ỹ	ẽ	ẽ̃	ẽ̄	ã	ã'	ã̃	ã̄	õ	õ'	õ̃	ũ	ũ̃	ũ̄	õ	õ̃	ȭ	
Nuosu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Niesu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nesu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nasu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gepu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nisu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nishu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lope	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Samu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sani	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azhe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Axi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laluba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toloza	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	õ	õ̃	-	-
Lavu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	õ	-	-	-
Lolopo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lipo	ĩ	-	ẽ	-	-	ã	-	-	-	-	-	-	-	-	-	õ	-	õ̃	-
Lisu	ĩ	-	ẽ	ẽ̃	-	-	-	ã	-	-	-	-	ũ	ũ̃	-	õ	-	-	-
Lahu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bisu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hani	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haoni	ĩ	-	-	ẽ̃	-	-	-	ã	-	-	-	-	-	-	-	õ	-	-	-
S.kong	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mondzi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	õ	-	-	õ̃
Azha	ĩ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zuoke	-	-	-	-	-	-	-	ã	-	-	-	-	-	-	-	-	-	-	-
Polo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	õ	-	-	-
Namuzi	ĩ	-	ẽ	-	-	-	ã'	ã	-	-	-	-	-	ũ	-	-	-	-	-
Naxi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nusu	-	-	-	-	-	-	-	-	-	-	õ'	õ̃'	-	-	-	-	-	-	õ̃
Rouruo	ĩ	ỹ	ẽ	ẽ̃	ẽ̄	-	-	ã	ã̃	õ	-	-	ũ	ũ̃	ũ̄	õ	-	-	õ̃
Kazhuo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jinuo	ĩ	-	ẽ	-	-	-	-	ã	-	-	-	-	-	-	-	-	-	-	-
Achang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zaiwa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4.11 List of Phonemes of Nasalized Diphthongs of Nisoic Languages

Lang	Nasalized Diphthong															
	uã	uã̃	uẽ	uẽ̃	uẽ̃	uõ	uõ̃	uõ̃	iã	iã̃	iẽ	iõ	iõ̃	iõ̃	iõ̃	yẽ
Nuosu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Niesu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nesu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nasu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gepu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nisu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nishu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lope	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Samu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sani	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azhe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Axi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laluba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tolozá	-	uã̃	-	-	-	-	-	-	iã̃	-	-	-	-	-	-	-
Lavu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lolopo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lipo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lisu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lahu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bisu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hani	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haoni	uã̃	-	-	-	uẽ̃	-	-	-	iã̃	-	iẽ̃	iõ̃	-	-	-	-
S.kong	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mondzi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maang	-	-	-	-	-	-	-	-	iã̃	-	-	iõ̃	-	-	-	-
Azha	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zuoke	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Namuzi	uã̃	-	uẽ̃	-	-	-	-	-	-	iã̃̃	-	-	-	-	iõ̃̃	-
Naxi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nusu	-	-	uẽ̃	uẽ̃̃	-	-	uõ̃̃	uõ̃̃	-	-	-	-	iõ̃̃	iõ̃̃	iõ̃̃	iõ̃̃
Rouruo	uã̃̃	-	uẽ̃̃	-	uẽ̃̃	uõ̃̃	-	-	iã̃̃	-	iẽ̃̃	-	-	-	-	yẽ̃̃
Kazhuo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jinuo	uã̃̃	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Achang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zaiwa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4.12 List of Phonemes of Rhoticized Vowels of Nisoic Languages

<i>Lang</i>	Rhoticized Vowels																
	iʳ	eʳ	ɛʳ	ɛʳ	æʳ	əʳ	ɔʳ	ɔʳ	ɔʳ	ɔʳ	uʳ	uʳ	iəʳ	iəʳ	uæʳ	uəʳ	əəʳ
Nuosu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Niesu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nesu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nasu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gepu	-	-	-	ɛʳ	-	əʳ	ɔʳ	-	-	uʳ	-	-	-	-	-	-	-
Nisu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nishu	-	eʳ	ɛʳ	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lope	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Samu	iʳ	-	-	-	-	-	-	ɔʳ	ɔʳ	-	uʳ	-	-	-	-	-	-
Sani	-	-	-	-	-	əʳ	-	-	-	-	-	-	-	-	-	-	-
Azhe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Axi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laluba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toloza	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	uəʳ	-
Lavu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lolopo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lipo	-	-	-	-	æʳ	-	-	-	-	-	uʳ	-	-	-	-	-	-
Lisu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lahu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bisu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hani	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haoni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S.kong	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mondzi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azha	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zuoke	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Namuzi	-	-	-	-	æʳ	əʳ	-	-	-	-	-	-	-	-	uæʳ	uəʳ	əəʳ
Naxi	-	-	-	-	-	əʳ	-	-	-	-	-	-	-	-	-	-	-
Nusu	-	-	-	-	-	əʳ	əʳ	-	-	-	-	iəʳ	iəʳ	-	-	-	-
Rouruo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kazhuo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jinuo	-	-	-	-	-	əʳ	-	-	-	-	-	-	-	-	-	-	-
Achang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zaiwa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Table 4.13 List of Phonemes of Diphthongs (I) of Nisoic Languages

Lang	Diphthong I																		
	oi	ɔi	oe	oɛ	oa	oɣ	ou	ɔu	ɔɛ	ao	au	ɔu	au	əu	ɜu	ɣe	ɰi	ɰi	ɰa
Nuosu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Niesu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nesu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nasu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gepu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nisu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nishu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lope	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Samu <sup>43</sup>	-	-	-	-	-	-	-	-	-	-	au	-	-	əu	ɜu	-	-	-	-
Sani	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azhe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Axi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laluba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toloza	-	-	-	-	-	-	-	-	-	-	-	-	au	-	-	-	-	-	-
Lavu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lolopo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lipo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lisu	-	-	-	-	-	-	ou	-	-	ao	-	-	-	-	-	-	-	-	-
Lahu <sup>44</sup>	oi	-	oe	-	-	-	-	-	ɔɛ	-	au	-	-	-	-	ɣe	-	-	-
Bisu	-	-	-	-	-	-	-	-	-	-	au	-	-	-	-	-	-	-	-
Hani	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haoni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S.kong	-	-	-	-	-	-	-	-	-	-	au	-	-	-	-	-	-	-	-
Mondzi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maang	-	-	-	-	-	-	-	-	-	-	-	-	au	əu	-	-	ɰi	ɰi	ɰa
Azha <sup>45</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zuoke	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Namuzi	-	-	-	-	-	-	-	-	-	ao	-	-	-	əu	-	-	-	-	-
Naxi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nusu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rouruo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kazhuo	oi	-	-	oɛ	oa	oɣ	-	-	-	ao	-	-	-	-	-	-	-	-	-
Jinuo	-	-	-	-	-	-	-	ɔu	-	-	-	-	-	əu	-	-	-	-	-
Achang	oi	-	-	-	-	-	-	-	-	-	au	-	-	əu	-	-	-	-	-
Zaiwa	oi	ɔi	-	-	-	-	-	-	-	-	au	ɔu	-	-	-	-	-	-	-

<sup>43</sup> Samu diphthongs are found mainly in loan words.

<sup>44</sup> Lahu ɣe is originally as ɣ-e.

<sup>45</sup> Azha has diphthong ae, which is found only in Chinese loan words.

Table 4.14 List of Phonemes of Diphthongs (II) of Nisoic Languages

Lang	Diphthong II																
	ia	iæ	ia	ie	iɛ	iə	iu	io	iɔ	iu	ya	yæ	ye	yɛ	yi	yo	yu
	i̯a			i̯e	i̯ɛ			i̯o	i̯ɔ	i̯u				y̯ɛ	y̯i		
Nuosu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Niesu	-	-	-	ie	-	-	-	-	-	-	-	-	-	-	-	-	-
Nesu	-	-	-	ie	-	-	-	-	-	-	-	-	-	-	-	-	-
Nasu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gepu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nisu	-	-	-	ie	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	i̯e	-	-	-	-	-	-	-	-	-	-	-	-	-
Nishu	-	-	-	ie	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	i̯e	-	-	-	-	-	-	-	-	-	-	-	-	-
Lope	-	-	-	-	iɛ	iə	-	io	-	iu	-	-	-	-	-	-	-
Samu <sup>46</sup>	ia	-	-	ie	-	-	-	io	iɔ	iu	-	-	-	-	-	-	-
Sani	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azhe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Axi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laluba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toloza <sup>47</sup>	ia	-	ia	ie	-	-	-	io	-	-	ya	-	ye	-	-	-	yu
	-	-	-	i̯e	-	-	-	-	-	-	-	-	-	-	-	-	-
Lavu	ia	-	ia	ie	-	-	-	-	-	-	-	-	-	-	-	yo	-
Lolopo	ia	-	-	ie	-	-	-	-	iɔ	-	-	-	-	-	-	yo	-
Lipo	ia	-	-	ie	-	-	-	-	iɔ	-	-	-	-	-	-	-	-
	-	-	-	i̯e	-	-	-	-	-	-	-	-	-	-	-	-	-
Lisu	-	-	-	-	iɛ	-	-	io	-	-	-	-	-	-	-	-	-
Lahu	ia	-	-	ie	-	-	-	io	-	iu	-	-	-	-	-	-	-
Bisu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hani <sup>48</sup>	ia	-	-	ie	-	iɻ	-	iɔ	-	-	-	-	-	-	-	-	-
Haoni	ia	-	-	-	-	-	-	io	iɔ	iu	-	-	-	-	-	-	-
S.kong	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mondzi	ia	-	-	ie	iɛ	-	-	io	iɔ	iu	-	-	-	-	yi	-	-
	-	-	-	i̯e	i̯ɛ	-	-	-	-	-	-	-	-	-	-	-	-
Maang	ia	-	-	ie	-	-	-	io	-	iu	-	-	-	-	-	-	-
	-	-	-	i̯e	-	-	-	-	-	-	-	-	-	-	-	-	-
Azha	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zuoke	-	-	ia	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Namuzi	-	iæ	-	ie	-	-	-	-	iɔ	iu	-	-	-	-	-	-	-
Naxi	ia	iæ	-	-	-	iə	-	-	-	-	-	yæ	ye	-	-	-	-
Nusu	ia	-	-	ie	-	-	iu	io	iɔ	iu	-	-	-	-	-	-	-
	i̯a	-	-	i̯e	-	-	-	i̯o	i̯ɔ	i̯u	-	-	-	-	-	-	-
Rouruo	ia	-	-	ie	iɛ	-	iu	io	iɔ	iu	ya	-	ye	yɛ	yɪ	-	-
	i̯a	-	-	-	i̯ɛ	-	-	i̯o	i̯ɔ	-	-	-	-	y̯ɛ	y̯ɪ	-	-

<sup>46</sup> Samu diphthongs are found mainly in loan words.

<sup>47</sup> No Toloza syllable contains a diphthong au, ia, ie, ie, io, ya, ye, and yu, which is listed in YYFC 1983; these vowels might appear only in loan words.

<sup>48</sup> Hani has diphthong iɻ, which is treated as iə in this dissertation and is found only in loan words.

Table 4.14 – *Continued*

Kazhuo	ia	-	-	-	iɛ	-	-	-	-	-	-	-	-	-	-	-	-	-
Jinuo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Achang	-	-	-	-	-	-	-	-	-	iu	-	-	-	-	-	-	-	-
Zaiwa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4.15 List of Phonemes of Diphthongs (III) of Nisoic Languages

Lang	Diphthong III																			
	ui	uī	ur	ue	uē	uɛ	uɛ̃	uæ	ua	uā	ua	uɑ	uɔ	uɔ̃	uo	uə	ai	aĩ	ei	eĩ
Nuosu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Niesu	ui	-	-	ue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nesu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nasu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gepu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nisu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nishu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lope	ui	-	-	-	-	-	-	-	ua	-	-	-	-	-	-	-	-	-	-	ei
Samu <sup>49</sup>	ui	-	-	ue	-	-	-	-	ua	-	-	-	-	-	-	uə	ai	-	-	ei
Sani	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azhe	-	-	-	-	-	-	-	-	ua	-	-	-	-	-	-	-	-	-	-	-
Axi	-	-	-	-	-	-	-	-	ua	-	-	-	-	-	-	-	-	-	-	-
Laluba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tolozu	ui	-	-	-	-	-	-	-	ua	-	ua	-	uɔ	-	-	-	-	-	-	ei
Lavu	ui	-	-	-	-	uɛ	-	-	ua	-	ua	-	-	-	-	-	-	-	-	-
Lolopo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lipo	-	-	-	-	-	-	-	-	-	-	ua	uɑ	-	-	-	-	ai	-	-	ei
Lisu	ui	-	-	-	-	uɛ	-	-	ua	-	-	-	-	-	-	-	-	-	-	-
Lahu	ui	-	-	ue	-	-	-	-	ua	-	-	-	-	-	-	-	ai	-	-	-
Bisu	ui	-	-	ue	-	-	-	-	-	-	-	-	-	-	-	-	ai	-	-	-
Hani	-	-	-	ue	-	-	-	-	ua	-	-	-	-	-	-	-	-	-	-	-
Haoni	ui	-	-	-	-	uɛ	-	-	ua	-	-	-	-	-	-	-	-	-	-	-
S.kong	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ai	-	-	-
Mondzi	ui	-	-	ue	-	-	-	-	-	-	ua	-	-	-	-	-	-	-	-	ei
Maang	ui	-	ur	-	-	-	-	-	-	-	ua	-	-	-	-	uə	ai	aĩ	ei	eĩ
Azha	-	-	-	-	-	-	-	-	ua	-	-	-	-	-	-	-	ai	-	-	-
Zuoke	ui	-	-	-	-	uɛ	-	-	ua	-	-	-	-	-	-	-	-	-	-	ei
Polo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Namuzi	-	-	-	-	-	-	-	uæ	ua	-	-	-	uɔ	-	uo	-	ai	-	-	-
Naxi	-	-	-	ue	-	-	-	uæ	ua	-	-	-	-	-	-	uə	-	-	-	-
Nusu	ui	uī	-	ue	uē	-	-	-	ua	uā	-	-	uɔ	uɔ̃	-	-	-	-	-	-
Rouruo	-	-	-	ue	uē	uɛ	uɛ̃	-	ua	uā	-	-	uɔ	uɔ̃	-	-	-	-	-	-
Kazhuo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jinuo <sup>50</sup>	ui	-	-	-	-	uɛ	-	-	ua	-	-	-	-	-	-	-	-	-	-	ei
Achang	ui	-	-	-	-	-	-	-	ua	-	-	-	-	-	-	-	ai	-	-	ei
Zaiwa	ui	uī	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ai	aĩ	-	-

<sup>49</sup> Samu diphthongs are found mainly in loan words.

<sup>50</sup> Jinuo has diphthong *ei* listed in TBL (1992: 672), but there is no such a final in our database; it might appear only in loan words.

Table 4.16 List of Phonemes of Triphthongs of Nisoic Languages

<i>Lang</i>	Triphthong				
	iau	iao	uai	uei	iou
Nuosu	-	-	-	-	
Niesu	-	-	-	-	
Nesu	-	-	-	-	
Nasu	-	-	-	-	
Gepu	-	-	-	-	
Nisu	-	-	-	-	
Nishu	-	-	-	-	
Lope	-	iao	-	-	
Samu <sup>51</sup>	iau	-	uai	uei	
Sani	-	-	-	-	
Azhe	-	-	-	-	
Axi	-	-	-	-	
Laluba	-	-	-	-	
Toloza	-	-	uai	-	
Lavu	-	-	-	-	
Lolopo	-	-	-	-	
Lipo	iau	-	-	-	
Lisu	-	-	-	-	
Lahu	iau	-	uai	-	
Bisu	-	-	-	-	
Hani	-	-	-	-	
Haoni	-	-	-	-	
S.kong	-	-	-	-	-
Mondzi	-	-	-	-	
Maang	iau	-	-	-	iou
Azha	-	-	-	-	-
Zuoke	-	-	-	-	
Polo	-	-	-	-	
Namuzi	iau	-	-	uei	
Naxi	iau	-	uai	uei	
Nusu	-	-	-	-	
Rouruo					
Kazhuo		iao			
Jinuo	-	-	-	-	
Achang	iau	-	uai	-	
Zaiwa	-	-	-	-	

<sup>51</sup> Samu triphthongs are found only in loan words.

Table 4.17 List of Phonemes of Codas of Nisoic Languages

<i>Lang</i>	Coda						
	-m	-n	-ŋ	-p	-t	-k	?
Nuosu	-	-	-	-	-	-	-
Niesu	-	-	-	-	-	-	-
Nesu	-	-	-	-	-	-	-
Nasu	-	-	-	-	-	-	-
Gepu	-	-	-	-	-	-	-
Nisu	-	-	-	-	-	-	-
Nishu	-	-	-	-	-	-	-
Lope	-	-	-	-	-	-	-
Samu <sup>52</sup>	-	-n	-ŋ	-	-	-	-
Sani	-	-	-	-	-	-	-
Azhe	-	-	-	-	-	-	-
Axi	-	-	-	-	-	-	-
Laluba	-	-	-	-	-	-	-
Toloza	-	-n	-ŋ	-	-	-	-
Lavu	-	-n	-ŋ	-	-	-	-
Lolopo	-	-	-	-	-	-	-
Lipo	-	-	-	-	-	-	-
Lisu	-	-	-	-	-	-	-
Lahu	-	-	-	-	-	-	-
Bisu	-m	-n	-ŋ	-p	-t	-k	-
Hani	-	-	-	-	-	-	-
Haoni	-	-	-	-	-	-	-
S.kong	-m	-n	-ŋ	-p	-t	-k	-
Mondzi	-	-	-ŋ	-	-	-	-
Maang	-m	-n	-ŋ	-p	-	-k	?
Azha	-	-	-	-	-	-	-
Zuoke	-	-	-	-	-	-	-
Polo	-	-	-	-	-	-	-
Namuzi	-	-	-ŋ	-	-	-	-
Naxi	-	-	-	-	-	-	-
Nusu	-	-	-ŋ	-	-	-	-
Rouruo	-	-	-	-	-	-	-
Kazhuo	-	-	-	-	-	-	-
Jinuo	-	-	-ŋ	-	-	-	-
Achang	-m	-n	-ŋ	-p	-t	-k	?
Zaiwa	-m	-n	-ŋ	-p	-t	-k	?

<sup>52</sup> Samu finals with these two nasal codas are found only in loan words.

Table 4.18 List of Tonemes of Nisoic Languages

Lang	Tones														
	55	44	33	22	11	54/53	51	42/32	31/21	2	13	24	25	35	213/323
Nuosu <sup>53</sup>	55	44	33						21						
Niesu <sup>54</sup>	55	44	33						21						
Nesu	55		33						21		13				
Nasu	55		33		11					2					
Gepu <sup>55</sup>	55	44	33						21			24			
Nisu	55		33						21						
Nishu	55		33						21						
Lope	55	44	33						21						213
Samu <sup>56</sup>	55	44	33	22		53			21				25		
Sani <sup>57</sup>	55	44	33		11					2					
Azhe	55		33	22					21						
Axi	55		33						21						
Laluba	55		33						21		(13)				
Toloza	55		33			53		32	21						
Lavu	55		33						21		13				
Lolopo	55		33						21		(13)				
Lipo	55		33						21						
Lisu <sup>58</sup>	55		33						31					35	
Lahu <sup>59</sup>			33		11	54, 53			31, 21					35	
Bisu	55		33						31						
Hani	55		33						31			24			
Haoni	55		33						31					35	
S.kong	55		33						31						
Mondzi	55	44	33			53			21		13				
Maang	55	44	33						21					35	
Azha	55	(44)	33						21					(35)	
Zuoke	55	44	33						21					35	
Polo	55		33						31						
Namuzi	55		(33)			53			31		13			35	
Naxi <sup>60</sup>	55		33						21		13				
Nusu	55		33			53			31						
Rouruo	55		33			53			31		13			35	
Kazhuo	55	44	33			53			31			24		35	323
Jinuo	55	44	33			53		42	31					35	
Achang <sup>61</sup>	55						51		31					35	
Zaiwa	55						51		21						

<sup>53</sup> Nuosu tone /44/ is seen largely in cases of tone Sandhi and also in particle words.

<sup>54</sup> Niesu tone /44/ is seen largely in cases of tone Sandhi and also in particle words.

<sup>55</sup> Gepu tone /44/ is a sandhi tone from 33. Also there is a tone /24/ which is found only in a disyllabic word.

<sup>56</sup> Samu tone /44/ is seen only in tone Sandhi.

<sup>57</sup> *Yiyu Jianming Cidian* (Wu et al. 1982: 16) list 3 tones (/55/, /33/, and /21/), which are classified from tones /55/, /44/, /33/, /31/, and /21/. Tone /44/ goes to tone /33/ and tone /31/ goes to tone /21/.

<sup>58</sup> Lisu tones /44/ and /42/ are in syllables of tensed vowels and are grouped into tones 33 and 31, respectively.

<sup>59</sup> Lahu tones /54/ and /21/ belong to tensed tonal category (TBL 1992: 671)

<sup>60</sup> Naxi tone /13/ is found mainly in loan words.

<sup>61</sup> Achang tone /51/ appears mainly in tone sandhi and loan words.

#### 4.4.2 Summary of the Phonology of Nisoic Languages

As a branch of TB, Nisoic languages possess their own idiosyncratic phonological features different from other TB languages. In this section, we will survey the Nisoic phonology with respect to syllables, initials, finals, and tones.

##### 4.4.2.1 Syllables

For most Nisoic languages, after having developed from Proto-Nisoic (PN) to the current stage, basically have a CV structure. However, few languages, including Nusu, Maang, Mondzi, S.kong, Bisu, and several Hani dialects, have still preserved PN \*CVC structure in their native words. Some of these languages have nasal codas, Nusu, Mondzi, and Hani varieties, for example; some have preserved both stop and nasal codas, for example, Bisu and S.kong. But generally speaking, these codas tend to loss in their native words and get more in loan words.

##### 4.4.2.2 Initials

As is seen from the Table 4.1 given in this section, it is common for Nisoic languages to have labials, alveolars, alveolo-palatals, and velars, with a contrast between voiced vs. voiceless among these consonants. Many of these languages also have retroflex initials, suggesting that the retroflexes have developed recently compared with other initials of Nisoic. Few languages, including Nasu, Nesu, Gepu, Azhe, and Axi, also have newly innovated retroflex series *t*, *th*, *d*, *ŋ*, and *l*. A few languages (Lahu, Maang, and Namuzi) have uvulars. Some Nisoic languages have retained prenasalized stops/affricates, which are not common in other TB languages. However, these prenasalized stops/affricated tend to be deprenasalized. Both Nasu and Nesu show an aspiration for these prenasalized stops/affricated. Mondzi has consonant clusters (*lateral + velar stop*): *lk*, *lkh*, and *lg*, making it a unique language in Nisoic. Both Laluba and Lavu have consonant clusters (*glottal + nasal or fricative*): *ʔn*, *ʔl*, *ʔn*, and *ʔv*, Maang has the similar cluster structure (*ʔd* and *ʔn*). Sani and Azha have developed an unusual consonant cluster structure (*stop/affricated + lateral*): *thl*, *dl*, *tsl*, and *tʂl*.

#### 4.4.2.3 Finals

One of the striking features of the vowels of Nisoic languages is that they show a systematical contrast of voice quality with a regular vowel vs. a laryngealized one, which is symbolized with underlining a vowel in Nisoic literature. The laryngealized vowels are also found largely in Burmic languages. However, according to (Dai 1979: 38), the feature of Nisoic vowel laryngealization has a different source from that of Burmic languages. That is, the Nisoic vowel laryngealization has developed from proto-Nisoic stop codas, while the Burmic has come from the voice quality of proto-Burmic initial consonants. Generally speaking, the Nisoic stop codas tend to disappear. Languages, including Lisu, Lipo, Haoni, Namuzi, Zuoke, Rouruo, Toloza, Maang, and Jinuo, have nasalized vowels in their native words. It is not clear whether these nasalized have developed from the same source. And nasal codas are only found several languages, including, Bisu, S.kong, Nusu, Mondzi, and Maang etc. In addition, Gepu, Nisu, Samu, Sani, Toloza, Nusu, Jinuo, and Namuzi have rhoticized vowels. And the diphthongs and triphthongs are rather common in Nisoic.

#### 4.4.2.4 Tones

Nisoic languages have from 3 to 8 tones. For all Nisoic languages, each has at least three phonemic tones. These three tones often show pitches with a high-level, mid-level, and a low-falling. The tonal composition found in Nisoic languages may lead one to surmise that PN stage there may exist at least these tones. Nesu, Samu, Lisu, Lahu, Hani, Rouruo, Naxi, Namuzi, Maang, and Kazhuo have developed a rising tone, but they may be innovated independently. Lope and Kazhuo also have developed individually a contour tone (mid-falling-rising). Unlike some TB languages, Northern Qiang, Jiarong, and Ergong, for example, which haven't developed lexical tones yet, all the Niso-Burmic languages have developed tones. Some Nisoic languages even have a complex tonal system. For example, Kazhuo, Jinuo, Samu, Lahu, Lisu, and Maang all at least have 5 tones. The development of this complex tonal system must take place after these languages split off from PN, and they are more likely developed individually.



#### 4.5 Summary

This chapter has explored the etyma of autonyms of Nisoic ethnic groups and provided a classification for these ethnicities. It then has surveyed ethnolinguistic background of 34 Nisoic ethnic groups, whose languages will be used in linguistic comparative study in Chapter 5 and phylogenetic study in Chapter 6. Also it provided a complete phonemic chart for these 34 languages. In addition, it summarized the phonological features of syllables, initials, finals, and tones found in these Nisoic languages.

## CHAPTER 5

### NISOIC SUBGROUPING: A SHARED INNOVATION APPROACH

#### 5.1 Introduction

In Chapter 4, I described 34 Nisoic ethnic groups and subcategorized them according to their autonyms and histories. This chapter will demonstrate how the Nisoic subgroups can be arrived at by using the method of shared innovation. Shared innovation can be shown by examining a group of language family that have experienced certain rules of phonological changes, while their sister languages have not undergone these rules. This chapter will discuss the cases of shared innovation across Nisoic and draw a language family tree for it. It will also briefly discuss the subgrouping of the Niso-Burmic Branch and consider the correlation between autonymic ethnic classification and linguistic subgrouping.

#### 5.2 Research Scope

The most reliable and objective methods to unlock the genetic relationship among languages of a family or group to date are the comparative method and the method of subgrouping, both discovered in the 19<sup>th</sup> century. One can use the comparative and subgrouping methods on the phonology, lexicon, and grammar to discern language relationships. Written documents from ancient times are a second important tool for discovering earlier stages of the languages. Unfortunately, in the case of the Nisoic languages, no such written sources exist --- neither the old Yi nor the old Naxi scripts were sound-based and, therefore, no phonological information can be extracted from them. As the Nisoic morphological and syntactic data are not available, hence, the evidence of Nisoic subgrouping must be based on the examination of phonemes and lexicon undergoing linguistic change and on their reflexes in daughter languages.

An assemblage of 300 core words in 34 Nisoic and three Burmic languages has been collected as the source from which all shared phonological rules can be drawn.<sup>62</sup> Another key piece of evidence can be

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<sup>62</sup> A lexical morpheme in this dissertation refers to the morphemes that have a lexical meaning (though some morphemes' meaning cannot be identifiable because of lack of a deep knowledge of that language) and can freely combine with other lexical morphemes,

extracted from this database is the morphemes of word-formation. That is, the proto-Nisoic lexicon was largely monosyllabic, but the original one-syllable morphemes have often developed into disyllables or trisyllables in today's languages. Intensive observation of the linguistic database has led to the discovery that the development of disyllable lexical morphemes has occurred in only certain language clusters or subgroups. That means that the discovery of the diversity of morphological innovations has given us an additional key source for determining the subgroups of Nisoic.

### 5.3 Problems of Nisoic Subgrouping

Nisoic, as a branch within TB, has been convincingly argued for its affiliation to TB by numerous scholars, including Luo & Fu 1954, Bradley 1979, and Dai 1989 & 1991, but its language classification has remained controversial. The division among researchers of Nisoic is quite unlike the general agreement about the language classification of Burmic, the closest relative subgroup of Nisoic under TB, which is much less disputed. This section discusses the problems that one may encounter when conducting research on the Nisoic subgroups.

#### *5.3.1 External Linguistic Factors and the Development of Nisoic*

Nisoic languages have developed in idiosyncratic ways because of the geographic separation of their settlements and more acutely because they did not have common scripts, which might have reduced language divergence. Even the Yi and Naxi scripts have been known only to the Bimos or Shamans and a few elite users, who made up a very small part of the population. Though the Nisoic people have an ancient and rich oral literature, it was not accommodated to local norms and could not influence the diversification of the phonology across local areas. Moreover, historically, the Nisoic people have lacked a noble or prestige speech form, a diglossic elite variety, or a predominant language that could have shaped Nisoic language development. So, Nisoic has a linguistic history that is somewhat akin to Swiss German, which is only used as a spoken form for daily life. In addition, natural barriers, like high mountains and large rivers, have promoted language diversity, as in Swiss German. Thus, the Nisoic languages have

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roots, or even with a word to form a new word. It differs from grammatical morphemes of English like *-er* for a person in action, *-ing* for ongoing action, *-s* for plural, etc.

developed without the influence of a standard since the breakup of TB. For that reason, Linguists, who have tried to determine subgroups of Nisoic languages, have faced great difficulties.

### *5.3.2 Problems in Nisoic Proto Phonemic Reconstruction*

Despite tremendous work on proto-Nisoic, no one has been able to develop accepted benchmarks for the divisions within Nisoic. The unavailability of Nisoic written sources of age has forced linguists such as Matisoff 1972 and Bradley 1979 to rely on Written Burmese (which reflects the phonological situation of the 12<sup>th</sup> century AD), when reconstructing phonemes of Proto-Nisoic. I believe that the split of Nisoic and Burmic must have happened long before the 12<sup>th</sup> century AD when Written Burmese was created. And the split between the Nisoic and the Burmic may take place before the Yi writing was invented during the Spring-Autumn period (770 BC ~ 476 BC) (Cf. Chapter 1 of this dissertation). That might account for why the Nisoic and Burmic peoples have not used the same writing system. Therefore, if the proto-Nisoic forms were reconstructed mainly referring to the WB, they would reflect the Proto-Nisoic phonemes poorly. Theoretically, referring to WB in the reconstruction of proto-Nisoic language is acceptable. As Hoenigswald (1960: 146) points out that it's sometimes true that one modern language  $L_a$  can also be at the same or earlier historical stage of development as another language  $L_b$ . And undoubtedly, older forms may have been preserved in related languages and could become useful sources for recovering proto forms of the other languages. This is the key for exploring the genetic relationship of a given family or group that lacks written documents. Nevertheless, it is bit pitiful that one cannot find an archaic Nisoic language that can be used in the reconstruction of the proto forms for Nisoic.

Also, in the past the Nisoic reconstructions lack sufficient breadth and depth of language data. Therefore, many of the Proto-Nisoic reconstructions rested on both insufficient data and an empirical supposition. Hence, they have never achieved the status of an accepted benchmark.

### *5.3.3 Problems in Nisoic Subgrouping*

The Nisoic classifications have been articulated in past generations by Benedict 1972, Luo and Fu 1954, Matisoff 1972 and 2003, Bradley 1979, 1997, and 2002, Sun 1988 and 2002, Dai, et al 1989 and 1990, and Ma 1991, among others. These subgroupings are based on either rigorous application of the

comparative method or personal exposures to the languages and even the insightful intuition (like Benedict's 1994 *retrograde reconstruction*, for example). An apparent discrepancy of these classifications among investigators is that most Chinese scholars treat all the languages under Nisoic as a non-bifurcated group, while western scholars unanimously have argued for further sub-classification (for detailed discussion see Chapter Two). Without doubt, finer subdivisions for Nisoic languages are necessary as more and more languages have been added to the study of this branch.

Most Chinese linguists tabulate lexical cognacy to show closeness or distance among a language group, this method cannot establish a tree for Nisoic. Furthermore, there remains strong conviction that *one official ethnicity speaks just one language*, and that belief has affected Nisoic language subgrouping very adversely. According to this view, no matter how distant one language might appear from another, they are all 'dialects' of that official minority ethnicity. Therefore, different languages of the Yi ethnicity automatically became 'dialects', 'subdialects', or 'vernaculars' of Yi in accordance with this belief (for a detailed discussion see Chapter 1). Language subgrouping according to this ethnolinguistic prejudice, consequently, overlooks subgroups of a language branch, like Nisoic, and treats it, as if it were flat, without any hierarchical or tree-like structure.

On the other hand, western linguists have applied comparative criteria such as shared innovation, regular correspondence sets, phonological patterns, etc. for determining Nisoic subgroups. For example, Bradley 1979, Matisoff 1972, Thurgood 1982 extensively employed these comparative criteria (especially, Thurgood 1982 strongly adheres to shared phonological innovations). This dissertation follows this method, but it relies on a much broader and deeper data set.

This chapter will establish Nisoic subgroups based on the evidence from shared phonological innovation and shared lexical morpheme innovation, in hope of solving the branching problem and providing a clear picture of family-trees and comparing these results with phylogenetic analysis (cf. Chapter 6). With this plan in place, we move next to examine the theory of shared innovation before turning to subgrouping Nisoic languages.

#### 5.4 The Theory of Language Subgrouping (Shared Innovation)

This chapter will rely exclusively on the theory of shared innovation that was introduced in Hoenigswald 1960 *Language Change and Linguistic Reconstruction* and extensively discussed in Campbell 2004 *Historical Linguistics*. These scholars have claimed that shared innovation is the only reliable method to discover linguistic subgroups. The following sections briefly review the theory of shared innovation according to Campbell 2004.

##### *5.4.1 Defining 'Subgrouping'*

*Subgrouping*, as defined in Campbell (2004: 186), "is about the internal classification of the languages within a language family; it is about the branches of a family tree and about which sister languages are most closely related to one another." The goal of language subgrouping is "...to determine which sister languages are most closely related to one another." (Campbell 2004: 188). In other words, the ultimate goal of this dissertation is to determine the tree of descent that includes all daughters and to show the position of all these daughters in the tree.

##### *5.4.2 Shared Innovation: The Only Reliable Criterion of Language Subgrouping*

There are several methods that have been proposed as a criterion for subgrouping languages, including classical comparative methods, lexicostatistics, mass comparison or multilateral comparison, shared innovations, as well as personal intuition. These criteria may be either used solely or in combination, and some have been successfully applied to Indo-European. However, shared innovation was proposed to be the only true criterion in genetic language classification Hoenigswald 1960, Harrison 1986, 2003; Campbell 2004; Thurgood 1982, 2003, among others. Campbell (2004: 190) even claims that shared innovation is the "only generally accepted criterion for subgrouping."

Campbell goes on to say (2004: 190-191), that shared innovation "is a linguistic change which shows a departure (innovation) from some trait of the proto-language and is shared by a subset of the daughter languages." Shared innovation only takes place among the daughter languages which are the descendants of an intermediate parent. Shared innovation is valuable in determining a language subgroup because it means that these descendants have innovated or changed a certain phonological feature that was

inherited from a common ancestor, while other descendent daughters don't have this change or innovation. Therefore, shared innovations must involve an *intermediate daughters-parent relationship*.

The definition of sharing must be specified to restrict the sharing of an innovation among some daughters of a common parent node. Shared innovations across an immediate-parent node do not count as sharing for this rule. Shared innovations which take place at different stages in a language history don't determine a subgrouping, because it is retention. In contrast, shared innovations which occur across different subgroups of a family are also not legitimate in creating a subgroup. Both types of shared innovations belong to an accidental sound development; in nature, they are homoplastic and therefore useless for language subgrouping.

Developmentally speaking, the shared innovations of an earlier stage could become the shared retention at a later stage. In other words, a yesterday's shared innovation is today's shared retention. Yesterdays' shared innovations WERE only applicable to the daughter languages of its time when subgrouping. Therefore, one cannot use today's shared retention as a criterion for subgrouping cotemporary languages. Similarly, shared innovations among different subgroups of a family are invalid for subgrouping. They are an accidental or a parallel development across subgroups of that family and therefore are useless in determining language subgrouping.

Both the shared retention inherited from an early stage and the accidentally parallel developments of phonological rules across subgroups of a language family belong to the homoplastic innovation. Homoplastic innovation cannot be used to determine language subgrouping. Consider this case of it with some famous data. In 1350-1500 English underwent the Great Vowel Shift where [i:] -> [aɪ] as in *night*; [u:] -> [aʊ] as in *mouse*; there were other long vowel that changed as well. Middle High German underwent a very similar change in which [i:] -> [aɪ] as in *Eis* and [u:] -> [aʊ] as in *Maus*. These parallel developments were noticed by Sapir in his *Language: an introduction to the study of speech* (1921: 180), which he called this phenomenon *pre-dialectal drift*, but drift is the result of language contact or the effect of "natural rules" or sound change because of phonetic motivation. In below, I use the Figure 5.1 to demonstrate homoplastic innovations that can cause a wrong subgrouping.

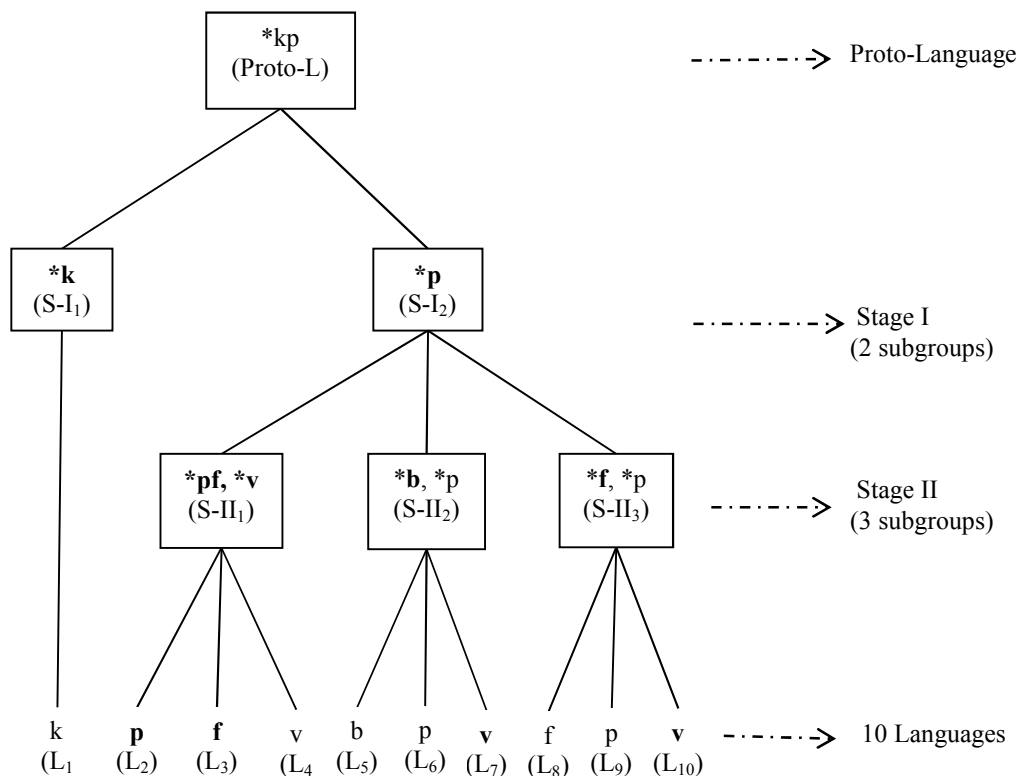


Figure 5.1 An illustration of shared innovations and retentions from postulated Proto-L to 10 modern languages through Stage I and Stage II

As demonstrated in the presumed language development in Figure 5.1, first, the */\*k/* and */\*p/* split off are evidence for an upper subgrouping at the Stage I, where two subgroups (S-I<sub>1</sub> and S-I<sub>2</sub>) were established according to their individual innovation. Second, forms */\*pf/* and */\*v/*, */\*b/*, and */\*f/* at the Stage II, which had otherwise developed from proto-language */\*p/*, respectively, respond to a further triad subgrouping (S-II<sub>1</sub>, S-II<sub>2</sub>, and S-II<sub>3</sub>). And these three subgroups have developed into 10 modern languages labeled as L<sub>1</sub>, L<sub>2</sub> ... L<sub>10</sub>. Both */f/* (<*\*pf*) of L<sub>3</sub> and */f/* (<*\*f*) of L<sub>8</sub> are parallel innovations; the latter example also is a retention case. The same case for */v/* (<*\*v*) of L<sub>4</sub>, */v/* (<*\*b*) of L<sub>7</sub>, and */v/* (<*\*f*) of L<sub>10</sub>, of these languages, */v/* (<*\*v*) of L<sub>4</sub> preserved from its immediate parent node and is coincident with the rule development of L<sub>7</sub> and L<sub>10</sub>. Both */p/* developments in L<sub>6</sub> and L<sub>9</sub> were a direct retention from their immediate parent nodes (Stage II), respectively, which in turn had reserved from their own immediate parent (Stage I). The sound development */p/* <*\*pf* of L<sub>2</sub> is a *back formation/mutation*, in which modern */p/*



innovation is accidentally the same as the development of earlier stage /*\*p*/ (stage I) < *\*kp* (Proto-L). All sound change/mutations and shared phonological retention cannot be used as evidence to determine language subgroups (Campbell 2004, Nichols & Warnow 2008, among others).

The phonological innovations /*f*/ (<*\*pf*) of *L*<sub>3</sub>, /*v*/ (<*\*b*) of *L*<sub>7</sub>, and /*v*/ (<*\*f*) of *L*<sub>10</sub> are “properties” that determine these three languages independently. /*p*/ <*\*pf* of *L*<sub>2</sub> can be used to determine itself as an independent language but must be not confused with the same innovation of earlier stage /*p*/ <*\*kp* of *L*<sub>2</sub>.

Shared innovation and shared retention are relatively independent and cannot exclude each other forever. Yesterday’s shared innovations (/i*\*p*/ <*\*kp* of Stage I in Figure 5.1) could be today’s shared retention (/i*p*/ <*\*p* of *L*<sub>6</sub> and /i*p*/ <*\*p* of *L*<sub>6</sub> in Figure 5.1), and the same reasoning that today’s innovations could turn out the tomorrow’s retentions. Under a subgroup of a family, which has an intermediate daughter-parent relationship, a valid shared innovation that defines the subgroup must be a unique property and cannot occur in other subgroups and early stages of the family. Within a family, an early shared innovation (shared rule) that defines its own subgroup of early stages can exist as a shared retention in different subgroups of later stages. In this sense, shared innovation and shared retention are not absolute forever; instead, they could be interchangeable in accordance with the stages of language development. We must understand that shared innovations of early stages cannot be used to determine subgroups of later stages but they did define their own subgroup at early stages. In this sense, shared innovation cannot cross an immediate parent node in subgrouping trees. In other words, shared innovations are only valid within a subgroup that has immediate parent-daughter relationship.

With illustration shown in Figure 5.1 and discussion above, I would constraint shared innovation as defined in (5-1):

(5-1) Shared Innovation Constraint:

A shared innovation is a property that only belongs to the daughter languages of an immediate parent; sharing cannot pass through or skip over an immediate parent node.

As defined in (5-1), any shared innovation that violates the Shared Innovation Constraint (SIC) must be excluded from determining language subgrouping; for example, shared retention and parallel development must be prohibited from subgrouping.

Additionally, cross-linguistically or typologically parallel innovations are not always valid for making language subgroupings and should be checked carefully for language subgrouping, as pointed by Campbell (2004:197), “Some shared innovations represent sound changes that are so natural and happen so frequently cross-linguistically that they may easily take place independently in different branches of a language family and thus have nothing to do with a more recent common history.” Also, cultural words and loans (especially earlier borrowed ones, which are sometimes unidentifiable) are definitely excluded in determining subgrouping.

#### *5.4.3 The Role of Reconstruction in Subgrouping*

Probably, for lexicostatistical linguists, whose subgrouping is just based on the identifying cognates among languages being compared, it doesn't need to consider about the proto language reconstruction. However, subgrouping based on shared innovation, one must take into account the proto phonemic reconstruction, because if any wrong reconstruction could potentially lead to a wrong subgrouping (Campbell 2004). The Nisoic reconstruction is given in Section 5.7 of this chapter.

#### 5.5 Selecting Nisoic Comparative Languages

There are about 60 documented Nisoic languages/dialects available, but only 34 of them have been selected from them in this comparative study. I have also selected three Burmic languages in this analysis. The choice of languages from Nisoic has followed two principles: intelligibility and attested relationship.

The intelligibility or understandability applies to several varieties whose speakers can mutually understand one another without much difficulty. In such a case, only one variety has been selected to represent the group for this subgrouping analysis. For example, Nesu (Wusa) is selected to represent for varieties Wusa, Wumeng, and Mangbu of the Eastern Yi dialects. Linguistically, varieties of such a dialect demonstrate a strong congruence of phonology, lexicon, as well as grammar.

There can also be languages that may not be mutually intelligible but whose genetic closeness has been attested already. This principal often applies to languages that have a fangyan relationship. In such a case, only one so-called fangyan is selected. For example, Lahu Na will be chosen to represent all Lahu varieties, including Black Lahu, Yellow Lahu, Red Lahu, and White Lahu. The genetic relationship of Lahu varieties has been studied in such depth by Professor Matisoff and others that a further study of their internal relationship is unnecessary.

After applying these two principles, thirty-four Nisoic languages/dialects and three Burmic languages are selected. Table 5.1 summarizes the names, places, and sources of these selected languages.

Table 5.1 The Selected Comparative Languages with their Autonyms, Places, and Data Sources

<u>Lang.</u>	<u>Autonym</u>	<u>Place</u>	<u>Source</u>
Nuosu 诺苏	no33su33	Xide County, Sichuan 四川喜德县	ZL <sup>63</sup>
Niesu 聂苏	nie33su33	Dechang County, Sichuan 四川德昌县	ZL
Nesu 呢苏	ny55su13	Weining County, Guizhou 贵州省威宁县	YYFC 1983
Nasu 纳苏	na33su33pho55	Luquan County, Yunnan 云南省禄劝县	TBL 1992
Gepu 葛濮	ko33phu44	Luquan County, Yunnan 云南省禄劝县	ZL 2003
Nisu 尼苏	ng33su55, ng33su55pho21	Jiangcheng County, Yunnan 云南省江城县	YYFC 1983
Nishu 尼苏	ŋe33su55, ng33su55pho21	Xinping County, Yunnan 云南省新平县	YYFC 1983
Samu 撒慕	sa33mu33	Zijun Village, Yiliu Township, Guandu District, Kunming Metropolis, Yunnan 云南省昆明市官渡区矣六乡子君村	ZL 2003
Sani 撒尼	ni21	Weize Village, Weize Township, Shilin County, Yunnan 云南省石林县维则乡维则村	TBL 1992
Azhe 阿哲	a21dʒe22pho21	Zhongzhai Village, Wushan Township, Mile County, Yunnan 云南省弥勒县五山乡中寨村	YYFC 1983
Axi 阿细	a21ei55pho21	Dapingdi Village, Qifei Township, Mile County, Yunnan 云南省弥勒县西山一区起飞乡太平地村	TBPL 1991
Laluba 腊鲁拔	la21lu33pa21	Baiwudi, Wuying District, Weishan County, Yunnan 云南省巍山县五印区百物地	TBL1992

<sup>63</sup> Both Nuosu and Niesu data are self-elicited.

Table 5.1– *Continued*

Toloza 妥罗子	tho55lo33za33	Shuijing Village, Tai'an Township, Lijiang County, Yunnan 云南省丽江市太安公社红旗大队水井村	YYFC 1983
Lavu 拉乌	la55vu55	Wangjia Village, Xinghu Township, Yongsheng County, Yunnan 云南省永胜县星湖公社崑峩大队王家村	YYFC 1983
Lolopo 罗倮泼	lo21lo33pho21	Wujie, Nanhua County, Yunnan 云南省南华县五街	TBL 1992
Lipo 俚泼	li55pho21	Zhaojiadian Township, Dayao County, Yunnan 云南省大姚县赵家店乡	ZL 2003
Lisu 傣傣	li44su44	Chada Village, Jiakedi Township, Fugong County, Yunnan 云南省怒江自治州福贡县架科底乡差打村	TBPL 1991
Lahu 拉祜	la53xo11	Nuofu, Lancangjiang County, Yunnan 云南省澜沧江拉祜族自治县糯福话	TBL 1992
Bisu 毕苏	bisu, mbisu	<i>Laomian Speech</i> , Lacang County, Yunnan 云南省澜沧县澜勐方言老缅土语	Xu 1998
Hani 哈尼	xa31ŋi31	Dazhai Village, Luchun County, Yunnan 云南省绿春县大寨话	TBPL 1991
Haoni 豪尼	xo31ŋi31	Shuikui Village, Lianhe Township, Mojiang County, Yunnan 云南省墨江县联合乡水葵村	TBPL 1991
S.kong 桑孔	saŋ55qhoŋ55	Xiaojie Township, Jinghong County, Yunnan 西双版纳州景洪县小街乡	Li 2002
Mondzi 曼子	mo21ndzi21	Musang Village, Muyang Township, Funing County, Yunnan 富宁县木央公社大坪大队木桑队	YYFC 1983
Maang 么昂	mæaŋ33	Longyang Village, Banlun Township, Funing County Yunnan 云南省富宁县板仑乡龙洋村	ZL 2003
Azha 阿扎	phu21	Panzhuhua Township, Wenshan County, Yunnan 云南省文山县攀枝花镇	ZL 2003
Zuoke 作科	dzu21kho33	Zhuilijie Township, Wenshan County, Yunnan 云南省文山县追栗街	YYFC 1983
Lope 傣培	lo213phu21	Jieyupo Village, Dongshan Township, Mile County, Yunnan 云南省弥勒县东山公社舍木大队接雨坡村	YYFC 1983
Polo 泼傣	pho55lo55	Datiezhai Village, Gehe Township, Yanshan County, Yunnan 砚山县干河公社长吉大队打铁寨村	YYFC 1983
Namuzi 纳木兹	næ55mu33zɿ31	Ganhaizi Village, Luopo Twonship, Muli County, Sichuan 四川省木里县二区倮波乡甘海子村	TBL 1992
Naxi 纳西	na21ei33	Lijiangba, Lijiang County, Yunnan 云南省丽江市丽江坝话	TBL 1992
Nusu 怒苏	nu33su33	Miangu Township, Bijiang County, Yunnan 怒江州碧江县匹河区棉谷乡	TBL 1992
Rouruo 柔若	zao55zuo33	Guoli, Lanping County, Yunnan 怒江州兰坪县兔峨地区果力话	Sun 2002

Table 5.1– *Continued*

Kazhuo 卡卓	kha55tso31, ka55tso31	Xingmeng Township, Tonghai County, Yunnan 云南省通海县兴蒙乡	TBL 1992
Jinuo 基诺	tɛy44no44, ki44ŋo44	Jinuo Moutain (Mandou), Jinghong County, Yunnan 云南省西双版纳州景洪县基诺山曼斗话	TBL 1992
WtBrm 缅文	Bama Saka, myamma saka	Yangon, Myanmar 缅甸仰光	TBL 1992
Achang 阿昌	ŋa21tʃhaŋ21	Lajie Village, Husa District, Longhuan Count, Yunnan 云南省德宏傣族景颇族自治州陇川县户撒区腊姐大寨话	TBL 1992
Zaiwa 载瓦	tsau31va51	Xishan Speech, Luxi County, Yunnan 云南省潞西县西山话	TBL 1992

### 5.6 Choosing Nisoic Comparative Words

In this dissertation, 300 words representing core vocabulary of the Nisoic languages (glosses, cf. chapter 6) have been selected to conduct this comparative project. Though these 300-words may not correspond completely to the Swadesh list, they do represent the core vocabulary of Nisoic. All the Nisoic linguistic and phylogenetic subgroupings will be based on this word list. Since some languages may lack certain lexical items, it is, therefore, unavoidable that all the Niso-Burmic comparative languages have the same number of words. Table 5.2 lists all the 300 words used in this comparative study.

Table 5.2 List of 300 Basic Words for Niso-Burmic Comparative Study

001 Sky 天	002 Earth 地	003 Sun 太阳
004 Moon 月亮	005 Star 星星	006 Air 空气
007 Thundering (打)雷	008 Lightening 闪电	009 Earthquake 地震
010 Cloud 云	011 Wind 风	12 Rain 雨
013 Snow 雪	014 Water 水	015 Mountain 山
016 Cliff 悬崖	017 Fire 火	018 (fire) Smoke 烟子
019 Gold 金	020 Silver 银	021 Copper 铜
022 Iron 铁	023 Stone 石头	024 Year 年
025 Month 月	026 Day 日	027 Human being 人
028 Adult 大人	029 Speech 话	030 Life 生命
031 Physical strength 力量	032 Dream 梦	033 Spirit, Soul 灵魂
034 A celestial being 神仙	035 Ghost 鬼	036 Corpse 尸体

Table 5.2 – *Continued*

037 Medicine 药	038 Body 身体	039 Head 头
040 Hair 头发	041 Eye 眼睛	042 Nose 鼻子
043 Ear 耳朵	044 Mouth 嘴巴	045 Tooth 牙齿
046 Tongue 舌头	047 Hand 手	048 Belly 肚子
049 Waist 腰	050 Foot 脚	051 Bone 骨头
052 Skin 皮肤	053 Blood 血	054 Stomach 胃
055 Heart 心	056 Liver 肝	057 Lung 肺
058 Gall bladder 胆	059 Intestine 肠	060 Tail 尾巴
061 Mole 痣	062 Sinew 筋	063 Sweat 汗
064 Pus 脓	065 Excrement 屎	066 Urine 尿
067 Father 父亲	068 Mother 母亲	069 mother's brothers 舅舅
070 Son 儿子	071 Daughter 女儿	072 brother's son 侄子
073 Money 钱	074 Seed 种子	075 Cooked rice 米饭
076 Paddy rice 稻子	077 Buckwheat 荞麦	078 Barley 大麦
079 Wheat 小麦	080 Soybean 豆子	081 Mushroom 菌子
082 (pork) Oil (猪)油	083 Salt 盐	084 Liquor 酒
085 Meat 肉	086 Road 路	087 Bridge 桥
088 House 房子	089 Bed 床	090 Door 门
091 Pants 裤子	092 Needle 针	093 Thread 线
094 Cattle 牛	095 Horse 马	096 Sheep 绵羊
097 Goat 山羊	098 Chicken 鸡	099 Wing 翅膀
100 Egg 蛋	101 Pig 猪	102 Dog 狗
103 Louse 虱子	104 Cat 猫	105 Monkey 猴子
106 Tiger 老虎	107 Leopard 豹子	108 Barking deer 麂子
109 River deer 獐子	110 Fox 狐狸	111 Rabbit 兔子
112 Mouse 耗子	113 Snake 蛇	114 Worm 虫子
115 Bird 鸟	116 Hawk 鹰	117 Bee 蜜蜂
118 Frog 青蛙	119 Fish 鱼	120 Tree 树
121 Root 根	122 Leaf 叶子	123 Bamboo 竹子
124 Flower 花	125 Grass 草	126 Thorn 荆棘

Table 5.2 – *Continued*

127 Speak 说	128 Laugh 笑	129 Cry 哭
130 Scold 骂	131 Sit 坐	132 Close (eyes) 闭(眼)
133 Blow (nose) 擤	134 Chew, bite 嚼, 咬	135 Lick, lap 舔
136 Swallow 吞	137 Blow (fire) 吹(火)	138 Come 来
139 Arrive 到	140 Jump, pulse 跳(高), (脉)跳	141 Watch 看
142 Listen 听	143 Eat 吃	144 Drink 喝
145 Sleep 睡觉	146 Stand up, rise 站	147 Ride 骑
148 Wear (a hat /shoes) 戴, 穿	149 Wear (a garment) 穿(衣服)	150 Carry on the back 背
151 Burn 烧	152 Climb up (a tree) 攀(树)	153 Give 给
154 Lose (sth.) 丢失	155 Pick up (sth.) 捡	156 Look for (sth.) 找
157 Steal 偷	158 rob, loot 抢	159 Chase after 追赶
160 Push, shove 推	161 Hide (self, sth.) 藏	162 Frighten, scare 吓
163 Hit (someone) 打	164 Kill 杀	165 Jab, poke 戳
166 Shoot (an arrow) 射	167 Whet (a knife) 磨(刀)	168 Chop down (a tree)
169 Press, push down 压	170 Knead (dough) 揉(面)	171 Twist (hemp fibers) 搓
172 Plait 编(辫子)	173 Weave (a basket) 编(篮子)	174 Pull up (weeds) 拔(草)
175 Shave (the head) 剃(头发)	176 Sieve, sift 筛	177 Pestle, pound 搥
178 Ladle out, scoop up 舀	179 Sweep (floor) 扫(地)	180 Open (a door) 开(门)
181 shut (door) 关(门)	182 Hold in the arms 抱	183 Roll up (cloth) 捲
184 Pull or Lead (caw) 牵	185 Dig out 挖	186 Do, make 做
187 Thread (a needle) 穿(针)	188 Put out to pasture 放牧	189 Dye 染
190 Wash (face/clothes) 洗	191 Leak (barrel) 漏(水)	192 Dry (clothes in the sun) 晒
193 Warm oneself by fire 烤火	194 Fumigate 熏	195 Rest 休息
196 Turn over (on bed) 翻身	197 Comb (v.) 梳(头)	198 Take off (clothes) 脱(衣)
199 Exchange, change 交换, 换	200 Choose 挑选	201 Raise (livestock) 养(动物)
202 Crawl (on the floor) 爬	203 Grow up 长大	204 Play 玩
205 Call (sb.) 叫(人)	206 Buy 买	207 Sell 卖
208 Borrow (tool/money) 借	209 Own (money) 欠(钱)	210 have (money) 有(钱)
211 (be) at (home) 在(家)	212 Be 是	213 Know how to do 会(做)
214 Stick down, glue 粘	215 Sunrise 日出	216 (wind) Blow 刮(风)

Table 5.2 – *Continued*

217 (snow, rain) Fall 下(雪/雨)	218 Float 漂浮	219 Blossom (flowers) (花)开
220 Bear (fruit) 结(果)	221 drop (leaf) (叶)落	222 Collapse (house) 倒塌
223 (Horses) Carry (loads) 驮	224 Fly 飞	225 (wasps) Sting (蜂)蜇
226 (snow) Dissolve (雪)融化	227 (water) boil (水)涨开	228 Be sick 生病
229 Feel dizzy or giddy 晕	230 (tissue) Swell 肿胀	231 Contaminate 传染
232 Cook, decoct 煮, 熬	233 Die 死	234 Teach 教
235 Learn 学	236 Write 写	237 Count (numbers) 数(数字)
238 Resemble 像	239 Recognize (sb.) 认识	240 Big 大
241 Small 小	242 Long 长	243 Short 短
244 Wide (in diameter) 粗	245 Thin (in diameter) 细	246 Thick 厚
247 Thin 薄	248 Far 远	249 Near 近
250 Many, much 多	251 Deep (water) 深	252 Shallow (water) (水)浅
253 Straight (stick) (木条) 直	254 Bent, crooked 弯	255 Light (weight) (重量)轻
256 Heavy 重	257 Soft 软	258 Hard 硬
259 Dry (adj.) (晒)干	260 Wet 湿	261 (meat) Fat 肥
262 New 新	263 Old, used 旧	264 Black 黑
265 White 白	266 Red 红	267 Yellow 黄
268 Cold (weather, water) 冷	269 Hot (weather) 热	270 Sour 酸
271 Sweet 甜	272 Bitter, Salty 苦, 咸	273 Thirsty 渴
274 Overeat 饱	275 Hungry 饿	276 Enough 够
277 Be filled up (with water) 装满	278 Itchy 痒	279 Drunken 醉
280 Insane 疯	281 Slippery (road) (路)滑	282 Poor 穷
283 Rich 富	284 Sharp (knife) 锋利	285 I, me 我
286 You 你	287 He, she 他, 她	288 One 一
289 Two 二	290 Three 三	291 Four 四
292 Five 五	293 Six 六	294 Seven 七
295 Eight 八	296 Nine 九	297 Ten 十
298 Hundred 百	299 Pair (CL, shoes) 双	300 CL (for persons) 个



It seems that these 300 core words are sufficient for the purpose of the analysis of Nisoic subgrouping. If one were to do a systematic reconstruction of the proto Nisoic or proto Niso-Burmic phonemic forms, then a larger dataset would be needed. Also, if one were to go an upper level (subfamily) of comparison, say TB, probably, about 200 cognates would be required, and if we were to go a yet higher level (family), say, ST, we may just need about 100 basic words. I believe that the more distant among languages, the fewer cognates existed among them.

### 5.7 Reconstructing Proto-Nisoic Phonemes

In his book *The Loloish Tonal Split Revisited* (1972), Matisoff reconstructed some Proto Nisoic (PN) phonemes; he then in 2003 systematically reconstructed Proto-Tibeto-Burman (PNB) phonemic system in his book entitled *Handbook of Proto-Tibeto-Burman*. Bradley (1977) did tremendous work on reconstructing PN tonal development and in 1979 he systematically reconstructed PN phonemic system in his book entitled *Proto-Loloish*. Matisoff's reconstructions (1972) are mainly PNB phonemes, while Bradley's are almost all for PN. Li 1992, 1995, 1996b, 2003, 2008, and 2010 has systematically studies PNB initials, rhymes, and tones. In his book *Burmo-Yi Phonology* (2010), Li fully demonstrated his PNB phonemic system. The reconstructions of both Bradley and Matisoff's are almost identical for the same items, reflecting the fact that both have a similar view on the development of Nisoic or Niso-Burmic. For example, Three regular tones \*1, \*2, and \*3 and two checked tones \*H and \*L were reconstructed for PN for both of them. Li 2010 reconstructed four tones for PNB, including \*A, \*B, \*C, and \*D, in which PNB tone \*D corresponds to checked syllables.

Following the pioneer works of scholars Matisoff, Bradley, and Li, I would like to propose my own version of reconstruction for PN phonemic system, which is largely the same as those of Bradley and Matisoff's, as shown in the chart below.

Table 5.3 Proto-Nisoic Initial Consonants, Prefixes, and Glides

	Labial	Dental	Alveolar	Alveolo-Palatal	Velar	Glottal
Voiceless	*p	*t	*ts	*tɕ	*k	*ʔ
Aspiration	*ph	*th	*tsh	*tɕh	*kh	*h
Voiced	*b	*d	*dʒ	*dʒ	*g	
Prenasalized	*mb	*nd	*ndʒ	*ŋdʒ	*ŋg	
Nasals	*m	*n		*ŋ	*ŋ	
Fricative			*s		*x	
	*(w)		*z	*ʒ	*ɣ	
Resonant		*l	*r			
Prefix		*l-	*s-			
Glide				*-j-	*-w-	

Table 5.4 Proto-Nisoic Vowels, Nasal-Codas, and Stop-Codas

- A. \*Vowel finals:            \*i \*y                    \*ɯ \*u  
    \*e                            \*o  
    \*ɔ  
    \*a
- B. Nasal-codas:    \*-m    \*-n    \*-ŋ
- C. Stop-codas:    \*-p    \*-t    \*-k    \*-ʔ

Table 5.5 Proto-Nisoic Tones in Unchecked Syllables and Checked Syllables

- A. \*Unchecked syllables: \*1, \*2, \*3
- B. \*Checked syllables:    \*H, \*L

### 5.8 Subgrouping Nisoic Languages

#### *5.8.1 Nisoic Comparative Method: A Bottom-Up Procedure*

In section 5.6, there were 34 Nisoic and three Burmic languages that were set up for this subgrouping study. In order to determine the relationship of Nisoic languages, one needs (1) to assemble

relevant data, (2) to establish the shared sound innovations/rules; (3) to determine the ancestral form; and (4) to use ancestral forms as the starting point to check the development of proto phonemes in descent. The crucial of these procedures is to identify the shared innovations in descent and to subgroup languages that share a sound change.

I assume that the proto-language split into daughter languages in a binary way. That means of even several closely related languages must have arisen in a series of binary splits and these splits must have an order. The language splits follow the order of phonological rules that took place in history.

In dealing with Nisoic subgrouping, I followed several steps that lead to final Nisoic subgrouping. First, I evaluated the 34 Nisoic languages to determine the closest language pairs based on the evidence from phonological and lexical innovations. With this step, as we will see, the thirteen closest Nisoic language pairs were determined. Second, I established small Nisoic subgroups called clusters, which are composed of either different language pairs or language pairs and languages that didn't have found their pairs from step one. Within step two, ten Nisoic language clusters were established. Third, language groups were established by combining the clusters of Nisoic that show a closer relationship. If there a language cluster is idiosyncratic enough to be treated as a group, then there was no need to combine clusters into a group. Within the third step, eight Nisoic groups were established.

At this point, one needs to mention that there are other ways of comparison, such as a top-down approach, like Greenburg's macrocomparison and megalocomparison, which were criticized by Matisoff (1990). It seems that macrocomparison or megalocomparison is better applicable to subgrouping languages at family or subfamily level (ST, or TB, for example), and not at the branch level, like Nisoic here. Paul Benedict (1994: 15) also mentioned on the method of *retrograde comparison*, but, such a method does not suit Nisoic study either, because (1) it is hard to proceed with Nisoic languages whose relationship is still unknown and (2) Nisoic writings don't provide phonological information helpful for language comparison, nor can they suggest which languages are older than others.

### 5.8.2 Weighing Evidence of Shared Innovations

A typical Nisoic syllable consists of optional consonant(s), obligatory vowel(s), and obligatory tones. Comparing with vowels and tones, consonants have a larger number of phonemes in Nisoic languages. Since the vowels have a smaller number of phonemes and tend to vary unnoticeably, so, I relied much on evidence from shared consonantal innovations in this subgrouping study. This strategy doesn't intend to exclude evidence of shared innovations in vowels and tones. As we will see, shared innovation from vowels and tones, as matter as fact, also plays very important role in determining the language relationship of Nisoic.

Evidence from shared lexical-morpheme innovation is very important in determining Nisoic language subgroups. Modern Nisoic languages have many disyllabic words and many of them have etymologically developed from single syllables at different stages. If a lexical element is only shared by several languages, this means that these languages have historically shared a common origin in word formation.

### 5.8.3 Results

As discussed in Section 5.8.1 above, this comparative study will progress through several steps to arrive at Proto-Nisoic. These steps include determination of Nisoic language pairs, clusters (with *-oid* suffix), and groups (with *-ish* suffix). The Nisoic subgroupings at different levels (pairs, cluster, and group) below are the results of application of bottom-up approach with a view of binary split of language development from proto-Nisoic to its descent.

#### 5.8.3.1 The Language Pairs of Nisoic

Based on evidence of shared phonological and lexical-element innovation, the first level of analysis is to find out a language pair that shares an intermediate parent; this pair is supposed to be the closest languages among all the languages under study. In following, each of Nisoic language pairs will also be contrasted with Nuosu because it is the language not only do I speak but also can be representative of many archaic initial consonants.

### 5.8.3.1.1 Nuosu and Niesu Pair

The Nuosu (a.k.a. Shengzha) and Niesu (a.k.a. Suondi) can be grouped together as the closest language pair among Nisoic without any question. Both languages are mutually intelligible. In past, these two varieties, together with Adu, Yinuo, etc., are called the Northern Yi Dialect by Chinese scholars (Cf. Chen et al. 1985). Nuosu and Niesu share substantial phonological and lexical innovations. See examples in (5-2) below (Note: Innv. = innovation).

(5-2)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Niesu</u>	<i>Gloss</i>
*mri <sup>1</sup>	-du33	mu44du33	mu44du33	‘earth’
*ʔya <sup>L</sup>	-tɕ33	va55tɕ33	va55tɕ33	‘cliff’
*yri <sup>1</sup>	*e21tɕhɿ55	e21tɕhɿ55	e21tɕhɿ55	‘water’
*ywo <sup>1</sup>	*yʷ- > v-	vo33	vo33	‘snow’
*smut <sup>1</sup>	*sm- > m̥/m-	m̥o33	mo33	‘to blow (fire)’

As one can see in examples given in (5-2), Nuosu and Niesu have a great deal in common in both sound changes and lexical innovations. Both have unique innovation for lexical morphemes in ‘cliff’ and ‘earth’, and a lexical innovation for ‘water’; the example ‘snow’ shows a common sound change \*yʷ- > v- for both languages. The sound change \*sm- > m̥- or m- shows that Nuosu lies at an earlier stage than that of Niesu if the process of sound change for Niesu is assumed as: \*sm- > \*m̥- > m-. As thus, one can assume the loss of voicelessness of initial nasals of Niesu must have happened after it split from Proto-Nuosu.

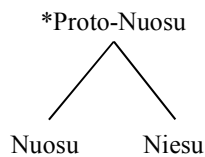


Figure 5.2 The Nuosu-Niesu pair

Since Nuosu and Niesu are so closely related that one only needs to compare one of them with other Nisoic languages in the rest of this chapter. Hereafter, Nuosu will be picked to represent both Nuosu and Niesu in most cases of comparisons below.

### 5.8.3.1.2 Nisu and Nishu Pair

The Nisu and Nishu can be grouped together as the closest language pair among Nisoic without any question. Both languages are mutually understood by people from these two communities according to personal conversation with Yang Liujin in 2007. These two varieties, together with other Nisu varieties spoken in Honghe area, are called the Southern Yi Dialect by Chinese scholars (Chen et al. 1985). Nisu and Nishu share a lot of phonological and lexical innovations. See examples in (5-3).

(5-3)

<u>PN</u>	<i>Innv.</i>	<u>Nisu</u>	<u>Nishu</u>	<i>Gloss</i>
*klok <sup>H</sup> mo <sup>2</sup>	*m- > b-	lu33bɿ21	lɿ33bə21	‘stone’
*gru <sup>1</sup>	*gr- > dz-	dzi33	dʒɿ33	‘copper’
*khji <sup>1</sup>	*kh- > th-	thi33	thi33	‘excrement’
*s <sup>w</sup> i <sup>1</sup>	*s- > ʂ-	ʂɿ33	ʂɿ33	‘blood’
*khwu <sup>1</sup>	so21mɛ21	so21mɛ21	ʂo21miɛ21	‘mole’

As seen from examples given in (5-3), these Nisu and Nishu share a phonological change \*m- > b-/σ\_\_ [o] # (This sound change must position in the end syllable of a disyllabic word). By shared phonological innovations like \*m- > b-, \*s<sup>w</sup>- > ʂ-, and \*khw- > th- given in (5-3) and shared lexical innovations such as the case of ‘mole’, it is sufficient to determine Nisu and Nishu as a unique pair among the Nisoic languages under study.

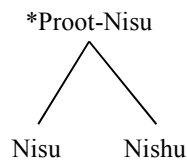


Figure 5.3 The Nisu-Nishu pair

Like the Nuosu and Niesu case, the Nisu will be used to represent both Nisu and Nishu when compared to other Nisoic languages in the remaining of this chapter.

### 5.8.3.1.3 Hani and Haoni Pair

Hani and Haoni can be unquestionably grouped together as is shown in their widely shared phonological and lexical innovations. See examples in (5-4).

(5-4)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	<i>Gloss</i>
*mu <sup>1</sup>	*m- > ø-	mu33vu55	ɔ31	u31	‘sky’
*mu <sup>1</sup>	*m- > ø-	mu33	ɔ55	u55	‘to do’

Hani and Haoni share the loss of an initial nasal \*m- > ø- / \_\_ [u]. However, other examples don’t support this sound change as shown in (5-5).

(5-5)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	<i>Gloss</i>
*mi <sup>1</sup> to <sup>3</sup>	-tsɔ31	mu21tu55	mi31ɔza31	mi31tsɔ31	‘fire’
*mi <sup>1</sup>	za31-	a21mɿ33	za31mi31	zɔ31mi31	‘daughter’

In (5-5), one can see that the rule \*m- > ø- / \_\_ [u] is not subject to these two cases. In addition, Hani and Haoni share a lexical morpheme innovation \*tsa, which is realized as Hani ɔza31 and Haoni tsɔ31 in example ‘fire’; and they also share another morpheme \*za- in example ‘daughter’.

In addition to sharing phonological and lexical innovations, Hani and Haoni also have the same tonal system and the same pitch values for shared cognates. This indicates that both Hani and Haoni have retained the same tones after splitting from their parent language. In many ways the relationship between Hani and Haoni is more like dialects than independent languages. Owing to the close similarities of lexical and phonological innovations and the same tonal system, only Hani will be used as the representative language for both of them when comparing with other Nisoic languages in remaining sections of this chapter.

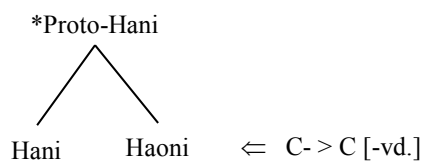


Figure 5.4 The Hani-Haoni pair

#### 5.8.3.1.4 Bisu and S.kong Pair

Bisu and S.kong are characterized by a prominent innovation that original nasals are hardened to prenasalized stops or voiced stops, that is, *\*N- > C-* or *NC-*. See examples (in 5-6).

(5-6)

<u>PNB</u>	<u>Nuosu</u>	<u>Bisu</u>	<u>S.kong</u>	<i>Gloss</i>
*mwuut <sup>L</sup>	mi55	be31, bjaŋ31	mbɛ31	‘hungry’
*mi <sup>1</sup>	a21mŋ33	(za31)bi31	mbi31	‘daughter’
*ip <sup>L</sup> mak <sup>L</sup>	e55mo21	(me33)bvn55	(zu31)mba33	‘to have dream’
*mjo <sup>2</sup>	ŋi21	naŋ33	mbɔ31	‘to swallow’
*na <sup>1</sup>	na33	da55	nda55	‘to sick’
*nak <sup>1</sup>	a44nɔ33	aŋ33paŋ55	nda55	‘black’
*ŋa <sup>1</sup>	ŋa33	ga33	ŋa55	‘I, me’

A most plausible account is that the proto nasal initials in Bisu and S.kong developed as follows: *\*N- > \*NC- > C-*, where *C* refers to a homorganic consonant. The consonant seems more phonetically explainable: The denasalized initials of prenasalized consonants, *NC-*, can be regarded as a newly formed segment in the place of nasals.<sup>64</sup> I assume that the nasal must be the marked component of *NC-* in S.kong, but later, the secondary *C-* of this homorganic combination becomes the dominant element and finally the nasal segment disappears. Li 2002 and Xu 1998 have extensively studied both languages and discussed this sound phenomenon, too. In addition, Bisu also has some words that show *m-* and *b-* alternation, indicating that the process of proto nasal hardening to homorganic stop has not completely finished yet.

<sup>64</sup> Cf. Matisoff (2006: 2) regards that Adu labio-velars  $\widehat{gbu}^{21}$  ‘wild goose’ has arisen from *\*gwu* with assimilation of *-w-* to *-b-*.



For example, *muŋ31* ‘sky’ also can be read as *buŋ31* and the Bisu autonyms can also be called either *Misu* or *mBisu*.

Bisu and S.kong have also morphemes in word formation innovated from Proto-Bisu-S.kong (PBS). For instance, the second syllable *\*-thoŋ<sup>1</sup>* is shared only by Bisu and S.kong as shown in (5-7).

(5-7)

<u>PBS</u>	<u>Nuosu</u>	<u>Bisu</u>	<u>S.kong</u>	<i>Gloss</i>
<b>*maŋ<sup>1</sup>thoŋ<sup>1</sup></b>	mi21pu21	man31tu33	maŋ31thoŋ31	‘mouth’

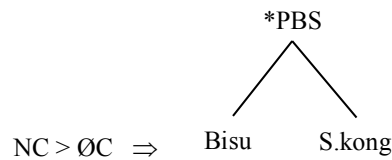


Figure 5.5 The Bisu-S.kong pair

Evidence for subgrouping these two languages as one unique set is also supported from final nasals. Though it is not clear whether these finals are residuals from PNB or PN, or a later stage development (PBS), their unique features differentiate them from other Nisoic languages. See more examples in (5-8).

(5-8)

<u>PBS</u>	<u>Nuosu</u>	<u>Bisu</u>	<u>S.kong</u>	<i>Gloss</i>
<b>*muŋ<sup>1</sup>nuŋ<sup>1</sup></b>	ho33bu33	muŋ31nuŋ31	<b>mu31</b> nuŋ55	‘sun’
<b>*maŋ<sup>1</sup>thoŋ<sup>1</sup></b>	mi21pu21	man31tu33	maŋ31thoŋ31	‘mouth’

However, these unique nasal codas might not be strong evidence to subgroup them, as some other Nisoic languages also retain nasal finals. For examples, languages like Mondzi and Maang, which also have nasal finals, but it seems they don’t share the same nasal innovations with Bisu and S.kong. It is highly possible that the nasal codas are residual in all these languages.

### 5.8.3.1.5 Lipo and Lolopo Pair

The Lipo and Lolopo are of closest genetic relationship among the Nisoic Branch. Lipo has been regarded a language that should be close to Lisu. Some scholars even treat Lipo as a dialect of Lisu (Cf. Xu et al. 1986 *Lisuyu Jianzhi*). However, as is shown in (5-9), Lipo is unquestionably closer to Lolopo than to any other Nisoic languages.

(5-9)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Lipo</u>	<u>Lolopo</u>	<i>Gloss</i>
*krwuy <sup>1</sup>	*kr- > k-	mu33teŋ33	kæ <sup>3</sup> 33	ke33	‘star’
*khji <sup>1</sup>	*khr- > e-	teŋ33	fj21	ei21	‘excrement’
*sna <sup>1</sup> po <sup>1</sup>	*sn- > n-	ŋa21po33	no55pa33	no55pa33	‘ear’
*snjik <sup>1</sup>	*snj- > ŋ-	he33mo21	ŋi33mo33	ŋi33mo33	‘heart’
*ɣ <sup>w</sup> o <sup>1</sup>	*ɣ <sup>w</sup> - > ɣ-	vo33	yo21	yo21	‘snow’
*mi <sup>1</sup> to <sup>3</sup>	*m- > Ø-	mu21tu55	a55tu55	a55tu55	‘fire’ <sup>65</sup>
*tsaŋ <sup>1</sup>	*-aŋ- > -a	vo33tʂho33	tʂa33	tʂa33	‘human being’
*ti <sup>1</sup>	-tʂho33	mu33ti33	ti33tʂho33	ti33tʂho33	‘cloud’

In (5-9), while sharing a lexical element innovation (example ‘cloud’), Lipo and Lolopo share more sound changes. Additionally, these two languages have basically inherited the same tonal system from their immediate parent. Like the Nisoic language pairs Nuosu-Niesu, Nisu-Nishu, Hani-Haoni, and Bisu-S.kong, Lipo and Lolopo not only share unique innovations phonologically and lexically, they also have the equivalent tonal values.

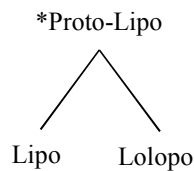


Figure 5.6 The Lipo-Lolopo pair

<sup>65</sup> Lisu and Laluba have the same form as Lipo and Lolopo, indicating these four languages are closely related.

### 5.8.3.1.6 Nasu and Gepu Pair

One shared phonological innovation,  $*NC- > NC^h-$  (i.e., aspiration of prenasalized stops and affricates), is sufficient to determine that Nasu and Gepu as the closest language pair among Nisoic. Prenasalized stops and affricates are common in Nisoic languages Nuosu, Niesu, Nesu, Mondzi, Maang, Polo, and Zuoke. They are also found in some dialects of Naxi. In addition, the Namuzi language spoken in Mianning County of Sichuan has also this feature. However, only Nasu and Gepu show this special sound innovation among the Nisoic languages under study. See examples in (5-10)

(5-10)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Nasu</u>	<u>Gepu</u>	<i>Gloss</i>
*mbok <sup>1</sup>	*mb- > mbh-, mph-	mbe33	mphɥ2	mbhɔ33	‘to overeat’
*ndo <sup>1</sup>	*nd- > ndh, nth-	ndo33	nthɔ11	ndho33	‘to drink’
*ndzo <sup>1</sup>	*ndz- > ndzh-, ntsh-	zo33	ntshɔ33	ndzho33	‘to learn, mimic’
*ŋgo <sup>1</sup>	*ndz- > ŋgh-, ŋkh-	ŋgu33	ŋkhu33	ŋghu33	‘buckwheat’

All the examples given in (5-10) show that both Nasu and Gepu have a reflex of PN prenasalized stops and affricates. The only difference between these two languages is that Nasu aspiration took place in voiceless stops and affricates, while in Gepu it is found in voiced stops and affricates. However, this difference might be caused by the linguists who documented these two languages, instead by a real difference in aspiration.

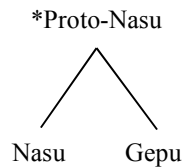


Figure 5.7 The Nasu-Gepu pair

### 5.8.3.1.7 Axi and Azhe Pair

Axi, Azhe, and Sani are very closely related languages, but the question is which two of them are closer? Logically, there are three possible pairs Axi-Azhe, Axi-Sani, and Azhe-Sani. Facing such a

dilemma, I proposed the *cognacy capacity test* (CCT) to measure which pair is the best candidate. After applying the CCT to the 300 glosses of this dissertation database, it shows that Axi-Azhe pair is the closest pair. The CCT is defined in (5-11) below:

(5-11) Defining the *Cognacy Capacity Test*:

- For a cognate, if all three languages (Sani, Axi, and Azhe, for example) have the same form (i.e. phonetically identical), then that cognate is discarded because it cannot be used to determine which language pair has a closer relationship than other pairs. And, if all the three languages don't have a cognate, then that item is also discarded because it does not distinguish the closest pair of the three languages.
- However, if two languages have a cognate but the third language doesn't, then these two languages will be paired. Also, if all the three languages have a cognate, but two of them have a closer or the same forms, then these two languages will also be paired.

In terms of definition given in (5-11), the more items of CCT for a language pair, the more they appear closer phonologically, lexically, and morphologically. Table 5.6 below shows the result:

Table 5.6 Summary of the cognacy among Sani, Axi, and Azhe

Language Pair	Axi-Azhe	Axi-Sani	Azhe-Sani
# of CCT items	109	72	55

Table 5.6 indicates that Axi-Azhe pair has 109 items of CCT, Axi-Sani has 72, and Azhe-Sani has 55. Obviously, Axi and Azhe have more same or similar items (or forms) than any of other two pairs. However, it doesn't necessarily mean that Axi and Azhe has more cognates than those of other two pairs, rather, it implies that these two languages have a closer genetic relationship.

(5-12)

PN	<i>Innv.</i>	<u>Sani</u>	<u>Axi</u>	<u>Azhe</u>	<i>Gloss</i>
*xim <sup>1</sup>	*x- > h-	hæ33	(lu55)xε33	xε22	'house'
*jap <sup>L</sup>	*j- > x-	hɜ2	xq21	xu21	'to stand'

*yroʔ <sup>1</sup>	*yr- > y-	zu44	ya21	yε21	‘to grow up’
*ywo <sup>1</sup>	*yw- > y-	vo11	yo21	yo21	‘snow’
*dzwan <sup>3</sup>	*dzw- > t-	tɛ55	tɛ55(mu21)	tɪ55	‘hawk’
*byam <sup>1</sup>	*by- > t-	tɪ33	tɪ33	ɬu22	‘to fly’

Examples in (5-12) illustrate the result of Table 5.6. For ‘house’, Sani is the one that innovated and Axi and Azhe are the cases of retention. The other examples demonstrate that Azhe and Axi have much more in common (‘to stand’, ‘to grow up’, ‘snow’, ‘hawk’) or similar sound change (‘to fly’) than other two pairs.

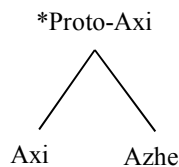


Figure 5.8 The Axi-Azhe pair

#### 5.8.3.1.8 Laluba and Lavu Pair

The Laluba and Lavu are much closer compared with other Nisoic languages. They share some special phonological and lexical innovations. See examples below:

(5-13)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Laluba</u>	<u>Lavu</u>	<i>Gloss</i>
*ʔya <sup>L</sup>	*ʔy- > ʔv-	va55tɿ33	ʔva21tɿ21	ʔua21tɛhi55	‘cliff’
*ʔ/s-ni <sup>1</sup>	*ʔ/s-n- > ʔn-	ni33	ʔn55	ʔni55	‘red’
*ʔ/s-lap <sup>L</sup>	*ʔ/s-l > ʔl-	li55	ʔly21	ʔlə21	‘to dry under the sun’
*ʔ-nyu <sup>1</sup>	*ʔ-n- > ʔn-	i44sɔ33	ʔny21	ʔy21	‘short’
*ʔ/s-ŋu <sup>1</sup>	*ʔ/s-ŋ- > ʔ-	hu33	ʔa21	ʔð21	‘to borrow’
*mu1	*-du <sup>1</sup>	mu33vu55	mɿ21dɿ55	ŋ21du55mu33	‘sky’

The pre-glottalized nasals/ laterals/ fricatives have existed extensively in Laluba and a few in Lavu. This may suggest that Lavu is in process of losing its pre-glottals. As evidenced in examples in (5-13), Lavu

still retains a pre-glottal in the word ‘cliff’ ( $\text{ʔu} < *ʔv- < *ʔy-$ ), ‘red’ ( $\text{ʔn-} < *ʔ/s-n-$ ), ‘to dry under the sun’ ( $\text{ʔl-} < *ʔ/s-l-$ ). In examples ‘short’ and ‘to borrow’ Lavu has retained only the pre-glottal. The word ‘sky’ serves as an example of innovation of lexical element shared only by these two languages.

Additionally, unlike other closely related languages like Toloza and Lisu, Laluba and Lavu have systematic tonal contrasts, exhibiting mainly as: Laluba /55/ vs. Lavu /55/, Laluba /33/ vs. Lavu /33/, and Laluba /21/ vs. Lavu /21/.

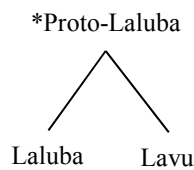


Figure 5.9 The Laluba-Lavu pair

#### 5.8.3.1.9 Mondzi and Maang Pair

Mondzi and Maang are genetically closely related with many features unique and different from other Niso-Burmese languages. The striking innovations of Mondzi and Maang is the sound change  $*tsh- > s-$ , which is found only in these two languages. See examples in (5-14).

(5-14)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Mondzi</u>	<u>Maang</u>	Gloss
*tshaj <sup>1</sup>	*tsh- > s-	vo33tsho33	saŋ53	sɑ21	‘human being’
*-tshi <sup>1</sup>	*tsh- > s-	bu55tshɿ33	se44	sai33	‘medicine’
*ɣraŋ <sup>1</sup>	*ɣr- > z-	ɣu33	zɑŋ44	zɛi33	‘phys. strength’
*mu <sup>1</sup> xro <sup>1</sup>	*xr- > z-, ɣ-	ma33ha33	ze13	ɣɛi55	‘rain’
*ɣweʔ <sup>L</sup>	*ɣw- > b-	vi55	ba21	ba21	‘to twist’
*ŋgiu <sup>1</sup>	*ŋgi- > g-, ŋg-	ndzɿ44ɣsu33	(ŋ)gɛ13	(ŋ)gɛi55	‘skin’

(5-14) lists the examples that show the unique phonological innovations that occur only in Mondzi and Maang. Note that in example ‘skin’, both languages are in process of losing the prenasal segment. Furthermore, these two languages have some unique lexical innovations as shown in (5-15).

(5-15)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Mondzi</u>	<u>Maang</u>	<i>Gloss</i>
*mji <sup>H</sup> ŋgju <sup>1</sup>	*-pui	ho33bu33	mo21pei13	mau35pui44	‘sun’
*(mu <sup>1</sup> )ti <sup>1</sup>	*-ni	mu33ti33	mo21mu53	mau35ni33	‘cloud’
*ndu <sup>1</sup>	*bu	ndu33	bu44	(za55)bo44	‘to dig out’

Lexically speaking, Mondzi and Maang \*-pui is similar to Zaiwa *pui51* ‘sun’, but Mondzi and Maang ‘sun’ is composed of two elements: ‘sky’ + \*pui<sup>3</sup>. The lexical innovations in the other two examples are only seen in Mondzi and Maang.

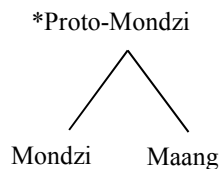


Figure 5.10 The Mondzi-Maang pair

Additionally, each Mondzi and Maang has its own idiosyncratic words. For example, Mondzi *khi13* ‘eye’ and Maang *tiu33* ‘eye’, Mondzi *tʂoŋ53* ‘nose’, Maang *tig33* ‘nose’, Mondzi *lkaŋ53* ‘ear’, Maang *ʔdiɛ33* ‘salt’, etc. developed individually. These words are not cognates with the rest of Nisoic languages. This phenomenon suggests that while Mondzi and Maang share innovations, they are also rather independent. And it is presumable that both languages cannot communicate in their either native tongue.

#### 5.8.3.1.10 Zuoke and Polo Pair

Unlike other Nisoic language pairs like Nuosu-Niesu, Axi-Azhe, etc, Zuoke and Polo have a bigger gap between them, but they are the closest two Nisoic languages studied in this research. They share some unique lexical and phonological innovations. See examples in (5-16).

(5-16)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Zuoke</u>	<u>Polo</u>	<i>Gloss</i>
*hoŋ <sup>1</sup>	*ni <sup>3</sup>	ho33	nu33	ni33	‘to raise (animals)’
*sik <sup>H</sup>	*s- > ɛ-	si33	ɛi33	ei13	‘trees’
*bu <sup>1</sup> xru <sup>1</sup>	*xr- > ɛ-	bu33ɣi33	ɛɛ33na33	ɛi33mɔ21	‘snake’

The two sound changes \*s- > ɛ- and \*xr- > ɛ- and the lexical innovation \*ni<sup>3</sup> in examples given in (5-16) are found only in Zuoke and Polo.

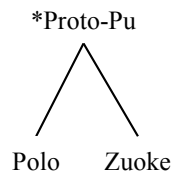


Figure 5.11 The Zuoke-Polo pair

Pelkey (2008) investigated over 20 Pu or Pula languages and concluded that Polo is distantly related to the Pula languages though it belongs to the Pula people ethnically. In this study, Polo is closer to Zuoke than to any other Nisoic languages. However, this relationship may be changed as we have more other Pula data available.

#### 5.8.3.1.11 Kazhuo and Samu Pair

Though their genetic relationship is not as strong as other language pairs like Nuosu-Niesu, Nisu-Nishu, Laluba-Lavu, etc., Kazhuo and Samu demonstrate the closest relationship among Nisoic languages under study. Their relationship is shown below in Figure 5.12.

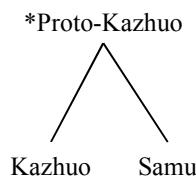


Figure 5.12 The Kazhuo-Samu pair



The significant phonological innovation in this pair is that PN voiced initial stops and affricates are systematically devoiced. However, if the PN forms are aspirated affricates, then they remain unchanged.

See examples given below:

(5-17)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Samu</u>	<u>Kazhuo</u>	<i>Gloss</i>
*dzi <sup>L</sup>	*dz- > ts-	dzi55	tse25	tsi55	'to chop'
*ndi <sup>L</sup>	*nd- > t-	ndi55	tuu55	te53	'to wear (a hat)'
*xam <sup>l</sup>	*x- > s-	ɣu33	sɜ33	sɛ33	'iron'
*tɕhit <sup>L</sup>	*tɕh- > ts <sup>h</sup> -	tɕhɿ55	ts <sup>h</sup> ɿ55	ts <sup>h</sup> ɿ53	'goat'
*mrik <sup>H</sup>	*mr- > z-	zɿ33	zɿ33	zɿ33	'grass'
*phjok <sup>L</sup>	*phj- > ph-	li44ndo33	(ka33)phi33	(shɿ31)phi53	'to lose'
*mji <sup>H</sup> ŋgiu <sup>l</sup>	tsha33	ho33bu33	mu33tsho33	mɰ31tsha33	'sun'

The example 'sun' is a case of lexical innovation for these two languages. Most of the Nisoic languages have still kept the voiced feature for examples 'to chop', 'to wear (a hat)', but Samu and Kazhuo lost voiced feature. Other languages might have the similar sound changes as seen the example given in (5-18), but only Samu and Kazhuo show a systematic sound change. This rule is also applicable to several other languages like Azha and Namuzi as well as Burmic Achang, but they might have taken place individually.

(5-18)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Samu</u>	<u>Kazhuo</u>	<u>Azha</u>	<u>Namuzi</u>	<u>Achang</u>	<i>Gloss</i>
*dzi <sup>l</sup>	*dz- > ts-	dzi55	tsɜ33	tsɿ31	tsa33	tsæ53	tsi31	'to ride'

As seen from both examples in (5-17) and (5-18), Kazhuo and Samu show a devoiced reflex of PN voiced stop and affricate initials. Other similar examples like 'to have (money)', 'to bear (fruits)', and 'to eat', etc. are also found in this dissertation database.

#### 5.8.3.1.12 Naxi and Namuzi Pair

Both Naxi and Namuzi have some words that are independent from other Nisoic languages. For example, Naxi *dɕy33* 'hard', *tɕhi33* 'to sell', *lɔ21* 'to call (someone)', *by33i21* 'fat (meat)', *la55* 'to hit

someone’, *mu21* ‘to wear (clothes)’, etc. are not seen in the rest of the Nisoic languages. Namuzi *ntɕhɿ53* ‘sell’, *gæ35* ‘old’, *zɿ33zɿ55* ‘write’, *dzi55* ‘to be’, *nqha53* ‘fat (meat)’, *ndzuo55* ‘to call (someone)’, etc. are also not related to other Nisoic languages, nor to Naxi.

Nevertheless, Naxi and Namuzi have some common lexical origins not shared or seldom shared by other Nisoic languages. See examples in (5-19) below:

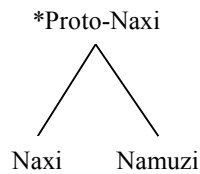


Figure 5.13 The Naxi-Namuzi pair

(5-19)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Naxi</u>	<u>Namuzi</u>	<i>Gloss</i>
*na <sup>1</sup>	*ŋgo <sup>1</sup>	na33	gu21	ŋguo55	‘sick’

There were probably two proto forms existed in PN, e.g., *\*nal* and *\*nalŋo1* ‘sick’. Both Nuosu and Niesu still have reflexes *na33* and *na44ŋo33* for these two proto forms. Additionally, Naxi experienced deprenasalization: *\*ŋg-* > *g-*.

Following are more examples that show Naxi and Namuzi have shared innovations which are not seen in other Nisoic languages.

(5-20)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Naxi</u>	<u>Namuzi</u>	<i>Gloss</i>
*sna <sup>1</sup> bi <sup>2</sup> L	*sn > ŋ-	ŋa21bi55	ŋi55mə21	ŋi31ŋga55	‘nose’
*mbak <sup>H</sup>	*kha	mbe33	khæ55	qha31	‘to shoot (an arrow)’
*vi <sup>1</sup>	*khu	ga33ɕo33	khui33kho33	(da53)qhu31	‘far’
*bom <sup>1</sup>	*gwo	bo33	dzy21	(ŋga55)gu55	‘mountain’
*mbok <sup>1</sup>	*gu	mbu33	gu33	(ŋu55)ku53	‘overeat’
*jit <sup>3</sup>	*-ko	zi55	zɿ33ko21	(vu53)ə31qa35	‘drunken’

In example ‘mountain’ given in (5-20), Naxi initial *ɬ-* is probably a palatalization from proto-Naxioid *\*gw-*; both items may relate to another PN etymon *\*gwoŋ<sup>1</sup>* for ‘mountain’. Also, Nusu *ŋu33* ‘mountain’ seems to have developed from PN *\*gwoŋl*, through an intermediate stage. In ‘nose’, both Naxi and Namuzi share palatalization *\*sn- > ŋ-*. Additionally, there are other similar lexical innovations found in Naxi and Namuzi like ‘to watch’, ‘to buy’, and ‘to borrow (money)’, etc.

Examples given in (5-21) below show a unique sound correspondence found in these two languages: Naxi *b-* vs. Namuzi *ɸ-*:

(5-21)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Naxi</u>	<u>Namuzi</u>	<i>Gloss</i>
<i>*pwaŋ<sup>1</sup></i>	<i>b- ~ ɸ-</i>	<i>ve33</i>	<b>ba21</b>	<i>luo31ɸuaɛ53</i>	‘blossom (flowers)’
<i>*sut<sup>H</sup></i>	<i>b- ~ ɸ-</i>	<i>sɿ33</i>	<b>bæ21</b>	<b>ɸuaɛ35</b>	‘sweep (floor)’

Moreover, Namuzi has an idiosyncratic way of forming its own adjectives, as demonstrated in (5-22):

(5-22)

<u>Namuzi</u>	<u>Nuosu</u>	<u>Naxi</u>	<u>Namuzi</u>	<i>Gloss</i>
<i>*di<sup>1</sup></i>	<i>i33ŋu55</i>	<i>be33</i>	<i>æ33hi53</i>	‘shallow (water)’
<i>*s/?-nak<sup>L</sup></i>	<i>a33ŋu55</i>	<i>xo55</i>	<i>da53mo31</i>	‘deep (water)’
<i>*ni<sup>1</sup></i>	<i>i44sɔ33</i>	<i>nɿ55</i>	<i>æ33ndzu55</i>	‘near’
<i>*vi<sup>1</sup></i>	<i>a44sɔ33</i>	<i>khɯ33kho33</i>	<i>da53qhu31</i>	‘far’
<i>*tu<sup>1</sup></i>	<i>a44tu33</i>	<i>la55</i>	<i>dæ53læ31</i>	‘thick’
<i>*bo<sup>1</sup></i>	<i>i44fu33</i>	<i>be33</i>	<i>æ33bi53</i>	‘thin’

As shown in examples given in (5-22) above, like Nuosu, which uses prefix *a33* to refer objects that are *big, long, deep, or positive*, Namuzi uses a prefix *da53* to denote this meaning. In contrast, while Nuosu uses *i33* as an ideophone for *small* objects or things, Namuzi uses *æ33* to express it. However, Namuzi uses different roots with these two prefixes, while Nuosu use the same root with alternative prefixes.

Additionally, Namuzi also adds prefix *luo31* in front of an adjective to express a sense, feeling, or desire. For example *luo31fu31* ‘sour’, *luo31ntsh731* ‘sweet’, *luo31qha31* ‘bitter or salty’, *luo31fuæ35* ‘thirsty’, and *luo31nthæ31nthæ53* ‘itchy’, etc. This morphemic affixation is unusual in Nisoic languages.

To some linguists, Naxi and Namuzi are quite distant from the Nisoic core languages (Bradley 1979, for example); some even regard Namuzi belongs to Qiangic (Sun 1983). However, as demonstrated in this section, Naxi is definitely a Nisoic language. For Namuzi, though a little more distant to Nisoic, but it is by no means a Qiangic language. I would regard these two languages are closer to Nisoic or Niso-Burmic languages than to any other TB branches.

#### 5.8.3.1.13 Nusu and Rouruo Pair

Nusu and Rouruo have many cognates with Nisoic, but they also share cognates with Burmic. This somehow supports the claim that Nusu positions between Nisoic and Burmic (Dai et al 1989). Both Nusu and Rouruo have been rather affected by Burmic languages, likely due to linguistic convergence and geographic proximity. However, these two languages are Nisoic in nature.

Nusu and Rouruo share unique innovations both lexically and phonologically, showing that they are the closest language pair among the 37 Niso-Burmic languages studied in this dissertation. They even can make up an independent language cluster or language group under Nisoic and Niso-Burmic. See examples in (5-23) below.

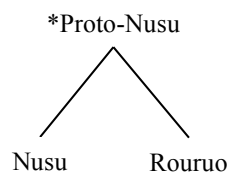


Figure 5.14 The Nusu-Rouruo pair

(5-23)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Nusu</u>	<u>Rouruo</u>	<u>Zaiwa</u>	<i>Gloss</i>
*taʔ1	*gu1	tɔ33	<b>gu55</b>	<b>ku33</b>	pun35	‘to hold (in the arms)’
*xuuk3	*dzɔ3	a33ʂɿ55	<b>dzɔ55</b>	<b>tɛ33</b>	a21sik55	‘new’

*taʔ1	*dzi1	a44dzi33	<b>yruə53</b>	<b>ʔuā55</b>	təʔ55	‘wet’
*vam2	*-la1	i21mo21	<b>va31lɔ53</b>	<b>yo33lɛ33</b>	vam21	‘belly’

Examples in (5-23) are independent lexical or lexical morpheme innovations, which are neither like Nisoic languages nor Burmic as well.

However, the following examples (5-24) are related to Burmic languages, especially with Achang and Zaiwa:

(5-24)

<u>PN</u>	<u>Innv.</u>	<u>Nuosu</u>	<u>Nusu</u>	<u>Rouruo</u>	<u>Achang/ Zaiwa</u>	<u>Gloss</u>
*s/ʔ-li <sup>1</sup>	tshu	a44li33	tshu55	tshu33	tshau31/ a21tshau21	‘old, used’
*tehoʔ <sup>H</sup>	*yra	thɯ33	yɥ53	yɑ53	zoʔ55/ vuʔ21	‘shave (the head)’
*sli <sup>2</sup>	*yrwa	dzi21	yrua33	(ʔo33)ʔua55	zo55/ kjoʔ21	‘(snow, rain) fall’
*tshiʔ <sup>L</sup>	*pat3	tshɿ55	pɑ55	pɑ55	tuat35/ pat55	‘be stung by wasps’

Some Nusu and Rouruo words resemble Nisoic origin. See examples below.

(5-25)

<u>PN</u>	<u>Innv.</u>	<u>Nuosu</u>	<u>Nusu</u>	<u>Rouruo</u>	<u>Achang</u>	<u>Gloss</u>
*s/ʔ-mru <sup>2</sup>	*-pra1	ɱu21ʂu33	ɱu55pɿə53	mɿ55pa33	tehi31ŋaŋ35	‘tail’
*roŋ <sup>1</sup>	*r- > Ø-	zo33	iɔ33	iā55	paʔ55	‘sheep’
*thu <sup>2</sup> slu <sup>2</sup>	*sl- > l-	thu21tu21	tha33la31	tha33lɔ35	pʂaŋ31tai55	‘rabbit’
*zuʔ <sup>L</sup>	*z- > dz-	zɿ55	dzue33	zuɑ53	not55	‘to knead’
*ploʔ <sup>L</sup>	*pl- > l-	lu55	lɯ53	la33	phuɑŋ31	‘to pasture’
*kwu <sup>L</sup>	*kw- > -	ku55	kuə53	kuɛ55	tat55	‘to know how to do’
*ndiʔ <sup>L</sup>	*nd- > d/t-	ndi55	dɑ53	ta53	ʂə31	‘to bear fruits’

As matter as fact, the majority of Nisoic and Burmic words in this dissertation database are cognates and that make it hard to find a division between these two subgroups lexically. Even for measure words (MW), which are viewed as a later development compared to nouns, adjectives, verbs, etc., can be seen in both subgroups. See the example below.

(5-26)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Nusu</u>	<u>Rouruo</u>	WB	<i>Gloss</i>
*ma <sup>1</sup>	*zok <sup>L</sup>	zo55	iu53	ia53	jɔk4	‘MW (for people)’

Other languages that have this MW include Nesu, Lolopo, Lisu, Kazhuo, Achang, and Zaiwa. Given that this measure word appears across different subgroups of Niso-Burmic, it means that some MWs existed at the PN stage, and very likely at PNB stage or even before.

Dai et al 1989 regard Nusu to be centered between Nisoic and Burmic, because it is more like Nisoic lexically and is more like Burmic phonologically. I would treat Nusu, together with Rouruo, as members of Nisoic, instead of as members of Burmic or as connector languages between Nisoic and Burmic.

#### 5.8.3.1.14 Summary

Up to this point, I have established 13 Nisoic closest language pairs among the 34 Nisoic languages in question, including Nuosu-Niesu, Nisu-Nishu, Hani-Haoni, Bisu-S.kong, Lipo-Lolopo, Nasu-Gepu, Axi-Azhe, Laluba-Lavu, Mondzi-Maang, Zuoke-Polo, Samu-Kazhuo, Naxi-Namuzi, and Nusu-Rouruo. As expected, if there were more Nisoic languages available, then the members of each of these 13 language pairs might be replaced. However, within the 34 Nisoic languages studied in this dissertation, each of these pairs is closer to each other than to any other Nisoic languages phonologically, morphologically, and lexically.

Among these 13 Nisoic language pairs, Nuosu-Niesu, Nisu-Nishu, Hani-Haoni, Bisu-Sangkong, and Lipo-Lolopo have unquestionably the strongest relationship. As one can see from the examples under these five language pairs, each pair has systematically corresponding sets in initials and finals; they even have tonal contrast with the same pitch values as well. I expect that peoples from each of these five language pairs can communicate to some degree. I here call these five Nisoic language pairs as Type I.

Language pairs Nasu-Gepu and Axi-Azhe are close to Type I, too, but the tonal contrasts are not as neat as those in Type I of language pair. The Laluba-Lavu pair, though whose tonal contrast is like that

of Type I, but initial and vowels have fairly varied. I call Nasu-Gepu, Axi-Azhe, and Laluba-Lavu Type II. I expect that people from such communities cannot communicate mutually.

For the remaining five Nisoic language pairs Mondzi-Maang, Zuoke-Polo, Samu-Kazhuo, Naxi-Namuzi, and Nusu-Rouruo, I call them Type III. Unlike language pairs of Type I & II, the Type III language pairs don't have systematic tonal corresponding sets, nor as many as lexical innovations found in Type I or Type II. Nevertheless, each of these Type III pairs demonstrates that they have much more in common than any other Nisoic languages. And from the perspective of subgrouping, they can be grouped together as the closest language pairs among the 34 Nisoic languages studied here.

Having established 13 Nisoic language pairs, now only eight Nisoic languages remain whose affiliations require a further comparison. These remaining languages include Nesu, Lope, Sani, Azha, Lisu, Lahu, Toloza, and Jinuo. We now turn to examination of the Nisoic language affiliation at a higher level called cluster (*-oid*) in Section 5.8.3.2 below.

#### 5.8.3.2 The Language Clusters of Nisoic

Some Nisoic languages tend to be closely related to one another, for example, Nuosu and Niesu show a stronger connection with Nasu, Nisu, Lope, etc. than with other Nisoic languages. In the Tibeto-Burman literature, such small subgroups are often named a major language with a suffix *-oid*, (Cf. *Lahoid*, *Nasoid* in Matisoff 1972). As we will see, the Nisoic clusters are actually to combine these established language pairs and the remaining languages that have not been paired as yet. The 34 Nisoic languages can be grouped into 10 clusters, including Nisoid, Axiooid, Puoid, Lisoid, Kazhuoid, Nusoid, Naxiooid, Lahoid, Hanoid, and Mondzoid.

##### 5.8.3.2.1 Nisoid: Nuosu, Niesu, Nesu, Nasu, Gepu, Nisu, Nishu, and Lope

As discussed in Section 5.8.3.1. Nuosu and Niesu, Nisu and Nishu, and Nasu and Gepu are the closest language pairs. These three pairs, together with Nesu and Lope, are very closely related. Let's simply call them *Nisoid*. Figure 5.15 shows the genetic relationship of Nisoid under Nisoic.

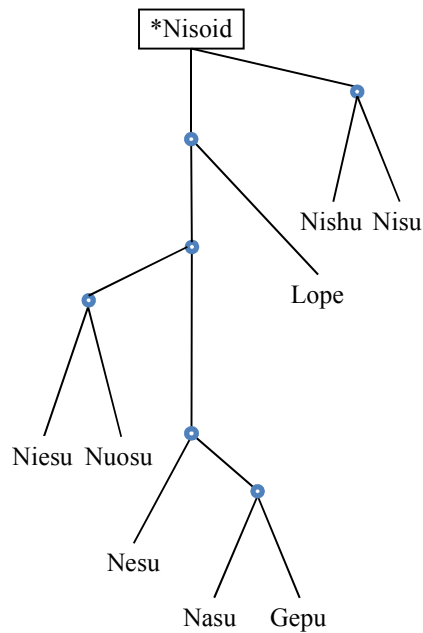


Figure 5.15 The language relationship of Nisoid

(5-27)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Nesu</u>	<u>Nasu</u>	<u>Gepu</u>	<u>Nisu</u>	<u>Lope</u>	<i>Gloss</i>
*phlu <sup>1</sup>	*phl- > th-	a33tɛhu33, thu33	ʈhu13	ʈhy11	thu33	thu21	ʈuɹ213	‘white, silver’

The example given in (5-27) shows that PN *\*phl-* changed to *th-* in Nisoid languages. Nuosu has two forms coexisted for etymon *\*phlu<sup>1</sup>*; the sound development probably followed this course: *\*phl- > \*th- > tɛh-*. Axi also has an identical form *a33ʈho33* for this etymon, showing that its closeness to Nisoid.

(5-28)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Nesu</u>	<u>Nasu</u>	<u>Gepu</u>	<u>Nisu</u>	<u>Lope</u>	<i>Gloss</i>
*mi <sup>1</sup>	*a <sup>2</sup>	a21mɿ33	a21me33	a11mɔ33	a33mə44	a21mɛ33	a21mæ33	‘daughter’

In the example ‘daughter’ given in (5-28), only the Nisoid languages share a prefix *\*a<sup>2</sup>* among the Nisoidic languages studied in this dissertation.



(5-29)	<u>PN</u>	<i>Innv.</i>	<u>Niesu</u>	<u>Nesu</u>	<u>Nasu</u>	<u>Gepu</u>
	*mjiʔ <sup>H</sup> ŋgju <sup>1</sup>	*ŋg- > (n)ɕ, dz	ŋie33dzɿ33	ŋi21ndzhi21	ŋi11ɕzi11	mi33ɕzi21
			<u>Nisu</u>	<u>Lope</u>	<i>Gloss</i>	
			ne21ɕe21mo21	mu21ɕzi21	‘sun’	

In the example given in (5-29), all the Nisoid languages have velar palatalization, e.g. \*ŋg- > (n)ɕ- or dz- for root of the word ‘sun’. For the first syllable of this word, Nisoid languages have involved three types of phonological innovations: Nisu has \*mj- > n-; Niesu, Nesu, and Nasu have palatalization \*mj- > ŋ-; and Gepu and Lope have glide deletion \*mj- > m-. Note Nuosu has an unusual form *ho33bu33* for this word.

Among Nisoid languages, Nuosu, Niesu, Nesu, Nasu, and Gepu have a firmer relationship. They share certain unique lexical innovations. See example below:

(5-30)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Nesu</u>	<u>Nasu</u>	<u>Gepu</u>	<u>Nisu</u>	<u>Lope</u>	<i>Gloss</i>
*s/?-mru <sup>2</sup>	*-ɕu	ɱu21ɕu33	me21ɕu33	mɔ11ɕy33	mo21ɕo33	mɛ33	a21mæ <sup>1</sup> 33ɕzi33	‘tail’
*khwu <sup>1</sup>	*-kh	khu33	khu13	khu33	khu33	so21mɛ21	mæ 55	‘mole’

Nisu doesn’t have the morpheme innovation \*-ɕu in the word ‘tail’ given in (5-30), and Lope has a different morpheme innovated. For the word ‘mole’, Nuosu has *pho33*, which must have developed from \*khwu33. Some Nisoic languages Lolopo, Lipo, and Lahu have forms *phə21*, *phe33*, *phe35na54ei11*, respectively, for this item, pointing to PN etymon *khwu<sup>1</sup>*. Nuosu form *pho33* might just be an accidental change at a different stage in contrasting with the forms of these three languages, because Nuosu *pho33* must have followed a development course: \*khw- > \*kh- > ph-. That is, it must take place right after it split from Niesu and may not be related to these three languages.

The most striking difference among this language cluster is that all the prenasals of prenasalized obstruents of Nisu, Nishu, and Lope have lost, but they have been retained in Nuosu, Niesu, Nesu, Nasu, and Gepu. See example below:

(5-31)

PN	Nuosu	Nesu	Nasu	Gepu	Nisu	Lope	Gloss
*mbliŋ <sup>l</sup>	ndzi33	nde21	ŋhə-11	ndzhe-33	la55zi55	bu33zɿ44	‘pus’
*ndo <sup>l</sup>	ndo33	ndo13	nthə11	ndho33	da21	dɔ213	‘drink’
*mbak <sup>H</sup>	mbe33	mbi33	mphə-2	---	bɛ33	ʂə213	‘shoot’
*ŋguuk <sup>L</sup>	ŋgu55	ŋgɿ13	ŋkhɿ55	ŋghə33	tshɿ33	ta55	‘poke’
*ŋgrat <sup>H</sup> ŋgo <sup>l</sup>	ga33ŋgo21	mi33tʂhi13	dza2ŋkhr11	ndzho33	dzie33	dza33	‘cold’

As shown in (5-31), Nuosu, Nesu, Nasu, and Gepu have prenasalized stops corresponding to the voiced stops of Nisu and Lope. All the proto prenasal segments of both Nisu and Lope already lost; accordingly Nisu and Lope can be regarded as the earliest divergence from the Nisoid cluster.

#### 5.8.3.2.2 Axioid: Sani, Axi, Azhe, and Azha

As discussed in Section 5.8.3.1.7, Axi and Azhe are two closely related languages among the Nisoic languages, and Sani is very closely related to this language pair. The close relationship of these three languages makes it reasonable to group them as a small unit, which I call the Axioid Cluster here. Azha, a language spoken by the Pula ethnic groups in Wenshan, Yunnan Province, is quite near to this cluster. So the relationship of Axioid can be presented as in Figure 5.16.

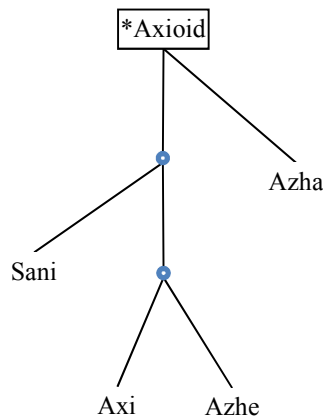


Figure 5.16 The language relationship of Axioid

Examples given below reflect the close genetic relationship among this language cluster.

(5-32)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Sani</u>	<u>Azhe</u>	<u>Axi</u>	<u>Azha</u>	<i>Gloss</i>
*mi <sup>1</sup>	*nu <sup>1</sup>	a21mɿ33	nɿ44, æ11mæ11	nu33	nu33	ze44me33	‘daughter’
*xla <sup>1</sup>	*xl- > ɿ-	ŋgu33	ɬe44	ɭ22	ɬe33	he33	‘to boil (water)’

In addition to reflecting the Proto-Axioid \*nu<sup>1</sup>, Sani also has another form æ11mæ11 for word ‘daughter’, which is a reflex of PN \*mi<sup>1</sup>. Probably Sani, Azhe, Axi \*nu<sup>1</sup> originally means ‘female’. Nuosu still has ni44vo33 ‘womenfolk’, corresponding to zu33vo33 ‘menfolk’. Azha ze44me33 and Sani æ11mæ11 are cognate for ‘daughter’. In the example ‘to boil (water)’, Sani and Axi both have voiceless lateral, showing that these two languages have a closer relationship; Azhe has a lateral retroflex for this, fairly close to Sani and Axi, but Azha has glottal h-, showing that it is a little distant from the Axioid core.

(5-33)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Sani</u>	<u>Azhe</u>	<u>Axi</u>	<u>Azha</u>	<u>Zuoke</u>	<i>Gloss</i>
*ʔ/s-la <sup>2L</sup>	*-be <sup>1</sup>	la55	ɬo55bæ33	lo55be22	lo55bi21	ke44pe33	lo55bi44	‘pants’

In the example given in (5-33), all the Axioid languages developed a word morpheme \*-be<sup>1</sup>, which is also found in Puoid Zuoke, suggesting that Axioid and Puoid are fairly close to each other.

(5-34)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Sani</u>	<u>Azhe</u>	<u>Axi</u>	<u>Azha</u>	<u>Zuoke</u>	<u>Nasu</u>	<i>Gloss</i>
*di <sup>2</sup>	*mbu <sup>2</sup>	di21	py44	pu33	pu33	---	pu33	mphɿ33	‘to push’

In the example given in (5-34), all the Axioid languages developed a word \*mbu<sup>2</sup>, which is totally irrelevant to the etymon PN \*di<sup>2</sup> ‘to push’. Also, Zuoke of Puoid has the same word innovation, and Nisoid Nasu has mphɿ33 ‘to push’ closer to archaic form PN \*mbu<sup>2</sup>.

(5-35)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Sani</u>	<u>Azhe</u>	<u>Axi</u>	<u>Azha</u>	<u>Zuoke</u>	<u>Nasu</u>	<u>Gepu</u>	<u>Lope</u>	<i>Gloss</i>
*sat <sup>L</sup>	*xot <sup>H</sup>	si55	xo11	xo21	xo21	xo33	xp55	xu33	xu33	xu33	‘to kill’

In the example given in (5-35), all the Axioid languages developed a word \*xot<sup>H</sup>; this innovation is also found in Zuoke of Puoid and in several Nisoid languages, including Nasu, Gepu, and Lope. The PN etymon \*xot<sup>H</sup> is maybe related to Nuosu *ʒu33* and Niesu *xu33*, which means ‘to cut off meat with a knife’.

Generally speaking, while the Axioid cluster languages have their own innovations, they have also shared innovations with Puoid and Nisoid. Azha appears to center between Axioid and Puoid, but, it is slightly closer to Axioid than to Puoid.

#### 5.8.3.2.3 Puoid: Zuoke and Polo

The Puoid Cluster is made up of Zuoke and Polo pair. It may have other languages, but in this database it only has these two members. Cf. Section 5.8.3.1.10.

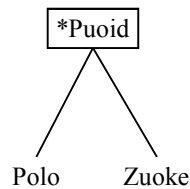


Figure 5.17 The language relationship of Puoid

#### 5.8.3.2.4 Lisoid: Lipo, Lolopo, Lavu, Lisu, Laluba, and Toloza

The core Lisoid cluster includes languages Lisu, Lolopo, Lipo, Laluba, Lavu, and Toloza; other languages that may possibly belong to this cluster are Talu, Laloba, Misaba, Macha, and Liang’e. Lipo and Lolopo are the two languages that are closely related under this cluster (Cf. Section 5.8.3.1.5); Laluba and Lavu are another closest language pair discussed in Section 5.8.3.1.8. Lisu is closer to these two language pairs, especially to Lava and Laluba. Toloza is somehow slightly distant from these languages and can be regarded as the earliest splif from the Lisoid Cluster. The language relationship of Lisoid can be represented schematically in Figure 5.18 below.

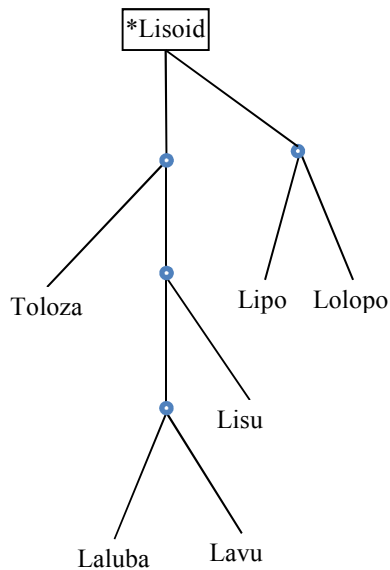


Figure 5.18 The language relationship of Lisoid

It is surprising to find that there is no single example of shared phonological or lexical innovation that can be found in every language under the Lisoid. In most cases, shared innovations only take place in most languages of Lisoid but not in all its members as demonstrated in examples given in (5-36), (5-37), (5-38), (5-39), (5-40), (5-41), and (5-42) below.

(5-36)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Laluba</u>	<u>Lolopo</u>	<u>Lavu</u>	<u>Lisu</u>	<u>Lipo</u>	<u>Toloza</u>	<i>Gloss</i>
*(mu <sup>1</sup> )sli <sup>1</sup>	*sl- > ɛ-	mu33ɰ33	a55m21ey55	mə21ei33	mɤ33hɪ33	mi31hĩ33	a55mə21	ŋ21mi55	‘wind’

In the example (5-34), Laluba and Lolopo have a unique innovation \*sl- > ɛ-; Lisu and Lavu have a slightly different phonological evolution \*sl- > h-; Lipo and Toloza have a common origin for ‘wind’ in their second syllable.

(5-37)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Lolopo</u>	<u>Lipo</u>	<u>Lisu</u>	<u>Laluba</u>	<u>Lavu</u>	<u>Toloza</u>	<i>Gloss</i>
*mi <sup>1</sup> to <sup>3</sup>	*m- > Ø-	mu21tu55	a55tu55	a55tu55	a55tu55	la55to33	mo55to33	mɔ21to55	‘fire’

In the example given in (5-37), Lolopo, Lipo, and Lisu prefix *a-* derived from PN \*mi<sup>1</sup>. The sound change \*m- > Ø- can be tested when comparing to other Nisoic languages, for example, Nuosu

*mu*21tu55, Nesu *mi*33tie13, Gepu *pi*33ti44, Sani *m*11ty55, Axi *mu*33tu55, Azha *mu*33tu55, Zuoke *bi*33to55, and so forth. Laluba has a different syllable *la*55- corresponding to the prefix *a-* of other Lisoid languages. Toloza has a form *mv*21, which is the same as the form in Nuosu, Nesu, Sani, and Axi, et al.

Another piece of evidence to support the claim that the prefix *a-* in (5-37) developed from proto-Nisoic *\*mi* comes from the development of negation in many Nisoic languages, where PN *\*ma*2 ‘not’ is used in classical texts and *a*21 is used in modern forms. For example, Nuosu, **ma**21bo33**ma**21hi55 ‘have to go’ is the form in classical texts and *a*21bo33*a*21hi55 is the contemporary usage. Like languages Laluba, Lolopo, Lipo, and Lisu, the PN *\*m-* initial of ancient negation *ma*21 is deleted in modern languages.

(5-38)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Lolopo</u>	<u>Lipo</u>	<u>Lisu</u>	<u>Laluba</u>	<u>Lavu</u>	<u>Toloza</u>	<i>Gloss</i>
<i>*mu</i> <sup>1</sup>	<i>*m- &gt; p-</i>	mu33	pe33	pe33	ze33	pi55	pe55	my55	‘to make’

In the example given in (5-38), all the Lisoid languages share a phonological innovation *\*m- > p-* for ‘to make’ except for Toloza *my*55, which retains the PN form.

(5-39)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Lolopo</u>	<u>Lipo</u>	<u>Lisu</u>	<u>Laluba</u>	<u>Lavu</u>	<u>Toloza</u>	<i>Gloss</i>
<i>*ti</i> <sup>3</sup>	<i>*thru</i>	mu33ti33	ti33tʂho33	ti33tʂho33	mu33ku55	a55m21ti55	ti55tʂhu55	tx33pæ33	‘cloud’

Lisoid Lolopo, Lipo, and Lavu have a common origin for the example ‘cloud’ in (5-39), but other Lisoid languages don’t have the same lexical innovation.

(5-40)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Lavu</u>	<u>Lisu</u>	<u>Laluba</u>	<u>Toloza</u>
<i>*yruwu</i> <sup>2</sup>	<i>*-tu, *-ti, *-kuu</i>	vu21 <b>du</b> 33	xu21 <b>to</b> 33	o31 <b>to</b> 33	?vu21 <b>da</b> 55 <b>dz</b> 33	y55 <b>ts</b> ʂ53
		<u>Lipo</u>	<u>Lolopo</u>	<i>Gloss</i>		
		vu21 <b>ku</b> 33lu33	ywu21 <b>ga</b> 21	‘bone’		

In the example given in (5-40), like Nuosu of Nisoid, Lavu, Lisu, and Laluba have a common lexical origin, pointing to PN *\*-tu*; Laluba and Toloza have also commonly developed a lexical morpheme *\*-tsi*; Lipo and Lolopo had a lexical innovation *\*-ku* different from these four languages for word ‘bone’.

(5-41)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u> <sup>66</sup>	<u>Laluba</u>	<u>Lavu</u>	<u>Lisu</u>	<u>Toloza</u>
*khri <sup>1</sup>	*-pha	tehi21 <b>pho55</b>	khui55 <b>phi33</b>	tehi55 <b>pha33</b>	tehi33 <b>phɛ35</b>	tehi55 <b>be55</b>
		<u>Lipo</u>	<u>Lolopo</u>	<i>Gloss</i>		
		teɿ33 <b>vu21</b>	tehi33 <b>yu21</b>	‘foot’		

In the example given in (5-41), Laluba, Lavu, Lisu, and Toloza as well have a common lexical morpheme *\*-pha* innovated. Kazhuo *tsʰɿ33pha55pha55* has a similar lexical development. Lipo and Lolopo have another common origin different from that of other Lisoid.

(5-42)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Laluba</u>	<u>Toloza</u>	<u>Lavu</u>
*gwɔŋ <sup>1</sup>	*-dza1	bo33	kɥ55 <b>dza21</b>	yoɛ33 <b>dʒɿ53</b>	buu55sɛa33
		<u>Lolopo</u>	<u>Lipo</u>	<u>Lisu</u>	<i>Gloss</i>
		yo21me21	yo21 <b>teie33</b>	kɔ33	‘mountain’

Laluba, Toloza, and Lipo have a common lexical innovation as shown in the example given in (5-42) above, different from generic PN form *\*bom*<sup>1</sup>. Lavu has root morpheme *b-* identical to that of Nuosu. Lisu developed an individually innovated word *kɔ33*, which is different from the rest of the languages given in (5-42). But, Lisu *kɔ33* seems to have a connection to the root morpheme of Laluba, Toloza, Lipo, and Lolopo.

As shown in examples given in this section, there is no innovation that can be shared by all the Lisoid languages, but their languages are connected tightly with one another. In many cases, some Lisoid languages share innovations with Nisoid, Axioid, Puoid, or even Hanoid. It seems that the Lisoid cluster is more like a lumped language subgroup.

<sup>66</sup> Nuosu *tehi21pho55* means ‘thigh’, instead ‘whole leg’. There must be some semantic shift in either Nuosu or these languages.

#### 5.8.3.2.5 Kazhuoid: Kazhuo and Samu

Kazhuoid Cluster is the same as the Samu and Kazhuo pair discussed in Section 5.8.3.1.11.

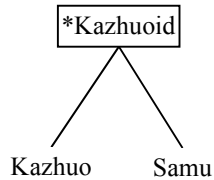


Figure 5.19 The language relationship of Kazhuoid

#### 5.8.3.2.6 Lahoid: Lahu Na and Lahu Xi

The Lahoid cluster includes Lahu dialects Black Lahu, Yellow Lahu, Red Lahu, Lahu Shehle, and White Lahu. Matisoff (2006: xiii) undoubtedly regards both the Red Lahu and *Lahu Shehle* spoken in Thailand as subdialects of Black Lahu, and the Yellow Lahu (or *Kwi* or *Kui* in Tai) to have split off earliest from Lahoid.

According to *Lahuyu Jianzhi* Chang et al. (1986: 1, 78), Lahoid can be divided into two dialects *Lahu Na* 拉祜纳 [la<sup>3</sup>xo<sup>2</sup>na<sup>1</sup>] or *Black Lahu* and *Lahu Xi* 拉祜熙 [la<sup>3</sup>xo<sup>2</sup>su<sup>1</sup>] or *Yellow Lahu*. Under the Yellow Lahu, there are two varieties: *Lahu Si* [la<sup>3</sup>xo<sup>2</sup>si<sup>1</sup>] and *Lahu Se* [la<sup>3</sup>xo<sup>2</sup>su<sup>1</sup>]. The Lahu Si is relatively close to Lahu Na, but the Lahu Se is distant from it according to Chang et al. (1986: 1). Matisoff (2006: xiii) treats both the Red Lahu and *Lahu Shehle* spoken in Thailand as subdialects of Black Lahu, and the Yellow Lahu (or *Kwi* or *Kui* in Tai) to have split off earliest from Lahoid.

The Lahu Pu might be closely related to *Lahu Nyi* or *Red Lahu* spoken in Thailand according to a website source (<http://www.wayfarersthailand.com/lahu.htm>). This website also mentions that the *Lahu Laba* ethnic group, who live in northern Thailand, but no detailed ethnic and linguistic information is provided from that website.

In addition, since the ethnic Kucong people call themselves Lahu Na, Lahu Xi, *Lahu Pu* [la<sup>3</sup>xo<sup>2</sup>phy<sup>1</sup>] (i.e., White Lahu), it is unreasonable to treat Kucong as an independent language under Lahoid.



Based on Matisoff 2006 and *Lahuyu Jianzhi* 1986, a tentative family tree for the language relationship of Lahoid is proposed in Figure 5.20 below. In this figure, the terminal relationship of Lahoid cannot be distinguished in binary way at the terminal level because there is no other Lahoid linguistic data available except for Lahu Na. So the multifurcation indicates lack of data and not non-binary development.

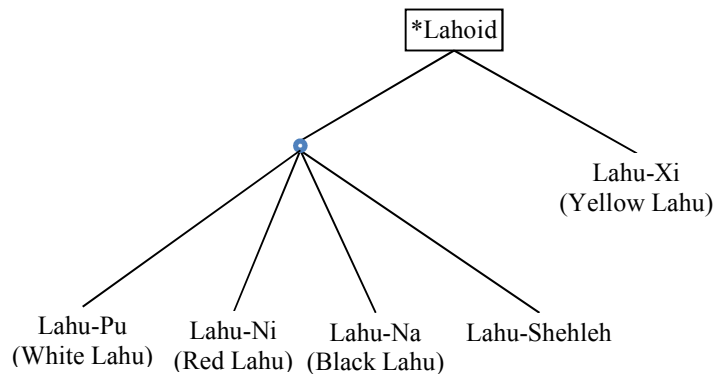


Figure 5.20 The language relationship of the Lahoid

Since this study is concerned only with *Black Lahu*, let us here take Lahu Na as representative for Lahu. Bradley 1979 treats Lahu as a member of the Central Loloish, which includes languages like Lisu, Lipo, Lolopo, and Sani, etc., but Lahu seems more like an independent cluster under Nisoic.

Lahu is very idiosyncratic language compared to other languages under consideration. For example, only Lahu has fricative velar *x*- developed from PN lateral cluster initials among the Nisoic languages: PN \**kl*- > *x*-, \**s/ʔ-l*- > *x*-, or \**sl*- > *x*-. See examples below.

(5-43)

xa33pa33 'moon' (x- < *sl-)	xa33pa33 'month' (x- < *sl-)
xa35pu33ei11 'stone' (x- < *kl-)	xa33te11 'tongue' (x- < *s/ʔ-l-)
xa11tho33 'pants' (x- < *ʔ/sl-)	xo53 'heavy' (x- < *sl-)
mv53xo33 'wind' (x- < *sl-)	xu35 'to dry (clothes in the sun)' (x- < *ʔ/s-l-)

(Note: The similar sound change is found in Samu *xɔ21ta25*, Nisu *xo21bo21mo21*, Laluba *xa33ba33*, Lipo *xo33bo33*, and Kazhuo *xa33pa33ma33* for gloss ‘moon’. It is also found in Nisu *xo21* and Naxi *xe33* for ‘month’. However, such a similar change might be convergence because other examples in (5-43) don’t show the same change in these languages).

There are some other very uncommon sound changes that happened only in Lahu. See examples in (5-44) below.

(5-44)

xo54 ‘to shut (door)’ (*gj- > x-)	xa35tshi33 ‘cliff’ (*ʔy- > x-)	xɔ31 ‘to cry’ (*ŋ- > x-)
xɔ33 ‘to contaminate’ (*k- > x-)	xa11 ‘poor’ (*sr- > x-)	zɔ33 ‘to speak’ (*x- > z-)
ɖzi31 ‘liquor, wine’ (*ndz- > dz-)	ɖzi54 ‘itchy’ (*yr- > dz-)	ɖzi53 ‘urine’ (*z- > dz-)
phuu53 ‘dog’ (*khw- > ph-)	zi31 ‘long’ (*xr- > z-)	ɔ31ɛɛ11 ‘liver’ (*s- > ɛ-)
ɛo53 ‘to leak (barrel)’ (*r- > ɛ-)	va33 ‘to collapse’ (*br- > v-)	xɔ53 ‘to sell’ (*yw- > x)

Another very unusual suffixation is found only in Lahu. As one can see from the examples in (5-45), Lahu has a suffix *-ei<sup>11</sup>* in some nouns, which is not seen in any other Nisoic languages in my database.

(5-45)

ni33ma33ei11 ‘heart’	phɛ35na54ei11 ‘mole’
ya53ei11 ‘buckwheat’	xa35puu33ei11 ‘stone’

Lahu also has a prefix for some organ names, which is not seen in other Nisoic languages, too. See examples in (5-46) below.

(5-46)

ɔ31mv21ku33 ‘bone’	ɔ31gu31 ‘skin’	ɔ31tshi53pho54 ‘lungs’
ɔ31si11 ‘blood’	ɔ31ɛɛ11 ‘liver’	ɔ31kx33 ‘gall bladder’
ɔ31yu31tɛ54 ‘intestine’	ɔ31ku53tɛa54 ‘sinew’	

There are other morpheme innovations found only in Lahu, for example, *qo53tɛe33* ‘to drop (leaves)’, *tɛhɔ33si33ku33* ‘corpse’, *khuu53mv31* ‘mushroom’.

Though Lahu has many words that have the same origin with the Nisoic and the Niso-Burmic languages, Lahu also has words that have developed along different pathways from Niso-Burmese languages. See examples (5-47) below.

(5-47) Lahu words that are non-cognates from other Nisoic languages

to21 ‘ghost’	nu54 ‘to shave (the head)’	le35 ‘to sieve, sift’
te33 ‘to do’	phɛ54 ‘to roll up (cloth)’	bɛ53 ‘to hold in the arms’
bɛ53 ‘to chew’	na11 ‘to thread (a needle)’	pi31 ‘to warm by fire’
thai11 ‘to take off’	lo53qai33 ‘to crawl’	(ɔ31ɛi11)ei11 ‘to bear (fruit)’
ly54zu31 ‘to choose’		

As shown the data given in (5-43) to (5-47), it is sufficient to establish Lahoid or Lahoish under Nisoic or Niso-Burmic.

#### 5.8.3.2.7 Hanoid: Hani, Haoni, Bisu, S.kong, and Jinuo

The Hanoid Custer is composed of three subsets: Hani and Haoni pair, Bisu and S.kong pair, and Jinuo. Among these three components, Jinuo is the language that split from the Hanoid core at the earliest date. As discussed in Section 5.8.3.1.3, Hani and Haoni are closest language pair among the 34 Nisoic languages studied in this dissertation. In Section 5.8.3.1.4, I also argued that Bisu and S.kong are characterized by a sound change *nasal-hardening to stop*, which is sufficient to indicate that they are tightly related cousin. One should point out further that Bisu and S.kong also have preserved stop codas: -*p*, -*t*, and -*k*, which have disappeared in native vocabulary of other Nisoic languages codas. Moreover, they also have nasal codas, which are found to have existed in a few Nisoic languages, including Nusu, Lavu, Toloza, Mondzi and Maang. In a sense of phonetic features, Bisu and S.kong are phonetically more like Burmic but lexically they are more like Nisoic. Jinuo, like Kazhuo, is notorious for its complex tonal system. It has seven phonemic tones, but only five of them are lexically active; one of the rest two tones is expressly used to deal with word loans from Chinese and Tai, the other one is often used for grammatical sense and seldomly used to distinguish lexicon. So basically, Jinuo has five tones that are lexically functional. Despite the complexity of its tonal system, as we will see in this section, Jinuo is a member of

Hanoid cluster because it shares innovations with the Hanoid core languages both phonologically and lexically. With this observation, I propose Figure 5.21 as the family tree to capture the language relationship of the Hanoid Cluster.

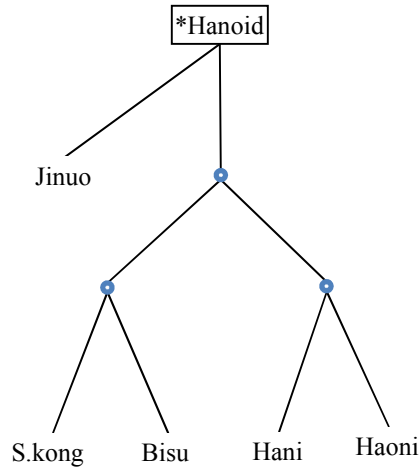


Figure 5.21 The language relationship of Hanoid

In following, I will test this Hanoid hypothesis by using evidence from shared phonological and lexical innovation found among these languages. First, look at these lexical innovations found in all Hanoid or mostly in the Hanoid languages.

(5-48)

<u>PN</u>	<u>Inv.</u>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	<u>Bisu</u>	<u>S.kong</u>	<u>Jinuo</u>	<u>Rouruo</u>	<u>Gloss</u>
*sut <sup>1</sup>	*za <sup>2</sup>	s <sub>1</sub> 33z <sub>2</sub> 33	ja <sub>3</sub> 33	ja <sub>3</sub> 33	kue <sub>3</sub> 31	za <sub>3</sub> 33	ja <sub>4</sub> 2	yε <sub>5</sub> 3	'sweep (floor)'

In the example given (5-48), all Hanoid languages point to lexical innovation \*za<sup>2</sup> except for Bisu, which has a non-cognate form kue<sub>3</sub>1 'sweep (floor)'. Probably, Hanoid \*za<sup>2</sup> is related to the second syllable of Nuosu s<sub>1</sub>33z<sub>2</sub>33 (Nuosu has two forms s<sub>1</sub>33 and s<sub>1</sub>33z<sub>2</sub>33 for 'sweep (floor)').

(5-49)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	<u>Bisu</u>
*ti <sup>1</sup>	*ɕaŋ <sup>1</sup> xø <sup>1</sup>	mu33ti33	<b>ɕo31xø31</b>	<b>ɕŋ31xu31</b>	muŋ31bɤn31
		<u>S.kong</u>	<u>Jinuo</u>	<i>Gloss</i>	
		<b>tsaŋ31sø31</b>	ɱ33tɛ33	‘cloud’	

A different word \*ɕaŋ<sup>1</sup>xø<sup>1</sup> ‘cloud’ developed independently in several Hanoid languages, including Hani, Haoni, and S.kong. Bisu *muŋ31bɤn31* ‘cloud’ is perhaps of the same origin with Mondzi *mo21mu53* and Maang *mau35ni33* (PN \*m- > \*mb- > Bisu m-). The Jinuo form for ‘cloud’ is the same as Nuosu, doubtless a shared retention.

(5-50)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	<u>Bisu</u>
*ɣji <sup>1</sup>	*u <sup>1</sup> təho <sup>3</sup>	e21tʂhɿ55	u55təhu31	ɣ55ɕhy31	laŋ55təho31
		<u>S.kong</u>	<u>Jinuo</u>	<i>Gloss</i>	
		laŋ55təho31	ji42ɕho55	‘water’	

Prefixes in (5-50) confirm Hani and Haoni is the closest language pair, Bisu and S.kong is another pair that shares the morpheme innovation of prefix *lang55*, and Jinuo stands isolated language outside from these two language pairs.

More lexical and morphemic innovations can be found in the lexical items ‘snake’, ‘bamboo’, ‘gall bladder’, ‘cooked rice’, ‘salt’, ‘chicken’, etc.

Morphologically, Hanoid languages have unique morphemic innovations by adding a prefix before certain words, cf. (5-51) and (5-52):

(5-51)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	<u>Bisu</u>
*duŋ <sup>1</sup> (lak <sup>1</sup> )	*a/aŋ	du33	a31dɔ55	ɔ55tu55	aŋ33toŋ55
		<u>S.kong</u>	<u>Jinuo</u>	<i>Gloss</i>	
		aŋ33toŋ55	a33to44	‘wing’	

(5-52)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	<u>Bisu</u>
*kru <sup>1</sup>	*a/aŋ	tʃhu33	a55go33	o55ku33	aŋ33tʃhu31
		<u>S.kong</u>	<u>Jinuo</u>	<i>Gloss</i>	
		aŋ33tʃhu31	a44tɕo33	‘thorn’	

However, not all the Hanoid languages have prefix insertion, as shown in the example in (5-53) below:

(5-53)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	<u>Bisu</u>
*lak <sup>L</sup>	*a/aŋ	lo55	<b>a31</b> la31	<b>a31</b> la31	la31pu31
		<u>S.kong</u>	<u>Jinuo</u>	<i>Gloss</i>	
		<b>aŋ33</b> la31	la55pu44	‘hand’	

Only Hani, Haoni, and S.kong have the innovation of prefix insertion in the example given in (5-53). Bisu and Jinuo show a suffixation innovation for ‘hand’ in (5-53).

(5-54)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	<u>Bisu</u>
*ŋgju <sup>1</sup> (*kuk <sup>1</sup> , *xu <sup>1</sup> )	*a-	ndzɿ44ɣu33	sa31gu55	ʃo31tʃhɿ55	<b>aŋ33kho33</b>
		<u>S.kong</u>	<u>Jinuo</u>	<i>Gloss</i>	
		<b>aŋ33hu31</b>	<b>a44kho42</b>	‘skin’	

In the example given in (5-54), Bisu, S.kong, and Jinuo has innovated a prefix; also, the root syllable *hu31* of S.kong *aŋ33hu31* may have developed from \**khu1*, as reflected in Bisu *aŋ33kho33*. In addition, as shown in this example, Hani *sa31gu55* and Haoni *ʃo31tʃhɿ55* have a different sources from the other three Hanoid languages, where Haoni *tʃh-* developed from \**g-*.

More examples of prefix insertion can be found in lexical items ‘foot’, ‘seed’, ‘leaf’, ‘flower’, etc.

Secondly, there are some phonological innovations that define the legitimacy of the Hanoid Cluster. See examples from (5-55) to (5-59) below:

(5-55)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	
*krwy <sup>l</sup>	*m- > p-; *m- > *p- > Ø-	mu33tɛŋ33	a31gw55	pɛ31kw55	
		<u>Bisu</u>	<u>S.kong</u>	<u>Jinuo</u>	<i>Gloss</i>
		u31kw33	pe31kw55, a31kw55	pu33ki44	‘star’

Two phonological innovations involved for the example given in (5-55): First, \*m- > p- is applicable to Hani, S.kong, and Jinuo; second, rule \*m- > \*p- > Ø- defines the phonological change of Hani and Bisu. S.kong has both rules accessible.

(5-56)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	<u>Bisu</u>
*mu <sup>l</sup> khu <sup>l</sup>	*m- > Ø-; *kh- > x-	mu33ku33	a31xø31	u31xu31	mi31khau31
		<u>S.kong</u>	<u>Jinuo</u>	<u>Achang</u>	<i>Gloss</i>
		mi31qhø31	mi44tɕhy44	ni31xau31	‘(fire) smoke’

Two sound changes apply in both Hani and Haoni: the first change is the morpheme \*mul deletion, i.e., \*m- > Ø-; the second is the fricativization of initial consonant *khu<sup>l</sup>*, i.e., \*kh- > x-. As seen from (5-56), Achang, a Burmic language, has a similar rule process as Hani and Haoni. The same fricativization is found in the word for ‘year’ as shown in (5-57) below:

(5-57)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	<u>Bisu</u>
*khok <sup>L</sup>	*kh- > x-	khu55	xu31	xy31	aŋ33nu33
		<u>S.kong</u>	<u>Jinuo</u>	<u>Achang</u>	<i>Gloss</i>
		a55qhø31	mjo44	ŋək55	‘year’

(5-58)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	<u>Bisu</u>	<u>S.kong</u>
* $\gamma$ raŋ <sup>1</sup>	* $\gamma$ r- > $\gamma$ -x-	$\gamma$ u33	$\gamma$ a31xa33	$\gamma$ ɔ31xa33	ka31	qa31, qa31qha33
		<u>Jinuo</u>	<u>Naxi</u>	<u>Achang</u>	<i>Gloss</i>	
		kə44kho44	ka33tu55	a31xzəŋ55	‘physical strength’	

The syllable  $\gamma$ a31 of Hani  $\gamma$ a31xa33 and Haoni  $\gamma$ ɔ31xa33 may correspond to PN initial segment \* $\gamma$ - of \* $\gamma$ raŋ<sup>1</sup>, and the morpheme -xa33 of Hani or Haoni may correspond to PN \*r- of \* $\gamma$ raŋ<sup>1</sup>. PN \* $\gamma$ raŋ<sup>1</sup> is nicely reflected in Achang a31xzəŋ55. PN \* $\gamma$ - changed to k-/q- in Bisu and in S.kong as well as in Jinuo. In addition, Naxi ka33tu55 had the similar \* $\gamma$ - > \*k- sound change but had different morphemic innovation \*-tu55.

(5-59)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	<u>Bisu</u>
* $\gamma$ rwu2	* $\gamma$ rw- > j-	vu21du33	sa31jə31	ʃɔ31ji31	sa31gau31, aŋ33gau31
		<u>S.kong</u>	<u>Jinuo</u>	<u>Zaiwa</u>	<i>Gloss</i>
		aŋ33zə31	ʃə44ɣɣ44	ʃɔ21vui21	‘bone’

Hani, Haoni, Jinuo, Bisu, and Zaiwa use ‘meat’ + ‘bone’ structure for the lexical gloss ‘bone’, but the situation is not clear for S.kong. Nuosu vu21 is the root for ‘bone’.

Thirdly, in several cases, reversing the order of syllables of a disyllabic word often takes place in the Hanoid cluster. See the example in (5-60).

(5-60)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Hani</u>	<u>Haoni</u>	<u>Bisu</u>
*slo <sup>2</sup> bo <sup>2</sup>	Rvsd.	lo21bo21	ba33la33	pɔ33lɔ33	u31la33
		<u>S.kong</u>	<u>Jinuo</u>	<u>Achang</u>	<i>Gloss</i>
		pe31la33	pu33lə42	phă31ləʔ31	‘moon’

Unlike the other Nisoic languages, all the Hanoid languages have reversed word order in the example given in (5-60). Burmic Achang also undergoes the same structural change but not in Zaiwa (WB is a one



syllable word, so it is not irrelevant here). More examples of reversed syllable orders are like the items ‘wind’, ‘hair’, and ‘tail’ (Cf. Appendix C).

#### 5.8.3.2.8 Mondzoid: Mondzi and Maang

Evidence that can certificate Mondzi and Maang, as a unique cluster of Nisoic, can be seen in discussion in Section 5.8.3.1.4. The Mondzoid cluster is represented in Figure 5.21 below.

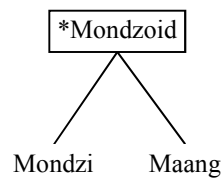


Figure 5.22 The language relationship of Mondzoid

#### 5.8.3.2.9 Naxioid: Naxi and Namuzi

As discussed in Section 5.8.3.1.12, Naxi and Namuzi are closest two languages among all the Nisoic languages studied in this dissertation. These two languages together with several Naxi varieties make up the Naxioid Cluster of Nisoic. Naxioid includes languages Namuzi [næ55mu33zɿ31], Naxi [nɑ21ɛi33], Na [nɑ13], Mali Masa [mɑ33li55 mɑ33sa33], Naru [nɑ33zu33], and Naheng [nɑ33xi33]. The language relationship of Naxioid can be seen in Figure 5.22.

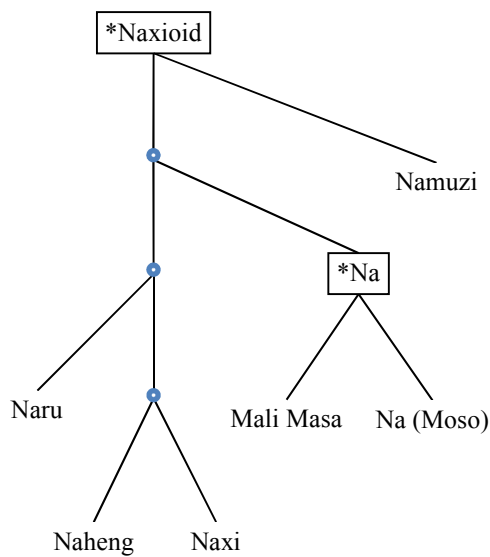


Figure 5.23 The language relationship of Naxioid

As one can see from Figure 5.22, among languages of Naxioid Namuzi is the language that split from proto-Naxioid at the earliest date.

#### 5.8.3.2.10 Nusoid: Nusu and Rouruo

The Nusoid Cluster is equivalent to the Nusu and Rouruo pair discussed in Section 5.8.3.1.13.

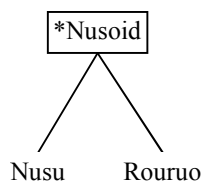


Figure 5.24 The language relationship of Nusoid

#### 5.8.3.2.11 Summary

In this section, I have established 10 language clusters for Nisoic. Of all these clusters, five of them are equivalent to Nisoic language pairs discussed in Section 5.8.3.1, including Puoid, Kazhuoid, Nusoid, Naxioid, and Mondzoid. Lahuoid is a singleton under Nisoic Branch; however, if more languages, Lahu Xi, for example, is added to this Nisoic subgrouping study, then Lahoid may get more members. The remaining four Nisoic clusters Nisoid, Axioid, Lisoid, and Hanoid have each their own members. Not

only do these four clusters have many cognates with other Nisoic languages, but also they share phonological and lexical innovations independently under each of them.

### 5.8.3.3 The Language Groups of Nisoic

Having done the preliminary Nisoic subgrouping at cluster level in Section 5.8.3.2, we now start to subgroup Nisoic languages at a higher level, i.e. *group*. The name of Nisoic groups at this level is indicated by the suffix *-ish* (Cf. Section 1.3.1 in Chapter 1).

The procedure of Nisoic subgrouping at the group level is basically to combine various clusters discussed in Section 5.8.3.2 to arrive at a group. If a Nisoic language cluster shows a closer relationship with another cluster or clusters than with others groups, then these clusters form a language unit, i.e., group. But, if a language cluster shows a strong individuality both phonologically and lexically, then that cluster must remain as a group by itself. As one can see from Figure 5.25, Nisoic languages can be divided into eight groups, including *Nisoish*, *Lisoish*, *Kazhuoish*, *Nusoish*, *Naxish*, *Lahoish*, *Hanish*, and *Mondzish*. Seven of these Nisoic groups are equivalent to Nisoic clusters, including Mondzish (= Mondzoid), Hanish (= Hanoid), Lahoish (= Lahoid), Naxish (= Naxioid), Nusoish (= Nusoid), Kazhuoish (= Kazhuoid), and Lisoish (= Lisoid). Among these seven groups, Mondzish is equivalent to the Mondzoid cluster which is the same as Mondzi and Maang pair, i.e., Mondzish = Mondzoid = Mondzi & Maang Pair. Similarly, several other Nisoic groups are mapped directly from language *pairs* through *clusters*, including *Naxish* (= Naxioid = Naxi & Namuzi Pair), *Nusoish* (= Nusoid = Nusu & Rouruo Pair), *Kazhuoish* (= Kazhuoid = Kazhuo & Samu Pair). Since Lahoid, Lisoid, Hanoid, Mondzoid, Naxioid, Nusoid, and Kazhuoid have their equivalent status of language group. Therefore, out of the 10 Nisoic clusters, only the three clusters Nisoid, Axioid, and Puoid need to validate their group status. As we will see Section 5.8.3.1 below, these three clusters can be actually grouped as one unit under the Nisoic Branch.

In the sense of binary split, every node must branch off into two terminal nodes. In applying the approach *bottom-up with binary classification* to Nisoic subgrouping, an intermediate node must be inserted between terminals (languages or clusters) and their parent node when necessary. As shown in

Figure 5.25, a small circle is used to represent such a node, meaning that there would have existed an intermediate stage (parent node) between daughter languages/cluster and ancestor (grandfather).

In the following sections, I will demonstrate the analysis that arrived at these eight Nisoic groups.

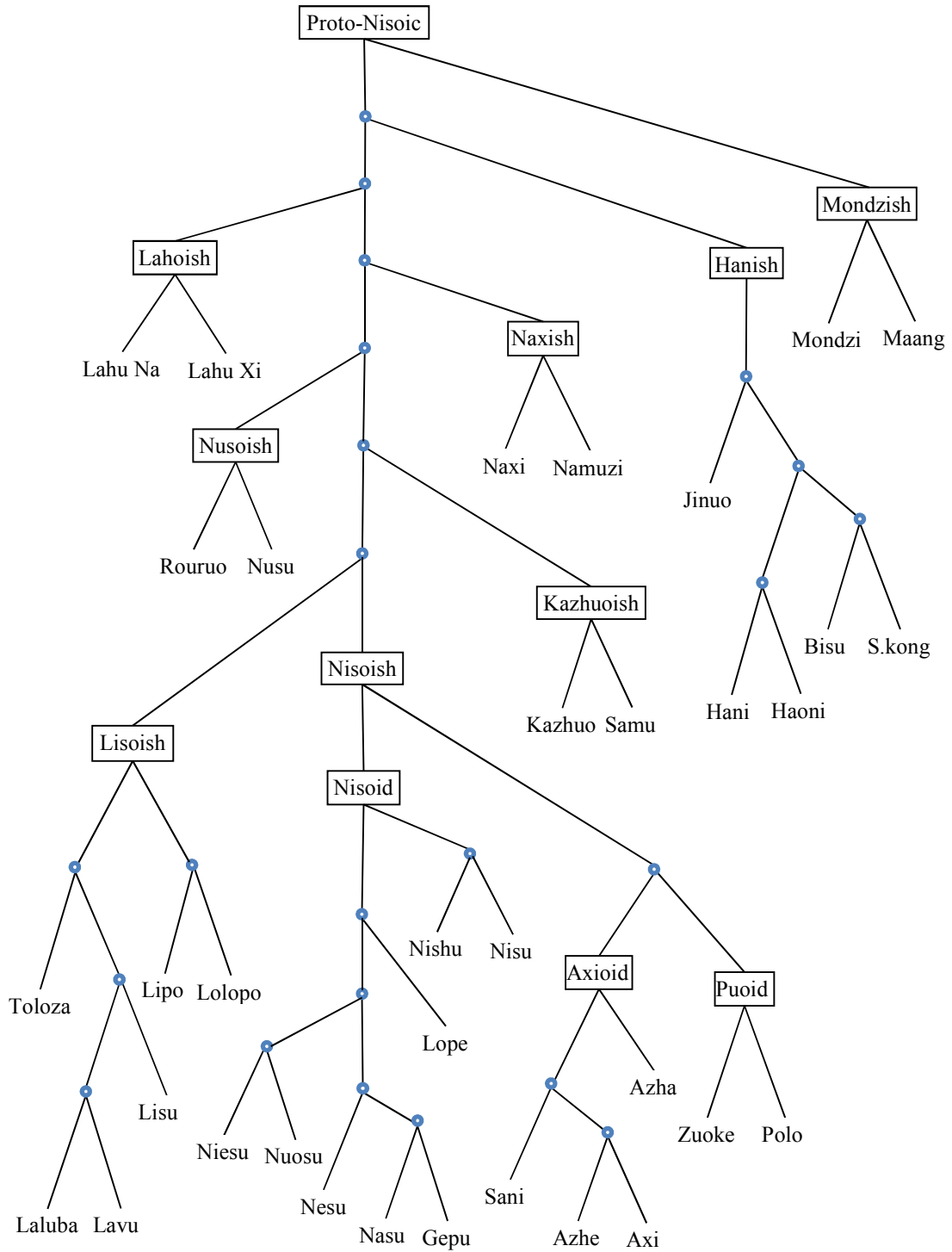


Figure 5.25 The family tree of the Nisoic Branch

### 5.8.3.3.1 Nisoish: Nisoid, Axioid, and Puoid

The proposed Nisoish consists of three clusters, including Nisoid (Nuosu, Niesu, Nesu, Nasu, Gepu, Nisu, Nishu, and Lope), Axioid (Sani, Axi, Azhe, and Azha), and Puoid (Zuoke and Polo). There are total 14 languages under the Nisoish Group (Cf. Figure 5.26). The Axioid centers between Nisoid and Puoid. Many examples show that Axioid absorbs features of both its sister clusters. Among the Nisoid languages, Nisu, Nishu, and Lope are particularly close to Axioid and Puoid. Overall, the relationship of the three clusters of Nisoish is very intricate as shown in the example in (5-61) below.

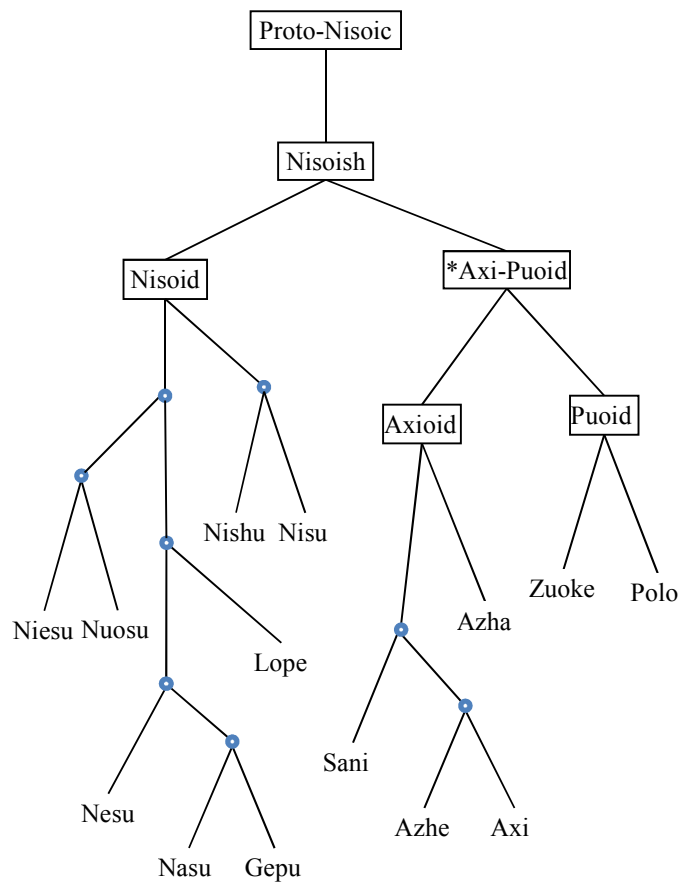


Figure 5.26 The Nisoish Group under Nisoic

(5-61)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Niesu</u>	<u>Nesu</u>	<u>Nasu</u>	<u>Gepu</u>	<u>Nisu</u>	<u>Nishu</u>	<u>Lope</u>
*mwuut <sup>L</sup>	*mw- > m-, ŋ-, ŋ-, n-	mi55	ŋui55	ŋɿ13	ŋi55	ŋi33	niɛ21	ŋi21	ni55
		<u>Sani</u>	<u>Azhe</u>	<u>Axi</u>	<u>Azha</u>	<u>Polo</u>	<u>Zuoke</u>	<i>Gloss</i>	
		ŋ2	ni21	ni21	ndzi33	ni55	ŋe44	‘hungry’	

As seen in the example given in (5-61), the core Axioid languages (Sani, Azhe, and Axi) share a sound change: PN \*mw- > n-, while Axioid Azha shows an uncommon sound innovation PN \*mw- > ndz-. Nisoid Nasu and Gepu have the same sound variation \*mw- > ŋ-, showing that they are the closest pair out of 34 Nisoic languages. Puoid Polo has the same sound change as that of core Axioid languages. The languages Niesu and Nesu of Nisoid and Zuoke of Puoid have the same sound change \*mw- > ŋ-, however, this must have happen individually, i.e. a parallel innovation because the split-off between Niesu and Nuosu must happen at the latest date among the Nisoic languages under study.

(5-62)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Nesu</u>	<u>Nasu</u>	<u>Gepu</u>	<u>Nisu</u>	<u>Nishu</u>	<u>Lope</u>	<u>Jinuo</u>
*khi <sup>1</sup>	*ku <sup>1</sup>	tʂɿ33	thi21	thi11	tɛ33	kɿ55	kə55	ku44	khə42
		<u>Sani</u>	<u>Azhe</u>	<u>Axi</u>	<u>Azha</u>	<u>Zuoke</u>	<u>Polo</u>	<i>Gloss</i>	
		khɿ44	gu22	ku33	ku33	ʔɒ33	khɿ33	‘he, she’	

The example given in (5-62) shows that Axioid and Puoid is closer among these three Nisoish clusters. Probably there were two interchangeable etyma \*khi<sup>1</sup> and \*ku<sup>1</sup> existed in PN for ‘he, she’, Nisoid Nuosu, Nesu, Nasu, Axioid Sani, Puoid Polo have the same source \*khi<sup>1</sup>. Also, Hanoid Jinuo may have the same origin as these languages, if it is not a case of borrowing. Nisoid Gepu, Nisu, Nishu, and Lope, and Axioid Azhe, Axi, and Azha are reflexes of PN \*ku<sup>1</sup>. Puoid Zuoke ʔɒ33 seems different from the rest of languages in (5-62).

(5-63)

<u>PN</u>	<i>Inv.</i>	<u>Nuosu</u>	<u>Nesu</u>	<u>Nasu</u>	<u>Gepu</u>	<u>Nisu</u>	<u>Nishu</u>	<u>Lope</u>	<u>Sani</u>	<u>Azhe</u>
*lu <sup>2</sup>	*pha <sup>1</sup>	lɿ21	khɿ33	nɔ55	no55	phɛ21	pher21	phæ213	phæ33	phɛ22
		<u>Axi</u>	<u>Azha</u>	<u>Zuoke</u>	<u>Polo</u>	<i>Gloss</i>				
		pha33	pha21ŋa55	phi21	hx55	‘to loot’				

In the example given in (5-63), all Axioid languages have a reflex of PN\**pha*<sup>1</sup> ‘to loot’; Nisoid languages Lope, Nisu, and Nishu and Puoid Zuoke also have the same origin. Nuosu has a different PN source \**lu*<sup>2</sup>, but Polo *hx55* is probably related to this etymon. Nisoid Nesu has an individual development for this word, while Nasu and Gepu have the same origin different from all the languages given in (5-63).

There is no example that is shared phonologically or lexically only by all languages of Nisoish, but in most cases, shared innovations can cross over the majority of Nisoish languages, as shown in examples given in (5-61), (5-62), and (5-63).

#### 5.8.3.3.2 Lisoish = Lisoid

The Lisoish group is the same as the Lisoid cluster. Cf. Section 5.8.3.2.4.

#### 5.8.3.3.3 Kazhuoish = Kazhuoid

The Kazhuoish group is the same as the Kazhuoid cluster, Cf. sections 5.8.3.1.11 and 5.8.3.2.5.

#### 5.8.3.3.4 Lahoish = Lahoid

The Lahoish group is the same as Lahoid cluster. Cf. Section 5.8.3.2.6.

#### 5.8.3.3.5 Hanish = Hanoid

Hanish is equivalent to Hanoid (Cf. Section 5.8.3.2.7). Strictly speaking, Hanish can be decomposed into four components: Jinuo, Hanoid, Bisoid, and Bi-Ka (Cf. Bradley 1979 and Li & Wang 1986 *Haniyu Jianzhi*). According to Li & Wang 1986, Biyue and Kaduo are two closely related dialects of Hani. The Bi-Ka languages can be treated as an extra component under the Hanoish based on Li & Wang 1986 and Bradley 1979. Cf. Figure 5.27 below.



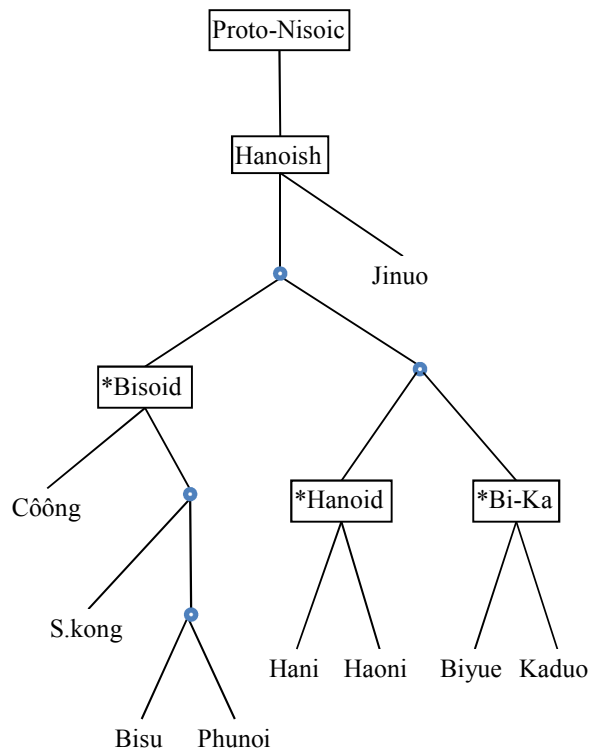


Figure 5.27 The Hanish Group under Nisoic

As is shown in Figure 5.27, Bisoid covers Bisu, S.kong, Cồng, and Singsali or Phunoi. Though closely related to Hanoid Hani and Haoni, Bisoid is very striking in its phonological development, i.e., initial nasals developed either into prenasalized stops or plain stops. See examples below:

(5-64)

<u>Proto-Bisoid</u>	<u>Cồng</u>	<u>S.kong</u>	<u>Bisu</u>	<u>Singsali</u>	<i>Gloss</i>
*muŋ <sup>1</sup>	muŋ31nuŋ55	mu31nuŋ55	buŋ31, muŋ31	mo31ni33si31	‘sun’
*mi <sup>1</sup>	mi31	mi31tsa31	mi31tho31	bi31	‘fire’
*zu <sup>1</sup> ma <sup>2</sup>	zu31ma33	zu31mba33	me33bɤn55	jup31ba33ba33ce33	‘dream’
*na <sup>2</sup>	na33la33	nda33	aŋ33paŋ55	ʔã55da33	‘black’
*nji <sup>1</sup>	ni31ni31a31	ndi31	aŋ33du21	ʔã55di31a33	‘near’

(Data Source: Phunoi (Bradley 1979), Cồng (Edmondson 2005), S.kong (Li 2002), and Bisu (Xu 1998))

As shown in examples given in (5-64), Cồông retains proto nasal forms *\*m-* and *\*n-*, while the other three Bisoid languages have experienced phonological changes regarding these two nasal initials. S.kong seems to position itself at an intermediate stage between Cồông and other Bisoid languages, which developed prenasalized stops *mb-* and *nd-*. Both Bisu and Singsali have already finished the nasal-hardening process *\*m- > \*mb-*, and stepped into stops *b-* and *n-*. Based on the reflexes of different stages of initial nasal development, I would propose that Bisu and Singsali are the closest languages among the Bisoid, next is S.kong, and then Cồông (Cf. Figure 5.27).

#### 5.8.3.3.6 Mondzish = Mondzoid

The Mondzish group is the same as the Mondzoid cluster. Cf. sections 5.8.3.1.4 and 5.8.3.2.8.

#### 5.8.3.3.7 Naxish = Naxioid

The Naxish group is the same as the Naxioid cluster, Cf. sections 5.8.3.1.12 and 5.8.3.2.9.

#### 5.8.3.3.8 Nusoish = Nusoid

The Nusoish group is the same as the Nusoid cluster. Cf. sections 5.8.3.1.13 and 5.8.3.2.10.

#### 5.8.3.3.9 The Ni-Li-Kazhuoish Supergroup and the Genetic Distance of Nisoic Groups

All of eight Nisoic groups, the Nisoish, Lisoish, and Kazhuoish can form the core of Nisoic.

First, though, there is no unique sound change or lexical innovation that are shared only by Nisoish and Lisoish, there are more shared innovations that take place in many of these two stocks than in other Nisoic groups. See example below:

(5-65)

<u>PN</u>	<i>Inv.</i>	<u>Nuosu</u>	<u>Nesu</u>	<u>Nasu</u>	<u>Gepu</u>	<u>Nisu</u>	<u>Nishu</u>	<u>Lope</u>	<u>Sani</u>	<u>Azhe</u>
*ti <sup>1</sup>	*t- > t-	mu33ti33	te13	tə33	tə33	te55	a55mu55	tə44	tə44	te33
		<u>Axi</u>	<u>Azha</u>	<u>Zuoke</u>	<u>Polo</u>	<u>Laluba</u>	<u>Toloza</u>	<u>Lavu</u>		
		te33	ta55	mu44ko55	phi33	a55m21ti55	tx33pə33	ti55tshu55		
		<u>Lolopo</u>	<u>Lipo</u>	<u>Lisu</u>		<i>Gloss</i>				
		ti33tsho33	ti33tsho33	my33ku55		'cloud'				

In example ‘cloud’ given in (5-65), all the Nisoish and Lisoish languages point to etymon \*ti<sup>1</sup>, except for Nishu *a55mu55*, Zuoke *mu44ko55*, and Lisu *mu33ku55*. The Nishu *a55mu55* could innovate after splitting from Proto-Nisu. Both Zuoke and Lisu forms are related to Rouruo *ke33*. Other similar examples are ‘earthquake’, ‘stomach’, and ‘mouse’, etc.

Second, Kazhuoish seems closer to Nisoish and Lisoish. See example in (5-66) below:

(5-66)

<u>PN</u>	<i>Innv.</i>	<u>Nuosu</u>	<u>Nesu</u>	<u>Nasu</u>	<u>Gepu</u>	<u>Nisu</u>	<u>Nishu</u>	<u>Lope</u>	<u>Samu</u>
*tei <sup>2H</sup>	*te- > te-, tɕ-, ts-	tɕɿ33	tɕi33	tɕɿ2	tei33	tei33	tɕɿ33	tei33	tɕɿ33
		<u>Kazhuo</u>	<u>Sani</u>	<u>Azhe</u>	<u>Axi</u>	<u>Azha</u>	<u>Zuoke</u>	<u>Polo</u>	<u>Laluba</u>
		tɕɿ35	tei44	tei33	tei33	tɕɿ33	tei33	<i>kw13</i>	tɕɿ33
		<u>Toloza</u>	<u>Lavu</u>	<u>Lolopo</u>	<u>Lipo</u>	<u>Lisu</u>	<i>Gloss</i>		
		tɕɿ53	tɕɿ33	tɕɿ33	tɕɿ33	ɸi35	‘to pull up (weeds)’		

In the example ‘to pull up (weeds)’ given in (5-66), both Kazhuoish Samu and Kazhuo have the same origin with Nisoish and Lisoish. Nisoish Polo *kw13* seems to have a different source from these three groups. Other examples similar are ‘big’, ‘to warm oneself by fire’, etc.

As has shown in this section, Nisoish, Lisoish, and Kazhuoish manifest a closer relationship. These three Nisoic groups can make up a larger unit, *Ni-Li-Kazhuoish* super-group.

Based on my CCT study, the other Nisoic groups whose genetic closeness to the Ni-Li-Kazhuoish super-group can be viewed as Nusoish, Naxish, Lahoish, Hanish, and Mondzish according to a distance from the closest to the most distant, as shown in Figure 5.28 below.

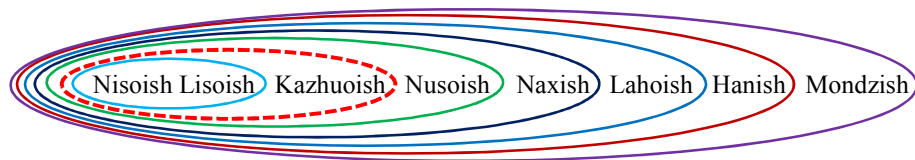


Figure 5.28 The genetic distance among the language groups of Nisoic

Figure 5.28 shows schematically that the Nisoish and Lisoish groups are the closest stocks, which must be separated recently compared to other Nisoic groups. And Mondzish is the group which split from the Nisoic at the earliest date.

#### 5.8.3.3.10 Summary

The Nisoic languages can be divided into eight groups: Nisoish, Lisoish, Kazhuoish, Nusoish, Naxish, Lahoish, Hanish, and Mondzish. Nisoish is composed of three clusters: Nisoid, Axioid, and Puoid. Several extra languages were added to Hanish based on previous research (Bradley 1979 and Li & Wang 1986). The rest of Nisoic groups are equivalent to their clusters discussed in Section 5.8.3.2. Of all the eight Nisoic groups, Nisoish, Lisoish, and Kazhuoish are closest stocks and can make up a super-group.

### 5.9 Subgrouping Burmic Languages

The Burmic languages can be subgrouped based on their tonal innovations. The WB obstruent codas *-p*, *-t*, *-k*, *-s*, and *-ʈ* have realized into different tonal innovations across Burmic languages. All these WB syllable codas unquestionably merged into a glottal stop *-ʔ* with a short, abrupt tone /4/ in modern Burmese, as discussed in Matisoff 1973, Bradley 1979, and Wang 1983 and 1986, among others. However, WB codas *-p*, *-t*, and *-k* still have been preserved in other Burmic languages under various tones. In order to investigate the realizations of WB obstruent codas in different Burmic languages, I first examined the WB syllables with stop and fricative codas in the database of Huang 1992 TBL (TBL 1992 hereafter). I then compared WB syllables that have the same origin with other Burmic languages, and counted the numbers of syllables as shown in Table 5.7 below. It shows that the many WB checked syllables also correspond to the other Burmic syllables with stop codas *-p*, *-t*, and *-k*, but have different tonal realizations. Achang and Xiandao have mainly a high-level (HL) tone /55/ to correspond to these WB syllables with a few having mid-falling (MF) tone /31/. Zaiwa, Langsu, Bola and Leiqi have mainly two tone reflexes: HL and MF. Also, Xiandao and Bola have a rising tone (R) corresponding to WB checked syllables. In addition, Zaiwa, Langsu, Leqi, and Achang as well have a high-falling (HF) tone reflex to WB syllables with obstruent codas. Leqi has a few mid-level (ML) tones to correspond to WB with checked syllables. See the summarization in Table 5.7.

Table 5.7 Corresponding between Modern Burmic Tones and WB Syllables with Obstruent Codas

WB	-p, -t, -k, -s, -ʈ						# of $\sigma$	
Tone Category	<i>High-Level</i>	<i>Mid (low)-Falling</i>		<i>High-Falling</i>		<i>Rising</i>	<i>Mid-Level</i>	
Tone	/55/	/21/	/31/	/53/	/51/	/35/	/33/	
Achang	51		7		1			58
Xiandao	53		4			3		60
Bola	36		23			6		65
Zaiwa	32	29			3			64
Langsu	31		32		4			66
Leiqi	36		27	3			2	68

(Data Source: All the syllables counted here are based on TB database of TBL 1992. Of all the seven Burmic languages listed in this table, WB, Achang, and Zaiwa are already included in my database. The statistics result is based on my calculation.)

As shown in Table 5.7, at the very left column listed the languages; their respective numbers of syllables, which have correspondences with WB syllables with obstruent codas, are listed at right columns under each tone. For example, Achang has 53 syllables with tone /55/, which correspond to WB syllables with obstruent codas, seven syllables with tone /31/ correspond to WB syllables with obstruent codas, and one syllable with tone /51/ corresponds to WB syllables with an obstruent coda; the total number of syllables that correspond with WB syllables with obstruent codas is listed in the farthest right column, where Achang has 58 syllables in total corresponding with WB obstruent-coda syllables.

Based on the tonal reflexes of Burmic languages to the WB checked syllables, I tentatively propose three clusters for Burmic: the Burmese Cluster, the Achang Cluster, and the Zaiwa Cluster. See Figure 5.29 below.

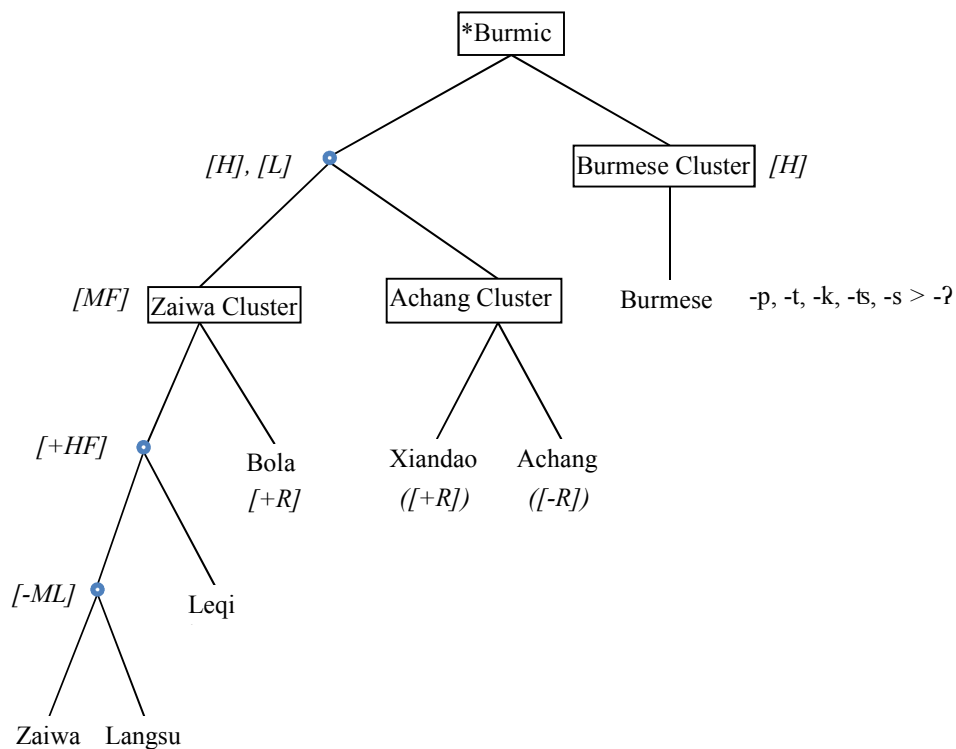


Figure 5.29 The family tree of Burmic based on tonal development

Note that the differentiation between Zaiwa and Langsu doesn't lie in checked tonal development, it must be something else.

#### 5.10 Subgrouping Niso-Burmich Languages

As discussed in many scholarly works (Matisoff 1972, Bradley 1979, and Li 1992, 1996a & b, 1998, 1999, 2000, 2008, and 2010, among others), Nisoic and Burmich are two major subgroups which are genetically closely related. Some scholars suggest that Nusoish is an intermediate group that connects Burmich and Nisoic (Dai et al. 1989).

Generally speaking, Nisoic and Burmich share many cognates (more than those of any subgroups of TB family), and both have lexical tones and relatively simplified phonemic systems (compared with other TB languages such as Qiangic, Tibetanic, etc., which often have over 100, some even more 200, single initial consonants and clusters and are often atonal). Some Proto-Niso-Burmese (PNB) features are

still seen across these two major subgroups. For example, the voiceless nasals  $\eta$ ,  $\eta$ , and  $\eta^0$  are still found in both subgroups like Nuosu, Nusu, and Jinuo of Nisoic and Modern Burmese, Achang, and Xiandao of Burmic.

Nevertheless, there are some substantial differences between Nisoic and Burmic subgroups. First, the Nisoic languages have relatively simplified initial phonemes, while the Burmic languages have rather large inventory of initial consonants.

Second, compared to the vowel phonemic system of Burmic language, Nisoic languages have much smaller vowel inventory. This is because Nisoic languages have experienced PNB coda simplification. Specifically, the PNB obstruent codas  $-p$ ,  $-t$ ,  $-k$ ,  $-ts$ , and  $-s$  developed into either a laryngealized feature on vowels or into a different tone in most Nisoic languages (except for several Bisoid languages like Bisu and S.kong, which still have retained few examples of these codas). The other reason is that PNB nasal codas  $-m$ ,  $-n$ , and  $-\eta$  were totally lost in most Nisoic languages (except for several Bisu, S.kong, Mondzi, and Maang; some of these PNB nasal codas are also sporadically seen in Nusu, Namuzi, Toloza, Lavu, Jinuo, and several varieties of Hani language including Gelanghe 格朗和, Langza 浪杂, and Lianzhu 联珠. According to Li (2002: 35), S.kong stop codas tend to disappear in native words, while the nasal codas are still well preserved. For detailed discussion of Nisoic coda simplification, one can refer to Matisoff 1972, Bradley 1979, Dai 1990b and 1994, among others. In contrast, the PNB obstruent codas of checked syllables have generally retained as  $-p$ ,  $-t$ ,  $-k$ , and  $-\text{ʔ}$  in Burmic languages like Achang, Xiandao, Zaiwa, Langsu, Leqi, and Bola except for Burmese, whose only glottal stop  $-\text{ʔ}$  arose from merger of the WB obstruent codas (cf. Section 5.9). For the nasal codas, all the Burmic languages except for Burmese (nasalization of preceding vowel) itself have systematically retained PNB  $-m$ ,  $-n$ , and  $-\eta$ .

Third, the Nisoic tonal system is rather intricate compared with the Burmic languages. Especially, Nisoic Jinuo, Kazhuo, and Lahu are notorious for their complicated tonal system (seven to eight lexical tones). One can expect that these languages have undergone tonal splits several times since branching off from PN. However, Burmic languages often have three or four tones. As discussed in Section 5.9, PNB

obstruent codas are manifested mostly as high level or mid-falling tones in most Burmic languages except Burmese itself. Like these Burmic languages, the PNB checked codas also have a binary or even a ternary split in most Nisoic languages but the conditions that trigger such a split still need a further exploration.

Lexically speaking, Burmic languages have certain words which are different from Nisoic. For example, ‘snow’, ‘cliff’, ‘silver’ (Naxi, Namuzi, Nusu, and Rouruo have the same form as Burmic, probably because ‘silver’ is a cultural word; Niesu has a form *ɲui33*, similar to the forms of ‘silver’ of these languages, but it means ‘money’ --- this could be semantic shift), ‘year’ (WB and Achang maybe borrow this word from early Chinese, Nisoic Jinuo also has the similar form; also Zaiwa has a different origin for this word), ‘human being’, and ‘bamboo’ (Lahu is the same as Burmic, Nusu has two forms: one of them is of Nisoic origin and the other is Burmic), etc.

Within Niso-Burmic it seems that there is always a language that has some heterogeneous words different from the rest of Niso-Burmic languages. Particularly, Mondzi, Maang, Lahu, Namuzi, Naxi, Bisu, and S.kong have a number of words that have different origin from the rest of Niso-Burmic languages. Mondzi and Maang are lexically most dissimilar among all the Niso-Burmic languages. Below are listed some typical examples found in individual languages that have more heterogeneous words among all the Niso-Burmic languages.

(5-67)

Maang: ‘eye’, ‘nose’, ‘belly’, ‘blood’, ‘sweat’, ‘salt’, ‘house’, ‘bamboo’, ‘grass’, ‘to sit’, ‘to blow (fire)’, ‘to pull (weeds)’, ‘to sweep’, ‘to hold in arms’, ‘to dye’, ‘to warm oneself by fire’, ‘to take rest’, ‘to take off’, ‘to raise’, ‘to have (money)’, ‘to carry (loads by horse)’, ‘hot’, etc.

Mondzi: ‘head’, ‘eye’, ‘nose’, ‘ear’, ‘blood’, ‘sweat’, ‘thorn’, ‘to sit’, ‘to blow (fire)’, ‘to pull (weeds)’, ‘to ride’, ‘to wash’, ‘to have (money)’, ‘to sunrise’, ‘hot’, etc.

Lahu: ‘cloud’, ‘head’, ‘stomach’, ‘salt’, ‘bamboo’, ‘to close (eyes)’, ‘to push’, ‘to be (copular)’, ‘to make’, ‘to hold in arms’, ‘to take rest’, ‘to take off’, ‘to bear fruits’, ‘to kill’, ‘to carry load by horses’, ‘hot’, ‘sharpen (knife)’.



Namuzi: ‘snow’, ‘hair’, ‘stomach’, ‘cattle’, ‘to blow (fire)’, ‘to come’, ‘to climb’, ‘to push’, ‘to kill’, ‘to sweep’, ‘to open (the door)’, ‘to dry (clothes in the sun)’, ‘to be (copular)’, ‘to fly’, ‘thick’, etc.

Naxi: ‘cliff’, ‘hair’, ‘ear’, ‘waist’, ‘(pork) oil’, ‘cattle’, ‘to climb’, ‘to push’, ‘to sweep’, ‘to take off’, ‘deep’, etc.

Hani: ‘belly’, ‘stomach’, ‘lungs’, ‘bamboo’, ‘to lick’, ‘to watch’, ‘to twist (hemp fibers)’, ‘to hold in arms’, ‘to dry (clothes under the sun)’, ‘to warm oneself by fire’, ‘to raise (animals)’, etc.

Bisu: ‘stomach’, ‘lungs’, ‘grass’, ‘to twist (hemp fibers)’, ‘to pull (weeds)’, ‘to sweep’, ‘to hold in arms’, ‘to warm oneself by fire’, ‘to be (copular)’, ‘black’, etc.

S.kong: ‘snow’, ‘tongue’, ‘stomach’, ‘son’, ‘salt’, ‘to twist (hemp fibers)’, ‘to pull (weeds)’, ‘to warm oneself by fire’, ‘to recognize’, etc.

Zaiwa: ‘sun’, ‘snow’, ‘cliff’, ‘year’, ‘waist’, ‘stomach’, ‘grass’, ‘to twist (hemp fibers)’, ‘to make’, ‘to dye’, ‘thin’, etc.

Achang: ‘snow’, ‘water’, ‘cliff’, ‘stone’, ‘flower’, ‘to make’, ‘to dye’, ‘to wash’, ‘to raise (animals)’, ‘thick’, ‘thin’, ‘hungry’, etc.

Other languages may have heterogonous words, too, but the languages given in (5-67) have more words of different origin within Niso-Burmic languages.

Surprisingly, as seen from examples given in (5-67) above, Nisoic Mondzi and Maang have more heterogonous words than Burmic languages. Namuzi, Lahu, and Naxi also have developed their respective heterogonous words which are about the same frequency of those of Burmic languages.

Considering Burmic phonological features, lexical innovations, as well as heterogonous words found in many subgroups of Niso-Burmese, I would propose the Niso-Burmese classification as in Figure 5.30.

In Figure 5.30, the term *Burmic* is replaced by ‘*Burmish*’. In other words, *Burmish*, like other components of Niso-Burmic, is just a regular subgroup of Niso-Burmic Branch. And accordingly, I will stop using the *Zaiwa Cluster* and the *Achang Cluster* terms and directly use their language names instead.

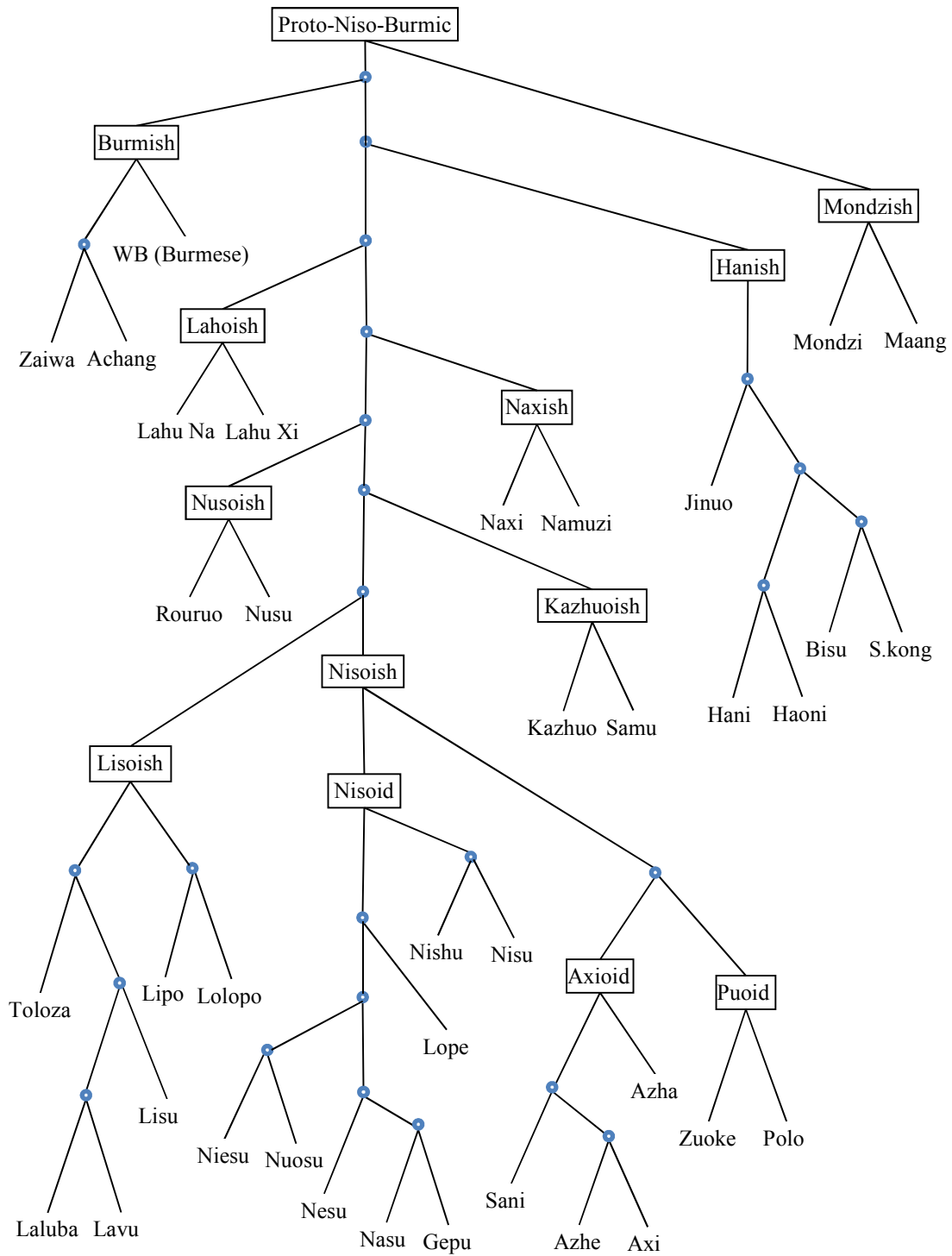


Figure 5.30 The family tree of the Niso-Burmish Branch

Figure 5.30 can be simplified as Figure 5.31, where only subgroups of Niso-Burmese are listed.

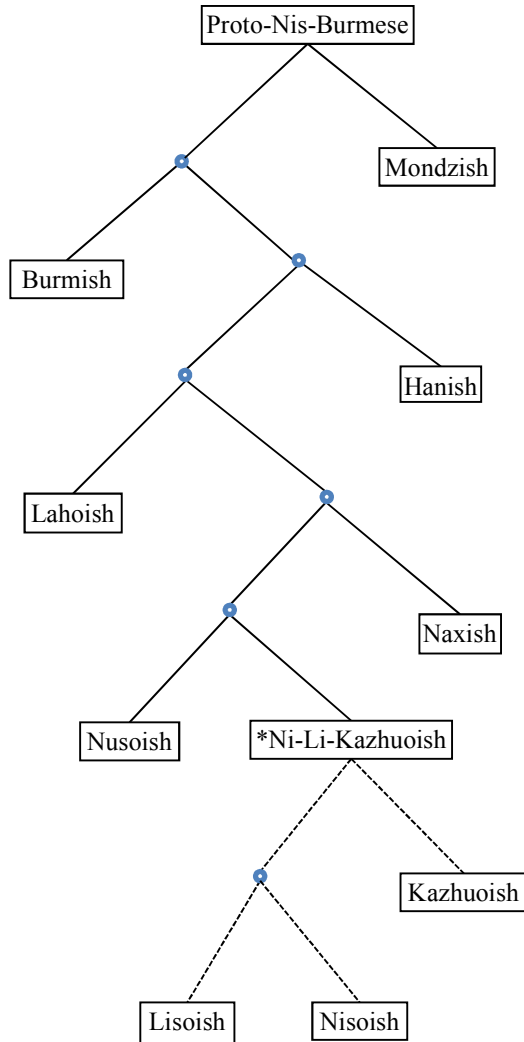


Figure 5.31 A simplified family tree of the Niso-Burmese Branch

As shown in Figure 5.31 above, Niso-Burmese can be divided into nine subgroups: Mondzish, Burmish, Hanish, Lahoish, Naxish, Nusoish, Kazhuoish, Lisoish, and Nisoish. The Nisoish, Lisoish, and Kazhuoish make up a major group of Niso-Burmese called Ni-Li-Kazhuoish super-group because of their affinitive relationship (Cf. Section 5.8.3.3.9).

### 5.11 Summary

In this section I have used evidence based on the shared phonological and lexical innovations to subgroup Nisoic languages, Burmic languages, and Niso-Burmic languages as well. Among the phonological innovations, shared consonant innovations are of high credibility in Nisoic subgrouping because they have large numbers of phonemes and, thus, remain much more stable than do vowels and tones.

Following a bottom-up procedure with the principle of binary language split from a proto-language to the descent and following the shared rules, I first discovered the 13 closest language pairs out of all the 34 Nisoic languages under study; then these 13 pairs and the rest of the Nisoic languages were grouped as 10 clusters: Nisoid, Axioid, Puoid, Lisoid, Kazhuoid, Lahoid, Hanoid, Mondzoid, Naxioid, and Nusoid. Clusters Nisoid, Axioid, and Puoid were combined into a subgroup called the Nisoish group, and the remaining clusters also have the same status as Nisoish. A total of eight groups were proposed for Nisoic, including Nisoish, Lisoish, Kazhuoish, Hanish, Mondzish, Nusoish, Naxish, and Lahoish. Of these eight Nisoic groups, Nisoish, Lisoish, and Kazhuoish have a tighter relationship, thus they were combined as a supergroup called Ni-Li-Kazhuoish.

For the Burmic subgrouping, evidence is based purely on tonal development of WB syllables that have obstruent codas. Burmese constitutes a subgroup under Burmish, and the rest make another subgroup, which can further be divided into two components: the Achang Cluster and the Zaiwa Cluster. However, after having carefully examining the heterogonous words, I have conclude that it is better to treat all of Burmic as a subgroup of the Niso-Burmic Branch, like other Nisoic groups. And it is unnecessary to give further detailed classification terms for the subgrouping of languages under Burmish.

Finally, nine groups were proposed for the Niso-Burmic Branch: Mondzish, Burmish, Hanoish, Lahoish, Naxish, Nusoish, Kazhuoish, Lisoish, and Nisoish. The last three members are closely related and can be combined into a group at the same level with the other six Niso-Burmic groups.

## 5.12 Discussion

This section will discuss issues that have developed out of the Nisoic subgrouping and general issues related to the Niso-Burmese subgrouping.

### 5.12.1 Innovations in Nisoic Subgrouping

As discussed in the *Section 5.8*, some sound changes are very predictive in determining Nisoic subgrouping. For example, the rule PN  $*N > *CN > C$  (cf. 5.8.3.1.4) is able to define the languages Bisu and S.kong as a unique cluster under Nisoic. However, not all innovations are as distinctive as this one; indeed, many of them have to combine with other innovations to determine a language subgroup. In the following, this dissertation will discuss general innovations of Nisoic and issues of subgrouping.

#### 5.12.1.1 Lexical Innovations

Like Chinese, many words among the Nisoic languages many glosses have developed into modern disyllables or trisyllables from the original proto monosyllables by adding extra morphemes. It is a way to make a word disyllabic or trisyllabic. These newly added morphemes are very important clues to establishing the genetic relationships among the Nisoic languages. Monosyllabic words are only able to provide distinctive features from lexical and phonological information from which one can determine shared innovations, but multisyllabic words add a second source of lexical and morphemic information, some even phonological innovation.

In Nisoic, a lexical morpheme can be affixed either before or after the (proto) root syllable. For example, a syllable  $*-tʂhu^l$  is innovated after the root  $*ti^l$  ‘cloud’ in Lavu, Lolopo, and Lipo as shown in (5-68) (it might have had a sense at one time, but today it acts only as a word building element). And based on this lexical innovation, one can group these three languages together.

(5-68)

<u>PN</u>	<u>Lavu</u>	<u>Lolopo</u>	<u>Lipo</u>	<i>Gloss</i>
$*ti^l$	ti55tʂhu55	ti33tʂho33	ti33tʂho33	‘cloud’

Some words may have a combination of de-affixation (at a certain stage) or affixation. Often, the prefix of a proto word is deleted and a suffix is added to the root of that word. See the examples given in (5-69) and (5-70) below.

(5-69)

<u>PN</u>	<u>Nuosu</u>	<u>Lahu</u>	<u>Mondzi</u>	<u>Maang</u>	<i>Gloss</i>
*mu <sup>1</sup> kruy <sup>1</sup>	<b>mu33</b> teŋ33	<b>mɿ21</b> kɿ33	<b>mo21</b> tei13	<b>mu21</b> tei33ma33	‘star’

I assume the languages given in (5-69) have retained the PN form \*mu<sup>1</sup>kruy<sup>1</sup> ‘star (sky + star)’.

In (5-70), the PN prefix \*mu<sup>1</sup>- is deleted in all languages and a suffix \*zə<sup>1</sup> ‘son’ affixed after the root.

(5-70)

<u>PN</u>	<u>Gepu</u>	<u>Samu</u>	<u>Sani</u>	<u>Azhe</u>	<u>Axi</u>	<u>Azha</u>	<u>Lope</u>
*mu <sup>1</sup> zə <sup>1</sup>	tʂə44zə33	kuɿ55zə33	tɛə33zə11	kɛ33zə21	tʂə33zə21	tʂə55zə33	æɾ44zɿ33
	<u>Lisu</u>			<u>Kazhuo</u>			<i>Gloss</i>
	ku33zə33, kə33ma33zə33			kɿ24zə31			‘star’

The newly added diminutive suffix \*zə<sup>1</sup> indicates that these languages given in (5-70) have some common origin.

Other morphemes include suffixes such as \*-mo<sup>1</sup> a ‘Measure Word (for round objects)’ and -lu55 found in Namuzi tʂɿ3llu55 ‘star’ and Naxi lə33 in kɿu3llu33 ‘star’, prefixes like \*a-, \*i-, and \*o-. All these affixes can sometimes be used to identify the Nisoic language relationship.

#### 5.12.1.2 Reversed Order: Structural Innovations

It is not uncommon in Nisoic languages that the two syllables of a word can be reversed; this structural innovation can give a clue to subgrouping. In this dissertation’s database, there are a few examples that show this phenomenon. Interestingly enough, the reversed words in Nisoic languages are always disyllabic nouns. Reversing the order of the two syllables of a word is often seen within a Nisoic language clusters. It seems that these words are not cultural or regional types. See examples below.

(5-71)

<u>PN</u>	<u>Bisu</u>	<u>S.kong</u>	<i>Gloss</i>
*mu <sup>1</sup> sl <sup>1</sup>	xa55man55	ho55mban55	‘wind’

(5-72)

<u>PN</u>	<u>Bisu</u>	<u>Hani</u>	<u>Haoni</u>	<u>S.kong</u>	<u>Jinuo</u>	<u>Achang</u>	<i>Gloss</i>
*slo <sup>2</sup> bo <sup>2</sup>	u31la33	ba33la33	pɔ33lɔ33	pe31la33	pu33lɔ42	phǎ31lɔʔ31	‘moon’

(5-73)

<u>PN</u>	<u>Bisu</u>	<u>Hani</u>	<u>Haoni</u>	<u>S.kong</u>	<u>Jinuo</u>	<i>Gloss</i>
*s/ʔ-mru <sup>2</sup> tu <sup>1</sup>	toŋ31mi31	dɔ31mi31	tu31mɛ31	toŋ31mi31	to44mi44	‘tail’

Some of these reversed words may have a long history with the normally ordered words. For example, Burmic Achang *phǎ31lɔʔ31* stands for both ‘moon’ and ‘month’, suggesting that this reversed word existed before Burmish branched off from ancestral Niso-Burmish language. Interestingly, Nuosu *bu33lu21* ‘month’, which is semantically shifted from Nuosu *to21bo21* ‘moon’, has the same word order given in (5-72).

It is not clear what the motivation for reversing word order is, but it is clear that reversed words are found more in closely related languages groups. For example, ‘tail’ and ‘wind’ reversing only take place in Hanoid languages. And few of these reversed words are found across whole Nisoic or Niso-Burmish, ‘moon’, for example.

#### 5.12.1.3 Rule Ordering, Sound Change Layers, and Subgrouping

A sound change may involve changes in both place and manner of articulation. So the question is which one is the key in determining language subgrouping, the place of articulation or the manner of articulation? Often, there are several sound changes existing in subgroups of Nisoic languages, and the order to apply these rules into subgrouping can cause different results. So the phonological rules must be ordered so as to find an appropriate subgrouping for Nisoic descent.

The Nisoic languages generally contain labial and labiodental, coronal (alveolar, post-alveolar, retroflex, and palatal), dorsal (velar and uvular), and glottal stops. And their manners of articulation

include fricatives, affricatives, laterals, nasals, and stops. In addition, Nisoic languages often contrast in their voice quality, including voiceless, voiced, and aspirated. A Nisoic sound change may be involved in at least one of these three aspects. But when all of these three aspects or two of them are involved in sound change, which would occur first? For example, languages given in (5-74) may have different subgrouping according to the order of rule application.

(5-74)

<u>PN</u>	<u>Nuosu</u>	<u>Hani</u>	<u>Azha</u>	<u>Lipo</u>	<i>Gloss</i>
*gjoʔ <sup>l</sup>	du55sɿ21	do55tsɿ31	tsɔ21tsi55	dzu21tsɿ55	‘waist’

In (5-74), if we apply the devoiced rule (\*g- > ts-) first, then we would create a subgrouping like *{(Nuosu, Hani, and Lipo), Azha}*; however, if one applies the affrication rule first, then one would group these languages in a different way *{(Nuosu, Hani), (Lipo, Azha)}*. When facing such a conflict of rule order, I have to rely on other sound changes to make a decision about which rule occurred first historically. So which rule: affrication or devoicing occurred first historically? Aside from that, the consonant of suffix \*ts- in the example given in (5-74) also has two variations: \*tsi<sup>l</sup> and \*sɿ<sup>l</sup>. Compared with Niesu *do55tsɿ33*, the Nuosu has *d-* changed from \*dɿ- and *s-* came from \*ts-, respectively. Thus, Hani *d-* (< \*gj-) may be an accidental sound change with Nuosu *d-* (< \*dɿ- < \*gj-). I would assume that Hani may have undergone a similar sound change as Nuosu, however, this must have happened individually, because the Nuosu and Niesu splits took place only very recently. Therefore, one should not treat Hani and Nuosu as a subgroup based on their surface form *d-*. And, the rules should be ordered as: 1) Affixation \*tsi<sup>l</sup> to all languages; 2) Nuosu *s-* < \*ts-; 3) Hani *d-* < (\*dɿ-) < \*gj-; 4) Nuosu *d-* < \*dɿ- < \*gj-; and Azha *ts-* < \*dɿ- < \*gj-. Hence, subgrouping, if only based on the example given in (5-74), would be: *{(Nuosu), {(Hani), [(Lipo), (Azha)]}}*. And the rule order for rule 3) and rule 4) is not important in determining subgrouping here; the choice of devoicing (Azha) first would have led us astray. As demonstrated here, that different sound changes existed in daughter languages shows that these phonological processes must have happened at different stages historically, like strata in soil. It also shows us that one must study the



changes of languages within a family in great detail in order to arrive at a verified dataset, which is the one I use in this chapter and in Chapter 6.

For the cases where both affixation and reversed order are involved, it is much clearer which happened first historically. See examples in (5-75) below and (5-73) above.

(5-75)

<u>PN</u>	<u>Samu</u>	<u>Lolopo</u>	<u>Lipo</u>	<u>Lahu</u>	<u>Kazhuo</u>	<i>Gloss</i>
*s/ʔ-mru <sup>2</sup>	mɜ̃55to55	mə55tə33	mɯ̃55tə33	mɛ̃11tu33	mu55ta323	‘tail’

First, languages both in (5-75) and (5-73) have a morpheme *-tu<sup>1</sup>* innovation, which is added after their root *\*ʔ-mi<sup>2</sup>* ‘tail’. Second, languages Bisu, Hani, Haoni, S.kong, and Jinuo in (5-73) have a reversed order, i.e. the morpheme *-tu<sup>1</sup>* was added before the root *\*ʔ-mi<sup>2</sup>*, instead after it. The word order of word ‘tail’ given in (5-75) for languages Samu, Lolopo, Lipo, Lahu, and Kazhuo possess the original formation. For the cases of (5-73) and (5-75), one must assume the lexical morpheme *\*-tu<sup>1</sup>* innovated first across all the languages given and then the reversal of word order took place at a later stage for the languages given in (5-73). Otherwise, one has to assume the morpheme *\*-tu<sup>1</sup>* innovated twice at different stages, but this is very unlikely.

### 5.12.2 General Issues of Niso-Burmic Subgrouping

To date, linguists have treated Niso-Burmese as two major subgroups: Nisoic and Burmic. However, there are no clear cut-lines (shared innovations) between these two major subgroups. With this claim and discussion made in this dissertation, there is very strong evidence that the Niso-Burmic Branch consists of many subgroups. In the following, I will argue about problems of the criteria that lead to bipartite division for this language stock.

#### 5.12.2.1 Tonogenesis and Niso-Burmese Subgrouping

The Nisoic tonal split of PNB checked syllables proposed by both Matisoff (1972) and Bradley (1979) hypothesize that there is clear division between Burmic and Nisoic subgroups. Both of them set up two checked tones *\*H* and *\*L* and three regular tones *\*1*, *\*2*, and *\*3* for PN (Cf. Section 5.7). The fundamental assumption behind reconstructing these PN tones was based on the WB tonality and its

reflexes in the Nisoic languages. It is rather clear that their PN tone \*1 corresponds to WB \*2, PN tone \*2 to WB \*3, and PN tone \*3 to WB \*1. For checked syllables, both reconstruct two checked tones \*H and \*L for PN. Both linguists have concluded these two checked tones split from the PNB checked syllables.

Similarly, Li assumes three regular tones \*A, \*B, and \*C, which roughly correspond to WB low tone 22, high tone 55, and creaky tone 53, respectively, for PNB unchecked syllables; Li also set up tone \*D for checked syllables, which corresponds to WB checked tone 4 (Li 2010: 67). For Li, each of all these four PNB tones might have split into two tones in modern Niso-Burmic languages according to the voicelessness vs. voicedness of initial consonants (the *voiced low principle*): \*A<sub>1</sub>, \*A<sub>2</sub>, \*B<sub>1</sub>, \*B<sub>2</sub>, \*C<sub>1</sub>, \*C<sub>2</sub>, \*D<sub>1</sub>, and \*D<sub>2</sub>. For checked tone \*D, there are also splits into two extra tones \*D<sub>L</sub> and \*D<sub>s</sub> in addition to D<sub>1</sub> and D<sub>2</sub> (cf. Li 2003: 12). Li treats the proto tones of PN and PNB the same.

According to Matisoff (1972:3), PNB checked syllables have two or three ways of tonal contrast in the Nisoic languages, so it is reasonable to assume that two checked tones (\*H and \*L) for proto-Nisoic correspond to those of WB checked syllables; but only one checked tone exists for Burmic languages because all the WB checked syllables have developed into one tone (accompanied with glottal stop) in modern Burmese. Hence, for Matisoff, the division between Nisoic and Burmic lies in tone-split of PNB.

Indeed, many Nisoic languages had two or three tones corresponding to WB checked syllables, however, this is not a strong evidence for dividing Nisoic and Burmic. First, other WB tones (/53/, /22/, and /55/) also have two or three ways of tonal contrasts in Nisoic languages. I used the word database of this dissertation and investigated the relationship between WB tones and its reflexes in Nisoic languages. The result shows that WB tone /\*2/ almost equally corresponds to Lahu tones /33/ and /31/, while WB tone /\*3/ has mainly corresponds to Lahu tone /53/ but also largely contrasts to Lahu /31/. Second, not only the Nisoic languages have two or three tone reflexes of WB checked syllables, but many Burmic languages, including Zaiwa, Langsu, Bola, and Leqi, also have two ways of tonal contrasts (Achang and Xiandao also have the same situation but not as remarkable as other Burmic languages do). As matter as fact, from the data that I can collect, only modern Burmese has one tone to correspond to WB or PNB checked syllables, all the other Niso-Burmic languages have two or three reflexes of it. Therefore, tone

splits in PN (\*H, \*L), whose tones correspond to WB or PNB checked syllables, do not count as sufficient evidence to divide between Burmic and Nisoic. Though, there is no question that one must assume two checked tones for proto-Nisoic, the theory of tone-split cannot be used to divide Nisoic and Burmic, but to divide Burmese from the rest of Niso-Burmic languages. Matisoff (1997) later tries to demonstrate that the conditioning factors for tonal split in Burmic and Nisoic are different in echoing his Nisoic tonal split theory developed in 1972. If that holds, then the theory of tonal splits of PNB checked syllables in both Nisoic and Burmic would still be valid.

In addition, some scholars (Wang 1983, 1986; Zeng 2000, among others) even doubt that there existed tonal contrasts in classical Burmese based on the evidence found from inscriptions of the 12<sup>th</sup> century. They argue that the tonal splits of high-level tone /55/ and low-level tone /22/ in classical Burmese weren't confirmed until the tonal symbol for indicating the high-level tone was discovered in documents of classical Burmese in the 17<sup>th</sup> century. Similarly, the symbol for indicating creaky tone /53/ was not found in the document of classical Burmese until the 18<sup>th</sup> century. Though these claims need further corroboration and justification, the tonal split between high level and low level and the tonal split between creaky and checked, at least, in Burmese is a very late phenomenon. If this claim is true, then there may have been no three-ways of tonal contrast in the PNB stage, and the correspondences between PNB and the contemporary Niso-Burmic languages are more like a case in which the tones of modern Niso-Burmic languages correspond to the PNB rhymes, rather to the assumed phonemic tones of PNB; and these rhymes must have developed into tones in different languages in later stages.

#### 5.12.2.2 Stop Codas, Vowel Laryngealization, and Niso-Burmic Subgrouping

The vowels of Nisoic languages often have the feature that pairs of vowels are distinguished by voice quality in which one of them is laryngealized (or tensed) and the other one is lax or normal modal. Usually, such a laryngealized vowel is underscored in order to distinguish it from the modal vowel in Sino-Tibetan literature. These so-called laryngealized vowels are said to have developed from PNB stop codas, which dropped and, as a result, their reflexes acquired a tensed voice quality in Nisoic languages (cf. Dai 1979: 38). In the TB literature, the loss of PNB stop codas in Nisoic languages has been treated

either as a laryngealized feature of vowels or as a tone of syllables. For example, in both Lahu and Lisu it is treated as a tonal contrast. On the other hand, vowel laryngealization of Burmic languages like Zaiwa that was caused by the loss of contrast between voicedness and voicelessness of initial consonants historically, i.e. the voicing of initial consonants is preserved in Zaiwa as a regular vowel and the voiceless consonants have become laryngealized (Dai 1979: 32). Thus, it is reasonable to differentiate the Nisoic subgroup and Burmic subgroup according to different origins of the laryngealized feature.

### 5.12.3 *The Contrast between Autonymic Subgroups and Linguistic Subgroups*

Comparing the results of Nisoic linguistic subgrouping given in Figure 5.25 and autonymic classification for ethnic groups given in Figure 4.3, one may see that there is a great deal of parallelism between these two types of subgrouping. For example, Mondzi and Maang both belong to \*Man type and they indeed make up a very distinctive language group of Niso-Burmic Branch. And the Puoid languages (Zuoke and Polo), which have an intricate relationship with Nisoish clusters Nisoid and Axioid, belong to the ancient \*Pu ethnicity, who were in close contact with *Ni* people historically. However, some autonyms are remarkably incongruent with subgrouping.

First of all, the Lahoish is an independent language group under the Nisoic Branch, but it belongs to the ethnicities of the \*Li type autonymically and historically, which includes Lisu, Lipo, Lolopo, Laluba, Lavu, and Toloza. Though, Bradley (1997) puts Lahu, together with Lisu, Lolopo, Sani, Axi, and so forth, in his Central Loloish, this study shows that it is lexically slightly closer to Hanish (equivalent to Bradley's Southern Loloish) than to Lisoish (Cf. sections 5.8.3.3.2 and 5.8.3.3.4 for detailed discussion).

Second, both Naxi and Namuzi ethnically belong to the \*Ni type, but they manifest linguistically distant from the Nisoish Group, which corresponds to the \*Ni type of autonymic classification.

Third, Nusu and Rouruo autonymically belong to the \*Ni type and the \*Li type, respectively, but both of them linguistically belong to Nusoish Group of Nisoic.

Fourth, both Samu and Kazhuo are independent ethnic groups autonymically and historically, but they turn out linguistically in the same linguistic group of Nisoic, called Kazhuoish.

Fifth, Ni or Sani belongs to the \**Ni* type ethnic both autonymically and historically, but their language turn out to be a member of Axioid, which belongs to the Nisoish.

### 5.13 Conclusion

I have established eight groups for the 34 Nisoic languages studied in this dissertation, including Nisoish, Lisoish, Kazhuoish, Nusoish, Naxish, Lahoish, Hanish, and Mondzish. Among them, Nisoish, Lisoish, and Kazhuoish show a closer relationship.

As discussed in Section 5.12.3, though there remain still inconsistencies, the result of Nisoic language subgrouping largely conforms to the result of autonymic classification of Nisoic ethnic groups.

The Nisoic subgrouping is based purely on the criteria of shared phonological and lexical-morphemic innovations. Aside from many lexical innovations which were very helpful in determining subgroups of Nisoic descent, there are some key phonological rules that define the validity of these subgroups. These shared phonological innovations are summarized in the Table 5.8 below.

Table 5.8 A Summarization of Phonological Rules and Their Applications in Nisoic Languages

<u>Rule</u>	<u>Group</u>	<u>Languages</u>
*m- > ø- / __ [u]; *kh- > x-	Hanish	Hani and Haoni
*N- > NC or C	Hanish	Bisu and S.kong
<i>Reversed order of Syllables</i>	Hanish	Hani, Haoni, Bisu, S.kong, and Jinuo
*NC- > NC <sup>h</sup> -	Nisoish	Nasu and Gepu
*s- > ɛ-	Nisoish	Zuoke and Polo
*plh- > th-; *ŋg- > (n)ɗz, dz	Nisoish	Nuosu, Niesu, Nesu, Nasu, Gepu, Nisu, Nishu, and Lope
*xl- > ɬ-, h-	Nisoish	Sani, Axi, Azhe, Azha
*m- > ø-; *m- > p-	Lisoish	Lolopo, Lipo, Lisu, Laluba, Lavu, Toloza
*s-l- > x-; *z- > ɗz-; *ŋ- > x-	Lahoish	Lahu
*x- > s-; *mr- > z-	Kazhuoish	Samu and Kazhuo
*r- > Ø-	Nusoish	Nusu and Rouruo
*tsh- > s-; *yr- > zɿ; *y <sup>w</sup> - > b-	Mondzish	Mondzi and Maang
*sn > ŋɿ; *pw- > b-, ɰ-	Naxish	Naxi and Namuzi

The phonological rules given in Table 5.8 were used to determine Nisoic language pairs, clusters, and groups. Some of these shared phonological innovations, *nasal hardening* (\*N- > NC or C) in Bisu and S.kong for example, are very telling in determining the Nisoic language subgrouping.

For the Burmic side, the language relationship of it is very clear, and it is sufficient to just use tonal innovations to create three subgroups for Burmic in general: the Achang Cluster, the Zaiwa Cluster, and the Burmese Cluster. The Achang Cluster and the Zaiwa Cluster can be further combined into the *\*Achang-Zaiwa Cluster*. So one could say the Burmic is composed two subgroups: the Burmese Cluster and the Achang-Zaiwa Cluster. However, careful examination of heterogonous words from 300-word database of this dissertation suggests that Burmic is not the most distant language subgroup under the Niso-Burmic Branch. So the three Burmic subgroups can be combined as a group under Niso-Burmic

Branch, just like other groups of Nisoic members under the Niso-Burmic Branch. Hence, Burmic is called Burmish, like, Nusoish, Hanish, etc. under the Niso-Burmic Branch (Cf. Figure 5.30).

Finally, the result of linguistic subgrouping for Nisoic descent is dramatically different from those of previous works by Bradley 1997, 2002, Li 2010, Dai et al. 1989, among others. For example, Bradley 1979, 2002 only gave three or four Nisoic subgroups; Dai et al. 1989 treat Nusu a subgroup positioning between Nisoic and Burmic stocks, and all the Nisoic languages are on equal footing under the node of Nisoic Branch. Moreover, this dissertation proposes nine subgroups for Niso-Burmic descent, completely different from traditional bipartite classification of it.

## CHAPTER 6

### NISOIC SUBGROUPING: A PHYLOGENETIC APPROACH

#### 6.1 Purposes of Nisoic Phylogenetic Study

This chapter has the goal of estimating the *phylogeny* of the Nisoic languages, that is to say, the goal is to discover the tree of descent from the root (proto language) down to all contemporary taxa, showing all intermediate subgroupings. This chapter also has the intention to examine whether the Nisoic phylogenetic subgroupings accord with the classifications of linguistic groupings in Chapter 5. The phylogenetic approach is also called cladistic analysis since *cladistic* and *phylogenetic* are largely synonymous.

#### 6.2 Motivation

The Nisoic classification in Chapter 5 based purely on evidence from shared phonological and lexical innovations. Theoretically, subgrouping according to shared innovation is very reliable. However, subgrouping based on shared innovations reflects just the perspective of language development. In other words, it uses the evidence that reflects the diachronic relationship between reconstructed proto phonemes and their reflexes in descent. The question is, to what extent, the proto phonemes are reliable? What if there is an error in these reconstructed phonemes? Would one need to seek other possible ways for linguistic subgrouping? As matter as fact, aside from shared innovations, many studies on linguistic subgrouping have also relied on the regular correspondence sets, phonological patterns, lexical cognation, and so forth. So this chapter will consider any possible aspect that might determine subgrouping for Nisoic and Niso-Burmic. Phylogenetic approaches, which can incorporate all these aspects by turning them into codes, are a good answer for implementing a holistic study of linguistic subgrouping.

The second motivation is to find a solution for the Nisoic or Niso-Burmic subgrouping from a complete different view that has never been used in the subgrouping of Niso-Burmic languages. Many TB linguists, including Luo & Fu 1954, Bradley 1979, Dai et al. 1989, and Matisoff 2003, among others, have



proposed various hypotheses about the internal classification of Nisoic and Niso-Burmic. These proposals of Nisoic or Niso-Burmic subgrouping have been carried out by using traditional comparative methods, linguistic intuition, and exposure knowledge from fieldwork. Chapter 5 is also an example of using traditional method to subgroup Nisoic and Niso-Burmic languages. All the results of Nisoic and Niso-Burmic subgroupings, including my version conducted in Chapter 5 of this study, are contradictory, and probably none of these results can serve as a benchmark classification for Nisoic and Niso-Burmic. The contradictory results of Nisoic or Niso-Burmic subgrouping is probably caused linguist predisposed views to language subgroups. McMahon & McMahon (2003: 13) even point out that the comparative method “rests on case law”. In other words, it lacks of objectivity. This is a situation that calls for the use of phylogenetic methods.

The promise of the phylogenetic approach to explore the genetic relationship of languages in recent years is the third reason to conduct this cladistic subgrouping for Nisoic and Niso-Burmic. For the last 15 years computational approaches to language history have been uncovering the evolution of language history. In particular, linguists, biologists, and computer scientists have successfully applied methods developed for the study of biological taxonomies in language subgrouping, for example, Gray & Atkinson 2003, Nakhleh et al. 2005a&b, have used phylogenetic methods to validate the Indo-European reconstruction with great success. Promising as cladistics has been in IE, it remains a great challenge to carry out such classifications in the Nisoic and Niso-Burmic languages of East and Southeast Asia. First most Niso-Burmic languages lack a written system and there is only limited information about the phonology of precursor languages through their scripts (Burmese, for example). Secondly, neither Nisoic nor Niso-Burmic has accepted benchmark reconstructions and subgrouping for the computation to validate.

Before carrying out phylogenetic computation for Nisoic and Niso-Burmic subgrouping, let me sketch some of the basics of this method.

### 6.3 Computational Phylogenetics and Language Classification

Phylogenies are evolutionary trees, whose structures portray the origin and the evolutionary development among all derived species. With the discovery of DNA evidence, biologists had a great need to find an algorithmic solution to handle the prodigious number of items in a DNA dataset. The answer was to develop quantitative biology, a discipline that produced ways that could determine the evolutionary distances among organisms with precision. DNA evidence is very richly differentiated and reflects precisely the changes in species but the richness of data caused a need to use algorithmic methods to determine related organisms with a small degree of error. For example, it has recently been shown that the mammal nearest in descent to the hippopotamus is the whale, even if the two organisms do not look much alike today. Today relatedness of organisms can be easily reconstructed with DNA evidence.

The similarity of biological evolution and language development makes it possible to apply these new computational phylogenetic methods to language classification. As with languages, organisms look alike because they have inherited genetic material not only from their two parents but also from distant ancestors passed through their parents. Inheritance of genetic material resembles in many ways language diachronic development, where daughter languages retained but also recombined and innovated properties from their intermediate parent language and from ancestral language features retained and then passed through their parents.

In the last 15 years or so teams of linguists, biologists, and computer experts have collaborated each contributing from their discipline to the study of linguistic problems. The most significant example of biologists using phylogenetic methods to confirm work that has been done in linguistics is Gray & Atkinson 2003. That work produced the descent of the IE proto language with subfamilies and assigned dates for the split of the subbranches. Some of the other researchers who are very active in this area are: Tandy Warnow, Don Ringe, and Clare Holden.

Several algorithmic processes created for biological phylogenies have recently have been applied to estimate the phylogeny of linguistic subgroups. The algorithms that have been proven most successful for language study are: *Bayesian inference* and *Neighbor-Net* analysis. Phylogeny crucially involves trees

as a way of capturing descent of language. There are no real differences in appearance between biological and linguistic phylogenies and therefore, software for computing one can also be applied to both kinds of data.

#### 6.4 A Brief History of Computational Linguistics

In the 20<sup>th</sup> century Morris Swadesh and others proposed classifying languages based on a calculation. Speculating that the basic vocabulary of a language's decays over time is just like radioactive decay, Morris Swadesh in the 1950s went on to develop a theory of vocabulary loss called *glottochronology*, which is about the constant rate of retention of words through time across languages. Though Swadesh's methods aroused interest, they proved to be "misleading" and have been "rejected by most historical linguists" (Campbell 2004: 201). Swadesh's language change theory idea is a part of cladistics but the methods he used were not the best and have been replaced by newly developed phylogenetic linguistics, cf. Gray & Atkinson 2003. UPGMA is the distance-based method of lexicostatistics, which operates with agglomeration methods that assume constant clock-like evolution and were also used in early studies of evolutionary problems, Greenhill & Gray 2009. In a recent comparative test of the algorithms' ability to produce the IE parent language (Nakhleh et al. 2005b), the UPGMA algorithm produced the most incompatible language family tree for the benchmark subgroupings of IE (It split Italic and Iranian incorrectly). The other methods like Maximum parsimony,<sup>67</sup> Maximum compatibility (weighted or unweighted),<sup>68</sup> Neighbor Joining,<sup>69</sup> and the Gray-Atkinson Bayesian methods<sup>70</sup> were able to produce trees with all the established subgroups and were thus also compatible with the model tree. All four of these methods reconstruct the ten major subgroups of IE, as well as Anatolian + Tocharian and Greco-Armenian.

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<sup>67</sup> Maximum parsimony, or MP, is a character-based method for phylogeny estimation, which is to look for a tree on which the minimum number of evolutionary changes to occur.

<sup>68</sup> Maximum Compatibility, or MC, is a character-based tree estimation method, which seeks a tree that occurs a maximum number of characters compatible without homoplasy.

<sup>69</sup> Neighbor Joining, or NJ, is a bottom-up clustering method based on distance data; it transforms the input matrix and then computes the minimum distance of the pairs of languages and outputs the language tree.

<sup>70</sup> Gray and Atkinson's method is a Bayesian approach for estimating language phylogeny based upon the presence/absence of cognates.

Earlier it was pointed out in Anttila 1989 that it is not sufficient to just count lexical cognates using a binary representation for cognates among languages that are closely related. Given that languages L1, L2, and L3 all have equal cognate percentages, then how can one represent their relationship? Obviously a method based on just counting cognates or binary representation of cognates cannot capture which languages have what cognates for what words and which cognates are closer to which others. And so the method cannot solve the equal distance relationship dilemma, as shown in (6-1). What is needed is a way to include the phonological changes among cognates to the computation of numbers of cognates

(6-1)

<u>Nuosu</u>	<u>Gepu</u>	<u>Azhe</u>	
mbu33	mbhɔ33	bu22	‘full’

In (6-1), one may compare the distance between Nuosu and Gepu to Nuosu and Azhe in terms of the glottochronological methods, because all the items of these three languages are cognates. However, in reality, the closeness between Nuosu and Gepu and between Nuosu and Azhe may not be necessarily the same. And it can be shown there are subtle differences in phylogenetic linguistics, where the closeness between Nuosu and Gepu is closer than that of Nuosu and Azhe because both Nuosu and Gepu share a prenasal but Nuosu and Azhe do not. This can be done by adding an extra character state, say, *\*mb- > b-*. It has been found that Bayesian inference is able to estimate phylogenies when the “evolutionary clock” is not constant, which is situation that cause the UGPMA algorithms produce incorrect results.

#### 6.5 Problems of Computational Phylogenetic Methods in Linguistics

Over the last decade, biological evolutionary methodologies such as: maximum parsimony, maximum likelihood, Bayesian inference (Gray & Atkinson 2003), Fitch-Margoliash method (Deng & Wang 2003 a, b), Saitou and Neighbor Net Joining methods, and phylogenetic network implementation of Huson & Bryant 2006, among others, have been adopted in the study of language evolutionary history in a large array of language families, including Indo-European languages (Gray & Atkinson 2003, Atkinson & Gray 2006, Nakhleh et al. 2005a& b), Austronesian (Gray & Jordan 2000, Gray et al 2009, Dunn et al. 2008), Sino-Tibetan (Minett & Wang 2003, Deng & Wang 2003a&b, 2007 and 2009, Kra, (Edmondson

2011) and North Bahnaric, Edmondson et al. 2011), Bantu (Holden 2002; Holden et al. 2005, Holden & Gray 2006; Rexová et al. 2006), and Quechan and Aymaran families of Andean South America (McMahon & McMahon 2005, McMahon et al. 2005). Some of these works have achieved a great success in validating classic benchmarks from traditional comparative classification. Gray & Atkinson 2003 is the harbinger paper, as it shows striking agreement with the benchmark of Indo-European classification equivalent earlier work. However, some of these newly reconstructed phylogenetic trees conflict with each other due to different methods or the same method used by different people, or conflict with an established family tree, Nichols & Warnow (2008: 776).

The conflict of phylogenetic estimation and language trees from traditional methods may come from several factors. Nichols & Warnow (2008: 776) put the difference to the method of analysis, the density of language choice, the number of characters, and the way of encoding characters can influence the accuracy of a phylogeny produced by some estimation method. Other problems like hidden loans, interlectal borrowing, homoplasy (back mutation and parallel innovation), and early cultural words (*Wanderwörter*) may also affect phylogenetic estimation.

As far as the Nisoic subgroup in this study, only two of the five factors are particularly important: the phylogenetic methods of analysis and the way of encoding since the number of glosses and the number of languages have already been determined.

#### 6.6 Phylogenetic Studies in Sino-Tibetan

Phylogenetic estimates for the Sino-Tibetan family have not been widely used as yet. Wang and Deng 2003's TB phylogenetic tree perfectly fits Dai et al.'s 1989, 1990 TB classification within China but different from subgroupings determined by others. Deng & Wang 2003a first look for cognates in Swadesh 100 words among 12 TB languages in a similarity matrix and then convert these cognates into a distance matrix, and finally uses both the Fitch-Margoliash (distance) method and the Saitou and Nei Neighbor Joining method to compute the genetic relationship among these TB languages compared. The results of both calculations are the same. Pelkey 2008 uses Bryant & Moulton's Neighbor-Net model to classify internal relationship for 37 Pula varieties and subgroup these languages into eight clusters. Since I

short of many of these Pula language, detailed internal classification of Pula languages cannot be evaluated here. However, the expanded phylogenetic classification of this research shows some languages like Sani, Axi, and Azha, which are members of southeastern dialects of Yi by Chinese linguists (Chen et al. 1985), have a closer relationship to the Pula languages rather than to the central Loloish languages of Bradley's (1979, 1997, 2002, and 2007). Furthermore, Nisu and Nishu of northern Nisoic are also assigned to his southeastern Ngwi (Pelkey 2008: 334).

By using the Neighbor Net approach, Edmondson 2010 calculated Kra phylogenetic subdivisions that nearly match the classical proposal of Ostapirat's Kra family, differing only by the position of the Laha language. By using the same methods used in TB classification 2003a, Deng & Wang (2003b and 2007) have also researched subgroupings of Miao-Yao languages and Kra (or Zhuang-Dong) languages, respectively. However, their subgrouping of Kra is significantly different from contemporary Kra classification, cf. Ostapirat 2000. It seems that the lower the hierarchy of a language group the better the accuracy of agreement between the phylogenetic tree and the language family tree determined from the traditional comparative method.

#### 6.7 Bayesian Inference in Phylogenetics

There are many methods in phylogenetic study, including parsimony, distance matrix, maximum likelihood, and Bayesian inference, among others. Among these different methods available, the Bayesian inference is favored here, since it can establish a model of change at the beginning of the calculation. MrBayes is a program to perform Bayesian inference analysis; the program was developed by Huelsenbeck and Ronquist, and is described in Huelsenbeck et al. 2001 and Ronquist and Huelsenbeck 2003. It assumes that there is evolution from a single source with the characters all independent of one another. At each split in the evolution there is speciation created (i.e., (creation of a new subgroup). We adopt the Bayesian inference method in this dissertation because the model can return the true tree or one near to it if one lets MrBayes run through sufficient generations. That is why it has been adopted in many studies of language subgroupings, such as Gray & Atkinson 2003, Dunn et al. 2008, etc.

Generally speaking, Bayesian inference is a statistical approach to infer the probability of uncertainty (Neal 2001). Nichols & Warnow (2008:774) defines Bayesian inference as a method that tries to “...estimate the probability that each tree is the true tree (and hence they produce not a single tree, but a probability distribution on the set of trees)” One begins with a *model tree* then the algorithm performs a *random walk* through *tree space* by comparing the probability distribution of the current tree with the model tree. If the current tree is more probable than the model tree, then the current tree takes the place of the model tree and all subsequent calculations will be comparing with this new model tree. The end of the calculation is reached when no other tree is more probable than the model tree currently being used. This point is called *stationarity*. In actual application there are two separate chains of analysis that start from different original trees that speeds the search for stationarity. At the output, the most consensus tree, or the tree that has the maximum posterior probability, will be returned among a set of trees.

#### 6.8 The Splits Tree Analysis (Interpreted from the Splits-Tree 4.0 Manual)

While a tree representation, like a result of MrBayes, can be considered the “idealized” way of representing the historical relationship among the taxa (languages), in many cases, there is more complex evolution in language development. The fundamental assumption for underlying evolutionary history of languages is not treelike because of language contact, convergence, and mixture, etc. For example, at each level of splits there can be horizontal transfer of material (interlectal borrowing) or hybridization (external borrowing). There can also be “noise” in the dataset from wrong transcriptions or incorrect choice in assigning character states. In that case a tree is no longer a complete appropriate representation of the historical evolution.

There are two approaches to solving non-tree-like descent: Splits-decomposition and Neighbor-Net. This dissertation chooses Splits-Network to study Nisoic and Niso-Burmic subgrouping. The Neighbor-Net approach computes a set of incompatible splits from the data. It is a more complex kind of phylogenetic graph for displaying relative distance among the languages but not their history.

## 6.9 The Database and Procedures

### *6.9.1 Taxa, Characters, Character States, Character State Values*

Several phylogenetic terms must be clarified before applying phylogenetic approach to the subgrouping Nisoic and Niso-Burmic languages.

The *taxa* used in this Nisoic phylogenetic study are the same as *languages* used in chapter 5. So, all the 34 Nisoic languages and the three Burmic languages studied in Chapter 5 are *taxa*. Additionally, Written Tibetan (WT), which is remotely related to the Niso-Burmic languages, has been added as a control. Therefore, this phylogenetic study has 38 *taxa* in total. While WT is treated as a remote control language, Niesu, or Suondi, can be regarded as another control because it is the closest language to Nuosu; both Niesu and Nuosu can mutually understand one another. I expect that WT will show a remote distant relationship from Nisoic and Niso-Burmic and Niesu will demonstrate a closest connection to Nuosu among all the *taxa* in the results of phylogenetic calculation by both SplitsTree 4.12.3 and MrBayes 3.2.1.

*Characters* stand for glosses or lexical items. So, all the 300 items database are characters. However, I have only chosen 246 items (245 glosses + autonym for languages) from these 300 words as glosses for encoding. Of all these 246 words, all the 126 nouns have been chosen except ‘tiger’ and two caretaker words ‘father’ and ‘mother’, which are well-known cases of wander words widely found across the planet; the rest of the words are verbs, adjectives, pronouns, numbers, and measure words (classifiers).

*Character states* stand for the changes of a character, such as rules, heterogenous words, etc. Since each character can produce different numbers of character states, so the 246 characters yield 4,099 character states. Thus, the Nisoic phylogenetic database of this dissertation is made of a matrix with 4,099 *character states* × 38 *taxa* (languages).

The Excel spreadsheet software has been chosen to manipulate the data. In the first database, a database of the characters we listed the 246 glosses in the left column. The 38 *taxa* are listed at the top of each column. I, then, input individual characters in IPA form, as shown in Figure 6.1.



	A	B	C	D	E
1	Taxa	Niesu	Nousu	Nesu	Nasu
2	Glosses	Character:	Character:	Characters	Characters
3	Sky	mu33	mu33vu55 mi33		my33
4	Earth	mri1 dtu	mu44du33 mi13		mi55
5	Sun	mji1	no33bu33 ηi21ndzhi21		ni11tɕi11
6	Moon	ʔo2bo2	ʔo21bo21 lo21bo21		ηu2by2
7	Star	kri3	mu33tɕ33 tɕe13		tɕo33

Figure 6.1 An image of part of a character database for Niso-Burmic phylogenetic study

*Character state* values stand for the presence or absence of a character state for a taxon; if a character state, say, a phonological rule is applicable to a taxon, then that taxon has a value ‘1’; if not, then it is coded as ‘0’ for the taxon. In the case of missing or loan word, that taxon will be given a value ‘?’.

Figure 6.2 illustrates the concepts of taxa, character, character state, and the state value.

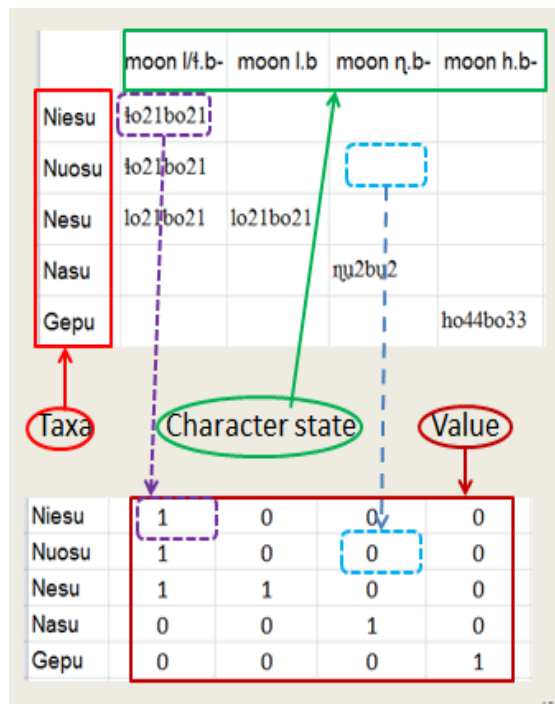


Figure 6.2 The distinction between glosses, taxa, characters, character states, and state values

### 6.9.2 Encoding and Transposing

After the characters have been inputted into the matrix, I start to create the character state database for this phylogenetic study. Character states are inputted for each of the characters. Character states in this dissertation represent not only phonological rules innovated from independent characters, but also or lexical changes, morphemic affixation, phonological features, etc. For that reason, encoding plays a very important role in the result. In this study, I particularly follow principles listed in (6-1) when coding:

(6-1)

- a. Polymorphisms-- If a character exhibits two or more states within one language, then this character is polymorphic. Examples from English of polymorphisms might be *stone* vs. *rock*, and *bucket* vs. *pail* etc. Polymorphisms are treated as separate characters. One must take note of polymorphisms, because they act like homoplastic evolution. Bayesian inference generally assumes that each character must evolve independently from all others (Nichols & Warnow 2008: 767).
- b. Characters that have evolved through borrowing are treated with value ‘?’.
- c. If a character of a taxon resembles the characters of some other taxa, i.e., there is no sound change involved among these languages, then such a character is treated as being at the same character state for all these taxa.

	A	B	C	D	E	F	G	H	I
1	Lang	Nuosu	Niesu	Nesu	Nasu	Gepu	Nisu	Nishu	Lope
2	005 Star cg	mu33tej33	mu33tej33	tee13	teo33	tso44za33	tse55mo21	tser55mo21	teær44zj33
3	star sk/k-								
4	star k.z-								
5	star k/te-				teo33				
6	star te/tq-	mu33tej33	mu33tqj33	tee13	teo33	tso44za33	tse55mo21	tser55mo21	teær44zj33
7	star tq-		mu33tqj33			tso44za33		tser55mo21	
8	star tq.l-								
9	star m-						tse55mo21	tser55mo21	
10	star tq.z-					tso44za33			teær44zj33
11	star te-	mu33tej33		tee13	teo33				teær44zj33
12	star m.te-	mu33tej33	mu33tqj33						
13	star ts-						tse55mo21		

Figure 6.3 An image of part of a character state database for Niso-Burmic phylogenetic study

Figure 6.3 provides a sample of encoding that follows these three principles given in (6-1). Encoding of character state data must be done carefully and screened for unrecognized borrowings and homoplastic development of characters, since different character state datasets may produce different phylogenetic trees.

Then, the character state database is transposed, so the character states are now listed as column and the taxa as rows, as shown in Figure 6.4. The data is arranged in this way because it allows easy conversion to a Nexus file.

	A	B	C	D	E	F	G	H
1		005 Star cg	star sk/k-	star k.z-	star k/te-	star te/tɕ-	star tɕ-	star tɕ.l-
2	Nuosu	mu33teɽ33				mu33teɽ33		
3	Niesu	mu33teɽ33				mu33tɕɽ33	mu33tɕɽ33	
4	Nesu	teɽ13				teɽ13		
5	Nasu	teɽ33			teɽ33	teɽ33		
6	Gepu	tɕɔ44zɔ33				tɕɔ44zɔ33	tɕɔ44zɔ33	
7	Nisu	tse55mo21				tse55mo21		
8	Nishu	tɕer55mo21				tɕer55mo21	tɕer55mo21	
9	Lope	teær44zɽ33				teær44zɽ33		

Figure 6.4 An image of a transposed phylogenetic data with taxa labeling the rows and character states indicating the columns

### 6.9.3 Conversion into Binary Coding for the Nexus File

After finishing encoding and transposing, we will convert the transposed character state database into binary form. Since data like the one shown in Figure 6-3 cannot be processed by machine, we need to convert the file into binary encoding, 1 or 0. Thus, all the filled cells are converted into 1 and all the blank cells into 0; all undecided items into a question mark. The question mark denotes a missing item or a loan. Figure 6.5 demonstrates a piece of the character state database now transformed into to a digital set for occurrence in Figure 6.4.

	A	B	C	D	E	F	G	H	I
1		Nuosu	Niesu	Nesu	Nasu	Gepu	Nisu	Nishu	Lope
2	005 Star cg	1	1	1	1	1	1	1	1
3	star sk/k-	0	0	0	0	0	0	0	0
4	star k.z-	0	0	0	0	0	0	0	0
5	star k/te-	0	0	0	1	0	0	0	0
6	star te/tɕ-	1	1	1	1	1	1	1	1
7	star tɕ-	0	1	0	0	1	0	1	0
8	star tɕ.l-	0	0	0	0	0	0	0	0
9	star m-	0	0	0	0	0	1	1	0
10	star tɕ.z-	0	0	0	0	1	0	0	1
11	star te-	1	0	1	1	0	0	0	1
12	star m.te-	1	1	0	0	0	0	0	0
13	star ts-	0	0	0	0	0	1	0	0

Figure 6.5 An image of phylogenetic database with coding values

#### 6.9.4 Building a Nexus File

The next step is to build a Nexus file from the digital set by adding a header and footer to the binary file. The body of the NEXUS file in binary forms is given in (6-2), which shows a partial NEXUS file of the 38 and 4099 character states.

(6-2)

```
#NEXUS
begin data;
dimensions ntax=38 nchar=246;
FORMAT
MISSING=? [GAP=?] Datatype=STANDARD [SYMBOLS = "0 1"];
MATRIX
Niesu 1 0 0 0 0 0 0 0 0 0 1 0
Nuosu 1 0 0 0 0 0 0 0 0 0 1 0
Nesu 1 0 0 0 0 0 0 0 0 0 1 0
Nasu 1 0 0 0 0 0 0 0 0 0 1 0
Gepu 1 0 0 0 0 0 0 0 0 0 1 0
Nisu 1 0 0 0 0 0 0 0 0 0 1 0
Samu 1 0 0 0 0 0 0 0 0 0 1 0
;
END;

begin mrbayes;
mcmc ngen=1000000 printfreq=1000 samplefreq=100 nchains=4 savebrlens=yes;
end;
```

This Nexus file is ready to be used directly to run both SplitsTree 4.12.3 and MrBayes 3.2.1 (See details in sections below).

### 6.10 Result and Discussion

#### 6.10.1 Preliminary Result of Nisoic Phylogenetic Subgrouping by SplitsTree

SplitsTree 4.12.3 was implemented to extract the phylogeny of Nisoic languages, whose output is shown in Figure 6.6 below. According to Figure 6.6, there are 11 clades that can be estimated for the internal relationship of Nisoic. See (6-3):

(6-3) The 11 clades of Nisoic based on the result of phylogenetic subgrouping by SplitsTree

- **Nuosu-Gepu Clade:** Nuosu, Niesu, Nesu, Nasu, and Gepu can be viewed as a set. Nuosu and Niesu, as expected, have a lengthy branch of interaction, suggesting that these two languages have a very recent split.

- **Nisu-Lope Clade:** Nisu, Nishu, and Lope make up another clade. Of this clade, Nisu and Nishu show a recent split.
- **Sani-Axi Clade:** Sani, Azhe, Axi comprise a clade. Their internal relationship is not clear.
- **Azha-Polo Clade:** Azha, Polo, and Zuohe make a clade. Polo and Zuohe show closer relationship. Azha is fairly distant from these two languages.
- **Lisu-Lolopo Clade:** This clade includes Lisu, Lolopo, Lipo, Laluba, Lavu, and Toloza. As is shown from Figure 6.6, Lipo and Lolopo represent a recent split comparing with other languages of this clade. Lavu and Toloza show a closer relationship, while Laluba and Lisu have a similar close relationship.
- **Samu-Kazhuo Clade:** This clade contains only two languages: Kazhuo and Samu.
- **Nusu-Rouruo Clade:** There are only two languages in this clade: Nusu and Rouruo.
- **Naxi-Namuzi Clade:** There are only Naxi and Namuzi in this clade.
- **Hani-Bisu Clade:** Hani and Haoni show a relationship of recent split, and the same for Bisu and S.kong. Jinuo shows the earliest separation from these two language pairs.
- **Lahu Clade:** Lahu is a singleton clade.
- **Mondzi-Maang Clade:** There are only two languages in this clade: Maang and Mondzi.

These 11 clades can be combined into six meso-clades shown in Figure 6.6. Each of these meso-clades is marked in red (Cf. Figure 6-6). See description of these six meso-clades below:

(6-4) The six meso-clades of Nisoic based on the result of phylogenetic subgrouping by SplitsTree

- **Nisoish Clade:** This meso-clade consists of Nuosu-Gepu clade, Nisu-Lope clade, Sani-Axi clade, and Azha-Polo clade.
- **Lisoish Clade:** Same as Lisu-Lolopo clade in (6-3).
- **Kazhuoish Clade:** Same as Samu-Kazhuo clade in (6-3).
- **Nusu-Naxish Clade:** This meso-clade includes Nusu-Rouruo clade and Naxi-Namuzi clade in (6-3). As is shown in Figure 6.6, there are some intensive interactions between these two sub-clades.
- **Hani-Lahoish Clade:** This meso-clade is comprised of Hani-Bisu clade and Lahu clade in (6-3).

- **Mondzish Clade:** Same as Mondzi-Maang clade in (6-3).

Also, there is a thin waist in the Figure 6.6, which is marked with a blue dotted line. This shows that the Hani-Lahoish clade, the Nusu-Naxish clade, and the Mondzish clade can be grouped as a super-clade called the *Southern Nisoic Macro-Clade*, and the rest of the clades make up another super clade, i.e., the *Northern Nisoic Macro-Clade*. But, as we will see, these two macro-clades are not necessarily the same as the two macro-clades produced by MrBayes.

As is shown in Figure 6.6, WT, the control taxon for representing a remote relationship to the Nisoic languages, has the longest branch, suggesting that it is a distant taxon to the Nisoic.

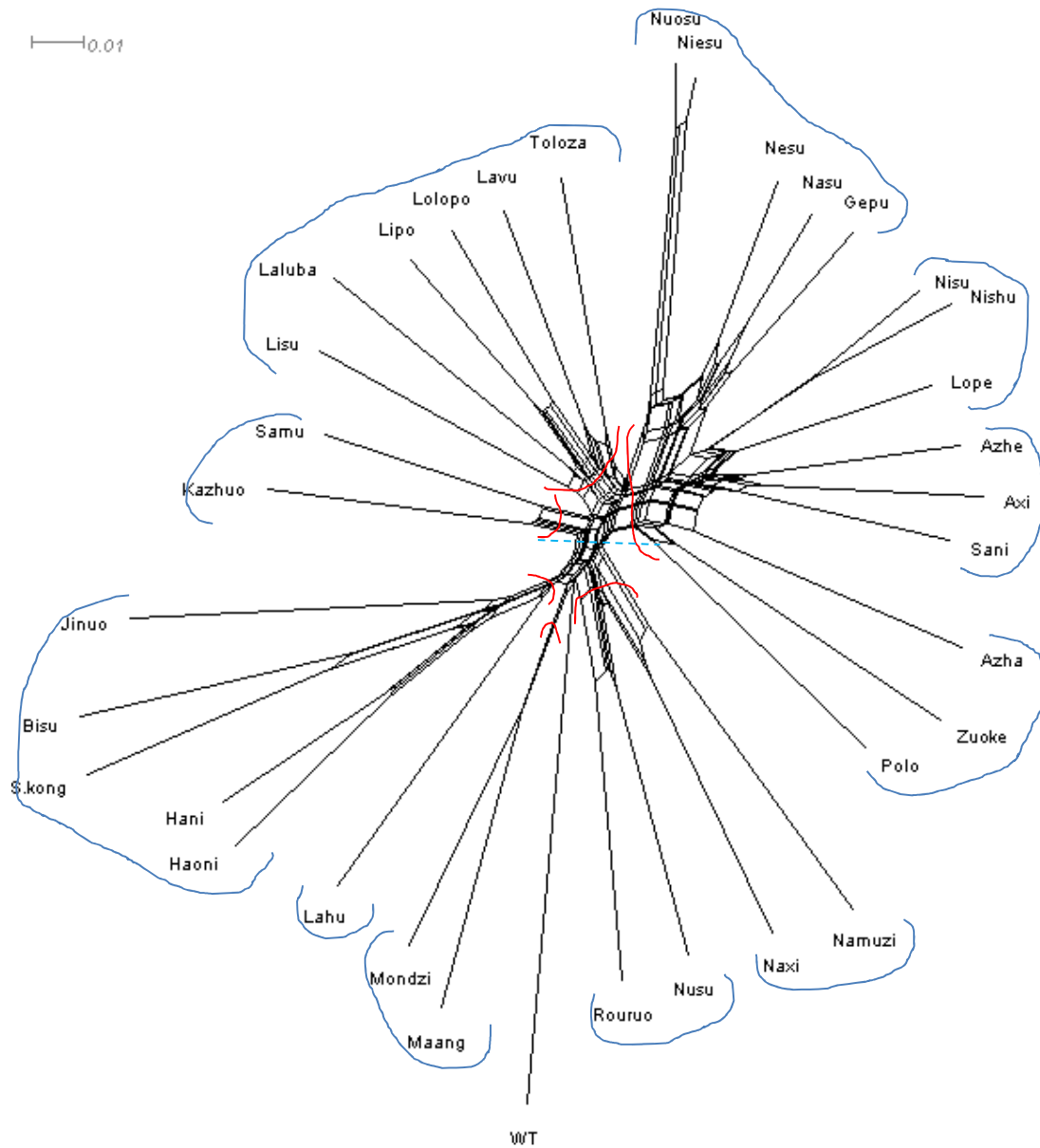


Figure 6.6 A phylogenetic network of the Nisoic Branch by SplitsTree 4.12.3

### 6.10.2 Preliminary Result of Nisoic Phylogenetic Subgrouping by MrBayes

By running MrBayes 3.2.1 with the same dataset used in SplitsTree 4.12.3, it returns two tree-like subgroupings for Nisoic, which are shown in Figure 6.7 and Figure 6.8. Figure 6.7 displays a phylogram of Nisoic language with the branch lengths indicating the distance of the relationship among the Nisoic clades. The phylogram of Figure 6.7 represents the most consensus tree among the set of 133 trees



sampled by MrBayes 3.2.1. Figure 6.8 shows the same structure as Figure 6.7 except that it also provides the credibility values for splits at each node. The average standard deviation of split frequencies is equal to 0.001163 (should approach 0.000) and the average PSRF for parameter values is 1.00 (should approach 1.000) returned by MrBayes 3.2.1.

As is shown in both Figure 6.7 and Figure 6.8, two major components can be first estimated from the result of applying Bayesian inference: the *Southern Nisoic Macro-Clade* and the *Northern Nisoic Macro-Clade*. The Southern Nisoic Macro-Clade includes languages Hani, Haoni, Bisu, S.kong, Jinuo, Lahu, Mondzi, and Maang. In other words, it is equivalent to the combination of Hanish, Lahoish, and Mondzish of the Nisoic subgrouping based on the shared innovation discussed in Chapter 5 of this dissertation. The Northern Nisoic Macro-Clade includes the rest of the Nisoic groups, including Nisoish, Lisoish, Kazhuoish, Nusoish, and Naxish.

The results of the Nisoic phylogenetic subgrouping by these two phylogenetic approaches are basically compatible. However, there is a discrepancy between the subgroupings determined by SplitsTree and determined by MrBayes, where both Naxish and Nusoish belong to the Northern Nisoic Macro-Clade of the Nisoic Branch by MrBayes, while they belong to the Southern Nisoic Clade of the Nisoic Branch determined by SplitsTree. This inconsistency may be caused by the different solutions produced by these two phylogenetic approaches. Bayesian inference produces the history of language evolution, while Neighbor-Net shows the distance among contemporary languages.

Second, at a lower level of subgrouping, 10 clades of Nisoic can be estimated from the results of the phylogram in Figure 6.7 and the credibility values given in Figure 6.8 show. See (6-5) below:

(6-5) The 10 clades of Nisoic based on the result of the subgrouping generated by MrBayes

- **Nisoid Clade:** This clade includes languages Niesu, Nuosu, Nesu, Nasu, Gepu, Lope, Nisu, and Nishu. These languages can be grouped with a confidence level at least 95%.
- **Axioid Clade:** This clade includes Sani, Axi, Azhe, and Azha. All trees show a 100% credibility. However, as is shown in Figure 6.7 and Figure 6.8, Azha is fairly distant from the Axioid clade; this is rather similar to the result of SplitsTree shown in Figure 6.6.

- **Puoid Clade:** Like the result of SplitsTree shown in Figure 6.6, the Puoid clade has only two taxa: Zuoke and Polo.
- **Lisoid Clade:** Like the result of SplitsTree shown in Figure 6.6, the Lisoid clade includes six languages Laluba, Lisu, Lipo, Lolopo, Lavu, and Toloza.
- **Kazhuoid Clade:** Like the result of SplitsTree shown in Figure 6.6, there only two languages in this clade: Kazhuo and Samu.
- **Hanoid Clade:** Like the result of SplitsTree shown in Figure 6.6, the Hanoid clade includes five taxa Hani, Haoni, Bisu, S.kong, and Jinuo.
- **Lahoid Clade:** Like the result of SplitsTree shown in Figure 6.6, Lahu is a singleton clade.
- **Mondzoid Clade:** Like the result of SplitsTree shown in Figure 6.6, there are only two languages in this clade: Maang and Mondzi.
- **Naxioid Clade:** Like the result of SplitsTree shown in Figure 6.6, the Naxioid clade has only two languages: Naxi and Namuzi.
- **Nusoid Clade:** Like the result of SplitsTree shown in Figure 6.6, there are only two languages in this clade: Nusu and Rouruo.

These 10 clades correspond to the 10 Nisoic clusters of subgrouping based on the shared innovations in Chapter 5.

Interesting enough, while it is no doubt to group all the taxa of the Lisoid clade together (with 100% confidence level as shown in Figure 6.8), however, the two language pairs Lisu ~ Laluba and Lipo ~ Lolopo have a fairly low credibility value (64%) in their connection. This result supports the claim I made in Chapter 5 that the Lisoish Group doesn't have any unique phonological and lexical innovations shared by its all members.

As is seen from figures 6.6, 6.7, and 6.8, the subgroupings of Nisoic by the two phylogenetic approaches show minor differences in their clades at a lower level. That is, the Nisoid clade determined by MrBayes (Cf. Figures 6.7 and 6.8) includes a larger number of taxa than the Nisoic clade determined by

Splits-Tree (Cf. Figure 6.6). The latter have two clades, the Nuosu-Gepu Clade and the Nisu-Lope clade. Nevertheless, the Nisoic clades generated by both programs are largely congruent to each other.

Again, cf. figures 6.7 and 6.8, WT shows a remote distance connection to the Nisoic languages, and the Niesu and Nuosu are the closest language pair.

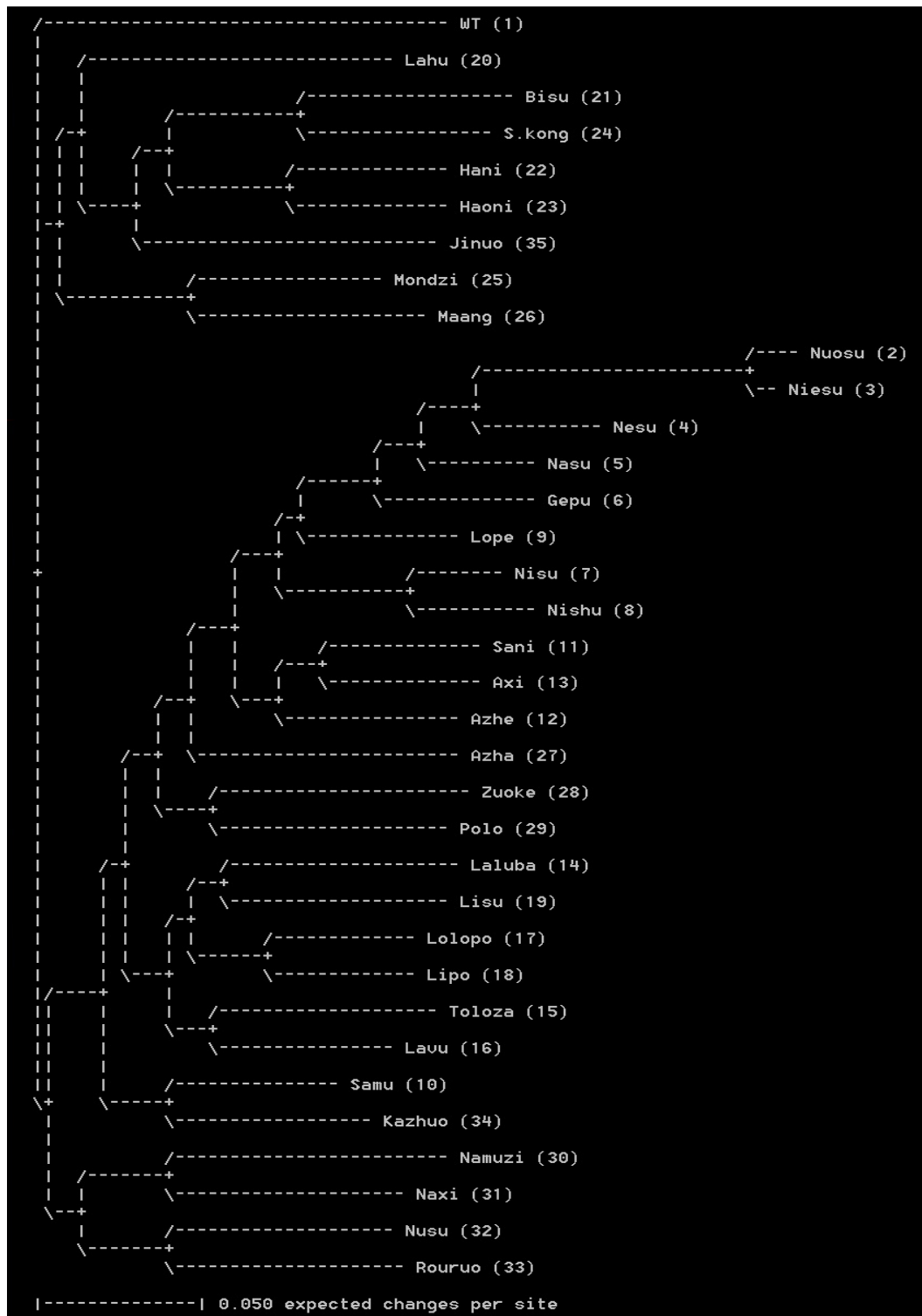


Figure 6.7 A phylogenetic subgrouping of the Nisoic Branch by MrBayes 3.2.1

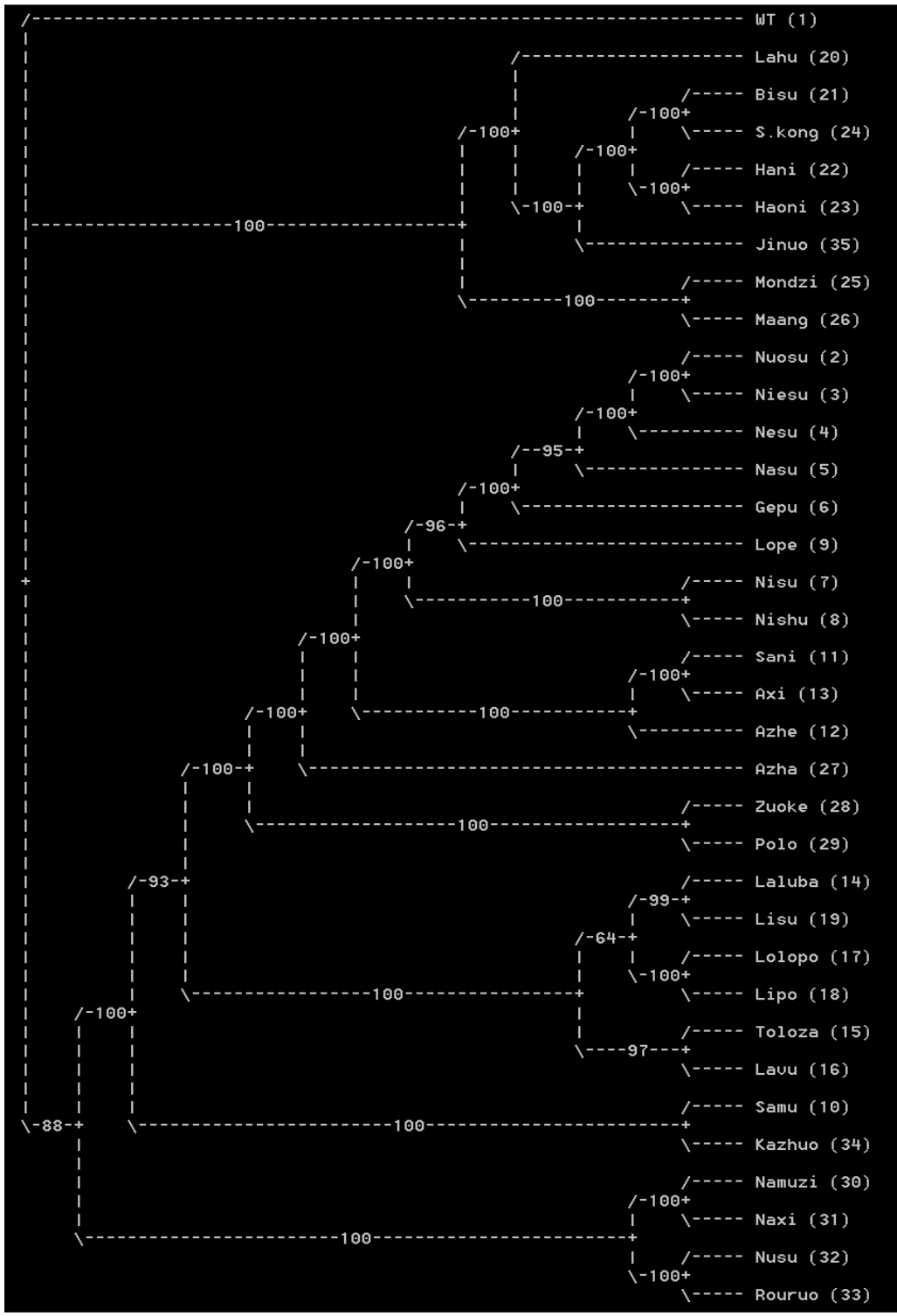


Figure 6.8 The credibility values of the Nisoic subgrouping shown in Figure 6.7

In (6-5), there are 10 clades for the subgrouping of Nisoic using Bayesian inference. These 10 clades can be combined into seven meso-clades. See the description in (6-6) below.

(6-6) The seven meso-clades of Nisoic based on the result of the subgrouping by MrBayes 3.2.1

- **Nisoish Clade:** This meso-clade includes the Nisoid clade, the Axioid clade, and the Puoid clade as well.
- **Lisoish Clade:** This meso-clade is the same as the Lisoid clade in (6-5).
- **Kazhuoish Clade:** This meso-clade is the same as the Kazhuoid clade in (6-5).
- **Nusu-Naxish Clade:** This meso-clade includes the Nusoid clade and the Naxioid clade in (6-5).
- **Hanoish Clade:** This meso-clade is equivalent to the Hanoid clade in (6-5).
- **Lahoish Clade:** This meso-clade is equivalent to the Lahoid clade in (6-5).
- **Mondzish Clade:** This meso-clade is equivalent to the Mondzoid clade in (6-5).

These seven meso-clades essentially correspond to the eight language groups of Nisoic based on the shared innovations in Chapter 5 of this dissertation. The only difference lies in the combination of Naxish and Nusoish as a major clade in (6-6).

### 6.10.3 Discussion

Generally speaking, the clades determined by this Nisoic phylogenetic study are largely congruent to the language clusters of Nisoic based on the shared innovation analysis in Chapter 5. In both the results of phylogenetic subgrouping, Nuosu and Niesu, as expected, show the closest relationship, suggesting that their split took place recently. Also, WT, as expected, has the longest branch length shown in Figure 6.6, suggesting that it is distantly related to the Nisoic. In the following, I will particularly discuss several cases brought to my attention by the phylogenetic subgrouping analysis.

#### 6.10.3.1 The Case of Lahu

Lahu constitutes a special case, because one might predict that it would be close to Lisu and other \**Li-* type languages, but the results of both analyses show Lahu to be a language distant from all others, which is contra the reports of others analysts. As we know from Chapter 4, Lahu is ethnically a member of the Lisoish ethnic groups. However, both the comparative study (Cf. Chapter 5) and the analyses using

phylogenetic approaches show that Lahu is distant from the Lisoish languages but a bit closer to the Hanoish languages. This result is contradictory to the classification of Bradley 1997, where Lahu is assigned to Central Loloish, which is equivalent to Lisoish and some of the Nisoish languages. From the Neighbor-Net perspective, Lahu demonstrates features of *rapid radiation* (cf. Holden & Gray 2005).

#### 6.10.3.2 The case of Nusu

Another strange case (cf., Lahu above) is Nusu, a language of the Nu nationality. It is autonymically closer to Nuosu, Nasu, Niesu, Nesu, etc., however, it is distant linguistically and phylogenetically from the Nisoid cluster as a whole. In Chapter 5, Nusu was treated as an independent group under Nisoic. The results of MrBayes and SplitsTree demonstrate it to be an independent clade. Dai et al. (1989 and 1990) argued that Nusu should be positioned between Burmic and Nisoic. The results of this Nisoic phylogenetic study disagree with Dai's assertion, because the results of both computations show that Nusu or Nusoish is closer to Naxish than to any other Nisoic languages (I will return to this point in the section of Niso-Burmic subgrouping below). As discussed in Chapter 5, Nusu, together with Rouruo, is close to both Ni-Li-Kazhuoish and Naxish. Therefore, Nusoish or Nusu show affinities with some members of Nisoic. Moreover, both Burmic and Nisoic do not act like two super groups that split at the earliest date among the Niso-Burmic groups; it is Mondzish which is the language group that branched off earlier than any other language subgroups under Niso-Burmic (Cf. Chapter 5).

#### 6.10.3.3 The Case of Maang and Mondzi

The relationship between Maang & Mondzi and other Nisoic languages reflects exactly my predication in Chapter 4 and the genetic situation shown in Chapter 5. In Chapter 4, it was assumed that Maang and Mondzi developed from the ancient *Man* ethnic group, which probably had a distant relationship with other Nisoic ethnic groups. In Chapter 5, I argued that Mondzish is that language which split off earliest from proto-Nisoic; in fact, Mondzish is also the group earliest to split off from proto-Niso-Burmic. Both phylogenetic approaches show that Maang and Mondzi are only distantly related to the rest of the Nisoic languages. It is particularly is closer to the Hanoish clade than to any other Nisoic clade.

#### 6.10.3.4 The Case of Samu and Kazhuo

Samu, an ethnic group of the Yi people, yet it unexpectedly shows a close relationship to Kazhuo, which ethnically (not linguistically) belongs to the Mongolian ethnicity. Kazhuo has been regarded as a member of Nisoic Branch in the Nisoic literature without question (Huang 1991 and Mu 2003). Compared to other language pairs, such as Nuosu and Niesu, Lipo and Lolopo, Nisu and Nishu, Hani and Haoni, Bisu and S.kong, etc., the relationship between Samu and Kazhuo is not strong. This can be easily discerned from their estimated shorter branch length of interaction in the Figure 6.6. As one can see all the language pairs, Nuosu and Niesu, Lipo and Lolopo, Nisu and Nishu, Hani and Haoni, and Bisu and S.kong, have longer branches of interaction than those of Kazhuo and Samu. This result confirms the claim made for the loose connection between the Samu and Kazhuo pair, which belongs to Type III of language pair (Cf. Chapter 5 for dissertation).

#### 6.10.3.5 The Case of Naxi and Namuzi

Naxi and Namuzi are closely related languages in comparison to other Nisoic languages as shown in figures 6.6, 6.7, and 6.8. As is seen from Figure 6.6, the branch length between these two languages is about the same as that of Nusu and Rouruo languages. In fact, the Naxioid clade (or the Naxi-Namuzi clade) and Nusoid clade (or Nusu-Rouruo clade) arise from a common root, suggesting that these two clades used to have some interaction. Thus, the Naxioid clade and Nusoid clade can have formed a bigger clade called the Nusu-Naxish clade (Cf. 6-4). However, according to the subgrouping based on shared innovation in Chapter 5, Naxish and Nusoish are two independent groups in the Nisoic Branch and barely share innovations. Naxish has been generally regarded as having split earlier from the Nisoic than Nusoish. The subgrouping according to the comparative study is fairly different from that of the phylogenetic approaches with respect to Naxish.

In Chapter 4, it was hypothesized that Naxi and Namuzi are ethnically closer to each other and belong to the ancient \*Ni ethnic group. In Chapter 5, I argued that Naxi and Namuzi can be treated as an independent language group of Nisoic. The results of phylogenetic subgrouping for Nisoic confirm the claim that Naxish is an independent group within Nisoic Branch.



#### 6.10.4 Preliminary Result of Niso-Burmish Phylogenetic Subgrouping by SplitsTree

Though the Nisoic subgrouping is the main concern in this dissertation, I would like to briefly introduce and discuss the result of the Niso-Burmish subgrouping using phylogenetic estimations. Figure 6.9 below shows the result of application of the Neighbor-Net approach in Niso-Burmish phylogeny.

Niso-Burmish can be phylogenetically divided into 12 clades, cf. Figure 6.9. Eleven of them are the same as the Nisoic clades (Cf. Figure 6.6) and the other clade is made of Burmish languages WB, Achang, and Zaiwa. For that reason I would like to call it the Burmish Clade. As suggested by their branch length of interaction, WB, Achang, and Zaiwa once had extensive contact. In the discussion of Chapter 5, it was pointed out that Burmish can be treated as Burmish, a group within the Niso-Burmish Branch. The cladistic subgrouping proposed here confirms this assertion. As one can see from Figure 6.9, the Burmish clade is closely related to the Nusu-Rouruo clade and the Mondzi-Maang Clade (Cf. 6-3).

These 12 clades can be further combined into nine meso-clades shown in (6-7).

(6-7) The nine meso-clades of Niso-Burmish based on the result of subgrouping by SplitsTree

- **Nisoish Clade:** This meso-clade is the same as the Nisoish clade in (6-4).
- **Lisoish Clade:** Same as the Lisoish clade in (6-4).
- **Kazhuoish Clade:** Same as the Kazhuoish clade in (6-4).
- **Naxish Clade:** Same as the Naxi-Namuza clade in (6-3).
- **Nusoish Clade:** Same as the Nusu-Rouruo clade in (6-3).
- **Burmish Clade:** This clade includes languages WB, Achang, and Zaiwa.
- **Mondzish Clade:** Same as the Mondzish clade in (6-4).
- **Lahoish Clade:** Singleton clade with Lahu.
- **Hanish Clade:** Same as the Hani-Bisu clade in (6-3).

Surprisingly, eight of these nine meso-clades given in (6-7) are identical to the eight groups of the Nisoic Branch discussed in Chapter 5, and the Burmish clade is equivalent to the Burmish Group of Niso-Burmish Branch (Cf. Chapter 5).

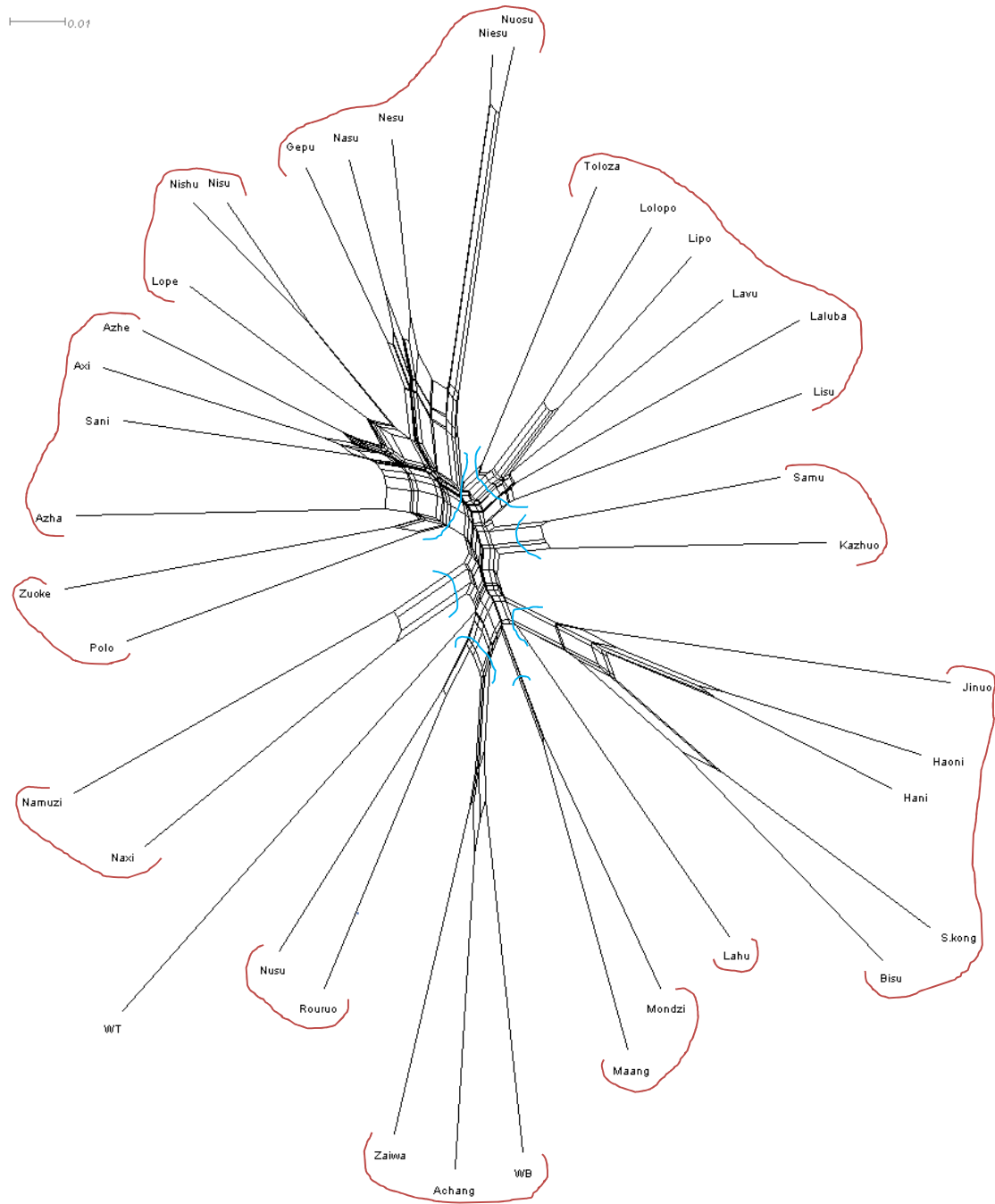


Figure 6.9 A phylogenetic network of the Niso-Burmese Branch by SplitsTree 4.12.3

#### 6.10.5 Preliminary Result of Niso-Burmic Phylogenetic Subgrouping by MrBayes

Bayesian analysis was also applied to the Niso-Burmic subgrouping. MrBayes generated an arboreal structure shown in figures 6.10 and a tree with credibility values shown in Figure 6.11. Figure 6.10 represents the resulting tree with the maximum posterior probability among the set of 302 trees returned by MrBayes 3.2.1. Figure 6.11 shows the credibility values of the cladistic subgrouping of Figure 6.9. The average standard deviation of split frequencies is equal to 0.003455 (should approach 0.000) and the average PSRF for parameter values is 1.00 (should approach 1.000) returned by MrBayes 3.2.1.

Based on the phylogram in Figure 6.10, two macro-clades can be estimated for Niso-Burmic: the *Southern Niso-Burmic Macro-Clade* and the *Northern Niso-Burmic Macro-Clade*. The Southern Niso-Burmic Macro-Clade includes the Hani-Lahoish clade, the Mondzish clade, and the Nusu-Burmish clade; the Northern Niso-Burmic Macro-Clade includes the Nisoish clade, the Lisoish clade, the Kazhuoish clade, and the Naxish clade. One can see that the Southern Niso-Burmic Macro-Clade has a low credibility value (55%), suggesting that the dataset I used may need to be enlarged to establish this super clade with greater credibility. Below are the descriptions of these seven meso-clades of these two macro-clades:

(6-8) The seven meso-clades of Niso-Burmic based on the phylogenetic subgrouping determined by MrBayes

- **Nisoish Clade:** This meso-clade is the same as the Nisoish clade in (6-4); it includes all the Nisoish languages.
- **Lisoish Clade:** The Lisoish meso-clade includes all the Lisoish languages.
- **Kazhuoish Clade:** This meso-clade includes the two languages of Kazhuoish: Kazhuo and Samu.
- **Naxish Clade:** This meso-clade includes the two languages of Naxish: Naxi and Namuzi.
- **Hani-Lahoish Clade:** This meso-clade includes Lahu and all the Hanish languages
- **Nusu-Burmish Clade:** This meso-clade includes the Nusoish clade and the Burmish languages
- **Mondzish Clade:** This meso-clade includes the two languages of Mondzish: Mondzi and Maang.

As seen from figures 6.10 and 6.11, adding the Burmish taxa (WB, Achang, and Zaiwa) to this phylogenetic study results in some changes in the cladistic subgrouping.

First, the Nusoish clade, which was a member of the Northern Nisoic Macro-Clade, is not a member of Nisoic any longer; instead, it shows closer relationship to the Burmish clade. The Nusoish clade and the Burmish clade form the Nusu-Burmish Meso-Clade under the Southern Niso-Burmic Macro-Clade. Furthermore, it is no longer closely related to the Naxish clade (Cf. figures 6.7 and 6.8); in both the Nisoic phylogenetic subgroupings by MrBayes and SplitsTree, these two clades demonstrate a close relationship.

Second, the Lahoish clade shows a closer interaction with the Hanoish clade and these two form the Hani-Lahoish clade.

Third, both the Mondzish clade and the Hanoish clade, which were members of the Nisoic Branch, show a closer tie to the Burmish clade under the Southern Niso-Burmic Macro-Clade.

Though the clades of Niso-Burmic have morphed somewhat after Burmish taxa were included, the phylogenetic subgrouping of Niso-Burmic conforms still the subgrouping based on the shared innovations in Chapter 5. In that chapter, nine Niso-Burmic groups were proposed; of these nine groups, Mondzish was regarded as the language group that split from the Niso-Burmic Branch first, next is Burmish, and then Hanish, Lahoish, Naxish, Nusoish, Kazhuoish, Lisoish, and Nisoish. The only difference is that the Nusoish and Burmish groups are treated as one clade in (6-8), and the same for Hanish and Lahoish.

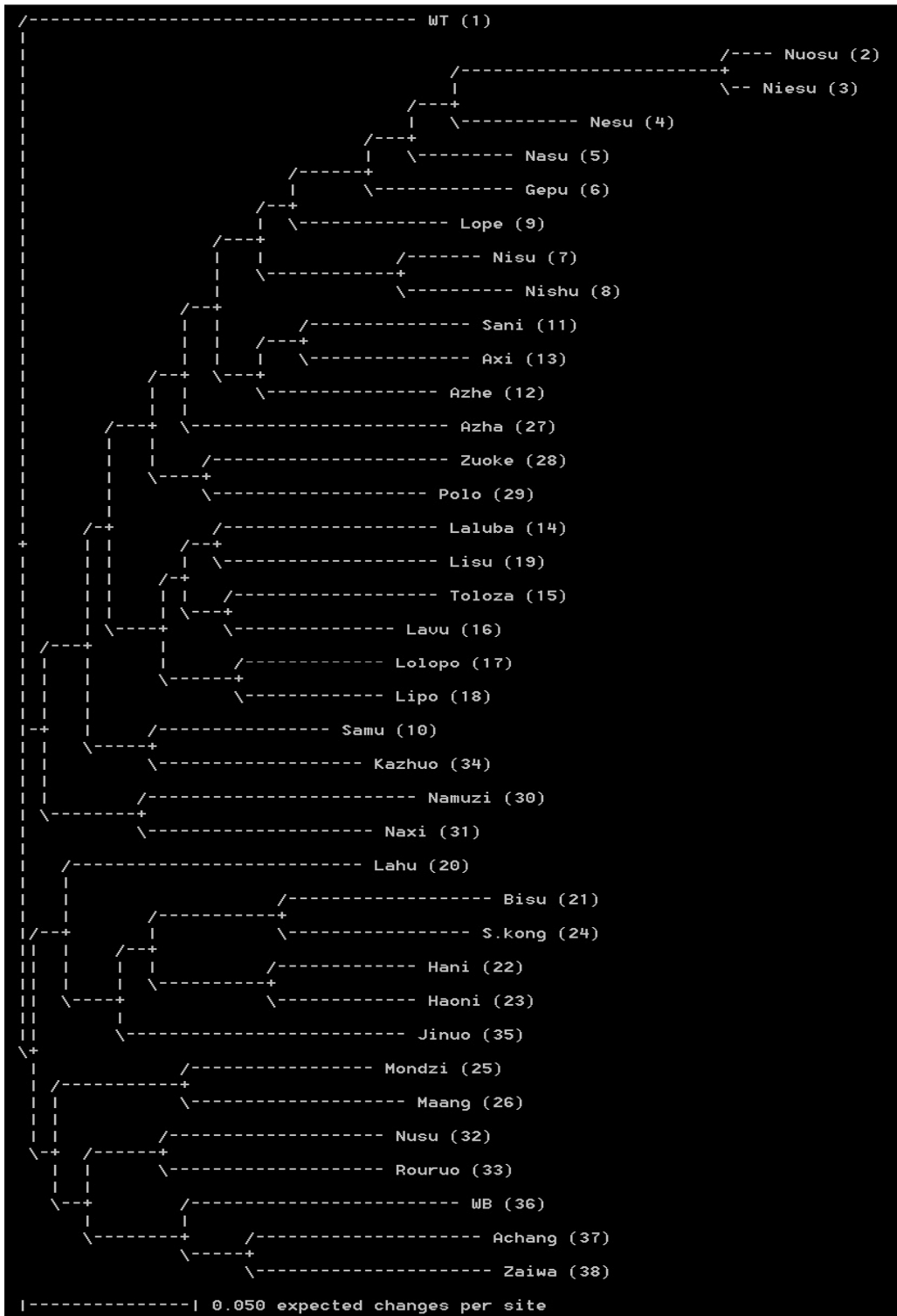


Figure 6.10 A phylogenetic subgrouping of the Niso-Burmic Branch by MrBayes 3.2.1  
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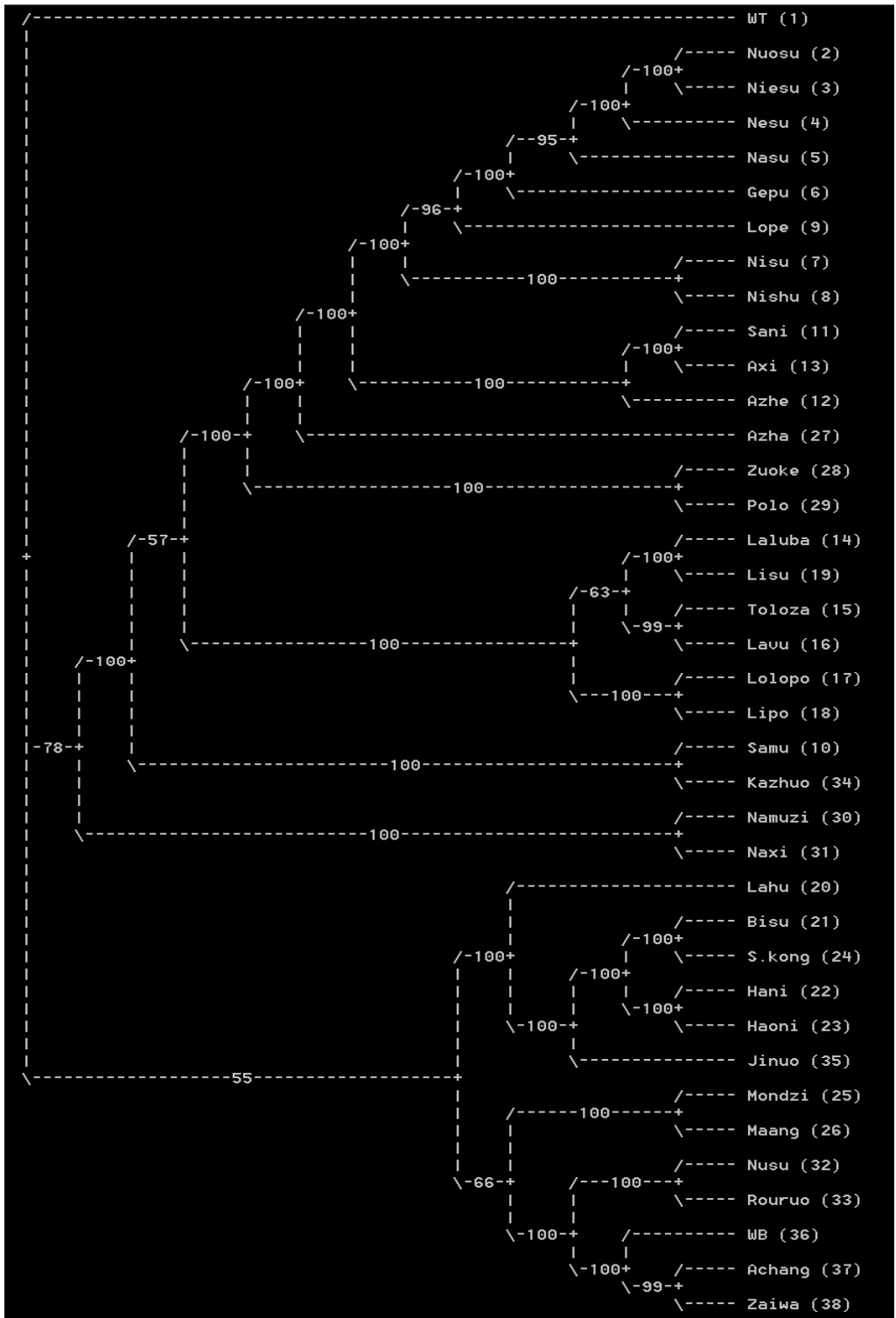


Figure 6.11 The credibility values of the Niso-Burmic Subgrouping shown in Figure 6.9  
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### 6.11 Conclusion

In this chapter, I have applied computational phylogenetic methods to the subgrouping of the Nisoic and Niso-Burmic languages. Both Bayesian Inference and Neighbor-Net methods produced Nisoic and Niso-Burmic internal networks and phylograms.

For the Nisoic phylogenetic subgrouping, SplitsTree generates 11 clades and MrBayes 10 clades for Nisoic. At the meso-cladistic level of Nisoic subgrouping, six meso-clades, including Nisoish, Lisoish, Kazhuoish, Nusu-Naxish, Hani-Lahoish, and Mondzish, can be estimated by Neighbor-Net. At the same level of subgrouping, seven meso-clades, including Nisoish, Lisoish, Kazhuoish, Nusu-Naxish, Lahoish, Hanish, and Mondzish, were generated by Bayesian inference. The only difference lies in the combination of the Hanish and the Lahoish clades, where SplitsTree treat them as one and MrBayes treat them independently. Though there are some minor differences in cladistic subgroupings, the results of these two analyses are the same for the Nisoic subgrouping. Moreover, the results of phylogenetic subgrouping are basically the same as the result of Nisoic subgrouping based on the shared innovation in Chapter 5, where it proposed eight groups for Nisoic: Nisoish, Lisoish, Kazhuoish, Nusoish, Naxish, Lahoish, Hanish, and Mondzish. In addition, two super clades can be estimated from the Nisoic phylogenetic subgrouping: Southern Nisoic Macro-Clade and Northern Nisoic Macro-clade.

For the Niso-Burmic phylogenetic subgrouping, Bayesian inference estimates seven meso-clades for it: Nisoish, Lisoish, Kazhuoish, Naxish, Hani-Lahoish, Mondzish, and Nusu-Burmish while Neighbor-Net analysis predicts nine meso-clades: Nisoish, Lisoish, Kazhuoish, Naxish, Hanish, Lahoish, Mondzish, Nusoish, and Burmish. The results of these two phylogenetic estimations are the same in nature. The only difference lies in the combination of clades in Bayesian analysis, in which the Hanish clade and the Lahoish clade were treated as one meso-clade and the Nusoish clade and the Burmish clade made up another one. In chapter 5, I proposed nine language groups for the Niso-Burmic Branch, including: Nisoish, Lisoish, Kazhuoish, Nusoish, Naxish, Lahoish, Hanish, Burmish, and Mondzish. It is surprising that the subgroupings of Niso-Burmic descent estimated by phylogenetic computation essentially match with those of comparative research conducted in Chapter 5. Additionally, two super clades can be

estimated from the Niso-Burmic phylogenetic subgrouping by MrBayes: Southern Niso-Burmic Macro-Clade and Northern Niso-Burmic Macro-clade.

The results of Nisoic and Niso-Burmic phylogenetics subgrouping by the application of both Bayesian and Neighbor-Net approaches can confirm the Nisoic and Niso-Burmic subgroupings based on the shared phonological and lexical innovations.

Thought, at the level of meso-clade (i.e., group level) subgrouping, the phylogenetic and comparative methods basically produced the same results for both Nisoic and Niso-Burmic. However, at a lower level (or language pair), the two methods show some difference. For example, Laluba and Lisu are estimated the two closest language pair in these two phylogenetic approaches, while they were treated independent languages in Chapter 5. Axi and Azhe were treated as the two closest language pair among all the Nisoic languages under study in Chapter 5, but it turns out that Sani and Axi are the two languages that share much in common in this chapter. Such an inconsistency may be caused by the different criteria used in subgrouping. For example, both Nisoic and Niso-Burmic subgroupings in Chapter 5 are based purely on the attested evidence of shared phonological and lexical innovations; however, Nisoic and Niso-Burmic subgroupings in this chapter is based on the all possible facts, including shared innovations, phonological patterns, and features, etc. Hence, it would be not surprise if there are some differences in the results of these subgroupings.

Finally, unlike previous phylogenetic studies (Gray & Atkinson 2003, for example) that were often provided with time scale for taxon splits in phylograms, this dissertation is unable to put time points for such a split of descent, since there is no extralinguistic data available for clade members that would allow me to put a time scale on the numerical lengths.

Nevertheless, the phylogenetic estimate by these two analyses is a hypothesis about the divisions in the Nisoic Branch and the Niso-Burmic Branch, and it basically supports the hypotheses of Nisoic and Niso-Burmic subgroupings based on the shared innovations in Chapter 5.



## CHAPTER 7

### CONCLUSIONS

This chapter summarizes the key findings of this dissertation and points out the significance and limitation of it.

#### 7.1 Summary of the Dissertation Research

This dissertation has focused on the subgrouping of Nisoic using two different approaches. The first approach is a comparative study where I have particularly relied on the evidence of shared innovations found in the phonology and lexicon of the Nisoic languages under investigation. The database used in this comparative research contains 300 basic words for each of 37 Niso-Burmic languages (34 for Nisoic and three for Burmic). The subgrouping in light of the method of shared innovation generated eight subgroups for the Nisoic Branch, including Nisoish, Lisoish, Kazhuoish, Nusoish, Naxish, Lahoish, Hanoish, and Mondzish. Among these eight Nisoic groups, Nisoish, Kazhuoish, and Lisoish are closely related and can form a super group called Ni-Li-Kazhuoish. The Mondzish group was found to be the language subgroup that split off from the Nisoic at the earliest date (cf. Figure 7.1).

The second approach is a phylogenetic computation. I made use of two lines of attack to the Nisoic phylogeny problem—Bayesian inference and Neighbor-Net analyses; these two were used to estimate the historical evolution of Nisoic. MrBayes 3.2.1 and SplitsTree 4.12.3 were the implementation of the two phylogenetic analyses, which processed the dataset. This phylogenetic database is a matrix containing 38 languages (37 Niso-Burmic and WT) and 4099 character states, which were derived from 246 characters (words chosen from the 300 basic items of the comparative database). MrBayes estimated that there exist seven meso-clades: Nisoish, Lisoish, Kazhuoish, Nusu-Naxish, Lahoish, Hanish, and Mondzish, while SplitsTree generated six meso-clades: Nisoish, Lisoish, Kazhuoish, Nusu-Naxish, Hani-Lahoish, and Mondzish. Though the numbers of the meso-clades are a bit different in the two cladistic

results, the outcomes are essentially confirmatory and roughly equivalent to the result of the Nisoic subgrouping based on shared innovations (cf. Chapter 6).

The points of difference in phylogenetic and comparative results are probably due to the differences in data treatments. The subgrouping of comparative study was based purely on the shared phonological and lexical innovations, but the phylogenetic subgroupings considered broader aspects than just cognates, it not only took account of just the initial consonants, which was the primary focus of the comparative work, but also measured words as a whole, shared retentions, vowels, and tones. Therefore, the difference of the results of the Nisoic subgroupings is not significant and is expected.

I also applied the subgrouping methods to the classification of the Niso-Burmic languages. For the comparative method, it proposed that there exist nine subgroups for Niso-Burmic, including Burmish and the eight Nisoic groups. It seems that the first bipartition of Niso-Burmic is not the Nisoic and the Burmic stocks, instead, Mondzish is the language group that first branched off from proto-Niso-Burmic, and then Burmish and the other Nisoic groups. Hence, I would like to claim that the terms *Nisoic* and *Burmic* are not appropriate any longer in Niso-Burmic classification and only the term *Niso-Burmic* should be used henceforth (see Figure 7.1 below).

For the Niso-Burmic phylogenetic subgrouping, both Bayesian inference and Neighbor-Net methods estimated seven meso-clades: Nisoish, Lisoish, Kazhuoish, Naxish, Hani-Lahoish, Mondzish, and Nusu-Burmish. Additionally, two super clades can be estimated from the Niso-Burmic phylogenetic subgrouping by MrBayes: the Southern Niso-Burmic Macro-Clade and the Northern Niso-Burmic Macro-clade. The southern Niso-Burmic macro-clade includes meso-clades Burmish, Hanoish, Mondzish, Lahoish, and Nusoish, and the northern Niso-Burmic macro-clade has meso-clades Nisoish, Lisoish, Kazhuoish, and Naxish.

The result of Niso-Burmic phylogenetic subgrouping is essentially the same as the Niso-Burmic subgrouping based on the shared innovations discussed in Chapter 5, which proposed nine subgroups for the Niso-Burmic Branch. As mentioned above, the difference between the results of these two approaches was due to the criteria used.

Finally, as discussed in Chapter 4, the Nisoic ethnic people can be dated back to three ancient ethnic groups: \*Ni, \*Pu, and \*Man (Cf. Figure 4.3). The \*Man was an individual ethnic group that may have a different origin from the ancient \*Ni and \*Pu ethnic groups. The idiosyncratic behavior of the Mondzish language in the comparison and computation corroborated this uniqueness. At a mid-level of subgrouping (linguistic cluster level), the linguistic classification and the phylogenetic subgrouping are largely consistent with the autonymic classification for the Nisoic ethnic groups. For example, the Ni ethnic groups Nuosu, Niesu, Nisu, Nasu, Nesu, and so forth show a close language relationship among them, which is called Nisoid. However, there are some discrepancies. For example, the Nusu language is expected to be closely related to Nuosu, Nesu, Nasu, and Nisu, etc., but it appears distant from these Nisoid languages. Thus, I would point that an autonym, as a marker of psychological identity for people, can give some clue in judging language relatedness, but it cannot be used alone to determine language subgrouping.

## 7.2 Limitations and Further Research

Though, I have strived to bring as much data different methods to solve the riddle of the Niso-Burmic Branch, errors must creep into the data and into the encoding of it despite careful and continuous review. Besides, comparison of a large assemblage of lexical data for 37 Niso-Burmic languages is not an easy task. Even though the results of Niso-Burmic subgrouping are largely congruent to one another, there must be limitations that have existed in this dissertation research.

First, there remains uncertainty about the language clusters of southeast Yunnan. For the data collected from that area are not always sufficient to represent all the Nisoic languages spoken there.

Secondly, I must admit that investigators did not know a target language well enough or faced communication problems during fieldwork. So sometimes they only quoted one form for a gloss, which in fact, may have had several forms. For example, Nuosu has *e21tʂhɿ55*, *i55go21*, and *zɿ33* three forms for word ‘water’, Lahu *i35ka54*, which apparently corresponds to Nuosu *i55go21*, and the rest of Nisoic languages corresponded to Nuosu *e21tʂhɿ55* or to *zɿ33*. A language has multiple word forms for one gloss, suggesting that these forms were existed in an earlier stage and preserved them in its descent or

possibly they were acquired from language contact, cf., English *stone* and *rock*. In whatever case, unawareness or negligence of all possible forms of a gloss may have caused inaccuracy in language subgrouping. Being as native speaker of Nuosu, I have used my intuition to judge cognacy while comparing Niso-Burmic languages and that might have prejudiced the results.

Thirdly, sometimes semantic shift of a word may cause trouble in subgrouping. One may occasionally find a cross-correspondence case in which language X has a form under gloss A corresponding to the form under gloss B of language Y, while language X's form under gloss B corresponds to the form under gloss A of language Y. History can cross up glosses e.g. English uses the word *die* for the gloss 'to perish', while German use the word *sterben*, which corresponds to English *starve*. A similar example involves a semantic shift 'to chew' and 'to bite', other examples are 'to wear (clothes)' vs. 'to put on (shoes)'; 'to hide oneself from' vs. 'to hide something', 'to borrow (money)' vs. 'to borrow (a tool)'; 'to braid' vs. 'to weave', and 'to exchange something with someone' vs. 'to change a clothing', etc. I used repeated checking of the database to verify that the lexical data did not contain such examples. One must remember though that the phylogenetic methods provide estimates of a phylogeny and that a small number of hidden loans may not invalidate the whole and at the same time remember that too many errors in data can cause invalid results. That said the agreement of the subdivision by shared innovation and the computation results give me confidence in the results.

### 7.3 Significance of this Research

This dissertation proposed eight groups for Nisoic and nine for Niso-Burmic, which are dramatically differs from those of previous investigators (Bradley (1979, 1997, Dai et al. 1989, 1990, and Sun 1988, among others).

The significance of this dissertation can be summarized as follows : (1) It is the first time that one has investigated the linguistic genetic relationship of so many Nisoic languages (34 in total); (2) No one, to my knowledge, has relied on such a large body of Nisoic field work and other sources (300 word database in 37 languages); (3) Great time was spent to develop a comprehensive solution to Nisoic subgrouping by using multiple approaches; particularly, it is a key feature of this dissertation to estimate a

complete evolutionary history for Nisoic using cladistic methods. The result provides strong confirmation of the subgrouping of the comparative study (Chapter 5); (4) A surprising result emerged that the Nisoic Branch and the Burmic Branch were not two divisions that split first within Niso-Burmic; (5) It is the first, I believe, to incorporate Burmic as a language group into the other eight groups under Niso-Burmic; (6) The importance of Mondzish (Maang and Mondzi) is laid bare here, since this lesser-studied language group has proved to be the oldest sister that split at the earliest time from the Niso-Burmic Branch; (7) Naxish, including Namuzi, is a member of Niso-Burmic; and (8) Lahu is a singleton subgroup of Niso-Burmic.

I would like to end this endeavor of some years with a diagram of Nisoic-Burmic in full form in Figure 7.1 to represent my understanding of the language relationship under the Niso-Burmic Branch. However, as more data will certainly arise in the future the result of the Niso-Burmic subgrouping might be different. Nevertheless, the strong hypothesis presented here in Figure 7.1 is likely to be part of those future thoughts on Niso-Burmic.

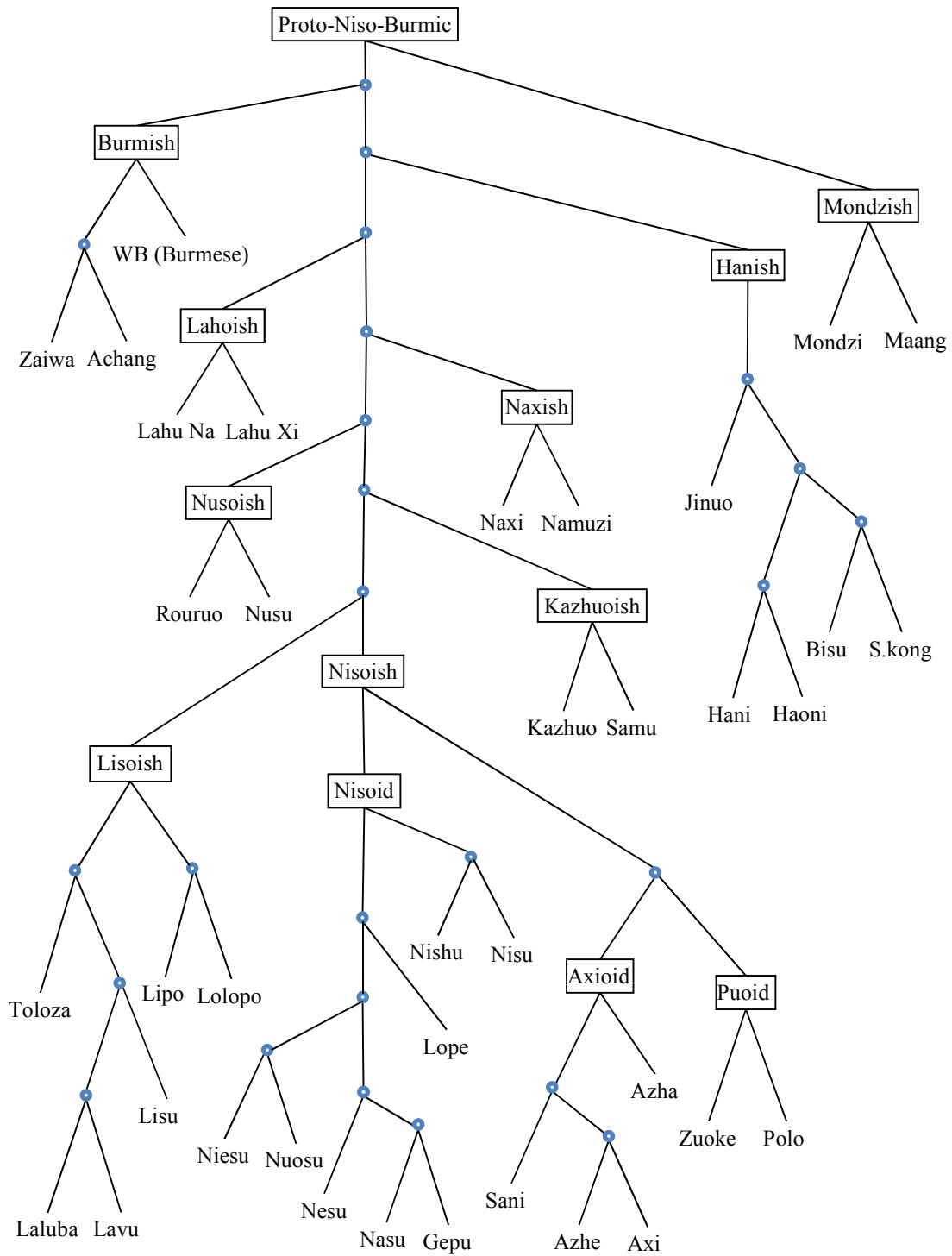


Figure 7.1 The family tree of the Niso-Burmish Branch (= Figure 5.30)

APPENDIX A  
QUESTIONNAIR FOR SUBGROUPING NISOIC LANGUAGES

Informant Name:  
Informant DOB:  
Informant Career:

**Section 1: General linguistic/cultural group questionnaire**

1. The autoym of your cultural group: \_\_\_\_\_
2. The exnoym of your cultural group: \_\_\_\_\_
3. The name of your native language: \_\_\_\_\_
4. How do people call your language: \_\_\_\_\_
5. How do you call the people who live close to you own group: \_\_\_\_\_; do you and your neighbor share the same culture? \_\_\_\_; if any, your group with that group has been put together under a minority term such as Yi, Hani, and so forth, do you think this is acceptable or reasonable? \_\_\_\_; in what degree, you and they have a ethnic identity as a termed minority (chosed one from the weakest scale 1 to the strongest scale 7)?  
(weakest) 1 \_\_\_\_\_ 7 (strongest)
6. How do you call the Yi people? \_\_\_\_\_ .
7. How do you call the Hani people? \_\_\_\_\_ .
8. How do you call the Lisu people? \_\_\_\_\_ .
9. How do you call the Lahu people? \_\_\_\_\_ ; and Kucong people? \_\_\_\_\_ .
10. How do you call the Jinuo people? \_\_\_\_\_ .
11. How do you call the Naxi people? \_\_\_\_\_ .
12. How do you call the Mosuo people? \_\_\_\_\_ .
13. How do you call the Mongolian people who live in Yunan? \_\_\_\_\_ .
14. How do you call the Nuzu (Nusuren) people? \_\_\_\_\_ .

**Section 2: Yi writing system questionnaire**

15. Do you favor a united Yi writing system for all the Yi people living in Sichuan, Yunnan, Guizhou, and Gangxi? \_\_\_\_\_; in what degree?  
1 \_\_\_\_\_ 7
- or do you favor a Yi writing system which bases on a dialect that covers several closely linked culture groups such as Eastern Yi dialect, Southern Yi dialect, ? \_\_\_\_\_; in what degree?  
1 \_\_\_\_\_ 7
- or do you favor a localized Yi writing system which only bases on your own cultural group's speech? \_\_\_\_\_; in what degree?  
1 \_\_\_\_\_ 7



16. Do you favor the Sichuan Yi based writing system as the standard characters for all the Yi people living in Sichuan, Yunnan, Guizhou, and Gangxi? \_\_\_\_\_; in what degree?

1 \_\_\_\_\_ 7

17. Do you favor a united Yi writing system based on the traditional writtrn form (that is the ideographic characters) for all the Yi people living in Sichuan, Yunnan, Guizhou, and Gangxi? \_\_\_\_\_; in what degree?

1 \_\_\_\_\_ 7

18. Do you favor a united Yi writing system based on the syllabary form like the one currently being used in Sichuan for all the Yi people living in Sichuan, Yunnan, Guizhou, and Gangxi? \_\_\_\_\_; in what degree?

1 \_\_\_\_\_ 7

19. With regard to chosing a writing form, do you favor the Sichuan style? \_\_\_\_\_, in what degree?

1 \_\_\_\_\_ 7

or do you favor the Guizhou style? \_\_\_\_\_, in what degree?

1 \_\_\_\_\_ 7

or do you favor the Yunnan style? \_\_\_\_\_, in what degree?

1 \_\_\_\_\_ 7

or other style? \_\_\_\_\_, in what degree?

1 \_\_\_\_\_ 7

20. Do you want to learn a newly standarized Yi writing system? \_\_\_\_\_, in what degree?

1 \_\_\_\_\_ 7

and do you want your children to learn this writing system? \_\_\_\_\_, in what degree?

1 \_\_\_\_\_ 7

to what level? elementary \_\_\_\_\_; middle school \_\_\_\_\_; or university \_\_\_\_\_?

21. Do you prefer to learn Chinese rather than Yi? \_\_\_\_\_; in what degree?

1 \_\_\_\_\_ 7

or Yi rather than Chinese? \_\_\_\_\_; in what degree?

1 \_\_\_\_\_ 7

22. Do you want your children to learn Chinese rather than Yi? \_\_\_\_\_; in what degree?

1 \_\_\_\_\_ 7

or Yi rather than Chinese? \_\_\_\_\_; in what degree?

1 \_\_\_\_\_ 7

APPENDIX B  
THE 600 WORDS THAT WERE INVESTIGATED

录/记音人：拉玛兹偃 录/记音时间： 录/记音地点：  
发音人： 年龄： 职业： 学历：

现在地址：

语言： 方言： 次方言： 土语： 次土语：

自称： 他称：

语言点地址：

语言分布：

### 名词

001 天	002 地
003 太阳	004 月亮
005 星星	006 空气
007 打雷	008 闪电
009 地震	010 云
011 风	012 雨
013 雪	014 水
015 山	016 悬崖
017 火	018 烟
019 金	020 银
021 铜	022 铁
023 石头	024 年
025 月	026 日
027 人	028 大人
029 小孩	030 话语
031 生命	032 力气
033 祭祀	034 梦
035 灵魂	036 神
037 鬼	038 菩萨
039 尸体	040 棺材
041 药	042 纸
043 身体	044 头
045 头发	046 脸
047 眼睛	048 眼泪
049 眉毛	050 鼻子
051 耳朵	052 嘴
053 嘴唇	054 牙齿

055 舌头  
057 颈子  
059 手  
061 肚子  
063 腿  
065 脚跟  
067 骨头  
069 皮肤  
071 胃  
073 心脏  
075 肺  
077 肠子  
079 男生殖器  
081 痣  
083 汗  
085 鼻涕  
087 疮疤  
089 尿  
091 爷爷  
093 父亲  
095 舅舅  
097 女儿  
099 土司  
101 钱  
103 生意  
105 种子  
107 稻子  
109 大麦  
111 黄豆  
113 油  
115 花椒  
117 糖  
119 午餐  
121 肉  
123 路  
125 床  
127 门  
129 锁  
131 梯子  
133 瓦

056 胡子  
058 肩膀  
060 胸膛  
062 腰  
064 脚  
066 膝盖  
068 骨髓  
070 血  
072 肾  
074 肝  
076 胆  
078 尾巴  
080 女生殖器  
082 筋  
084 口痰  
086 脓  
088 屁  
090 尿  
092 奶奶  
094 母亲  
096 儿子  
098 侄子  
100 官员  
102 价  
104 债务  
106 米饭  
108 荞麦  
110 小麦  
112 菌子  
114 盐  
116 酒  
118 早餐  
120 晚餐  
122 肥肉  
124 桥  
126 房子  
128 门槛  
130 钥匙  
132 木板  
134 钉子

135 楔子  
137 锅  
139 裤子  
141 线  
143 箭  
145 口弦  
147 马  
149 山羊  
151 翅  
153 猪  
155 虱子  
157 猴  
159 豹子  
161 獐子  
163 兔子  
165 蛇  
167 鹰  
169 蛙  
171 树  
173 叶子  
175 竹笋  
177 草

#### 动词

179 说  
181 (小孩子开始)开口(说话)  
183 哭  
185 坐  
187 见面  
189 嗅  
191 咬(着牙)  
193 (被狗)咬  
195 舔  
197 (被食物)噎  
199 吹(火)  
201 跑  
203 回来  
205 到达  
207 踩(一脚)  
209 看[自]  
211 听[自]

136 连枷  
138 衣服  
140 针  
142 弓  
144 枪  
146 牛  
148 绵羊  
150 鸡  
152 蛋  
154 狗  
156 猫  
158 虎  
160 麂子  
162 狐狸  
164 鼠  
166 鸟  
168 蜜蜂  
170 鱼  
172 根  
174 竹子  
176 花  
178 刺

180 问话  
182 笑  
184 骂  
186 (从地上)站起来  
188 闭(眼)  
190 擤(鼻涕)  
192 嚼  
194 (被蛇)咬  
196 吞  
198 吐(痰)  
200 走(路)  
202 来  
204 去  
206 跳  
208 蹬(一脚)  
210 看[使]  
212 听[使]

213 吃[自]  
215 喝[自]  
217 睡觉[自]  
219 站立[自]  
221 骑[自]  
223 戴(帽子)[自]  
225 穿(鞋)[自]  
227 穿(衣)[自]  
229 (小孩)滚[自]  
231 背(柴)[自]  
233 背(小孩)[自]  
235 (用肩)挑[自]  
237 弯曲[自]  
239 挂(墙上)[自]  
241 (棍子)断[自]  
243 (绳子)断[自]  
245 (东西)坏[自]  
247 (野火)烧[自]  
249 燃烧[自]  
251 涉(河)  
253 枕(头)  
255 拿(走)  
257 丢失  
259 寻找  
261 抢  
263 推  
265 藏  
267 吓(小孩)  
269 搯  
271 (用棍子)打  
273 钉(钉子)  
275 杀  
277 戳  
279 射(箭)  
281 切(菜)  
283 砍(树)  
285 砍(肉)  
287 (把树干)砍成(两节)  
289 搯  
291 压

214 吃[使]  
216 喝[使]  
218 睡觉[使]  
220 站立[使]  
222 骑[使]  
224 戴(帽子)[使]  
226 穿(鞋)[使]  
228 穿(衣)[使]  
230 (小孩)滚[使]  
232 背(柴)[使]  
234 背(小孩)[使]  
236 (用肩)挑[使]  
238 弯曲[使]  
240 挂(墙上)[使]  
242 (棍子)断[使]  
244 (绳子)断[使]  
246 (东西)搞坏[使]  
248 (野火)烧[使]  
250 燃烧[使]  
252 攀(树)  
254 靠(在某人身上)  
256 给  
258 捡  
260 偷  
262 追赶  
264 阻挡  
266 甩(石头)  
268 打架  
270 (用鞭子)抽打  
272 (用拳直线)冲击  
274 撮(谷子)  
276 刺(一刀)  
278 (被刺)扎(了一下)  
280 拔(剑)  
282 磨(刀)  
284 砍(树枝)  
286 砍(玉米秆)  
288 劈(成两半)  
290 拧  
292 砸

293 堵住(洞)  
295 揉(面团)  
297 放掉(笼子里头的鸟)  
299 解开(绳结)  
301 编(辫子)  
303 拔(草)  
305 掐掉(叶尖)  
307 刮(胡子)  
309 削(萍果)  
311 簸(粮食)  
313 推(磨)  
315 (用升子)量(米)  
317 加(饭)  
319 搅拌  
321 开(门)  
323 扫(地)  
325 搬(椅子)  
327 (两人共)抬(一东西)  
329 弹(指)  
331 (用钻子)钻  
333 (用深锄)挖(地)  
335 穿(线)  
337 赶(牛羊)  
339 (把东西)埋入(土)  
341 洗(衣服)  
343 (用水)冲洗(管子里的污垢)  
345 泡(衣服)  
347 (房子)漏(雨)  
349 晒(衣服)  
351 (烟)熏(眼睛)  
353 (在家里)睡觉  
355 睡醒  
357 梳(头)  
359 (蝉)脱(壳)  
361 换(件衣服穿)  
363 交换  
365 带(路)  
367 伸(腰)  
369 缩(腿)  
371 娶

294 (用棍子)撑住  
296 搓(麻绳)  
298 (绳结自己)松开  
300 编(竹篮)  
302 织(麻布)  
304 割(草)  
306 剪(羊毛)  
308 剃(头)  
310 切成(薄片)  
312 筛  
314 舂(粮食)  
316 炒(菜)  
318 舀(水)  
320 (把门)锁上  
322 关(门)  
324 抹(桌子)  
326 卷(窗帘)  
328 抱(小孩)  
330 弹(三弦)  
332 (用锯子)锯  
334 做(活儿)  
336 牵(牛)  
338 放牧  
340 染(衣服)  
342 (用净水)清涮(碗筷)  
344 (被雨)淋透  
346 (水满)溢(出来)  
348 (桶)漏(水)  
350 烤(火)  
352 休息(一会儿)  
354 (睡觉时)翻身  
356 (酒后)清醒  
358 脱(衣服)  
360 (蛇)蜕(皮)  
362 替换  
364 挑选  
366 等(人)  
368 伸(腿)  
370 瘙痒  
372 嫁

- 373 生(小孩)  
375 (小孩在地上)爬  
377 长(身体)  
379 起(皱纹)  
381 喊(人)  
383 (虎)吼  
385 卖  
387 欠(钱)  
389 有(钱)  
391 会(做)  
393 粘住  
395 (日)出  
397 (天)亮  
399 刮(风)  
401 结(冰)  
403 (河水在)流  
405 (东西)沉入(水底)  
407 (河流)干涸  
409 发(芽)  
411 结(果子)  
413 (树)倒  
415 (房子)垮  
417 垫  
419 下(蛋)  
421 (马)驮(东西)  
423 (蜜蜂)螫(人)  
425 倒(水或垃圾)  
427 炸(猪油)  
429 (水)烧开(了)  
431 (被火)烫(了一下)  
433 (头)昏  
435 (刺)疼  
437 (伤口因发炎而)肿  
439 传染  
441 治疗  
443 解(大便)  
445 教(学生)  
447 写(字)  
449 考虑  
451 像(某人)  
374 养(牲畜)  
376 蠕动  
378 玩耍  
380 (牙齿)摇动  
382 (鸡)鸣  
384 买  
386 借(钱)  
388 余  
390 (她)在(家)  
392 是  
394 褪色  
396 (日)落  
398 (天)黑  
400 下(雪)  
402 (脚)冻裂  
404 漂浮  
406 沉陷  
408 (血)变干  
410 (花)开(了)  
412 (叶子)掉落  
414 腐朽  
416 拆掉  
418 生霉  
420 (鸟)啄(树干)  
422 (鸟)飞  
424 (牛用角)抵(人)  
426 (雪)融化  
428 炼(铁)  
430 (被开水)烫  
432 病  
434 (头)疼  
436 呻吟  
438 浮肿  
440 熬(药)  
442 死  
444 解(小便)  
446 学  
448 数(数字)  
450 记住  
452 爱(小孩)



453 认识(她)

455 相信

457 想要

**形容词/副词**

459 大

461 高

463 (姑娘)漂亮

465 (肉)肥

467 (人)胖

469 新

471 长

473 粗

475 厚

477 (路)宽

479 (衣服穿起来感到)宽

481 远

483 多

485 (水)深

487 (水)清

489 明亮

491(光泽)亮

493 (木棒)直

495 (线条)直

497 (路)蜿蜒

499 轻

501 软

503 (菜)嫩

505 (衣服)干

507 红

509 白

511 冷

513 酸

515 苦

517 涩

519 香

521 (舌头感到)麻

523 渴

525 饿

527 足够

529 痒

454 理解

456 想(某人)

458 商量

460 小

462 矮

464 丑

466 (肉)瘦

468 (人)瘦

470 旧

472 短

474 细

476 薄

478 (路)窄

480 (衣服穿起来感到)窄

482 近

484 少

486 (水)浅

488 (水)浊

490 暗淡

492 (太阳光)亮

494 (木棒)弯

496 (线条)斜

498 (嘴)歪

500 重

502 硬

504 (菜煮)老

506 (衣服)湿

508 黄

510 黑

512 热

514 甜

516 辣

518 咸

520 臭

522 (腿)麻木

524 (吃)饱

526 (肚子)胀

528 (水)满

530 醉

531 (起得)迟  
533 (走路)快  
535 拥挤  
537 害怕  
539 疯  
541 真实  
543 穷  
545 牢固  
547 (动物)温顺的  
549 锋利  
551 别(做)

#### 代词

553 我  
555 咱们  
557 你们  
559 他们/她们  
561 别人  
563 这个  
565 这些

#### 数量词

567 一  
569 三  
571 五  
573 七  
575 九  
577 十一  
579 九十  
581 千  
583 单数  
585 (一)个(人)  
587 (一)代(人)  
589 (一)把(刀)  
591 (一)滴(水)  
593 (一)条(路)  
595 (一)排(人)  
597 (一)顿(饭)  
599 (一)步(路)  
601 (做)(一)次  
603 (一)庹(两臂平伸时两中指之间的距离)

532 (起得)早  
534 懒  
536 (路)滑  
538 害羞  
540 错  
542 骗  
544 富  
546 (房子)空  
548 (动物)野的  
550 聋  
552 不

554 我们  
556 你  
558 他/她  
560 自己  
562 谁  
564 那个  
566 那些

568 二  
570 四  
572 六  
574 八  
576 十  
578 二十  
580 百  
582 万  
584 对数  
586 (一)家(人)  
588 (一)朵(花)  
590 (一)张(牛皮)  
592 (一)节(竹子)  
594 (一)串(鱼)  
596 (一)双(筷子)  
598 (一)背(柴)  
600 (打)(一)次  
602 (去)(一)趟  
604 (一)拃

APPENDIX C

WORD DATABASE: A 300 WORD-LIST

<u>Language</u>	<u>Place</u>
Nuosu (诺苏)	Xide 喜德
Niesu (聂苏)	Dechang 德昌
Nesu (呢苏)	Weining 威宁
Nasu (纳苏)	Wuding 武定
Gepu (葛濮)	Luquan 禄劝
Nisu (尼苏)	Jiangcheng 江城
Nishu (尼书)	Xinping 新平
Samu (撒慕)	Guandu 官渡
Sani (撒尼, or Ni尼)	Shilin 石林
Azhe (阿哲)	Mile 弥勒
Axi (阿细)	Mile 弥勒
Laluba (腊鲁拔)	Weishan 巍山
Tolozha (妥罗子)	Lijiang 丽江
Lavu (拉乌)	Yongsheng 永胜
Lolopo (罗倮泼)	Nanhua 南华
Lipo (俚泼)	Dayao 大姚
Lisu (傈僳)	Fugong 福贡
Lahu (拉祜纳)	Lancang 澜沧
Bisu (毕苏)	Lancang 澜沧
Hani (哈尼)	Luchun 绿春
Haoni (豪尼)	Mojiang 墨江
S.kong (=Sangkong 桑孔)	Jinghong 景洪
Mondzi (曼子)	Funing 富宁
Maang (么昂)	Funing 富宁
Azha (阿扎)	Wenshan 文山
Zuoke (作科)	Wenshan 文山
Lope (倮培)	Mile 弥勒
Polo (泼倮)	Yanshan 砚山
Namuzi (纳木兹)	Muli 木里
Naxi (纳西)	Lijiang 丽江
Nusu (怒苏)	Bijiang 碧江
Rouruo (柔若)	Lanping 兰坪
Kazhuo (卡卓)	Tonghai 通海

Jinuo (基诺)	Jinghong 景洪
WB (Written Burmese 缅文)	Yangon 仰光
Achang (阿昌)	Longchuan 陇川
Zaiwa (载瓦)	Luxi 潞西

### **Proto-Forms Sources and Notes:**

Three Nisoic proto form reconstructions are given in this word database: Matisoff, Bradley, and Lama (my own). In actual comparison, we adopt my own version but referring to these harbingers' reconstructed forms when needed.

- PLB: PLB forms are Matisoff's Niso-Burmese reconstructions. These forms were taken mainly from *The Loloish Tonal Split Revisited* (1972); some are from *Handbook of Proto-Tibeto-Burman: System and Philosophy of Sino-Tibetan Reconstruction* (2003).
- PL: PL forms are Bradley's Nisoic reconstructions, which were taken from his *Proto-Loloish* (1979).
- PN: PN (Proto-Nisoic) represents my own reconstruction for proto Nisoic language.
- If a proto form is a stop-coda syllable, then the tonal marker is labeled with a superscript capital letter H or L.

### **Compared Language Sources:**

- Self-elicited data: Nuosu, Niesu.
- ZL 2003 (Self-investigated Languages): Gepu, Samu, Lipo, Azha, and Maang.
- YYFC 1983: Nesu, Nisu, Nishu, Azhe, Toloza, Lavu, Mondzi, Zuohe, Polo and Lope (or Awu).
- TBL 1992: Nasu, Sani (or Ni), Laluba, Lolopo, Lisu, Lahu (i.e. Lahu Na), Hani, Haoni, Namuzi, Naxi, Nusu, Kazhuo, and Jinuo.

[Note: A lot of the Lisu data of TBL 1992 were messed up by placing a word in a wrong position; for example, the word for *father* was mistakenly placed under the position of *mother*. This chaos was cleared up by refereeing to *Lisuyu Jianzhi*.]

- TBPL 1991: Axi (most items of Axi were taken from TBPL but some were from YYFC 1982 when they are not available from TBPL 1991).
- Bisuyu 毕苏语 (Xu 1998): Bisu.
- Sangkongyu Yanjiu 桑孔语研究 (Li 2002): S.kong (i.e. Sangkong).
- Rouruoyu Yanjiu 柔若语研究 (Sun et al. 2002): Rouruo (also as Zaozuo).

**IPA Symbol Rendition Notes:**

- Both the rhoticity symbols (·) and -r (after a vowel) of Lope (Awu) are treated as only rhoticity mark (·) in this database as they are not phonemically contradictory in the original data.
- All the vowels [ɔ] and [A] of original data are written as [ʊ] and [a] in this database, respectively. This affects languages Nesu, Nisu, Nishu, Azhe, Toloza, Lavu, Mondzi, Zuoke, Lope, and Polo.
- The original IPA [A] of Axi is written as [a], because the original data doesn't have [a].
- The [E] of Laluba of TBL 1992 is treated as [ɛ] in this database because the original data doesn't have [ɛ].
- The prenasal [N] of Namuzi (TBL 1992) is treated as a homorganic nasal to the followed consonant: for example, [nb-] is written as [mb-].
- The vowel # is used to replace the labial-palatal approximant *ɥ* of Lavu original data.

**Organization of the wordlist:**

The ordering of items in this database is according to the semantic-fields and reflects the process of elicitation of vocabulary in a fieldwork setting. It is ordered as below:

- #001-#026: Heaven, Nature
- #027-#072: Human being, organs, callings
- #073-#085: Money, agriculture, food
- #086-#093: Construction, housing, tools
- #094-#119: Animals
- #120-#126: Plants

- #127-#239: Actions (verbs)
- #240-#284: Adjectives
- #285-#287: Pronouns
- #288-#300: Numbers, classifiers

<u>Language</u>	<u>Autonym</u> 自称	001 Sky 天	002 Earth 地
*PLB	---	məw2	
*PL	---	mo2	?-mreltsa2
*PN	*ni <sup>2</sup> , *phu <sup>2</sup> , *maŋ <sup>1</sup>	*mu <sup>1</sup> , *muŋ <sup>1</sup>	*mri <sup>1</sup>
Nuosu	ni21, nɔ33su33	mu33vu55	mu44du33
Niesu	ni21, nie33su33	mu33vo55	mu44du33
Nesu	nɤ55su13	mi33	mi13
Nasu	na33su33(pho55)	my33	mi33
Gepu	ko33phu44	mə33	mi33
Nisu	nie33su55	mu33	mi55
Nishu	ŋe33ɕu55	mu33	mi55
Lope	lo213phu21	mu33	mi44
Samu	sa33mu33	nu33	ni33puɤ33
Sani	ni21	ŋi11	mi44
Azhe	a21dɛ22(pho21)	mu21	mi33
Axi	a21ei55(pho21)	mu21phi33	mi33du21
Laluba	la21lu33(pa21)	mu21du55	?mi55ti33, mi21
Tolozá	tho55lo33za33	my33	mi21
Lavu	la55vu55	ŋ21du55mu33	mi55lie21khu55
Lolopo	lo21lo33(pho21)	mə21	mi33
Lipo	li55pho21	a55mə21ka33	mie55nie33ba21
Lisu	li44su44	mo31kuq33	mi33ŋe33
Lahu	la53xo11	mv53no33ma33	mi31
Bisu	bisu, mbisu	muŋ31, buŋ31	---
Hani	xa31ŋi31	ɔ31	mi55tsha31
Haoni	xɔ31ŋi31	u31	mɛ55tsho31
S.kong	saŋ55qhoŋ55	muŋ31	mi55tsha31
Mondzi	mo21ndzi21	mo21	mie13
Maang	maŋ33	mau35	nei55
Azha	a33tɕa33	mi33	mi55
Zuoke	dzu21khu33	mu44	mi33
Polo	pho55lo55	mɤ13	mɛ33
Namuzi	næ55mu33zɔ31	næ55ŋkhaɛ31mu31	dzu55kua55
Naxi	na21ei33	mu33	dy21
Nusu	nu33su33	mu55	lia33
Rouruo	zo55zo33tehi33	mu33	mi33ti33
Kazhuo	kha55tso31	ŋ31tha33	tɕi35
Jinuo	tɛy44no44, ki44ŋo44	tsho55na42	mi31tsha55
WB	bama saka, myamma saka	mo3	mre2
Achang	ŋa31tɕhaŋ31	mau31	mi55
Zaiwa	tsau31va51	mau21khuŋ51	mji51kuŋ51



Language	003 Sun 太阳	004 Moon 月亮	005 Star 星星
*PLB	---	s/?-la3; s-la3	?-grəy1
*PL	mo2, (?)-ne1	bəla3	(?)-gray1
*PN	*mjiʔ <sup>H</sup> ŋgju <sup>1</sup>	*slo <sup>2</sup> bo <sup>2</sup>	*(mu1)kruy <sup>1</sup>
Nuosu	ho33bu33	fo21bo21	mu33teŋ33
Niesu	ŋie33dzɿ33	fo21bo21	mu33tɕɿ33
Nesu	ŋi21ndzhi21	lo21bo21	tɕe13
Nasu	ŋi11dzi11	ŋu2bu2	tɕo33
Gepu	mi33dzi21	ho44bo33	tɕo44zə33
Nisu	ne21dze21mo21	xo21bo21mo21	tɕe55mo21
Nishu	ne21dzi21mo21	xo21bo21mo21	tɕɕer55mo21
Lope	mu21dzi21	lu21bu21	tɕæ-44zɿ33
Samu	mu33tsho33	xo21ta25	kuw <sup>55</sup> zo33
Sani	lo11ts <sup>2</sup> 33mɔ33	fo44bɔ33mɔ33	tɕæ33zɔ11
Azhe	lo21dzɿ22	lo22bo22	ke33zo21
Axi	li55tei33	fo33bo33	tɕa33zo21
Laluba	a55m21ɣu55	xa33ba33	ce55
Tolozá	my53ŋi21	ha33bo33	tɕeʌ33
Lavu	a33tshu55	hu33bu33	kuə55
Lolopo	mə21ŋi33	eiə33bo33	ke33
Lipo	a55mə21nie33	xo33bo33	kæ <sup>55</sup> 33
Lisu	mu31mi33	hə33ba33	ku33zɔ33, kɔ33ma33ze33
Lahu	mv53ni33	xa33pa33	my21kɿ33
Bisu	muŋ31nuŋ31	u31la33	u31ku33
Hani	nə55ma33	ba33la33	a31gu55
Haoni	nu55mɔ33	pə33ɬə33	pe31ku55
S.kong	mu31nuŋ55	pe31la33	pe31ku55, a31ku55
Mondzi	mo21pei13	lie13pə21	mo21tei13
Maang	mau35pui44	mu21la21pa44	mu21tei33ma33
Azha	lə33tei21	lə33pu33	tɕə55zə33
Zuoke	ni55gi21mɔ33	lɔ33bɔ33mɔ33	teɿ33mɔ33
Polo	dzi33mɔ21	lɛ21bɔ21	teɿ33mɔ33
Namuzi	ŋi55mi55	hi55mi55	tɕɿ31(lu55)
Naxi	ŋi33me33	xe33me33	ku21
Nusu	ŋi33	ɬa31	kuw31lɔ33
Rouruo	miə31	lɔ31	ki55
Kazhuo	m31tsha33, m31ma24	xa33pa33ma33	kɿ24za31
Jinuo	ŋju42ə33	pu33ɬə42	pu33ki44
WB	ne2	la1	kraj2
Achang	ni31mɔ31	phə31lɔ?31	khzə55
Zaiwa	pui51	lɔ55mo55	tshi55zum31

<i>Language</i>	006 Air 空气	007 Thundering (打)雷	008 Lightning 闪电
*PLB	C-sak <sup>L</sup>	trek <sup>H</sup> ~ ?trek <sup>H</sup>	trek <sup>H</sup> ~ ?trek <sup>H</sup>
*PL	C-sak <sup>L</sup> (=breath)	gyan2, gro2	b-lyap <sup>L</sup>
*PN	*soʔ <sup>L</sup>	*ku <sup>L</sup>	*sliʔ <sup>L</sup>
Nuosu	so55	mu33ku33	mu33li55
Niesu	si55	mu33ku33	mu33li55
Nesu	---	mi33tɛy33	mi33dɛ13
Nasu	sq55	my33ku11	my33dɔ̄-55
Gepu	sa33	mə33gə21	mə33du33
Nisu	---	mu33tu21	mu33ŋe33tɛh33
Nishu	---	mu33tu21	mu33lɔ̄21
Lope	---	tsæ-33	mu33dæ-213
Samu	sa55	mu33ɣu55	mu33lio55
Sani	se2	ɱ11dɥ11	ɱ11ɬ55
Azhe	---	mu21ʂa22	mu21lu55
Axi	---	mu21du21	mu21lua55
Laluba	ɛi21	a55ɱ21ɥu21	a55ɱ21ba21
Tolozā	---	my55kə33lɔ̄33mɥ21	my33zi21dzɿ33
Lavu	---	ŋ21thu21(thu21)	ŋ21dzɿ21bia21
Lolopo	se33	mə21ku55dæ21	mə21zi55
Lipo	---	a55mə21ti21	a55mə21bɑ33
Lisu	se31	mu31gu31pe35	mj31yɔ31dzi31
Lahu	ɔ31ɛa35	mv55tə11tə11	mv53ti35pio21
Bisu	aŋ33sa31	muŋ31tei31khuŋ31	muŋ31bap31
Hani	sa31	ɔ31dzi31dzi31	ɔ31mjɔ31mjɔ31
Haoni	sa31	u31ɬj31ɬj31	u31ɬj31ŋi55ma31khe33
S.kong	aŋ33sa31	muŋ31tɛe31	muŋ31mbat31
Mondzi	---	mo21thəi44	mo21mia55təi53
Maang	sa33	mə21zɔ33mun44	mə21la33
Azha	se33	---	---
Zuoke	---	mu44ɣu44	mu44zi21zi21
Polo	---	mɥ13thɥ33	mi13lɛ33mia55
Namuzi	sæ35	mu55guæ31	mu55mæ31
Naxi	sa55	mu33gy33	gæ33miə21tse55
Nusu	sa53	mu55gɥu55	lɑ53
Rouruo	so53	mu33pa55	ma33ni31tɛha53
Kazhuo	sa53	m31kv55	----
Jinuo	a44sa55	tsho55na42tu44	mja42mrø55ɱ42
WB	a1ŋwe1	mo3khjin3	hljap4prak4
Achang	sui55	mau31zau31	tshä31pjik55pjik55
Zaiwa	soʔ55	mau21mjɿ51	lap55ɬhik55

<i>Language</i>	009 Earthquake 地震	010 Cloud 云	011 Wind 风
*PLB	---	dim1	---
*PL	---	mo1C-dim1	le1
*PN	*liʔ <sup>H</sup>	*(mu <sup>1</sup> ) ti <sup>1</sup>	*(mu <sup>1</sup> )sli <sup>1</sup>
Nuosu	mu44lɿ33	mu33ti33	mu33ɿ33
Niesu	mu44lɿ33	mu33ti33	mu33ɿ33
Nesu	mi13ɿ33	te13	mi33hi13
Nasu	ŋɔ11	tɔ33	ŋu33
Gepu	mi33le21	tə33	mi44hi33
Nisu	mi55lu33	te55	me33hi33
Nishu	mi55lu33	a55mu55	mie33xie33
Lope	mi44nei33	tə44	me44hẽ44
Samu	ŋi33pə33le33	teɔ53	mu33lu33
Sani	mi44tehr11	tæ44	ŋ11ɿ33
Azhe	mi33ŋu22	te33	mu21hi22
Axi	mi33tehi21	te33	mu21lu33
Laluba	mi55ɿ33	a55m21ti55	a55m21ey55
Toloz	mi21ɿ55	ɿ33pæ33	ŋ21mi55
Lavu	mi55li21mi33	ti55tʂhu55	mɿ33hi33
Lolopo	ea33ta55	ti33tʂho33	mə21ei33
Lipo	mi33ŋiɔ33	ti33tʂhɔ33	a55mə21
Lisu	lo55ŋe35	mu33ku55	mi31hi33
Lahu	lɔ33ta11	mo31	mɿ53xɔ33
Bisu	min55ein55ɿn33	muŋ31bɿn31	xa55man55
Hani	do31	dzo31xɔ31	dza31le55
Haoni	tɿ31	ɸj31xu31	ɸɔ31ɿi55
S.kong	mi55tsha31ŋuun33	tsaŋ31sɔ31	ho55mban55
Mondzi	mie13dze13	mo21mu53	la53tɿɔ33
Maang	nei55kei21	mau35ni33	lɿi55
Azha	mi55tei21ku55	ta55	mi33hi21
Zuoke	mi33ŋu33ŋu33	mu44ko55	---
Polo	ŋɔ21	phi33	mɿ13nɿ33
Namuzi	luo55	tʂu31	---
Naxi	xu33	tei21	xə33
Nusu	---	tʂhɔ53mɔ33	mu55ɿi33
Rouruo	pe31lua55	ke33	mu33le33
Kazhuo	te31the55xɔ33	ɿ24	mu31sɿ33
Jinuo	tə44ɔ44	m33te33	hi42phjə33
WB	ŋa11jaŋ2hlup4	tim2	le2
Achang	in31san35	xan31tein31	ɿi55
Zaiwa	lã21jaŋ51nun55	mut55mau55	lai55

<i>Language</i>	012 Rain 雨	013 Snow 雪	014 Water 水
*PLB(Matisoff)	---	wa2	rəy1
*PL	r-ywa/we1	---	re1ʔ-grak <sup>H</sup> , lan1
*PN	*mu <sup>1</sup> γro <sup>1</sup> , *mo <sup>1</sup>	*γwo <sup>1</sup>	*γri <sup>1</sup>
Nuosu	ma33ha33	vo33	zɿ33, e21tʂhɿ55
Niesu	ma33ha33	vo33	zɿ33, e21tʂhɿ55
Nesu	mi33ho13	γu33	zi21
Nasu	hu11	vr33	ji11
Gepu	mu44ho33	γu33	zə33
Nisu	a33xo55	γo33	zi21dʒie21
Nishu	a55xo33	γo33	zi21ze21
Lope	mo44hō44	vu21mo21	zi21dʒə21
Samu	mu33xə33	fə53	zi33
Sani	ɱ11hə33	və11	ʒ33
Azhe	mu21xo22zɿ22	γo21	zɿ22teɿ33
Axi	mo21xo33	γo21	zi33
Laluba	a55ɱ21ha33	va21	γu55
Tolozā	mɿ33ha33	γœ33dzə33	zi21
Lavu	a33hu55	γu21	a55za33
Lolopo	a55mə21xo33	γo21	zi33
Lipo	a55mə21xo33	γo21	a44ze33
Lisu	mu31hā33	wa31	ɛ33dʒɛ33
Lahu	mv53ze31	va53mve33	i35ka54
Bisu	muɿ31xo31, bu31xau31	xo55lo33	lan55tʂo31
Hani	ɔ31ze55	xa31dzu33	u55tɕɿ31
Haoni	u31je55	xə31	γ55fɿv31
S.kong	mo35	ŋe55	lan55tɕo31
Mondzi	ze13	va21	ɔ33
Maang	γei55	va35	γei33
Azha	a55ho21le33	a55ho21	zɿ33
Zuoke	mu44	vo33	zi21
Polo	mɿ13ŋo33	vr13phi33	ze33
Namuzi	ʔhī53, hī53	jy31, ju31	ndzɿ53
Naxi	xu21	be33	dʒi21
Nusu	mu55γua33	va55	γui33gra53
Rouruo	mu33vu55	ʔo33	γɛ33
Kazhuo	mi31ma24	xoa55	ji323tea53
Jinuo	mi42tha55xo42	nje33ji44	ji42fɿho55
WB	mo3	shi3hnəŋ3	re2
Achang	mau31zə55	xan31zai55	ti55
Zaiwa	mau21	kjoʔ21	vui51

<u>Language</u>	015 Mountain 山	016 Cliff 悬崖	017 Fire 火
*PLB	---	---	mey2 , s/?-mey2
*PL	kaŋ1	---	C-mi2
*PN	*bom <sup>1</sup> , *gwoŋ <sup>1</sup> , *la <sup>3</sup>	*ʔya <sup>L</sup>	*mi <sup>1</sup> to <sup>3</sup>
Nuosu	bo33	va55tɕ33	mu21tu55
Niesu	bo33	va55tɕ33	mu21to55
Nesu	bie21	fa13	mi33tie13
Nasu	bɿ11	fɑ55ŋq2	mu33tu55
Gepu	bə33	fa55khi33	pi33ti44
Nisu	bɿ21	fɛ21	mɛ33tu21
Nishu	bə21	fiɛ21	mer33tu21
Lope	bə213	fa55	mu55tu55
Samu	bo33	---	mu33tau55
Sani	pɿ33	fe55dlə33	m11ty55
Azhe	bu22	vi55	mu55tu55
Axi	po33, lɛ33	ve55	mu33tu55
Laluba	kɥ55dzɑ21	?va21tɕ21	a55to33
Tolozā	ɣə33dzɿ53	væ55	mə21to55
Lavu	bu55sɑ33	?ua21tɛhi55	mo55to33
Lolopo	ɣo21me21	ve33tɛhɑ33	a55tu55
Lipo	ɣo21tɛie33	vie55tsu33	a55tu55, mə21
Lisu	kɔ33	ɣa55phi31	a55to55, mu31
Lahu	qhə33	xɑ35tɕhi33	a31mi11
Bisu	khəŋ55kja55	aŋ33phjaŋ33	mi31tho31
Hani	xə55the55	ɣa31dʒe55	mi31dʒa31
Haoni	kɿ31fɿ31	ja31fɛ55	mi31tsə31
S.kong	aŋ33kɿŋ31	ŋga31	mi31tsa31
Mondzi	pei13	pa44	mi21
Maang	pom33	v <sup>h</sup> ɔ35	mi35
Azha	la55	ve55	mu33tu55
Zuoke	bɔ21	va55gp44mɔ33	bɿ33to55
Polo	lɑ21	vɿ13	mul3tu55
Namuzi	ŋga55gu55	---	mi53
Naxi	dʒy21	æ21	mi33
Nusu	lɔ33, ŋu33	---	mi55
Rouruo	ko53tiw33	kə31pə33, kə31tɛya33	mi33
Kazhuo	pɛ24mɿ33	---	m33to35
Jinuo	ɣu42tha55	ja33pre55	mi44
WB	təŋ2	kam3pa3prat4	mi3
Achang	pum55	pum55zəŋ31	poi31
Zaiwa	pum51	kam21pjoʔ55	mji21

<u>Language</u>	018 (fire) Smoke 烟子	019 Gold 金	020 Silver 银
*PLB	kəw2	s-rwəy1	---
*PL	ko2	s-rwe1	plu1, C-ŋwe1
*PN	*mu <sup>1</sup> khu <sup>1</sup>	*sri <sup>1</sup>	*phlu <sup>1</sup> , *ŋwu <sup>1</sup>
Nuosu	mu33ku33	ʃɿ33	təhu33
Niesu	mu33ku33	ʃɿ33	thu33
Nesu	mɛ33tɛy33	ʃɛ13	ʰhu13
Nasu	mu33khu33	ʃɔ33	ʰhy33
Gepu	mə55khə33	ʃɔ33	thu33
Nisu	mɛ33khu33	sɛ55	thu21
Nishu	a55khu33	ʃɛr55	thu21
Lope	mɯ44khə 44	ʃə44	thu213
Samu	mɯ33khu33	sɔ53	p <sup>h</sup> i33
Sani	m̩55khu11	ʃz44	lɿ33
Azhe	mu55khu21	ʃɛ33	lɔ22
Axi	m̩33tu55(sɛ21/sɛ21)	ʃa33	ʰho33
Laluba	?m̩21khu21	ʃa55	fɿ55
Tolozā	mɯ55khu53	ʃæ33	tshɯ55
Lavu	xo21zin33	ʃua55	zin13tɿ33
Lolopo	a55khə21(si33)	ʃə33	phyo33
Lipo	mə21khə33(sɿ55)	ʃæ <sup>h</sup> 33	phu33
Lisu	mu31khu31	ʃi33	phu33
Lahu	mɯ53qhə53	ɛi33	phu33
Bisu	mi31khau31	sɿ33	phu55
Hani	a31xə31	sɿ55	phju55
Haoni	u31xu31	fɿ55ʃu55	fɿ55ʃɿ31
S.kong	mi31qhə31	sɿ55	phu55
Mondzi	mi21kho33	xi44	phu13
Maang	mi33khau35	ɣui55	phiu55
Azha	mɯ33tu55(se33)	ʃa55	thlɛ21
Zuoke	bɿ33khu44(sa55)	ɛɿ33	?o55khu21
Polo	mi13tu33(so33)	ɛɿ33	phi33
Namuzi	mu55ŋkhu31	hæ53	ŋu55
Naxi	mɯ55khu21	xæ21	ŋy21
Nusu	mi55khu55	tɛi31a31	ŋui33
Rouruo	mi33khu33	tɛi31	ŋue33
Kazhuo	m35khv31	tɛi33tɿ31	tshɿ33
Jinuo	mi44tɛhy44	ʃu31	phru42
WB	mi3kho3	hrwe2	ŋwe2
Achang	ni31xau31	sɛ55	ŋui55
Zaiwa	mji21khau21	xɿŋ51	ŋun51

<u>Language</u>	021 Copper 铜	022 Iron 铁	023 Stone 石头
*PLB	grəy2	syam1	k-lok <sup>H</sup> ~ k-loŋ
*PL	gre2	xam1	k-lok <sup>L</sup> , C-rak <sup>L</sup>
*PN	*gru <sup>1</sup>	*xam <sup>1</sup>	*klok <sup>H</sup> (mo <sup>2</sup> )
Nuosu	ɕɿ33	ʂu33	lɿ33ma55
Niesu	dzɿ33	xo33	lɔ21ma55
Nesu	ɕzi33	ee21	lie33mo21
Nasu	ɕzi33	ee11	lɿ11bɿ11
Gepu	ɕɿ33	xə33	lo33bə21
Nisu	ɕzi33	eie21	lu33bɿ21
Nishu	ɕɿ33	ee21	lɿ33bə21
Lope	ɕɿ21	ɛə 213	lu44bə21
Samu	tei33	sɜ33	la25khə21
Sani	ɕz̥i11	xu33	lu44mɔ33
Azhe	dzɿ21	xu22	lɿ33mu22
Axi	ɕzi21	xu33	lo33mo33
Laluba	gu21	ey55	ka55lo33
Tolozā	ɕɿ21	ʂo33	lo33
Lavu	thoŋ13	xu55	lo33di55
Lolopo	ɕzi21	xu33	lɿ33
Lipo	ɕɿ21	xu33	nu33mə33di33
Lisu	ɕzi31	xo33	lɔ33tʂhi35
Lahu	ku53	eo33	xə35pu33ei11
Bisu	toŋ55	sam55	lo33ba33
Hani	gu31	sə55	xə31lɿ33
Haoni	ku31	ʃu55	lɿ33ɔ33
S.kong	toŋ31	sam55	hɔ33mba33
Mondzi	thoŋ21	xəi13	lu44mɔ13
Maang	thoŋ33	ɣəm55	hɕ̥35, ɰ̥35, lɕ̥35
Azha	----	xu21	lu33pu21
Zuoke	tho21	xo33	lɔ21mɔ33
Polo	tho21	xu33	lu55mu55
Namuzi	ʂɿ53(ʂɿ55qa31)	ʂu53	lu55qua31
Naxi	ə33	ʂu21	lɿ33
Nusu	gni55	ʂa33	lɿ53
Rouruo	tea33	xə55	lɿ53
Kazhuo	tho33	sɛ33	no53ma33
Jinuo	ki44	ʃɛ42	lo42mɔ33
WB	kre3	təəm2	kjək4
Achang	toŋ55	ʂam55	pzəŋ55
Zaiwa	kji21	ʃam51tɔʔ55	luʔ21pjoʔ55

<i>Language</i>	024 Year 年	025 Month 月	026 Day 日
*PLB	ɕ-krok <sup>L</sup>	---	---
*PL	s-nik <sup>H</sup> , C-kok <sup>L</sup>	bəla3	(?)ne3
*PN	*khok <sup>L</sup>	*(bo2)slu2	*sni <sup>2</sup>
Nuosu	khu55; khɯ33	tu21	(mu33)ŋi21
Niesu	kho55; khɔ33	tu21	(mu33)ŋi21
Nesu	khu55	ho21	ŋi21
Nasu	khɯ55	ŋu2	ŋi11
Gepu	khɔ33	ho55	ŋi33
Nisu	khɯ21	xo21	ŋi21
Nishu	khɯ21	xo21	ŋi21
Lope	khu55	hü21, lə33	ŋi21
Samu	k <sup>h</sup> au55	la55	ŋi55
Sani	qhu2	tu44	ŋi33
Azhe	khɯ21	lo22	ni22
Axi	khɯ21	to33	ni33
Laluba	khɔ21	la33	?ŋi33
Tolozā	khɔ33	ha33	ŋi55
Lavu	kho21	zə33	ŋi33
Lolopo	khɯ55	eiɔ33	ŋi33
Lipo	khɯ33	xo33bo33	ŋi33
Lisu	khɔ31	hā33	ni33
Lahu	(ɔ31)qhɔ21	xə33pa33	ni33
Bisu	aŋ33nu33	aŋ33la33	nuŋ33
Hani	xɯ31	la33si31, si31	nə33
Haoni	xɣ31	lɔ33, ei31	nɣ33
S.kong	a55qhɔ31	pe31la33	nuŋ33
Mondzi	khu53	lɔ53, lɔ44	nie44
Maang	qhɔ35	la33	nai35
Azha	khu33	phi33	ni33
Zuoke	kho44	mɔ21	ni33
Polo	khɯ55	la21bɔ21	nɛ21
Namuzi	khuə'55	fi53	ŋi31
Naxi	khɣ55	xe33, xɛ33	ŋi33
Nusu	khɯ53	la31, fi55	ŋi31
Rouruo	nɛ55	lɔ31	nɛ31
Kazhuo	kho53	tɛ31la33, la53	ŋi323
Jinuo	mjɔ44	to33	ni33
WB	hnas4	la1	rak4
Achang	ŋək55	pau51lɔ35	ŋen31
Zaiwa	tsan51	lɔ55mo55	ŋji55



<i>Language</i>	027 Human being 人	028 Adult 大人	029 Speech 话
*PLB	tsaŋ1	---	---
*PL	tsaŋ1	---	daŋ2, ka(ŋ)2
*PN	*shaŋ <sup>1</sup> , *tʂho <sup>1</sup>	*tʂho <sup>1</sup> γri <sup>1</sup>	*do <sup>2</sup> , *xo <sup>2</sup>
Nuosu	vo33tʂho33	su44zɿ33	ho21, do21
Niesu	vo33tʂho33	su44zɿ33	ho21, do21
Nesu	ŋu33tʂho33	su21ye33	ɕo55
Nasu	tʂhɔ11	su55yo33	ɕo55
Gepu	yu44tʂho33	yo44su33	do33zɿ21
Nisu	tʂha21	tʂha21ye33mo21	mie21ya21
Nishu	tʂha21	tʂher21yer33mo21	da21mia21
Lope	tʂhɔ213	tʂhɔ213ya33	ba33
Samu	tʂhu33	tʂhu21yo33	k <sup>h</sup> e55
Sani	tʂho33	tʂho33phɔ11	do11
Azhe	tʂhu22	tʂhu22pa33ʔo21	ŋi21u22
Axi	tʂhu33	tʂhu33ya21	du21, du21thu33
Laluba	tʂhu55	yu21ya21pa21	ya55lu55, ya55 55
Tolozha	væ33tʂɿ33	za33ba33	my33gʌ33be33
Lavu	tʂha55	tʂha55yua21	ʂu21
Lolopo	tʂha33	tʂha33zæ21	yu33
Lipo	tʂha33	tʂha33væ21	da21pu55
Lisu	tʂhɔ33za31	vu31su33	bɛ33khu31
Lahu	tʂhɔ33	xa35u11pha53	tɔ53
Bisu	tʂhaŋ55	---	aŋ33the55
Hani	tʂho55	tʂho55xɑ33	do31
Haoni	tʂhy55ɔ31	tʂhy55xa33	tu31pɔ31
S.kong	tʂhaŋ55ŋa31	---	qaŋ31mbu55
Mondzi	saŋ53	saŋ53xi13	taŋ21
Maang	sq21	sq21kaŋ33	tan21, taŋ21(dziap35)
Azha	tʂhu33	tʂhu21ya33	ze33
Zuoke	tʂhu21	tʂhu21zi44mɔ33	ba21ɕi35
Polo	bɿ21	ŋɑ21ŋu13ŋɔ21	ɕɔ13
Namuzi	tʂhuo31	tʂhuo31dzɿ31	duo55
Naxi	ɕi33	ɕi33du21	ku33tʂɿ21
Nusu	su33, tʂhɔ33	a31mu55za55	tu31dza53
Rouruo	tsu33	---	po33
Kazhuo	tʂho33	tʂho33ɿ24ma33	tɕhi31
Jinuo	tʂhə42zɔ44	a44ɛ33	mi33
WB	lu2	lu2kri3	sa1ka3
Achang	tʂo55	tʂo55kzɔ31	ŋeŋ35
Zaiwa	pju51	kɔ21paŋ21	taŋ21

<i>Language</i>	030 Life 生命	031 Physical strength 力量	032 Dream 梦
*PLB	C-sak <sup>L</sup> (=breath)	---	s-mak <sup>H</sup> ~ s-manj; s-mak <sup>H</sup>
*PL	C-sak <sup>L</sup> (=breath)	ra2	C-mak <sup>H</sup>
*PN	*ʔo <sup>1</sup> ko <sup>1</sup>	*ɣraŋ <sup>1</sup>	*ip <sup>L</sup> mak <sup>L</sup>
Nuosu	o33ko33	ɣu33	ʔe55mɔ21
Niesu	o33ko33	ɣu33	ʔi55mi55
Nesu	ŋu33ko13	ɣu33la13	zi33ma55
Nasu	u33kɔ33	ɣu33	ji55mq2
Gepu	o44ku33	ɣu33	zi33ma21
Nisu	ʔü33ka55	ɣo33	zi21me21
Nishu	ŋu33ka55	ɣo33	zi21mie21
Lope	mi213	vu33	zi55maq21
Samu	mi33	ɣo25	dʒɪ33mɔ33
Sani	o55qo44	ɣo11	ji2mi44
Azhe	ze22	ɣu33	zi21me22
Axi	o55ku33	ɣo21ne33	ze21me33
Laluba	ma21	ɣa21	ʔi21me33che33
Tolozá	mie21	ɣa33dze33	zɪ32mæ33khy33
Lavu	---	ɣu21sa21	zɪ21ma33(mia55)
Lolopo	u55ka55	ɣo21ni33	zi33mi55kha33
Lipo	---	ɣo21	zɪ21mi33, zɪ21mi33
Lisu	sɛ31mq33	sɛ31	e31me33
Lahu	teo33xa33	ɔ31ɣa53	zi21ma54
Bisu	te31ne31aŋ33nu33	ka31	me33bɔn55
Hani	tʂho55zi55	ɣa31xa33	ju31ma33
Haoni	a55ti31, py55ti31	ɣo31xa33	zy31ma33
S.kong	---	qa31, qa31qha33	zu31mba33
Mondzi	manj35	zɔŋ44	zi13mɔ44
Maang	miŋ35	zei33	ma35tau35
Azha	za33	ɣo33	zy21me33
Zuoke	ʔi55ku33	ɣo21ɸ44	zi44ma21
Polo	so13	ɣo13te33	ze55mu55
Namuzi	quo33pæ53	ma31ka31	ju31mæ35
Naxi	miə33	ka33tu55	i55mu33
Nusu	miə55	sa53	ŋa53
Rouruo	ka55	tehi55	ɣe55mɔ31mɔ53
Kazhuo	---	ɣa31ŋ53	zɪ53ma33
Jinuo	a33khə44	kə44kho44	mi55ma42
WB	a1təak4	a3	ip4mak4
Achang	a31muiʔ31	a31xzəŋ55	it55mɔʔ55
Zaiwa	kaŋ51	vum21	ju35mqʔ21

<u>Language</u>	033 Spirit, Soul 灵魂	034 A celestial being 神仙	035 Ghost 鬼
*PLB	hla3, s-la1/3	---	nat <sup>L</sup> ~ nan2
*PL	?-la1	re1, sa1	C-nat <sup>L</sup>
*PN	*ri <sup>1</sup> sla <sup>1</sup>	*si <sup>1</sup>	*ŋit <sup>H</sup>
Nuosu	zɿ33ɬa33	sɿ33si33	ni21tshɿ33
Niesu	zɿ33ɬa33	sɿ33si33	ni21tshɿ33; ni21tshv33
Nesu	yɿ33ho33	se21	tsho33bu33
Nasu	ji2ŋu11	si33zu33	ŋɔ2ny55sy33
Gepu	zi33nu21	si33zu33	sə21hu33
Nisu	xo21mo21	sɛ21	tsha21xo21
Nishu	xo21mo21	ʂer21	ŋɛ21
Lope	zɿ33hũ44	sæ213	no33no44
Samu	zi25	ve25	ŋe25
Sani	ji44ɬɔ33	sɿ33	ni55, tsho33ɬɔ33
Azhe	se22	sɛ22	lo22
Axi	i33ɬo33zo21	i33sɛ33	ne33no33
Laluba	ha55	ni21	ni21
Tolozā	pɿ53ŋi21	ŋi33	ŋi33
Lavu	---	ne21	ne21
Lolopo	eio33	ɣə33so33po33	ni21
Lipo	vei33xo21	---	ni21
Lisu	tsho33hǣ33	si33	ni31
Lahu	ɔ31xa33ku33	ne53	tɔ21
Bisu	aŋ33sa31sɿ55	aŋ33de31	de31za31
Hani	su55la55	mo55mi55	ne31xa31
Haoni	ɣu55ku31lu31su55	ʃɛ31eiɛ33	ŋi31xo31
S.kong	aŋ33ha55	nde31a31	nde31a31
Mondzi	i33ni44	ni44	ni44
Maang	qeɿ55	tie35ni33	tie21le33ɣui33
Azha	ze33ho21	---	na55ne55
Zuoke	nɔ33	ɛɿ33	na21nu33
Polo	zi55	---	ne55
Namuzi	ə55li31	si55zæ55, læ31	tʂha55
Naxi	o21	phɿ33la21	tshɿ21
Nusu	ia31ɿia33	---	zui33
Rouruo	piɔ55pha55	pɛ31tea13	vu55
Kazhuo	---	sɛ323si33	ni31ma33mo31
Jinuo	a44sa44a44ɬɔ44	ʃfo55the33	ne44
WB	lip4praɔ2	nat4	tas4she2
Achang	a31pɿzua55	tam31	ʂɿ55pɿzua55
Zaiwa	sɛ21pjo51	phan51tsau21	nat21

<i>Language</i>	036 Corpse 尸体	037 Medicine 药	038 Body 身体
*PLB	---	---	guŋ1
*PL	---	C-nak <sup>H</sup> tsip <sup>L</sup> /tse2	---
*PN	*mo <sup>1</sup>	*na <sup>1</sup> tshi <sup>1</sup>	*guŋ <sup>2</sup> po <sup>1</sup>
Nuosu	(tsho33)mo33	bu55tshɿ33	ko21po33
Niesu	(tsho33)mo33	bu55tshɿ33; ŋi44tshɿ33	ko21po33
Nesu	(su33)mo33	ŋe33tshi33	dzu21phe33
Nasu	mɔ33	tshi33	gu11phe33
Gepu	mɔ33	khu55tshi33	gə21pho33
Nisu	---	no21tchi33	gu21
Nishu	(tʂha21)ma55	no55tshɿ33	gu21mu21
Lope	a21mo44	khɯ21tsei33	gu21du213
Samu	sɿ21ba33	no21tshɿ33	ku21thi33
Sani	sʒ33m33	no33tshɿ33	ku33pɿ33
Azhe	ʂi22mu33	ge22tshi21	gu22bu22
Axi	ʂi22mu33	no33tshi21	gu21mo33
Laluba	xu55m55	?ne33tshɿ21	gu55tshɿ21
Toloza	mɔ33	ne33tshɿ55	go33mɔ33
Lavu	(tsha33ei55)ma33	no33tshɿ21	ʂeŋ33thi21
Lolopo	ei33ma33	no33tshi21	gu33də21
Lipo	(tsha33ɣɿ33)mo33	na33tshɿ21	gu33tshɿ21
Lisu	ʃi33mo33	ne33tshi31	ko33de31
Lahu	təhɔ33si33ku33	na33tshi33	ɔ31to33
Bisu	---	tshɿ31ka31	aŋ33maŋ55
Hani	tsho55si55	na55tshi31	yo55mo55
Haoni	tshy55ʃi55	na33tshi31	zu33yu55
S.kong	---	tshi31	aŋ33mbaŋ55
Mondzi	saŋ53xie13	se44	maŋ13
Maang	yɛi55	sai33	sak21sai55
Azha	---	na44tshɿ33	tey21mo21
Zuoke	ei33mɔ21dɔ44	no33tchi44	mɔ21dɔ44
Polo	bi21yɿ13	nu21tshɛ13	ga21mɔ33
Namuzi	---	tse55	gu55mi55
Naxi	ʂɿ33mu21	tʂhə33yu33	gu33mu33
Nusu	ʂi33tshoŋ33	ne33tshi31	tshɿ33gu31
Rouruo	eiɔ55tshɔ33	iɔ55fu53	ku33tse33
Kazhuo	---	na24tshɿ31	o31tso33, ŋa323tv33
Jinuo	ei33mɔ33	tshi44	a33mɿ44
WB	a11əŋ3	she3	koj2
Achang	ʂɿ55mzuəŋ55	ŋɔ31	a31tu31
Zaiwa	maŋ51	ʃhi21	kuŋ51tu21

<i>Language</i>	039 Head 头	040 Hair 头发	041 Eye 眼睛
*PLB	ʔu2	tsam1	(s-)myak <sup>H</sup> ; s-myak <sup>H</sup>
*PL	u2, ʔ-du2, ʔ-kon2	ʔ-tsam1kriŋ1	(C)-myak <sup>H</sup>
*PN	*ʔu <sup>1</sup>	*ʔu <sup>1</sup> tsham <sup>1</sup>	*myak <sup>H</sup>
Nuosu	o33tchi33	ɔ33ŋe33, ŋe33	ŋɔ33dzɿ21, ŋɔ33sɿ21
Niesu	o33tchi33	ɔ33ŋe33, ŋe33	ŋie33sɿ21
Nesu	ŋu33ŋgo55	ŋu33ŋgo55mi21	na33du33
Nasu	u33	u33tshɛ33	na2dy33
Gepu	a33gu44	u44tshi33	na21du33
Nisu	ʔu33	ʔu33tshɛ21	ne33
Nishu	ŋu33kə33	ŋu33tshɛ21	ŋe33du33
Lope	zi21go21	ei44tshɛi44	na33du33
Samu	ʔu55ku33	ʔu55tshu33	ŋa25
Sani	o55qo11	o55tshɿ33	ne44sz11
Azhe	i55ku33	i55du22	ŋi33du21
Axi	o55ko33	o55tsi33	ne33sa21
Laluba	ʔy21dy55	ʔy21tehy55	ʔmɿ33tsɛ21
Tolozā	dzɿ21	dzɿ32tshɿ33	mɛ33dɿ21
Lavu	ŋ21ga21	ʔu21tshu55	mia21du21
Lolopo	u55də33	u55tshɿ33	mɛ33du21
Lipo	vu55di33	vu55tshə33	mie33sə21
Lisu	o55du33	o55tshɛ33	mie33su31
Lahu	o35qo11	o35qo11mv33	mɛ54ei11
Bisu	aŋ33tu31	sam55khuŋ55	mɛ33nu33
Hani	u31du31	tshɛ55kɔ55	mja33
Haoni	ɣ31tɿ31	tshɛ55khu55	ma33tsɿ33
S.kong	aŋ33tu31	aŋ33tsham55	mi33si31, mja33si31
Mondzi	mɔ55bu53	mɔ55sui13	khi13
Maang	ʔo35	ʔo21mi35	tiu33
Azha	ʔi55ku33ku33	ʔi55tshu21	ne55tu33
Zuoke	ʔi55ko55	ʔi55tshu21	na13ei55
Polo	ʔj33ku33	ʔj33tshu33	mu55dɿ33
Namuzi	ɤua53əʔ31(lu31)	ɤua53hũ31	miaɛ53lu31
Naxi	kɿ33, ku33ly33	kɿ33fɿ33	miə21
Nusu	u31phu55	tsha33	mɿa53dzɿ31
Rouruo	ʔɔ13tu33le33	tsha33mia33	miə53sɿ33
Kazhuo	ji31tshɿ33	ji31tshɿ33khu33	ŋa55thi31
Jinuo	vu44kɛ44	tshɛ44kɿ44	mja42tsi44
WB	khɔŋ3	sham2paŋ2	mjak4se1
Achang	ni31kuaŋ31	u31mui31	ŋɔʔ55tsiʔ31
Zaiwa	u21lum21	u21tsham51	mjoʔ21tʃi55

<i>Language</i>	042 Nose 鼻子	043 Ear 耳朵	044 Mouth 嘴巴
*PLB	---	?-na2	---
*PL	s-na1kaŋ2	(C)-na2?-baŋ1	(C)-me2/mok <sup>L</sup>
*PN	*sna <sup>1</sup> bi? <sup>L</sup> , *sna <sup>1</sup> khoŋ <sup>1</sup>	*sna <sup>1</sup> po <sup>1</sup>	*ŋwi <sup>2</sup> pu <sup>2</sup> , *khuu <sup>1</sup>
Nuosu	ŋa21bi55	ŋa21po33	mi21pu21, kha21phi55, khu33
Niesu	na21bi55	na21po33	ŋui21pu21, kha21phi55, khu33
Nesu	no21bi21	lo21po13	hi21du21
Nasu	nu33mu33	nu11pø33	ŋe55
Gepu	no33mo33	no21po44	ŋi33pø33
Nisu	no55ko21	lo55pa55	ŋe21
Nishu	no55ko21	lo55pa55piɛ21	ŋe21phi33
Lope	nu44nei21	no44po44	mi55phr33
Samu	nau53khu21	nau53pu33	khe33
Sani	nø44bi33	nø55po44	ŋ55ŋø44
Azhe	nu33bu21	no55pu33	ŋi21ph <sub>2</sub> 21
Axi	no33bo21	no33pa33	ni21phe21
Laluba	?na55khu33	?na21pu55	kha21ph <sub>2</sub> 21
Tolozá	na53sv53	na33bo55	mv32næ33
Lavu	nu55khu55	nu21pa55ti33	khe21phe21
Lolopo	no33ku33pi33	no55pa33	me21khu33
Lipo	nu55bi33	no55pa33	mi21khu33
Lisu	nq33khu33, nq33bi33	nq33pø33	khq31bɛ31
Lahu	na11qhø53	na11pø33	mø21qø33
Bisu	na55khaŋ55	na31suŋ31	man31tu33
Hani	na55me55	na31bo55	me31bø31
Haoni	nø55me55	nø31pɤ55	xø31mɛ33
S.kong	na55qhaŋ55	aŋ33na31	maŋ31thoŋ31
Mondzi	tʂoŋ53	lkaŋ53	ma21
Maang	tiɛ33	paŋ33	ŋu35
Azha	no55mo21	no55pu33	ŋu33tse44
Zuoke	nø33mø33	na55ko55	ni44ku33
Polo	nu55ku55	nø33pø33	ni13tu55
Namuzi	ŋi31ŋga55	?hi31pæ55	mi33ntshu53, mi33mphsɿ53
Naxi	ŋi55mø21	xe33tɿ21	nɤ55ta33, nɤ55
Nusu	ŋa55kø33	ŋa55sø33	ŋa55khoŋ33
Rouruo	na35ka35	na33sɿ33	mɿ55ei31
Kazhuo	na35khy33	na35po35tcha31	ni31na323
Jinuo	nø42to44	na33kho44	mø44mø44
WB	hnaa2kxhoŋ3	na3	pa3sap4
Achang	ŋøŋ55	ni31tɿsua31	ŋøt55
Zaiwa	nø51	nø21phjo21	nøt55

<i>Language</i>	045 Tooth 牙齿	046 Tongue 舌头	047 Hand 手
*PLB	dʒway1	---	lak <sup>L</sup> ; g-lak <sup>L</sup>
*PL	swa2	?-l(y)a1	lak <sup>L</sup>
*PN	*dzwy <sup>1</sup>	*s/?-lo <sup>1</sup>	*lak <sup>L</sup>
Nuosu	dzɿ33(ma33)	ha33ne33	lo55
Niesu	dzɿ33(ma33)	la33ni33	li55
Nesu	dze21	lo13	la13
Nasu	dzɔ11	lu33	la55
Gepu	dzɔ33	lu33	la55
Nisu	dze21	lo55phe21	lie21
Nishu	dzer21	lo55phie21	lie21
Lope	dzæ213	lo44bei44	la55
Samu	sɜ33	lio53	la55
Sani	tʂɜ33	lo33	le2phe44
Azhe	dze22	la33pi21	li21
Axi	tʂa33ɣu21	lo33	le21pu55
Laluba	ey21	?la55	li21phi33
Tolozā	sɜ55	la33	le33
Lavu	stu21	lu55	la21pha33
Lolopo	sə21	lo55	le21
Lipo	sə21	lo33	lie33bu21, lie33vu21
Lisu	si31tehi33	la33tehɿ33	le31phe35
Lahu	tei31	xə33te11	la21ee33
Bisu	so31phi31	man31la31	la31pu31
Hani	sɜ31	la55ma33	a31la31
Haoni	ɔ31fɿu55	ɔ31lo55	a31la31
S.kong	aŋ33so31	qa31qa55	aŋ33la31
Mondzi	tei13	ma21li44	lo44
Maang	ŋur21so33	ŋur21lei33	la35
Azha	tʂa21	lu55pe21	le33phe44
Zuoke	sɿ55mɔ21	lo33bɿ33	la44pu55
Polo	dzi33mɔ21	lo33be33	lo55
Namuzi	xi31, xə31	ji33læ53	læ31kæ31
Naxi	xu33	ei55	la21
Nusu	sua55	fia33	la53
Rouruo	tey33	lio55te33	lo53
Kazhuo	sɿ31sɿ33	la35	la53pha55
Jinuo	a33fɿ44	mɔ44lo44	la55pu44
WB	təwə3	hljaə2	lak4
Achang	teoi55	eo55	lo?55
Zaiwa	tsui51	fo51	lo?21

<u>Language</u>	048 Belly 肚子	049 Waist 腰	050 Foot 脚
*PLB	p-wam2	gyok <sup>L</sup> ~ džok <sup>L</sup> ; gyuk <sup>L</sup>	---
*PL	wam2	gyaw <sup>2</sup> /ap <sup>L</sup>	kre1
*PN	*wam <sup>2</sup> , poŋ <sup>3</sup>	*gio <sup>2</sup> <sup>L</sup>	*khri <sup>1</sup>
Nuosu	i21mo21	du55sɿ21, dzu55sɿ21	tɕ33ɕɿ33
Niesu	vi21mo21	dzo55tsɿ33	tɕɿ33ɕɿ21
Nesu	lie21pu33	dze21gu33	tʃhu33tehi13
Nasu	u55pe33	dzu55	tehi33
Gepu	hi33	dzo33	tei21pa33
Nisu	yo21pe55	dzu21tej33	gy21
Nishu	a21pie55po33	dzu21yu33	ge21
Lope	a44pei44	dzu55yu33	tehi21pa33
Samu	tu33	tsau55	tehi22
Sani	ɾ11pɾ44	dzu2	tshz11be44
Azhe	a21pu33	dzu21	gu21
Axi	o21po33	dzu21tsi55yu21	tehi33yu21
Laluba	hi21ma33dɕɿ33	dzo21	khu55phi33
Tolozha	hi55kha33	dzo33	tehi55be55
Lavu	ha21pu55	dzo21tsɿ21	tehi55pha33
Lolopo	xɕ55pu33	dzu21yu21	tehi33yu21
Lipo	hɕ33po33	dzu21tsɿ55	teɿ33vu21
Lisu	hɕ31khi31	dzo31tsi55	tehi33phe35
Lahu	yu53pe31	teo21	khu33e33
Bisu	poŋ31poŋ33	tshu31ku31	la31khu31
Hani	u31de31	do55tsɿ31	a31khu55
Haoni	u31mo33	ty55tshɿ31	o31khu55
S.kong	u31poŋ33	aŋ33teo31	aŋ33khu55
Mondzi	boŋ53	teiu44	khe13
Maang	go35, ŋo35	koŋ55	khei33
Azha	vu33pu44	tsa21tsi55	tehe33
Zuoke	yo35mɔ33	dzo44mɔ33	tehi21pu55
Polo	yo55be21	dzu55	teho55
Namuzi	?hi33bi55, hi33bi55	dzu31mi31da55	tɕhi53tɕhi31, tɕɿ53tɕɿ31kæ31
Naxi	dy21me33	thuw55	khu33
Nusu	va31lo53	dzu53	khu33
Rouruo	yo33le33	mɿ55tea55	tehi55
Kazhuo	so53ma33ko31	tsa53tsɿ35	tshɿ33pha55pha55
Jinuo	vu55phu44	a44fo55	fɔ31khi33
WB	bok4	kha3	khre2thok4
Achang	om31tau31	taŋ31tshin55	tehi55
Zaiwa	vam21	phji21tum21	khji51



<u>Language</u>	051 Bone 骨头	052 Skin 皮肤	053 Blood 血
*PLB	rəw2	---	---
*PL	ʃə-ro2	re1	swe2
*PN	*ɣrwu <sup>2</sup>	*ŋgju <sup>1</sup> (*kuk <sup>1</sup> , *xu <sup>1</sup> )	*swi <sup>1</sup>
Nuosu	vu21du33	ndzɿ44ɣu33	ɣɿ33
Niesu	ɣu21du33	ndzɿ44xu33; ndzɿ44kə33	sv33
Nesu	xo21zy33	ndzi21	sy33
Nasu	xu11ɣu33	ŋtehi11	su33
Gepu	xə33ɣə44	kɿ55	si33
Nisu	ɣu33	dzi55	ɣɿ33
Nishu	ɣu33	dzɿ55(phie21)	ɣɿ33
Lope	ɣu33bu55	xu33sei33, dɿ213	ɣɿ33
Samu	ku21thou21	tei21kau33	ɣɿ53
Sani	ɣu11py33	qɿ55tsɿ33	sɿ55
Azhe	vu21ka55	lu55(phɛ33)	su21
Axi	ɣu21kə33	xo21tei33	si21
Laluba	?vɿ21da55dzɿ33	xə21gu55	ɣɿ21
Tolozā	v55tsɿ53	dzi21	ɣɿ32
Lavu	xu21to33	dzi55	su33
Lolopo	ɣu21ga21	dzi33	ei21
Lipo	vu21ku33lu33	xo21nie33	ɣɿ21
Lisu	o31to33	ko35dzi33	si31
Lahu	ə31mv21ku33	ə31gu31	ə31si11
Bisu	sa31gau31, aŋ33gau31	aŋ33kho33	ei31
Hani	sa31jə31	sa31gu55	ɣɿ31
Haoni	ʃə31ji31	ʃə31tshɿ55	ʃɿ31
S.kong	aŋ33zə31	aŋ33hu31	ɣɿ31
Mondzi	u53yo21	ŋge13, u53ŋgie13	kə53
Maang	ɣu35	gei55, ŋgei55	sai35
Azha	xə33zy33ka44	xə33tei21kə55	ɛɿ33
Zuoke	?p33vu44	gi21(mi55)	ei55
Polo	ɣɿ13	dze33khp55, ndze33	se33
Namuzi	ʃa55qa55	ə55ɣɿ31	sə31
Naxi	o33, so33lo33	ɣu33	sə33
Nusu	ɣu55	khɿ53ɣu33	sui55
Rouruo	xo33ka55	lo53kua55	eye33
Kazhuo	v31ku35	sa31khu55	ɣɿ31
Jinuo	ʃə44ɣɿ44	a44kho42	a44ei44
WB	a1ro3	a1re2	təwe3
Achang	a31zau31	a31zɿ55	sui31
Zaiwa	ʃə21vui21	ʃə21ku55	sui21

<i>Language</i>	054 Stomach 胃	055 Heart 心	056 Liver 肝
*PLB	?wik <sup>L</sup> ; p-wam2	s-nik <sup>H</sup> ~ s-niŋ3 ~ s-ni3	---
*PL	(f)-wut <sup>L</sup>	ni3	(f)-sin2
*PN	*xi <sup>3</sup>	*snjik <sup>1</sup> mo <sup>2</sup>	*si <sup>2</sup>
Nuosu	hi55	he33mo21, he33ma55	si21
Niesu	hi55, fi55	ŋje33mo21	si21, sui21
Nesu	hi21mo55	ni21mo21	se55
Nasu	hi55	ŋi2mu2	sɿ55
Gepu	hi55	ŋi33mo21	sə55
Nisu	xɛ21	nie33	se21
Nishu	xĩɛ21	ŋi33mo21	ʂer21
Lope	hẽ213m21	ŋi33m21	a21sə213
Samu	xu25pu22	ni33mo21	kə53
Sani	---	ŋ44mɔ33	sɿ11
Azhe	tu21tsi22	ni33mo22	(tshu21)sɛ21
Axi	xi21mo33	ni33mo33	i33si55, i33ke33
Laluba	hi21ma33ko33	?m21ma21	sɿ21tse55
Tolozá	hi33	ni53mɿ55	sɿ33(pæ33)
Lavu	hə13mu33	ni33mu33	kan33
Lolopo	xi21	ŋi33mo33	se21
Lipo	hã33	ŋi33mo33	sɿ21zə21, sɿ21zɿ21
Lisu	he31mq33	ni35ma33	si31
Lahu	ɔ31fu35qo11	ni33ma33ei11	ɔ31eɛ11
Bisu	aŋ33u55	luŋ33ba33	aŋ33tehin31
Hani	bɔ33ma33	nu33ma33	tshɔ31
Haoni	pu33mɔ33	nu33mɔ33	ɔ31tshu31
S.kong	zaŋ31u31poŋ33	nuŋ33mba33	aŋ33phap31
Mondzi	---	ni53(tɕu13)	ka44
Maang	vei35	duə35	sun35
Azha	ni44mɔ33	ni44mɔ33ŋi33	?i44se33
Zuoke	zi35mɔ33	ni33mɔ33	ka44
Polo	he13	ni13mo33	sə33
Namuzi	dʒu33lu55	ŋi33mi55	si55
Naxi	xu55	ny55me33	sə55
Nusu	---	ŋi53lo53	tʂə55
Rouruo	yo33le53eye33kã33	na35thue13	se33
Kazhuo	woi35	si33tsa323	ka33
Jinuo	yu42mɔ33	ni42sɿ44	tshɿ42na42
WB	a1saa2im2	hna1lum3	a1tean3
Achang	---	ŋa55lum31	a31sə31
Zaiwa	khji21pham21	nik55lum21	siŋ21

<i>Language</i>	057 Lung 肺	058 Gall bladder 胆	059 Intestine 肠
*PLB	ʔ-tsut <sup>H</sup> ~ tsi2; tsəy2	---	wu1
*PL	(f)-pap <sup>L</sup> , tsi2 / tsut <sup>H</sup>	C-ʔ-kre1	ʔu1
*PN	*tshut <sup>2</sup>	*kri <sup>1</sup>	*ɣwu <sup>1</sup>
Nuosu	tshj21(mo21)	tɛj33	ɣ33
Niesu	tshv21(mo21)	tɕj33	ɣ33
Nesu	tshy55	tɛi13	tɛy33lo33
Nasu	tshu55	tɛi33	ɣy11
Gepu	tshj55	tɛj33	ɣu33
Nisu	tshj21mo21px21	tɛi55	vu21
Nishu	tshj21(mo21)	tɕj55	vu21
Lope	a21tshj21(po21)	a21tɛj44	ɣu213
Samu	sa25puw22	tɛj33	vu22
Sani	sɜ1lpæ33mɔ33	tɕʔ44	ɣ33
Azhe	tshu55(pu21)	tɕi33	ɣo22
Axi	tsi33pu33	i33tɕi33zo21	ɣo33ma33
Laluba	tshj21fj21	ku55	hi21vɥ55
Tolozá	sɟ33(my53)	tɛi33	ɣy53
Lavu	fe55	tɛi55	vu55
Lolopo	tɛh21pu33	tɛj33	ɣu33
Lipo	bɛ21	tɛj33	vu33, ɣ33
Lisu	bu31mu33	fj33	vu33
Lahu	ɔ31tshi53pho54	ɔ31kɜ33	ɔ31ɣu31te54
Bisu	aŋ33map33	pi31kha31	aŋ33u55
Hani	po31	phi31khu55	u55
Haoni	a31pho31	phe31khu55	ɔ31ɣ55
S.kong	aŋ33phje31	pja31khu55, phe31khu55	aŋ33u55
Mondzi	se44	ta44	se53
Maang	puw33	kei55	ɣu33, wu33
Azha	ʔi44hi33mo44	ʔi44tɛi55	ʔi33ze33
Zuoke	tɛe44po55	ki33	vu21
Polo	tshɛ21	tɛɛ33	vu33
Namuzi	ntshu35	tɕj31lu55	vu33ŋi55
Naxi	tshə55	ku21	bɣ33
Nusu	tshuʂ33	kɛ33	u33
Rouruo	tshue55phu33	kɛ55	vu55
Kazhuo	fɛ24to31	khv31ta31	v323mɜ33
Jinuo	a33tshi55	tshɜ44kha44	a33vu44
WB	a1shup4	təaŋ3khre2	uu2
Achang	a31təhot55	saŋ31tɛhi35	a31lu55
Zaiwa	tsut55	siŋ21khji51	u51

<i>Language</i>	060 Tail 尾巴	061 Mole 痣	062 Sinew 筋
*PLB	m-ba3	---	---
*PL	daŋ1ʔ-mri2	---	(f)-gru2
*PN	*s/ʔ-mru <sup>2</sup>	*khwu <sup>1</sup>	*gru <sup>1</sup>
Nuosu	phu21ʂu33, ɱu21ʂu33	pho33	gu33zi33
Niesu	phu21ʂu33, mu21ʂu33	khu33, khui33	gu33zi33
Nesu	me21ʂu33	khu13	dzu33
Nasu	mɔ11ʂy33	khu33	dzy33
Gepu	mo21ʂo33	khu33	dzu33
Nisu	mɛ33	so21mɛ21	dzu33
Nishu	mer33	ʂo21mie21	dzu33
Lope	a21mæ <sup>1</sup> 33dɛi33	mæ <sup>55</sup>	dɛi33, dɛj33
Samu	mɜ <sup>55</sup> to55	---	teiau33
Sani	mæ55	sɔ11ne44	gy11
Azhe	mɛ55	ŋi55ŋi22	gu21tʂo33
Axi	ma55dɛi33	dɛo21ne33zo21	dɛi21tʂo33
Laluba	ʔme21phe21	tʂy55	ʂj21gy21tʂa33
Tolozá	ŋi21me55	sɜ33	dɛj33
Lavu	ma21	su21	dzy21tʂu33
Lolopo	mə55tə33	phə21, pho21	dzu21, dzu21
Lipo	mɥ55tə33	phe33	tʂə33
Lisu	a55mo31	tʂa31ne33	dzu31
Lahu	mɛ11tu33	phe35na54ei11	ə31ku53təa54
Bisu	toŋ31mi31	nam55ba33e31sɟ31	aŋ33ku31
Hani	də31mi31	sa31na33	sa31gu31
Haoni	tu31mɛ31	tʂhɟ31tʂhɟ31mɛ31na33	ʃə31ky31
S.kong	toŋ31mi31	toŋ31si31la31	aŋ33ku31
Mondzi	j33dɛe44	mu44nə44	ku21
Maang	mi33	thie33khai35	kuə35
Azha	ʔi33mo55	a21li55ne33si55mo21	ʔi44tey33
Zuoke	mi55	dɛi35ei55ma21mi55	ʔə33dɛj44
Polo	a33mi33	tʂhɟ13	dɛi13pi55, dɛi13pi55
Namuzi	mæ31ku31	tʂy31	gu55tʂə31
Naxi	mæ33	tʂy33	sə33ba21, gy33ba21
Nusu	ɱu55pɪə <sup>53</sup>	tʂhə31vɪə <sup>53</sup>	gyu55
Rouruo	mj55pa33	sa31ne33	xo33kə33
Kazhuo	mu55ta323	tʂy35	tei33
Jinuo	to44mi44	mɛ44na42	a44təo44
WB	a1mri3	ɱai1	a1krə3
Achang	tɛhi31ŋaŋ35	phai35	a31kzə31
Zaiwa	ʃə21mji21	ŋɛ55me55xi55	ʃə21kji21

<u>Language</u>	063 Sweat 汗	064 Pus 脓	065 Excrement 屎
*PLB	?-grwəy2	m-blen1	z/zəŋ2
*PL	?-krwe2	m-bliŋ1	?/k(1)e2
*PN	*krwu <sup>2</sup>	*mbliŋ <sup>1</sup> , *ŋgi <sup>1</sup>	*khji <sup>1</sup>
Nuosu	ku21	ndzi33	təŋ33
Niesu	ku21	ndzi33	tʂŋ33
Nesu	təe55	nde21	tʃi33
Nasu	təo55	ŋtʃhə-11	fi33
Gepu	tʂo55	ndzʃhə-33	fi33
Nisu	tʂe21zi21	la55zi55	thi33
Nishu	tʂe21zi21	der21zi33	thi33
Lope	təæ-55	bu33zɿ44	tɿ33
Samu	kɿ-25	pi22	tʂŋ33
Sani	təæ55	tlaɿ33	tɿ11
Azhe	kɛ55	bu22zɿ22	fi21
Axi	tʂa55zi33	tʃe33	tʃi21
Laluba	ce21	vi55	chi21
Tolozā	təʌ55zi21	dzɿ55	tʂŋ53
Lavu	kuə21	bi55	təhi21
Lolopo	ke55	bi33	ei21
Lipo	kæ55vi33, kæ55vɿ33	vi33vi33	eɿ21
Lisu	təi55zɿ33	bu33tʃhi31	khi31
Lahu	ku31	bɛ31ɿu31	qhe53
Bisu	muŋ31ni31	aŋ33um55	eŋ31
Hani	khə31phju55	bjo55	ei31
Haoni	khuu31fɿ55	pu55uu55	o31təhi31
S.kong	ku31təhɔ31	aŋ33puŋ55	zəŋ31
Mondzi	a44	bie13	khe44
Maang	?u35lɔ55	na33	vi33ɿei44
Azha	tʂə55zɿ21	le33	fi33
Zuoke	?o55zi21	gi21	khi44
Polo	təi33zɛ21	bia33	---
Namuzi	ku33lu55	mbæ35fiæ <sup>+</sup> 55	tʂŋ31bu53
Naxi	tʂɿ55	bə-33	təhə-33
Nusu	xii55	biə-33	khi55
Rouruo	kɛ55	pi33təhi33	təhi33
Kazhuo	kɿ55	təe323	tʂŋ31
Jinuo	khi44	prɿ42	a44khri44
WB	khjwe3	prəŋ2	khje3
Achang	a31xə35	pzəŋ55	təhi31
Zaiwa	pui51pu51	pjiŋ51viŋ21	khji21

<u>Language</u>	066 Urine 尿	067 Father 父亲	068 Mother 母亲
*PLB	m-(d)z(y)əy2, tʃi2/N-(d)ʒəy2	---	---
*PL	m-ji2, ji2	ʔəpa3	ʔəC-ma3, ʔəyan3
*PN	*zi <sup>1</sup>	*ʔa1bo <sup>1</sup> , *ʔa <sup>1</sup> ti <sup>1</sup>	*ʔa <sup>1</sup> mo <sup>1</sup>
Nuosu	zɿ33	a44ta33, a21bo33	a44mo33
Niesu	zɿ33	a44ta33, a21bo33	a44mo33
Nesu	zi33	a21ba33, su33mo55	a21ma33
Nasu	zi33	a55de33	a55me33
Gepu	zi33	a33vi44	a55mu33
Nisu	ei55	a55ba33	a55mo21
Nishu	sɿ55	a55tie33	a55mo21
Lope	zei33	a44bə21	a33mɿ21
Samu	zi33sɿ55	a33phu44	a44mo33
Sani	zɿ11	r44bɔ11	r44mɔ33
Azhe	zɿ21	a33ti22	a33mo22
Axi	zi21	a44ba21	a33mo33
Laluba	zɿ21, zɿ21	a55ti33, a55ba21	a55ma33
Toloza	ʃu53	bə33	mə33
Lavu	zɿ21	a33vu55	a33ma33
Lolopo	pu55ʃɿ21	a21bo21, ŋo33bo21	a21mo33, ŋo33mo33
Lipo	zɿ21	a33bo33	a21mo33
Lisu	zi31	a31ba31	a33mq33
Lahu	dzi53	ɔ31pa33, a33pa33	ɔ31e33, ne21ne33
Bisu	i31ei31	a55boŋ55	a31ba33
Hani	a55dze55	a31da33	a31ma33
Haoni	ɔ31fɛ55	ɔ31phə31, ɔ55pə31	ɔ31mə33, ɔ55mə33
S.kong	i31si55, a31si55	aŋ33pu33	a31mba33
Mondzi	ze53	pə21	mə44
Maang	tehə33li55	pa35	ma35
Azha	pa55eu33	i55pa33	i55mo33
Zuoke	zi44	ʔv55bɔ44	ʔv55mɔ44
Polo	ze13	a33bə33	a33me21
Namuzi	mbæʔ31	a55da31	a55mi55
Naxi	bi33	ə33sɿ21, ə21ba33	ə21me33
Nusu	zɿ55	a55ba31, ja33pha31	a55mɿ31
Rouruo	ei33ʔe33	ʔa55pə33	ʔa55me33
Kazhuo	i35sɿ31	pa31pa31	mo33mo33
Jinuo	ji42tʃhe55	a44pu33	a44mə33
WB	shi3	a1phe2	a1me2
Achang	kə31tʃhə35	teʔ55	mauʔ51
Zaiwa	i21	a55va21	a55nu21

<i>Language</i>	069 Mother's brothers 舅舅	070 Son 儿子	071 Daughter 女儿
*PLB	---	---	za2-mi2'3
*PL	ʔəri1	za2	C-mi2
*PN	*ʔa <sup>1</sup> ɣu <sup>1</sup> , *ʔo <sup>1</sup> nji <sup>1</sup>	*zu <sup>1</sup>	*mi <sup>1</sup>
Nuosu	o33ŋi33	zu33	a21mŋ33
Niesu	o33ŋi33	zu33	a21m33
Nesu	a33zy33(ɣe33)	zu33	a21me33
Nasu	a55ɣu33	zu33	a11mɔ33
Gepu	a55ɣə21	zu33	a33mə44
Nisu	a33ɣu55	zo33	a21mɛ33
Nishu	a55ɣu55(ɣer33)	zɔ33	mie55
Lope	a44ɣu44	zɿ33	a21mæ33
Samu	a33ɣu33	zo33	za21mi21
Sani	ɔ44ɣu44	zɔ11	nɿ44, æ11mæ11
Azhe	a33vu33	zo21	nu33
Axi	a33vu33	zo21	nu33
Laluba	a21teo55	za21	ze21me21
Tolozā	a55gr35	za33	zæ33mæ33
Lavu	teu33teu33	zu21	zu21ma21
Lolopo	a33ɣu33za21	zo21	zo21mæ21
Lipo	---	dzo21	dzo33mæ33
Lisu	a33vu33	za31	zq31mɯ31
Lahu	ɔ31u33pha53	ɔ31za53pa11	ɔ31za53mi53
Bisu	a55tehi55	za31poŋ31	za31bi31
Hani	a31ɣə33	za31	za31mi31
Haoni	ɔ55ɣu33	zo31	zo31mi31
S.kong	aŋ33tehe55	aŋ33ŋga31	ŋga31mbi31ŋga31
Mondzi	zu44pɔ21	saŋ53pɔ13ɔ44	saŋ53mi44ɔ44
Maang	ŋui35	sa33ʔa44	mə33sa33ʔa44
Azha	a33zu44	zo33	ze44me33
Zuoke	ʔɔ5vu33	zɔ44	zɔ44mi44
Polo	ɣɿ33mɔ13	zo13	lq21mi13
Namuzi	a55vu55	zi53	zɿ33mi55
Naxi	ə21gɿ33	zo33	mi55
Nusu	a55phu33	za55	mi31za55
Rouruo	ʔa55ku33	zo13ia33	pi31mi31ia33
Kazhuo	teo35teo35	za31	za31m31
Jinuo	a44tey33	zo44jo42	zo44mi44
WB	u3le3	təa3	təa1mi3
Achang	luŋ55phaʔ55, mau55	tsɔ31lo31	tsaŋ31zi31
Zaiwa	a55tsa21	juʔ21ke51tso21	mji21ve21tso21

<u>Language</u>	072 Brother's son 侄子	073 Money 钱	074 Seed 种子
*PLB	---	---	yəw2
*PL	---	---	yo2, je3
*PN	*ndu <sup>1</sup>	*dzru <sup>1</sup>	*sru <sup>2</sup>
Nuosu	zu33ndu33	dzɯ33mo21	(ɔza33)lɿ21, ʂɿ21
Niesu	zu33ndu33	dzɯ33mo21	(ɔza33)lɿ21, ʂv21
Nesu	zu33ndu33	thu22tʂhi33	ʂy55
Nasu	zu33nthɿ33	dzi33bo33, ji11mu11	ʂɿ55mu11
Gepu	zu33ndhu33	dʒɿ33bo33	ʂɿ55mu21
Nisu	zɔ33du21	dzi33zɔ33	ʂɿ21; ʂɿ21mo21
Nishu	zɔ33du21	dʒɿ33	ʂɿ21
Lope	zɿ33du44	zi21m21	ɔ21ʂɿ21
Samu	ta21vu21zɔ33	tɕhɜ55	ʂɿ21zɔ33
Sani	zɔ11tɿ33	dʒɿ11tɕe44	ʂz55mb33
Azhe	zo21do22	zi22mo22	ʂu55mo22
Axi	zo21to33zo21	zi21mo33	ʂi55tʂho33
Laluba	za21dɯ55	dzi21phi21	ɿu33ʂɿ21
Toloza	do21za33	tʂɿ55zɔ55	ʂu33 tʂhɔ53
Lavu	zu21dɯ55pu21	xu55pia33	tʂhɿ33ʂɯ21
Lolopo	zo21du33	dzi21phe21	ʂɿ55mo33
Lipo	dzo21du33	dʒɿ21phi33	ʂɿ55mo33
Lisu	sa55zɔ31	phu33	e55fɿ55
Lahu	ɔ31ea11pa11	tʂhi33	ɔ31zɔ53ɿu31qha33
Bisu	aŋ33za31	phu55	---
Hani	za31du55	phju55	a55zɔ31
Haoni	fɿ31tʂɿ31, zɔ31tɿ55	tɕhiɛ31, fɿ55fɿ31	ɔ55ji31
S.kong	aŋ33tɕe31	ŋguun31mbai35	aŋ33zɔ31
Mondzi	---	phiu13	i44teo21
Maang	ŋɿ21ʔa44	phia35	(qha33)zau21
Azha	zɔ33te21	tei21tʂe33	eu55
Zuoke	zɔ44du21ɔ44	dʒi44ka33	ʔɔ33su55
Polo	ndɿ33zɔ13	zi22mo22	a33sɿ33
Namuzi	zi53	ba31dzɿ55	zuo31zɿ55
Naxi	dze33ɿu33	teiɔ55iɔ33	lɔ55
Nusu	vɿi55a31	ŋue33	vɿu55
Rouruo	tei53ia33	ŋue33, tɕha55pe55	tso33iɿu33
Kazhuo	za31tʂɿ31	tɕhe323	i31sɿ55
Jinuo	zɔ44ku44	phru31	a44tsi44
WB	tu2	ŋwe2, pok4sham2	mjo3se1
Achang	tɕɔ31lo31	ŋui55	a31ŋau31
Zaiwa	tso21, i55tso21	ŋun51	a21mji21



<u>Language</u>	075 Food; cooked rice 米饭	076 Paddy rice 稻子	077 Buckwheat 荞麦
*PLB	dʒa1, haŋ2	dza1	g-ra2
*PL	maŋ2, haŋ2	can1	---
*PN	*dza <sup>1</sup>	*trhə <sup>1</sup>	*ŋgo <sup>1</sup>
Nuosu	dza33	tʃhu33	ŋgu33
Niesu	dza33	tʃhu33, tʃhu44sv33	ŋgu33
Nesu	dza33; dzo21	tʃhɿ21se33	ŋgu33
Nasu	dzu11	tʃhe11	ŋkhu33
Gepu	tehi33thu33po33vu55	tehi33mu33	ŋghu33mu33
Nisu	dzo21	tche21se33	go33se33
Nishu	dzo21	tche21ʃer33	go33ʃer33
Lope	dzu213; tɕhɿ21	tehæ213sæ33	gu33
Samu	dzo21	tɕhi22	ko33, go33
Sani	tsɔ33	tehi33mɔ33	qɔ11mɔ33
Azhe	dzo22	dzo22teɿ55	go21
Axi	tsɔ33	tehi33tsɛ33	go21
Laluba	dza55	tehi55	ya21kha21, ya21tʃhɿ55
Tolozha	dza21	tʃhɿ55sæ53	ga21ka21
Lavu	dzu55	tʃhu55ʃa21	gu21
Lolopo	a55me21, dzo33	tehe33sæ21	go21sæ21, go21tʃhɿ33
Lipo	dzo33	tehe33sa21	go21
Lisu	dza33	tɕhu33	gua31
Lahu	ɔ11	(ti33mi33)tea31	ya53ei11
Bisu	xaŋ31	ko33	la31so33
Hani	xo31	(dzo31)tʃhe55	ya31le33
Haoni	ɔ55y31	ʃhe55	ya31pa31
S.kong	haŋ31	qo33, qo33tʃhan55	---
Mondzi	zo13; mu44	khɔ13	ŋgo21
Maang	mia35	yei33qa44	mə21ga35
Azha	tsɔ21pu55	tehe21mo21	ko33mo21
Zuoke	dzo21	(ti33yɔ33)tɕhi21	gɔ35
Polo	dzo22	tʃhe33	go13ei33
Namuzi	(ntʃhu55)dza35	dzi55po53	ji31qha53
Naxi	xa33	ei21	ɔ55gu21, ɔ55kha33
Nusu	tʃhe55kha33	me33me31	ya55tehu55, ya55
Rouruo	tso33tehe53	kue33eye33	?o33
Kazhuo	tsa323	tʃhe33	ka31
Jinuo	a44me44	a44me44	tehɔ31tsi44
WB	tha3maŋ3	sa1pa3	---
Achang	teɔ55	teɔ31tʃen55, tʃhen55	tehau255
Zaiwa	tsaŋ21	jɔ21thun21ku?21, ʃhin51	khjau55

<u>Language</u>	078 Barley 大麦	079 Wheat 小麦	080 Soybean 豆子
*PLB	zəy2	---	(s-)nok <sup>H</sup> ; s-nuk <sup>H</sup>
*PL	---	---	s-nök <sup>H</sup> , ʔ-bay2/at <sup>H</sup>
*PN	*zu <sup>2</sup>	*sra <sup>1</sup>	*nok <sup>H</sup>
Nuosu	zu21	ʂa33	nu33ma33
Niesu	zu21	ʂa33	no33ma33
Nesu	zu21	ʂo13	ne33mo33
Nasu	zɿ21	ʂu33	nu2
Gepu	zɿ55	ʂu44mu33	a55no21
Nisu	zo21	so55	nu33
Nishu	zɔ21	ʂo55	nu33ʂer33
Lope	zɔ21	ʂu44	a44nu33
Samu	so55ɿ33	so55zo33	nau25
Sani	zɿ33ma33	ʂp44mp33	p44nu44mp33
Azhe	zo22	xo33	a33nu22
Axi	zo33	xo33	a33nu33
Laluba	zɿ21	ʂa55	a55no33
Tolozā	zɿ33	ʂʌ33	no33
Lavu	zɿ33	ʂu55	no33
Lolopo	zɿ33	ʂo33	no33
Lipo	zɿ33	ʂo33	nu33
Lisu	mu31zu33	zu33	a55no33
Lahu	zi33lo35	zi33ze53	no54
Bisu	khau55mɿ31	khau55son31	no33pɿk33
Hani	ta35me31	ɛo33me31	nu33si31
Haoni	ta55me31	eiɔ31me31	nɿ33pi33
S.kong	---	qhau31mu31	noŋ33pe33
Mondzi	doŋ44	doŋ44	nu44mo13(khi13)
Maang	mə21lɿ35	hō21miã35	no35
Azha	xo55mo21	xo55zo33	a44no33mo21
Zuoke	ʔo55zu33	ʔo55xo55	ʔa55no21
Polo	zɿ21	xo33	a33nu55
Namuzi	mu55dzi55	ʂu31	nu55lu31
Naxi	mu33dɛ33	dɛ33	ny21
Nusu	zə33	sa33	nu53
Rouruo	mɛ31zo33	zo33	na53
Kazhuo	sa35ɿ35ma33	sa24	no53
Jinuo	zu21	mu31tsi44	nu33ma33
WB	bhaa2li2	gjuŋ2	pai3, pai3bi1sap4
Achang	---	meʔ31tɿ55	kã31tʂeʔ31
Zaiwa	mə55ja21sat55	mə55ja21ŋjaŋ21	nuʔ21

<u>Language</u>	081 Mushroom 菌子	082 (pork) Oil (猪)油	083 Salt 盐
*PLB	ʔ-məw1	---	tsa2
*PL	s-mo1	xa2	(t)sa2
*PN	*s-mu <sup>1</sup>	*tshu <sup>1</sup>	*tsha <sup>1</sup>
Nuosu	ɱu33	(vo55)tshɿ33	tshu33
Niesu	mu33	(vi55)tshɿ33	tshu33
Nesu	mi13	tshɛ21(ba33)	tshu33
Nasu	my33	tshɔ11	tshu33
Gepu	mu33mbha44	(va55)tshɔ33	tshu33
Nisu	mu55	tshɛ21	tsho33
Nishu	mu55lu55	tsher21	tsho33
Lope	mu44lu44	tshæ213	tshu33
Samu	mɔ25lu33	tshɔ22	tshɔ33
Sani	ɱ44ɔ33	tshɰ33	tshɔ11ɱ33
Azhe	mu33lo22	tshɛ22	tsho21
Axi	mo33lo33	tsha33	tsho21mɿ33
Laluba	---	tshɛ55	tsha21bo33
Tolozā	ɱ55mv33	tshɿ33	tsha33
Lavu	mɿ33lɿ55	tshæ33	tshu21
Lolopo	mə55	tshɔ33	tsho21
Lipo	mu33lu33	tshɛ33	tshɔ21
Lisu	mɿ33ɱhi31	tshu33	tsha31bo33
Lahu	khu53mv31	ɔ31tshu33	a35lɛ21
Bisu	moŋ55	aŋ33tshɿ55	sa31me31
Hani	tshi31ɔ55	(yɔ31)tshi55	tsha31dɿ31
Haoni	xu55ɱi55xu55ɱɿ33	(ɰɿ33)tshi55	tsha31tɿ31
S.kong	muŋ55	aŋ33tshi55	a31tɿ31
Mondzi	mo13	si13	sɔ44
Maang	---	(va35)sui55	ʔdiɛ33
Azha	mi55le21	tsha21	tshɔ33ma55
Zuoke	ʔo55mu21	ʔɔ33tshi21	tshɔ44mu33
Polo	mɿ33gu55	(lɔ33dɛ13)tshɿ33	tsho13
Namuzi	mu31tsha55	ji53tɿ31	tshi31
Naxi	mu55	ma21	tshɛ33
Nusu	ɱu33	tshu55	tsha55
Rouruo	ma55	(ɔ31)mɔ31	tsho33
Kazhuo	tɛɛ35	tshɿ33	tsha31
Jinuo	mɔ44lu44	a33tshu44	tshɔ55khɔ42
WB	hmo2	a1shi2khai3	sha3
Achang	mau55	oʔ55tsho55	tshɔ31
Zaiwa	mau51lu51	tshu51	i55ɱum21, i55tsho55

<u>Language</u>	084 Liquor 酒	085 Meat 肉	086 Road 路
*PLB	m-dəy1	---	lam2/3
*PL	ji <sup>1</sup>	xa <sup>2</sup>	?-ga(ŋ) <sup>1</sup>
*PN	*ndzi <sup>1</sup>	*xo1	*ga1
Nuosu	ndzɿ33	ʂu33	ga33, ga21mo21
Niesu	ndzɿ33	xu33	ga33, ga33mo21
Nesu	ndzɿ21	xu33ba33	dzo21
Nasu	ŋtʂhi11	xu33	dzu2
Gepu	dzi21	xu33	dzɔ55
Nisu	dzɿ21	xo33	dzo21mo21
Nishu	dzɿ21	xo33	dzɔ21mo21
Lope	dzi213	xu33	dzi21m21
Samu	tʂɿ33	sɔ33	teio22, dɛio22
Sani	tʂɿ33	xɔ11	kɔ33mɔ33
Azhe	dzi22	xo21mɛ55mɛ21	go22du21
Axi	tei33	pa33xo21	tʂo33ma33
Laluba	dzɿ55	xa21	ga55jy33
Tolozā	dzɿ21	xa33	dzɿ33mɔ33
Lavu	dzu55pha21	xu21	dzu13ka55
Lolopo	dzɿ21bæ21	xo21	dzo33ma33
Lipo	dzɿ33pha21	xo21	gɔ33mɔ33
Lisu	dʒi33phuu31	xua31	dʒa33gu33
Lahu	dzi31	ɔ31ea11	za11qɔ33
Bisu	te31kha31	sa31px31	ke55ba33
Hani	dzi55ba31	sa31	ga55ma33
Haoni	fjɿ55pɔ31	fɔ31	kɔ55mɔ33
S.kong	te31qha55	tsha31tshoŋ55	ka55mba33
Mondzi	dze13	?u53	tʂu44mɔ44
Maang	dzai33	ya35	dɛiau35
Azha	tei21	me55me21	tɔ21, tʂɔ21
Zuoke	?ɔ55dzi21	?ɔ33xɔ55	dɔɔ21du44
Polo	dze33	xo33	dzu33
Namuzi	vu53	ʂɿ31	ɔ55gu55
Naxi	zɿ33	ʂɿ33	zɿ33gy33
Nusu	zɿ33	ʂa55	khɿa33phɿoŋ33
Rouruo	i55	xo33	kho55mɔ31(teo55)
Kazhuo	tʂɿ24	sa31	tea24
Jinuo	tehe42pu44	kɔ33e33	jɔ44kho44
WB	a1rak4	a1tea3	lam3
Achang	tʂi55	ʂua31	xa55mzua31
Zaiwa	i51	fɔ21	khjo51

<u>Language</u>	087 Bridge 桥	088 House 房子	089 Bed 床
*PLB	dzam1	yim1	---
*PL	dzam1	yim1	---
*PN	*ndzam <sup>1</sup>	*xim1	*gu <sup>1</sup>
Nuosu	dzi33	zi33	(i55)go33
Niesu	dzi33; dzui33	hi33	(i55)go33
Nesu	dze21	hi21	dzi33
Nasu	ntshe11	hə11	dze33
Gepu	ndzhi33	hɛ33	dzə33
Nisu	gy21 dzɿ21	xie21	dzi33mo21
Nishu	dzə21gə21	xie21	dze33mo21
Lope	<i>tɕhiao21</i>	hɛ̃213	zi55dɔ21
Samu	tsu22	xu22	zu55khu21
Sani	tsɿ33	hæ33	gu11
Azhe	dzu22	xɛ22	gu21
Axi	tsi33	lu55xɛ33	dzi21the33, zi21du21
Laluba	yo21dzy55	hi55	(ʔi21)gu55, jy21tɕ33
Tolozā	gy53dzɿ21	hi33	khɿ53tɿ33
Lavu	ku21dzɿ55	hi55	dzoŋ13ka55
Lolopo	dɿ33	xi33	dze21mo33
Lipo	dzu33	e33khu33	gu21
Lisu	kho31dɛ33	hi33	e31ta55gu33
Lahu	<i>tɕo31</i>	zɛ31	koe11
Bisu	kai55khu33	zum55	zu31pam31
Hani	lɔ55dzo55	la31xɔ55	yo31dzo33
Haoni	<i>tɕhiɔ31</i> , tɕɛ33kɿ31	ɔ55xu55	zy31xɔ55
S.kong	ka55tsam33	zim55	ten33
Mondzi	koŋ44	pa44tɕu13	tan13
Maang	<i>dɕiau33</i>	khaŋ35	zi35san44
Azha	<i>tɕhiau21</i>	he21	zi33tɕhi21
Zuoke	dzo21	zi33	zi44khj21
Polo	dzu33	ŋa33	ŋa21
Namuzi	dzuo55	ju55lu53	qæ'53
Naxi	dzo21	dzi21	tɕua33
Nusu	gu55dza33	io33	gui55
Rouruo	khɔ33tso33	iɛ33	ia53pi55teo55
Kazhuo	tɕɛ33	xɿ33	zi53kɿ24
Jinuo	khɿə31tɕɛ33	tso42	teu33tɕhu33
WB	tam2ta3	im2	ku1taŋ2
Achang	<i>tɕam55</i>	in55	ku35
Zaiwa	tsam51	jum51	ku55

<u>Language</u>	090 Door 门	091 Pants 裤子	092 Needle 针
*PLB	---	?-la2 (PL)	rap <sup>L</sup> ~ k-rap <sup>H</sup>
*PL	ya1/la1 mikL, k/go2/3	?-/k-la2	g-rap <sup>L</sup>
*PN	*ŋgwi <sup>2</sup> , *ko <sup>1</sup>	*ʔ/s-laʔ <sup>L</sup>	*krap <sup>L</sup>
Nuosu	i21kho33, ŋgu21hi33	ʎa55	zi55
Niesu	i21kho33, ŋgui21hi33	ʎa55	zi55
Nesu	ŋgo21khr33	ʎu55	zi13
Nasu	ŋkhu2	ʎu55	ʎɿ55
Gepu	ho24go33	ʎu55	ʎə55
Nisu	go21mo21	ʎo21	ʎɿ21
Nishu	lo21go21	ʎo21	ʎə21
Lope	hɛ̃213gu21	ʎo55	ʎə55
Samu	go22	<i>ɛiau33zi33</i>	ʎu55
Sani	hæ44qhɔ33	ʎo55bæ33	ʎɿ2
Azhe	xɛ22go22	ʎo55bɛ22	ʎu21
Axi	a33go33	lo55bi21	ʎo21
Laluba	a55cha21	?la21	y21
Toloz	ka55my55	tʃhɿ33ŋi21	ʎɿ33
Lavu	kha33khu21	gɿ21lɿ55	ʎə21
Lolopo	a55du21tɛhe21	lu55du21	ʎə21
Lipo	a55du21	lo55tʃhɿ21	və21
Lisu	a55khu31	lu55thi33	ʎo31
Lahu	zɛ31mi35	xa11tho33	ʎo21
Bisu	laŋ55ko33	tui31	khunɿ31kjau31
Hani	lu55ɿu33	la31tʃhɔ31	a31ʎo31
Haoni	ɿu33xɛ31	ʎo31	ʎo31
S.kong	qo33phi31	tʃa31ŋga31	ku31kap31
Mondzi	tʃu44ko21	lo44	tʃu44
Maang	tuə35	la33	tɛuə35
Azha	la21khe33	ke44pe33	ʎo33tʃɿ33
Zuoke	ga33pi55	ʎo55bi44	ʎo44
Polo	xɛ22go33, a33go33	ʎo13	<i>dzu55</i>
Namuzi	qhuo55bu53	li31	kuo31
Naxi	khu33	le33	ko21
Nusu	khə55	ʎa55	ʎa53
Rouruo	khɛ33	lio55(ku33)	?a53ka55
Kazhuo	ka323tɛhi31	la55	ʎu53
Jinuo	a44ko33	ʎu44tʃho44	a44kə55
WB	tam2kha3	bhɔŋ3bhi2	ap4
Achang	pə31tu35	ʎo31	ap55
Zaiwa	khum21	ʎo21	ap55

<u>Language</u>	093 Thread 线	094 Cattle 牛	095 Horse 马
*PLB	krɪŋ1	---	mraŋ2
*PL	g-rap <sup>l</sup> krɪŋ1	nwa2, ʔ-myɑŋ1	mraŋ2
*PN	*khrɪŋ <sup>l</sup>	*ŋjɪ <sup>l</sup> , *lu <sup>l</sup>	*smraŋ <sup>l</sup> , *mu <sup>l</sup>
Nuosu	ei33	lu33, ŋi33	mu33, mu21pa55
Niesu	ei33	lu33, ŋi33	mu33, mu21pa55
Nesu	khe21	ŋy33	mu33
Nasu	tɕhə11	lu33, ŋi33	mɤ33
Gepu	khə21	ŋi33	mo33
Nisu	tɕhe33	ŋi33	mo33
Nishu	tʂher21pə21	ŋi33	mo33
Lope	tɕhə213	ŋi33(ŋi44)	mo33
Samu	tɕ <sup>h</sup> i33	ni33bu33, ni33pu33	mu33
Sani	tɕhæ33	ŋi11	ŋ55
Azhe	tɕi33tʂə22	mu21	mo21
Axi	tʂhe33	ni21, lo21	mo21
Laluba	khɯ55	a55ŋ21	a55ŋ21
Tolozā	tɕhi33zɑ33	ŋi33(pha33ʂæ33)	mɤ33
Lavu	ko21tɕhi55	a55ŋu21	a55na33mɯ21
Lolopo	tɕhi33tʂə33	ŋi21	mu21
Lipo	tɕho33yo21	ŋi21	mbu21
Lisu	tɕhi33zɑ31	a55ŋi31	a55mo31
Lahu	yɯ21khe33	nu53	i35mɤ53
Bisu	khɯŋ31tha31	a31mjaŋ31paŋ31na33	a31moŋ31
Hani	sa31khə55	a31ŋu31	mo31
Haoni	khɯ55phu31	ɤ55nɤ31	ə31mu31
S.kong	khɯŋ55	qha31po31pan31na33	a31mboŋ31
Mondzi	me21	niu21(tɕe13)	moŋ21
Maang	mai35	ŋio35	moŋ35
Azha	khe32tʂə33	ŋy33	me33
Zuoke	tɕa33	ni44	(ʔb55lb33)mu44
Polo	tɕhə33	ni13(ndɤ33)	mu13
Namuzi	khi53	ɤə31	mo53
Naxi	khɯ21	ɤɯ33	zɑɑ33
Nusu	ɤɑ53ŋi33, tɕe33xɯ31	nuə55	mɯə55
Rouruo	khe33	nu33	mia33
Kazhuo	khɤ33	ŋ31kɤ24	m31
Jinuo	a33khɯ44	mɛ42ŋjo44(pə44na42)	mjo44tha42
WB	khjaŋ2	nwa3	mraŋ3
Achang	khzəŋ55	ŋo31	ŋzɑŋ31
Zaiwa	khjiŋ51	no21	mjaŋ21

<i>Language</i>	096 Sheep 绵羊	097 Goat 山羊	098 Chicken 鸡
*PLB	---	V-ci:t <sup>L</sup> ; ɕ-cit <sup>L</sup> , C-tʂi:t <sup>L</sup>	k-rak <sup>H</sup>
*PL	zo1	(k)-cit <sup>L</sup>	k-rak <sup>H</sup>
*PN	*roŋ <sup>1</sup>	*tehit <sup>L</sup>	*krak <sup>H</sup>
Nuosu	zo33	tʂhɿ55, a44le33	va33
Niesu	zo33	tʂhɿ55, a44le33	zie33
Nesu	ho21	tʂhi13	ɣa33
Nasu	hɔ11	tʂhɿ55	ɣa2
Gepu	hɔ33	tehi33	ŋa55
Nisu	xa21	tehi21	ze33
Nishu	xa21	a55tʂhɿ21	ze33
Lope	hõ213	tehi55	ŋa33
Samu	tʂhɿ55	tʂhɿ55	a21ɣa55
Sani	zo33	tehi2	je44
Azhe	xu22ba21	tehi21	zi22
Axi	zu33me21	tehi21	ze33, ɣo21
Laluba	a55zu55	a55tʂhɿ21	a55zi33
Tolozā	zo33	tʂhɿ33	za55
Lavu	za55	a55tʂhɿ21	za33
Lolopo	za33	a55tʂhɿ55	zi33
Lipo	ziau33	a55tʂhɿ33	zie33
Lisu	q33zo33	a55ɸhi31	a55ɣa55
Lahu	zo31	a35tehe21	ɣa54
Bisu	tehin55pu33pe33le33	pe33le33	za33
Hani	a31jo55	a31tʂi31	a31xa33
Haoni	(ɸhɿ31)ɰɣ55	a31ɸhɿ31	a31xa33
S.kong	tʂhɿ31me33	tʂhɿ31me33	xa33
Mondzi	---	tehi53	ɣo44
Maang	ŋau35	---	ɣa35
Azha	me33hẽ33	---	ze33
Zuoke	me21za21	me33le33	za21
Polo	zo33	tʂhɿ55ɛ13	ɣo55
Namuzi	jo55	tʂhɿ35	fiæ53
Naxi	y21	tʂhɿ55	æ21
Nusu	iõ33	tʂhɿɔ53	ɣiɔ53
Rouruo	iã55	tehe53	ɣo53
Kazhuo	tʂhɿ53	tʂhɿ53	ɣa53
Jinuo	---	tehi55, ɕo44ɛ42le42	ja42
WB	teo3	shit4	krak4
Achang	paʔ55	paʔ55	kzuaʔ55
Zaiwa	sau21mji55	pai21nam55	voʔ21



<i>Language</i>	099 Wing 翅膀	100 Egg 蛋	101 Pig 猪
*PLB	duŋ1	ʔu3	wak <sup>L</sup> ; p <sup>w</sup> ak <sup>L</sup>
*PL	doŋ1	u3	wak <sup>L</sup>
*PN	*duŋ <sup>1</sup> (lak <sup>L</sup> )	*ʔlu <sup>3</sup> , *ʔvu <sup>3</sup>	wak <sup>L</sup>
Nuosu	du33	(va33)tehi21	vo55
Niesu	du33	(zie33)tehi21	vi55
Nesu	du21la13	ndo55, ʔhu21	va13
Nasu	dɤ11lɔ55	ʔɥ2	vɔ55
Gepu	du33la55	(ŋa55)fu33	va55
Nisu	do21lie21	fu21	ve21
Nishu	do21lie21	(ze33)fu21	vie21
Lope	tɔ21la55	ʔɥ21	va55
Samu	ta21vu21la44	fu55	va55
Sani	tɥ33le2	ʔɔ33mɔ33	ve2
Azhe	do22li21	ʔo22	vi21
Axi	ʔo33le21	i33ʔho33	ve21
Laluba	dɥ55li21	ʔɥ33	a55vi21
Tolozā	le33ka33	(za33)si55	ve33
Lavu	dɥ55la21	(za33)ʔɥ33	va21
Lolopo	dɥ33le21	xu33	ve21
Lipo	du33le33	fu33	ve33
Lisu	du33le31	e55ʔɥ33	a55ve31
Lahu	tɔ21la21qu35	(ɣa55)u33	va21
Bisu	aŋ33toŋ55	aŋ33u33	va31
Hani	a31dɔ55	(xa33)ɥ33	a31ɣa31
Haoni	ɔ55tu55	(xa33)ɥ33	a31ja31
S.kong	aŋ33toŋ55	aŋ33ɥ33	wɔ31
Mondzi	lo21via44	(ɣo44)tɔ44	va44
Maang	ɣa35toŋ44	ɣa55ɥu33	vɔ35
Azha	(ze33)ta21le33	ze33a33mo21	ve33
Zuoke	du21la44kha44	(za21)ʔɥ33	va44
Polo	du55lu55	(ɣo55)lv55	vo55
Namuzi	du55tɕɥ55	ʔɥæ'55kuo55	væ31
Naxi	dɥ33	ky33	bu21
Nusu	bia33doŋ33	u31	vɔ53
Rouruo	(ŋɔ31)tu33	(ɣo53)vɥ13	ʔo53
Kazhuo	tv323la55thi31	ʔɥ33	wa53
Jinuo	a33to44	vu44	va55
WB	tɔŋ2pam2	ʔu1	wak4
Achang	a31tuŋ55	uʔ31	oʔ55
Zaiwa	tuŋ51	a21u55	vaʔ21

<i>Language</i>	102 Dog 狗	103 Louse 虱子	104 Cat 猫
*PLB	k <sup>w</sup> əy2	san1/2	k-roŋ1
*PL	kwe2	xan1	ni1, mi1
*PN	*khwu <sup>1</sup>	*sxi <sup>1</sup>	*ʔa <sup>1</sup> nja <sup>ʔH</sup>
Nuosu	khwu33	ɣu33	a44ŋe33
Niesu	tʃɿ33	ei33	a44ŋe33
Nesu	tɕhi33	ee33	a55tʃhy33mi55
Nasu	tɕhi33	ee11	a33mɤ55
Gepu	tɕhɿ33	tɕhɿ33eɿ33	a55mɤ55
Nisu	tɕhi33	ee21	mi55ne33
Nishu	tʃɿ33	ee21	a55ne33
Lope	tɕhi33	eæ213	mæ33næ33
Samu	k <sup>h</sup> ui33	ei22	a33mi33
Sani	tʃhɿ11	ei33mɔ33	mæ44næ33
Azhe	tʃhi21	ei22	a55ne33
Axi	tɕhi21	ta33pi33	mɛ55ne33
Laluba	a55khwu21	ei55	a21ni55
Tolozā	khɿ53	ei55	a55ŋi33
Lavu	tʃhɿ21	ee55	a21ŋi55
Lolopo	a55nu55dzæ21	ee55	yu33mi21, yu33mɔ21
Lipo	a55no21	ee33	mɔ55mi33
Lisu	khwu33(gɔ31)	xuɿ33	a31ne33zɔ31
Lahu	phwu53	a55po21ee33	mɛ35ni33
Bisu	khwu31	ein55	a55mi55
Hani	a31khwu31	se55	a55mi55
Haoni	ɔ31khwu31	ʃe55fɿ55	ɔ55ŋi55
S.kong	khwu31	san55	a55mi55
Mondzi	khui44	xɔ44	miɔ53
Maang	khui35	(khui35)ʔe55	miau55
Azha	tɕhi33	tɕhi33ei21	ma44ne33
Zuoke	tɕhi44	ei33	ʔɔ55ni55
Polo	tɕhe13	ee33	mɿ55
Namuzi	tʃhɿ31	ɣu55	ɣa31la53
Naxi	khwu33	ɣu33	xua55le21
Nusu	khui55	ɣɤ55	mu33ŋe31
Rouruo	khyi33	xɔ33	ŋa55ŋi33
Kazhuo	tʃhɿ31	se33	a33ŋ35
Jinuo	khwu44jo44	ʃe44phru33	jo31me44
WB	khwe3	toan3	krɔŋ2
Achang	xui31	ɣan31	kã31lɔ31
Zaiwa	khui21	ʃin21	lã21ŋjau55

<i>Language</i>	105 Monkey 猴子	106 Tiger 老虎	107 Leopard 豹子
*PLB	myok <sup>L</sup> ; myuk <sup>L</sup> , s-myuk <sup>H</sup>	k-la2	zik <sup>L</sup>
*PL	myok <sup>L</sup>	k-la2	k-zik <sup>L</sup>
*PN	*ʔa <sup>1</sup> mjok <sup>L</sup>	*laʔ <sup>L</sup>	*ziʔ <sup>L</sup>
Nuosu	a33ŋu55	la55, la55mo21	zɿ55
Niesu	a33ŋo55	la55, la55mo21	zɿ55
Nesu	a55ŋe33	tɛhy21bi33	zɿ13
Nasu	a33ŋu55	lu55	zi55
Gepu	a33ŋo55	a55bə21	zi33
Nisu	a55nu21	lɔ21mo21	zi21
Nishu	a55nu21	lɔ21	zɿ21mɔ21
Lope	a44nu55	lɔ55	zei55
Samu	a33mio55	lɔ25	---
Sani	ɒ44nu55	lɒ55	z2
Azhe	a33nu55	lo55	zi21
Axi	a33nu55	lo55	zi21
Laluba	a55mo21	la21pa21	zɿ21pa21
Tolozā	dza53mi21	la55	zɿ21
Lavu	dza55miau21	zɿ21mu33	lu21mu21
Lolopo	le21və55	lo21	zi33
Lipo	mu33	lɔ33	---
Lisu	fɛ35mi31	la31ma33	la31o55du31
Lahu	mɔ21	la53qha53pu33	la53
Bisu	a55khonɿ31	tsha31la31la31ba33	tsha31la31
Hani	a55mju31	xa31la31	xa31zɿ31
Haoni	a55mɿ31	xɔ31lɔ31	xɔ31zɿ31
S.kong	mju31	tsha31la31, qha31la31	tsha31la31la31ŋa31
Mondzi	miu44	ko53	lɔ21
Maang	nio35	tshom35	---
Azha	he33	lo55	vi33
Zuoke	ʔa55no44	ʔo55no55bi44mo33	ʔa55zi44
Polo	a33mi55	no13mɔ21	la33mɔ21
Namuzi	ga31tɿu55	(tshuo33dɿ31)la55	zæ31
Naxi	ə55y21	la33	dɿ33
Nusu	miu53	la55	la55
Rouruo	miɿ31	liu33	liu33
Kazhuo	a35ŋo53	la31	---
Jinuo	xo31mɔ44	lɔ44mɔ33	lɔ44mɿ33
WB	mjɔk4	kja3	kja3tɛas4
Achang	ŋuʔ55	lɔ31	lɔ31
Zaiwa	mjuʔ21	lo21mo55	lo21

<u>Language</u>	108 Barking deer 麝子	109 River deer 獐子	110 Fox 狐狸
*PLB	d-kəy1	---	---
*PL	kye1	---	---
*PN	*khju <sup>1</sup>	*lu <sup>1</sup>	*ʔa <sup>1</sup> dju <sup>1</sup>
Nuosu	təh33, təh21ni33	lu33, lu21pu33	a44dzu33
Niesu	tʂh33, tʂh21ni33	lu33, lu21pu33	a44du33
Nesu	tʂh121	---	ʔx55dɿ33
Nasu	tʂh33	lu33	u55du33
Gepu	təh21	lu33	ʔə55di33
Nisu	təhi21nɿ55	fə21lo33	a55dɿ33
Nishu	tʂh21nə55	lo33	a55də33
Lope	tʂhu213	a44lu33	a44du33
Samu	---	---	---
Sani	tʂh233lɔ11mɔ33	lɔ33	o55dɿ11mɔ33
Azhe	lu21zɔ21	lə33[o22	a33du21
Axi	tʂhi33zɔ21	lo33	a33du21
Laluba	tʂh33	la33	ʔy55dy21
Toloza	tʂh33	la33	ʔu33dɿ33
Lavu	a33tʂh33	a55lu33	fu21li55
Lolopo	tʂh33ma33	lo33	u55də21
Lipo	tʂh33	lo33	---
Lisu	ʃhi33	lɔ33	o55du31
Lahu	tʂhi33pi35qɔɛ21	fɿ35la53	zi53yɔɛ11
Bisu	---	---	---
Hani	təhi55za31	də55la31	phu31dɿ33dɔ31mi31
Haoni	ʃhi55zɔ31	tu55lɔ31	xɔ31ye55
S.kong	təhi55a31	---	sɿ55phai31
Mondzi	təhe13	---	---
Maang	---	---	---
Azha	a44lɔ33	---	a44ty33
Zuoke	ʔɔ55təhi21	ʔɔ55lɔ33	ʔɔ55du35
Polo	---	lɔ21	---
Namuzi	---	li31	da55
Naxi	təhi21	le33	də33
Nusu	təhi33	yɿa55	lio31kui55
Rouruo	təhi55	na55ɔ13	---
Kazhuo	---	---	fɿ31li31
Jinuo	təhi42zɔ44	---	to33lɔ44
WB	khje2	ŋaj2	mre2khwe3
Achang	təhet55	---	---
Zaiwa	ʃi21ʃhi51	---	tan55khui21

<u>Language</u>	111 Rabbit 兔子	112 Mouse 耗子	113 Snake 蛇
*PLB	---	k-r-wak <sup>H</sup> , b-yəw	m-r-wəy1, wəy1 (PL)
*PL	taŋ2, loŋ2/1	(k)-rwak <sup>H</sup>	m-rwe1, laŋ1
*PN	*thu <sup>2</sup> slu <sup>2</sup>	*krwak <sup>H</sup>	*bu <sup>1</sup> xru <sup>1</sup>
Nuosu	a21tu21;thu21tu21	a44he33	bu33ɣɿ33
Nuosu	a21tu21;thu21tu21	a44he33, a44fie33	bu33ɣv33
Nesu	a33lo55	fiə33	bi33ɣe13
Nasu	ɔ55tu2	hɔ2	ɣə33, by33ɣə33
Gepu	a55ŋə55	hə33	bə33ɣə33
Nisu	tha55to21mo21	me21dɿ33, xe33	se55
Nishu	tha55to21	mie21də33, xie33	ɣer55mo21
Lope	a33to21	mu33tu33, ha33	ɣə44mo21
Samu	tha33la33zə33	xə33	zi21pu33
Sani	ɾ44to33	he44	ɣz44phə44mo33
Azhe	ɣɿ55lo22, tho21to22	xɿ22	xe33
Axi	ei55a33lo33zo21	mu21du21	xa33mo33
Laluba	tho33lo33	a33ha55	la33ɣa55
Tolozā	tho21la33	hā55	hə33
Lavu	tha21lu33	hua33	ɣua55
Lolopo	tha21o33	xə33	ɣə33
Lipo	thau21lo33	hē33	ɣə33
Lisu	tho31lo33	hē35	fɿ33
Lahu	pa33tai53	fa54teha21	vu31
Bisu	pan33tai31	xo33tam31	u55laŋ55
Hani	tho31la33	xu33tsa31	o55lo55
Haoni	thy31to33	fy33tʃha31	u55lu55
S.kong	ha33qhə31phu55lu55	ha33qhə31	u55laŋ55
Mondzi	mie13ndzu53	ŋei53	vi13
Maang	va55thu35	va55ŋiau55	vu33
Azha	ɛɿ55lo33	hi44lo33pi33	xə55
Zuoke	thu44to44	ɣa33(ɛi33)	ɛe33na33
Polo	tə33lo55	gə21bu13, ŋo13	ɛi33mo21
Namuzi	thuo55li53	ɣa31tɿɿ33tɿ55	bəə53
Naxi	tho33le33	fy55	zɿ21
Nusu	tha33la31	ɣrua53	vi33
Rouruo	tha33to35	vu33	ŋə31
Kazhuo	ɛao55thy35	xa55me33	zɿ24
Jinuo	pe31thu35	xo42tʃha55	ɣu31
WB	jun2	krwak4	mrwe2
Achang	pzəŋ31tai55	kzoʔ55	mzui55
Zaiwa	paŋ55tai51	ŋə21noʔ21	laŋ51mui51

<i>Language</i>	114 Worm 虫子	115 Bird 鸟	116 Hawk 鹰
*PLB	bəw2, di2	s-ŋ(y)ak <sup>H</sup>	dʒwan1
*PL	bu1/2 di1	s-ŋyak <sup>H</sup>	(k)-dʒwan1
*PN	*bu <sup>1</sup> di <sup>1</sup>	*sŋak <sup>H</sup>	*dʒwan <sup>3</sup>
Nuosu	bu33, bu21di33	he33tɕ33	təo55
Niesu	bu33, bu21di33	ŋie33tɕ33	təi55
Nesu	bi33	ŋa33	tɕa13
Nasu	bɤ33	ŋa2	tɕa55
Gepu	---	ŋa55dzu33	a33dʒə33
Nisu	bu33	xe33	tɕ21nɤ55ba33mo21
Nishu	bu33	xie33	tie21mo21
Lope	buu33	ha33	ta55mɔ21
Samu	---	tɕə22	a33mi33
Sani	bɤ11pɪ55	ŋe33	tɕe55
Azhe	ba21bi55	ŋi33zo21	tɕi55
Axi	bu21zo21	xe33	tɕe55mu21
Laluba	vi21di55	a55ŋ33	a55dʒy55
Tolozā	bɤ33dɤ21	ŋɔ33	dʒɤ21pa33la55
Lavu	bu21di55	ʔia33	dʒu55mu33
Lolopo	bə21mu33	ŋæ33	tɕeɿ55ma21
Lipo	---	ŋa33	---
Lisu	buu31di33	nie35	dʒe33
Lahu	pɤ21mɤ11	ŋa54	a35tɕe31
Bisu	u31tsum31	xa33za31	tɕam55ba33
Hani	bə31za31	a55dzi55	xa31dʒe55
Haoni	pi31tʃy31	xə31tʃj55	xə31tɕe55
S.kong	mi31tɕuŋ31	ha33ŋga31	tɕan55mba33
Mondzi	pi53	ŋə53	zɕe13lianŋ44
Maang	---	ŋa55	suu33lianŋ44
Azha	bi44thu21	ŋe55	tɕɕe55
Zuoke	---	ɤa33zə44	ka55
Polo	pe55	ŋo13	to13mɔ21
Namuzi	bu55dʒi31	ge55zɿ55	kæ35
Naxi	bi33di21	ɤ55zi33	uə21
Nusu	a55ʂi31	ŋa53	dʒuo33
Rouruo	pə33ti33	ŋə55	tɕə55
Kazhuo	xo55ta323	ŋa35me33	tɕi31ma33
Jinuo	pu44tʃu44	ŋa42zə44	tɕə33mə44
WB	po3	hŋak4	son2
Achang	pau31	ŋəʔ55	ti31mə31
Zaiwa	pau21	ŋəʔ55	tɕun51

<u>Language</u>	117 Bee 蜜蜂	118 Frog 青蛙	119 Fish 鱼
*PLB	bya2	ʔ-ba2, ʔ-dik <sup>L</sup> ~ ʔdek <sup>L</sup>	---
*PL	bya2	k-ʔ-pa2	ŋa2
*PN	*bla <sup>1</sup> , *dzi <sup>1</sup>	*ʔo <sup>3</sup> kpa <sup>1</sup>	*sŋu <sup>1</sup>
Nuosu	dzi33	ɔ55pa33	hu33
Niesu	dzi33	ɔ55pa33	hu33, ŋu33
Nesu	ɖu33	ʔu55pu33	ŋu33tsi55
Nasu	ɖu1 1ŋi33zu33	u55pu33	ŋu33
Gepu	ɖu33	ɔ55po33	ŋu33
Nisu	do33xa55zo33	a55po33	ŋo33zo33
Nishu	xie21dza21do33	a55po33nu55	ŋo33zo33
Lope	du33	a44pu33	a44ŋu33
Samu	piɔ33zɔ33zɔ33	----	ŋo53
Sani	dlɔ1 1mɔ33	ɔ44pɔ55mɔ33	ŋo55
Azhe	do21(xu21)	a33pɔ55	a55ŋo21
Axi	ɖo21	a33pɔ55	a33ŋo21
Laluba	tsha21ba21	ʔu55pa21	ʔa21
Toloza	dza53	ʔo33pa33	ʔa55
Lavu	by21	ʔu55pu21	ʔü21zu21
Lolopo	bio21	ku55li55	ŋo55
Lipo	bo21	gu55lu53	ʔɔ55
Lisu	bie31	o55pa55(ni35ʃi31)	ŋua55
Lahu	pe53ma33qe21	pa1 1te54ne54	ŋa53
Bisu	pja31	luŋ33u55	te55sɔ31
Hani	bja31si55	xa31pha31	ŋa31de55
Haoni	pɔ31ʃhɔ55	xɔ31phɔ31	ŋo31ʃɔ31
S.kong	pja31	pha31ŋga31	ten55ne55
Mondzi	piɔ21(ze33)	pɔ44zɔŋ44	ŋo21(ze33)
Maang	tia33ziŋ33	pu21tam33	tia33
Azha	tʃɔ33mo44	a21pu55	a44ŋo33
Zuoke	gɔ44(zi44)	ʔa55pa55	ŋo55
Polo	biu13(zo13)	a33pɔ33	a33ŋo13
Namuzi	ndzɔ53, mbzɔ53	pa33mi55	zu55
Naxi	bæ33	pa33	ŋi33
Nusu	bia55	khɔa31tshɔ33, pɔ55	ŋa55
Rouruo	pio33	po55kua33	ŋo33
Kazhuo	tea31	ɛao33tɛhi33wa33	ŋa31mɛ44
Jinuo	pjɔ44jə44	pho33ny44	ŋo44ʃɔ44
WB	pja3	pha3	ŋa3
Achang	tʃua31ɛaŋ31	pho31	ŋa31ʃua31
Zaiwa	pjɔ21jaŋ21	pɔ21kjek55	ŋo21tso21

<u>Language</u>	120 Tree 树	121 Root 根	122 Leaf 叶子
*PLB	sik <sup>H</sup>	---	V-pak <sup>L</sup> ; ɸ-pak <sup>L</sup>
*PL	sik <sup>H</sup> , ban2, dzin1	m-je1/m-ge3, mlik/g-lik <sup>L</sup>	C-pak <sup>L</sup>
*PN	*sik <sup>H</sup>	*ndzi <sup>2</sup>	*pak <sup>L</sup> , *kha <sup>1</sup>
Nuosu	sɿ33bo33	ŋdzi21, ŋdzi21pa33	(sɿ33)tehi33
Niesu	sɿ33bo33, zi33bo33	ŋdzi21, ŋdzi21po21	(sɿ33)tehi33
Nesu	sɿ33	sɿ33ka13	(sɿ33)tʰu33, pha13
Nasu	sɿ2	tee11	phq55
Gepu	sɿ55	tei21pa33	sɿ55thu33
Nisu	ei33; ei33dʒe21	ei33pɛ21	(ei33)phie21
Nishu	sɿ33	sɿ33pɛ21	(sɿ33)phie21
Lope	sei33	sei33bu55	(sei33)pha55
Samu	tei22	tei21ku53	tei21piɔ53
Sani	sʒ44	bæ33	phe2tɔ11
Azhe	sɿ33dʒe22	sɿ33tei22	(sɿ33)phɿ21
Axi	sɿ33tɛ33	i33bu33	i33tʰo21
Laluba	sɿ33dʒɿ55	khuu55tei33	phɿ21
Toloz	sɿ55dʒɿ55	sɿ53pɿ21	(sɿ33)tʃha55
Lavu	sɿ33dʒɿ55	sɿ33tee33	(sɿ33)phy21
Lolopo	ei33dʒɿ33	ei33tee55	phɛ55
Lipo	sɿ44dʒɿ33	kuu33lu21	phie33
Lisu	si35dʒɿ33	e55tee33	e55phie31
Lahu	si54	ɔ31gɿ33	ɔ31pha21
Bisu	suŋ33tsuŋ55	aŋ33tehi55	aŋ33pha31
Hani	a55bo55	a55tehi55	a55pa31
Haoni	ɔ55tsɿ55	tu31tʃhɿ55, ɔ55tʃhɿ55	pha31lɿa31, a55pha31
S.kong	si33tsuŋ55, sɿ33tsuŋ55	aŋ33tehe55	aŋ33pha31
Mondzi	si53	si53tehi13	(si53)phin53
Maang	tsa33	(sui33)tʃhe33	(sui33)phia21
Azha	si55te21	si55tehe21phe33	si55tɔ33
Zuoke	ei33	ei33tehi21pha21	(ei33)kha44
Polo	ei13	ei13phu21	(ei13)pia13
Namuzi	sɿ33po55	sɿ33po55pæʻ31	sɿ33phsɿ53, tʃhɿ33tʃhɿ53
Naxi	dʒə21	dʒə21khuu33	phiɔ55
Nusu	sɿ53dʒə33	gɿu55	pha53lɿa55
Rouruo	se53tɛ33	tehi55kã33	pho53
Kazhuo	sɿ35tsɿ323tsɿ323	sɿ35tsɿ33tsɿ33	sɿ35teha31tɛha31
Jinuo	suu44tsu31	a33tehe44	a33pha55
WB	tɔas4paŋ2	a1mras4	a1rwak4
Achang	saŋ31tɛŋ55	mzuat55	a31xzoʔ55
Zaiwa	sik55	met55	a21xaʔ55



<u>Language</u>	123 Bamboo 竹子	124 Flower 花	125 Grass 草
*PLB	wa2	sə-wat <sup>H</sup> ; s-wat <sup>H</sup>	s-yəy2
*PL	wa2, ma1	k-wat <sup>H</sup>	(C)-mruk <sup>L</sup>
*PN	*sma <sup>1</sup>	*waʔ <sup>H</sup>	*mrik <sup>H</sup>
Nuosu	ma33	ve33, ve44ve33	zɿ33, zɿ33bo33, bu55
Niesu	ma33	ve33, ve44ve33	zɿ33, zɿ33bo33, bu55
Nesu	mo33du33	vi21lu21	ʂi33
Nasu	mu33	vi2	ʂɿ33
Gepu	mu44du33	ma55mi33	ei33
Nisu	yo21	vi33	ʂɿ33
Nishu	yo21dzɛr21	vi33lu21	ʂɿ33bie21nu55
Lope	mæ44sə44	vi44lu21	po55
Samu	mu53	ve25lu33	zɿ33
Sani	mɔ44tɔ33	vi44ə33	sʒ55
Azhe	mo33dze22	ŋi33vi22	ʂi55mu33
Axi	mo33to33	vi33	ei55(bi21)
Laluba	ma55dzɿ55	ɣa55lɿ33	ʂɿ21bu21
Toloza	ma21	me33vi53	ei55ŋi53
Lavu	mu55du55	vie33lie33	ʂɿ21ʔy55
Lolopo	mo33	ve33lu33	ʂɿ55, ʂɿ55ba21
Lipo	mo33	ve33lu33	ʂu55ba21
Lisu	mɔ33da33	si35ve33	ʃi55mo31, mo31
Lahu	va53	ɔ31ve54	zi53
Bisu	a31khɔŋ31	aŋ33ve33	mo31ka31
Hani	xa31bo55	a55je33	dza33ɣa31
Haoni	xɔ31pu55	a55ji33	xɔ55sɔ31
S.kong	ha31	aŋ33zɔ33, zɔ33lɔ33	mbo31qa31, mo31qa31
Mondzi	mɔ13	vei44	ze21ŋo44
Maang	ma33	ʔnið33, nið33	ŋiau55
Azha	mo55te21	vi33le21	ɛɿ55ti33
Zuoke	mɔ33tɔ33	ʔa55vi21	xɿ55mɔ33
Polo	mo33	ve55	ee33ne55
Namuzi	ma35	mi55teuo31	zu55
Naxi	mu55	ba21	zɿ33
Nusu	ŋa33, va55	ʂi53viɩə53	mɿa53
Rouruo	khɔ33tse33	ʔua53	piɔ13
Kazhuo	tei33tsv24	vi53li35	zɿ33
Jinuo	vɔ44	a44po44	ʃɔ44fha55
WB	wa3	a1pwaŋ1	mrak4
Achang	o31	kän55tam31	sa55
Zaiwa	va21	pan21	ŋam21

<u>Language</u>	126 Thorn 荆棘	127 Speak 说	128 Laugh 笑
*PLB	---	---	ray1
*PL	cu2, g(y)oj3	yaw3, dze2, ?uk <sup>H</sup>	ray1
*PN	*kru <sup>1</sup>	*xi <sup>2</sup> , *pro <sup>2</sup>	*yray <sup>1</sup>
Nuosu	tʃhu33	hi21, bu33dzɿ55	zɿ33
Niesu	tʃhv33	hi21, bu33dzɿ55	zɿ33
Nesu	dʒɿ55	hi55, mba33	ye13
Nasu	dʒuɿ55	he11, ηtehu33	yo11
Gepu	dzi55	dzɿ33	yo33
Nisu	dʒɿ21	yuu33, phe33	ye21
Nishu	a55dzə21	yuu33	yer21
Lope	dzej21bei21	miao213, ba33	yæ213
Samu	zu33	mio55	zi22
Sani	dʒɿ11	be44	jæ33
Azhe	a55dzi21	bɿ22, dzɿ22	ye22
Axi	dzi21	bɛ33	ya33
Laluba	a55dzy21	bɿ33	ze55
Tolozu	tʃhu33	be55, teɿ33	yæ53
Lavu	tʃhu21	ba33, thu55	yua55
Lolopo	a55tʃhu21	bɛ33	ze33
Lipo	a55tʃhu33	bie33	væ33
Lisu	ʃhu31	the33	xu31
Lahu	a35tehu53	zo33	yuu31
Bisu	aŋ33tʃhu31	up31	uu55
Hani	a55go33	e55	uu55
Haoni	o55ku33	thu55	u55fj55
S.kong	aŋ33tʃhu31, tʃhaŋ31	teɿ33	uu55
Mondzi	ŋaŋ44	ŋgui13	yi13
Maang	tehuə35	(taŋ21)dziap35	yui33
Azha	tsy33	pe33	ya21
Zuoke	dʒɿ44ka55	ba21	zi21
Polo	ndzɿ13	thu33	zɿ33
Namuzi	ntʃhɿ31	ʂuo53	dzɿ33dzɿ55
Naxi	tehi33	ʂə55	zæ21
Nusu	tʃu3	tu31dza53	yre33
Rouruo	tsu33	teu33to33	ye33
Kazhuo	tsɿ31	ŋa31	ji323sa33
Jinuo	a44teo33	pjə42	yuu42
WB	shu3	pro3	raj2
Achang	teo31	kzai55	zə55
Zaiwa	tsu21	tai21	vui51

<i>Language</i>	129 Cry 哭	130 Scold 骂	131 Sit 坐
*PLB	ŋəw1	ʔ-klak <sup>H</sup> /m-klak <sup>H</sup>	---
*PL	ŋo1	---	(c)n/ʔ-mi1
*PN	*ŋo <sup>1</sup>	*klak <sup>L</sup>	*sni <sup>1</sup>
Nuosu	ŋo33, (zi33)ŋo44	tsɿ55	ŋi33
Niesu	ŋv33, (zi33)ŋv44	tsɿ55	ŋi33
Nesu	ny13	dʒɿ33, tsy33	tho33ŋi33
Nasu	ŋu33	mpha2	ŋi11
Gepu	ŋə33	ə55	də33
Nisu	ŋɿ55	kɛ33	ʔü55
Nishu	ŋu55	kɛ33, ku21, dzo33	ŋi21
Lope	ŋu44	khə213, dzu33	ne213
Samu	ŋu22	xɜ22	ŋa25
Sani	ŋ44	dʒo11	ŋ33
Azhe	mu22	xɛ22, dzo33	ni22
Axi	ŋu33	xa33	ni33
Laluba	ju55, ŋu55	kha21	di55
Tolozu	ŋy21	dza21hæ33	dzo55
Lavu	ŋu55	hua55, tsu55	ŋi55
Lolopo	ŋu55	xə33	u55
Lipo	ŋu33	xə33, hæ33	di33
Lisu	ŋu33	ka55ʃi55	ni33ta55
Lahu	xə31	de53	mu33
Bisu	uŋ55	zi31	duŋ55
Hani	ŋə55	ja31	dzo55
Haoni	ŋi55	ɣ31	ʃy55
S.kong	uŋ55	he31	nuŋ55
Mondzi	ŋo13	boŋ13, ti53	tie13
Maang	ŋau33	tɛiɛ35, tiɛ35	dien33
Azha	ŋy21	xu35	ni21
Zuoke	mu21	tsho35	ʔi55na21
Polo	ŋɿ33	bɿ33, dze55	tsha13
Namuzi	ŋgu55ndzu53	thuo55	ndzu53
Naxi	ŋy21	kha33kha33	dʒ21
Nusu	ŋu33	ʃuə31	ŋi33
Rouruo	ŋu33	i13	ŋi33
Kazhuo	ŋ323	xɿ33	ke33ŋ33
Jinuo	ny42	jə44ei33	tu42
WB	ŋo2	shai3	thoŋ2
Achang	ŋau55	tɛə55	ni55
Zaiwa	ŋau51	niŋ21	tsuŋ51

<u>Language</u>	132 Close (eyes) 闭	133 Blow (nose) 擤	134 Chew, bite 嚼, 咬
*PLB	---	---	Ngwap <sup>L</sup> , ɕ-tsat <sup>L</sup> ; m-g <sup>w</sup> ya1/2, m-gwa <sup>L</sup>
*PL	---	---	(g)wa2, m-bayt2; C-tsat <sup>L</sup> , C-kuk <sup>L</sup>
*PN	*smit <sup>1</sup> , *tshi <sup>7H</sup>	*xri <sup>7H</sup>	*ŋgwu <sup>1</sup> , *ndzi <sup>L</sup> ʔ, *khu <sup>7L</sup>
Nuosu	ɲɔ̃33	ɕɔ̃33	ŋgu33, ndzɔ̃55, tɛho55, ei55
Niesu	mɔ̃33	ʂɔ̃33	ŋgu33, ndzɔ̃55, tɛho55, ei55
Nesu	(na33)mɔ̃33	xɔ̃33	ŋgu33, ndzɔ̃13
Nasu	pi55	---	ŋkhu33, ntshzɔ̃55, tɛhɔ̃55
Gepu	mi44zə33	no44zɔ̃33	tʂhə33
Nisu	mi33; tɛhɔ̃33	---	go33; tʂhɔ̃21
Nishu	mɔ̃33	fɔ̃33	go33, tʂhə21
Lope	mɔ̃33	hu33	dzə213, xa55
Samu	mi33	xu22	k <sup>h</sup> e33
Sani	mɔ̃11	xɔ̃44	gɔ̃11, qhu2
Azhe	tʂhɔ̃21	su33	go21, khɔ̃21
Axi	tʂhɔ̃21	sɔ̃33	ei21, go21
Laluba	tʂɔ̃21	tʂha33	ɣa21, kho21
Toloza	mi33	---	ga21, ---
Lavu	tʂhɔ̃33	hu33	dze21, khə21
Lolopo	mə33	phɔ̃21	dze21, go21; kha55
Lipo	mi33	hɔ̃33	khə21
Lisu	dzi31	hũ35	gua31, tsi35
Lahu	xo54	xə33	bɛ53, tɛhɛ21
Bisu	mit33, tʂup31	---	ko31za31, ko31; kxt31, khɔ̃31
Hani	tɛu31	khə33	ɣə31, kə31
Haoni	mu31	xu33	ky31, kho31
S.kong	mɔ̃33, mit55	---	qo31
Mondzi	nyɔ̃33	ŋui13	ŋgua21, ga21
Maang	tiu21niu55	nau33ŋui44	sɔ̃ŋ35, khui35
Azha	mi33	xu33	khə33
Zuoke	mɔ̃33	ɕɔ̃33	gɔ̃35, tʂhə44
Polo	mi13	mɔ̃55	go13, dzə13
Namuzi	tɛhi33mæ33mæ55	ntʂhɔ̃53, mi33khu53	ŋi31ŋi55, ŋi31; nqhaɛ31
Naxi	mə55	tʂhə55	gu33, thə55
Nusu	---	suɕ53	ua55
Rouruo	tɛhɛ33, mɛ33	---	ŋa53
Kazhuo	m35	xu55	tɛhi53m33, tɛhi53
Jinuo	mi31	khi42	thə33, ke55
WB	pit4	hnəp4hnəas4	wa3, kok4
Achang	thum31	xzəuʔ35	mam31, pan31
Zaiwa	(lɔʔ55)mɔ̃21	khjuɔ̃21	ne21, ŋat21

<u>Language</u>	135 Lick, lap 舔	136 Swallow 吞	137 Blow (fire) 吹(火)
*PLB	m-lyak <sup>L</sup> ~ ?lyak <sup>L</sup>	myuk <sup>L</sup> ~ myəw1, m-yuk <sup>L</sup>	s-mut <sup>H</sup>
*PL	m-lyak <sup>L</sup>	myo(k) <sup>1/LS</sup>	s-mut <sup>H</sup>
*PN	*ljak <sup>L</sup>	*myo <sup>2</sup> ; *ndo <sup>1</sup> (= drink)	*smut <sup>H</sup>
Nuosu	zo55, li55	ŋi21, ndo33	ŋo33
Niesu	li55	ŋi21, ndo33	mo33
Nesu	li13	(kɪ13)ndhɔ21	mu33, hi13
Nasu	lɔ̄55	lɔ̄33	mɔ̄2
Gepu	lɛ̄33	----	mo33
Nisu	lɛ̄21	da21; da21tie33	mu33
Nishu	lɛ̄21	da21	mɔ̄33, li55
Lope	lǣ55	thū33, lə33	mu33, sei44
Samu	liɔ55	lu55	mɔ̄25
Sani	lɔ̄2	to33	ŋɔ̄44
Azhe	lɔ̄21, lɔ̄55	du22, lu21	mɔ̄33, li22
Axi	lɔ̄21	lu21	mɔ̄33
Laluba	la21	zɛ̄55	?mɔ̄33
Toloza	læ33	lɔ̄33	mɔ̄53, sɔ̄33
Lavu	lia21	na33	mɔ̄33, sui55
Lolopo	lǣ21	lə21	mɔ̄33
Lipo	ko33	gu33	mu33
Lisu	luɔ̄31	go33le33	mɔ̄33
Lahu	ɛɔ33le21	xɛ54dɔ31	mɔ̄54
Bisu	be31	naŋ33	mi33
Hani	mje31	mju31tho33	bo33, mu55
Haoni	mɔ̄31	mɔ̄31kɔ33	mɔ̄33
S.kong	mbja31	mbɔ̄31le31, mbɔ̄31	mɔ̄33
Mondzi	li44	xo53, kho44	po44
Maang	dien33	lio55	pa35
Azha	xa33	ŋu33	mu33
Zuoke	ne44	thu44, du21	mɔ̄21, ɛi33
Polo	lɔ̄33	lɔ̄33	mi55, sɔ̄33
Namuzi	jæ31	ŋuo31quo55	fu53
Naxi	iə21	ko33	mu21
Nusu	liɔ53	ŋiə33	mɔ̄53
Rouruo	lio53	ŋa55	mɛ̄53
Kazhuo	lɔ̄53	je35tɛhi33	m53
Jinuo	mrə55	mjo55	tsu33
WB	jak4	mjo2	hmut4
Achang	liap55	thun31	ŋut55
Zaiwa	joʔ21	mji51	mut21

<u>Language</u>	138 Come 来	139 Arrive 到	140 Jump, pulse 跳 (高), (脉)跳
*PLB	---	---	ʔ-pök <sup>H</sup>
*PL	la1	(k)-rok <sup>HL</sup>	ʔ-bok <sup>H</sup>
*PN	*la <sup>1</sup>	*khu <sup>1</sup>	*khak <sup>H</sup> , *pjaʔ <sup>H</sup>
Nuosu	la33	ei33	tehe33
Niesu	la33	ei33	tehie33
Nesu	lie13	tho33kx33	thi33
Nasu	le11	tehi11	thi2
Gepu	le33	yu33tehi21	thi55
Nisu	lie21	tshɿ21	the33
Nishu	lie21	tʂhə21	thie55, pi33
Lope	le213	kə33	pi33
Samu	le22	te <sup>h</sup> i22	te <sup>h</sup> i33
Sani	li33	tshɿ33	dzɿ11
Azhe	li22	kɿ33	te33, tsä33
Axi	du33le33	ko33	tʂi33
Laluba	li55, la55, le55	tehi55	pa33(ti55), pa55
Tolozá	le21	tehi33(gΛ21)	tshə21
Lavu	la55	lo33	tsoŋ55, pe33
Lolopo	le33	di33	pi55
Lipo	la33	(la33)tehi33	pie33
Lisu	la33	tei33la33	tu35
Lahu	la31	ga31o31	po54, tho53
Bisu	la55, lu33	kx33	pxk33
Hani	la55	xɿ33	tsho31
Haoni	lo55	khu55	ti55, tshy31
S.kong	zi55, la55	qhop33, ŋgo31	qhoŋ33
Mondzi	lo13	zo44(paŋ21)	ɬo53, ndzo53
Maang	la33	yo33	qhəʔ55
Azha	le21	ko33ka21	tʂhu33
Zuoke	li21	kə33	tei55
Polo	le21	teɣ33	tse13
Namuzi	dæ35	tu53dzu31	pæ35
Naxi	lu33, tshɿ21	thy33	tsho33
Nusu	la33	---	thɿ53
Rouruo	le31	te55zo33	teo55
Kazhuo	li33	tshɿ33wa33	thu55thiao24
Jinuo	lo42	khu35lua33	ko44, thɿ31
WB	laa2	rək4	khun2
Achang	zə35	te35	ko35, lə31
Zaiwa	le55	tʂe55	ko55, tui51

<u>Language</u>	141 Watch 看	142 Listen 听	143 Eat 吃
*PLB	---	---	dža2
*PL	?-mraŋ1	?-na1	dza2
*PN	*sŋuən <sup>2</sup>	*sna <sup>1</sup> , yɔ <sup>2</sup> gu <sup>1</sup>	*dzo <sup>1</sup>
Nuosu	hu21	ŋa33, yu21gu33	dzu33
Niesu	hu21; ŋu21	na33, yu21gu33	dzu33
Nesu	na33ŋi13	yɔ33dzu33	dzu33
Nasu	nq2	nu33	dzu33
Gepu	ndza33	do55no33	tʂha33
Nisu	ŋi55	bɤ21dzo33	dzo33
Nishu	ŋi55	bo21dzo33	dzo33
Lope	ni44	nu44	dʒ133
Samu	ŋi53	tu25no53	tsɔ33, dzo33
Sani	ne44	nɔ44	dɔ11
Azhe	ni33	go21	dzo21
Axi	ni33	no33	dzo21
Laluba	?i55	?na55	dza21
Toloza	dza33	na33	dza33
Lavu	na33	bu33dzu21	dzu21
Lolopo	ŋi33	no55ŋi33	dzo21
Lipo	nie33	(dq33)no33	dzo21
Lisu	lo55	nq33lo35	dza31
Lahu	ni33	na33	lɛ21, tsa53
Bisu	fu33	na55	tsa31
Hani	xu33	na55xa31	dza31
Haoni	fɤ33	nɔ55ɔ31	tsɔ31
S.kong	hu31	na55	tsa31
Mondzi	ŋi21	tʂɔ21	zo21
Maang	so35	ka35	sa35
Azha	ŋi55	nɔ55	la55, tʂu55 (feed)
Zuoke	na21	dʒ144, mu55	dɔp44
Polo	bi21ni33	ŋo33nɔ33dzu13	dzo13
Namuzi	lu35	bæ55hi55	dzi53
Naxi	ly21	kho33mi33	dʒ133
Nusu	yru31	ŋa33	dza55
Rouruo	ŋi55	no55	tsɔ33
Kazhuo	ŋ24ka33	na35	tsa31
Jinuo	tɛ44	nɔ42tɛɔ44	tsɔ44
WB	kraŋ1	na3thɔŋ2	sa3
Achang	en31	kzua31	tɛɔ31
Zaiwa	vu55	kjo21	tsɔ21

<u>Language</u>	144 Drink 喝	145 Sleep 睡觉	146 Stand up, rise 站
*PLB	m-dan1/m-don1	yip <sup>L</sup> /yup <sup>L</sup> ~ ?-yip <sup>L</sup>	?rap <sup>L</sup> ; ?-rap <sup>L</sup>
*PL	m-dan1	yip <sup>L</sup>	?-rayp <sup>L</sup> , ?-tu/on1
*PN	*ndo <sup>1</sup>	*jip <sup>L</sup>	*jap <sup>L</sup>
Nuosu	ndo33	i55, i55ŋi33ku33	tu21(ko33hi55), hi55
Niesu	ndo33	i55, i55ŋi33ku33	tu21(ko33hi55), hi55
Nesu	ndo13	tho33zi13	tho33hi13
Nasu	ntho11	ji55	he55
Gepu	ndho33	zi55, zi55mo33ka33	ha21to33
Nisu	da21	zi21	xy21
Nishu	da21	zi21	xo21
Lope	dq213	zi55	ha55
Samu	du33	zɜ55	xe33tau53
Sani	tʂɜ55	ji2	hy2
Azhe	du22	zi21	xu21
Axi	tu33	zi21	xo21
Laluba	du55	?i21da21	hy21
Toloza	do55	zi21	hi53
Lavu	da55	zi21	hyo21
Lolopo	da33, ta33	?i21	xo21
Lipo	dq33	zi21mi33ku55	xa33tu33la33
Lisu	do33	e31ta55	he31
Lahu	do31	zi21	xu35ta11
Bisu	tan55	zu31	tsuŋ33
Hani	do55	ju31	eo31
Haoni	ty55	zy31	fo31ta33
S.kong	tan55	zi35	zap31
Mondzi	dən13	bo53	eo53
Maang	ndan33	zi35	zau33la33
Azha	ŋgu33	zi21	xa21
Zuoke	du21	zi44to55	yu35na21
Polo	ndo33	na21	hu13
Namuzi	dzi35	ju33u55	tehi31hi31
Naxi	thu21	i55	xy55
Nusu	ʂu53	i253	ta31
Rouruo	fu53	ŋa53me33	lia53to13
Kazhuo	to323	ke33zi53	xu53
Jinuo	tə42	ji55the44	xe55
WB	tək4	ip4	rap4
Achang	ʂoʔ55	e31	zap55
Zaiwa	ʂuʔ55	jup55	jap55



<u>Language</u>	147 Ride 骑	148 Wear (a hat /shoes) 戴	149 Wear (a garment) 穿(衣服)
*PLB	---	---	wik <sup>L</sup> ~ʔwik <sup>L</sup> ; gwa2, wat <sup>L</sup> /ʔ-wat <sup>L</sup>
*PL	dzi2	m-dum1	wat <sup>L</sup> , ʔ/kup <sup>H</sup>
*PN	*dzi <sup>1</sup>	*ndiʔ <sup>L</sup>	*gak <sup>L</sup> , *ywat <sup>L</sup>
Nuosu	dʒɿ33	ndi55	ga55, ka55
Niesu	dʒɿ33	ndi55	ga55, ka55
Nesu	dʒe33	di13	gu55
Nasu	dʒɔ33	dɛ55	gu55, ku55
Gepu	dʒɔ33	də33	gu33
Nisu	dʒe33	dɿ21, tɿ21	vi21, fi21
Nishu	dʒe33	dɛ21	vi21
Lope	dʒæ213	də55	vi55
Samu	tsɔ33	khau55, tu55	ve55
Sani	de44ŋ33	qhu44, dɿ2	vi2
Azhe	dʒe21	du21	vi21
Axi	dʒe21	dɔ21	vi21
Laluba	dʒe21	kho33, dy21	ʔi21
Tolozá	(my53)dʒæ33	khɔ33	gɔ33
Lavu	(ta33)dʒɑ21	kho33	ɣə21
Lolopo	dʒæ21	khɿ33, dɛ21, du33	ve21
Lipo	dʒæ21	də21	vie33
Lisu	dʒɿ31	hɔ35, dɛ31	gua31
Lahu	tei53	qhɔ54, tsi35	dɛ33
Bisu	ta33	tshoŋ31, no33	tum33
Hani	dʒɿ31	tshɔ31, dʒɿ31, du31	dɔ33
Haoni	tsi31	tshu31, no33, to31	tu33
S.kong	tɑ33	qhɔ33	tem33, qa31
Mondzi	khui21	khu53	vei44
Maang	(moŋ35)swui35	van33	van33
Azha	(me44)tsa33	tɔ33	vi33
Zuoke	dʒɿ44	də44	gn44
Polo	dʒi13	du55	ei33
Namuzi	tsæ53	luo35ntshæ55, ndzæ31	ɣə35
Naxi	dʒæ33	thæ33, ku55, dʒɿ21	mu21
Nusu	dʒu31	tshǒŋ55, kɔ53	uɔ53
Rouruo	tei33	ʔua53	ʔua53tɔ13
Kazhuo	tsɿ31	te53	vi53
Jinuo	tsu44	kho42, tsho33, tɔ55	tɔ33
WB	si3	shoŋ3, si3	wat4
Achang	tsi31	xut55, xot55	xot55
Zaiwa	tʃi21	tsuŋ21	vut21

<u>Language</u>	150 Carry on the back 揸	151 Burn 烧	152 Climb up (a tree) 攀(树)
*PLB	bəw2	duk <sup>L</sup> , ʔ-duk <sup>L</sup>	Ntak <sup>H</sup> ; ʔ-tak <sup>L</sup>
*PL	bo2, bak <sup>L</sup>	səduk <sup>L</sup> , duk <sup>L</sup>	ʔ-dak <sup>H</sup>
*PN	*ba <sup>1</sup> , *pi <sup>2</sup>	*teak <sup>H</sup> , *dzak <sup>H</sup>	*dok <sup>H</sup>
Nuosu	ba33, pɿ21	tea33, dza33	dɔ33
Niesu	ba33, pɿ21	tea33, dza33	die33
Nesu	pɿ55	ʈo13, dɔ21	(bie21)da33
Nasu	bɔ55	du11	dq2
Gepu	bu33	tu33, də33	da21
Nisu	bu21, pa55	tie33; du21, tu21	mɛ33; diɛ33
Nishu	ba55	tie33, tu21	diɛ33
Lope	bɯ21	tʂæ55, tə55	da33
Samu	pɜ25	teie33, te <sup>h</sup> iau22	mɜ25
Sani	bɣ11	dɤ2	de44
Azhe	bu21	tse22, tu55, no55	di22
Axi	bu21	tɔ55	dɛ33
Laluba	vi21	ba33	pɛ33
Tolozá	pa21	pɿ53, da21	ɣæ33dzɜ33
Lavu	ma21	tʂɿ33, by55	da33
Lolopo	bu21	tei55tu55	dɛ33
Lipo	bə21	tʂɿ33, dɔ33	ma33
Lisu	mɛ33	piɛ33	dɛ33
Lahu	pu53	tu35	ta54
Bisu	men55, xan55	tʂyn33	ta33, phja31
Hani	ɣ31	pɯ33	pja33da33
Haoni	te55	phɣ33	pha33ta33
S.kong	tʂho33, ɣ33; tʂhɔ31, tham33	phɿ33	tɔ33
Mondzi	bɔ53	to44, ti44	tɔ44
Maang	ba55	lo55, tau35	tɔ35
Azha	pa21	tʂlɔ55	te33
Zuoke	bu33	ko55, gɔ21	da21
Polo	bɣ21	tu33, bo55	do55
Namuzi	bæ33bæ55	luo31ndzæ35	ɣæ33ɣæ31
Naxi	pa33pa21	bə21	tʂhua55
Nusu	ba33	dʒə31	dʒi55
Rouruo	lue33	khɯ55	lia53
Kazhuo	ba33	tʂɜ33to35	teha31
Jinuo	pɔ42	phro42thu31	ta42
WB	po3	lɔŋ2	tak4
Achang	poi35	tʂap35, ŋe35	tɔʔ55
Zaiwa	num51than55	tap55, ŋje55	tɔʔ21

<u>Language</u>	153 Give 给	154 Lose (sth.) 丢失	155 Pick up (sth.) 捡
*PLB	bek <sup>L</sup> , bəy2	---	k-rok <sup>H</sup> , k-ruk <sup>H</sup>
*PL	be2	---	C-xak <sup>L</sup>
*PN	*gwu <sup>2</sup> , *bji <sup>2</sup>	*sli <sup>1</sup> , *na <sup>3</sup> , *phjok <sup>L</sup>	*ɲgok <sup>H</sup>
Nuosu	bɿ21	fi44ndo33	ɲgu33
Niesu	bɿ21	hi44ndo33	ɲgo33
Nesu	bi55	ɲe55	ke33tu33
Nasu	dze55, bi55	ɲo55, phi55	ko33
Gepu	gə55	ɲe33(hu21)	kə33
Nisu	bi21	ne33xo21, fr55lu33	ke33
Nishu	bi21	phi21yo21	ker33to21
Lope	bɿ21	kæ21næ55	kə21to21
Samu	kɜ25	ka33phi33	kɜ53, kɜ-u53
Sani	bɜ11	næ55	qɜ33
Azhe	gu21	na55	ɣu22tɛ21
Axi	gu21	go33na55	ku33
Laluba	gu21	fi21u55tei55	o33
Tolozá	gr53	khɿ33tshɿ33	gə33ua33
Lavu	gu21	phi21	go33tu55
Lolopo	gə21	dɜə33phi55	ku33
Lipo	gə21	pie44phɿ33	kæ55
Lisu	go31	tse33phe35	go33
Lahu	pe31	me35	ɣə54
Bisu	pi31lau55	pju33	---
Hani	bi31	bja55	u33
Haoni	pi31	py33	ɥ33
S.kong	pi31	qa33tse55	qo33
Mondzi	pie21	pɔ13	ɲgu44eɔ44
Maang	pai21	die35	ɲgo55la33
Azha	ku33	na55tu33	qa33ɲ21ku55
Zuoke	bi44	ni55pu55	ku33lɔ55
Polo	bɛ13	biə13	ku55to55
Namuzi	tɛhi31kuo31	tɛhi33xi33xi53	luo31ku35
Naxi	iə55	phi55	sɿ55
Nusu	bi31	phiu53	suu53
Rouruo	---	phia53	ke55to13
Kazhuo	ku31	tshɜ31phi53	kɜ33tɜ24
Jinuo	pi44	ɱ42phi55	ko42thu33
WB	pe3	pjək4	kək4
Achang	tɕi31	tɕəʔ55	kuʔ55
Zaiwa	pji21	phjuʔ55pjam55	kui51

<u>Language</u>	156 Look for (sth.) 找	157 Steal 偷	158 Rob, loot 抢
*PLB	---	kəw2	---
*PL	x-ra1	ko2	---
*PN	*xra <sup>2</sup>	*khu <sup>1</sup>	*lu <sup>2</sup> , *pha <sup>1</sup>
Nuosu	ʂu21	khu33	lɿ21
Niesu	ʂu21	khu33	lɿ21
Nesu	ʂo13	tɛhy33	khɿ33
Nasu	ʂu2, ʂu33	khɿ33	nɔ55
Gepu	ʂu33	khə33	no55
Nisu	sq21kq21	khɿ33	phɛ21
Nishu	ʂo21	khɿ33	pher21
Lope	ʂu55	khɿ33	phæ213
Samu	so53	---	tehian33
Sani	ʂo44	khɿ11	phæ33
Azhe	ʂo33	khu21	phɛ22
Axi	ʂo33	khɿ21	pha33
Laluba	tʂa33	khɿ21	fɿ55
Tolozā	khɿ33tʂɿ55	khɿ33	hy33
Lavu	mɿ33	khu21	hɿ21
Lolopo	tʂo33	khɿ21	ey33
Lipo	tʂo33	khə21	tehian21
Lisu	xua33	khu31	hɿ33
Lahu	tɛa33	qhə53	lu33
Bisu	sa55	khau31	zat31
Hani	tɛho33	xə31	kho31
Haoni	ti55ji31	xu31	lɿ33
S.kong	soŋ31tem55	qhə31	lu33
Mondzi	xo13	kho44	tehan53
Maang	ya55	khau35	ze21təʔ35
Azha	ʂu55	tɛhu33	pha21ŋa55
Zuoke	----	khu44	phi21
Polo	tʂo55	khɿ13	hɿ55
Namuzi	ʂu31	ŋkhu31	zɿ35
Naxi	ʂu21	khɿ33	dzə21
Nusu	xɿa33	khɿ55	lu̯ɿ53
Rouruo	ʔo55xu33	khɿ33	la33tea55
Kazhuo	tʂa24	khv31	v323ko53li33
Jinuo	ʃə42fə33	tɛhy44ko42	ty55
WB	hraa2	kho3	lu1
Achang	liam55	xau31	lu35
Zaiwa	xo51	khau21	lu55

<u>Language</u>	159 Chase after 追赶	160 Push, shove 推	161 Hide (self, sth.) 藏
*PLB	rak <sup>L</sup> ~ Ngak <sup>L</sup>	ɕ-cak <sup>L</sup>	wak <sup>L</sup> ~ ʔwak <sup>L</sup> ; ʔ-wak <sup>L</sup> , s-p <sup>w</sup> ak
*PL	---	---	wak <sup>L</sup> , səwat <sup>L</sup>
*PN	*ŋgak <sup>L</sup>	*di <sup>2</sup> , *mbu <sup>2</sup>	*mbok <sup>L</sup> , *xaʔ <sup>L</sup> , *nyoʔ <sup>L</sup>
Nuosu	ŋgo55, no21	di21	mbo55
Niesu	ŋgo55, no21	di21	mbo55
Nesu	no33, no33ŋga13	dɤ55	pho13
Nasu	ŋkha55	mphy33	fɔ55
Gepu	tʂə33	də55	ŋə55
Nisu	tie21	ti55	pha21nɤ33, pi21nɤ33
Nishu	tie21	ti55	pha21nə33
Lope	tej21	dej21	nə33
Samu	ka55	-----	ku53ku44
Sani	thi33	py44, tʂɤ33	tʂɤ44
Azhe	dzi21	pu33	nɯ33
Axi	tʃi33, dʒe21	pu33	ku33tʂhɤ55
Laluba	tʂu21	dy21	tʂa55
Toloza	ke33, ga32	dɤ21	zɿ53hɤ53
Lavu	ga21	du21	ɣu21
Lolopo	gæ21	də21	khɯ21tʂa33
Lipo	ga33	tʂho55	khə21te33
Lisu	ga31	de31	fʃi33
Lahu	ɣa21	te31	fa35
Bisu	khi31	tan31	bok33, tʂoŋ33
Hani	le31	de31	xə31ye31
Haoni	le31	te31	xe55fʃhu55
S.kong	hop33	tan31	phəm33, zə31
Mondzi	dʒaŋ44, ŋgo44	ta21	ŋo44
Maang	tʂui33	daŋ35	ŋua21(ta35)
Azha	tee33	---	no33phu21
Zuoke	ga35	pu33	no33
Polo	tʂo33	dɔ33	ʔə33
Namuzi	qhɯo53pæ31	ŋkhi31	quo31ta53
Naxi	tʂi55	my55	tʂɿ55
Nusu	teɕ33tʂu53	tu53	su33
Rouruo	ʔo53ie33	tə33	ta55i31, sa55
Kazhuo	te33	tʂa53	ke33xoa35
Jinuo	fʃhə42ka55	tə44	ko42va55
WB	a1hmi2lok4	ton3	pun3, hwak4
Achang	loi55	tun31	kui55, sau55
Zaiwa	khat55	fʃun21	xaʔ55kop21, xaʔ55

<i>Language</i>	162 Frighten, scare 吓	163 Hit (someone) 打	164 Kill 杀
*PLB	Nkrok <sup>H</sup> , ?krok <sup>H</sup> ; m-krok/?-krok	Ngyök <sup>L</sup>	C-sat <sup>L</sup>
*PL	(sə)-grok <sup>H</sup>	m-tok <sup>H</sup> , m-di2	C-sat <sup>L</sup>
*PN	*krok <sup>H</sup>	*ndu <sup>2</sup> , *ti <sup>2</sup>	*sat <sup>L</sup> , *xot <sup>H</sup>
Nuosu	kɯ33	ndu21, ti21	si55
Niesu	kɔ33	ndv21, ti21	si55
Nesu	tɛe33	ndu13	ɬe33, xu33
Nasu	tɛu2	nthy11	xu33
Gepu	tʂɔ55	ndhu21, ndhe55	xu33
Nisu	tʂu33	dɛ33	ɛi21
Nishu	tʂu33	tʃi21, der33	sɿ21
Lope	tɛiu33	dæ213	xu33
Samu	----	die25	se55
Sani	xu55	dæ11	xɔ11
Azhe	ku33	dɛ21	xo21
Axi	tʂu33	da21	xo21
Laluba	ko33, hɛ13	dɛ21	ɛi21
Toloza	---	tɛ21	sei33
Lavu	tʂo33	ta21	sɛ21
Lolopo	xɔ21	dæ21	sɛ55
Lipo	xɔ33	dq21di33	eie33
Lisu	tɛo35	du31	sɛ31
Lahu	xo33	dɔ54	ti53
Bisu	khe33, xa33khe33	tu31	ɛe55
Hani	na31gu33	di31	sɛ31
Haoni	ɭa33ky33	ti31	si31
S.kong	qhe33	ti31	sɛ31
Mondzi	tɛɛ44, xɛ21	tʂho53	si53
Maang	tɛie35	tie21	sai35
Azha	---	po21ɛe55	xɔ33
Zuoke	tso33, dzo21	du33	xɔ55
Polo	tɛu13	ndɿ21	(bi21)se13
Namuzi	qu33qu53	mbo31, ndu55ndu55	nguo31, tu35
Naxi	tʂə21	la55	sy55
Nusu	kɿu53	brɔ̃31	sɔ̃53
Rouruo	kɑ̃53	tʂu31	sɑ̃53
Kazhuo	tɛo35	khox31	si53
Jinuo	nɔ44tɛhɔ33	ʃɿu55, tu44	sɛ55
WB	khɾok4	rok4	tɔat4, pɔ2
Achang	xzɔʔ55	tɛʔ55, tek55kɔ31	sat55
Zaiwa	kjuʔ55	pat21, pat21lum21	sat21

<i>Language</i>	165 Jab, poke 戳	166 Shoot (an arrow) 射	167 Whet (a knife) 磨(刀)
*PLB	Ntsuk <sup>H</sup> ~ ?tsuk <sup>H</sup>	Npök <sup>H</sup> ~ ?pök <sup>H</sup> /?bö <sup>L</sup> ; m-pök <sup>H</sup>	sök <sup>H</sup>
*PL	m-gya/gay <sup>2</sup> , m-tsap <sup>H</sup>	(?)-m-pök <sup>H</sup>	si <sup>2</sup>
*PN	*ŋguuk <sup>L</sup>	*mbak <sup>H</sup>	*su <sup>?</sup>
Nuosu	ŋgu <sup>55</sup>	mbe <sup>33</sup>	tei <sup>55</sup> , su <sup>33</sup>
Niesu	ŋgv <sup>55</sup>	mbie <sup>33</sup>	tei <sup>55</sup> , su <sup>33</sup>
Nesu	ŋgx <sup>13</sup>	mbr <sup>33</sup>	se <sup>33</sup>
Nasu	ŋkhu <sup>55</sup> , s <sub>i</sub> <sup>55</sup>	mphə <sup>2</sup>	sə <sup>33</sup>
Gepu	ŋghə <sup>33</sup>	---	sə <sup>33</sup>
Nisu	tsh <sup>33</sup>	bɛ <sup>33</sup>	sɛ <sup>33</sup>
Nishu	tʃhə <sup>33</sup>	bɛ <sup>33</sup>	ʃɛ <sup>33</sup>
Lope	ta <sup>55</sup>	ʃə <sup>213</sup>	sæ <sup>33</sup>
Samu	ku <sup>55</sup>	---	sə <sup>53</sup>
Sani	th <sup>33</sup>	ba <sup>44</sup>	sɜ <sup>55</sup>
Azhe	t <sub>i</sub> <sup>55</sup>	ba <sup>22</sup>	sɛ <sup>55</sup>
Axi	tɛ <sup>55</sup>	ba <sup>33</sup>	sa <sup>55</sup>
Laluba	ɬ <sub>i</sub> <sup>21</sup>	ba <sup>33</sup>	sɛ <sup>21</sup>
Tolozā	tshə <sup>33</sup>	bæ <sup>33</sup>	sæ <sup>33</sup>
Lavu	tʃha <sup>33</sup>	ʃə <sup>55</sup>	ʃa <sup>21</sup>
Lolopo	to <sup>21</sup>	bæ <sup>33</sup>	sə <sup>55</sup>
Lipo	gu <sup>33</sup>	---	sei <sup>55</sup>
Lisu	ka <sup>55</sup>	bɯ <sup>33</sup>	su <sup>55</sup>
Lahu	tha <sup>21</sup>	bə <sup>54</sup>	ei <sup>11</sup>
Bisu	kɤn <sup>31</sup> thɤŋ <sup>33</sup>	pɤ <sup>33</sup>	ʃɤ <sup>31</sup>
Hani	tʃo <sup>33</sup>	bɤ <sup>33</sup>	si <sup>31</sup>
Haoni	tʃho <sup>33</sup>	pɤ <sup>33</sup>	si <sup>31</sup>
S.kong	tʃhap <sup>33</sup>	pɤ <sup>33</sup>	si <sup>31</sup>
Mondzi	ɬəŋ <sup>44</sup>	---	bə <sup>53</sup>
Maang	nam <sup>55</sup>	(qha <sup>33</sup> )tʃhi <sup>55</sup>	tr <sup>55</sup>
Azha	tslə <sup>55</sup>	---	sa <sup>55</sup>
Zuoke	lo <sup>44</sup>	ba <sup>21</sup>	ei <sup>55</sup>
Polo	ndzu <sup>55</sup>	mba <sup>55</sup>	ɛi <sup>33</sup>
Namuzi	ngu <sup>31</sup>	qha <sup>31</sup>	ʃɤ <sup>31</sup>
Naxi	gy <sup>21</sup>	khæ <sup>55</sup>	ʃɤ <sup>33</sup>
Nusu	khɤ <sup>53</sup> tʃhuɛ <sup>55</sup>	bɛ <sup>53</sup>	sui <sup>55</sup>
Rouruo	kha <sup>53</sup>	(lɛ <sup>33</sup> )pɛ <sup>53</sup>	eye <sup>33</sup>
Kazhuo	---	sɤ <sup>35</sup>	sɤ <sup>55</sup>
Jinuo	tʃhə <sup>42</sup>	pə <sup>42</sup>	su <sup>44</sup>
WB	tho <sup>3</sup>	pas <sup>4</sup>	təwe <sup>3</sup>
Achang	thau <sup>31</sup>	pək <sup>55</sup>	soi <sup>31</sup>
Zaiwa	thau <sup>21</sup>	pik <sup>21</sup>	sui <sup>21</sup>

<i>Language</i>	168 Chop down (a tree) 砍	169 Press, push down 压	170 Knead (dough) 揉(面)
*PLB	sik <sup>H</sup> ~ siŋ <sup>H</sup>	nip <sup>L</sup> ~ ʔnip <sup>L</sup> ~ ʔnyit <sup>L</sup> ; ʔ-nip <sup>L</sup>	---
*PL	m-cik <sup>H</sup>	C-ŋap <sup>L</sup>	---
*PN	*khwet <sup>L</sup> , *dzi <sup>L</sup>	*zi <sup>ʔH</sup> , *ʔnyit <sup>H</sup>	*zu <sup>ʔL</sup>
Nuosu	khe33, dzi55	zɿ33; ŋe55	zɿ55
Niesu	khe33, dzi55	zɿ33; ŋie55	zv55
Nesu	dzi33	zi33	zɿ13
Nasu	dɔ̃2	ŋi55	zuu55
Gepu	mbho33	ŋa33	zi33
Nisu	---	nie33	---
Nishu	dɿ33	ŋi21	zɿ21
Lope	dzei33	zei23	zuu55
Samu	tse25	zi25	zɿ55
Sani	da44	z44	nr55
Azhe	dzi22	zi22	zuu21
Axi	dzi33	zi33	zi21
Laluba	cha33, thu33	ʔni21	zɿ21
Tolozu	khi33	zɿ33	tshɿ53
Lavu	khə33	zɿ33	sə33
Lolopo	phə33	ŋi55	zi21, ŋi55
Lipo	tshɿ33	nie55	ŋu33
Lisu	khu35	ŋi55	pu35
Lahu	thu33	ni33	dzo54
Bisu	tx33	nen31, kep33	kep33
Hani	thu55	zɿ33	zu31
Haoni	thy55	zɿ33	ŋi55
S.kong	tx33	u33ta33	txŋ33, u31
Mondzi	tie44	na53	nu53
Maang	phui33	ŋie33ta35	ʔi33
Azha	le33	zi33	lu55
Zuoke	dzi21	zi21	zo44
Polo	ndze55	zi55	nr33
Namuzi	ndæ35	mi31næ35	læ33bæ53zuo31
Naxi	lu55, da55	zɔ̃21, nə55	ŋiæ21
Nusu	lə33	zi53	dzue33
Rouruo	tehu33, tsə53	ze53	zuə53
Kazhuo	tsi55	zɿ53	zɿ53
Jinuo	pra55	zu31	zu55
WB	khut4	phi1	naj2
Achang	teen31	tek35	not55
Zaiwa	thuʔ55	ne55	nai21



<i>Language</i>	171 Twist (hemp fibers) 搓	172 Braid 编(辫子)	173 Weave (a basket) 编(篮子)
*PLB	---	---	rak <sup>L</sup> ~ wak <sup>L</sup> ~ tak <sup>H</sup> /dak <sup>L</sup> ~ k-rak <sup>H</sup>
*PL	s-yök <sup>L</sup> , b-lök <sup>L</sup>	---	rak <sup>L</sup>
*PN	*ɣweʔ <sup>L</sup>	*khjaʔ <sup>L</sup> , *phrjaʔ <sup>L</sup>	*jak <sup>L</sup> , *groʔ <sup>L</sup>
Nuosu	vi55	tɕɿ55	dzɔ55, zi55
Niesu	vi55	tɕɿ55	dzɔ55, zi55
Nesu	vi13	tɕɿ55	ɣa13
Nasu	vɛ̄55	tɕhɛ̄55	ɣa55
Gepu	(tɕa55)vɛ̄33	thi33	ɣa33
Nisu	vɛ̄21	thi21	ze21
Nishu	vɛ̄21	thie21	ze21
Lope	vǣ55	thu21	ɣa55
Samu	fɛ̄55	p <sup>hi</sup> 25	p <sup>hi</sup> 25
Sani	va2	ɬɿ11	je33
Azhe	va21	ɬɿ21	zi21
Axi	va21	ɬhi21	ze21
Laluba	va21	phi21	pi55
Tolozā	væ33	thɿ53	zɿ21
Lavu	ɣa21	phe21	pe55
Lolopo	væ21	dzæ21	dzæ21
Lipo	wə33	phu33lie44	phie21
Lisu	ɣo31	phi31	ɣa31
Lahu	vɿ21	phe53	phe53
Bisu	lan33, tsɿ31	phe31	ga31
Hani	eu33	pjɿ31	dɿ31
Haoni	ɰɿ31	phj31	tsɿ31
S.kong	le31, lan33, sɿ31	phe31	tsɿ33
Mondzi	ba21	phi53	phi53
Maang	ba21	phie35	ɣa35
Azha	va33	ee55	ze55
Zuoke	ve44	khe44	ɣa44
Polo	va55	ei55	ɣɿ55
Namuzi	jy31	tehi33phzə33phzə55	ndzi31
Naxi	bi21	phiə21	tə55
Nusu	ve53	phuə55	phuə55
Rouruo	ue31	pie55	tsɛ53
Kazhuo	vɿ53	kɛ33thi31	ɣa53
Jinuo	lɛ33	phrə55	tsə55
WB	kjas4	kjas4	jak4
Achang	lɔŋ35	net35	zuaʔ55
Zaiwa	ʃum55	nik21	ʒaŋ55

<i>Language</i>	174 Pull up (weeds) 拔(草)	175 Shave (the head) 剃(头发)	176 Sieve, sift 筛
*PLB	ʔcwat <sup>H</sup>	---	---
*PL	---	---	---
*PN	*tei <sup>ʔH</sup>	*tcho <sup>ʔH</sup>	*ku <sup>1</sup> , *le <sup>1</sup> , *ŋwa <sup>1</sup>
Nuosu	tɕɿ33	tehy33, thɿ33	tei33
Niesu	tɕɿ33	teho33	tei33
Nesu	tɕi33	tʂhe33	teu13
Nasu	tɕɿ2	tɕy2	teu33
Gepu	tei33	di21	tɕu33
Nisu	tei33	tʂe21	teie55
Nishu	tɕɿ33	tʂhe21	tɕo55
Lope	tei33	tʂæ213	teiu44
Samu	tɕɿ33	tʂhau33	və33
Sani	tei44	tɿ33	ko44
Azhe	tei33	tʂe13	ko33
Axi	tei33	tʂhy33	tɕo33
Laluba	tɕɿ33	(ʔy21dy55) tʂho33	va21
Toloza	tɕɿ53	tse21, dze53, tʂhu33	mu33
Lavu	tɕɿ33	tʂho33	ŋa21
Lolopo	tɕɿ33	tʂhy33	va21
Lipo	tɕɿ33	tʂhu33	va21
Lisu	ʃi35	teho35	ŋo31
Lahu	ɣo31	nu54	le35
Bisu	kaŋ55	tʂho33	xvŋ31
Hani	ɣɿ33	sɿ33	dzi31
Haoni	ɣu33, ʃhɿ33	ʃhy33	ʃe31
S.kong	kum31	teho33	kan33
Mondzi	gan13	ka53, tehiu53	zi13
Maang	mo33	khen35	zei55
Azha	teɿ33	tʂha33	ve33
Zuoke	tei33	tʂho21	tei33
Polo	ko13	tehi13	teɛ33
Namuzi	mphzɿ35	ntʂhu35	ku33ku35
Naxi	pə21	dze33	tɕɿ55
Nusu	mɿe33, tɕə53	ɣy53	eə31
Rouruo	teɿ33	ɣa53	lo33
Kazhuo	tɕɿ35	tʂho55	vɿ31
Jinuo	kə42	ki42	tu42
WB	nup4	tum3	khaa2
Achang	thut55	zoʔ55	khzəŋ31
Zaiwa	nut21	vuʔ21	fai55

<i>Language</i>	177 Pestle, pound 搥	178 Ladle out, scoop up 舀	179 Sweep (floor) 扫(地)
*PLB	---	C-kap <sup>L</sup>	sut <sup>H</sup> ~ sit <sup>H</sup>
*PL	---	---	sut <sup>H</sup>
*PN	*ti <sup>2</sup> , *thoŋ <sup>2</sup>	*khwut <sup>H</sup>	*suut <sup>H</sup> , *zaʔ <sup>1</sup>
Nuosu	ti21	thi21, khi55	sɿ33
Niesu	ti21	thi21; khi55, khui55	sv33
Nesu	ti13	khv55	sw33
Nasu	tɛ33	khv55	sw2
Gepu	dɛ33	khə33	si33
Nisu	tiɛ21	khɿ21	ʂɿ33
Nishu	tɿ21	khə21	ʂɿ33
Lope	tei55	kə55	su33
Samu	tɛhu21lu3	khui55	sɿ33
Sani	ti55	qhui2	sz44
Azhe	ti55	khui21	sw33
Axi	ti55	nui55	si33
Laluba	ti21	khɔ21	sɿ33
Tolozā	thi53	khə55	sɿ33
Lavu	ta21	khə21	sw33
Lolopo	ti55	khə21	ei33
Lipo	---	khə21	sɿ33
Lisu	ti55	ə35	si35
Lahu	te11	tɛho54	ei54
Bisu	een31thoŋ31	khu31	kue31
Hani	thə31	khu31	ja33
Haoni	thu31	khɿ31	ja33
S.kong	---	khu31	zə33
Mondzi	ton53	kho53	si53
Maang	thoŋ35	xau35	pum33
Azha	ti55	ʔə55	sɿ33
Zuoke	ti55	no55	ei33
Polo	tɛ33	ŋv13	ei13
Namuzi	tɛ31tey35	qə35	ɽuə35
Naxi	ty33	ko33	bə21
Nusu	thoŋ55	khu55	ʂə55
Rouruo	tɛho55tho55	khu55thu53	yɛ53
Kazhuo	ti55	khu55	sa35
Jinuo	tho44	khu44	ja42
WB	thoŋ3	krat4	hlai3
Achang	thuŋ31	kə55	lum21
Zaiwa	thuŋ21	khu21	sat21

<i>Language</i>	180 Open (the door) 开(门)	181 Shut (the door) 关(门)	182 Hold in the arms 抱
*PLB	pwaŋ3	---	---
*PL	pwaŋ3, bloŋ3	hap <sup>H</sup> , pi2	---
*PN	*phwaŋ <sup>2</sup>	*pit <sup>H</sup> , *gjo <sup>3</sup>	*taʔ <sup>H</sup> , *guu <sup>1</sup> , *khji <sup>2</sup>
Nuosu	pho21	go55	to33
Niesu	phv21	dzi55	tie33
Nesu	phu13	pi55	ta33
Nasu	phv11	pi55	tq2
Gepu	pho21	pi55	ta33
Nisu	kha21	pi21	tie33
Nishu	kha21	der33pi21	tie33
Lope	phə21	pi21	ta33
Samu	phou21	pie25	ta33
Sani	phv33	pz55	te44
Azhe	pho22	pi55	tɿ33
Axi	phu33	te55, pe55	te33
Laluba	fɿ33	tshɿ21, phuu55	tɿ33
Tolozā	phv33	tæ33tshɿ53	te55
Lavu	phɿ33	ti33	ta33
Lolopo	phu33	pi55	te33
Lipo	phu33lie44	pi55	tie33
Lisu	phɿ33	tsi55	te35
Lahu	pho33	xo54	be53
Bisu	phoŋ33	phi31	am33
Hani	pho33	phi31	tehi31
Haoni	phu33	ti33phi31	ʃhɿ31
S.kong	phoŋ33	phi31	pa31
Mondzi	phaŋ44	pie44	to53
Maang	phaŋ35	pai33	tshui35
Azha	khe33tu55	te55	tho33
Zuoke	khuu33	ti55	ta33
Polo	khɿ21	ta13	to13
Namuzi	ɣa35	tæ35	tæ33tæ55
Naxi	phu33	tə55	to21to33
Nusu	phɿ31	pi55	gu55
Rouruo	phɿ13	teo53	ku33
Kazhuo	pv33tehe31	pi55	ta35tsɿ31
Jinuo	pho33	phi44, pu44	tehi44
WB	phwaŋ1	pit4	khji2
Achang	phoŋ35, phək55	kaŋ35	pun35
Zaiwa	phoŋ55, phik55	mji21	pun55

<u>Language</u>	183 Roll up (cloth) 捲	184 Pull or Lead (caw) 牽	185 Dig out 挖
*PLB	lip <sup>L</sup>	---	gəw2
*PL	C-lim3	---	m-du2
*PN	*lip <sup>H</sup>	*si <sup>2</sup>	*ndu <sup>1</sup> , *kwa <sup>2</sup>
Nuosu	lɿ33	si21	ndu33
Niesu	lɿ33	ei21	ndu33
Nesu	lɿ33, ze33	se13	ndu33
Nasu	li2, nthu2	sɿ11	kə55
Gepu	le33	sə55	ndhu33
Nisu	li33	se21	du33; kɛ21
Nishu	phə33, li33	ʂer21	kɛ21
Lope	læ21	sæ21	du33
Samu	lu53, teo33	ei22	fei55, tɛi25
Sani	læ44	sɿ33	dɿ11
Azhe	le33, li22	se22	du21, khu55
Axi	le33	se33	du21
Laluba	ʔly33	sɿ33	kɿ21, tɛi33
Tolozā	zɔ33, tɛui53	sɿ33	kæ33, dɿ21
Lavu	li33, ko21	ga55	kua21
Lolopo	li33	si33	kæ55, tɛæ33
Lipo	li33	sɿ33	ka33
Lisu	li33	si33	du31
Lahu	phe54	ei11vɿ33	du53
Bisu	zo33	tshɿŋ55	tu31
Hani	luɿ33	tshɿ55	du31
Haoni	lɿ33	tshɿ55	tɿ31
S.kong	zɔ33	tshuŋ55	tu31
Mondzi	lui44	fi44	bu44
Maang	loŋ33	suŋ55	(za55)bo44
Azha	le33	se33	ka33
Zuoke	tu33, tsho21	ei21	ke55
Polo	li55, ku55	sɿ55	ka13
Namuzi	le33le55	sæ55sæ53	qə35
Naxi	---	ʂə21	dɿ33
Nusu	ʃo55	ʂui55	khug53
Rouruo	lue55tɿ13	xe33	ne55
Kazhuo	la53tɿ35	sɿ33	kɿ35
Jinuo	jo42	ʃə33	tu44
WB	lip4	shwai3	tu3
Achang	təŋ31	ʂa55	tu31
Zaiwa	tiŋ21	ʃe51	khai21

<i>Language</i>	186 Do, make 做	187 Thread (a needle) 穿(针)	188 Put out to pasture 放牧
*PLB	---	---	Nkak <sup>H</sup> ~ ?kak <sup>H</sup> , ?-klak <sup>H</sup> /glak <sup>H</sup>
*PL	?-tan1, ?-um1	---	---
*PN	*mu <sup>1</sup>	*swu <sup>1</sup>	*tlo? <sup>L</sup> , *plo? <sup>L</sup>
Nuosu	mu33	su33	(dzɯ33)lu55
Niesu	mu33	su33	(dzɯ33)lo55
Nesu	mu13	sy13	tʰx55
Nasu	pe33	sɔ11	tu55
Gepu	mɔ33	sɔ33	(dʒi33)lo33
Nisu	mu21	sɛ21	tu21, tʰx21
Nishu	mu21	ʒɛr21	tu21, thə21
Lope	mu213	sæ213	thu21
Samu	mu33	tʃhuei33	thu25
Sani	ɱ33	sʒ33	lu55
Azhe	mo22	sɛ22	tu55
Axi	mo33	sɛ21	lu55
Laluba	pi55	sɛ55	(ɑ55tʃhɿ21)lo33
Tolozā	my55	sæ33	tʃhæ33
Lavu	pe55	tʃhuanʒ33	lo21
Lolopo	pe33	sə33	(ɲi21)lu55
Lipo	pe33	thu33	(phə21)lu55
Lisu	zɛ33	su33	lo55
Lahu	te33	na11	phɛ53
Bisu	va31, bu55	tonʒ31tsau31ku33	po33
Hani	ɔ55	si55	lu31
Haoni	u55	si55	fɿ33
S.kong	he33	tonʒ31ŋgun33qan33	po33
Mondzi	mu13	si13	phie44
Maang	mu35	?niu33	tanʒ35
Azha	me21	ey21	lu55
Zuoke	mu21, gu33	ɛi33	lo55
Polo	tʃha13	ɛi33	lu13
Namuzi	mu55	sa33za53	tʃhɿ53/35
Naxi	be33	ko21	ly55
Nusu	ɱ33, lɔ53	ɛui33	lu53
Rouruo	mo33	eyi55	la33, pa33
Kazhuo	m33	sɿ33	lo35
Jinuo	ɱ42	kø33	to55
WB	lup4	hljo2	kjəŋ3
Achang	xot55	ʒoi55	phuəŋ31
Zaiwa	tsui21	fʔoi55	no21mjaŋ21tsuŋ55

<u>Language</u>	189 Dye 染	190 Wash (face/clothes) 洗(脸/衣服)	191 Leak (barrel) 漏(水)
*PLB	---	ts(y)əy2	---
*PL	---	tse2/et <sup>L</sup> , klo2	---
*PN	*xoŋ <sup>2</sup>	*tshi <sup>1</sup>	*ru <sup>1</sup>
Nuosu	ho21	tshɿ33	zɿ33
Niesu	ho21	tshɿ33	zu33
Nesu	hu13	tshi33	zy13
Nasu	hu11	tshi33	ɕze11
Gepu	hɔ33	tshi33	hɛ21
Nisu	xa21	tchi33	zɿ55
Nishu	xa21	tshɿ33	zɿ55
Lope	hũ21	tshɛi33	zu44
Samu	fu55	tshɿ33	zɿ22
Sani	ho33	tshz11	ʂz11
Azhe	xo22	tshi21	zu22
Axi	xu33	tshi21	zi33
Laluba	tʂɿ21	tshɿ21	ʂɿ33
Toloza	zua33	tshɿ53	zɔ33
Lavu	zɿ33	tshɿ21	zɿ55
Lolopo	ma55	tchɿ21	zɿ33, zu33
Lipo	zan24	tshɿ21	zɿ33
Lisu	nu55	tshi31	zi33
Lahu	xo33	tshi33	eo53
Bisu	nx31	tchi31	po31
Hani	ea33	tshi31	du33
Haoni	xu33	tshi31	ty33, khɿ33
S.kong	hoŋ33	tsap33, tshi31	zø55
Mondzi	faŋ44	zɔ44, dei44	la44
Maang	ndon33	sai35	zəum33
Azha	hɛ33	tshi33	zy21
Zuoke	yu33	tchi44	ɕn21
Polo	ŋɔ55	tshɛ13	zɿ33
Namuzi	χo35	tshɿ31	dzu31
Naxi	za55	tʂhə33	i21
Nusu	---	tʂhi55	zu33
Rouruo	pa55	tchi33	iu55
Kazhuo	xu33	tshɿ31	sa55
Jinuo	xo33	tshi44	ji42tʂho55yo42
WB	sho3	hljɔ2	jo2
Achang	tʂhau31	phɔp55	zau55
Zaiwa	tʂhau21	tʂhi21	jui51

<u>Language</u>	192 Dry (clothes in the sun) 晒	193 Warm oneself by fire 烤(火)	194 Fumigate 熏
*PLB	ʔ-lap <sup>L</sup>	---	---
*PL	---	---	---
*PN	*ʔ/s-lap <sup>L</sup>	*ko <sup>1</sup>	*xwuʔ <sup>L</sup>
Nuosu	fi55	ko33	sɿ55
Niesu	fi55	ko33	sv55
Nesu	li13	ko13	tey55, sy55
Nasu	xu55	ɬɿ33	su55
Gepu	ɬu33	fə33	si55
Nisu	tɕhie21ɬy21	ka55	fɿ33
Nishu	ɬə21	ka55	fɿ33
Lope	ɬə55	ko44	fɿ55
Samu	lu55	kuə53	ku25
Sani	ɬɿ55	qo44	tsha55
Azhe	ɬu55	kɿ33	fɿ55
Axi	lo55	ku33	si55
Laluba	ʔy21, ʔly21	ku55	tɕhɿ33
Tolozá	ɬɿ55	ʔə33	----
Lavu	ʔə21	ka55	fɿ33
Lolopo	lə55	ka33	xu55
Lipo	lə33	kau33	sɿ55
Lisu	le55	ko33	tho55
Lahu	xu35	pi31	qə33
Bisu	lau31(ku33)	lum55	suŋ55
Hani	tʂhe33so31	lə55	xə31
Haoni	---	ka33fɿy55	---
S.kong	hap31	hem55	---
Mondzi	lo53	kaŋ13	tɕhu13
Maang	lau33	lium33	khau35
Azha	lə55	ku33	fu55
Zuoke	lo55	lɔ21	fə33
Polo	lu13	kɔ33	vɿ13
Namuzi	mi33ɕa33ɕa55	yæ35	mu53ŋkhu31
Naxi	---	ta21	mu55
Nusu	ɬa53	ɬə31	khw55
Rouruo	la33	ka13	sā33
Kazhuo	la35	ko24	fɿ35
Jinuo	ko42ɬhɿ44kɿ44	phjo31	mɿ55
WB	hlan3	hlum2, kaŋ2	kjap4tok4
Achang	ɬap55	kuaŋ55	tɕhu31
Zaiwa	lap55	kaŋ51	tsun21



<u>Language</u>	195 Rest 休息	196 Turn over (on bed) 翻身	197 Comb (v.) 梳(头)
*PLB	na2	pup <sup>H</sup> , pyap <sup>H</sup>	?-g <sup>w</sup> əy2 (PL) ~ bri2; ?-g <sup>w</sup> i(y)2
*PL	---	---	?-pi2
*PN	*na <sup>1</sup>	*pok <sup>H</sup>	*kwu <sup>?</sup> L
Nuosu	nu33	pu33	ku55
Niesu	nu33	po33	tsɿ55
Nesu	nu33	zi21pie55	ky55
Nasu	ɛɔ33	pu2	tei55
Gepu	no33	pho33	tei33
Nisu	no33to33	zi21pu33	tehie33
Nishu	no33to33	zɿ21pu33tʂa55	tehe33
Lope	nu33tu33	gu213du213fǎ33	teha33
Samu	no33	ku21bu33	pi25
Sani	ɣɔ11nɔ44	px44	tehe44
Azhe	no21lo55	zi21fǎ22	tehɿ22
Axi	yo21no55	zi21ŋu33pu33	tehe33
Laluba	?na21	pho33	(?y21dy55)pu21
Tolozá	na21, ɛa33	gy21mo33thæ33	tsɿ55
Lavu	nu21	tɕ55lu55	py21
Lolopo	tehi55nu21	(i21mo33)phu33	pu55
Lipo	wo21no55	mi33	pɿ55
Lisu	hǎ31	ko33de31pho35	pu55
Lahu	ya53dze53	phu54tu33	ka54
Bisu	een31	aŋ33kin55pham33	ko33, khja33
Hani	ya1na31na31	pu33	ka33
Haoni	yo31no31no31	fy33	kha33
S.kong	qa31na31	pho33	khǎ33, khak33
Mondzi	no21, niɑŋ44	maŋ44po53	pi44
Maang	dam33sa35	zi21ya33po44	puɿ44
Azha	no21	pu33	xu55
Zuoke	nɔ44lo55	zi44ku55po33	tsha21
Polo	no13	ze55pu13	tehu55
Namuzi	ŋi53tæ31	tʂha33phu55	pəʔ31
Naxi	eiə21	le33kə55py33	pə55
Nusu	ea33	phu53	krǎ53
Rouruo	ɛə31	(ie53io33)fe33	kə55
Kazhuo	la24ka33	zɿ53po35pa24	khɿ55
Jinuo	nə33pjə33	a33mə44pho42	teha42
WB	na3	lu3hlim1	phri3
Achang	no31	ŋoŋ55pa31xai35	phza31
Zaiwa	no21	li̯k55	kjoʔ55

<u>Language</u>	198 Take off (clothes) 脱(衣)	199 Exchange, change 交换, 换(衣)	200 Choose 挑选
*PLB	---	---	---
*PL	---	ʔ-pa2	---
*PN	*lut <sup>3</sup> , *khjot <sup>L</sup>	*pa <sup>1</sup> , *slo <sup>1</sup>	*swuu <sup>1</sup>
Nuosu	l <sub>2</sub> 55	(dz <sub>1</sub> 44)pa33, t <sub>o</sub> 33	si33
Niesu	l <sub>1</sub> 55	(dz <sub>1</sub> 44)pa33, t <sub>o</sub> 33	si33
Nesu	l <sub>1</sub> 13, li33	(dz <sub>i</sub> 33)t <sub>o</sub> 33	s <sub>1</sub> 13
Nasu	lu <sub>1</sub> 55	dze33t <sub>o</sub> 55, t <sub>o</sub> 55	se33, t <sub>ehv</sub> 33
Gepu	l <sub>o</sub> 21	(dz <sub>1</sub> 33)t <sub>u</sub> 33	si33
Nisu	l <sub>1</sub> 33	po55	s <sub>1</sub> 55, s <sub>1</sub> 55n <sub>i</sub> 55
Nishu	l <sub>2</sub> 33	po55	g <sub>o</sub> 55
Lope	l <sub>o</sub> 33	l <sub>æ</sub> 55	sei44
Samu	lu33	xuai55	ei53
Sani	ə2	p <sub>o</sub> 44l <sub>æ</sub> 55, l <sub>æ</sub> 55	hi33
Azhe	lu <sub>1</sub> 33	(dz <sub>æ</sub> 22)p <sub>o</sub> 33	si33
Axi	lu <sub>1</sub> 21	p <sub>o</sub> 33, la55	si33
Laluba	ʔl21	pa55	ei55
Toloza	t <sub>ʂ</sub> h <sub>1</sub> 33	pa33	s <sub>1</sub> 55
Lavu	l <sub>o</sub> 21	pu55	s <sub>1</sub> 55
Lolopo	li <sub>1</sub> 21	p <sub>o</sub> 33, l <sub>æ</sub> 55	si33
Lipo	li33	p <sub>o</sub> 33di21	p <sub>o</sub> 33
Lisu	zi55	pa33, lu55	si33
Lahu	thai11	pa33da21, pa33	l <sub>1</sub> 54zu31
Bisu	le33	khai31	pak31
Hani	le33	ba <sub>3</sub> 1pha55, pha55	t <sub>she</sub> 55
Haoni	li <sub>1</sub> 33	ph <sub>o</sub> 55	t <sub>she</sub> 55
S.kong	he <sub>3</sub> 33	pha55	t <sub>she</sub> 55
Mondzi	ei53	p <sub>o</sub> 13	si13
Maang	li <sub>1</sub> ε44	p <sub>q</sub> 55	s <sub>1</sub> 55
Azha	lu21tu55	l <sub>o</sub> 55	ve33
Zuoke	li <sub>1</sub> 44	p <sub>o</sub> 33ni55	s <sub>1</sub> 33
Polo	l <sub>ε</sub> 55	(di21da13)p <sub>o</sub> 44	s <sub>1</sub> 33
Namuzi	qa53	mi31t <sub>æ</sub> 31ki55	su53
Naxi	phy55	kh <sub>æ</sub> 33kh <sub>æ</sub> 33, kh <sub>æ</sub> 33	s <sub>1</sub> 33s <sub>1</sub> 21
Nusu	kh <sub>u</sub> i <sub>1</sub> 53	za <sub>q</sub> 53, l <sub>ε</sub> 55	do31
Rouruo	khua53	eo53	xue55
Kazhuo	li35	t <sub>ʂ</sub> 323pa24/35	na24la24s <sub>1</sub> 24
Jinuo	l <sub>æ</sub> 42	ko42le44, le44	tsh <sub>v</sub> 55
WB	khjot4	lai3hlaj2, lai3	rwe3
Achang	kz <sub>o</sub> k55	---, p <sub>o</sub> ʔ55	za31
Zaiwa	khjut55	thai55lum21, thai55	kjin51thoʔ55ju51

<u>Language</u>	201 Raise (livestock) 养(动物)	202 Crawl (on the floor) 爬	203 Grow up 长大
*PLB	---	Nkak <sup>H</sup> ; m-kak <sup>H</sup>	---
*PL	m-yu1	---	---
*PN	*hoŋ <sup>1</sup>	*ndu <sup>1</sup>	*yro <sup>2H</sup>
Nuosu	ho33	ndzu33	zu33
Niesu	ho33	ndu33	zo33
Nesu	hu33	ndv33	be33
Nasu	to33	dq2	ju2
Gepu	ho33	kə33, ndhi33	yo33
Nisu	xu21, xe21, tie55	die33	mo55
Nishu	her33, tie55	pha21	yer33
Lope	hü213	yo33	ya-33
Samu	ɛiau33	mɜ-25	ɜ-33
Sani	ho33	de44	zu44
Azhe	xo22	yu22	ye21
Axi	xo33	dzi33	ya21
Laluba	su33	dy21	ze21
Toloza	hi33, y55zɿ55	mæ55	ya33(mi32)
Lavu	hy55	yua21	yua21(miau33)
Lolopo	te55	ze21	zæ21
Lipo	teie55	ma33	nə21
Lisu	hɛ33	du31	vu31la33
Lahu	xu33	lo53qai33	u11la33mv33la33
Bisu	zu55	to31	kho31
Hani	tehu33	teho33	xu31la55
Haoni	ʃhy33	ʃhu33	xu31lo55
S.kong	hɿŋ33	pha31	xu31
Mondzi	ɛu13	ba44	du13
Maang	taŋ35	do35ʔi33	kaŋ33la44
Azha	he21	tu33	ya21
Zuoke	nu33	do35	ko55
Polo	ni33	ndu13	zi13
Namuzi	kuo55mæ31	tehi33ndzu33ndzu35	luo31da31dza35
Naxi	ɛi21	by21	gə21du21
Nusu	tsa55	dua55	zə-31, iɿ53
Rouruo	---	la13	vu55tə13
Kazhuo	fy33	teha31	jo53
Jinuo	eo42	pjo44	xu44
WB	mwe3	(twa3)towa3	kri3
Achang	leŋ31	to31	kzə31
Zaiwa	tsɔ21	to21	ko21

<i>Language</i>	204 Play 玩	205 Call (sb.) 叫 (人)	206 Buy 买
*PLB	džay2	---	way1
*PL	m-gre2, ʔ-ga3	ku1, kaw1	way1
*PN	*gru <sup>2</sup>	*ku <sup>1</sup>	*ŋgwu <sup>1</sup>
Nuosu	gu21	ku33	vɿ33
Niesu	gu21	ku33	zɿ33, vzɿ33
Nesu	go21	khu13	ve13
Nasu	gu2	khy33	vɔ11
Gepu	go55	ɔ33	vɔ55
Nisu	(le55)go21	ɣɣ55	vɛ21
Nishu	(ler55)go21	ʔer55	ver21
Lope	(læ44)gu21	va33	væ·213
Samu	kɔ22, gɔ22	ɣu55	vɜ·22
Sani	qɔ33	æ55	væ33
Azhe	(le33)go22	vu33	vɛ22
Axi	(go33lo33)go33	u33	va33
Laluba	ɣa33	kɰ55	vɛ55
Toloza	tʂho33	khy21	væ33
Lavu	gu33	khu55	ɣua55
Lolopo	kæ33gu33	ɔ33	vɔ33
Lipo	teo33	ʔɔ33	væ·33
Lisu	ka35	khu33	vu33
Lahu	gu53	ku31	vuu31
Bisu	---	---	vuu55
Hani	sa55ya33	gu55	ɣɣ55
Haoni	nɔ55ɣɔ33	kɣ55	ɣ55
S.kong	qa33ne55	hø55	ŋgu55
Mondzi	mei53	ku13	vei13
Maang	liau33ʔi33	ku35	vui33
Azha	lɔ44ku33	ʔy33	va21
Zuoke	(tshɔ33)gɔ33	ʔu33	vi21
Polo	ndzi13	pe13, ʔɣ33	vi33
Namuzi	ɤa33zɿ55	ndzuo55	hæ31
Naxi	gæ33xu33, guɔ33	lɔ·21	xæ21
Nusu	kuɔ31	khu31	ue33
Rouruo	kɔ13	khu55	ʔue55
Kazhuo	la24ka33ji33	v24	vɣ323
Jinuo	nji42kɔ44	khu42	jo42
WB	ka1sa3	khɔ2	waj2
Achang	tseʔ55	kzə55	oi55
Zaiwa	nji51kɰn55	puk55	vui51

<i>Language</i>	207 Sell 卖	208 Borrow (tool/money) 借 (工具/钱)	209 Own (money) 欠(钱)
*PLB	---	kəy2	---
*PL	(k)-rwaŋa2	s-ŋa2, kye2	---
*PN	*ɣwəŋ <sup>2</sup>	*ʔ/s-ŋu <sup>1</sup>	*bu <sup>2</sup>
Nuosu	vu21	hu33	bu21
Niesu	ɣ21	hu33, ŋu33	bu21
Nesu	ɣu55	ŋu33, tʂhi33	(su21)bi21
Nasu	vɣ55	ŋu33, tʂhɿ33	bɣ11
Gepu	vɔ33	tɛhi33	bu21
Nisu	---	---	tʂha33
Nishu	ɣo21	tʂhɿ33	tʂha33
Lope	vɔ21	tʂhɿ33	tʂhao44
Samu	vu25	ŋo53	pu22
Sani	ɣ11	ŋo55, tʂhɿ11	ʂu2
Azhe	ɣo21	ŋo55, tʂhɿ21	bu22
Axi	vu21	ɣu33	bu21
Laluba	ʔvɰ21	ʔa21, pa55	vi33
Toloza	ɣa53	tʂhɿ21, a55	----
Lavu	vu21	tʂhɿ21, ʔo21	ʂo21
Lolopo	vu21	ŋo55, tʂhɿ21	bu33
Lipo	vu21, wu21	ŋo55	bə33
Lisu	vu31	ŋua55, ʃhi31	bu33
Lahu	xə53	ba11, tɛhi53	tɛha33
Bisu	koŋ31	tʂyk55, tɛhi31	tʂha33
Hani	o31	pha55	tʂha33
Haoni	u31	tɛi55	ʃo31, ʃha33
S.kong	qoŋ31	tɛhi31	tʂi55tʂo33pa31
Mondzi	ɣoŋ21	ŋo44, tɛhe44	zaŋ21
Maang	ɣoŋ35	tʂhai35	vun33pa35
Azha	ze33	ɣu21	ŋu55ŋa55
Zuoke	vu44	ŋo55, tɛhi44	tʂhɰ44
Polo	vu13	tʂhɛ13	dzu55
Namuzi	ntʂhɿ53	ŋi31, ntʂhɿ53	zuo55
Naxi	tɛhi33	ŋi33	æ33, tɛhæ55
Nusu	ŋu55	tɛi55; za53	bu31
Rouruo	ʔü33	ŋo55, tɛi55; tɛe55	tɛha53pe53pa1
Kazhuo	ŋ31	ŋa55, tʂɿ55	tɛhe35
Jinuo	ko44	pa44	ʃha42
WB	rəŋ3	hŋa3, khje3	krwe3taŋ2
Achang	uŋ31	ŋo31	ʂau55
Zaiwa	uŋ21	ʃi21, ŋo21	ʃiŋ51tap21

<i>Language</i>	210 Have (money) 有(钱)	211 Be at (home) 在(家)	212 Be 是
*PLB	---	---	ray ~ wap
*PL	jaŋ1	C-plek <sup>L</sup>	---
*PN	*dzo <sup>1</sup> , *bo <sup>2</sup> , *nji <sup>1</sup>	*dzro <sup>1</sup> , *ni <sup>1</sup>	*ŋw <sup>1</sup>
Nuosu	bo21, dzo33	dzo33	ŋw33
Niesu	bo21, dzo33	dzo33	ŋv33
Nesu	yo21	(dze21)dzo33	ŋe13
Nasu	bo11, dzp11	dzp11	ŋe11
Gepu	dzu21	dzu21	ŋə33
Nisu	dza21	dza21	ŋx21
Nishu	dzə21	?ũ55	ŋə21, ŋa21
Lope	bo21	dzo213	ŋə213
Samu	tsu33	tsu33	ni33
Sani	tʂo33	tʂo33	ŋæ33
Azhe	dzɥ22	dzɥ22	ŋw22
Axi	bu33, tʂu33	tʂu33	ŋw33
Laluba	dzɥ55	dʒɥ33	ŋa55
Toloza	dze21	dze33	ne33
Lavu	dza55	dza55	ŋw55
Lolopo	dza33	dza33	ŋa33
Lipo	dza33	dza33	ŋa33
Lisu	dzo35	niɛ35	ŋa33
Lahu	teɔ31	tehe53	zo33
Bisu	tsa33, aŋ33tsa33	---	a31
Hani	dza33	dzo55	ŋw55
Haoni	fja33	fjy55	ŋw55
S.kong	teə33	teəŋ55	ŋgx55, x55
Mondzi	nie13	nie13	ŋe53
Maang	nai33	nai33	ŋai33
Azha	tʂu21	tʂu21	no55, ŋw33
Zuoke	buu33	dzu44	ze21
Polo	tɛ33	ŋa55ne13	ne33
Namuzi	dzɥ55gi55, dzuo53	dzuo53	dzi55
Naxi	dzy33	dzy33	ua21
Nusu	khui31	ŋi33	ŋuɔ53
Rouruo	bo21, dzo33	ŋi33	ŋe53
Kazhuo	tso323	tso323	ŋ33
Jinuo	fja42	fja42	ŋx44
WB	hri1	twəŋ2... hri1	hut4, phras4
Achang	po55	ni55	ŋe?55
Zaiwa	vo55, po51	ŋji51	ŋut55

<i>Language</i>	213 Know how to do 会(做)	214 Stick down, glue 粘	215 Sunrise 日出
*PLB	---	ʔnyak <sup>L</sup> ; ʔ-nyak <sup>L</sup>	Ntwak <sup>H</sup> ~ ʔtwak <sup>H</sup> ; ʔ-twak <sup>H</sup>
*PL	s-yök <sup>L</sup> , b-lök <sup>L</sup>	---	rak <sup>L</sup>
*PN	*kwuu <sup>L</sup>	*njə <sup>3</sup>	*doʔ <sup>H</sup>
Nuosu	ku55	ŋo55	(bu44)du33
Niesu	kv55	ŋo55	(dzɿ44)dɔ33
Nesu	kɿ13	ʂu55	(ŋi21ndzi21)die33
Nasu	ku55	ŋp33, nɛ55	du2
Gepu	kə33	ŋe33zə33	(mi21dzi33)dɔ33
Nisu	ku21	ei33	du33
Nishu	kə21	ʂɿ33	du33
Lope	ku55	ŋa55	du33
Samu	tɛi55	ŋo55	tau25, dau25
Sani	ku55	ŋe2, ei44	du44
Azhe	gɿ55	ei33, ŋa55	du22
Axi	ku55	na21	dɛ33(ɛ33)
Laluba	ʔe55	pe33tshɿ21, ʔna21	do33
Tolozā	(pɿ33)kɔ53	tɛhɿ55	dɔ33
Lavu	ʂa21	ʔia21	do33
Lolopo	ku55	ŋa33, thi55	du33
Lipo	(pie33)pha21xə33	ŋia21(do44)	du33
Lisu	ku55	nɿ31	dɔ33
Lahu	pu35	ne35	tɔ54
Bisu	khi31	---	(muŋ31nuŋ31)to33
Hani	ŋa33	mjə31tsɿ33, njə31	du33
Haoni	tɛhɿ31	fɿ33, thi35	ty33
S.kong	tɛaŋ31	---	tɔ33zi33
Mondzi	kui53	dza55	kaŋ21
Maang	kui35	mie35	(kui33)tɔ35
Azha	ku55	ɛɿ21	tʂɔ21
Zuoke	kj55	na55	do21
Polo	tɛe13	se13(tɔ33)	du33
Namuzi	ku31	tɛhi31jə35	(ŋi55mi55)tʂɿ55
Naxi	ky55	tə55, tɛhiə55	thy33
Nusu	kuʂ53, su53	ŋə55, liə53	thua53, tshə55
Rouruo	kue55	tə13	(tshə55)tɔ35ɛ33
Kazhuo	vɿ53li323	ŋa53	to53
Jinuo	tɛhə55	njə44kha42, mru44	to42lu35
WB	tat4	kap4	pə2thon3
Achang	tat55	tʂap35tʂap35	thoʔ55zə35
Zaiwa	tat21	tap21	thoʔ55

<i>Language</i>	216 (wind) Blow 刮(风)	217 (snow, rain) Fall 下(雪/雨)	218 Float 漂浮
*PLB	---	---	---
*PL	s-mut <sup>H</sup>	(sə)-gla3	---
*PN	*sli <sup>1</sup> , *mu <sup>1</sup> , *dok <sup>H</sup>	*sli <sup>2</sup> , *mu <sup>2</sup> , *sxo <sup>2</sup>	*bu <sup>1</sup>
Nuosu	phɯ33	dzi21	bu33
Niesu	phɔ33	dzi21	bu33
Nesu	(mi33hi13)hi13	(mi33)ho13, (yu33)dɔ21	ve33
Nasu	tɯ2	hu11	bɣ11
Gepu	mi33hi33	(vu33)dzo33	lu33
Nisu	(mu33)xe33	xo55xo21; do21	bu21
Nishu	hi55	xie55, lie21; do21	bu21
Lope	hi44	hǔ213, za55	bɯ213
Samu	mɜ25	tsu21, xo21	-----
Sani	m44	hɔ33	pɣ33
Azhe	hi22	xo22, do22	bo22
Axi	mu33	le33, xo33	bu33
Laluba	chy55	ha55	?ma55
Tolozá	mɤ33hi33mɤ55	(mɤ55)ha33, dʒʌ33	bɯ21
Lavu	do33	gu33	<i>piau33</i>
Lolopo	fu21	xo33	bu33
Lipo	dʒa33	xo33	bu33
Lisu	dʒɯ31	hǎ33	bu33
Lahu	mɤ54	la31	<i>fu53</i>
Bisu	(xa55man55)to33	(xo55lo33)ka33, (muŋ31xo31)lu33	pu55
Hani	bo33	ɔ31ze55ze55	bu55
Haoni	pɣ33	u31je55je55	pɣ55
S.kong	pjan33	mo35zi33, ŋe55qa33	pjam31, pu55
Mondzi	----	lie21	baŋ44
Maang	pia35lau35	(vɔ35)lai35, ɣei55le21	pu33
Azha	mu33	tʂɔ33	pe21
Zuoke	mɿ21	gɔ33	bu21
Polo	mi55	(mɤ13)ŋo33	(ze33)po55
Namuzi	fu53	---	<i>piao55</i>
Naxi	thɣ33	gu33	pi33
Nusu	li33	ɣrua33	zue33
Rouruo	(mu31)le33	(?o33)ɰua55, (mu33)vu55	lui55
Kazhuo	teho31	xa33	pv323
Jinuo	phjə33	xo42	ʃu33
WB	tok4	rwaa2	pɔ2
Achang	lo55	zɔ55	ŋə31
Zaiwa	xik55	vo51	mju21



<i>Language</i>	219 Blossom (flowers) (花)开	220 Bear (fruit) 结(果)	221 Drop (leaves) (叶)落
*PLB	---	---	---
*PL	---	---	(sə)-gla3, (?)tse1
*PN	*pwaŋ <sup>1</sup> , *pra <sup>1</sup>	*ndiʔ <sup>L</sup>	*tshi <sup>1</sup> , *bo <sup>2</sup> , *gra <sup>2</sup>
Nuosu	ve33	ndi55	tshi33
Niesu	vie33	ndi55	tshi33
Nesu	vi33	di13	be13
Nasu	vj2	dɛ55	tʂhe11
Gepu	vj55	də33	bə21
Nisu	vj33	dɣ21	bɛ21
Nishu	vj33	dɔ21	ber21, tɛhe21
Lope	vi33	də55	bæ213
Samu	ve25	tu55	tʂhe21
Sani	vi44	dɣ2	thæ33tʂi33
Azhe	vj22	dɣ21	bɛ22
Axi	vj33	i33mo33dɔ21	tha33tʂi33le33
Laluba	vj33	dza21	tɛhi55cɛ33tei55
Tolozā	vi33	də33	tʂhə33tɛhi33
Lavu	vie33	ŋa21	tʂhe55
Lolopo	ve33phe55	ŋa21	tu55(tei33le33)
Lipo	vie33	ŋu55	lə33
Lisu	ve33	dɛ31	tʂhe33
Lahu	ve54	ɔ31ei11ei11	qo53tɛe33
Bisu	(aŋ55 ve33)ve33, phu31	(aŋ55sɿ31)sɿ31, khe31	xa33pha31kaŋ55
Hani	jɛ33	a55si31si31	ja33
Haoni	ji33	ɔ31ei31ei31	kə33
S.kong	zə33	si31	qa33
Mondzi	pa53	phi53zə44	ti13
Maang	vq35	tie35	bio55
Azha	pha53	tə33	pa21
Zuoke	ve33	də44	bi21, tɛhi21
Polo	ve55	du55	(bia13)tʂɛ21
Namuzi	luo31kuæ53	tɛhi31tsæ35	mi33ŋuo33pa31
Naxi	ba21	tæ55	dzu21
Nusu	vɿ33	dɔ53	gɿa31
Rouruo	ʔua53	ta53	kə31khɔ13
Kazhuo	vi53	tɛ53	ka323tʂi33
Jinuo	prɛ33	lo42	kra33nu55
WB	pwaŋ1	təi3	kja1
Achang	pəŋ35	ʂə31	kzua35
Zaiwa	po55	tsui21	kjo55

<i>Language</i>	222 Collapse (house) 倒塌	223 (Horses) Carry (loads) 驮	224 Fly 飞
*PLB	ʔ-pak <sup>H</sup>	---	byam1
*PL	---	---	(b)-yam1
*PN	*krak <sup>H</sup> , *brak <sup>H</sup>	*tei <sup>ʔH</sup>	*byam <sup>1</sup>
Nuosu	dze33	tee33	vo33, dzi33
Niesu	dzie33	teie33	vo33, dzi33
Nesu	(hi21)de33, qa33	tʂy13	qe13
Nasu	dʒ12	tʂɿ33	qe11
Gepu	də33	tei33	dzə33
Nisu	bɤ33	tei33	de21
Nishu	xo33, bə33	tʂɿ33	die21
Lope	bə33thæ33	teɪ44	deɪ213
Samu	pu33	teie33	pi33
Sani	la2	tsʒ44	thi33
Azhe	buu21	tei33	qʉ22
Axi	la21	tei33	tʃi33
Laluba	by21, bɿ33	tei33	by55
Tolozā	dʒʌ33	tei55	lʌ33
Lavu	lu21, bu21	tei33	by55
Lolopo	bɿ33	tee33	byo33
Lipo	lie33	teie33	bə33
Lisu	gua33le33	tee35	bi33
Lahu	va33	la35	po31
Bisu	lɤŋ33phja33, pja33	(ko33)tein31	pjam33
Hani	bja33	tee33	bjo55
Haoni	pa33kə33	tehɿ33	pu55
S.kong	phja33	sɤ33e55	pjam55
Mondzi	tə13	tho21	baŋ44
Maang	len35	tə35	baŋ35
Azha	la33the33	tei33	tʂɿu21
Zuoke	dzu44ku33	tei33	gu21
Polo	(ŋa33)da13, biu55	tee13	bi33
Namuzi	mi33quo31dzu53	tʂi35	mi33ndzu55ndzu55
Naxi	biə21	tei55	bi21
Nusu	biə53	---	bia33
Rouruo	pio53	pi31	pio55
Kazhuo	pɛ31tʂhi33	tei35	phɤ31
Jinuo	lə42	ta33	pre42
WB	pro2	taŋ2	pjam2
Achang	pzau55	tuəŋ35	tʂam55
Zaiwa	len21	tho21	taŋ21

<i>Language</i>	225 (wasps) Sting (蜂) 蜇	226 (snow) Dissolve (雪) 融化	227 (water) Boil (水) 涨开
*PLB	---	----	gyak <sup>L</sup> ~ ?gyak <sup>L</sup> ; ?-glak <sup>L</sup>
*PL	---	----	C-dzak <sup>H</sup> , m-bi1/2
*PN	*ndi <sup>L</sup> , *tshi <sup>ʔL</sup>	*gri <sup>1</sup>	*ŋgu <sup>1</sup> , *xla <sup>1</sup>
Nuosu	tshɿ55	dzɿ33	ŋgu33
Nuosu	tshɿ55	dzɿ33	ndzɿ33
Nesu	tɿ33	dzi13	ha33
Nasu	nthe55	dzi11	ŋa2
Gepu	ndhi55	dzi21	ha33
Nisu	tʃe21	---	xie33
Nishu	tʃhə21, tʃe21	dzɿ55	xie33
Lope	tʃi213	xua213	ha33
Samu	kuu55	xua33	tei55tsa55
Sani	dɿ11	xwa2	le44
Azhe	te33	zi21	li22
Axi	duu21	tei33	le33
Laluba	ta21	guu55	tsɿ55
Toloza	dɿ53	dzi33	ta33tʃhɿ53
Lavu	duu21	xua55	tsu55
Lolopo	teɿ33	dzi33	tsu33
Lipo	tsɿ33	dzɿ33	tsu33
Lisu	de31	dʒi33	tsu33
Lahu	tehe21	kuu31	tehi54
Bisu	tan31	kuu55	tshu33
Hani	de31	guu55	buu55
Haoni	te31	kuu55	tshɿ55
S.kong	tan31	pha31la55	tshu55
Mondzi	ndia21	?u13	ŋgui13
Maang	daŋ35	ziou55	xui33, yui33
Azha	iʔ55	xua33	he33
Zuoke	teɿ55	ge21	gi21
Polo	ɔɔ13	dze33	dze33
Namuzi	ndzu35	mi31li53	luo31tshu31dzu31
Naxi	ə33gɿ21	dzə21	tshə21thɿ33
Nusu	pɿə53	gi33	tsu33
Rouruo	pə55	xua55	tsa55
Kazhuo	ti31	tsɿ323pa24	xa55
Jinuo	tə44	ki31	tshu42
WB	tut4	pjə2	shu2
Achang	tuat35	noŋ35	su55
Zaiwa	pat55	pji51	tsu51

<u>Language</u>	228 Sick 生病	229 Feel dizzy or giddy 晕	230 (tissue) Swell 肿胀
*PLB	---	----	m-pwam2/3, C-pwap <sup>L</sup>
*PL	C-na1	----	C-pwam2/ap <sup>L</sup>
*PN	*na <sup>1</sup> , *na <sup>1</sup> ŋgo <sup>1</sup>	*mwum <sup>2</sup>	*phu <sup>ʔH</sup> , *ɣaŋ <sup>2</sup>
Nuosu	na33	(o33)mo21	ɣo21, pho33
Niesu	na33	(o33)ŋui21	ɣo21, pho33
Nesu	no13	ŋe13	phi13
Nasu	nu11	ŋə11	phy55
Gepu	nə33	ŋe21	phə33
Nisu	no21	ye55	phy21
Nishu	no21	xue33	phə21
Lope	ny213	ŋæ55	phə55, pho55
Samu	no21tu55	mi33	pu22
Sani	nə33	(ne44)ŋæ33	phy2
Azhe	no22	ŋe21	phu21
Axi	no33	ne33	pho21
Laluba	na55	mu33	phy21
Tolozā	na21	zɿ55, zɿ53	phɿ55
Lavu	nu55	my21	phə21, phau33
Lolopo	no33	(u55)mu33ti33	phə33
Lipo	no33	mi33	phə33
Lisu	na33	(o55)mu33	o33
Lahu	na31	mu31	pho21
Bisu	(aŋ33tu31)da55	(aŋ33tu31)khun31	uŋ31
Hani	na55	mu33	phu31
Haoni	nə55	my33	tsu33
S.kong	nda55	muŋ55	phu31
Mondzi	nə13	viɛ13	ɣaŋ13, phie13ɣaŋ13
Maang	na33	xun33	ɣaŋ33
Azha	nə21	(ʔi55ty33)nə21	phə33
Zuoke	nə21	----	pho44
Polo	no33	va13	ɣə33
Namuzi	ŋguo55	hi55ŋæ53dzu31	ə55pa53
Naxi	gu21	zɿ33	u33
Nusu	na33	---	ɣa55, lu33
Rouruo	no33	(oʔ53tu33)mə55	ɣo33
Kazhuo	na323	mɿ33	phe53
Jinuo	nə42	a44mɿ33	pə55
WB	phja3	mu3	rəŋ2
Achang	nə55	xun55	zəm31
Zaiwa	no51	vun21	vam21

<u>Language</u>	231 Contaminate 传染	232 Cook, decoct 煮, 熬	233 Die 死
*PLB	---	---	səy1
*PL	---	---	ʃe2
*PN	*ku <sup>2</sup>	*kjok <sup>3</sup>	*si <sup>1</sup>
Nuosu	ku21	teo55	ʃɿ33
Niesu	ku21	teo55	ʃɿ33
Nesu	teɛ55	tʃa13	ei13gy21
Nasu	teo55	tʃa55	ei33
Gepu	tʃo33zo33	tʃa33	ei21
Nisu	tʃe21no21	dze21; tʃho55	ʃɿ21
Nishu	tʃe21	dze21; tʃo55	ʃɿ21
Lope	(teæ55)ku55	tʃa55	eɿ213xu213, sei55
Samu	kɜ21ta33	tu55	ʃɿ21
Sani	(tʃho33)teæ55	tee55	sʒ33
Azhe	ke55	yɔ21, ko55	ʃi22(wa22)
Axi	tʃa55	teɛ55	ʃi33
Laluba	ce21	teɿ21, ʒu33	xu55, eɿ21
Tolozā	(dzi21le33)teʌ33	tʃæ33, tʃæ33	ʃɿ33gʌ21
Lavu	kuə21	tʃa21	ei55za33
Lolopo	ki55	teɿ55	ei33
Lipo	kai21	teie33	ʃɿ33
Lisu	ʃi55	teə55	ʃi33
Lahu	xo33	teə35	si11
Bisu	---	txɿ33, (tʃhɿ31ka31)thoŋ55	ei55
Hani	dɔ31	teə31	si55
Haoni	ta31	ʃha31	ʃɿ55
S.kong	---	txɿ33, thoŋ55	si55
Mondzi	---	(se44)teo53	xie13
Maang	pə33	tʃa35	yɛi55
Azha	(tʃa55ŋa55)ku55	tʃo55	ʃɿ33
Zuoke	tʃɿ55li21	tʃa55	xie13(zo44)
Polo	bɔ33	hu21tʃhe13v33, dzo33sa33	ee33
Namuzi	tehi33ta33qa53	tʃa35	ʃɿ31quo53
Naxi	tʃɿ55tʃɿ33	go21	ʃɿ33
Nusu	tehe55	teə53	ʃi33
Rouruo	---	teo55	ei55(zo31)
Kazhuo	na55ta323li33	fv33	ʃɿ33
Jinuo	ŋjə33le33	phu55	ei42
WB	ku3sak4	khjak4; kjo2, prut4	təe2
Achang	tʃhap35	zəu55, tuan31	ʃɿ55
Zaiwa	tɔʔ55	ʃɿʔ55	ʃi51

<u>Language</u>	234 Teach 教	235 Learn 学	236 Write 写
*PLB	?-ma1/2	---	Nbuk <sup>L</sup> ~ Npuk <sup>H</sup>
*PL	s-ma2	m-dzaŋ1, saŋ1	m-bup <sup>L</sup>
*PN	*smaʔ <sup>L</sup>	*ndzo <sup>1</sup> , *zoŋ <sup>1</sup>	*buk <sup>H</sup> , *ŋkok <sup>H</sup>
Nuosu	ŋa55	zo33	bɥ33, ŋgɔ33
Niesu	ma55	zo33, ndzo33	bɔ33, ŋgɔ33
Nesu	mu55	ndzo13	dze33
Nasu	mu55	ntshɔ33	ŋkhu2
Gepu	mə55	ndzho33	(su33)ŋghɔ33
Nisu	mɔ21	sa55	ɛie21
Nishu	mɔ21	ʂa55	ɛe21
Lope	mo55	so44	gu33
Samu	mo25	su53	vɜ25
Sani	mo55	so44	gu44
Azhe	mo55	su33	gɔ22
Axi	mu55	si33	gu33
Laluba	?ma21	dzu55	va33
Tolozā	mu33	ɣɥ33	(tho55zi33)va21
Lavu	?ɔ21	ɛyɔ13	bo33
Lolopo	mo55	dza33	va21
Lipo	mu55	ɛiɔ33	wa33
Lisu	ma55	so33	bɔ33
Lahu	ma11	xe53	bu21
Bisu	ma31	lin31	kot55
Hani	me31	dzo33	bɥ31
Haoni	me31	tsɥ33	tshɥ33
S.kong	ma31	tso33	pɔ31
Mondzi	mɔ44	ɛo21	pu44
Maang	ma55	ti21	(ɣei21)po35
Azha	mu55ku33	su33	ku33
Zuoke	mu55	ʂɥ33	go21
Polo	mo33	sɔ33	ŋgo55
Namuzi	mi33mi55	suo31suo53	zɥ33zɥ55
Naxi	me55	so21	pə55
Nusu	ʂə53	zɔ33	piɔ53
Rouruo	mɔ13	za55	lɛ33
Kazhuo	ma55	so24	vɛ53
Jinuo	lɛ31mə44	lɛ42	pjo55
WB	saa2təaŋ2	təaŋ2	re3
Achang	ŋaʔ35	zəŋ31	tiam31
Zaiwa	mɔʔ55pji21	mɔʔ55	ka55

<u>Language</u>	237 Count (numbers) 数(数字)	238 Resemble 像	239 Recognize (sb.) 认识
*PLB	---	su2	sey2/3
*PL	(k)-raw1	---	si2
*PN	*ɣwu <sup>2</sup>	*su <sup>2</sup>	*suw <sup>2</sup>
Nuosu	vu21	su21	sɿ21
Niesu	vu21	su21	sɿ21
Nesu	zy13	sv55	se55
Nasu	ɣu11	suw55	sɿ55
Gepu	ɣə33	si33	sə33
Nisu	ɣu21	sv21	sɛ21
Nishu	ɣu21	ʂə21	ka21, ʂɛ21
Lope	su213	suw21	sæ55
Samu	ɣu22	eiə33	su25
Sani	ɣu33	sz55	sa55
Azhe	vu22	su55	sə55
Axi	ɣu33	ni33mi33	sə55
Laluba	gu55	ey21	sa21
Toloza	dʒr21	sv33thx33	sanɿ55
Lavu	vɯ33	ʂə33	ʂa21
Lolopo	ɣu33	sɿ55	sæ55
Lipo	vu33	sɿ55	sə33(die21)
Lisu	vu33	se55	suw55
Lahu	ɣə33	qha33eu11	ei11
Bisu	dap33	---	(aŋ33pju31)tsɿ31
Hani	gu33	du55	xɿ33(ŋa33), xɿ33
Haoni	li33	ty55	ei31(ɸhu55), ei31
S.kong	kɿ33	---	ndo33
Mondzi	---	təhoŋ44	si44
Maang	ɣəu55	tei55tie21	sui55
Azha	zɯ33	sɿ55	sa55
Zuoke	ɣu33	tɿ55	du35lu33, ga21
Polo	ɣɿ21	tshɿ21	ei33
Namuzi	mi31sa35	a33dzi31mæ53	tɛhi31ɿ31sɿ31, sɿ31
Naxi	zɯa21	piə33	sɿ33sɿ21, sɿ33
Nusu	xɿu31	du33	suw53
Rouruo	ɣa13	---	sa53
Kazhuo	ɣ33	ea35	sɿ55
Jinuo	ne42	ɸhɿ42	suw44jo44, suw44
WB	re2	shanɿ2	saa2təaŋ2, tɔi1
Achang	an35	tu55	sa35
Zaiwa	ŋap55	tut21	se55

<i>Language</i>	240 Big 大	241 Small 小	242 Long 长
*PLB	k-ri(y)2	ʔ-zəy1/2	---
*PL	k/ʔ-ri2, ʔəri3, ʔəri1	n-yay1	s/m-rin1, s/m-rin3, s/m-rin1
*PN	*yri <sup>1</sup>	*ɲia <sup>1</sup>	*xro <sup>1</sup>
Nuosu	a44zɿ33	ʔe55tɿ33	a44ʂo33
Niesu	a44zɿ33	ʔie55tɿ33	a44ʂo33
Nesu	ye33	ba55	ʂe21
Nasu	ɣo33	ɲo33	ʂo33
Gepu	ɣo33	ɲo33	ʂo33
Nisu	ye33	---	se55
Nishu	yer33	ner55	ʂer55
Lope	ɣæ33	ɲæ44	ʂo44
Samu	ə33	ɲi <sup>5</sup> 53	xu55
Sani	jæ11	zɔ11	ɛæ44
Azhe	ye21	ɲe33	xe33
Axi	ya21	na33	ɲa21, xe33
Laluba	ɣu21, ze21	ʔu55	ʂɿ55
Toloza	ɣæ33	pɿ53	ei33
Lavu	ɣua21	ʔia55	ʂɿ55
Lolopo	zæ21	za33	ʂɿ33
Lipo	væ33	zæ <sup>5</sup> 33	ʂɿ33
Lisu	vu31	zɔ33	fɿ33
Lahu	u11	i33	zi31
Bisu	aŋ33xu31	aŋ33i55, aŋ33za31	aŋ33moŋ55
Hani	xu31	ɲi55	mo55
Haoni	xu31	mu55	mu55
S.kong	xu31	aŋ33ŋa31ŋa31, zu55	no31
Mondzi	du13	ia53	moŋ13
Maang	kqŋ35	ʔdiʔ55	moŋ55
Azha	ɣa33	ɲo55	xe55
Zuoke	zi44	zu33	xi33
Polo	zi13	ɲo33	xq33
Namuzi	da53dzɿ31	a33tɿ53	da53ʂa31
Naxi	du21	tɛi55	ʂo21
Nusu	ɣi55	ɬzi33	xɿu33
Rouruo	i33	ɲe33	ye55
Kazhuo	ɣx31	niɛ24	sv24
Jinuo	la44xu44	a44ni55	la44fɿu55
WB	kri3	ɲaj2	hran2
Achang	kzə31	ɲi55	səŋ55
Zaiwa	kɔ21	tɿʔ55	xiŋ51



<u>Language</u>	243 Short 短	244 Wide (in diameter) 粗	245 Thin (in diameter) 细
*PLB	---	---	---
*PL	?/s-n-yum1	---	---
*PN	*ʔ-nyu <sup>1</sup>	*ŋu <sup>1</sup>	*tʃhi <sup>1</sup>
Nuosu	i44ʂo33	a44fu33	i44fu33, i44tʃhi33
Niesu	i44ʂo33	a44fu33	i44fu33, i44tʃhi33
Nesu	ŋɿ33	tɛhy13	tʃhe13
Nasu	ŋɿ33	tɛhu33	tʃhɿ33
Gepu	ndzɰhə33	ɣo33	ŋo33, mɛ21
Nisu	nɿ33	ɣɛ33	---
Nishu	nə33	ɣer33	tʃʂer55
Lope	ŋə33	ɣæ33	tʃhæ44
Samu	tɰ33	k <sup>h</sup> ue33	mo25
Sani	ŋ55	tɰz33, jæ11	---
Azhe	ŋu55	ɣɛ21	ʂi55
Axi	nur55	tɔ33	tʃhe33
Laluba	?ny21	ta33	tʃhɿ55
Tolozā	dx21	dzɰ33	nɿ53
Lavu	?y21	gɰ55	tʃhɿ55
Lolopo	ŋi55	zæ21	zə33
Lipo	ŋi55	---	tʃhɿ33
Lisu	nio55	vu31	zɔ33
Lahu	ŋɛ33	pho21ta54	tɛhe54ku33
Bisu	aŋ33tu55	aŋ33xu31	aŋ33i55
Hani	ŋo55	xu31	ŋi55
Haoni	nu55	xu31	pi55
S.kong	u33	qhə33	nu33
Mondzi	de53	---	zi13
Maang	tiau35	kqŋ35	?di?55
Azha	ŋi55	pu55	ɛɰ33
Zuoke	ŋi55	dɔ44	tɛhɿ21
Polo	ŋə33	biu13	tʃhə33
Namuzi	a33nda55	da53bo31	æ33tʃhu55tʃhu31
Naxi	də33	py33	tʃhɿ21
Nusu	du31, dzɔŋ55	ɣni55	dzi33
Rouruo	teo33	tʃhu13	mu33
Kazhuo	tʃhe24	ɣɿ31	nie24
Jinuo	a44tso55	la44xu44	a44ni55
WB	to2	tup4	təe3
Achang	zəŋ31	kzə31	ŋi55
Zaiwa	tɔt21	kɔ21	tʃai55

<i>Language</i>	246 Thick 厚	247 Thin 薄	248 Far 远
*PLB	---	---	wəy2
*PL	tu1	ba2, C-jok <sup>L</sup>	we2, ʔəwe3, ʔəwe1
*PN	*thu <sup>1</sup>	*bo <sup>1</sup>	*vi <sup>1</sup>
Nuosu	a44tu33	i44tu33, i44bo33	ga33ɣo33
Niesu	a44tu33	i44tu33, i44bo33	ga33ɣo44
Nesu	thu13	bu33	(die21)vu33
Nasu	thy33	bu33	vi33
Gepu	thu21	bu33	vi33
Nisu	thu21	bo33	vɿ33
Nishu	thu21	bo33	vie33
Lope	thɰ213	bu33	vɿ33
Samu	t <sup>h</sup> au22	po33	vei55
Sani	thy33	bɔ11	(mɿ44)vɿ11
Azhe	tho22	bo21	vi21
Axi	tho33pu33mo33	bo21te33zo33	mi33vi21
Laluba	thu55	ba21	ɣɿ55
Tolozā	thy33	bɿ33	(dza33)ɣɿ33
Lavu	thɰ55	bu21	(dzu55)zɿ21
Lolopo	thu33	bo21	və21
Lipo	thu33	bo21	vi21
Lisu	thɰ33	ba31	u31
Lahu	thu33	pa53	vu53
Bisu	aŋ33thu55	aŋ33pa31	aŋ33vɿ31
Hani	thu55	ba31	xu31
Haoni	xɛ55	po35, pɔ31	ɣɛ31, mo55
S.kong	thu55	pa31la3	ŋgo31
Mondzi	thu13	pɔ21	lei44
Maang	thu33	pa35	ve55
Azha	a44tu33	po33	vi33
Zuoke	thu21	bɔ44	xɿ33
Polo	thɿ33	bo13	vi13
Namuzi	dæ53læ31	æ33bi53	da53qhu31
Naxi	la55	be33	khu33kho33
Nusu	thu33	ba55	ue55
Rouruo	thu33	pu33	ue33
Kazhuo	tshɿ33, pɛ31	pa31	zɿ31
Jinuo	a44thu44	a44pɔ44	a44xu44
WB	thu2	pa3	we3
Achang	kan31	ɛam35	ve31
Zaiwa	thu51	jam55	ve21

<i>Language</i>	249 Near 近	250 Many, much 多	251 Deep (water) 深
*PLB	---	mra2	nak <sup>L</sup> ~ ʔnak <sup>L</sup> ; ʔ-nak <sup>L</sup>
*PL	b-ni2	C-mya2, ʔə-C-mya3, ʔə-C-mya1	---
*PN	*ni <sup>1</sup>	*mjo <sup>1</sup>	*s/ʔ-nak <sup>L</sup>
Nuosu	ga44ŋi33	a44ŋi33	a33ŋu55
Niesu	ga44ŋi33	a44ŋo33	a33ni55
Nesu	(die21)ŋe33	ŋu33	na13
Nasu	no33	ŋu33	nq55
Gepu	no33	nur 33	na33
Nisu	ne33	phɿ33	nie21
Nishu	ner33	no33, phə33	ŋe21
Lope	næ 33	nu33	na55
Samu	nɿ33	kə25	na55
Sani	(mɿ44)næ33	no55	ne55
Azhe	ne21	no21	ŋu55
Axi	na21	no21	ne55
Laluba	ne21	dʒɿ55mɛ21	ʔŋi21
Tolozā	(dza33)næ33	ŋa55	na21
Lavu	(dzu55)tiā21	(ma21)my21	na21
Lolopo	na21	myo21	ne55
Lipo	næ 21	mo21	nie55
Lisu	nuw31	mia31	ne55
Lahu	no21	pe33	na35
Bisu	aŋ33duw31	aŋ33bja31	aŋ33na31
Hani	ŋi31	mja31	na31
Haoni	ŋi31	mo31	na31
S.kong	ndi31	mbja31	na31
Mondzi	thu53	bu44	ʒa44
Maang	ʔdiau55	mia35	liu55
Azha	no33	no33	ne55
Zuoke	ŋi55	no44	na55
Polo	vi13	miu13	(ze33)no13
Namuzi	æ33ndzu55	da55bzə31	da53mo31
Naxi	ny55	bu21	xo55
Nusu	ŋi55	mia55	khɿoŋ33, ŋuə33
Rouruo	mie33	mɿ53	xe33
Kazhuo	nx31	ŋa31	na35
Jinuo	a44eɛ35	thə42	tei44na55
WB	ni3	mja3	nak4
Achang	ne31	ŋo31	lək55
Zaiwa	ʃaŋ55	mjo21	nik21

<u>Language</u>	252 Shallow (water) (水)浅	253 Straight (stick) (木条) 直	254 Bent, crooked 弯
*PLB	---	tan2	gok <sup>L</sup>
*PL	---	(C)-dwan1, te2	səgok <sup>L</sup> , gok <sup>L</sup>
*PN	*di <sup>1</sup>	*dzro <sup>2</sup> , *du <sup>1</sup>	*gok <sup>L</sup>
Nuosu	i33ŋu55	dzo21, tse33, tu44ŋe33	(la21)gu55
Niesu	i33ni55	dzo21, tse33, tu44ŋe33	(lie21)go55
Nesu	die13	ŋge21	dæ13
Nasu	de11	ty11, dɣ11	kə33
Gepu	də33	dzo33	kə335
Nisu	di55	tu21	gu21
Nishu	ma21ŋe21	du21	gu21
Lope	dei44	tu21	kæ44
Samu	tu21 du22	tsu33	ɣai33
Sani	tx33	ty33	qæ44qu2
Azhe	du55	tu22	kɛ55
Axi	du33	dzi33	gu55lu21 mo33
Laluba	ba21, ma21ʔŋi21	tʂhu55	vɔ21
Toloza	bʌ33	dzo53	kɔ53
Lavu	---	tʂɣ33	go21
Lolopo	de33	ma33	gu21
Lipo	di33	zɣ33	væ <sup>+</sup> 55sɣ55
Lisu	the31	te35	go31
Lahu	pa53	the53	qo31
Bisu	ba31na31	aŋ33kɔŋ33, kan31	aŋ33kue31
Hani	tɛ33	do55zi31ne33	ɣu31
Haoni	lɛ55sɣ33	fɣ31, fɣ31	ɣ31
S.kong	tam55	poŋ33	qo31
Mondzi	tɛhe53	dzoŋ13	lkiu13
Maang	qen35	dien33	kue35
Azha	ma21ne55	tʂa33	kae55
Zuoke	ma44na55	tu33	go44
Polo	ma21no13	də33	ga33
Namuzi	æ33hi53	tʂɣ33tæ35	qhuo55qhuo55
Naxi	be33	ty21	gɣ21
Nusu	ba55, a33ba53	də55	guuɕ53, goŋ53
Rouruo	ʔa31xɛ33	tu13	ue33
Kazhuo	tɛ323	tʂɣ33	fv55
Jinuo	a44tɛ55	a44pro33, a44thə33	a44khu33
WB	tin2	proŋ1, mat4	kək4
Achang	tɛhe255	tan31	kok55
Zaiwa	a21nik21	ŋjan51	koi55

<u>Language</u>	255 Light (weight) (重量)轻	256 Heavy 重	257 Soft 软
*PLB	---	---	now2
*PL	---	C-li2	C-nu2
*PN	*lo <sup>1</sup>	*sli <sup>1</sup>	*no <sup>1</sup>
Nuosu	zo44so33, i44lɿ33	a44lɿ33	i44nu33
Niesu	lo44so33, i44lɿ33	a44lɿ33	i44no33
Nesu	lo13	li33	nu33
Nasu	lɔ11	li33	ny33mɿ2, ɲɿhɔ2
Gepu	lɔ33	li33	nɔ33mɛ33
Nisu	la21	li33	nu33
Nishu	la21	li33	nu33
Lope	lɔ213	lɿ33	nu33
Samu	lio55	li33	xu53
Sani	lo33	lɿ11	no55
Azhe	[ɸ22	[jɿ21	zuã21
Axi	lu33	tɯ21	a55no21zo33
Laluba	lu55	ɿ21	ny21
Toloza	lɔ21	lɿ55	pæ33
Lavu	la55	zɿ21	zuay21
Lolopo	la33	li21	nu21
Lipo	la33kha33	li21	nu21
Lisu	lo33	li31	nu31
Lahu	lɔ31	xɔ53	nu35
Bisu	aŋ33zaŋ55	aŋ33xan31	aŋ33do31
Hani	phja55	ɛɔ33	nɔ31
Haoni	phɔ55	ɣhuw33	nu31
S.kong	phja55, phjaŋ55	khuaŋ33	ɛo55
Mondzi	tɕɔ53	kha44	nɔ53
Maang	lia55	khen35	nu35
Azha	lu21	xi33	nai55
Zuoke	lɿ21	ni44	nu44
Polo	la33	le13	ny13
Namuzi	ja55tshæ	lu31zæ35	pu55qa31
Naxi	y21	lu33	bə33nə33
Nusu	xua33	li55	ŋa53
Rouruo	lia55	li33	mɛ53, zuẽ55
Kazhuo	lo323	zɿ31	---
Jinuo	a33ɛɛ55phre33	li44	a44prɔ55
WB	pɔ1	le3	pjɔ1
Achang	zaŋ55	li31	ŋɔt55
Zaiwa	som21	lai21	ŋjɔm55

<u>Language</u>	258 Hard 硬	259 Dry (adj.) (晒)干	260 Wet 湿
*PLB	---	ʔkrak <sup>H</sup>	(s-)nyak <sup>H</sup>
*PL	krok <sup>H</sup>	(s)-we2, gwe3	(s)-ɲak <sup>H/L</sup> , ʔ-jwap/at <sup>H</sup>
*PN	*krok <sup>H</sup>	*wu <sup>1</sup> , *gwu <sup>1</sup>	*dzi <sup>1</sup> , *nyak <sup>H</sup>
Nuosu	a44kɔ33	a33vu33	a44dzi33
Niesu	a44kɔ33	a33y33	a44dzi33
Nesu	kha33	fe21	(zi21)ta33
Nasu	xɔ11	fɔ2	dɔɟ33
Gepu	khə33bə33tɛ33	fɔ55	dɔə33
Nisu	tsha33	fɛ21	nɛ33
Nishu	tɛhe33	fɛ21	nɛ33
Lope	kha33	fæ55	æ33
Samu	kha33	fə55	nu55
Sani	qe44qu44	fæ33	ʒ33ɣ11
Azhe	tɛh122	fe22	nɔ33
Axi	tɛhe33kɔ21mo33	fa33	nu33dze21
Laluba	xɛ55	fe33, gu33	yuu55tʃha21
Toloza	kha33ti33	hæ33	dɔx53
Lavu	kə33	xua33	dɔɟ21
Lolopo	kuɰ33	fə33	dze21
Lipo	kə33	xæ33, hæ33	vi33tʃhɰ21
Lisu	fɰ33	dʒu33, fɰ33	phɛ31
Lahu	xɛ33	vi33	ne54
Bisu	aŋ33ken31	aŋ33ku33	aŋ33tein55
Hani	ɣɔ55	gu33	dze55
Haoni	xa33	ku33	fʃɛ55
S.kong	qhə33	aŋ33ku33	aŋ33tean55
Mondzi	kɔ53	pi13	bie44
Maang	qei55	ti55	ʔeŋ35
Azha	tɛhe55	fu33	nai55
Zuoke	kha21	tʃho21	dɔɟ44
Polo	kho55	vɰ33	tʃhe13
Namuzi	lu33væ55	fu33tʃɰ33gæ53	tsuo53tsuo31
Naxi	dʒy33	py21	dʒə33
Nusu	ŋə55	phui33	ɣuə53
Rouruo	ʔə55	ka55	ʔuā55
Kazhuo	---	fɰ33	khux53
Jinuo	a44kha42lu55	a44ku44	a33tee44
WB	maa2	khɔk4	so2
Achang	kzək55	səʔ55	phɛt55
Zaiwa	than51	xui55	tɛʔ55

<u>Language</u>	261 (meat) Fat 肥	262 New 新	263 Old, used 旧
*PLB	ts(y)i1	C-ʂik <sup>L</sup> ~ V-ʂik <sup>L</sup>	---
*PL	tsi1	C-ʃik <sup>L</sup>	?-bi2, ?-li1
*PN	*tshu <sup>1</sup>	*xuuk <sup>L</sup>	*s/?-li <sup>1</sup>
Nuosu	tshu33	a33ɣ̃55	a44li33, a44bi33
Niesu	tshv33	a33ɣ̃55	a44li33, a44bi33
Nesu	tshu13	xɿ13	ɿy13
Nasu	tshv33, ɲ̥hu33	ɛ̃55	ɬu33
Gepu	tshu33	ɛi33	fi33
Nisu	tshu55	ɛ̃21	ɬɣ55
Nishu	tʂhu55, phə55	si21	ɬu55
Lope	tshu213	ɛ̃55	ɬu44
Samu	tʰau33	sɿ55	li53
Sani	tshz33	ɛi2	ɬz44qa2, mo11
Azhe	tsho22	ɛ̃21	ɬu33
Axi	i33tsha33mo33	i33ɛ̃21(mo33)	i33ɬu33(mo33)
Laluba	tshɿ55	xu21	ʔi55
Toloza	xe53	ɛi33ɛi21	ɬɣ55ɬɣ55
Lavu	sa21	tʂhɿ33ɛ̃21	tʂhɿ33phe55
Lolopo	tshu33	ɛi55	li33
Lipo	tshu33	ziɔ21ɣ̃33	zɔ21ɬæ33
Lisu	tshu33	ʃi31	ɬu33
Lahu	təhu33	ɔ31si35	ɔ31pi11
Bisu	aŋ33tshɿ55	aŋ33sɿ31	aŋ33an55
Hani	tshu55	sɿ31	jo33dza33
Haoni	tshv55	ʃɣ31	ke55
S.kong	tshi55	aŋ33sɿ31	aŋ33uun55
Mondzi	su13	xi53	li13
Maang	su55	zi21ɣu44zi33	li55
Azha	pɯ55	i44ɛ̃33	li55
Zuoke	gu35, pɿ44	ɛ̃55	muu44
Polo	tshɿ33	ɛe13	ɬɛ33
Namuzi	nqha53	sɿ55tsæ31	gæ35
Naxi	bv33i21	ɣ̃55	ɬy21
Nusu	tshu33	dzɔ55	tshu55
Rouruo	tshu55	tɛɛ33	tshu33
Kazhuo	tshv33	si55	ma31si55
Jinuo	tei44pə55	a33ɛi55	a33li44
WB	shu2	təas4	həŋ3
Achang	təho55	ʂək55	tʂhau31
Zaiwa	tshu51	a21sik55	a21tshau21

<i>Language</i>	264 Black 黑	265 White 白	266 Red 红
*PLB	(s-)nak <sup>H</sup> ; nak <sup>L</sup> , s-nak <sup>H</sup>	plu1	?-ni1
*PL	C-nak <sup>H</sup>	plu1	?-ni1
*PN	*nak <sup>1</sup>	*phlu <sup>1</sup>	*ʔ/s-ni <sup>1</sup>
Nuosu	a44nɔ33	a33tɛhu33	a33ŋi33
Niesu	a44nie33	a33thu33	a33ni33
Nesu	na33	tʃu13	nɣ21
Nasu	nɔ2	tʃy11	ne11
Gepu	ŋa33	thu33	ŋi33
Nisu	ŋe33	thu21	nɣ55
Nishu	ŋe33	thu21	nə55
Lope	na33	thɯ213	ni44
Samu	na25	ph <sup>h</sup> i33	ni33, ŋi33
Sani	ne44	lɛ33	ŋ44phɣ11, ŋ44je11
Azhe	ŋɿ22	lɔ22	ŋi33
Axi	a33ne33	a33tʃo33	ni33, ni33pe33
Laluba	ŋɿ33	fɿ55	?ŋ55
Toloza	ne55	tshɣ33	pha33ne33
Lavu	na33	phɿ55	?ni55
Lolopo	ne33	phyo33	ŋi33
Lipo	nie33	phu33	ŋi33
Lisu	ne33	phɿ33	si31
Lahu	na54	phu33	ni33
Bisu	aŋ33paŋ55	aŋ33pon31	aŋ33ne55
Hani	na33	phju55	ŋi55
Haoni	na33	fy55	ŋi55
S.kong	nda33	phu55	ne55
Mondzi	nɔ44	phiu13	ni13
Maang	na35	tɔ35	ni55
Azha	ne33	thle21	ni55(vo33)
Zuoke	na21	khu21	nɯ33
Polo	no55	phi33	ndɣ33
Namuzi	næ55nqhæ53	phu53lu31	lɯo53ɣuo31
Naxi	na21	phə21	xy21
Nusu	na53	ba31	ŋe33
Rouruo	nũ53	phiɔ33	ne33
Kazhuo	na53	tshŋ33	ŋ24
Jinuo	a44na42	a33phro44	a33nɣ44
WB	nak4	phru2	ni2
Achang	lɔk55	phzɔ55	na55
Zaiwa	noʔ21	phju51	ne51



<u>Language</u>	267 Yellow 黄	268 Cold (weather, water) 冷	269 Hot (weather) 热
*PLB	---	Nkrak <sup>H</sup> ~ ?krak <sup>H</sup> ; m-krak <sup>H</sup> ~ ?-krak <sup>H</sup>	---
*PL	s-rwe1	C-grak <sup>H</sup>	?-loŋ1
*PN	*sri <sup>1</sup>	*ŋgrat <sup>H</sup> ŋgo <sup>1</sup>	*tsha <sup>3</sup> , *mo <sup>1</sup> , *slo <sup>1</sup>
Nuosu	a33ŋ133	ga33ŋgo21, ŋgo33	tsha33
Niesu	a33ŋ133	dzia33ŋgo21, ŋgo33	tsha33
Nesu	ŋe13	(mi33)tshi13	(mi33)tsho13
Nasu	ŋo11	ŋteho11, dza2ŋkhy11	tshu11
Gepu	ŋo33	ndzho33	tshu33
Nisu	se55	dzie33	mie33
Nishu	ŋer55	dze33	tsh133
Lope	ŋo44	dza33	mə33
Samu	sə53	tea25	tʰo33
Sani	ŋz44læ33	dze44	my55
Azhe	ŋe33	dzi22	?o21, xu22
Axi	ŋa33, ŋa33do21	dze33, tchi21	le55, mo21
Laluba	ŋa55	dzi33, gu55	tsha55
Tolozā	ŋæ33	khœ33	tsha33
Lavu	ŋua55	dza33kə33	tshu55
Lolopo	ŋə33	dzi33, tŋ155	xu33
Lipo	ŋæ33	dzie33	tsho33
Lisu	ŋi33	dze33	tshq33
Lahu	ei33	ka54	xə33
Bisu	aŋ33s155	aŋ33tsho31	loŋ55
Hani	s155	ga33	lo55
Haoni	ŋu55	ka33	lu55
S.kong	s155	təho31	hoŋ55
Mondzi	xi13	tŋo44	mia44
Maang	ŋo55	kq35	ŋe55
Azha	ŋa55	tse33ku33	?e33
Zuoke	ei33	dza21	nu33
Polo	ei33	(my13)ndza33	(my13)ly33
Namuzi	ŋ153qa31	ga53, bo55	tshæ53
Naxi	ŋ121	tchi55	tshə33
Nusu	xu55	g1a53	tshu33
Rouruo	ue55	kq53	le55
Kazhuo	sx24	tea53	tsha33
Jinuo	a33ŋu44	ŋho55	a33lo44
WB	waa2	ê3, khjam3	ok4
Achang	ləŋ35	kzuat55	pu55
Zaiwa	xui51	kjo?21	ŋje55

<i>Language</i>	270 Sour 酸	271 Sweet 甜	272 Bitter, Salty 苦, 咸
*PLB	---	kyəw1	---
*PL	?-kyin1	kyo1	ka2
*PN	*kjɿn <sup>1</sup>	*khri <sup>1</sup>	*kha <sup>1</sup>
Nuosu	tei33	tɛhɿ33	khu33, tɛhɿ33
Niesu	tei33	tʂhv33	khu33, tʂhv33
Nesu	tʂi13	tʂhy13	khu33, (tʂhu33)tʂy13
Nasu	tʂɛ33	tʂzɿ1	khɔ33, ŋkhɔ33
Gepu	tei33	tʂhɿ33	khɔ33
Nisu	teie55	tʂhɿ55	kɛ33, kha33
Nishu	ɛɛ55	tʂhɿ55	kha33
Lope	teə44	tʂhɿ44	kho33
Samu	tei53	tʂ <sup>h</sup> ɿ33	k <sup>h</sup> ɔ33
Sani	tee55	tʂhzɿ33	qhɔ11
Azhe	tei33	tʂhu22	kho21
Axi	tei33, tei33ge33	tʂhi33	kha21
Laluba	tei55	tʂhɿ55	kha21
Toloza	tʂɿ33	ɛɔ33	gɑ21
Lavu	tʂu55	tʂhu55	khu21
Lolopo	tee55	tʂhɿ33	kha21
Lipo	teie33	tʂhɿ33	khɿu21
Lisu	teɰ33	ɸhi33	khua31
Lahu	tei33	mɛ31	qha53, ŋɔ31
Bisu	aŋ33tɛhin55	aŋ33tʂhau55	aŋ33kha31, aŋ33xɛŋ31
Hani	tɛhe55	tɛhu55	xa31
Haoni	ɸhe55	ɸhɿ55	xɔ31
S.kong	tɛhan55	tɛhɔ55	qha31
Mondzi	tea13	tɛho13	khɔ44, ma21gɔ13
Maang	tsan55	tʂhau33	qha35
Azha	tei55	tɛhu21	khɔ33
Zuoke	tei33	tʂhu21	khɔ44
Polo	tʂɛ33	tʂhɿ33	kha13
Namuzi	luo31ɸu31	luo31ntʂhɿ31	luo31qha31
Naxi	tei21	tɛhi21	kha33
Nusu	teə33	tɛhu33	kha55
Rouruo	tea55	tɛhu55	khɔ33, (tʂho33)khɔ33
Kazhuo	tɛɛ24	niɛ323	kha31
Jinuo	a33ɸhɔ44	a33ɸhi44	a44khɔ44, a44mja42
WB	khjaŋ2	khjo2	kha3, ŋam2
Achang	mzək55	uai31	xɔ31
Zaiwa	ɸiŋ51	ɸhui21	khɔ21

<u>Language</u>	273 Thirsty 渴	274 Overeat 饱	275 Hungry 饿
*PLB	C-sip <sup>L</sup>	Npup <sup>H</sup> ; ʔ-bliŋ1	mwat <sup>L</sup> ~ ŋ(w)at <sup>L</sup>
*PL	C-sip <sup>L</sup>	m-bliŋ3	C-mwat <sup>L</sup>
*PN	*sit <sup>L</sup>	*mbok <sup>L</sup>	*mwuat <sup>L</sup>
Nuosu	sɿ55	mbu33	mi55
Niesu	sɿ55	mbɔ33	ŋui55
Nesu	sɿ13	mbie33	ŋɿ13
Nasu	sɿ55	mphu2	ŋi55
Gepu	si33	mbhɔ33	ŋi33
Nisu	ei21	bu33	nie21
Nishu	sɿ21	bu33	ŋi21
Lope	sei55	bu33	ni55
Samu	fɜ55	pu25	mi55
Sani	sɜ2	bɜ44	ŋ2
Azhe	si21	bu22	ni21
Axi	si21	bu33	ni21
Laluba	sɿ21	bu33	mɿ21
Toloza	sɿ21	bɔ55	mi21
Lavu	sɿ21	bɔ33	mɔ21
Lolopo	ei55	bɔ33	me21
Lipo	ei21	bu33	mie33
Lisu	se31	bɔ33	(hɛ31)mɿ31
Lahu	ei35	bu54	mɜ21
Bisu	ku33	pɜŋ33, o31pɜŋ33	be31, bjaŋ31
Hani	me31	de33	me31
Haoni	fɿ31	py33	mɿ31
S.kong	aŋ33khon31ku33	pɔ33	mbe31
Mondzi	pi13	mbu44	mei44
Maang	ti55	mbɔ35	qhe55za33
Azha	si33	pu33	ndzi33
Zuoke	ei55	bo21	ŋe44
Polo	se13	mbu55	ni55
Namuzi	luo31fuæ35	ŋu55ku53	ŋu55zu55kuo53
Naxi	dzi21by21	gu33	zu21
Nusu	ʂɔ53	gia55	mɔ53
Rouruo	xe53	yo33ko33	yo33ma53
Kazhuo	(ji323tea53)sɿ35	po53	tsa323mi53
Jinuo	ei55	pru33	mœ55
WB	re2ŋat4	wal	shaa2
Achang	ʂut55	zua31	ʂut55
Zaiwa	vui51sit55	kji21	mut21

<i>Language</i>	276 Enough 够	277 Be filled up (with water) 装满(水)	278 Itchy 痒
*PLB	lok <sup>L</sup>	---	Ntsik <sup>H</sup>
*PL	lok <sup>L</sup>	---	g-ya2, m-tsik <sup>H</sup>
*PN	*lok <sup>L</sup>	*bli <sup>2</sup> , *gi <sup>2</sup>	*ɣro <sup>1</sup> , *dzi <sup>1</sup> , *kh <sup>w:1</sup>
Nuosu	lu55	dzi21	zi33
Niesu	lo55	dzi21	zi33
Nesu	lie13	dɛ21	zu33
Nasu	ly55	dɔ̃11	ju33
Gepu	lo55	dʒɔ̃33	zu33
Nisu	ly21	mr21	zo33
Nishu	ly21	der21	zɔ33, kɛ21
Lope	lu55xu213	dæ21	zu33
Samu	la55	pi33	ziɔ33
Sani	lu2	lo11dlæ33, dlæ33	zɔ55
Azhe	tʂɛ21ly21	dɛ22	zɔ21, ɣu22
Axi	ɲu55ly21nu33	dɛ33	zɔ21
Laluba	?lɔ21	vi33	dʒɔ33
Tolozá	lo33gʌ33	dʒɔ55	dʒɔ55
Lavu	pha33lo21lo21	bi33	zəu21
Lolopo	lɔ21	bi33	zo21
Lipo	lu21do33	bi33, bɔ33	fu33
Lisu	lɔ31	bɔ33	ni35mu33
Lahu	lo21	bi53	dzi54
Bisu	---	aŋ33puŋ33	za31
Hani	ly31	bɔ33	dʒɔ33
Haoni	ly31	pu33	tsɔ33
S.kong	lɔ31	puŋ33	tsɔ33
Mondzi	liu44zɔ44	pi21	khui53
Maang	---	---	khui35
Azha	lu33	tsle33	zɔ33
Zuoke	lo44tɛɪ33	gɪ33	no44
Polo	lu33	biɔ21	kha55
Namuzi	lu35	bu55tæ53	luo31nthæ31nthæ53
Naxi	mu55	ʂɔ55, ʂɔ55	kæ21kæ33
Nusu	kua55	bɪɔ̃31, bɪɔ̃31	ia55
Rouruo	---	piɛ13	io33
Kazhuo	lo53	tɛɛ33	ja31
Jinuo	lo55	a44pru33, pru33	tsu31
WB	lɔk4	praŋ1	ja3
Achang	kom35	pzɔŋ35	jo31
Zaiwa	ŋap21	pjiŋ55	jo21

<u>Language</u>	279 Drunken 醉	280 Insane 疯	281 Slippery (road) (路)滑
*PLB	yit <sup>L</sup>	ru2	---
*PL	yet <sup>H</sup>	ru2, ʔ-but <sup>H</sup>	---
*PN	*jit <sup>3</sup>	*ɣwu <sup>1</sup>	*ndzra <sup>1</sup> , *xo <sup>1</sup>
Nuosu	zi55	vu33	ho33
Niesu	zi55	ɣ33	ho33
Nesu	(ndzi21)di13	ɣu33dɣ21	ndɔa13
Nasu	ŋə11, ji55	ɣɣ33	ntɕa55
Gepu	zi33	ɣu33	ndzɕa33
Nisu	eie33	vu33	di33, zi33
Nishu	ee33	vu33	di33, ze21
Lope	ŋæ55	ŋæ55xu213	di33, zi33
Samu	zi55	vu33	li25
Sani	ji2	ɣ11	ji44
Azhe	ŋɛ21	ŋɛ21wa22	dzi22, zi22
Axi	ne33	vu33, ɣo21	dji33
Laluba	ʔi21	the33ta21	mu33
Toloza	zi53	nx53	ʂo33
Lavu	zi21	feŋ33za13	ʂua21
Lolopo	zi21	thə33	ze33
Lipo	zie33	the33	tʂha33
Lisu	zi31	vu33	tehu31
Lahu	bu54	ɣu53	le54
Bisu	xet31	aŋ33vɔn31	tsan31
Hani	ji31	sa33mu33mu33	dzu33
Haoni	py33	tʂɣ55ɣ31ɣ31	ke31
S.kong	eɛ31le55	mu55pɕe33	lem31
Mondzi	ni44	ʂo44	bia53
Maang	bo35	lai55	hie35
Azha	ŋe33	ʔu33	xua21
Zuoke	bo21	ɣu44li21	zi21
Polo	ni55	no33	nde33
Namuzi	(vu53)ə31qa35	ɕuo55ndzuo55	luo31ɬæ35
Naxi	zɕ33ko21	nɣ33	kæ55
Nusu	iɕ53	xɪɕ53	teɕ53
Rouruo	ia53	pɛ53vu31	phie53
Kazhuo	mɔ33	v31	je53
Jinuo	mo44	a44vu33lu33	a44kry55
WB	mu3	ru3	khjɔ3
Achang	et55	vən55	tʃut55
Zaiwa	vut21	na21	tauʔ31tʃɔt55

<u>Language</u>	282 Poor 穷	283 Rich 富	284 Sharp (knife) 锋利
*PLB	---	---	tak <sup>H</sup> ~ ɕ-tak <sup>L</sup> ; tak <sup>H</sup>
*PL	---	---	tak <sup>H</sup>
*PN	*sra <sup>1</sup>	*bo <sup>2</sup> , ga <sup>3</sup>	*thak <sup>H</sup>
Nuosu	su33ʂa33	su33ga55, bo21	tho33
Niesu	su33ʂa33	su33ga55, bo21	thie33
Nesu	ʂu33	dzu55	tha33
Nasu	ŋtəhɔ11	bɔ11, dzu55	thq2
Gepu	dzə33	bɔ55	thə55
Nisu	so33	ba21	thie21
Nishu	ʂo33	ba21	pie21
Lope	ʂu55	bɔ21	pei55
Samu	təhiuŋ22	tsu22	tʰa33
Sani	ʂɔ55	bo33	the44
Azhe	ʂa55	buu22	thi22
Axi	ʂo55	bu33	the33
Laluba	ʂa21	bu33	?na55
Tolozu	ŋa55ku33	ku33, tsa33	the33
Lavu	ŋ21ba33	ba33	tha33
Lolopo	ʂo55	so33	the33
Lipo	ʂo55	go33(ma21)	thie33
Lisu	ɕua55	bɔ33	tʂe35
Lahu	xa11	pɔ33ea33	tsi54
Bisu	aŋ33sa31bek31	aŋ33tsa33aŋ33paŋ33	aŋ33thak33
Hani	tʂhɔ31	lo31bɔ31bɔ31	tə33
Haoni	ʃɔ31	ʒy33xa33	tha33
S.kong	sa31	su55ka31	thə33
Mondzi	ɕɔ44	sɔ13	tho53
Maang	za35	sa55	tha55
Azha	ʂo55	sɔ21	the33
Zuoke	sɔ55	buu33	tha21
Polo	sɔ33	so55	pe13
Namuzi	phu55ndzɔ55	su55qə31	nthə35
Naxi	si33	xu21	tha55
Nusu	za55	ɣa31	thu55
Rouruo	na55khɔ13	ke55	ne13
Kazhuo	sa55	sa33	tha55
Jinuo	zɔ44tʃhi44	tʂhu55kɔ44	tɕi44tha42
WB	khjam3təa2, the3	ʂaŋ3jai3	thak4
Achang	phzan35	tɔ55	tho?55
Zaiwa	mjuŋ51	vo55	tho?55

<i>Language</i>	285 I, me 我	286 You 你	287 He, she 他, 她
*PLB	ŋa1	naŋ1	zaŋ2
*PL	(C)-ŋa1	naŋ1	zaŋ2, su1
*PN	*ŋa <sup>1</sup>	*naŋ <sup>1</sup>	*khi <sup>1</sup> , *kuw <sup>1</sup> , *s-zaŋ <sup>1</sup>
Nuosu	ŋa33	nu33	tshŋ33
Niesu	ŋa33	nu33	tshŋ33
Nesu	ŋu21	na21	thi21
Nasu	ŋu11	na11	thi11
Gepu	ŋu33	na33	tɛ33
Nisu	ŋo21	na21	kɤ55
Nishu	ŋu21	na21	kə55
Lope	ɔ̃44	nã44	ku44
Samu	ŋa33	no33	zi53
Sani	ŋp33	ŋ33	khɪ44
Azhe	ŋo22	nu22	gu22
Axi	ŋo33	ni33	ku33
Laluba	ŋa55	ŋ55	o33
Toloza	ŋa21	ŋi21	ʔi53
Lavu	ŋu55	ŋi55	tehi55
Lolopo	ŋo33	ŋi33	zæ21
Lipo	ŋo33	ŋi33	zo21
Lisu	ŋua33	nu33	e55
Lahu	ŋa31	no31	zo53
Bisu	ga33	naŋ33	zaŋ33
Hani	ŋa55	no55	a31jo31
Haoni	ŋo55	ny55	ji55lɔ31, ɔ31ʒy31
S.kong	ŋa55	naŋ55	thaŋ55
Mondzi	ŋo13	na13	za21
Maang	ŋa33	na33	za33
Azha	ŋa33	nu33	ku33
Zuoke	ŋp21	ni21	ʔp33
Polo	ŋo33	ny33	khɤ33
Namuzi	ŋa55	nuo31	tehi55
Naxi	ŋə21	ny21, u33	thuu33
Nusu	ŋa33	ŋu55	ŋu55
Rouruo	ŋu55	ŋo33	tu55
Kazhuo	ŋa33	ne33	ji33
Jinuo	ŋo42	nə42	khə42
WB	ŋaa2	maŋ3	təu2
Achang	ŋo55	nuanŋ55	ŋaŋ31
Zaiwa	ŋo51	naŋ51	jaŋ21

<u>Language</u>	288 One 一	289 Two 二	290 Three 三
*PLB	C-tik <sup>L</sup> , ti2	nit <sup>L</sup> ~ ni2 ~ ?nit <sup>L</sup> ; ?-nit <sup>L</sup> ~ ni2	sum2
*PL	t/di2	s-ni(k) <sup>2/L</sup>	C-sum2
*PN	*tha <sup>2</sup>	*?nit <sup>H</sup>	*sum <sup>1</sup>
Nuosu	tshɿ21	ŋi21	sɔ33
Niesu	tshɿ21	ŋi21	sɔ33
Nesu	tha21	ŋi55	se21
Nasu	tha11	ŋi55	sɔ33
Gepu	ta33	ŋi55	se33
Nisu	thie21	zi21	sa55
Nishu	thi21	ŋi21	sa55
Lope	thɿ21	ŋi21	sə44
Samu	tʂɿ22	ŋi22	sɜ33
Sani	thɿ11	ŋ11	sv55
Azhe	tshi21	ni21	su33
Axi	thi21	ni21	si33
Laluba	tʂhɿ21	ŋ21	sa33
Toloza	tehɿ33	ŋi55	sa33
Lavu	tehi21	ŋi21	sa55
Lolopo	thi21	ŋ21	so33
Lipo	thi21	ŋi21	so33
Lisu	thi31	ŋi31	sq33
Lahu	te53	ni53	εε54
Bisu	thi31	ni31	sum55
Hani	tehi31	ŋi31	sɔ55
Haoni	thi31	ŋi31	su55
S.kong	ti31	ŋi31	sem55
Mondzi	ta21(ɔ44)	ni44(ɔ44)	soŋ13(ɔ53)
Maang	thi35	ni35	səŋ33
Azha	ti33	ni33	sɿ55
Zuoke	thɔ44	ne44	sɔ33
Polo	qɑ21	ne55	su33
Namuzi	tei31	ŋi53	suo53
Naxi	du21	ŋi21	sɿ21
Nusu	thɿ53	m55	sɔ33
Rouruo	tuu31	ne53	se33
Kazhuo	tɛ31	ŋ31	si33
Jinuo	thi44	ni55	sə44
WB	tas4	hnas4	təum3
Achang	ta31	sək55	sum31
Zaiwa	ʒa21, lǎ21	i55	sum21



<u>Language</u>	291 Four 四	292 Five 五	293 Six 六
*PLB	ʔ-ləy2, b-ləy2	ŋa2	C-krok <sup>L</sup>
*PL	b-le2	ŋa2	C-krok <sup>L</sup>
*PN	*ʔli <sup>1</sup>	*ŋa <sup>1</sup>	*khrok <sup>L</sup>
Nuosu	lɿ33	ŋu33	fu55
Niesu	lɿ33	ŋu33	xo55
Nesu	fi33	ŋu33	tɛhe13
Nasu	fi33	ŋu33	tɛhu55
Gepu	fi33	ŋo33	tʂho33
Nisu	fi55	ŋo33	tʂhu21
Nishu	fi55	ŋo33	tʂhu21
Lope	fi44	ŋu33	tɛhiu55
Samu	li33	ŋo33	tɛ <sup>h</sup> iau55
Sani	tʂ55	ŋo55	khu2
Azhe	fi33	ŋo21	khu21
Axi	li33	ŋo21	tʂu21
Laluba	ʔlɿ33	ŋa21	kho21
Toloza	lx55	ŋo33	tʂo33
Lavu	li55	ŋu21	tʂho21
Lolopo	li33	ŋo21	tɛho55
Lipo	li33	ŋo21	khu33
Lisu	li33	ŋua31	tɛho31
Lahu	o53	ŋa53	kho21
Bisu	xan55	ŋa31	khu31
Hani	o31	ŋa31	ku31
Haoni	li31	ŋo31	khy31
S.kong	um55, xum55	ŋa31	khɔ31
Mondzi	le13(o53)	ŋo21(o44)	khu53(o44)
Maang	lai35	ŋa35	kho35
Azha	fi55	ŋo33	tɛhu33
Zuoke	li33	ŋo44	tʂhu44
Polo	lɛ33	ŋo13	tɛhu55
Namuzi	zɿ31	ŋa31	qhu31
Naxi	lu33	ua33	tʂhua55
Nusu	v.i33	ŋa55	khɿy53
Rouruo	yi33	ŋo33	kha53
Kazhuo	xɿ33	ŋa31	tɛho53
Jinuo	li44	ŋo44	tɛho44
WB	le3	ŋa3	khɿɿk4
Achang	mi31	ŋo31	xzɔ?55
Zaiwa	mji21	ŋo21	khju?55

<u>Language</u>	294 Seven 七	295 Eight 八	296 Nine 九
*PLB	s-nit <sup>L</sup> (PL: N-šit <sup>L</sup> ~ si2), ʔ-nit <sup>L</sup> ~ ši2)	ʔrit <sup>L</sup> ; ʔ-rit <sup>L</sup>	gəw2
*PL	C-ʃi(k) <sup>2/L</sup>	C-yet <sup>L</sup>	go2
*PN	*sxi <sup>2</sup> , *snit <sup>H</sup>	*ʔxit <sup>L</sup>	*gu <sup>1</sup>
Nuosu	ʃɿ21	hi55	gu33
Niesu	ʃɿ21	hi55	gu33
Nesu	ei55	hi21	tɛy33
Nasu	ei55	hɿ55	ku33
Gepu	ɛɿ55	hɛ55	kə33
Nisu	ʃɿ21	xiɛ21	ku55
Nishu	ʃɿ21	xiɛ̃21	kə55
Lope	ʃɿ21	hɛ213	ku44
Samu	ʃɿ25	xe55	ku33, gu33
Sani	sʒ11	he2	ku55
Azhe	ʃi21	xɿ21	ku33
Axi	ʃi21	xi21	ku33
Laluba	xu21	hɿ21	kɿ33
Toloza	ʃɿ53	hi53	khɿ33
Lavu	ei21	xɛ21	kɿ33
Lolopo	ei21	xɛ55	ku33
Lipo	ʃɿ21	hɛ̃33	kə33
Lisu	ʃi31	hɛ̃31	kɿ33
Lahu	si11	xi35	qə53
Bisu	ɛit31	xet31	kau31
Hani	ʃɿ31	ɛɛ31	ɣə31
Haoni	ʃɿ31	xɛ31	ɣu31
S.kong	si31	ɛɛ31	qə31
Mondzi	xe13	ɛi53(ɔ44)	ko13(ɔ53)
Maang	ɣui35	zi35	kau35
Azha	ʃɿ33	hi33	tɛu55
Zuoke	ɛi55	zi35	ku33
Polo	ei13	xɛ55	kɿ33
Namuzi	ʃɿ31	ʔhi31	ŋgu31
Naxi	ʃə̃33	χo55	ɣɿ33
Nusu	ŋə̃55	ɛə̃53	gu33
Rouruo	ne55	ia33	ku33
Kazhuo	ʃɿ31	ɛi53	kv44
Jinuo	ei44	xɛ44	tɛy44
WB	khu1hnas4	hras4	ko3
Achang	ŋit55	ɛet55	kau31
Zaiwa	ŋjit55	ʃit55	kau21

<u>Language</u>	297 Ten 十	298 Hundred 百	299 Pair (CL, shoes) 双
*PLB	tsay1	---	dzum3
*PL	tsay1	C-ra1	?-dzum1, gu2
*PN	*tshi <sup>1</sup>	*xa <sup>1</sup>	*dzum <sup>1</sup>
Nuosu	tshi33	ha33	dzi33
Niesu	tshi33	ha33	dzi33, dzui33
Nesu	tshɿ21	(tha21)ho21	dze21
Nasu	tshɛ11	hu11	dʒɿ11
Gepu	tshɛ21	hy21	dʒa33
Nisu	tshɿ21	xo21	dʒɿ21
Nishu	tshə21	xo21	dʒə55
Lope	tshɛi213	hǒ213	dʒa213
Samu	tɛhi22	ɛio33	ʒuan53
Sani	tshɿ33	hn33	tʂɿ33
Azhe	tshɿ22	xo22	dʒu22
Axi	tshi33	(thi21)xo33	tsi33
Laluba	tɛhi55	ha55	dʒy55
Tolozá	tshɿ33	(tɛhɿ33)ha33	dʒɿ55
Lavu	tshɿ55(mu55)	hy55	dʒu55
Lolopo	tshi33	(thi21)ɛyo33	dʒɿ33
Lipo	tshɿ33	hǒ33	dʒu33
Lisu	tshɿ33	hǔ33	dʒɛ31
Lahu	tɛ53tɛhi33	xa33	tɛɛ33
Bisu	tɛhe55	aŋ33pak31	tsum55
Hani	tshɛ55	ja55	dʒo55
Haoni	tshɛ55	xo55	tʂɿ31
S.kong	tshɛ55	ɛa55	ku33
Mondzi	si44(ɔ53)	(ta21)ɛo13	(ta21)zui13
Maang	sui55	za55	som55
Azha	tshɛ33	ho21	te21
Zuoke	tshu21	ɣn21	dʒo33
Polo	tshɿ33	xǒ21	dʒu21
Namuzi	ɣuo31	(tɛi31)?hĩɔ53	dʒu31
Naxi	tshɛ21	ɛi33	dʒɿ33
Nusu	tshɛ33	ɛa33	dʒa33
Rouruo	tshɛ55	io55	tʂɛ53, tʂɛ31
Kazhuo	tshi33	tɛ31xa323	tʂɛ323
Jinuo	tshɿ42	thi44ɛo44	tʂɛ55
WB	shaj2	(tas4)raa2	ram2, sum2
Achang	tɛhe55	pak35	tɛom31
Zaiwa	tshɛ51	fo51	tsum55

<u>Language</u>	300 CL (for persons) ↑
*PLB	m-rəy1
*PL	ma1, ra2
*PN	*ma <sup>1</sup> , *zok <sup>L</sup> , *lu <sup>1</sup>
Nuosu	ma33, zo55
Niesu	ma33, zo55
Nesu	(tha21)ze21, lie33
Nasu	lɿ33
Gepu	li33
Nisu	lɿ33
Nishu	lə33
Lope	mu44, tɕhæ 44
Samu	te33
Sani	mɔ44
Azhe	tɕhe33, mo33, lu21
Axi	lu33
Laluba	(tɕhɿ21)ma55
Toloza	tɕhɿ33, ma21
Lavu	tɕhyo13, mu55, lu21
Lolopo	mo33, zu33
Lipo	mo33
Lisu	zɔ33
Lahu	ya54
Bisu	fu33, saŋ55
Hani	ya31
Haoni	ya31
S.kong	zaŋ55, aŋ55, lem31
Mondzi	ɔ53
Maang	pha35
Azha	zu33
Zuoke	yo21, pɔ55
Polo	(da21)zu55, lu33
Namuzi	ku53
Naxi	kɿ55, gɿ33
Nusu	iɿ53
Rouruo	ia53, fu55; le33
Kazhuo	jo35
Jinuo	eo42
WB	jo34
Achang	zu?55
Zaiwa	ju?21

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