LEXICAL STRUCTURE AND SEMANTIC CHANGES OF THE NOMENCLATURE OF BODY TERMS IN XAINJU WU

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ABSTRACT

Minlu Zhang: Lexical Structure and Semantic Changes of the Nomenclature of Body Terms in Xianju Wu
(Under the direction of David Mora-Marin)

This study aims to document the body part vocabulary of Xianju Wu with contributions to the preservation of the language. It serves as a starting point for this documentation work by analyzing the nomenclature of body terms within the language. This consists of two discussions, namely those concerning the lexical structure and semantic changes. With regard to lexical structure, the present study aims to test Cecil H. Brown's 7 rules of partonomy, finds out the hierarchical ranks and lexical structure of Xianju Wu body lexemes. As a result, the study comes out with five hierarchical ranks, which support the partonomy principles. Besides, three lexical categories are determined. Among which, the secondary lexemes usually consist of two bound lexemes as the head, followed by another constituent indicating the superordinate or subordinate relations. Through this, I establish that disyllabic bound structure is the basic form of nomenclature of primary lexical structure concerning Xianju Wu body lexemes. This lexical structure that distinguished from Mandarin may not have been influenced by Mandarin yet. With regard to semantic changes, the study aims to evaluate the occurring semantic changes and shift of Xianju Wu. Through the apparent-time method, the comparative study shows that Xianju Wu body terms are undergoing semantic changes and shift through analogy and deletion. The analysis of metaphors and metonymies discloses that most polysemies in Xianju Wu are extended through interfield metaphors. This evidence does not support David Wilkins' (1996) model for tendencies of change in the domain of parts of the body. The data analyzed in the

study was collected during Summer 2019 with 5 speakers from 5 age groups completing surveys and providing the body terms studied in this research.

Keywords: Xianju Wu, partonomy, lexical structure, semantic changes, metaphor

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CHAPETER 1: INTRODUCTION

Wu Chinese is an endangered language and the dialect Xianju Wu has been in urgent need of protection since the onset of Mandarin language planning begun in the early 20th century. Due to the mountainous terrain of Xianju, the speakers of Xianju Wu have not been exposed to language contacts and the language therefore enjoys some unique linguistic traits worthy of documentation. I argue that body terms, as one of the most stable word categories, constitute an ideal basis for comparative study within language shift. Ultimately it is through study of Xianju Wu's body terms that semantic changes can be discovered.

This thesis has the following goals:

1. To begin documentation work of Xianju Wu by analyzing the nomenclature pattern of body terms in the language, in order to further preserve the language;
2. To test the hierarchical levels of body terms in Xianju Wu through partonomy, and to discuss the lexical structure of the body terms in Xianju Wu;
3. To provide a snapshot of the semantic changes and age variations of Xianju Wu speakers in 2019-2020 with comparative analysis and the apparent-time method.

Chapter 1 begins with the demographic and geographic background of Xianju County. Following this, the necessity for a documentation of Xianju Wu (仙居吴语)[1] is presented. This necessity includes the fact that Wu Chinese is an endangered language. Accordingly, the dialect

[1] Or goes by Xianju Hua (仙居话)

Xianju Wu is in urgent need of protection and has been since the onset of Mandarin language planning begun in the early 20th century. As well, in light of the current language shift Xianju Wu is undergoing such protection would likewise preserve its older forms. Second, due to the mountainous terrain of Xianju, the speakers of Xianju Wu have not been exposed to diverse language contacts and the language therefore enjoys some unique linguistic traits worthy of documentation. I argue that body terms, as one of the most stable word categories, constitute an ideal basis for comparative study within language shift. Ultimately it is through study of Xianju Wu's body terms that greater semantic changes can be discovered.

1.1 Xianju County

Traveling from northern Jiangsu to southern Zhejiang across the southeastern coast of China, one encounters various dialects from village to village, town to town. These belong to a language famed for its diversity of dialects called Wu Chinese.

Figure 1: Primary branches of Chinese [2]

[2] Based on Language Atlas of China, by Stephen Adolphe Wurm, Rong Li, Theo Baumann and Mei W. Lee, Longman, 1987, ISBN 978-962-359-085-3.

Wu Chinese, or simply Wu, is a member of the Sinitic branch of the Sino-Tibetan family. It is one of the six dialects and languages in China. Currently, Wu is one of the major dialect groups of Chinese with 70 million speakers. Most speakers are living in south Jiangsu Province, Zhejiang Province, and south An-hui Province (Zheng, 2000:1). Y. R Chao (1988) has argued that Wu is usually divided into a northern (Jiangsu) type and a southern (Zhejiang) type, the dialects of the southern part of Zhejiang differing greatly from the typical northern Wu dialects in vocabulary. A speaker from the northern part of the language community may have different vocabulary compared with a speaker from communities of the southern part (Norman 1988:199). Among all the dialects, the northern Shanghainese dialect of Wu Chinese is the one that has gained the most attention in research and documentation work. As a testament to the preservation efforts that has resulted from this documentation, sociolinguistic contexts in Shanghai including education and transportation continue to utilize Shanghainese in addition to Mandarin.

In Xianju, one instead hears a majority of Mandarin spoken throughout the county. While young people speak Mandarin, older generations sometimes code-switch between it and Xianju Wu. In rural areas, one quickly finds that it is predominantly old and uneducated persons living in rural villages who regularly speak Xianju Wu. Local urban populations thus refer to this dialect as something of a "hillbilly language"[3] Located in the coastal area of southeastern China, Xianju County is close to the East China Sea and west of Taizhou City, to the south of Zhejiang Province.

[3] Chinese: 土话, pinyin: tǔ huà

Figure 2: Districts of Taizhou City[4]

It is a mountainous area, with more than 80% of its land comprised of mountains - among them 109 peaks with elevation over 1000 meters (3280.84 ft) above sea level. Most of the population of the county is concentrated in four main basins: Hengxi, Tianshi, Chengguan, and Xiage. For the purposes of this study, all recorded speakers are from the same Hengxi basin. Four speakers are from Shang Jiang Yang Village, ButouTown (Chinese: 埠头镇上江垟村), and one speaker is from a neighboring village Yantou Village, Butou Town (Chinese: 埠头镇堰头村).

Chao observed that in the Wu dialects of Zhejiang there is less divergence between the read and spoken pronunciations of characters,

[4] https://en.wikipedia.org/wiki/Taizhou,_Zhejiang

suggesting that southern Wu is more purely Wu than the northern Wu dialects that are strongly influenced by Mandarin (1967:92). As Xianju County is located to the south of Zhejiang, Xianju Wu is one of southern dialects of Wu that is less influenced by Mandarin. Unlike Shanghainese, Xianju Wu is actually a highly undocumented language without much prior linguistic work. Previous research has mostly concentrated on the documentation of basic phonetic inventories and local social customs.[5]

In 1956 the government of the PRC started implementing a nationwide campaign to promote Mandarin as a national language.[6] 1986, compulsory education started, an increasing number of Chinese learnt Mandarin systematically through school education. As a consequence, Wu Chinese, including Xianju Wu, was gradually excluded from most social contexts including education, administration and public media. In modern public perception speaking Mandarin in Xianju County continues to be a symbol of education and modern life. Due in part to this planning begun in the mid-20th century, the generations who are now aged between the 70's and 90's are the last generations containing those uninfluenced by the mandatory education of Mandarin from schools. As a result, many speak only Xianju Wu. In 2008 the UNESCO project the Linguistic Atlas of Chinese Dialect investigated 121 locations in Wu speaking areas and discerned the

[5] Other linguistic works see: Jiang Zhimin 江志敏. (2013): 34-35. Lü Junwei & Yujian 吕军伟, and 俞健 (2019: 20). Qian Wenhua & Zhang Wei 钱文华, and 张玮. (2010: 14-18). Song Yidan 宋益丹. (2014: 118-125). Yu Yili 俞易利.(2017). Zhang Xun 张峋. (2009: 75-80). Zhen Jun 郑俊. (2010: 88-89).

[6] In Feb. 6th 1956, the government of the PRC published *Instructions for Promoting Mandarin*（Guān Yú Tuī Guǎng Pǔtōnghuà de Zhǐ Shì《关于推广普通话的指示》）

endangered status of Wu dialect (Cao, 2008:39). Nevertheless, with the benefit of its geographical traits, compared to most dialects of Wu, Xianju Wu has not been influenced by outside languages greatly due to the county's undeveloped transportation conditions as Xianju County did not have a highway until 2009. It being especially hard for Xianju Wu speakers to communicate with people beyond the county's difficult-to-traverse mountains in ancient times. Hence, there is an urgent need to document the language while the eldest generations are still alive and able to be reached.

1.2 Body terms

This study aims to start the documentation work of Xianju Wu with researches of the nomenclature of its body terms, as body terms are ideal test case for understanding one language with the following reasons. Iwona states quoting Bernd Heine, "body terms can be one of the best beginnings for the documentation work of a language for the fact that the human body is one of the most salient models for understanding, describing, and denoting more difficult concepts (2014:13)." Moreover, Matisoff states that the human body is a well-defined semantic field that can serve as a "test case" or "pilot project" for the study of semantic relationships in general (1978:149).

In the Swadesh list, a classic word list utilized for the purposes of historical-comparative linguistics, body terms occupy one of the categories with the most words (Lohr 2000:209). Within the Leipzig–Jakarta list, a list of words used in linguistics to test the degree of chronological separation of languages via comparing words that are resistant to borrowing, 25% of the words in the list are body terms (Haspelmath 2009:72), further proving the resistance of body terms to language shift. There exists a difficulty of borrowing or loaning words from or to

other languages within this category precisely because every language has their own body terms. As a result, body terms are an ideal field for linguistic comparative study. Body terms also provide a "universal, objective external referent against which to compare the semantics of particular languages," with the human body providing "tremendously complex lexemes […] which can be an ideal focus for semantic typology. The variety of visual and tactile aspects of body terms can be an ideal focus for analogical associations with objects of all shapes, colors and textures in the outside world" (Matisoff, 1978:150).

1.3 Methodological Rationale

Because body terms are stable relative to other vocabulary domains and body parts have salient semantic implications, therefore, body terms are a useful point of departure for language documentation studies; As a classification of nomenclature, partonomy provides a systematic way to study body terms. The present study thus examines the body terms of Xianju Wu under the theoretical framework of partonomy and lexical semantic changes while summarizing the nomenclatural pattern of body terms. On the other hand, as Xianju Wu is experiencing language shift, there is an urgent need for documentation. Apparent-time method in particular is useful for measuring the differences between various age groups within language shift. Here the method will be applied to the language shift occurring between older speakers of Xianju Wu lacking the ability to speak Mandarin and younger speakers under the influence of Mandarin. With apparent-time method, I will focus specifically on the semantic changes occurring among these different age groups of Xianju Wu. Metaphors and metonymies will also be analyzed to discuss the ongoing semantic changes.

This study consists of five chapters. Chapter 1 describes the language situation of Xianju Wu and clarifies the significance of body terms for language documentation. Chapter 2 provides a

glance at the historical background of Xianju Wu and describes the concepts of language shift, partonomy, and semantic changes adopted in this study. Chapter 3 presents the study design and illustrates the process of data collection conducted in in-person surveys and data analysis. Chapter 4 discusses the lexical structure of the nomenclature of body terms of Xianju Wu through the partonomy ranks of body terms in the language, the three lexical categories of Xianju Wu body terms, and the two-syllable based lexical structure. Chapter 5 analyzes the semantic changes through metaphors and metonymies of body terms in Xianju Wu and adopts the apparent-time method to analyze the age variations of word choice. Chapter 6 concludes the study and devises plans for further studies.

CHAPTER 2: LITERATURE REVIEW

2.1 The affiliation of Xianju Wu, Wu, and General Chinese dialects

Norman Jerry devises 10 criteria to categorize Chinese dialects based on phonological, grammatical and lexical criteria. The criteria are cited in full as follows:

1. The third-person pronoun is *tā* or cognate to it.

2. The subordinate particle is *de (di)* or cognate to it.

3. The ordinary negative is *bù* or cognate to it.

4. The gender marker for animals is prefixed, as in the word for 'hen' *mǔ jī*.

5. There is a register distinction only in the *píng* tonal category.

6. Velars are palatalized before *i*.

7. *Zhàn* or words cognate to it are used for 'to stand'.

8. *Zǒu* or words cognate to it are used for 'to walk'.

9. *Érzi* or words cognate to it are used for 'son'.

10. *Fángzi* or words cognate to it are used for 'house'.

The ten criteria are applied to twelve dialects, they are: Beijing (Bj), Xīan (Xa), Kūnmíng (Km), Suzhōu (Sz), Wēnzhōu (Wz), Chángshā (Cs), Shuāngfēng (Sf), Nánchāng (Nc), Méixiàn (Mx), Guangzhōu (Gz), Fūzhōu (Fz), Jiànōu (Jo). The criteria are applied to the twelve dialects in the form of statements for which a positive (+) or negative (-) record can be made for any given one. The results are shown as follows in Table 1 (1988:182).

Table 1: Classificatory criteria for Chinese dialects

	Bj	Xa	Km	Sz	Wz	Cs	Sf	Nc	Mx	Gz	Fz	Jo
1.	+	+	+	−	−	+	+	−	−	−	−	−
2.	+	+	+	−	−	−	−	−	−	−	−	−
3.	+	+	+	+	+	+	+	+	−	−	−	−
4.	+	+	+	+	+	−	−	−	−	−	−	−
5.	+	+	+	−	−	−	−	−	−	−	−	−
6.	+	+	+	+	+	+	+	+	−	−	−	−
7.	+	+	+	−	−	+	?	+	−	−	−	−
8.	+	+	+	+	+	+	−	+	−	−	−	−
9.	+	+	+	+	+	−	−	−	−	−	−	−
10.	+	+	+	±	−	±	?	−	−	−	−	−

According to these values, Chinese can be divided into three Chinese dialects. Beginning from the left, the first three columns of the table have positive values for all the features. Norman thus designates this group as the *Northern group*. This group coincides with Mandarin. The four dialects on the right of the table possessing negative values for all the features Norman calls the *Southern group*, the representative dialects including Kejia and Min groups. The remaining dialects show mixed values for the features. These are the transitional *Central group*.

Applying Norman's ten criteria of dialects to Xianju Wu, the feature values are shown as follows in Table 2. [7]

Table 2: Classificatory criteria for Xianju Wu

	Xianju Wu	Wēnzhōu (Wz)
1.	-	-
2.	-	-
3.	+	+

[7] The elicitations for the data collection were done with 2 Xianju Wu speakers, who was at their age of 50s and 20s.

4.	±	+
5.	-	-
6.	+	+
7.	-	-
8.	+	+
9.	-	+
10.	-	-

As is shown in Table 2, Xianju Wu shows mixed values for the features displayed in the table. Since Wenzhou (Wz) is the geographically closest city to Xianju County, the linguistic traits of Xianju Wu are most similar to Wenzhou Dialect. Therefore, Xianju Wu is clearly a dialect of the transitional Central group. As Norman continues to show his findings, he notes that the Northern group is the most homogeneous type while the Central and Southern groups exhibit an extraordinary diversity—especially in phonology and lexicon (1988: 183). The Central group might be "the result of centuries of Northern linguistic instructions into a region" that originally consisted more purely of Southern types of dialects; "in the course of many centuries, the original Southern features of these dialects have been progressively eroded, leaving dialects of mixes type" (1988: 198).

Generally speaking, in contrast to Mandarin belonging to the Northern group, the most prominent phonological trait of Wu is the preservation of three initial stops. These include both the voiceless aspirated and unaspirated stop, with the addition of a third series whose precise phonetic nature differs from region to region. In the southern part of Zhejiang where Xianju County is located, this third series is voiced throughout, meaning that the initial stop is without

any perceptible breathy voice. Historically, the Wu initials are more conservative compared to Mandarin ones. In addition to the voiceless/voiced contrast, Middle Chinese *ng* is retained in Wu as a separate and distinctive initial. Xianju Wu retains the *ng* initial as well in words such as *ngǒ* 'I/me', *ngó* 'goose', *ngó ts'ĭ* 'teeth'. Some initials are preserved in Wu as *m* where Mandarin has *w*. Xianju Wu shows the same pattern as Shanghainese with *még* 'ask', *me yŏu* 'have not'; cf. Mandarin *wèn* and *wú* respectively (Norman 1988:200).

To give an idea of the consonant system of Xianju Wu, the comparative discussion between Mandarin and a typical Wu dialect – Shanghainese will be discussed. Table 3 shows all the initials of Xianju Wu collected in this research. Compared with the consonants of Mandarin in Table 4, the most remarkable differences between Xianju Wu and Mandarin is the existence of voiced obstruents in Xianju Wu, while Mandarin does not have voiced consonants. As is shown in the tables, almost all the obstruents in Xianju Wu are distinguished by the feature of voicing, one voiced, one voiceless, such as *p-b, t-d, f-v, k-g*. [8] Moreover, Xianju Wu has three glottal consonants that are not displayed in Mandarin.

Table 3: Xianju Wu consonants [9]

	Labials	Dentals	Alveolar sibilants	postalveolar	Palatal	velars	glottal
Unaspirated stops	p	t	ts		tɕ	k	
Aspirated stops	pʰ	tʰ	tsʰ		tɕʰ	kʰ	
Voiced stops	b	d			dʑ	g	
Voiceless fricatives	f		s		ɕ		h

[8] Norman (1988:200) found the same pattern of the consonant differences between Shanghainese and Mandarin.

[9] The initials are collected based on Appendix B, in addition to Wuyu Xiehui website of the Xianju Wu initials colloection: http://wu-chinese.com/romanization/xianju.html and the Wikipedia page of Taizhou Wu: https://en.wikipedia.org/wiki/Taizhou_dialect

Voiced fricative	v		z dz	ʃ ʒ		ʑ		ɦ ʔ
Nasal	m	n				ȵ	ŋ	
Liquids	w	l				j		
Voiced implosives	ɓ	ɗ						

Table 4: Mandarin consonants

	Labials	Plain apicals	Apical sibilants	Retro-flexes	Palatals	Velars
Voiceless unaspirated	p	t	ts	tʂ	tɕ	k
Voiceless aspirated	ph	th	tsh	tʂh	tɕh	kh
Nasals	m	n				(ŋ)
Fricatives	f		s	ʂ	ɕ	x
Sonorants	(w)	l		ɹ	(j)	

Wu is typically divided into a northern type (Jiangsu) and a southern type (Zhejiang) (Chao 1967:92). Compared with Shanghainese which is a norther type of Wu, Xianju Wu as a southern type pf Wu has more consonants preserved in the language. As is shown in Table 3 and Table 5, Xianju Wu has *dz* in addition to *z*; there are two implosives on Xianju Wu that are not included in Shanghainese; Xianju Wu has two postalveolar consonants that Shanghainese is missing.

Table 5: Shanghainese consonants

	Labials	Dentals	Alveolar sibilants	Palatals	Velars	Glottals
Unaspirated stops	p	t	ts	tɕ	k	
Aspirated stops	ph	th	tsh	tɕh	kh	
Voiced stops	b	d		dʑ	g	
Voiceless fricatives	f		s	ɕ		h
Voiced fricatives	v		z	ʑ		ɦ
Nasals	m	n		ȵ	ŋ	
Liquids	w	l		j		

Xianju Wu has a great number of vowels. Table 6 gives the vowels found in Xianju Wu. There are 12 vowels in the language, including three central vowels.

Table 6: Xianju Wu Vowels[10]

	Front	Central	Back
High	i y	ï	u
Upper mid	e		o ɤ
Lower mid	ɛ ɛ̃	ø̃	ɔ
Low		a	
Diphthong	ia ua ue iu iɛ̃ uɛ̃ iẽ iã uø̃ yø̃ aɒ iaɒ ae au iau iuɛ̃ iou æʔ uo uɑŋ oŋ on uɔŋ yoŋ iɲ yŋ uəʔ yɔʔ		

Compared with vowels in Shanghainese as is shown in Table 7, Xianju Wu has some nasalized vowels, and it has an extra back mid vowel *ɤ*. Just like Shanghainese, Xianju Wu also lack descending dipthongs, such as *ai*, *ou*. The lack of the descending dipthongs is a consequence of monophthongization (Norman 1988:200): where the standard language has *lai* and *lou*,Xianju Wu has *le* and *lɤ*.

Table 7: Shanghainese Vowels

	Front	Central	Back
High	i y	ï	u
Upper mid	e ø		o
Lower mid	ɛ	ə ɵ	ɔ
Low		a	

As is shown in Table 9, Xianju Wu has a set of complicated tone system and tone sandhi features. Xianju Wu has eight tones, which is typical for Wu Chinese just like Shaoxing and Wenzhou as is shown in Table 8. But the tone sandhi rules are still unknown so far.

[10] The vowels are collected based on Appendix B

Table 8: Wu tonal values

Tonal category	1	2	3	4	5	6	7	8
Shànghǎi	42	24	35	—	—	—	55	23
Sūzhōu	44	24	41	—	513	(3)31	44	23
Hángzhōu	44	213	41	—	445	11	54	12
Shàoxīng	51	231	335	113	33	11	45	12
Yǒngkāng	44	22	35	13	52	24(1)	—	—
Wēnzhōu	44	31	45	24	42	11	23	12

Note: Underlining of a tonal value indicates that the tone in question is shorter or more abrupt than those which are not underlined.

Table 9: Xianju Wu tonal values [11]

Tonal category	1	2	3	4	5	6	7	8
Xianju	33	23	43	343	44	13	5	3

2.2 Partonomy and Taxonomy

The present study will discuss the lexical structure of the body terms of Xianju Wu through the perspective of partonomy. Partonomy is a classification of nomenclature based on "part of" relationships. A partonomy is an hierarchical system consist of one or more labeled parta, each of the parta is possess by other labeled parta from higher levels (Brown, 1976:401). Partonomy not only provides a systematic way to study body terms, but also demonstrates universal principles in categorization and classification process. Therefore, partonomy is ideal to offer a method to examine any universal principles applied in Xianju Wu, as well as provide a perspective to study Xianju Wu body terms systematically.

[11] The tonal values are based on Wikipedia Taizhou Hua(台州话): https://zh.wikipedia.org/wiki/台州话

In order to promote rigor and consistency in the discussion of partonomy, the research follows the seven definitions cited in full as follows (Brown 1976:401):

(1) A parton (plural: parta) is part of an entity and is described as "possessed by" that entity.

(2) A parton is itself an entity which can possess a parton or parta.

(3) A parton may or may not be labeled in any given language. A labeled parton is always stated by informants, in their native language, to be "part of" an entity or their language's equivalent of "part of" an entity.

(4) A parton is immediately possessed by an entity if there is no intervening labeled parton also possessed by that entity which itself possesses the former parton. If such an intervening parton exists, the former parton is nonimmediately possessed by the entity.

(5) A partonomy is an hierarchical system of one or more labeled parta, each of which is either immediately or nonimmediately possessed by an entity which is not a parton of that partonomy, i.e., The Whole.

(6) The Whole is found on the first hierarchical level (Level 0) of a partonomy. (This level is referred to as Level 0 instead of Level 1 because The Whole is not a parton.)

(7) Parta immediately possessed by The Whole are found on the second hierarchical Level (Level 1) of a partonomy; parta immediately possessed by the latter parta are found on the third Level (Level 2), and so on.

Derived through the comparison of "naming-behavior" from forty-one globally languages, Brown describes twelve principles of human anatomical partonomies. The forty-one languages involved in the comparison include twelve American Indian languages (Aleut, Bella Coola, Eskimo, Hopi, Huastec, Inupik, Jacaltec, Navajo, Quechua, Tarascan, Tzeltal, and Zuni),

ten European languages (Czech, English, Finnish, French, German, Romanian, Russian, Saxon, Serbo-Croatian, and Spanish), five Sub-Saharan African languages (Ashanti, Chirah-mbaw, Gourma, Ibo-Nigerian, and Swahili), five Southeastern Asian languages (Kayan, Malay, Maranao, Thai, and Vietnamese), four Middle Eastern and West Asian languages (Arabic, Dari-Farsi, Pashto, and Urdu), two Chinese languages (**Shanghai dialect** and Mandarin), two Micronesian languages (Ponapean and Trukese), and Kewa, spoken in Papua highlands.

For the present paper, the relevant principles are principles 1, 3, 7 and 10:

Principle 1: Human anatomical partonomies rarely exceed five hierarchical levels in depth (Level 0-Level 4) and never exceed six hierarchical levels (Level 0-Level 5). When extended beyond five levels in an individual partonomy, no more than two parta occurring at a fifth level (Level 4) possess parta occurring at a sixth level (Level 5).

Principle 3: All parta at Level 1 are labeled by primary lexemes.

Principle 7: The parton /foot/, if labeled, is always labeled by an unanalyzable primary lexeme. If the primary lexeme labeling /foot/ is the same as that naming /leg (and foot)/, the former parton may occasionally possess an alternate label which is a secondary lexeme.

Principle 10: The parta, /fingernail/ and /toenail/, are always labeled. Two nomenclatural patterns occur: (a) Both /fingernail/ and /toenail/ are labeled by the same unanalyzable primary lexeme. (b) Both /fingernail/ and /toenail/ are labeled by different secondary lexemes. When this pattern is in evidence, the two secondary lexemes share the same partonomic addendum.

Through the method of partonomy, body terms of Xianju Wu are divided into five hierarchical levels (Principle 1). Each of the lexeme put into the level is determined by its possession relationship to other lexemes from a higher level. The hierarchical levels of Xianju Wu starting with 'the body' as Level 0 since the body does not subordinate to any other body terms, continuing with a partonomy as Level 1, with parta immediately possessed by the parta from higher ranks. For example, because *deo jin* 'neck' from Level 2 is a part of *deo* 'head', therefore it is immediately possessed by *deo* 'head' from Level 1, and *deo* is possessed by *seng gwoh deo* 'body' from Level 0. Section 4.1 will discuss the hierarchical levels of Xianju Wu in detail.

From the discussion of Section 4.1, the parta at Level 1 are head, trunk, arm/hand and leg/foot—all the primary lexemes—which matches with Principle 3, namely, that all parta at Level 1 are labeled by primary lexemes. As for Principle 7 and Principle 10, it is the symmetry between hand and arm in the language that discloses that the two secondary lexemes to describe hand/arm and foot/leg, fingernail and toenail share the same partonomic addendum. Frequently, when 'hand' or 'foot' is labeled in one language, it is sometimes named by the same unanalyzable primary lexemes. If the primary lexeme 'foot' shares the same label as 'leg (and foot)', 'foot' may occasionally have an alternative form. This alternative form shows up in Xianju Wu, where 'foot or leg' is labeled as *djeh*, while 'foot' can also be labeled as *ze djeh*. Section 4.5 will further discuss the symmetrical distribution of 'hand' and 'foot'.

2.3 Semantic changes

In addition to the analysis of lexical structure, the present study will also talk about semantic changes for the internal reconstruction of Xianju Wu. For the internal reconstruction, the present study will be concerned with the discussion of semantic changes only as it affects lexemes, involving polysemy and shift.

Some related terminologies will be discussed first. Polysemy usually is the condition raised by lexical changes, which is to be regarded as a change including change in form, change in meaning, and change in combinatorial properties. Robert J. Jeffers and Ilse Lehiste (1979: 62) define semantic change as "a change in the set of contexts in which a given word might occur." Since Jeffers and Lehiste's conception of meaning is "the set of contexts in which a word occurs," their definition of change implies that the original meaning (M) automatically shifts to (M2). Similarly, James Matisoff (1978: 173), who allows for a notion of semantic vagueness as a type of intermediate step in semantic change, defines a semantic shift as follows: "An etymon E has shifted in meaning through time if at one stage in the language's history, S1, it used to mean 'M1 but not M2,' while at a later stage in the language's history, S2, It came to mean 'M2 but not M1.'" The model for Matisoff's understanding of the immediate mutation of semantic change can be shown as follows in Table 10.

Table 10: the immediate mutation view of semantic change

Time(T):	T1	T2
Form(F):	F1	F2
Meaning(M):	M1 –	M2

However, a possible problem within Matisoff's model might be that there is no time for M1 and M2 to coexist polysemously attached to the one form. As David Wilkins notes, the original meaning of a form is not immediately displaced by the innovated meaning, but the two co-exist for some time (1996: 269). Instead of immediate semantic change, change within the linguistic system of a single speech community can be presumed to be a feature-by-feature change with the original linguistic system exercising a conservative influence on the type of innovation that can occur. Therefore, the polysemous view of semantic change is analyzed as follows in Table 11.

Table 11: the polysemous view of semantic change

Time(T) :	T1		T2		T3
Form(F):	F1		F1		F1
Meaning(M):	M1	–	M1&M2	–	M2
Features:	p,q,r		p,q,r q,r,s		q,r,s

Semantic change is therefore the addition of a meaning to the semantic system or the loss of a meaning from the semantic system while the form remains constant. All semantic changes within a speech community involve polysemy at their beginning point or their endpoint. Wilkins thus states that the polysemous view of semantic change involves two semantic changes (1996: 271), namely:

a. the first semantic change resulting in polysemy through the addition of a meaning to the system;

b. the second semantic change involving the eradication of polysemy through the loss of a meaning from the system.

Wilkins has carried out a crosslinguistic investigation of the process of the sematic changes, as well as the tendencies of semantic changes in the domain of body parts. He compares the semantic changes of five language families, including Dravidian, Bantu, Indo-European, Tibeto-Burman, and Austronesian, with additional comparisons of isolated languages, resulted in 225 distinct semantic changes, each change contains one of the forty-one person notions listed as follows as the endpoint of the semantic changes:

> person, soul, corpse, body, belly, chest, breast, head, face, eye, ear, nose, mouth, lip, tooth, jaw, cheek, chin, leg, foot, toe, toenail, thigh, knee, arm, hand, finger, fingernail, elbow, penis, testicle, skin, bone, skull, brain, intestines, heart, liver, kidney, lungs, blood

Among the 255 semantic changes, approximately 70% of the changes are "patterned into crosslinguistic natural tendencies", while 30% of the changes are culture-specific changes. Many changes are similar and crosslinguistically, therefore, Wilkins comes up with natural tendencies of semantic changes involving several different person-parts. As Wilkins discovers in the course of this research, there are 5 natural tendencies in the course of person-part semantic changes. They are:

i. (unidirectional change) It is a natural tendency for a term for a visible person-part to shift to refer to the visible whole of which it is a part, but the reverse change is not natural (e.g. 'navel' ➔ 'belly' ➔ 'trunk' ➔ 'body' ➔ 'person').

ii. It is natural tendency for a person-part term to shift to refer to a spatially contiguous person part within the same whole (e.g. ' belly '= ' chest'; 'skull' = ' brain ').

iii. Where the waist provide s a midline , it is a natural tendency for terms refer ring to parts of the upper body to shift to refer to parts of the lower body and vice versa (e.g. 'elbow' ➔ 'knee'; 'uvula' ➔ 'clitoris'; 'anus' ➔ 'mouth').

iv. It is a natural tendency for the term for an animal part to shift to refer to a person part (e.g. 'snout' ➔ 'nose'; 'beak' ➔ 'face ').

v. It is a natural tendency for a term for a verbal action involving the use of a particular person part to shift to refer to that person part (e.g. 'walk' ➔ 'leg'; 'hold' ➔ 'hand').

According to Matisoff (1978:176-79), person-part sematic changes are classified according to whether the two meanings involved belong to the same semantic field as **intrafield changes** or whether they belong to different semantic fields as **interfield changes**, as well as whether the meanings are classified as follows according to their association with metonymy or metaphor.

1. Intrafield metonymic changes: ‘finger’ ➔ ‘hand’, or ‘chest’ ➔ ‘heart’; intrafield metaphoric changes : ‘cheeks’ ➔ ‘buttocks’;

2. Interfield metonymic changes: ‘to slap’ ➔ ‘palm (of hand)’, or ‘earring’➔ ‘ear’; interfiled metaphor changes: ‘hoof’ ➔ ‘foot’, or ‘boiled rice’➔ ‘brain’

Intrafield semantic changes are more common than interfield semantic changes. According to Wilkins, the frequency of those semantic changes is listed as Hypothesis 1:

Hypothesis 1: intra-field metonymic changes > inter-field metonymic changes > inter-field metaphor changes > intra-field metaphoric changes (1996:274).

While Wilkins believes that this model universally applies to every language, David Mora-Marín et al. find that Mayan data shows a different pattern than Hypothesis 1, namely, a pattern in which interfield metonymy and interfield metaphor trade places. Mora-Marín et al. devise a new model applying a second hypothesis to Mayan data:

Hypothesis 2: intrafield metonymy > interfield metaphor > interfield metonymy > intrafield metaphor (2019:28)

Xianju Wu data shows different hierarchical ranks than either Hypothesis 1 or Hypothesis 2. Nevertheless, one point that is similar to the model of Mora-Marín et al. is that within the Xianju Wu data there is the same tendency toward the frequency of interfield metaphor. In Xianju Wu,

interfield metaphor changes have higher frequency than interfield metonymy as well. This frequency of hierarchical ranks of Xianju Wu will be further discussed in the Section 5.1.

2.4 Apparent-time method

This project adopts apparent-time method to discuss the semantic changes within age variations in the language. Guy Bailey defines apparent-time method as follows (2004):

> Apparent-time method is to use the differences of generations within a survey. This kind of 'synchronic approach' is adopted in the study of language change, the study of change in progress, forms one of the cornerstones of research in language variation and change. This approach has had an enormous impact both on our knowledge of the mechanism of change and on our understanding of its motivations. In fact, Chambers believes that the study of change in progress might be the "most striking single accomplishment of contemporary linguistics " (2004:1).

William Labov can be regarded as the developer of a set of methodological innovations that allowed linguists to track the progress of linguistic changes as they were taking place, thus establishing the basis for the apparent-time method. 1960s, In New York City, Labov (1963,1966) demonstrated the viability of the apparent-time construct for making inferences about the ongoing languages. Labov checked the dependent variable, postvocalic [r] in the English speakers in New York City. His experiment applied apparent-time method to conduct research across different genders, ages, occupations, races, etc. within the same period of time. The apparent-time method assumes that, in most cases, individuals' vernaculars remain stable throughout the course of an adult lifetime, but many variationists believe that the vernaculars people learn in adolescence remain the basic vernacular that they use throughout their lives (Bailey, 2004). Research discussed in Labov (1994) and the evidence presented in Cukor-Avila

(2000) provide strong support for the hypothesis that vernaculars generally remain stable during adult years. The hypothesis provides a firm theoretical basis for this project. Based on the hypothesis, it is because the adults' vernaculars remain stable that we are able to apply apparent-time method to compare the generation variations between age groups.

According to Bailey, the apparent-time method quantifies the linguistic variation that is the perquisite for language change; it also examines the language variations embedded in the social and linguistic structures that motivate and constrain change and explores the effect of contextual styles resulting from the social evaluation of linguistic variants (2004: 204).

2.5 Discussion and Conclusions

With regard to lexical structure, Chapter 2 provides the basic historical language background of Xianju Wu. The analysis through partonomy reveals that Xianju Wu is a disyllabic language, leading to the hypothesis that Xianju Wu has substrate influence from the non-sinitic language family due to its morphological structure and phonetic connections with Min. With regard to semantic changes in Xianju Wu, apparent-time method can be an effective way to analyze the current changes. These analyses cannot be completed without a fairly complete collection of body lexemes within Xianju Wu. The collection process is illustrated in the following chapter.

CHAPTER 3: STUDY DESIGN

A fundamental goal of the study is to collect body lexemes in Xianju Wu. A fairly complete collection of body lexemes is the basis of the study. This study conducted in-person surveys in Xianju County in August 2019. Chapter 3 will demonstrate the preparation of the in-person surveys and elicitations, the process of the data collection, and the questions I encountered during data analysis.

3.1 Participants

In April 2019, I and my colleague Victoria Johnston applied for and received IRB approval to collect data from Xianju Wu speakers in Xianju County, China. Altogether, 6 speakers were recruited. All speakers were from Shang Jiang Yang village or a neighboring village. 3 of them were from the same family. All speakers spoke Hengxi dialect, which is an dialect spoken in a western basin of the county. Speakers were aged at 30s, 50s, 60s, 70s and 80s. One of the speaker from 30s group left the elicitation due to personal issues, so recording stopped and another speaker in their 30s was interviewed. The data analyzed in the present study was taken from the elicitations of these 5 speakers.

Two speakers of the 70s and 80s groups were uneducated with Xianju Wu as their only native language. The 60s speaker had a middle-high school education level and had received Mandarin education for around 8 years. The 60s speaker moved out of Wu speaking areas for years and was moving around different places. The 50s and 30s speaker both had college degrees with Mandarin being the language they used during work. All in all, two speakers spoke only

Xianju Wu while three speakers spoke both Xianju Wu and Mandarin. Different language backgrounds resulted in some vocabulary variations. The present study chose to adopt the most used vocabularies among the speakers for analysis.

Before elicitations started, speakers were asked to fill out a questionnaire to provide basic demographic information as well as their education history, residential history and professions. To introduce the present study to the participants, I read a recruitment script and distributed consent forms clarifying what participation in the study meant. The anonymity of the study was emphasized. No personal information would be disclosed during the process of the study.

The elicitation started by handing the speaker colored pens or crayons and writing an identifier for the speaker at the top of the sheet with the picture in Figure 2. The researcher of the study had to help the 70s and 80s speakers write down the identifiers due to their incapability of writing.

3.2 The Elicitation Process

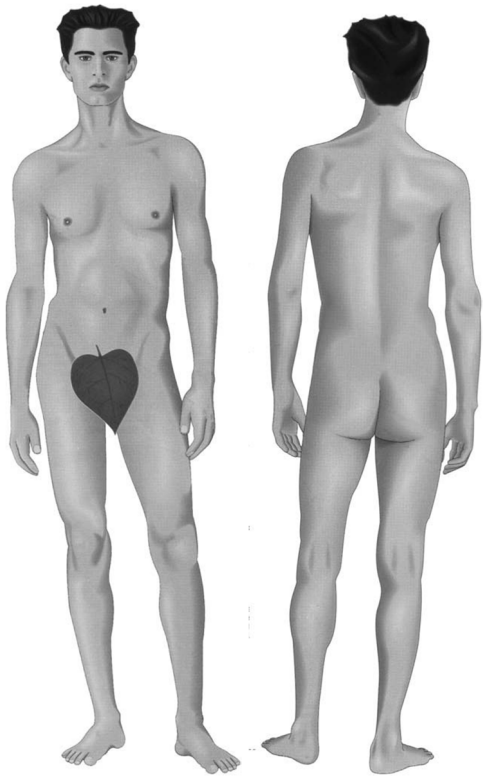


Figure 2: The picture used in the elicitations

The elicitations started by presenting the stimuli as shown in Figure 2, asking speakers for the most familiar body terms such as ‘arm’, ‘leg’, ‘head’, and ‘back’, to name a few. Questions were asked such as “Where is your his/her arm/leg/head/...?” or “What would you call this part” (by pointing at my body) or “When you say arm/leg/head/... where on the picture are you referring to? Where does arm/leg/head/ start or end?” For the two speakers who were uneducated and could not use a pen, I asked them to tell me about the reference scope of given body terms. I labeled the part and asked them, “Is this the part that you are referring to?” For those who were educated and were able to use pens by themselves, questions were asked such as “Can you tell me where his/her arm/leg/head/ is? Please color them.” The elicitations were done for a fairly

complete collection of body lexemes. Consequently, all the lexemes collected in the elicitations were sorted into columns in accordance with speaker identities as is listed in Appendix C.

Several lexemes were unknown to the speaker in their 60s. This may due to the residency history of the speaker, since the speaker was continuously moving around areas outside of Wu speaking regions. The lack of data from the 60s speaker raised problems when comparing vocabulary choice between age groups. A 40s age group is also missing from this study and younger speakers such as those in their 20s or 10s are desired in further studies. Some words are featured with significant differences among various age groups. The lack of consistency led to the difficulty of selecting words for analysis.

Nevertheless, the present study is able to analyze hierarchical ranks and lexical structures from the existing lexeme collections as well as able to disclose part of age variations with regard to lexical structure and vocabulary choice. Words selected for lexical structure studies in this research are those with the highest repetition within the speakers as the corresponding body terms. For example, as for the word 'eyebrow', the speaker at their 80s uses the word *nga pi mao*, but the other four speakers are using the word *nga mi mao*, the study thus takes the word *nga mi mao* as the corresponding word for 'eyebrow'. For the convenience and consistency of references, the study substituted IPA transcriptions into Romanized characters. The substitutions are attached as Appendix B. To assess the data in terms of the apparent-time method, the body lexemes collected during the elicitations are arranged by 5 age groups including speakers in their 80s, 70s, 60s, 50s, and 30s. The collected spreadsheet is listed as Appendix C. The Appendix C

spreadsheet shows how different age groups choose various words to deliver the same semantic meanings. The data analysis for the present study will begin with analysis of hierarchical ranks and lexical structures of Xianju Wu.

CHAPTER 4 LEXICAL STRUCTURE OF THE NOMENCLATURE OF BODY LEXEMES

The human body, as a biological object, presents mechanisms of domains and ranking categories. Chapter 4 will first look into the lexical structure of the nomenclature of body terms through the hierarchical ranks of body lexemes of Xianju Wu. In terms of levels, three word categories can be analyzed. With the understanding of word categories, I will analyze some basic lexical structures of primary lexemes.

4.1 Partonomy levels

This section will begin the analysis of the nomenclature lexical structure with the examination of hierarchical ranks from the perspective of partonomy. By using the method of partonomy as is discussed in Section 2.3, the present study finds out the domains and ranking categories of Xianju Wu, forms a hierarchical system of one or more labeled partons, each of which is posed by an entity which is not a parton of that partonomy. Each of the lexeme put into the level is determined by its relationship to other lexemes from a higher level. Take the levels from mouth parts as an instance, *keo yie* 'tongue' being less specific *than keo yie deo* 'tongue tip', but more specific than *keo djü* 'mouth'. Thus, *keo yie* occurs on a level immediately above *keo yie deo*, and below *keo djü*.

keo djü <u>mouth</u> (level 2)

a. keo djü dai <u>mouth bag</u> (level 3)

b. keo yie <u>tongue</u> (level 3)

    i. keo yie deo <u>tongue tip</u> (level 4)

ii. keo yie jin frenulum linguae (level 4)

When a lexeme is determined to be placed to one level, it is directly subordinate to the lexeme from a higher level, but is contrast to a lexeme from the same level. Therefore, because *keo djü dai* 'mouth bag' and *keo yie* are subordinate to *keo djü*, they occur on a level immediately below *keo djü*, in addition the two words *keo djü dai* and *keo yie* are contrast with each other as being at the same level.

Hence, in Xianju Wu, each lexeme within levels has two relationships: (1) it belongs to a specific level (2) it is subordinate to a lexeme of the level directly above it. [12] Only lexemes from the highest level do not contain the second relationship as they do not subordinate to any other lexemes. Brown et al. asserts that The Whole is found on the first levels (Level 0) of a partonomy, The Whole is not a parton. In Xianju Wu *seng gwoh deo* 'body' and *wenh* 'soul' are two lexemes not subordinate to any other lexemes, the two lexemes possess the characteristic of being The Whole. Thus, the first level (Level 0) is combined by the two lexemes: *seng gwoh deo* 'body' and *wenh* 'soul'. Level 1 is made up of the four main sections of the body: *deo* 'head', *sen gwoh* 'trunk', *sjou* 'arm/hand', and *djeh* 'leg/foot'. This division may indicate that Xianju Wu speakers conceptualize the human body into four main sections which are head, trunk, arm/hand and leg/foot. Level 2 shows the parta subordinate to the four main sections. For example, *teo* 'head' has 12 parta on Level 2. As the level goes lower, the lexemes refer to more specific places that are directly subordinate to the lexemes from higher levels. The relationship of subordinate ranks in Xianju Wu end up with five hierarchical levels in depth (Level 0-Level 4). An example of five hierarchical levels is shown in (2).

[12] I first came upon the methodology through the work of Stark (1969)

(2) Five hierarchical levels

1. seng gwoh deo body (level 0)

    a. deo head (level 1)

        1. deo jin neck (level2)

        2. lao wu deo the top of the head (level2)

        3. ng two ears (level2)

            a. ng two wang tragus (level 3)

            b. ng two deo ear upper part (level 3)

            c. ng two cü earlobe (level 3)

        5. sie nao upper front head (level2)

        6. nga gwoh deo forehead (level2)

        7. süih tong temple (level2)

        8. mie tsie gwoh cheek (level2)

        9. keo djü mouth (level 2)

            a. keo djü dai mouth bag (level 3)

            b. keo yie tongue (level 3)

                i. keo yie deo tongue tip (level 4)

                ii. keo yie jin frenulum linguae (level 4)

These partial relationships were discovered by two methods: elicitations and the nomenclature. Some words have been tested during elicitations, questions like "do you think A belongs to B?" is asked to speakers. For example, *deo jin* 'neck' has been tested in the question "do you think *deo jin* belongs to the head?" Unfortunately, the researcher did not conduct every words in the

elicitation concerning with partial relationships. However, nomenclature discloses the most subordinate relations through the terminologies. For example, because *keo djü dai* is formed by adding an addendum after *keo djü* to refer to a more specific place than *keo djü*, therefore, *keo djü dai* is located on Level 3, directly subordinate to *keo djü*, which is on Level 2. The subordinate relationship disclosed by nomenclature will be further discussed in the following section.

4.2 Morphology

On the basis of the five hierarchical levels, this section will further categorize the body lexemes of Xianju Wu into primary lexemes and secondary lexemes. Moreover, based on the lexical categories, a general lexical structure pattern can be given out. Berlin et al. (1973:215) have devised the two terms 'primary lexeme' and 'secondary lexeme'. Brown (1976:403) describes the definition of secondary lexemes in the following way: "polylexemic labels consist of a lexeme and another constituent indicating the form superordinate to that taxon […] A human parton will be labeled by a polylexemic expression consisting in a lexeme and another constituent which marks a parton immediately possessing it. When a parton is so labeled, the label is referred to in this project as 'secondary lexeme.'"

Morphologically, a word in Xianju Wu may consist of several forms. It may consist of primary lexemes (two bound roots: e.g. , *koe dju* 'mouth', lit: *koe* 'mouth' *dju* 'mouth') referring to the most general and basic body forms; secondary lexemes containing heads and addendums (compound words, prepound plus postpound, e.g. *koe dju sen* 'lip', lit: *koe dju* 'mouth-mouth', *sen* 'lip'); or phrases (e.g. *siou jia djog sen* 'the center of the palm', lit: *sjou* 'hand', *jia* 'palm', *djog* 'center' *sen* 'heart') .

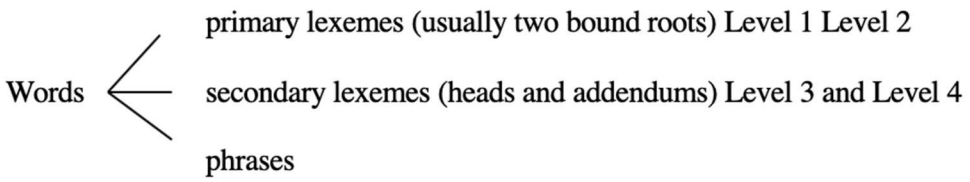


Figure 3: Word forms of body terms in Xianju Wu

Each kind of lexeme occurs on a specific level within its domain. According to Brown, primary lexemes universally occur on second and third levels of taxonomies, while secondary lexemes label taxa on the third, fourth and fifth levels. In Xianju Wu, primary lexemes are usually two-syllable lexemes located in either secondary level (Level 1) or third level (Level 2) serving as the highest hierarchies in the rank system. Secondary lexemes are usually three-syllable lexemes (with a root plus suffix) located in the lower Level 3 or Level 4. There are also phrases in Xianju Wu body lexemes. Phrases are usually longer than three morphemes, for example, *siou jia djog sen* 'the center of the palm'. The lower the rank, the more complex the words. Primary lexemes are usually the heads of secondary lexemes. Secondary lexemes are formed by a primary lexeme plus an addendum, referring to a specific location of the body.

This kind of morphological structure implies a subordinate order when applying to domains and hierarchical rankings. We will take the partonomy levels of *keo djü* 'mouth' as an example to illustrate the primary lexemes, secondary lexemes, and their relationships in Xianju Wu. The partonomy levels of *keo djü* 'mouth' are listed in (4).

(1) Partonomy levels of *keo djü* 'mouth'

deo <u>head</u> (level1)

1. keo djü mouth (level 2)

    a. keo djü dai mouth bag (level 3)

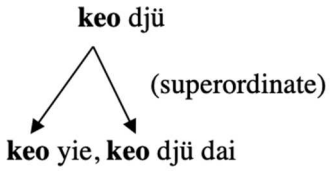
    b. keo yie tongue (level 3)

        i. keo yie deo tongue tip (level 4)

        ii. keo yie jin frenulum linguae (level 4)

According to the categories defined by Berlin et al. (1973:217), *deo* 'head' from Level 1 can be defined as an 'unproductive primary lexeme', since it is a simple expression which is unanalyzable morphologically. *keo djü* 'mouth' from Level 2 can be defined as a 'productive primary lexeme' since it has one constituent 'keo' indicating a category superordinate to that of the form. One word from Level 3 (*keo yie* 'tongue') and two words from Level 4 (*keo yie deo* 'tongue tip' and *keo yie jin* 'frenulum linguae') are secondary lexemes. They are identified by the constituent 'keo' indicating that they are subordinate to the form *keo djü* 'mouth'. In other words, the primary lexemes *keo djü* 'mouth' contain the ***keo*** 'mouth' morpheme which is superordinate to ***keo*** *djü dai* 'mouth bag' and ***keo*** *yie* 'tongue.'

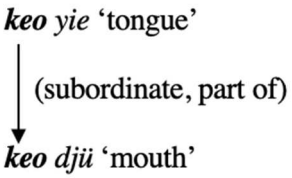
(2) Superordinate relationship



Because secondary lexemes can be divided into a head and an addendum, the word *keo yie* 'tongue' can be identified with the head *keo* 'mouth' and the addendum *yie* 'leaf.' The head parts are defined as the constituent lexemes of a taxon or a parton's label, which also labels

respectively the immediately superordinate taxon or parton ‘keo’ (Brown, 1976:403). The addendum ‘yie’ is a constituent element serving to modify in some manner the head expression. Therefore, the terminological structure *keo yie* ‘tongue’ (lit: *keo* **‘mouth’** *yie* ‘leaf’) discloses that the tongue is subordinate to the mouth morpheme *keo*. The terminological structure also discloses that tongue is a **part of** mouth.

(3) Subordinate relationship



Secondary lexemes from lower levels, *keo yie deo* ‘tongue tip’ and *keo yie jin* ‘frenulum linguae,’ can also be divided into the head *keo yie* and the addenda *deo* and *jin*. The shared head *keo yie* discloses that they are subordinate to the body part *keo yie* ‘tongue’. This affiliation reveals that the ‘tongue tip’ and ‘frenulum linguae’ lexemes from Level 3 and Level 4 are part of the ‘tongue’ lexeme from Level 2.

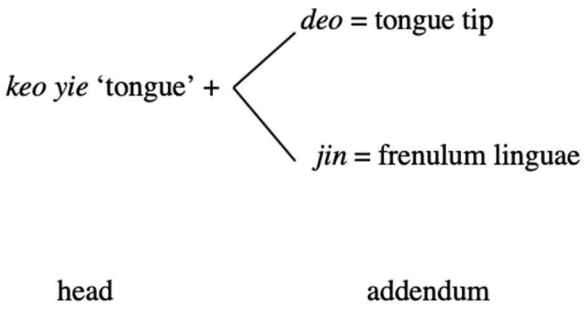


Figure 4: Word-structure of *keo yie deo* and *keo yie jin*

The morphological analysis of terminologies illustrates the subordinate system in the language: primary lexemes with two root morphemes always point to a general location, while secondary lexemes (a head, or a primary lexeme plus an addendum) point to a specific location. The head lexeme always points to the general location on the body, while the addendum goes into detail about the specific body parts. For example, in the secondary word *nga jin mao* 'eyelash' (lit: *nga* 'eye' *jin* 'eye' *mao* 'hair'), the primary lexeme *nga jin* 'eye' refers to the general location and the addendum *mao* 'hair' shows the detail of the term. In the other words, it is 'hair of the eye' that means eyelash. Therefore, the following pattern can be deciphered as follows:

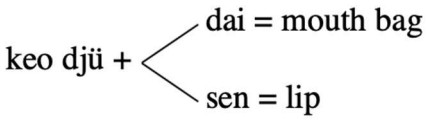
> General location (head) –specific location (addendum).
> e.g. *pi deo lia* 'nose bridge' (lit: *pi deo* 'nose-head' *lia* 'beam'); *nga jin mao* 'eyelash' (lit: *nga jin* 'eye-eye' *mao* 'hair')

4.3 Disyllabic lexical structure

This section asserts that the primary lexical structure of Xianju Wu is disyllabic bound structure. In addition, the section utilizes the comparative study between Xianju Wu and Chinese (Mandarin) to assert this primary syllable structure of Xianju Wu distinguishes from Chinese , that the lexical structure of Xianju Wu may not have been interfered by Chinese .

Different from what Brown et al.'s definition of the secondary lexeme as **one lexeme** plus another constituent to form the polylexeme, the secondary lexemes in Xianju Wu are mostly formed by **two bound syllables** plus other constituents. This special lexical structure can be

accounted by examples from Figure 4. In Figure 4, *keo yie deo* ‘tongue tip’ and *keo yie jin* ‘frenulum’ are sharing the same head *keo yie*. Semantic meanings are changing simply by adding different addendums after the primary lexeme *keo yie*. Another example can be secondary lexemes such as *keo djü dai* ‘mouth bag’ and *keo djü sen* ‘lip’, as the two words are sharing the same head (primary lexeme) *keo djü* ‘mouth’. Therefore, the head lexeme (primary lexeme) is a bound disyllabic structure since a large number of secondary lexemes are trisyllabic words with different addendums adding after primary lexemes rather than deleting any syllable of the primary lexeme to form a new word.



A hypothesis can be made as follows:

Hypothesis 2: The basic lexical structure of Xianju Wu body terms is disyllabic bound structure, where bound refers to the fact that the two syllables cannot be separated. This disyllabic structure of Xianju Wu distinguishes from Chinese .

A The fact that the lexical structure of body terms in Xianju Wu are disyllabic bound structure can be attested through the comparative study with Chinese (Mandarin) by the comparison of syllable numbers and contextual contrast.

With regard to the syllable numbers, the majority of body terms in Chinese are disyllabic, while the majority of body terms in Xianju Wu are trisyllabic words that are consist of **disyllabic primary words plus an addendum**. Among the body terms of Xianju Wu collected

in this study there are a total 104 words. Of the words, 2 word are monosyllabic, 26 are disyllabic, and 39 are trisyllabic. The details are as follows:

Table 12: Syllable number of the body terms in Xianju Wu

Length	1-syllable	2-syllable	3-syllable	4-syllable and phrases
Count	2	26	39	37
%	1.9%	25%	37.5%	35.6%

As shown above, trisyllabic words are the most often used category in the body terms of Xianju Wu as trisyllabic words account for 37.5%, which is the highest frequent category of word among body terms of the language. Disyllabic words are also in dominant position with 25% proportions. But monosyllabic words only consist of 1.9%.

Different from Xianju Wu, the majority of the body terms in Chinese are disyllabic words. This study lists a total of 163 body terms in Chinese based on the 7th edition of the *Modern Chinese Dictionary* (2017) [13] and *A Thematic Dictionary of Contemporary Chinese*.[14] Of the list, disyllabic words consist of 67.3%, trisyllabic words only consist of 10.5%. The details are shown in Table 13.

[13] Chinese: 《第 7 版现代汉语词典》dì qī bǎn xiàn dài hàn yǔ cí diǎn (2017)

[14] The list of body terms in Chinese is available at Appendix E.

Table 13: Syllable number of the body terms in Chinese

Length	1-syllable	2-syllable	3-syllable	4-syllable and phrases
Count	33	109	17	3
%	20.4%	67.3%	10.5%	1.9%

Of all the words in Chinese , the majority are disyllabic, and many of them are monosyllabic. Neither trisyllabic words nor quadrasyllabic words are in dominant position.

The high frequency of trisyllabic words in Xianju Wu may be explained by the fact that trisyllabic words in Xianju Wu usually consist of **disyllabic bound words plus an addendum**. Because most disyllabic words are bound lexemes, instead of substituting any syllables of the original structure, addendums can only be added after the disyllabic structure, thus forming a large number of trisyllabic words. But with regard to Chinese, disyllabic lexemes are most often compounds that are flexible at word length, one of the syllables are always deleted when a new addendum is added, thus forming another disyllabic word. This differences between Xianju Wu and Chinese can be explained by the following examples:

(4) Trisyllabic terms in Xianju Wu and disyllabic terms in Chinese

Xianju Wu:

a. keo djü sen	b. nga jin zi	c. pi deo lia
mouth-mouth-lip	eye-eye-SUFFIX'	nose-head-beam
'lip'	'eyeball'	'nose bridge'

Chinese:

a. zui chun	b. yan zhu	c. bi liang
mouth-lip	eye-ball	nose-beam
'lip'	'eyeball'	'nose bridge'

Take the two words from (4a) 'lip' as an example. In Xianju Wu, the words of mouth is *keo djü*. *keo djü* 'mouth' and is a disyllabic primary word from Level 2. When forming the more specific body term 'lip', this language keeps the whole disyllabic lexeme *keo djü*, but adds an addendum *sen* 'lip' to form a trisyllabic secondary word *keo djü sen* 'lip', referring to a more specific part of mouth. Nevertheless, in Chinese, mouth is *zui ba*. When forming a more specific body term 'lip' as is listed in (4a), Chinese takes one syllable *ba* out of the original disyllabic lexeme and adds a new addendum *chun* 'lip' to form another disyllabic word *zui chun* 'lip'. In the other words, instead of adding the addendum right after the original disyllabic words, Chinese usually takes out one of the syllables to combine with another morpheme, thus forming a new disyllabic words. This process may explain the reason why most body terms in Chinese are disyllabic (67.3%).

The fact that two-syllable lexemes in Xianju Wu are typically bound morphemes can be further attested by applying words into contexts. In Xianju Wu, morphemes of disyllabic words cannot be used individually even if the morphemes duplicate the same semantic meanings in one lexeme. For example, even though the literal meaning of *keo djü* 'mouth' is 'mouth mouth', it being grammatically incorrect to delete any of the morphemes in the lexeme. The semantic repeating feature of the morphological pattern also shows up in Chinese, where some disyllabic

lexemes are formed by two morphemes containing the same semantic information. But many Chinese words have both a monosyllabic form and a disyllabic form. One of the two morphemes can always be taken out to express the same semantic meaning (Duanmu 1999:5). The details can be disclosed in the following examples:

(5) Free morphemes and bound morphemes (Xianju Wu-Chinese)

a. Chinese:	b. Xianju Wu:
ta de **ya/ya chi** zhen bai	gai ge **ngo ts'i** zen be
he of teeth very white	he this teeth teeth very white
'his teeth are very white'	'his teeth are very white'

In Chinese, because both *ya* and *chi* means 'teeth', resulting in the fact that one of the two morphemes in the disyllabic word 'ya chi' is semantically redundant (the literal meaning of the lexemes is 'teeth teeth'). Therefore, the morpheme *ya* can be taken out from *ya chi* 'teeth' to represent the semantic meaning 'teeth'. One morpheme *ya* from the disyllabic word *ya chi* is grammatically correct to represent 'teeth'. Duanmu mentions that Chinese is probably currently undergoing a process of morphologization whereby some historically free words are becoming bound roots and affixes, but this is still at an initial stage (1999:39). This claim also explains the reason why large proportion of body terms in Chinese are monosyllabic (20.4%). On the other hand, none of the morphemes in the disyllabic words of Xianju Wu are redundant despite the fact that the morphemes repeat the semantic meaning. When saying the sentence 'his teeth are very white', it is only grammatically correct to say 'teeth' with the two-syllable lexeme *ngo ts'i* (lit: *ngo* 'teeth', *ts'i* 'teeth') in Xianju Wu. In the other word, *ngo* and *tr'i* cannot be used individually

to represent the word ‘teeth’ due to its linguistic trait of being bound morphemes, even though the two morphemes are repeating the same semantic meaning. The statement also explains the reason why seldom body terms in Xianju Wu are monosyllabic (1.9%).

This bound-morphemic feature also accounts for the reason why trisyllabic words are the most frequent words in Xianju Wu body terms. As mentioned in Section 4.2, secondary lexemes are usually trisyllabic lexemes that are combined by a primary lexeme plus an addendum referring to a specific location of the body. Because most morphemes in primary lexemes are disyllabic bound morphemes (25%), they cannot be deleted or substituted even though the morphemes are repeating the same semantic meanings, and addendums can only be added to the lexemes, resulting in a large number of trisyllabic words as secondary lexemes (37.5%). In other words, though trisyllabic words are the main word-structure of body terms in Xianju Wu, these trisyllabic words are essentially based on disyllabic lexemes.

Hypothesis 2 can therefore be proven through two findings. First, none of the morphemes in the two syllables are redundant. When referring to more specific places, instead of deleting morphemes, addendums will be added after the two syllables to form trisyllabic lexemes. Second, none of the morphemes in the two syllables can be separated despite the fact that they sometimes repeat the same semantic meanings. Hence, it is of high possibility that the primary lexical structure of Xianju Wu body terms consist of disyllabic bound morphemes. The special lexical of Xianju Wu that distinguishes Chinese may reveal the fact that the lexical structure of Xianju Wu has not been interfered by Chinese yet.

4.4 ‘arm’ and ‘leg’, ‘hand’ and ‘foot’

Another feature in the nomenclature of Xianju Wu body lexemes is that the nomenclature of hand and foot parts seems to have a certain symmetry in the distribution of constituents. For

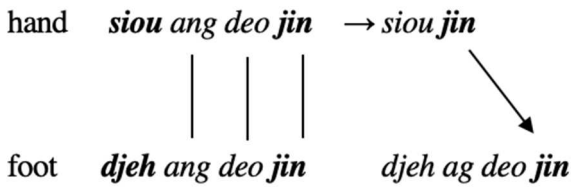
example, the word *siou wa gwa* ‘elbow (front)’, has a matching counterpart of the leg *djeh wa gwa* ‘knee (back)’. Some speakers have a variant word for *siou **wa gwa*** ‘elbow(front)’. Instead, they say *siou **pa pai*** ‘elbow (front)’ (30s and 80s speaker). Interestingly, for those speakers who use this variant word, they also have a variant word for the leg that matches with the counterpart word of the hand - *djeh **pa pai*** ‘knee (back)’. Therefore, it is probable that this kind of symmetry of hand and foot also shows up consistency as shown in (10).

(10) Symmetry of hand and foot

hand	siou wa gwa	siou pa pai	‘elbow (front)’
foot	djeh wa gwa	djeh pa pai	‘knee (back)’

Another example to support this hypothesis is *siou jin* ‘wrist (front)’ and *djeh ag deo jin* ‘the connecting part between leg and feet’. The literal meaning of *djeh ag deo jin* is “the neck of the foot” (lit: *djeh* ‘leg’ *ag* N/A *deo* ‘head’ *jin* ‘neck’). As the counterpart word, *siou jin* ‘wrist (front)’ is “the neck of the hand” (lit: *siou* ‘hand’ *jin* ‘neck’). Upon the first time hearing the word *siou **jin***, it was difficult to discern the literal meaning of *jin* until I saw the counterpart word *djeh ag **deo jin***. Because the two words should match with each other, I realized that *jin* should be the same word in *deo **jin***, which means ‘neck’. There exists some discussion about whether the original form of *siou jin* ‘wrist(front)’ also used to form as its counterpart word ***djeh ag deo jin***. In the other words, the word may have been formed as ***siou ag deo jin*** originally, the word later experiencing changes and becoming abbreviated to the modern form as ***siou jin***. This process is shown in (11).

(11) Abbreviation of *siou ang deo jin*



The same kind of symmetry also appears in the language Quechua. As stated by Louisa R. Stark, the hierarchy of the extremities on the lower Levels seems to be a symmetry in the distribution. "The use of identical lexemes may indicate that the Quechua speaker conceptualizes the hand and foot as being similar, if not identical, entities" (1969:8). The conceptualization may also apply for Xianju Wu speakers. The symmetry between the hand parts and foot parts may reveal that Xianju Wu speakers conceptualize the hand and the foot as being similar entities.

The labels of finger and toe also show a certain symmetry. Even though finger and toe are labeled with different head roots, these two secondary lexemes share the same partonomic addendum. In Xianju Wu, *siou zi (mu) deo* 'finger' and *djeh zi (me)* 'toe' share the same addendum *zi (mu) deo*. They are only different with respect to the head parts. The head *siou* 'hand/arm' plus the same addendum *zi (mu) deo* shows that it is the finger of hand. The head *djeh* 'foot/leg' plus the same addendum *zi (mu) deo* shows that it is the toe of foot.

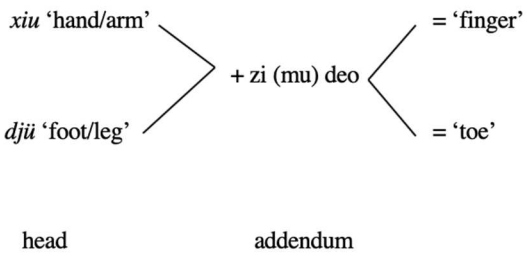


Figure 6: Symmetric distribution of 'finger' and 'toe'

As shown above, the speakers in Xianju Wu do not differentiate between the words ‘foot’ and ‘leg’, ‘hand’ and ‘arm’. That is to say, ‘foot’ and ‘leg’ are labeled as the same word, ‘hand’ and ‘arm’ also sharing the identical label. Witkowski and Brown (1985:198) observed around 190 languages of the world and noted that around “50 have hand/arm polysemy, a frequency of about 46 % on a worldwide basis. 42 languages have foot/leg polysemy, a frequency of about 39% on a worldwide basis”. Along these lines, Xianju Wu is a language that has both hand/arm and foot/leg polysemes.

According to Brown’s Principle 7 (1976:405), if the primary lexeme labelling ‘foot’ is the same as that naming ‘leg(and foot)’, then the former parton may occasionally possess an alternate label which is a secondary lexeme. “Frequently, when ‘hand’ or ‘foot’ is reported as labeled, it is described as named by the same unanalyzable primary lexeme labeling ‘arm (and hand)’ or ‘leg (and foot)’ respectively”. It is true that in Xianju Wu even if the primary lexeme *djeh* ‘foot’ is the same as that naming *djeh* ‘leg’ there is an alternate lexeme for ‘foot’, which is *ze djeh* ‘foot’. As for the hand/arm, there is also an alternate lexeme for *siou* ‘hand’, which is *ze siou* ‘hand’.

4.5 Discussion and Conclusions

This chapter evaluates body lexemes into five levels with the definitions of Brown’s partonomy. Level 1 and Level 2 provide primary lexemes, which are commonly two bound morphemes. Level 3 and Level 4 see the secondary lexemes, which usually consist of primary trisyllabic words plus addendums. Lower levels are quadrisyllabic words and phrases. These polylexemic labels consist of a head and another constituent indicating the superordinate or subordinate relations to taxa. Two hypotheses are stated and proven. Hypothesis 4 says that the lexical trait involving primary lexemes of Xianju Wu being two bound roots can likely be proved

with comparison to Chinese. In addition, Xianju Wu also presents a symmetric pattern of the nomenclature of ‘hand/arm and foot/leg’. In the following chapter, some ongoing semantic changes will be checked.

CHAPTER 5 THE INTERNAL RECONSTRUCTION THROUGH SEMANTIC EXTENSIONS

Polysemy plays an important role in lexical change. Metaphorical extension is one of the significant sources of new meanings. A metaphor presents a structural relationship from one (usually more concrete) domain to another (usually more abstract) domain (Bybee, 2015: 135). The metaphors and metonymies disclose some ongoing semantic changes of the language. Chapter 5 will thus examine the semantic changes of the nomenclature of body terms in Xianju Wu by discussing metaphors and metonymies in the nomenclature of body terms in the language. Section 5.3 specifically suggests three metaphorical associations with the cosmological and geographical of the speakers in this language. Later, Section 5.4 will utilize apparent-time method to deliver a snapshot of the lexical semantic changes occurring in the language among speakers from different age groups.

5.1 Metaphors and metonymies

As mentioned above, metaphors and metonymies potentially present the new lexical meanings. Through the analysis of metaphors and metonymies of nomenclature, the ongoing semantic changes is likely can be disclosed. Xianju Wu applies metaphors and metonymies in the nomenclature of the body lexemes. The rhetoric concepts can be categorized into intra-field metaphor, inter-field metaphor, and intra-field metonymy. This chapter will analyze the metaphors and metonymies implemented in the nomenclature of the language. Matisoff developed intra-field and inter-field concepts with regard to semantic association and shift of body-part terms. Intra-field semantic changes are body-parts moving associatively from part to

adjacent part of the human anatomy. Inter-field changes are based upon some similarity in shape, color, texture, or general appearance between a part of the human body and an object elsewhere of human body (1978:176-189). The two concepts can be further classified according to whether the meanings are associated with metonymy or metaphor. According to the definitions, metaphors and metonymies of body lexemes in Xianju Wu can be divided into intrafield metaphor, interfield metaphor and intrafield metonymy. Interfield metonymy has not been discovered by this research.

Table 14: Metaphors and metonymies in the body terms of Xianju Wu

Intrafield metaphor	Interfield metaphor	Intrafield metonymy/synecdoche
eye→knee djeh kwai deo nga (lit:foot-trunk-head-eye) **mouth→armpit** sjou keo wo (tong) (lit:arm-mouth-nest-cave)	**drum→cheek** mie tsie gwoh (lit: face-cheek-drum) **beam→nose bridge** pi deo lia (lit: nose-head-beam) **string→upper part of the eye** xia yie (lit: upper- string) **leaf→tongue** keo yie (lit: mouth-leaf) **stem→frenulum linguae** keo yie jin (lit: mouth-leaf-stem) **stump→elbow(back)** sjou zag deo (lit: hand-stump-head)	**eye→forehead** nga gwoh deo (lit: eye-corner-head) **eye→eyebrow** nga mi mao (lit: eye-eyebrow-hair)

neck→the connecting part between leg and foot djeh ag deo jin (lit: foot-/ɑŋ/-head-neck) **waist→the suken part of the sole** djeh yao jiao (lit: foot-waist- bridge)	**stump→ankle** djeh zag (lit: foot-stump) **bag→mouth bag** keo djü dai (lit: mouth-mouth-bag) **nest→the lower space between breasts** sen wo kog (lit: heart-nest-hole) **bridge→the sunken part of the sole** djeh yao jiao (lit: foot-waist- bridge) **spoon→sphenoid** va j'iaw gwoh (lit: meal-spoon-bone) **door→the connecting part between fingers** **nest→the connecting part between fingers** siou zi wo meg (lit:hand-finger-nest-door) **nest→armpit** **cave→armpit** sjou keo wo (tong) (lit: arm-mouth- nest-cave) **crown→dental ridge** ngo gwa nün (lit: tooth-crown-meat) **beam→collarbone** wag lia gwoh (lit:horizontal-beam-bone)

According to the Table 14 there are 4 intrafield metaphors, 17 interfield metaphors and 2 intrafield metonymies. It is apparent that interfield metaphor is the most common type of semantic change in Xianju Wu. Next to interfield metaphor, intrafield metaphor is the second

most frequent type of semantic change. Intrafield metonymy has the least frequency among the three semantic changes. The frequency order is shown as follows in Figure 7:

Interfield Metaphor	>	Intrafield Metaphor	>	Intrafield Metonymy
17		4		2

Figure 7 The hierarchical ranks of three semantic changes

The hierarchical ranks of various semantic change types in Xianju Wu are different from Hypothesis 1 devised by Wilkins (1996: 274):

Hypothesis 1: intrafield metonymic changes > interfield metonymic changes > interfield metaphor changes > intrafield metaphoric changes

Contrary to the hierarchical ranks in this hypothesis, Mora-Marín et al. (2019) find in lexical data from Mayan that interfield metonymy and interfield metaphor trade places. A new model stated as Hypothesis 2 is thus presented: intrafield metonymy > interfield metaphor > interfield metonymy > intrafield metaphor (2019:28). Different from both hypotheses, the body lexemes of Xianju Wu show the ranks in Figure 7, where the frequency of metaphors is more than that of metonymies and the frequency of interfield changes is more than that of intrafield changes. In other words, in Xianju Wu the interfield metaphor is the most frequent type of semantic change, while intrafield metonymy is the least frequent type of semantic change.

Hypothesis 4: The frequency rank of changes in Xianju Wu are different from Wilkins' (1996) model for tendencies of change in the domain of parts of the body.

Most interfield metaphors are made with associations according to similarity in shape. A semantic association may be made on the basis of general shape or appearance is the main type of inter-field semantic association (Matisoff 1987:183). For example, the association of bridge

and the sunken part of the sole was made according to the shape of bridges. Traditional bridges in Xianju Wu territory are arched in the middle, concave at both ends. This bridge shape looks like the sole of a human's foot, which is also arched in the middle and flat at the toes and heels.

Two lexemes from inter-field do not have counterpart terms in English nor Mandarin: *keo djü dai* 'mouth bag' (lit: *keo* 'mouth' *djü* 'mouth' *dai* 'bag') and *sen wo kog* 'the lower space between breasts'(lit: *sen* 'trunk' *wo* 'nest' *kog* 'hole'). 'Mouth bags' are located inside of the oral cavity. Just as chipmunks hide food inside of their oral cavity, so there are similar mouth bag cavities inside of the human mouth where people can tuck food when speaking. *Sen wo kog* is the lower space between breasts, making an association between the shape of 'nest' and 'the lower space between breasts'.

As for the intra-field metaphor, most of these metaphors are also made the associations via shapes. But the adoption of the metaphor 'neck' within the body term *djeh ag deo jin* (lit: *djeh* 'foot' *ag* N/A *deo* 'head' *jin* 'neck') is associated via similarity to a relative position. Neck is a body part connecting head and trunk. The language speakers adopt this association to describe the connecting part between leg and foot, naming it as a 'neck of foot'.

There are two intra-field metonymies, both of them associated via anatomical adjacency. The term 'eyes' is used to name forehead *nga gwoh deo* (lit: *nga* 'eye' *gwoh* 'corner' *deo* 'head') and eyebrow *nga mi mao* (lit: *nga* 'eye' *mi* 'eyebrow' *mao* 'hair'). Both forehead and eyebrows are adjacent areas to the eyes. Based on the analysis of metaphors and metonymies used in the language, it is likely to further deduce a pattern of the morphological structure of body terms in Xianju Wu. This research concludes the basic morphological structure as Hypothesis 3: General location (head) –specific location (addendum).

In accordance with the morphological pattern, body terms with the use of metaphor or metonymy also start with a general location, continue with an addendum to describe specific location, an intra-field metaphor, an inter-field metaphor, and end with intra-field metonymy. The Hypothesis 3 of the morphological pattern can be further deduced as follows:

> General location – specific location (if any) – intra-field metaphor(if any) – inter-field metaphor (if any)

For example, *keo djü dai* 'mouth bag' starts with a general location 'mouth' and ends with an inter-field metaphor 'bag'. Other examples include *keo yie* 'tongue' (lit: *keo* 'mouth' *yie* 'leaf'), *djeh zag* (lit: *djeh* 'foot' *zag* 'stump'), *pi deo lia* (lit: *pi* 'nose' *deo* 'head' *lia* 'beam'), to name a few.

With regard to the order of metaphors and metonymies, two lexemes are able to prove the pattern order. The lexeme *djeh yao jiao* 'the sunken part of the sole' (lit: *djeh* 'foot' *yao* 'waist' *jiao* 'bridge') starts with a general location 'foot', continues with an intra-field metaphor 'waist', ends with an inter-field metaphor 'bridge'. The lexeme *siu keo wo tông* 'armpit' consists of a general location *xiu* 'hand/arm', an intra-field metaphor *keo* 'mouth', an inter-field metaphor *wo* 'nest', and another inter-field metaphor *tông* 'cave'.

5.1.1 A Case Study of 'head' and its semantic changes

The head is the most prevalent and important metaphor in Xianju Wu body lexemes. There are so far 19 body lexemes containing the morpheme *deo* 'head'. They are:

(12) Lexemes contain the morpheme *deo* 'head'

deo head (level 1)

deo jin neck (level 2)

lao wu deo the top of the head (level 2)

ng two deo ear upper part (level 3)

nga gwoh deo forehead (level2)

keo yie deo tongue tip (level 4)

nga jin two deo/nga Jin tog/nga jin c'ön eye area (level 3)

pi deo nose (level2)

pi deo/pi deo jie nose tip (level 3)

pi deo lia nose bridge (level 3)

dzie gwoh deo/pa dzie shoulder (level2)

dzie gwoh deo cü/ pa dzie cü shoulder point (level2)

sjou zag deo elbow(back) (level2)

siou zi (mu) deo finger (level 3)

dwo zi (mu) deo thumb (level 4)

xiao mu zi deo little finger (level 4)

djeh kwai deo nga knee(front) (level2)

djeh ag deo jin the connecting part between leg and feet (level 3)

djeh zi (me) deo deo (level 3)

The 19 lexemes can be divided into three categories.

(13) *deo* means body part 'head' or head part:

deo head (level 1)

deo jin neck (level 2)

lao wu deo the top of the head (level 2)

(14) *deo* means 'the end':

ng two deo ear upper part (level 3)

siou zi (mu) deo finger (level 3)

dwo zi (mu) deo thumb (level 4)

djeh zi (me) deo teo (level 3)

xiao mu zi deo little finger (level 4)

(15) *deo* means 'the protruding areas':

nga gwoh deo forehead (level2)

keo yie deo tongue tip (level 4)

nga jin two deo/nga Jin tog/nga jin c'ön eye area (level 3)

pi deo nose (level2)

pi deo/pi deo jie nose tip (level 3)

pi deo lia nose bridge (level 3)

dzie gwoh deo/pa dzie shoulder (level2)

dzie gwoh deo cü/ pa dzie cü shoulder point (level2)

sjou zag deo elbow(back) (level2)

djeh kwai deo nga knee(front) (level2)

It is probable that the first category of *deo* as body part 'head' is the original meaning. Later, *deo* has experienced semantic changes, extending its meaning into category two and three to refer to 'the end' and 'the perturbating areas'.

According to Wilkins (1996:267), semantic change is the addition of a meaning to the semantic system or the loss of a meaning from the semantic system while the form remains constant. All semantic changes within a speech community involve polysemy at their beginning point or at their endpoint. The morpheme *deo* is probably finished the process of semantic extension and is now a polysemy. The semantic change process raised by Wilkins is stated as follows:

Table 15: Semantic change of 'head'

Time(T) :	T1		T2		T3
Form(F):	F1		F1		F1
	deo		deo		deo
Meaning(M):	M1	-	M1&M2	-	M2
	'head'		'head' & 'the end' & 'the protruding areas'		?

Wilkins also suggests that the development of polysemy typically involves extending a salience referent to low salience unmarked terms, for highly salient referents often expand to include less salient reference. The morpheme *deo* is experiencing the process of expanding its reference range from highly salient to less salient through metaphorical extension.

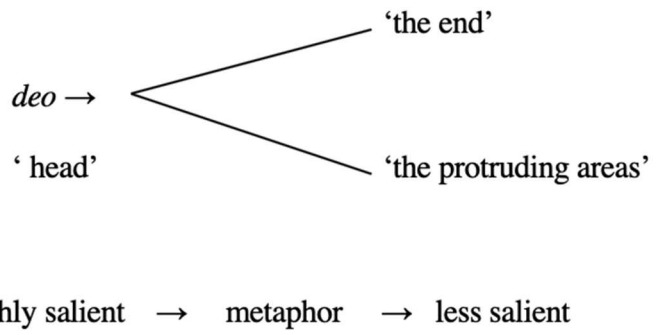


Figure 7: Reference range change of 'head'

Metaphorical extension is a source for new meanings for grammaticalizing constructions. A metaphor maps a structural relationship from one domain to another domain (Bybee, 2015:93). As for the semantic changes of *deo* 'head', it is expanding its meaning according to an association: association with the relative location of head to the whole body. Head is the end of body, and head is one of the most perturbating parts of body. Therefore, the lexeme *deo* is extending new semantic meanings via the two associations. Now, *deo* is a polysemy, and the expansion of its meaning belongs to intra-field metaphor.

5.1.2 Cosmography and geography in metaphors

There are other two body lexemes disclosing cosmographical and geographical concepts within the metaphors of the nomenclature of body terms. The lexeme describing lower back *khuwin djog* 'lower back' (lit: *khuwin* 'kun', *djog*?) is a good example to disclose the speakers' conception of cosmology. *Khuwin* is represented as *kun*[15] in Chinese, and according to *Shuowen Jiezi* [16] (lit: 'Explaining Graphs and Analyzing Characters')—an early-2nd-century Chinese

[15] Chinese: 坤

[16] Chinese: 說文解字

dictionary from Han dynasty—*kun,* or *khuwin* comes from the Eight Trigrams[17], it symbolizes 'ground'[18]. It is probably because 'ground' contains the features of 'low' or 'end' that the body part of lower back (the end of human back) is named as *khuwin*.

Another lexeme *eo khuwin* 'back' (lit: *eo* 'later') also contains *khuwin*. As for this term, it is probably because *khuwin* extended its meaning and started to represent the body part 'back', resulting in the lexical semantic changes of *eo khuwin* to mean 'back'. When someone is physically walking behind others, speakers will say *zeo* ***eo khuwin*** (lit: *zeo* 'walk'), the meaning is 'walking after someone's back'. Speakers also use *eo khuwin* to represent 'later' in time scale. To represent the time concept, *eo khuwin lai* (lit: *eo* 'later' *khuwin* 'kun' *lai* 'come') means 'I'll come later'. Conceptualizing the future scale 'later' as *eo khuwin* may disclose that Xianju Wu speakers tend to think 'future' is unpredictable and unseen. This might account for the reason why speakers adopt the view of 'after someone's back' as 'later' in the future.

As a counterpart to the 'ground' in the nomenclature of body terms, there is also a 'heaven' in body terms: *tie men deo* 'the sunken part on forehead'(lit: *tie* 'heaven' *men* 'gate' *deo* 'head'). Interestingly, according to *Shuowen Jiezi*, the word *tie* originally means 'top', specifically referring to 'human top'[19] instead of 'heaven'. It seems the word extended its meaning of 'human top' into cosmology to represent the highest point of the nature 'heaven'.

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[17] Eight Trigrams, or *Bagua* (Chinese: 八卦), are eight symbols used in Taoist cosmology to represent the fundamental principles of reality, seen as a range of eight interrelated concepts.

[18] Chinese: 天,颠也。...颠者,人之顶也。以为凡高之称。——《说文解字注》

Zuozhuan (Chinese: 左传) also states that *khuwin* means 'ground' or 'soil'. (Chinese: 坤，土也——《左传 庄公二十二年》)

[19] Chinese: 天,颠也。…颠者,人之顶也。以为凡高之称。——《说文解字》

Xianju Wu speakers' description of the forehead as 'the gate of heaven' may be influenced by these cosmological concepts. They probably conceptualize their body as cosmos, and in this body cosmos, forehead is the 'heaven' *tie*, the lower back being the 'ground' *khuwin*.

Besides cosmology, other lexemes may reveal the influence of geography on the nomenclature of body terms. One example is *mi bwo **j'iu** gwoh* 'the lowest point of back' (lit: *mi* 'tail', *bwo* N/A, *j'iu* 'mound', *gwoh* 'bone'). The book *Shuowen Jiezi* explains *j'iu*[20]: "one says that *j'iu* is to the name a geographical trait where all sides are high, but the center is low "[21]. Applying this explanation to the human body, it is obvious that the body term *mi bwo **j'iu** gwoh* takes the geographic feature *j'iu* to describe a lower point on the human lower back. This may show that Xianju Wu speakers also conceptualize their body as a geographical object. As Xianju County is a mountainous area, speakers would probably name 'the lowest point of back' after the geographical term *j'iu* 'mound'.

5.1.3 Discussion and Conclusions

Section 5.1 presents the metaphors and metonymies developed in the nomenclature of body terms of Xianju Wu. The metaphors and metonymies utilized in the nomenclature are categorized into 3 types: intrafield metaphor, interfield metaphor, and intrafield metonymy. Through the associations via shapes or relative positions, semantic changes happened with these metaphorical and metonymical extensions. However, different from Hypothesis 1 Wilkins' frequency ranks and Hypothesis 2 the frequency ranks updated by Mora-Marin et al., the

[20] Chinese: 丘

[21] Chinese: 一曰四方高，中央下为丘

frequency of the three types of semantic changes in Xianju Wu sees the highest frequency of interfield metaphor, the least frequency of intrafield metonymy.

Compared with the simple lexical pattern discovered in Section 4.2, a pattern of the nomenclature of Xianju Wu can be further evolved as Hypothesis 6: words usually start with a general location, continue with a specific location (if any), an intrafield metaphor (if any), and end with an interfield metaphor (if any). In addition, the metaphors of the body terms also reveal the cosmological and geographical concepts of the speakers. The following section will study the semantic changes by comparing the language use of different age groups.

5.2 Semantic changes within 5 age groups

In this section the research analyzes lexeme differences across 5 age groups using apparent-time method. To use apparent-time method is to use the differences of generations within a survey to discuss the linguistic variation and change in progress.

Mandarin began to be regarded as an official language from 1956, after the establishment of the People's Republic of China and its strong promotion of the language. Wu Chinese, including Xianju Wu, was gradually excluded from most social contexts including education, administration, and public media. Therefore, the age groups of 70 to 90 are probably the last generations that may not been influenced with the education of Mandarin, nor can they speak Mandarin. From the analysis of language changes among the 5 speakers in this research, some age variations can be discussed. Those language changes can be categorized into two categories: analogy and deletion.

5.2.1 Analogy

Analogy is an irregular change resulting from an interference of another item in the language system on the basis of analogy or perceived similarity. In other words, analogical

change clearly works on one item at a time and usually does not affect all lexical items or paradigms that have the requisite conditions (Bybee 2015:93).

Some lexical changes among the 5 generations can be explained by analogy. Those lexical changes are not systematic and usually do not form any patterns. Xianju Wu has likely experienced linguistic interference from Mandarin. Speakers, especially young speakers, may have been influenced by lexemes from Mandarin. These influences are based on the perceived similarity and analogy. Table 16 shows one of the examples, *nga jin mao* 'eyelash'.

Table 16: Age variations of *nga jin mao* 'eyelash'

Lexeme in Xianju Wu	Counterpart lexeme in Mandarin	Speaker in their 30s	Speaker in their 50s	Speaker in their 60s	Speakers in their 70s and 80s
nga **jin** mao 'eyelash'	yan **jie** mao 'eyelash'	nga **jie** mao	nga **xie** mao	nga **jin** mao	nga **jin** mao

The changes to the lexeme *nga **j**in mao* 'eyelash' in Xianju Wu can be traced from the speakers in their 60s, 70s and 80s to the speaker in their 50s, the lexeme is changed from *nga **jin** mao* to *nga **xie** mao*. Within this lexical change, the consonant changed from *j* to *x*, and the syllable *in* changed to *ie*. Mandarin has a counterpart lexeme of 'eyelash' which is pronounced as *yan **jie** mao*. It is likely that the speaker in their 50s takes the syllable *ie* from Mandarin, making an analogy to change the syllable from *in* to *ie* in Xianju Wu. With regard to the initial consonant change, this may have resulted from phonetic counterpart terms. Xianju Wu and Mandarin have phonetic counterpart terms in both languages. For example, the consonant *j* (IPA / t͡ɕ/) from Mandarin will be changed into *x* (IPA /ɕ/) in Xianju Wu. Therefore, the speaker in their 50s is

likely influenced by the Mandarin syllable *jie*, changing *jin* to *xie*. The semantic meaning of the lexeme *nga jin mao* also changed this way. Xianju Wu does not have a special term of 'eyelash' originally, therefore, when naming 'eyelash' speakers are actually saying 'eye hair'(The literal meaning of *nga jin mao* is 'eye-eye hair'). But in Mandarin there is a special term of 'eyelash', which is *jie*. Hence, when Xianju Wu speakers changed the syllable *jin* to *jie*, the semantic meaning of the term also changed from 'eye hair' to 'eyelash hair'. It is likely that because younger speakers have been educated by Mandarin, they formed the concept of eyelash as *jie*. When they shifted *jie* from Mandarin to Xianju Wu, they will find there is no specific concept of 'eyelash' in Xianju Wu, so the speakers may have borrowed the morpheme *jie* from Mandarin to Xianju Wu to represent 'eyelash'. This may result in the 50s speaker's lexeme *nga **xie** mao* (lit: 'eye-eyelash hai). The youngest speaker has been influenced by Mandarin the most, as they have analogized the consonant *j* from Mandarin without shifting the sound into Xianju Wu, resulting in the pronunciation *nga **jie** mao* (lit: *nga* 'eye' *jie* 'eye' *mao* 'hair'). This interference from Mandarin can be visualized in Figure 8.

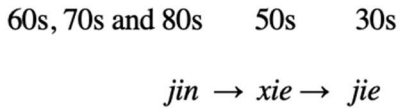

Figure 8: Interference by Mandarin morpheme *jie*

Table 17: Age variations of *djeh tu po zi* 'calf'

Lexeme in Xianju Wu	Counterpart lexeme in Mandarin	Speaker in their 30s	Speaker in their 50s	Speaker in their 60s	Speakers in their 70s and 80s

djeh tu **po** zi 'calf'	xiao **tui** 'calf'	djeh tu **tai**	djeh tu **tai** zi	/	djeh tu **po** zi

A second example is *djeh tu po zi* 'calf'. The existence of phonetic counterpart terms in Mandarin and Xianju Wu may cause another analogical change, *djeh tu **po** zi* 'calf' to *djeh tu **tai** zi*. The counterpart pronunciation of the diphthong *ui* (IPA /ui/) in Mandarin is *ai* (IPA /ai/) in Xianju Wu. Therefore, the Mandarin lexeme 'xiao t**ui**' has its phonetic counterpart terms in Xianju Wu as 'xiao t**ai**'. This may explain why the speaker in their 50s changed the lexeme from *djeh tu **po** zi* to *djeh tu **tai** zi*. It is probable that this is shifting the Mandarin lexeme *xiao tui* into Xianju Wu as *xiao tai* and taking the shifted syllable *tai* to substitute the original syllable *po*. In other words, instead of saying the original *djeh tu **po** zi*, the speaker has made an analogy from Mandarin lexeme *xiao tui*, shifting the *tui* into *tai*, thus resulting in the lexical form *djeh tu **tai** zi*. The same case may also have happened to the speaker in their 30s as he also substitutes *po* to *tai*.

Table 18: Age variations of *nga jin zi* eyeball

Lexeme in Xianju Wu	Counterpart lexeme in Mandarin	Speaker in their 30s	Speaker in their 50s	Speaker in their 60s	Speakers in their 70s and 80s
nga jin **zi** 'eyeball'	yan **dju** 'eyeball'	nga **jin** zi	/	nga jin **djü**	nga **jin** zi

The same analogy also happens to the lexeme *nga jin **zi*** 'eyeball'. Influenced by the Mandarin syllable *dju* from the Mandarin counterpart lexeme of eyeball, the speaker in their 60s substituted *jin* to *djü*.

However, the influence from Mandarin toward the analogy change among different age groups is not regular. For the analogy change of *nga jin mao* 'eyelash' and *djeh tu po zi* 'calf', these lexemes change according to the age. The younger the speaker, the more they have been influenced by Mandarin. But for the lexeme *nga jin zi* 'eyeball', the youngest speaker still speaks the original form as speakers in their 70s and 80s use.

5.2.2 Deletion

Table 19: Age variations of *sjou keo wo tong* 'armpit'

Lexemes in Xianju Wu	Counterpart lexeme in Mandarin	Speaker in their 30s	Speaker in their 50s	Speaker in their 60s	Speakers in their 70s and 80s
sjou keo **wo** **tong** 'armpit'	ge zhi **wo**	sjou keo **wo**	sjou keo **wo**	/	sjou keo **wo** **tong**

As shown in the table, the lexeme of armpit consists for speakers in their 70s and 80s of four morphemes: *sjou keo wo tong*(lit: *sjou* 'arm' *keo* 'mouth' *wo* 'nest' *tong* 'case'). But the speakers in their 30s and 50s are deleting the last syllable *tong*. It is probably because the counterpart lexeme in Mandarin *ge zhi wo* (lit: *ge* 'armpit' *zhi* 'arm' *wo* 'nest') ends up with the syllable *wo*, this syllable meaning 'nest' in both languages. Since the speakers in their 30s and 50s are the two speakers that have been influenced by Mandarin the most, it is likely that they dropped the last syllable *tong* due to this influence. But another syllable deletion of *djeh kwai deo nga* 'knee(s)' may result from natural process.

Table 20: Age variations of *djeh kwai deo nga* 'knee(s)'

Lexeme in Xianju Wu	Counterpart lexeme in Mandarin	30s speaker	50s speaker	60s speaker	70s and 80s speaker
djeh kwai deo nga 'knee'	xi gai 'knee'	djeh kwai deo nga	djeh kwai deo (nga)	djeh kwai deo	djeh kwai deo nga

As shown in the table, the counterpart lexeme in Mandarin *xi gai* does not share any cognate traits with the lexeme *djeh kwai deo nga* in Xianju Wu. Yet speakers still sometimes delete the last syllable of the lexeme. According to the speaker in their 50s, both *djeh kwai deo* and *djeh kwai deo nga* are grammatically accepted in the language. Therefore, it seems like this morpheme is experiencing a natural process of dropping the last morpheme in the lexeme.

Section 5.2 discusses the current age variations between five age groups through comparing their lexical constituents of *nga jin mao* 'eyelash', *djeh tu po zi* 'calf', *sjou keo wo tong* 'armpit', and *djeh kwai deo nga* 'knee(s)'. These current semantic lexical changes in the language can be accounted for by analogy and deletion.

5.3 Discussion and Conclusions

Chapter 5 provides a snapshot of the occurring semantic lexical changes. Semantic changes of body lexemes are categorized into three types: intrafield metaphor, interfield metaphor, and intrafield metonymy. In contrast with Wilkins' frequency ranks of metaphors and metonymies, Figure 7 shows that metaphors are the most frequent semantic change with interfield changes happening more frequently than intrafield changes. The analysis of metaphors and metonymies further evolved Hypothesis 3 into Hypothesis 5 with elaboration on the

nomenclatural pattern of the body terms in Xianju Wu. In addition, a case study of *deo* 'head' reveals the semantic extension of polysemies.

Finally, the chapter compares the vocabulary differences across five age groups using apparent-time method, demonstrating the ongoing lexical-semantic changes of the language. The semantic changes are achieved by deletion and analogy from Mandarin. To give a quantitative analysis of the age variation between five groups, this study calculated the percentage of the vocabulary similarities between various generations based on the body term spreadsheet listed in Appendix C. To quantify the vocabulary variation, the vocabulary of the speaker at their 80s is labeled as Set A, and if the vocabulary of the speaker at their 70s are using the same vocabulary as the former, the vocabulary is also marked as Set A, otherwise, the vocabulary will be marked as Set B, etc. The percentage of similarities between various age groups are calculated by comparing how many common sets the speakers share. The standard of measuring vocabulary differences not only include the morphological variants, but also consider the phonetic variants, such as vowel variants. Only if the two sets of vocabularies that are identical in phonetics and morphology will be marked as similar words. Figure 8 shows the percentage of the age variations calculated under the methods and standards. The higher the percentage, the more the vocabulary similarity between the two speakers.

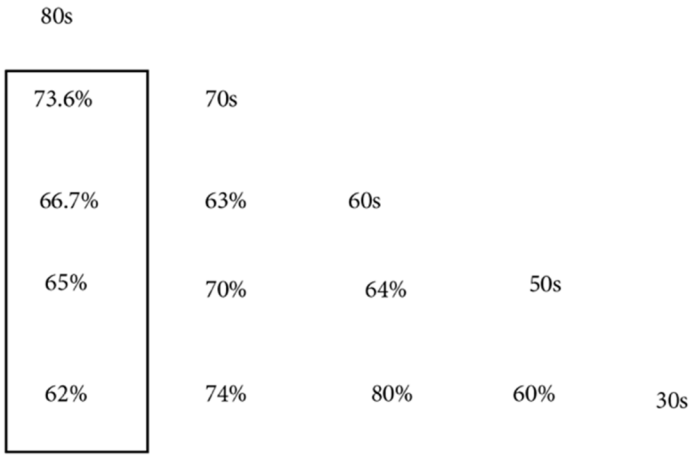

Figure 8: The percentage of the age variations

As is shown in Figure 8, as the age gap increases, the similarities between different age groups reduces. For instance, the similarity of the vocabularies of the speaker at their 80s and 70s is 73.6 per cent, while the similarity of the vocabularies between the speaker at their 80s and 30s is 62 per cent, which is highly decreased compared with the former. Hence, the quantified age differences further demonstrate that Xianju Wu is changing or even is experiencing language shifting.

CHAPTER 6 CONCLUSION

As a whole, this study begins the documentation work of Xianju Wu by analyzing the nomenclatural pattern of body terms in the language by means of analyzing lexical structure and semantic changes. It fully discloses the special morphonological traits of the language and supports the hypothesis of the lexical structure (Hypothesis 4), the non-sinitic substratum (Hypothesis 5), the hierarchical ranks of semantic change types and the nomenclature patterns (Hypothesis 6).

In terms of partonomical principles and rules, the hierarchy and lexical structure of body terms in Xianju Wu are divided into 5 levels. As discussed in the Section 4.2 focusing on morphology, body lexemes in Xianju Wu can be categorized into three types: primary lexemes are usually based on two bound roots, while secondary lexemes are composed by primary lexemes plus addendums. The polylexemic labels consist of a head and another constituent indicating the superordinate or subordinate relations to taxa. An analysis and discussion of the third type of phrases remains to be done in the future—for example, what is the amount of morphemes within the phrases of Xianju Wu and do there exist any patterns or principles from a semantic perspective?

The comparative study between the lexical structure of Xianju Wu and Chinese leads to a hypothesis that the basic lexical structure of Xianju Wu is one of two-syllable structure. Furthermore, the examinations of metaphors and metonymies reveals the semantic extension of the language, suggesting that interfield metaphor is the most frequent type of semantic change in

Xianju Wu. Finally, the apparent-time method utilized in the study uncovers the occurring lexical-semantic changes within 5 age groups and provides a snapshot of the semantic changes and age variations of Xianju Wu speakers in 2019-2020.

As for the three type of lexemes discussed in the study, primary lexemes and secondary lexemes are fairly discussed in details. But an analysis and discussion of complete phrases remains to be done in the future. For example, what is the morpheme number of the phrases within this language and are there any patterns or principles therein from a semantic perspective?

The lexical structure has not been influenced by Mandarin since the disyllabic bound structure of Xianju Wu distinguishes from Mandarin. But where did the special lexical structure of Xianju Wu inherit from? It is of some possibilities that Xianju Wu inherited the disyllabic bound lexical structure from ancient Yue language. But the question needs more evidence to be discussed.

Further study should try to figure out the semantic meanings of other morphemes used in the body terms of Xianju Wu. Due to the lack of its own written system, many morphemes in Xianju Wu are still missing their semantic meanings. For example, the meaning of the morpheme *ang* in the word *siou* ***ang*** *deo jin* 'the connecting part between leg' and foot is still missing. The meaning of *wa gua* in the word *siou wa gwa* 'elbow (front)' is also missing. The unidentified semantic meaning may result in insufficient data for analysis of the word. Further study might apply the ancient phonetic system recorded in the ancient rhyme dictionary *Qieyun* to check if any missing words can be identified.

This study also examined the age variations in lexical use between 5 age groups. This comparative study may provide the snapshot of the ongoing lexical semantic changes in 2019-2020. The current changes include analogy and deletion. It is worth noting that younger speakers

possess different phonetic inventories with older speakers. The analysis of age variations of the phonetic expressions can be done for further tasks.

While conducting surveys in Xianju County, it was interesting to note that Xianju Wu often functions as a symbol of identity. Xianju Wu is not only a language but a cultural identity indicating people's lived experience. For example, when bargaining with someone in Xianju County, one should try hard to use every word one knows of Xianju Wu in order to present oneself as a local resident. In the situation of bargaining, merchants can tell whether their customers grow up locally, and it is almost custom to raise prices for foreign customers whose inability in the language also illustrates a lack of knowledge about local pricing. Further studies might be done from sociolinguistic perspective to discuss code-switching under different social contexts.

On one hand, the present study starts the linguistic documentation work of Xianju Wu. On the other hand, it provides a certain research foundation and direction for further studies of lexical semantic change toward the language, offers a foundation for possible sociolinguistic research of the language.

APPENDIX A: THE LIST OF RANKS OF XIANJU WU BODY LEXEMES

1. Seng gwoh deo body (level 0)
    a. deo head (level 1)
        1. deo jin neck (level2)
        2. lao wu deo the top of the head (level2)
        3. ng two ears (level2)
            a. ng two wang tragus (level 3)
            b. ng two deo ear upper part (level 3)
            c. ng two cü earlobe (level 3)
        4. sie nao upper front head (level2)
        5. nga gwoh deo forehead (level2)
        6. süih tong temple (level2)
        7. mie tsie gwoh cheek (level2)
        8. keo djü mouth (level 2)
            a. keo djü dai mouth bag (level 3)
            b. keo yie tongue (level 3)
                i. keo yie deo tongue tip (level 4)
                ii. keo yie jin frenulum linguae (level 4)
            c. xia ga keo ga gwoh upper inner mouth space (level 3)
            d. wo ga keo ga gwoh lower inner mouth space (level 3)
            e. ngo gwa nün dental ridge (level 3)
            f. ngo ts'i teeth (level 3)
                i. xia ga (ngo ts'i) upper-teeth (level 4)
                ii. wo ga (ngo ts'i) lower- teeth (level 4)
            g. keo djü sen lip (level 3)
                i. xia güh keo djü sen upper -lip (level 4)
                ii. wo güh keo djü sen lower-lip (level 4)
                iii. keo djü gwoh lip corner (level 4)
                iv. nin djog philtrum(the part between lips and nose) (level 4)
        9. wo po jaw (level2)
            a. xia güh wo po upper jaw (level 3)
            b. wo güh wo po lower jaw (level 3)
            c. wo po jie/bin jaw tip (level 3)
        10. nga jin eye (level2)
            a. nga mi mao eyebrow (level 3)
            b. nga jin yie eyelid (level 3)
                i. xia yie upper part of the eye (level 4)
                ii. wo yie lower part of the eye (level 4)
            c. nga jin mao eyelash (level 3)
            d. nga jin p'ao pi upper eye skin (level 3)
            e. nga jin two deo/nga jin tog/nga jin c'ön eye area (level 3)

f. nga jin zi eyeball (level 3)
g. shuang yie double-fold eyelids (level 3)
h. ta yie single-fold eyelids (level 3)
i. nga jin wu/nga jin wu jü the black part of the eye (level 3)

11. pi deo nose (level2)
    a. pi deo/pi deo jie nose tip (level 3)
    b. pi deo lia nose bridge (level 3)
12. wo po jaw (level2)
    a. wo po jie the tip of the jaw (level 3)

b. sen gwoh trunk (level 1)
1. dzie gwoh deo/pa dzie shoulder (level2)
    a. dzie gwoh deo cü/ pa dzie cü shoulder point (level2)
2. ts'ie dzin gwoh/ wag lia gwoh/go pa gwoh collarbone (level2)
3. xie lie pan gwoh chest (level2)
4. sen wo kog the lower space between two breasts (level2)
5. tiao tu stomach (level2)
    a. xia tu upper stomach (level 3)
    b. wo tu lower stomach (level 3)
    c. tu xi kog navel (level3)
6. tiao yaw waist (level2)
7. pai jie sen back (level2)
    a. khuwin djog lower back (level 3)
    b. va j'iaw gwoh/ pai jie sen gwoh sphenoid (level 3)
    c. pai jie tog gwoh dorsal (level 3)
    d. mi bwo j'iu gwoh the lowest point of back (level 3)

c. ze sjou arm/hand (level 1)
1. sjou keo wo (tong) armpit (level2)
2. sjou pi (tog) arm (level2)
3. sjou zag deo elbow(back) (level2)
4. siou wa gwa elbow(front) (level2)
5. xia tog upper arm (level2)
6. wo tog lower arm (level2)
7. siou/ ze siou hand (level2)
    a. siou wa pai/ siou pa pai wrist(back) (level 3)
    b. siou jin wrist(front) (level 3)
    c. siou zi (mu) deo finger (level 3)
        i. siou zi wo meg the connecting part between fingers (level 4)
        ii. dwo zi (mu) deo thumb (level 4)
        iii. j'ü tie zi index finger (level 4)
        iv. djog ya zi middle finger (level 4)
        v. xiao mu zi deo little finger (level 4)
    d. siou jia palm (level 3)
        i. siou jia djog sen the center of the palm (level 4)

d. ze djeh leg/foot (level 1)
1. two t'ai thigh (level2)
2. djeh kwai deo nga knee(front) (level2)

3. two t'ai djon the part connecting butt and thigh (level2)
4. djeh wa gwa knee(back) (level2)
5. djeh tu po zi calf (level2)
6. tai jin yie/ tai jin xie leg(front) (level2)
7. ze djeh foot/leg (level2)
    a. djeh wa pai/ djeh pa pai instep (level 3)
    b. djeh ag deo jin the connecting part between leg and feet (level 3)
    c. djeh zag ankle (level 3)
    d. djeh wo ti sole (level 3)
    e. djeh yao jiao the sunken part of the sole (level 3)
    f. djeh zi (me) deo deo (level 3)
    g. djeh eoh kin djü heel (level 3)
    h. djeh ts'i jin heel(upper part) (level 3)

2. Wenh soul

APPENDIX B: THE LIST OF THE ROMANIZATION OF XIANJU WU IPA

The inventories of the list were collected by Victoria Johnston and Minlu Zhang in 2019. Victoria Jognston designed the elicitations and Minlu Zhang was the speaker to provide the phonetic inventories. The romanticized characters are utilized in this present study. And the second column shows the matching IPA pronunciations.

Onsets:

Romanization	**IPA**	**Examples**
p	[p]	百班冰包
p'	[ph]	拍派拼泡
b	[b]	白排病刨
m	[m]	麦买命猫
f	[f]	弗反风飞
v	[v]	佛饭缝肥
t	[t]	搭单东刀
t'	[th]	塔摊通讨
d	[d]	达谈动逃
n	[n]	捺难农脑
l	[l]	辣懒弄老
k	[k]	格干公告
k'	[kh]	客看空考
g	[ɡ]	狂渠
ng	[ŋ]	我牙耳咬
h	[h]	好虎海汉
'	[ɦ]	号害寒何
ky	[c]	今记吉九

gy	[t͡ɕ]	琴奇杰求
ny	[nj] (same as [ɲ])	日念人绕
hy	[ɕ] (further analysis needed)	许希训晓
y	[j]	杨耶圆有
ts	[ts]	只子早珍
ts'	[tsh]	七此草称
dz	[ts]	迟查丈
s	[s]	息思手身
z	[z]	十字就善
c	[t͡ʂ]	珠转种祝
c'	[tʃh]	取穿充出
dj	[t͡ʂ]	住著重浊
sh	[ʃ]	说水
j	[ʒ]	树从
w	[w]	华会活还
	[ʔ]	乌音爱安

Rimes:

Romanization	**IPA**	**Examples**
a	[a]	买
wa	[wa]	歪怀怪
e	[e]	来背对再
we	[wɛ]	会块回灰
u	[u]	乌
iou	[jou]	有手
ön	[uø̃] (may be nasal - further analysis needed)	乱
in	[iẽ]	先
ün	[yø̃]	园
æh	[æʔ]	喂

wo	[wo]	果河驮
ô	[ɔ]	下我亚华
eo	[ɤ] Minlu: R-colored version of [ɤ]	后
i	[i]	飞
ü	[y]	水句
ao	[aɒ]	老
iao	[iao]	小要
ang	[aŋ]	冷
iang	[iã]	样相
uang	[uaŋ] Minlu: [uɑŋ]	横
ông	[ɔŋ] Minlu: [oŋ]	讲
uông	[uɔŋ]	光
üông	[yɔŋ]	双
ong	[oŋ]	功
üong	[yoŋ] Minlu: [om] or [on] (further analysis needed)	用弓充从
eng	[əŋ] Minlu: [eŋ]	根
ing	[iŋ] Minlu: [iɲ]	今
weng	[uəŋ] Minlu: 1, 2 [ueŋ] 3, 4 [əɲ]	温昏棍困
üing	[yŋ] Minlu: [yŋ] (further analysis needed)	云
æh	[æʔ] Minlu: 1 [ʌʔ] 2, 3, 4 [uɔʔ] (further analysis needed) Other Taizhou dialects: [eʔ]	八辣杀塔
ah	[aʔ] Minlu: [ʌʔ]	白
iah	[iaʔ] Minlu: 1 (unknown - further analysis needed) 2 [ʌʔ] 1 and 2 are different phonemes.	脚 格

eh	[əʔ] Minlu: [ʌʔ]	色
ih	[iʔ] Minlu: [ʌʔ]	七
weh	[uəʔ]	活
üih	[yʔ] Minlu: [ɹəʔ] (further analysis needed) [ɹ] may not be phonemic.	血缺
ôh	[ɔʔ]	角
üôh	[yɔʔ] Minlu: [ɹəʔ] (further analysis needed) [ɹ] may not be phonemic.	桌戳
oh	[oʔ] Minlu: [əʔ]	六
üoh	[yoʔ] Minlu: [ɹəʔ] (further analysis needed) [ɹ] may not be phonemic.	叔

APPENDIX C: BODY TERMS SPREAD SHEET

1. Body parts – face part

Body Parts	30s Male	50s Male	60s Male	70s Female	80s Female
The top of the head	/laɒ wu tɤ /	/laɒ wu tɤ / / laɒ wu tɤ tiɲ / old-black-head; head-top	/laɒ wu tɤ / old-black-head *(the speaker thinks that old-black-head including the whole head)*	/laɒ wu tɤ / / laɒ wu tɤ tiɲ / old-black-head; head-top	/ laɒ wu tɤ tiɲ / / tɤ naɒ tiɲ /old-black-head-top; head-brain-top
Upper-Front head	N/A	N/A	N/A	/ɕiẽ naɒ / front-brain	/naɒ siʔ/ Brains
Forehead	/ɲa gʷɒ tɤ/ eye-corner-head	/ɲa gʷɒ tɤ/ eye-corner-head		/ɲa gʷɒ tɤ/ eye-corner-head	/ɲa gʷɒ tɤ/ eye-corner-head
Temple	N/A	N/A	N/A	/ʃ yʔ -toŋ/ Blood-hole	/ʃ yʔ -toŋ/ Blood-hole
Ears	/nʔ- tʷɒ/ Ear(s)	/nʔ- tʷɒ/ Ear(s)	/nʔ- tʷɒ/ Ear(s)	/nʔ- tʷɒ/ Ear(s)	/nʔ- tʷɒ/ Ear(s)
Tragus	N/A	/nʔ- tʷɒ wɑŋ/ Ear-ear- wɑŋ	N/A	N/A	N/A
Ear upper part	N/A	/nʔ- tʷɒ tɤ / Ear-ear-head			
Cheek	/miẽ tsj gu/ face-cheek-bone	/miẽ tsj gu/ face-cheek-bone	N/A	/miẽ tsj gu/ face-cheek-bone	/miẽ tsj gu/ face-cheek-bone
Mouth	/kõ ʤy/	/kõ ʤy pu/	/kõ ʤy/ /kõ ʤy pu/ *(including the area near mouth*)	/kõ ʤy/ mouth-mouth *(including the area near mouth*)	/kõ ʤy/ mouth-mouth *(including the area near mouth*)
Eyebrow	/ ɲa **mi** mɒ/ eye-eyebrow hair	/ ɲa **mi** mɒ/ eye-eyebrow hair	/ ɲa **mi** mɒ/ eye-eyebrow hair	/ **mi** mɒ/ eye-eyebrow hair	/ ɲa **pi** mɒ / eye-/pi/-hair
Nose bridge	/pi tɤ lia/ nose-head-beam	/pi tɤ lia/ nose-head-beam	/pi tɤ lia/ nose-head-beam	/pi tɤ lia/ nose-head-beam *(speaker thinks nose-head-beam*	/pi tɤ lia/ nose-head-beam

				belongs to nose-head)	
Nose tip	/pi tɤ tsj/ nose-head-tip	/ pi tɤ ʤy/ nose-head-pillar	/ pi tɤ/ nose-head	/pi tɤ tsj/ nose-head-tip *(speaker thinks nose-head-tip belongs to nose-head)*	/pi tɤ/ nose-head
Upper part of the eye	N/A	/xia j/ upper-string	N/A	/xia j/ upper-string	/xia j/ upper-string
Lower part of the eye	/ ɲa tæ/	/wɔ j/ lower-string	N/A	/wɔ j/ lower-string	/wɔ j/ lower-string
Eyelash	/ ɲa tsj mɒ/ eye-hair	/ ɲa ɕj mɒ/ eyelash	/ ɲa tsjɲ mɒ/ eye-hair	/ ɲa tsjɲ mɒ/ eye-hair	/ ɲa tsjɲ mɒ/ eye-eye-hair
Jaw	/ ɔ pʷɔ /	/ ɔ pʷɔ tɤ / Lower-jaw-head	/ɔ pʷɔ / / ɔ pʷɔ tsj/ lower-jaw/lower-jaw-tip	/ ɔ pʷɔ tɤ / Lower-jaw-head	/ɔ pʷɔ / Lower-jaw
The tip of the jaw	(the speaker thinks "jaw-tip" equals to the jaw)	(the speaker thinks "jaw-tip" equals to the jaw)	(the speaker thinks "jaw-tip" equals to the jaw)	/ ɔ pʷɔ tsj/ Lower-jaw-tip	/ ɔ pʷɔ tsj/ Lower-jaw-tip
Mouth bag	/kõ ʤy tæ/	/kõ ʤy tæ/ mouth-mouth-bag Besides the space insides of the mouth, the speaker also thinks when people's jaw are too fat, the lower jaw part can also be called mouth bag.	/kõ ʤy tæ/ *Speaker thinks "mouth-mouth-bag" is located between jaw and neck*	/kõ ʤy tæ/ mouth-mouth-bag	/kõ ʤy tæ/ mouth-mouth-bag
Tongue tip	/kõ jə tɤ/ mouth-leaf-head	/kõ ɕiə tɤ/ mouth-tongue-head	/kõ ɕiə tɤ/ mouth-tongue-head	/kõ jə tɤ/ mouth-leaf-head	/kõ ɕiə tsj/ mouth-tongue-tip
Tongue	/kõ jə/ mouth-leaf	/kõ ɕiə / mouth-tongue	/kõ ɕiə / mouth-tongue	/kõ jə/ mouth-leaf	/kõ ɕiə / mouth-tongue

Frenulum linguae	/kə̃ jẽ tsin/ mouth-leaf-stem	/kə̃ ɛiẽ tsin/ mouth-tongue-stem	/kə̃ jẽ tsin/ mouth-leaf-stem	/kə̃ jẽ tsin/ mouth-leaf-stem	/kə̃ jẽ tsin/ mouth-leaf-stem
Upper inner mouth space	/ɛia gyʔ/	N/A	N/A	/ɛia ga – kə̃ ga gʷɒ/ upper-/ga/-mouth-/ga/-bone	/ɛia toŋ/ upper-/toŋ/
Lower inner mouth space	/wɔ gyʔ /	N/A	N/A	/wɔ ga – kə̃ ga gʷɒ/ Lower -/ga/-mouth-/ga/-bone	/ wɔ toŋ/ lower-/toŋ/
Dental ridge	/ŋʷɔ gʷa ɲyʔ/ tooth-crown-meat	/ŋʷɔ gʷa ɲyʔ/ tooth-crown-meat		/ŋʷɔ gʷa ɲyʔ/ tooth-crown-meat	/ŋʷɔ gʷa ɲyʔ/ tooth-crown-meat
Upper eye skin	N/A	/ɲa tsjn pʰɒ pi/ eye-eye-shaped like a bubble-skin (But the speaker thinks this includes both upper and lower eye part)	N/A	/ɲa tsjn pʰɒ pi/ eye-eye-shaped like a bubble-skin	N/A
Eye area	/ ɲa tsjn tʃhy/ Eye-circle	/ɲa tsjn -tʷ o tɤ/ eye- tʷo-head (speaker thinks this part is the right canthus)	/ɲa tsjn tʷ o tɤ/ eye- tʷo-head	/ɲa tsjn toŋ/ eye-eye-toŋ	
Eye area	N/A	/ɲa tsjn- ɛioʔ tɤ/ eye- ɛioʔ-head (speaker thinks this part is the left canthus)	N/A	N/A	N/A
Eyeball(the whole eyeball,	/ɲa tsjn tsi/ eye-eye-tsi	N/A	/ɲa tsjn t͡ʂy/ eye-eye-ball	/ɲa tsjn tsi/ Eye-eye-tsi	

including black and white part)					
double-fold eyelids	/ʃɔŋ ɲa pi/ double-fold eyelids	N/A	N/A	/ʃɔŋ j/ double-string	N/A
single-fold eyelids			N/A	/ta j/ single-string	
The black part of the eye	/ɲa wu t͡ʂy/	/ɲa tsjn wu t͡ʂy/ eye-black-ball		/ɲa tsjn wu/ eye-eye-black	
Earlobe	/nʔ tʷɒ t͡ʂy/	/nʔ tʷɒ t͡ʂy/ ear-ear- t͡ʂy	/nʔ tʷɒ səɲ pi/ Ear-ear-/səɲ/-skin	/nʔ tʷɒ t͡ʂy/ ear-ear- t͡ʂy	
Upper-teeth	/ ɕia gyʔ (-ŋʷo tsʰʔ)/	/ ɕia gyʔ (-ŋʷo tsʰʔ)/ Up- gyʔ (speaker thinks the teeth and dental ridge altogether are named / ɕia gyʔ /)		/ɕia gyʔ - ŋʷo tsʰʔ/ Up- /gyʔ/-teeth-teeth	
Lower- teeth	/wo gyʔ (-ŋʷo tsʰʔ)/	/wo gyʔ (-ŋʷo tsʰʔ)/		/wo gyʔ ŋʷo tsʰʔ/ lower- /gyʔ/-teeth-teeth	
Upper-lip	/kõ ʤy pu/ (speaker thinks the area that from the nose tip until the upper-lip is the lip)	/ɕia ɕən/ Up-lip		/ɕia gyʔ - kõ ʤy ɕən/ Up- /gyʔ/-mouth-mouth-lip	
Lower-lip	N/A	/wo ɕən/ lower-lip		/wo gyʔ - kõ ʤy ɕən/ lower- /gyʔ/-lip	
lips	/kõ ʤy ɕən/	/kõ ʤy ɕən/ /kõ ʤy pu/ mouth-mouth-lip	/kõ ʤy ɕən/ mouth-mouth-lip	/kõ ʤy ɕən/ /kõ ʤy pu/ mouth-mouth-lip;	

		(speaker thinks that starting from the end of the nose, the part is named lips)		mouth-mouth-pu	
Lip corner		/ kə̃ ʤy gʷɔ/ Lip-corner			
Philtrum			N/A	/niɲ t͡ʂoŋ/ human-middle	/niɲ t͡ʂoŋ/ human-middle
Upper jaw				/ɕia gyʔ -wo po/ Up- /gyʔ/-lower-jaw	
Lower jaw				/wo gyʔ -wo po/ lower- /gyʔ/-lower-jaw	
canthus		/ɲa gʷə/ eye-corner (speaker thinks 'eye-ɕioʔ-head' and 'eye-tʷo-head' consist of canthus)	/ɲa gʷə/ eye-corner		

2. Body parts – other parts

Body Parts	30s	50s	60s	70s	80s
Neck	/tɤ tsjn/	/tɤ tsjn/	/tɤ tsjn/	/tɤ tsjn/	/tɤ tsjn/ Head-neck
Shoulder	/tsj gʷə tɤ/ The speaker thinks it includes the whole shoulder	/tsj gʷə tɤ/ The speaker thinks it only refers to the shoulder coner	/ tsj gʷə tɤ / shoulder-corner-head The speaker differentiates the shoulder point and shoulder	/ tsj gʷə tɤ / shoulder-corner-head The speaker differentiates the shoulder point and shoulder	/pa tsi/ ?
Shoulder point	N/A	N/A	/ tsj gʷə tɤ t͡ʂy/	/ tsj gʷə tɤ t͡ʂy/ shoulder-	/pa tsi t͡ʂy / ?-/t͡ʂy/

collarbone	N/A	N/A	/go pa gʷə / ?	corner-head-/t͡ɕy/ /tsʰi tsin gʷə / thousand-jin-bone	/wuɑŋ lia gʷə/ Horizontal-beam-bone
Armpit Note: “hand” and “arm” are the same word in Xianju Wu	/ɕiɔʔ kə̃ wɔ/	/ɕiɔʔ kə̃ wɔ/ Arm-mouth-nest	N/A		/ɕiɔʔ kə̃ wɔ doŋ/ Arm-mouth-nest-cave
arm	/ ɕiɔʔ pi tɔŋ/	/ ɕiɔʔ pi / hand-arm		/ ɕiɔʔ pi tɔŋ/ hand-arm-trunk	
Elbow(back)	N/A	/ ɕiɔʔ tsɑŋ tɤ/	/ ɕiɔʔ tsɑŋ tɤ/	/ ɕiɔʔ tsɑŋ tɤ/	/ ɕiɔʔ tsɑŋ tɤ/ Hand-stump-head
Elbow(front)		/ ɕiɔʔ tsɑŋ tɤ kʷɒ/ Hand-stump-head-mouth	/ ɕiɔʔ wa gʷa /	/ ɕiɔʔ wa gʷa /	/ ɕiɔʔ wa gʷa / Arm-wrist-joint
Brachial 上臂	N/A	/ ɕia toŋ /	N/A	/ ɕia toŋ /	/ ɕia toŋ / Upper-/toŋ/
Forearm 下臂	N/A	/wo toŋ /	N/A	/wo toŋ /	/wo toŋ / Lower-/toŋ/
chest	N/A	/ sɛŋ gʷə tɤ / Body-bone-head	/ɕiɔŋ/ chest	/ sɛŋ gʷə tɤ / Body-bone-head	/ɕie lie pan gʷa/ ?
The lower space between two breasts	/sɛŋ wu kɒŋ/	/sɛŋ mo kɒŋ/	/sɛŋ wo kɒŋ/	/sɛŋ mo kɒŋ/	/sɛŋ wo kɒŋ/ hear-nest-hole
navel	/tu ɕi kɔŋ/	/tu ɕi kɔŋ/		/tu ɕi kɔŋ/ stomach-navel-hole	
Rib 肋骨	/ɕiɔŋ gʷə tɤ/	/ɕi li pɑŋ gʷə / The speaker thinks both front rib and back rib are /ɕi li pɑŋ gʷə /	N/A	N/A	/nɑ pu gin /
stomach	/tʲaɒ tu/	/tʲaɒ tu/	/tʲaɒ tu/	/tʲaɒ tu/	/tʲaɒ tu/ /tʲaɒ/- stomach
Upper stomach	/ɕia tu/	/ɕia tu/	N/A		/ɕia tu/

Lower stomach	/wo tu/	/wo tu/	N/A		Upper-stomach /wo tu/ Lower-stomach
Wrist 手背	/ɕʲou wa pæ/	/ ɕʲou pa pæ /		/ɕʲou wa pæ/ Arm-wrist-back	/ ɕʲou pa pæ / Arm-/pa/-back
The part connecting palm and wrist	N/A	/ ɕʲou pu tɤ/ Arm-part-head		/ɕʲou tsin/ (the back of this connecting part)	/ɕʲou tsin/ arm-neck
thigh	/dʷo tʰæ/	/dʷo tʰæ/		/dʷo tʰæ/	/dʷo tʰæ/ Big-leg
Knee(front)	/t͡ʂə kwai tɤ ɲa/	/t͡ʂə kwai tɤ (ɲa)/	/t͡ʂə kwai tɤ/	/t͡ʂə kwai tɤ ɲa/ Foot-trunk-head-eye	/t͡ʂə kwai tɤ/ Foot-trunk-head
Knee(back)	n/a	/ t͡ʂə wa gʷa /	/ t͡ʂə wa gʷa /	/ t͡ʂə wa gʷa /	/ t͡ʂə wa gʷa / Leg-wrist-joint
Instep 脚背	/ t͡ʂə wa pæ/	/ t͡ʂə pa pæ/		/ t͡ʂə wa pæ/ Leg-wrist-back	/ t͡ʂə pa pæ/ Leg-/pa/-back
Ankle	/ t͡ʂə tsɑŋ /	/ t͡ʂə tsɑŋ /	/ t͡ʂə tsɑŋ /	/ t͡ʂə tsɑŋ /	/ t͡ʂə tsɑŋ / Leg-stump Speaker think ankle can be divided into in and out : /li liẽ/ and /ŋai iẽ/
The connecting part between leg and feet					/ t͡ʂə ɑŋ tɤ tsin/ Leg-/ɑŋ/-head-neck
Sole 脚底	/ t͡ʂə wo ti/	/ t͡ʂə wo ti/		/ t͡ʂə wo ti/ Foot-lower-bottom	
The sunken part of the sole	N/A	N/A	/ t͡ʂə jiao t͡ʂiao/	/ t͡ʂə jiao t͡ʂiao/	/ t͡ʂə jiao t͡ʂiao/ Foot-waist-bridge
toe	/ t͡ʂə tsi tɤ/	/t͡ʂə tsə mə tɤ/			

heel	/ ʈʂə ɤ gin ʈʂy/			/ ʈʂə ɤ gin ʈʂy/ Foot-back-root-/ʈʂy/	
Heel (upper part)	N/A	N/A		/ ʈʂə tsʰi tsin / Foot-neck	
The part connecting butt and thigh		/ dʷo tæ ʈʂɒn/		N/A	/ dʷo tæ ʈʂɒn/
thigh	/dʷo tæ/	/ dʷo tæ/		/ dʷo tæ/	/ dʷo tæ/
Calf 腳肚子	/ ʈʂə tu tæ/	/ ʈʂə tu tæ tsə/ Foot-stomach-leg-/tsə/		/ ʈʂə tu po tsə/ Foot-stomach-neck-neck	/ ʈʂə tu po tsə/ Foot-stomach-neck-neck
Leg(front)	N/A	/tæ tɕʰin ɕiẽ/		/tæ tɕʰin yẽ/ ?	/tæ tɕʰin ɕiẽ/ ?-string
ass	/ pʰi gu /	/ pʰi gu / / pʰi gu tɤ /	/ pʰi gu tsi /	/ pʰi gu / ass	
waist	/tiao jao/ Speaker thinks it only refers to the two sides of the waist	/tiao jao/ Speaker thinks it refers to the two sides of the waist and the lower back	/tiao jao/ Speaker thinks it only refers to the two sides of the waist	/tiao jao/ Speaker thinks it only refers to the two sides of the waist	/tiao jao/ /tiao/-waist Speaker thinks it only refers to the two sides of the waist
back	/pæ tsi seŋ / Speaker thinks the whole back is /pæ tsi seŋ /		/pæ tsi/ Back-spine	/pæ tsi seŋ /	/pæ tsi seŋ / Back-spine-body the speaker thinks it is the upper back
Lower back	N/A	N/A	N/A	N/A	/kʰuʷin ʈʂɒŋ/ Ass-/ʈʂɒŋ/
Sphenoid 蝴蝶骨	/pæ tsi seŋ gʷə/	/ pʰɑ tsi gʷə /	/pʰɑ tsi seŋ gʷə / Back-spine-body-bone	/pʰɑ tsi gʷə / Back-spine-bone	/va tsʰiao gʷə/ meal-spoon-bone
dorsal	N/A	/ pʰɑ tsi toŋ gʷə / Back-spine-/toŋ/-bone-		N/A	/jao gʷə/ Waist-bone
The lowest point of back					/mi bʷɒ tsʰiu gʷə /

finger	/ɕʲou tsi tɤ/ Hand-finger-head	/ ɕʲou tsə mə tɤ / Hand-finger-finger-head			
The connecting part between fingers			/ ɕʲou tsə wo məŋ/ Hand-finger-nest-gate		
thumb	/ dʷo mu tsə tɤ/	N/A	/ dʷo mu tsə tɤ/	/ dʷo tsə tɤ/	/ dʷo mu tsə tɤ/ Big-finger-finger-head
Index finger 食指	N/A	N/A	N/A	/tɕ͡ʰy tie tsə /	/tɕ͡ʰy tie tsə / Take-point-finger
Middle finger	N/A	N/A	N/A	N/A	/ t͡ʂɒŋ ja tsə / Middle-middle-finger
The fourth finger	N/A	N/A	N/A	N/A	N/A
Little finger	/ ɕiao mu tsə tɤ /	N/A	/ ɕiao mu tsə tɤ / The speaker thinks that fingers only different between thumb and little finger. It is the same with 30s speaker.	/ ɕiao mu tsə tɤ /	/ ɕiao mu tsə tɤ / Small-finger-finger-head
palm	/ ɕʲou tsia/			/ ɕʲou tsia/ Hand-palm	
The center of the plam	/ ɕʲou tsia t͡ʂɔŋ seɲ/			/ ɕʲou tsia t͡ʂɔŋ seɲ/	/ ɕʲou tsia t͡ʂɔŋ seɲ/ Hand-palm-middle-heart

APPENDIX D: XIANJU WU LEXEMES AND MANDARIN COGNATES

*Numbers represent tones in Mandarin

Item	Lexemes	Semantic meanings	Dialect morpheme	Mandarin cognate	Mandarin Lexemes	Equivalent Mandarin
1	teo	head	teo ‘head’	tou2 ‘head’	tou2	头
2	teo jin	neck	teo ‘head’ jin ‘neck’	tou2 ‘head’ jin3 ‘neck’	jin3 ‘neck’ / bo2 ‘neck’ jin3 ‘neck’	颈/脖颈
3	lao wu teo/nao wu teo	the top of the head	lao ‘old’ wu ‘black’ teo ‘head’ / nao ‘brain’ wu ‘black’ teo ‘head’	lao3 ‘old’ wu1 ‘dark,black’ tou2 ‘head’ nao3 ‘brain’ wu1 ‘dark,black’ tou2 ‘head’	tou2 ‘head’ ding3 ‘top’	头顶
4	ng two	ears	ng ‘ear’ two ‘n/a’	er3 ‘ear’ duo0 ‘n/a’	er3 ‘ear’ duo0 ‘n/a’	耳朵
5	ng two wang	tragus	ng ‘ear’ two ‘n/a’ wang ?	er 3‘ear’ duo0 ‘n/a’ wang ?	/	/
6	ng two teo	ear upper part	ng ‘ear’ two ‘n/a’ teo ‘head’	er3 ‘ear’ duoo0 ‘n/a’ tou2 ‘head’	/	/
7	ng two cü	earlobe	ng ‘ear’ two ‘n/a’ cü ‘whip(?)’ or ‘hanging down’	er3 ‘ear’ duo0 ‘n/a’ chui2 ‘whip’ or ‘hanging down’	er3 ‘ear’ chui2 ‘hanging down’	耳垂
8	sie nao	upper front head	sie ‘front’ nao ‘brain’	qian2 ‘front’ nao3 ‘brian’	qian2 ‘front’ e2 ‘forehead’	前额
9	nga gwoh teo	forehead (eye)	nga ‘eye’ gwoh ‘corner’ teo ‘head’	yan3 ‘eye’ jiao3 ‘corner’ tou2 ‘head’	yan3 ‘eye’ jiao3 ‘corner’	眼角
10	süih tong	temple	süih ‘blood’ tong?	xüe3 ‘blood’ tong?	tai4 ‘sun’ yang3 ‘sun’ xue2 ‘acupuncture point’	太阳穴
11	mie tsie gwoh	cheek	mie ‘face’ tsie ‘cheek’ gwoh ‘bone/drum?’	mian4 ‘face’ jia2 “cheek” gu3 ‘bone? drum?’	mian4 ‘face’ jia2 “cheek”	面颊

12	keo djü (pu)	mouth	keo ‘mouth’ djü ‘mouth’ pu ‘part?’	kou3 ‘mouth’ zui3 ‘mouth’ bu4 ‘part’	zui3 ‘mouth’ ba0 ‘n/a’	嘴巴
13	keo djü dai	/	keo ‘mouth’ djü ‘mouth’ dai ‘bag’	kou3 ‘mouth’ zui3 ‘mouth’ dai4 ‘bag’	/	/
14	keo yie	tongue	keo ‘mouth’ yie ‘leaf’	kou3 ‘mouth’ ye4 ‘leaf’	she2 ‘tongue’ tou2 ‘head’	舌头
15	keo yie teo	tongue tip	keo ‘mouth’ yie ‘leaf’ teo ‘head’	kou3 ‘mouth’ ye4 ‘leaf’ tou ‘head’	she2 ‘tongue’ jian1 ‘tip’	舌尖
16	keo yie jin	frenulum linguae	keo ‘mouth’ yie ‘leaf’ jin ‘stem’	kou3 ‘mouth’ ye4 ‘leaf’ jin1 ‘stem’	/	/
17	xia ga keo ga gwoh	upper inner mouth space	xia ‘upper’ ga keo ‘mouth’ ga gwoh ‘bone’	shang4 ‘up’ ga? zui3 ‘mouth’ ga gu3 ‘bone’	shang4 ‘up’ he2 ‘jaw’ gu3 ‘bone’ ?	上颌骨？
18	wo ga keo ga gwoh	lower inner mouth space	wo ‘lower’ ga keo ‘mouth’ ga gwoh ‘bone’	xia4 ‘low’ ga? zui3 ‘mouth’ ga gu3 ‘bone’	xia4 ‘kow’ he2 ‘jaw’ gu3 ‘bone’ ?	下颌骨？
19	ngo gwa nün	dental ridge	ngo ‘teeth’ gwa ‘crown’ nün ‘meat’	ya2 ‘teeth’ guan4 ‘crown’ rou3 ‘meat’	ya2 ‘teeth’ guan4 ‘crown’	牙冠
20	ngo ts’i	teeth	ngo ‘teeth’ ts’i ‘teeth’	ya ‘teeth’ chi ‘teeth’	ya ‘teeth’ chi ‘teeth’	牙齿
21	xia ga (ngo ts’i)	upper-teeth	xia ‘upper’ ga? ngo ‘teeth’ ts’i ‘teeth’	shang4 ‘up’ ga? ya2 ‘teeth’ chi3 ‘teeth’	shang4 ‘up’ pai2 ‘array, quantifier’ ya2 ‘teeth’ chi3 ‘teeth’	上排牙齿
22	wo ga (ngo ts’i)	lower- teeth	wo ‘lower’ ga? ngo ‘teeth’ ts’i ‘teeth’	xia4 ‘up’ ga? ya2 ‘teeth’ chi3 ‘teeth’	xia4 ‘low’ pai2 ‘array, quantifier’ ya2 ‘teeth’ chi3 ‘teeth’	下排牙齿
23	keo djü sen	lip	keo ‘mouth’ djü ‘mouth’ sen ‘lip’	kou3 ‘mouth’ zui3 ‘mouth’ chun2 ‘lip’	zui3 ‘mouth’ chun2 ‘lip’	嘴唇
24	xia güh keo djü sen	upper -lip	xia ‘upper’ ga keo ‘mouth’ djü ‘mouth’	shang4 ‘up’ ga kou3 ‘mouth’ zui3 ‘mouth’	shang4 ‘up’ chun2 ‘lip’	上唇

			sen ‘lip’	chun2 ‘lip’		
	wo güh keo djü sen	lower-lip	wo ‘lower’ ga keo ‘mouth’ djü ‘mouth’ sen ‘lip’	xia4 ‘low’ ga kou3 ‘mouth’ zui3 ‘mouth’ chun2 ‘lip’	xia4 ‘low’ chun2 ‘lip’	下唇
25						
	keo djü gwoh	lip corner	keo ‘mouth’ djü ‘mouth’ gwoh ‘corner’	kou3 ‘mouth’ zui3 ‘mouth’ jiao3 ‘corner’	zui3 ‘mouth’ jiao3 ‘corner’	嘴角
26						
	nin djog	philtrum/ the part between lips and nose	nin ‘human’ djog ‘middle’	ren2 ‘human’ zhong1 ‘middle’	ren2 ‘human’ zhong1 ‘middle’	人中
27						
28	wo po	jaw	wo ‘lower’ po ‘jaw’	xia4 ‘lower’ ba0 ‘jaw’	xia4 ‘lower’ ba0 ‘jaw’	下巴
	xia güh wo po	upper jaw	xia ‘upper’ güh ? wo ‘lower’ po ‘jaw’	shang4 ‘up’ güh? xia4 ‘lower’ ba0 ‘jaw’	/	/
29						
	wo güh wo po	lower jaw	wo ‘lower’ güh ? wo ‘lower’ po ‘jaw’	xia4 ‘up’ güh? xia4 ‘lower’ ba0 ‘jaw’	/	/
30						
	wo po jie	jaw tip	wo ‘lower’ po ‘jaw’ jie ‘tip’	xia4 ‘lower’ ba0 ‘jaw’ jian1 ‘tip point’	/	/
31						
32	nga jin	eye	nga ‘eye’ jin ‘eye’	yan3 ‘eye’ jing1 ‘eye’	yan3 ‘eye’ jing1 ‘eye’	眼睛
	nga mi mao	eyebrow	nga ‘eye’ mi ‘eyebrow’ mao ‘hair’	yan3 ‘eye’ mei2 ‘eyebrow’ mao3 ‘hair’	mei2 ‘eyebrow’ mao3 ‘hair’	眉毛
33						
	xia yie	upper part of the eye	xia ‘upper’ yie ‘string’	shang4 ‘up’ xian2 ‘string’	shang4 ‘up’ yan3 ‘eye’ pi2 ‘skin’	上眼皮
34						
	wo yie	lower part of the eye	wo ‘lower’ yie ‘string’	xia4 ‘low’ xian2 ‘string’	xia4 ‘low’ yan3 ‘eye’ pi2 ‘skin’	下眼皮
35						
	nga jin mao	eyelash	nga ‘eye’ jin ‘eye’ mao ‘hair’	yan3 ‘eye’ jing1 ‘eye’ mao2 ‘hair’	jie2 ‘eye’ mao2 ‘hair’	睫毛
36						
	nga jin p’ao pi	upper eye skin	nga ‘eye’ jin ‘eye’ pao ‘shaped like a bubble’ pi2 ‘skin’	yan3 ‘eye’ jing1 ‘eye’ pao4 ‘bubble’ pi2 ‘’skin	yan3 ‘eye’ pi2 ‘skin’	眼皮
37						

38	nga jin two teo/nga jin tog/nga jin c'ön	eye area	nga 'eye' jin 'eye' two 'big' teo 'head / nga 'eye' jin 'eye' tog 'pupil' / nga 'eye' jin 'eye' c'ön 'circle'	yan3 'eye' jing1 'eye' tou2 'head' / yan3 'eye' jing1 'eye' tong2 'pupil' / yan3 'eye' jing1 'eye' quan1 'circle'	yan3 'eye' quan1 'circle'	眼圈
39	nga jin zi	eyeball	nga 'eye' jin 'eye' zi?	yan3 'eye' jing1 'eye' zi3 '?'	yan3 'eye' zhu1 'beam' zi0 'n/a'	眼珠（子）
40	shuang yie	double-fold eyelids	shuang 'double-fold' yie 'string'	shuang1 'double, dual' xian2 'string'	shuang1 'double' yan3 'eye' pi2 'skin'	双眼皮
41	ta yie	single-fold eyelids	ta 'single-fold' yie 'string'	dan1 'single' xian2 'string'	dan1 'single' yan3 'eye' pi2 'skin'	单眼皮
42	nga jin wu/nga jin wu jü	the black part of the eye	nga 'eye' jin 'eye' wu 'black' / nga 'eye' jin 'eye' wu 'black' jü 'bead'	yan3 'eye' jing1 'eye' wu1 'black' / yan3 'eye' jing1 'eye' wu1 'black' zhu1 'bead'	yan3 'eye' zhu1 'beam'	眼珠 eye bead
43	pi teo	nose	pi 'nose' teo 'head'	bi2 'nose' tou2 'head'	bi2 'nose' zi0 'n/a'	鼻子
44	pi teo/pi teo jie	nose tip	pi 'nose' teo 'head' jie 'tip'	bi2 'nouse' tou2 'head' jian1 'tip'	bi2 'nose' jian1 'tip'	鼻尖
45	pi teo lia	nose bridge	pi 'nose' teo 'head' lia 'beam'	bi2 'nose' tou 'head' liang2 'beam'	bi2 'nose' liang2 'beam'	鼻梁
46	dzie gwoh teo/pa dzie	shoulder	dzie 'shoulder' gwoh 'bone' teo 'head' /pa 'back' dzie 'ridge'	jian1 'shoulder' gu3 'bone' tou 'head' /bei4 'back' ji3 'ridge'	jian1 'shouler' bang3 'shoulder'	肩膀
47	dzie gwoh teo cü/ pa dzie cü	shoulder point	dzie 'shoulder' gwoh 'bone' teo 'head' cü 'whip(?)'	jian1 'shoulder' gu3 'bone' tou2 'head'	/	/

			/ shoulder whip(?)			
48	ts'ie dzin gwoh/ wag lia gwoh/go pa gwoh	collarbone	ts'ie 'thousand' dzin 'jin' gwoh 'bone'/ wag 'horizontal' lia 'beam' gwoh 'bone'	qian1 'thousand' jin1 'jin-(unit of weight)' gu3 'bone' / heng2 'horizontal' lia 'beam' gwoh 'bone'	suo3 'lock' gu3 'bone'	锁骨
49	xie lie pan gwoh	chest	?	?	le4 'rib' gu3 'bone'	肋骨
50	sen wo kog	/	sen 'body/heart' wo 'nest' kog 'hole'	shen1 'body'/ xin1 'heart' wo1 'nest' kong3 'hole'	/	/
51	tu xi kog	navel	tu 'stomach' xi 'navel' kog 'hole'	du4 'stomach' qi2 'navel' kong3 'hole'	du4 'stomach' qi2 'navel' kong3 'hole'	肚脐孔
52	tiao tu	stomach	tiao ? tu 'stomach'	tiao ? du4 'stomach'	du4 'stomach' zi0 'n/a'	肚子
53	xia tu	upper stomach	xia 'upper' tu 'stomach'	shang4 'up' du4 'stomach'	/	/
54	wo tu	lower stomach	wo 'lower' tu 'stomach'	xia4 'low' du4 'stomach'	/	/
55	tiao yaw	waist	tiao? yaw 'waist'	tiao? yao1 'waist'	yao1 'waist'	腰
56	pai jie sen	back	pai 'back' jie 'ridge' or 'shoulder' sen 'body'	bei4 'back' jian1 'shoulder' or ji3 'ridge' shen1 'body'	bei4 'back'	背
57	khuwin djog	lower back	khuwin 'butt' djog '?'	kun1 'one of the Eight Diagrams, butt' chong2 ?	?	/
58	va j'iaw gwoh/ pai jie sen gwoh	sphenoid	va 'meal' j'iaw 'spoon' gwoh 'bone'/ pai 'back' jie 'ridge' sen 'body' gwoh 'bone'	fan4 'meal, rice' shao2 'spoon' gu3 'bone' /bei4 'back' ji1 'ridge' shen1 'body' gu3 'bone'	hu2 'butterfly' die2 'butterfly' gu3 'bone'	蝴蝶骨
59	pai jie tog gwoh	dorsal	pai 'back' jie 'ridge' tog 'tube'	bei4 'back' ji3 'ridge'	ji3 'ridge' zhui1 'dorsal'	脊椎

			gwoh ‘bone’	tong3 ‘tube-shaped thing’ gu3 ‘bone’		
60	mi bwo j’iu gwoh	the lowest point of back	mi ‘tail’ bwo ‘n/a’ j’iu ‘mound’ gwoh ‘bone’	wei3 ‘tail’ ba0 ‘n/a’ qiu ‘mound’ gu3 ‘bone’	wei3 ‘tail’ zhui1 ‘dorsal’	尾椎
61	(ze) sjou	arm/hand	(ze) -quantifier sjou ‘hand’ or arm	(zhi1)- quantifier shou3 ‘hand’	shou3 ‘hand’	手
62	sjou keo wo (tong)	armpit	sjou ‘arm’ keo ‘mouth’ wo ‘nest’ (tong - cave)	shou3 ‘hand’ kou3 ‘mouth’ wo1 ‘nest’ (dong4 ‘cave’)	ge1 ‘arm’ zhi1 ‘armpit’ wo1 ‘nest’	胳肢窝
63	sjou pi (tog)	arm	sjou ‘arm’ pi ‘arm’ (tog-tube)	shou3 ‘hand’ bi4 ‘arm’ (tong3 ‘tube’)	shou3 ‘hand’ bi4 ‘arm’	手臂
64	sjou zag teo	elbow(back)	sjou ‘arm’ zag ‘stump’ teo ‘head’	shou3‘arm’ zhuang1‘stump’ tou2‘head’	shou3 ‘hand’ zhou3 ‘elbow’	手肘
65	sjou wa gwa	elbow(front)	siou ‘arm’ wa ‘wrist’ gwa ‘joint’	shou3 wan4 ‘wrist’ guan1 ‘joint’	shou3 ‘hand’ wan4 ‘wrist’	/
66	xia tog	upper arm	xia ‘upper’ tog ‘tube’	shang4 ‘up’ tong3 ‘tube-shaped’	shang4 ‘up’ bi4 ‘arm’	上臂
67	wo tog	lower arm	wo ‘lower’ tog ‘tube’	xia4 ‘low’ tong4 ‘tube-shaped’	xia4 ‘low’ bi4 ‘arm’	下臂
68	siou	hand/arm	sjou ‘hand, arm’	shou3 ‘hand’	shou3 ‘hand’	手
69	siou wa pai/ siou pa pai	wrist(back)	sjou ‘hand’ wa ‘wrist’ pai ‘back’/ sjiou ‘hand’ pa?	shou3 ‘hand’ wan4 ‘wrist’ bei4 ‘back’ /shou3 ‘hand’ pa?	shou3 ‘hand’ wan4 ‘wrist’	手腕？
70	siou jin	wrist(front)	pai ‘back’ sjiou ‘hand’ jin ‘neck’	bei ‘back’ shou3 ‘hand’ jin3 ‘neck’	/	/
71	siou zi (mu) teo	finger	sjou ‘hand’ zi ‘finger mu ‘finger’ teo ‘head’	shou3 ‘hand’ zhi3 ‘finger’ mu3 ‘finger’ tou2 ‘head’	shou3 ‘hand’ zhi3 ‘finger’	手指
72	siou zi wo meg	the connecting part	sjou ‘hand’ zi ‘finger wo ‘nest’ meg ‘gate’	shou3 ‘hand’ zhi3 ‘finger’ wo1 ‘nest, home’ men2 ‘door, gate’	/	/

73	dwo zi (mu) teo	between fingers thumb	dwo ‘big’ zi ‘finger (mu ‘finger’) teo ‘head’	da4 ‘big’ zhi3 ‘finger’ (mu3 ‘finger’) tou2 ‘head’	da4 ‘big’ mu3 ‘finger’ zhi3 ‘finger’	大拇指
74	j’ü tie zi	index finger	j’ü ‘take’ tie ‘point’ zi ‘finger’	qu3 ‘take’ dian3 ‘point, dot’ zhi3 ‘finger’	mu3 ‘finger’ zhi3 ‘finger’	拇指
75	djog ya zi	middle finger	djog ‘center’ ya ‘center’ zi ‘finger’	zhong1 ‘center’ yang1 ‘center’ zhi3 ‘finger’	zhong1 ‘center’ zhi3 ‘finger’	中指
76	xiao mu zi teo	little finger	xiao ‘tiny mu ‘finger zi ‘finger’ teo ‘head’	xiao3 ‘tiny’ mu3 ‘finger’ zhi3 ‘finger’ tou2 ‘head’	xiao3 ‘tiny’ mu3 ‘finger’ zhi3 ‘finger’	小拇指
77	siou jia	palm	sjou ‘hand’ jia ‘palm’	shou3 ‘hand’ zhang3 ‘palm’	shou3 ‘hand’ zhang3 ‘palm’	手掌
78	siou jia djog sen	the center of the palm	sjou ‘hand’ jia ‘palm’ djog ‘center’ sen ‘heart’	shou3 ‘hand’ zhang3 ‘palm’ zhong1 ‘center’ xin1 ‘heart’	shou3 ‘hand’ xin1 ‘heart’	手心
79	(ze) djeh	leg/foot	(ze- quatifier) djeh ‘leg/foot’	(zhi – quatifier) jiao3 ‘foot’	jiao3 ‘foot’	脚
80	two t’ai	thigh	two ‘big’ t’ai ‘thigh’	da4 ‘big’ tui3 ‘thigh’	da4 ‘big’ tui3 ‘thigh’	大腿
81	djeh kwai teo nga	knee(front)	djeh ‘leg kwai ‘trunk teo ‘head’ nga ‘eye’	jiao3 ‘leg’ kwai4 ‘trunk, piece’ tou2 ‘head’ yan3 ‘eye’	xi1 ‘knee’ gai4 ‘lid’	膝盖
82	two t’ai djog	the part connecting butt and thigh	two ‘big’ t’ai ‘leg’ djog ‘ending point’’?	da4 ‘big’ tui3 ‘leg’ qiong2 ‘poor, ending point’?	da4 ‘big’ tui3 ‘leg’ gen1 ‘root’	/
83	djeh wa gwa	knee(back)	djeh ‘foot’ wa ‘wrist’ gwa ‘joint’	jiao3 ‘leg’ wan4 ‘wrist’ guan1 ‘joint’	/	/
84	djeh tu thai	calf	djeh ‘foot, leg’ tu ‘stomach’ thai ‘thigh’	jiao3 ‘leg’ du4 ‘stomach’ tui3 ‘thigh’	xiao3 ‘tiny’ tui3 ‘leg’	小腿
85	tai j’in yie/ tai j’in xie	leg(front)	? ?-string			/
86	djeh	foot	djeh ‘foot’	jiao3 ‘foot’	jiao3 ‘foot’	脚

87	djeh wa pai/ djeh pa pai	instep	djeh ‘foot’ wa ‘wrist’ pai ‘back’/ djeh ‘foot’ pa? pai ‘back’	jiao3 wan1 ‘wrist’ guan1 ‘joint’ /jiao3 ‘foot’ pa? bei4 ‘back’	jiao3 ‘foot’ bei4 ‘back’	脚背
88	djeh ag teo jin	the connecting part between leg and feet	djeh ‘foot’ ɑŋ? teo ‘head’ jin ‘neck’	jiao3 ‘foot’ ang? tou2 ‘head’ jin3 ‘neck’	/	/
89	djeh zag	ankle	djeh ‘foot’ zag ‘stump’	jiao3 ‘foot’ zhuang1 ‘stump’	huai2 ‘ankle’ guan1 ‘joint’ jie2 ‘part’	脚踝
90	djeh wo ti	sole	djeh ‘foot’ wo ‘lower’ di ‘bottom’	jiao3 ‘foot’ xia4 ‘low’ di4 ‘bottom’	jiao3 ‘foot’ di4 ‘bottom’	脚底
91	djeh yao jiao	the sunken part of the sole	djeh ‘foot’ yao ‘waist’ jiao ‘bridge’	jiao3 ‘foot’ yao1 ‘waist’ qiao2 ‘bridge’	/	/
92	djeh zi (me) teo	teo	djeh ‘foot’ zi ‘finger (mu ‘finger’) teo ‘head’	jiao3 ‘foot’ zhi3 ‘finger’ (mu3 ‘finger’) tou2 ‘head’	jiao3 ‘foot’ zhi3 ‘finger’ (tou2 ‘head’)	脚趾(头)
93	djeh eoh kin djü	heel	djeh ‘foot’ eoh ‘back’ kin ‘root’ djü?	jiao3 ‘foot’ hou4 ‘back, later’ gen1 ‘root’ chu2?	jiao3 ‘foot’ gen1 ‘root’	脚跟
94	djeh ts’ie jin	heel(upper part)	djeh ‘foot’ ts’ie ‘thousand’ jin -quantifier	jiao3 ‘foot’ qian1 ‘thousand’ jin1 - quantifier	/	/

APPENDIX E: BODY TERMS OF MANDARIN

Mono-syllable: 33 words; proportion: 20.4%

Two-syllable: 109 words; proportion: 67.3%

Three-syllable: 17 words; proportion: 10.5%

Four-syllable: 3 words; proportion: 1.9%

1. 身体	2. 四肢	3. 头	4. 颈	5. 臂	6. 上臂	7. 前臂
8. 腕	9. 头顶	10. 头发	11. 头颈	12. 头颅	13. 头皮	14. 脑
15. 大脑	16. 小脑	17. 脑子	18. 脑袋	19. 脑袋瓜	20. 脑海	21. 脑瓜
22. 脑勺	23. 后脑勺	24. 脑门	25. 五官	26. 面	27. 面颊	28. 脸
29. 脸蛋	30. 耳朵	31. 耳郭	32. 耳垂	33. 耳轮	34. 耳屏	35. 眼睛
36. 眼	37. 眼白	38. 眼袋	39. 眼底	40. 眼睑	41. 眼角	42. 眼眶
43. 眼泪	44. 眼眉	45. 眼泡	46. 上眼皮	47. 眼皮	48. 眼皮子	49. 眼球
50. 眼屎	51. 眼窝	52. 眼珠子	53. 眼珠	54. 眉毛	55. 眉峰	56. 眉眼
57. 睫毛	58. 眼睫毛	59. 鼻子	60. 鼻翅	61. 鼻翼	62. 鼻尖	63. 鼻孔
64. 鼻腔	65. 口	66. 口角	67. 口腔	68. 嘴	69. 嘴巴	70. 嘴唇
71. 嘴角	72. 舌	73. 舌头	74. 牙	75. 牙齿	76. 胡子	77 脖子
78. 肩	79. 肩膀	80. 膀臂	81. 背	82. 脊背	83. 胸部	84. 乳房
85. 胃	86. 肚子	87. 肚脐	88. 肚皮	89. 肚脐眼儿	90. 肚脐眼	91. 腰
92. 肘	93. 椎骨	94. 腰椎	95. 腰子	96. 腰眼	97. 腰板	98. 腰板儿
99. 腰杆	100. 腰杆	101. 椎间盘	102. 臀	103. 股	104. 腿	105. 腿

106. 大腿	107. 小腿	108. 膝盖	109. 脚	110. 脚背	111. 脚板	112. 脚腕
113. 脚底	114. 脚底板	115. 脚跟	116. 脚后跟	117. 脚尖	118. 脚面	119. 脚腕子
120. 脚心	121. 脚趾	122. 脚趾头	123. 脚掌	124. 屁股	125. 心	126. 心脏
127. 心房	128. 心尖	129. 肝脏	130. 肝	131. 胆	132. 肠	133. 胳膊
134. 腋下	135. 胳肢窝	136. 胳膊腕子	137. 胳膊肘	138. 胳膊肘子	139. 胳臂	140. 膀子
141. 臂膀	142. 臂膊	143. 肩	144. 腿	145. 膝	146. 踝	147. 手
148. 手腕儿	149. 手腕	150. 手指	151. 手臂	152. 手心	153. 手掌	154. 指甲
155. 拳头	156. 骨头	157. 关节	158. 肌肉	159. 血管	160. 皮	161. 皮肤
162. 毛	163. 腋毛					

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APPENDIX F: IRB CONSENT FORM

IRB TEMPLATE Version 2.0 - 12/5/2018 - Do not alter this text box

University of North Carolina at Chapel Hill
Consent to Participate in a Research Study
Adult Participants

Consent Form Version Date: 4/18/2019
IRB Study # 19-1115
Title of Study: Documentation of Xianju Wu Chinese
Principal Investigator: Victoria Brown
Principal Investigator Department: Linguistics
Principal Investigator Phone number: (919) 962-1192
Principal Investigator Email Address: brownv@live.unc.edu
Faculty Advisor: David Mora Marín
Faculty Advisor Contact Information: (919) 537-9511

The purpose of this study is to document and describe Xianju Wu Chinese, including its sound system, sentence structure, and vocabulary, as well as its history and sociolinguistic aspects. This research will help us better understand how Xianju Wu Chinese works, add to research on Chinese languages, and preserve the language.

You must be a native speaker of Xianju Wu Chinese, use Xianju Wu Chinese in your daily life, and be over 18 years old to participate in this study.

If you participate, you will fill out a questionnaire giving your gender, the regions where you have lived (no addresses), where your parents are from, your birth year, and your profession. After that, we will turn on audio recording. You will be asked to say sentences, words, and phrases in Xianju Wu Chinese. You may also be asked to provide short narratives and other types of oral texts in Xianju Wu Chinese. For example, a story about your life or a recipe.

Once you begin the questionnaire, the session will last approximately 30 minutes to one hour.

What are some general things you should know about research studies?
You are being asked to take part in a research study. To join the study is voluntary.
You may choose not to participate, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. You may not receive any direct benefit from being in the research study. There also may be risks to being in research studies.

Details about this study are discussed below. It is important that you understand this information so that you can make an informed choice about being in this research study.

You will be given a copy of this consent form. You should ask the researchers named above, or staff members who may assist them, any questions you have about this study at any time.

What is the purpose of this study?
The purpose of this research study is to document and describe the sound system, sentence structure, vocabulary, sociolinguistic aspects, and history of Xianju Wu Chinese.

You are being asked to be in the study because you are a native speaker of Xianju Wu Chinese who speaks Xianju Wu Chinese in daily life.

Are there any reasons you should not be in this study?
You should not be in this study if you are not a native speaker of Xianju Wu Chinese, you do not speak Xianju Wu Chinese regularly, or you are younger than 18 years old.

How long will your part in this study last?
After you begin the questionnaire, this session will last about 30 minutes to one hour. You may be asked if you are interested in taking part in another session, depending on your individual situation and the researchers' data needs and time limits.

What will happen if you take part in the study?

- You will fill out a questionnaire giving your gender, the regions where you have lived (no addresses), where your parents are from, your birth year, and your profession. You may choose not to answer any question for any reason.
- You will participate in an audio recording where the researchers will ask you how to say words, sentences, and phrases in Xianju Wu Chinese. The researchers may also ask you about other topics like aspects of life in Xianju or your use of Xianju Wu Chinese.

What are the possible benefits from being in this study?
Research is designed to benefit society by gaining new knowledge. You will not benefit personally from being in this research study. However, this study will help us document Xianju Wu Chinese and preserve information about a language that is changing.

What are the possible risks or discomforts involved from being in this study?

You may experience discomfort during this study if asked a question about Xianju Chinese that you do not know the answer to. However, we value all speakers of Xianju Chinese and believe that every speaker's use of the language is important, so there is no need to feel embarrassed if you are asked a question you do not know the answer to.

This study also carries the risk of breach of confidentiality. We will do everything we possibly can to keep your identity from being connected with the published data, including storing the audio files separately from your name and only using decontextualized and edited clips in public presentations; however, nothing that is recorded is ever truly secure.

What if we learn about new findings or information during the study?
You will be given any new information gained during the course of the study that might affect your willingness to continue your participation.

How will information about you be protected?
Audio recordings will be stored separately from your name. Your name will be listed in a separate document along with an identifier code. The recordings and the document with your name and code will not be stored together. We will not publish any part of the audio recording that could identify you personally. Typically, linguistic research involves publishing small sections of an audio recording, like a word or a phrase, that has been taken out of the rest of the recording, so this decontextualization should be sufficient for protecting your identity. We may also publish sociolinguistic data – for example, information you give us about how Xianju Wu Chinese is used and your experiences as a speaker. You are welcome to request during your interview that we do not publish specific information that you give us.

Participants will not be identified in any report or publication about this study. We may use de-identified data from this study in future research without additional consent.

Although every effort will be made to keep research records private, there may be times when federal or state law requires the disclosure of such records, including personal information. This is very unlikely, but if disclosure is ever required, UNC-Chapel Hill will take steps allowable by law to protect the privacy of personal information. In some cases, your information in this research study could be reviewed by representatives of the University, research sponsors, or government agencies (for example, the FDA) for purposes such as quality control or safety.

Audio recordings will be kept on a storage device and in online storage that only the researchers have access to. The recordings will be kept after our projects are complete so that the information is not lost. You may request that we turn off the audio recording at any time.

Check the line that best matches your choice:

_____ OK to record me during the study

_____ Not OK to record me during the study

What if you want to stop before your part in the study is complete?
You can withdraw from this study at any time, without penalty. The investigators also have the right to stop your participation at any time. This could be because you have failed to follow instructions or because the entire study has been stopped.

Will you receive anything for being in this study?
You will not receive anything for taking part in this study.

Will it cost you anything to be in this study?

It will not cost you anything to be in this study.

What if you have questions about this study?

You have the right to ask, and have answered, any questions you may have about this research. If you have questions about the study, complaints, concerns, or if a research-related injury occurs, you should contact the researchers listed on the first page of this form.

What if you have questions about your rights as a research participant?

All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights as a research subject, or if you would like to obtain information or offer input, you may contact the Institutional Review Board at 919-966-3113 or by email to IRB_subjects@unc.edu.

Participant's Agreement:

I have read the information provided above. I have asked all the questions I have at this time. I voluntarily agree to participate in this research study.

_____ _____

Signature of Research Participant Date

_____

Printed Name of Research Participant

_____ _____

Signature of Research Team Member Obtaining Consent Date

_____

Printed Name of Research Team Member Obtaining Consent

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