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Floating Tone of Pianding Dialect in Naxi Language

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1. Introduction

Floating tone, also known as vowelless tone (Goldsmith 2002: 84), refers to the tone continues to exist in the under-layer after losing tonebearing unit, and fulfill its surface form via docking (or grounding) in the adjacent syllable. The term of “floating tone” has been introduced as early as 1971 by African Linguist Voorhoeve (Michaud 2017: 60), and has been mainly applied to explain the tone modification phenomenon in African and American level-tone language (Hyman&Tadadjeu 1976; Odden 1988; Chumbow&Nguendjio 1991; Paster 2003;Vydrin 2016).

For instance, in the evolution history of Bantu Language, the second syllable of disyllabic noun in most language loses vowel and turns into floating tone, which forms together with the first syllable into slope tone (HL, LH), or links with the remaining root to fulfill as the surface form in sentences. Only in few language the second syllable loses together with tone, and without any trace left (Nurse &Philippson 2003: 59-70). In another case, the low level floating tone (L) represents identifiable in Bamana language, and when the following syllable starts with high level tone, the high level tone downsteps to !H, while the syllable following low level tone has not been affected. Such floating tone has been

proved to be originated from the definite article *ò (Vydrin 2016:91), and completely separated from the syllable to undertake the identifiable function independently, for instance, the actual phonetic form of /mu^Lso^H-^Ltɛ^H/ in 1(a) is [mu^Lso^Htɛ^ˈH]¹; if there is no floating tone representing identifiable, the tɛ^H in 1(b) will have no tone modification (Vydrin 2016: 90).

- (1) a. mu^Lso^H ^L tɛ^H **That** woman is not.
 woman (Identifiable) not
- b. mu^Lso^H tɛ^H Woman is not.
 Woman not

The concept of floating tone has been applied by some researchers to explain the tone or tone modification phenomenon in Asian Languages as well in recent years, for instance, Qiang Language (Evans 2008), Burma Kuki-Thaadow Language (Hyman 2010). Alexis Michaud states that floating tone exists in Yongning Mosuo dialect, Dayan Town dialect, Lengbuluo dialect, and the floating tone in Mosuo dialect has been derived from the evolution of the syllabic metrical structure (Michaud2006, 2017). We opine that the Pianding dialect of Naxi Language exists similar floating tone, and its quantity, souce and phonetic system present more complex situation.

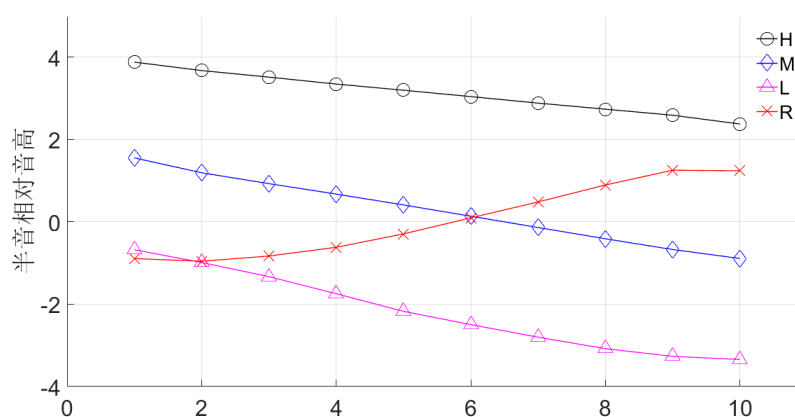
Naxi Language is a Tibeto-Burman language of Sino-Tibetan Family, however, there is still argument about the division of the specific language branch. The generally accepted viewpoint is that Naxi Language belongs to Yi branch,

¹ The phonetic symbol of original has been transferred herein.

including the two dialects of Eastern and Western (He Jiren, Jiang Zhuyi 1985:104). Pianding Village is located in Dadong Town, Gucheng District, Lijiang City, Yunnan Province. There are minor phonetics differences between the Pianding dialect and Dayan Town dialect, the standard language of Naxi Language, while antithesis exists in apical vowel and retroflex-vowel in Pianding dialect and consonant has not only voicing contrast but also the pre-nasal sounds. Pianding dialect has four monosyllabic word tones, including high level (H), medium level (M), low level (L) and rising tone (R)². Figure 1 shows the monosyllabic tone pattern chart of Pianding dialect derived from the work pronunciation of 13 adults (including 6 males and 7 females).

(Table1) Tone of Pianding Dialect of Naxi Language

Tone Description	High Level	Medium Level	Low Level	Rising Tone
Alphabetic Tone-marker	H	M	L	R
Example of Naxi Language	t ^h aɭ	t ^h aɭ	t ^h aɭ	t ^h aɭ
Chinese	can	rubbing	jar	his home



(Figure 1) Tonal F0 contours of monosyllabic of Pianding Dialect

² The phonemic system of Pianding dialect herein refers to (Michaud & He 2015); the description of tone has been adjusted slightly. The corpus used is the native language of the first author.

Similar to other cognate language of Sino-Tibetan Family, each syllable of the tone of Pianding dialect of Naxi Language has fixed tone, and the Tone Sandhi may occur when syllables connect. However, the condition of some tone modification phenomena of Pianding dialect can't be easily told in synchronic environment. For instance:

- (2) a. **ŋv̄l** mjɣl **tʰeɿ** **hyɿ** mɣt wɑt əl tsɿl meɿ...
 2SG eye CON **red** 肯定 DECL 陳述 DECL 強調 QUOT but
 (Shepherd) said: "your eyes are still red", however...

In the example sentence, the words in boldface are respectively **ŋv̄l**“you”, **tʰeɿ**“durative aspect marker” and **hyɿ**“red” when used individually, and the actual tone value are [ŋv̄:ɿ], [tʰe:ɿ] and [hy:ɿ] as actually put into sentence no matter the speed is fast or slow. If the tone has not been modified (as in case *2b), the sentence will make no sense. It indicates that such tone modification is not simply caused by the connected voice in the flow of speech.

- *b. **ŋv̄l** mjɣl **tʰeɿ** **hyɿ** mɣt wɑt. əl tsɿl meɿ...

In the existing literatures of Naxi Language research, the tone modification phenomenon, generally known as "elided tone modification" caused by syllable elided in a sentence has been described already. In the description of Dayan Town dialect, there are records that "when the conjunction or adverb **taɿ**‘仅’ has been omitted in the sentence, the tone of the syllable before it shall be modified into low rising tone (He Jiren, Jiang Zhuyi 1985:14-15), "except the medium level tone (33), the low falling tone (31) also modified into low rising tone (13) in the 'elided tone modification', while high level tone (55) will not be midified" (He

Zhiwu 1987:8). The study on " elided tone modification" of Dayan Town dialect and Lengbuluo dialect of Naxi Language by Michaud introduces the concept of "floating tone" and analysis method (Michaud 2006), opining that the " elided tone modification" of both dialects is, in essence, the two processes of syllable weakening of high level tone and docking of high level floating tone, the modified tone "low rising tone" caused by "elided" actually includes the two antithesis rising tone of LH and MH. The analysis of Michaud proves that floating tone can reasonably depict and explain the tone modification caused by syllable weakening. The tone modification phenomenon of Pianding dialect of Naxi Language can also be analyzed by floating tone, representing more abundant floating tone types, expression measures of more dimensions. It is to depict and analyze herein for the purpose of enhancing the understanding of nature of tone modification.

In addition, the researches on floating tone are mainly the description and analysis of the word, phrase and syntactic structure that floating tone exists and the representation form of floating tone, while its origination has been rarely discussed. Based on the existing literature, the floating tone is derived from the weakening of the specific syllable, however, it is generally hard to reappear the original syllabic form as evidence in terms of synchronic performance. While most of floating tone of Pianding dialect can figure out its source of function word in the synchronization level, it has been expected that the study can provide some clues for the research of the development path of floating tone.

2. Most of the floating tone of Pianding dialect is derived from the syllable weakening and leftward docking, retaining the pitch feature, semantic, grammatical function of the original syllable

Unrelated to speech speed, the tone modification in the example above has been caused not only by the connection of voice. Based on the language sense of the native speaker, there is elided of some components in such sentences, and the components omitted can be generally reappeared. Example 2a can be restored to example 2c (the italic means the component to be weakened). In terms of probability of occurrence, the form of 2c has been used more frequently than 2a in terms of daily expression.

c.	ŋp̄l	<i>gɣ̄l</i>	mjɣ̄l	tʰēl	<i>tāl</i>	hɣ̄l	<i>jɣ̄l</i>	mɣ̄l	wāl.
	2SG	POSS	eye	CON	only	eye	VIS	肯定 DECL	陳述 DECL
	ə̄l	ts̄l	mēl...						
	強調	QUOT	but						

It can be concluded that the floating tone in 2a has been formed by the residual energy of the phonetic component omitted in 2c; such “residual energy” is “floating tone”, and the syllable carries such energy is “host syllable”. The vowel, consonant component of function words *gɣ̄l* “possessives”, *tāl* “only”, *jɣ̄l* “witness” has been omitted, and its tone becomes the end point of the pitch motion of its host syllable, and the syllable completely preserves the original semantic, grammatical function, such as *tʰēl* < *tʰēl* *tāl* “still” makes the example 2b, which doesn’t represent the semantic and grammatical function, no sense. Therefore, the floating tone is originated from syllable weakening instead of

elided.

The docking of floating tone has a direction, and it is rightward docking for some languages, as the Peñoles Mixtec of Mexico, whose floating tone docks in the following syllable and makes the following tones modified (Daly & Hyman 2007). While the floating tone of Pianding dialect is leftward docking, its syllable weakens and combines with the adjacent syllable to its left to make it modified.

Based on the literature investigated, the syllables that can be weakened into floating tone are mostly function words, e.g., adverb taɿ “only”, witness marker jɿɿ, possessives gɿɿ, inherent case loɿ and etc.. While copula “be”, numeral “one” are the only two notional words that can be weakened into floating tone,

3. The ways of expression of floating tone of Pianding dialect includes two dimensions of pitch and length, and the types of tonal contour are abundant

The former description for the elided tone modification or floating tone phenomenon has been conducted from the aspect of pitch. The floating tone of Pianding dialect manifests in two aspects of pitch and length.

3.1 Length

Length representation is to prolong the host syllable. If the host syllable falls into coincidence with the tone of weakening syllable, the host syllable will be prolonged; if no coincidence, the host syllable will not only be prolonged but the pitch trend will be changed as well. (Since the floating tone will certainly lead to prolong of host syllable, it will not be indicated separately unless specified

otherwise.)

The length feature has no phoneme position in the static phonetic system of Pianding dialect, however, it has meaning differentiation function in sentences because of the exist of floating tone. The meaning differs as the length of kɿ in case 3a and 3b.

- (3) a. duɿ kɿ jɿ seɿ.
one CLF EXIST PFV
There is a stick.
- b. duɿ kɿ:l jɿ seɿ.
one CLF: only EXIST PFV
There is only one stick.

3.2 Pitch

The tonal pattern of floating tone has various types of rising, falling, level, rising-rising, rising-falling besides the rising tone. Since the floating tone doesn't derive from the rising tone syllables of Pianding dialect, the pitch trend of floating tone will be described in terms of three kinds of derived syllables of high level, medium level and low level below.

3.2.1 High level floating tone

We name floating tone deriving from high tone syllable as high level floating tone. It can presents high level or raising contour when docking in syllable before it. The high level tone includes adverb taɿ “only”, dynamic adverbial marker bɿ, conjunction nuɿ “or”, conjunction luɿ “if.....”. Taking taɿ as example, it has been weakened into high level floating tone in the structure of “numeral + classifier + taɿ” and made the classifier of different tones modified.

(4) a. du²¹ ta⁴ j²¹ se²¹.
one CFL (water): only EXIST PFV
du²¹ ta⁴ ta¹ j²¹ se²¹.

b. one CFL (water) only EXIST PFV
There is only one bucket of water.

The sentence meanings in case 4a and 4b are completely identical. High level adverb ta¹ docks to the left as weakened into floating tone, which changes the classifier ta⁴ from medium level into medium high rising tone (MH). However, it means completely different if the syntactic constituent ta¹“only” has been directly omitted and the syllable before it has not been modified, for instance, 4c:

c. du²¹ ta¹ j²¹ se²¹.
one CFL (water) EXIST PFV
There is already one bucket of water

The adverb ta¹, as combined with other classifiers, may also weaken into floating tone, and the classifiers docking in different tones has differed pitch representations:

<table 2> ta¹ “only” make tones of classifiers modificate

Floating tone have the same tone with host syllable	Floating tone have different tone with host syllable		
High level tone CLF	Low level tone CLF	Medium level tone CLF	Rising tone CLF
ta ¹ 根 (玉米)	ta ¹ 堆 (柴)	ta ¹ 擔 (水)	ta ¹ 選 (錢)
kɿ ¹ 根	kɿ ¹ 罐	kɿ ¹ 溝	kɿ ¹ 格
**	k ^h u ¹ 根 (線)	k ^h u ¹ 根 (樹根)	**
p ^h ɿ ¹ 條 (被子)	p ^h ɿ ¹ 塊 (地)	p ^h ɿ ¹ 副	**
tæ ¹ 袋	tæ ¹ 豎	tæ ¹ 單	**
**	**	**	ho ¹ 盒
**	**	**	fa ¹ 發

**	**	**	je1 戶
----	----	----	-------

It can be concluded that the weakening of adverb ta1 make the length of the tone of all classifiers prolong, and the change of pitch reveals obvious regulation.

The similar situation also occurs to other high level function word, e.g.:

- (5) i1bi1 lo1 ze1 ji1 dzɿ1 lu1 næ1 ʂɿ1 me1
 Jinsha River INESS-1 TOP fish catch: ADVB.DYN come should say DECL
 tsɿ1 we1.
 QUOT DECL

It has been said that you should come back catching fish from Jinsha River.

(bɿ1“-ing”, dzɿ1 bɿ1>dzɿ1 “catching.....”)

- (6) nu1 dzu1 lo1 bu1 mɿ1 bu1 le1?
 2SG city INESS go -or NEG go Q
 Will you go to the city or not?
 (nu1“or”, bu1 nu1>bu1“go or.....”)

- (7) kʰæ1dze1 du1thɿ:1 ʂu1 se1.
 corn: CONJ all: ADVB.STAT die CPL: PFV
 Even corns are all dead.
 (lu1 “even” , kʰæ1dze1 lu1> kʰæ1dze1 “even corn.....”)

3.2.2 Medium level floating tone

Medium level floating tone has been mostly generated by the weakening of medium level tone function word syllable, getting falling, level, rising, rising-falling varies pitch contour when connected with former syllable, including witness marker jɿ1, possessives ɣɿ1, agentive nu1, static adverbial marker be1, auxiliary word la1“too” and etc. Numeral du1“—” is the only medium level tone as well as content word. The du1 will be taken as example to explain the

representation of medium level floating tone.

(8) t^huŋ, leŋcyŋ zeŋ jeŋ miŋ muŋ hoŋt^hoŋ ciŋ tʂ^hoŋ loŋ
 then again TOP AUX fire blow fire tube- CON put there
 zeŋ puŋ-luŋ lyŋ ɣŋ ciŋ mɸŋ tʂŋŋ mɸŋ.
 TOP flute: a CFL take put DECL QUOT DECL

"And then a flute has been put in the place where blow fire tube has been put."

The intact form of puŋ-luŋ lyŋ in the sentence is puŋ-luŋ duŋ lyŋ, the *puŋ-luŋ lyŋ without tone modification makes no sense. Medium level floating tone docks in the nouns in the structure of "noun+duŋ+classifier", besides the prolonging of the length of all nouns, there is different pitch representations as well. It is interesting that the numeral-classifier-noun structure has generally form antithesis to the corresponding compound when the numeral duŋ “one” modified into floating tone, e.g. leŋk^hwaŋ “a bowl of tea” and leŋk^hwaŋ “tea bowl”, uŋ:ŋmeŋ “a cow” and uŋ:ŋmeŋ “female cow”, ɕi:ŋ hwaŋ “a group of people” and ɕi:ŋhwaŋ “crowd” and etc. (Table 3)

< Table 3> duŋ “one” make tones of nouns modificate

numeral-classifier-noun structure	floating tone of duŋ	Compound words or phrases
leŋ duŋ k ^h waŋ (茶/一/碗)	⇒ leŋ k ^h waŋ 一碗茶”	leŋk ^h waŋ 茶碗
tʂ ^h ŋ duŋ meŋ (羊/一/只)	⇒ tʂ ^h ŋ meŋ 一隻羊”	tʂ ^h ŋmeŋ 母羊
ʂəŋ duŋ nduŋ (泥垢/一/坨)	⇒ ʂəŋ nduŋ 一坨泥垢”	ʂəŋnduŋ 泥垢
uŋ duŋ meŋ (牛/一/只)	⇒ uŋ:ŋ meŋ 一隻牛”	uŋ:ŋmeŋ 母牛
fɸ duŋ paŋ (鋸子/一/把)	⇒ fɸ:ŋ paŋ 一把鋸子”	fɸ:ŋpaŋ 長毛
ɕiŋ duŋ hwaŋ (人/一/群)	⇒ ɕi:ŋ hwaŋ 一群人”	ɕi:ŋhwaŋ 人群
niŋ duŋ meŋ (魚/一/只)	⇒ ni:ŋ meŋ 一隻魚”	ni:ŋmeŋ 太陽
oŋ duŋ meŋ (鵝/一/只)	⇒ oŋ meŋ 一隻鵝”	oŋmeŋ 雌鵝
æŋ duŋ meŋ (雞/一/只)	⇒ æŋ meŋ 一隻雞”	æŋmeŋ 母雞
piŋ duŋ lyŋ (筆/一/只)	⇒ piŋ lyŋ 一枝筆”	** **

mɣʌ duɾ tʰaɿ (墨/一/瓶)	⇒ mɣʌ tʰaɿ 一瓶墨水”	mɣʌtʰaɿ	墨瓶
tʰaɿ duɾ lɿ (塔/一/座)	⇒ tʰaɿ lɿ 一座塔”	**	**
laɿ duɾ lɿ (蠟/一/支)	⇒ laɿ lɿ 一支蠟燭”	**	**

Besides numeral duɾ, witness marker jɣɿ, possessives gɣɿ, ergative nuɾ, static adverbial marker beɿ, auxiliary word laɿ“too” can be weakened into medium level floating tone, which makes the tone of former syllable modified, and the rule of tone modification is the same with duɾ:

(9) eɿ, gɣɿ tʂʰəɿ nuɾ cæɿ bɣɿ **tɕʰiɿ** meɿ maɿ.

PAUSE 上 代 A CH.講 ADVB.DYN 來: VIS DECL DECL

hum…… (The story) is talked from last generation to now.

(jɣɿ, tɕʰiɿ jɣɿ > tɕʰiɿ “(witness it) come to now/here”)

(10) **gʷaɿzɿ:** tʂʰuɿ hwaɿ zeɿ leɿ ndɿ:ɿ huɿ tʂəɿ.

弟弟-POSS DEM CLF.群: -ɿ TOP ITER 趕-ADVB.DYN 去 CAUS

The group (livestock)of brother, (let him)drive away first.

(gɣɿ, gʷaɿzɿ gɣɿ > gʷaɿzɿ: “brother’s”)

(11) eɿ, soɿniɿ zwaɿ kʋɿ **dzɿ** leɿ ndɿ tɕʰiɿ zeɿ jeɿ...

PAUSE 明天 馬 頭 EXIST:A ITER 趕 來-ɿ TOP PAUSE

When MaMian came to drive (the thief) on the next day…….

(ergative nuɿ, zwaɿkʋɿdzɿ nuɿ > zwaɿkʋɿdzɿ “MaMian came to……”)

(12) kʰæɿdzeɿ **duɿhɣ:** ʂuɿ seɿ.

玉米: 連 全部: ADVB.STAT 死 CPL: PFV

Even corns are all dead.

(static adverbial marker beɿduɿhɣ: beɿ > duɿhɣ: “totally……”)

(13) æɿ leɿ cyɿ tɕʰiɿ tsɿɿ weɿ.

雞: 也 ITER 鳴: ADVB.DYN 來: VIS QUOT DECL

It is said that the chicken also begun to ring again.

(uxiliary word laɿ “也” , æɿ laɿ > æɿ “chicken also…” .)

3.2.3 Low level floating tone

Some low level function word in Pianding dialect can also be weakened into floating tone, getting falling, low-level, rising-falling pitch contour when connected with former syllable. e.g. perfect aspect of verb seɿ, durative aspect marker tʰeɿ, progressive aspect marker niɿ, inherent case loɿ, copula waɿ and etc. The perfect aspect seɿ has been taken to explain the representation of low level floating tone.

- (14) a. ʝiɿ nuɿ piɿ bɿɿ huɿ tsɿɿ.
water A wash DYN.ADVb away: PFV QUOT
- b. ʝiɿ nuɿ piɿ bɿɿ huɿ seɿ tsɿɿ.
water A wash DYN.ADVb away PFV QUOT
“It is said that the water washed (it) away”.

The example sentence 14a has the same meaning with 14b. “away” in the sentence pronounces huɿ individually, the perfect aspect marker seɿ docks on it after floating tone modification, besides the prolonging of length, the pitch has been changed from medium level tone (ɿ) into medium low falling tone (ɿ̄). If the huɿ “away” has no tone modification occurred in the meanwhile of elided of seɿ, the meaning of the sentence will be changed. Example sentence 14a and 14c has been compared as follows:

- c. ʝiɿ nuɿ piɿ bɿɿ huɿ tsɿɿ.
water A wash DYN.ADVb away QUOT
“It is said that (it) is washed by water”

When seɿ “了” docks in the verbs of other different tone after floating tone modification, besides prolonging the syllable of verb, it can also present different

pitch trend. See table 4.

< table 4> seJ“了”make tones of verbs modificate

V(host syllable)	V+seJ(tone modification)	Meaning
k ^h oŋ	k ^h oŋ	殺了
luŋ	luŋ	尿了
k ^h æŋ	k ^h æŋ	咬了
ŋgaŋ	ŋgaŋ	贏了
doŋ	do:ŋ	見了
kɤŋ	kɤ:ŋ	篩了
faŋ	faŋ	發了
p ^h ɤŋ	p ^h ɤŋ	拍了

Durative aspect marker t^heJ, progressive aspect marker niJ, inherent case loJ and copula waJ can also be weakened into low level floating tone, as which docks behind verb, the tone modification rule of the host is identical.

- (15) jwæŋsɿthoŋfɔŋ beŋ çɿŋ nuŋ **lu:ŋ** ciŋ t^huŋ, əŋ? ...
 wholly intact ADVB. people A plow-CON put DEM Q-COP
 DYN

“restore (the farmland) that others plowed (to the former condition) wholly intact, doesn't it?”
 (Durative aspect marke t^heJ, luŋ t^heJ ciŋ > lu:ŋ ciŋ “plow and put ”)

- (16) ŋaŋ diŋ tɕ^huŋ ŋguŋ nuŋ t^heJ **cæŋ** sjɤŋ maŋ.
 IPL.ASSOC dad DEM they A CON talk: PROG CPL: VIS DECL
 (often heard) my father (they) were talking (story).
 (progressive aspect marker niJ, cæŋ niJ > cæŋ “are talking”)

- (17) muŋtɕuŋ luŋt^haŋ t^huŋ tsaŋ bɤŋ **huŋ**
 stone mortar stone mortar DEM carrying ADVB.DYN sea-INNESS
 muŋ tɕ^hoŋ jeŋnuŋ...
 down jump so

He jumps to the sea with stone mortar and millstone, so...

(inherent case loJ, hu1 loJ mu1 tsʰo1 > hu1 mu1 tsʰo1 “jumps to the sea” .)

- (18) pʰiJlu1 kv1 nu1 ŋji1 i1sɿ1 se1 ma1,
flat road ADES ABL:only walk: PROG mean PFV DECL
swe1 je1.
officer: COP so

It means he walked only on flat road because of being officer.

(copula waJ, swe1 waJ je1 > swe1 je1 “because of being officer” .)

4. The relationship of floating tone and weakening syllable of Pianding dialect presents two statuses

The above introduces the function word or few content word of Pianding dialect has been weakened into floating tone to dock in the previous host syllable, and prolong or (and) modify the host syllable. There is another tone modification situation in Pianding dialect, which is hard to explain. Such tone modification is compulsory, meaning must be modified. For instance:

- (19) mjɿ1 ndəJ tsʰu1 gɸ1 ze1 je1 kwɿ1jɿ1 mɿ1 ljɿ1 tse1.
eye turbid this CLF TOP then a little not beautiful QUOT
It is said that this turbid eye (daughter of deva) is not so beautiful

The classifier in the sentence is [gɸ1]“个” when use individually, while the actual voice is [gɸ:1] when put in the sentence. No other component can be inserted between it and the following topic marker syllable. If the classifier maintains the length of vowel and tone unchanged, it is unnatural in terms of language sense and the sentence makes no sense as well. Then, does the nature of this tone modification fall into floating tone? The example sentences 20a to 20d show more:

- (20)
- | | | | | | | |
|----|---|--------------|------|-------|-----|------|
| a. | ŋa˩ | la˩ | gɣ˩ | tʂʰu˩ | kɸ˩ | mɣ˩ |
| | I | beat | only | read | can | DECL |
| | I can only read “beat”. (la˩ “beat”) | | | | | |
| b. | ŋa˩ | la˩ | gɣ˩ | tʂʰu˩ | kɸ˩ | mɣ˩ |
| | I | tiger | only | read | can | DECL |
| | I can only read “tiger”. (la˩ “tiger”) | | | | | |
| c. | ŋa˩ | la˩ | gɣ˩ | tʂʰu˩ | kɸ˩ | mɣ˩ |
| | I | hand | only | read | can | DECL |
| | I can only read “hand” 。 (la˩ “hand”) | | | | | |
| d. | ŋa˩ | la˩ | gɣ˩ | tʂʰu˩ | kɸ˩ | mɣ˩ |
| | I | wax | only | read | can | DECL |
| | I can only read “wax” 。 (la˩ “wax”) | | | | | |

In these examples, there can be different tone modification forms before the same syllable, thus tone modification is actually not the pitch regressive assimilation phenomenon in the flow of speech. ze˩ and gɣ˩ have also not been weakened, and they are not the weakened syllable generating floating tone as well. How such tone modification has been generated? In the course of research on the floating tone of topic marker se˩ of Dayan Town dialect, Michaud concludes that it is derived from the weakening of bisyllable *lu˩se˩ (Michaud 2006). Meanwhile, we deem that such type of tone modification phenomenon of Pianding dialect has been caused by floating tone, only it's a long time of syllable weakening, some grammatical components or word in the sentence have fell off, which makes the current native speaker disable to “restore” the long “invisible” weakening syllable. It thus make the current relationship of floating tone and weakening tone represented as the two states of “reducible” and “unreducible”. The former takes most of the two states. This hypothesis still requires further

research later.

5. Discussion

It is to analyze the phonological representation form, semantic and grammatical function and origination of the floating tone of Piangding dialect in Naxi Language to conclude that the “elided tone modification” phenomenon of Piangding dialect is actually the “weakening tone modification”, which has been caused by the floating tone of another two sub-dialects as Dayan Town dialect and Lengbuluo dialect. The fulfillment of floating tone is the weakening of the syllable into floating tone and docking in the previous host syllable, and also prolonging or (and) modifying the host syllable.

Most of the floating tone in Piangding dialect is originated from the syllable weakening of function word; a few of the syllables are content words, e.g. copula “be”, numeral “one”. The floating tone has definite docking direction—leftward, the tone of the original syllable docked becomes the destination of high motion of the host syllable, and completely retains the original semantic, grammatical function.

The representation of floating tone of Piangding dialect is the two dimension of pitch and length. The representation of length is to prolong the host syllable. The length feature has no phoneme position in the monosyllable, while it has the meaning differentiation function in the sentence. The floating tone represents very abundant pitch trend, including 12 kinds.

< table 5> Pitch contour of floating tone in Pianding dialect

weaken syllable pitch contour host syllable	High Level	Medium Level	Low Level
High Level	H (ʔ)	HM (ʔ)	HL (ʔ)
Medium Level	MH (ʔ)	M (ʔ)	ML (ʔ)
Low Level	LH (ʔ)	LM (ʔ)	L (ʔ)
Rising	RH (ʔ)	RM (ʔ)	RL (ʔ)

The relationship between floating tone and weakening syllable represents the two statuses of “reducible” and “unreducible”. The former accounts for the vast majority. The phonetic change in the course of combination of the host syllable and the weakening function word syllable following is the main path of development of floating tone.

The abundant and complex two dimensional representation of floating tone of Piangding dialect in Naxi Language provides new material and perspective to the study of typology of floating tone. The floating tone of African languages has abundant forms, strong vocabulary and grammatical function, mostly is originated from the weakening of affix or word in the grammatical scope, however, most of the language can hardly figure out its origination path. Most of the floating tone of Piangding dialect in Naxi Language can figure out its function word origination in the synchronic level, has two dimension phonological measures of pitch and length, which offers clear clue on the development path and fulfillment manner of floating tone.

Moreover, in the discussion of the tone modification caused by the floating tone in African and American languages, the down step caused by the low level floating tone has been mostly discussed. For instance, mè (mine) òbó (stone) >

mè !bó “my stone” in Twi language, in which, vowel of ò drops to be weakened into floating tone L, leading into the down step of the high level tone bó into !H. The similar phenomenon to that also occur to Gã of Africa (Paster 2003), Bamana language of Niger-Congo family (Vydrin 2016), Peñoles Mixtec language of American Mexico (Daly & Hyman 2007). The host syllable of Piangding dialect in Naxi Language has not only three level tones of high, medium and low, and also rising tone. When the floating tone occurs to these level and rising tone, the pitch representation of down step caused by the low level floating tone is only one of the many pitch results, there are other abundant tone representations of different pitch trend.

In addition, in many tone language or dialect of Asian languages, there maybe existence of floating tone too. Based on the existing literature, the similar tone modification phenomenon seems exist in Chinese Guangzhou dialect (Bai Wanru, 1989), Shandong dialect (Li Shichun, Ai Hongjuan 2008), Yantai dialect (Zhang Zhanshan, Li Rulong 2007), Bai language of Zhaozhuang (Zhao Yanzhen, 2013). And further investigation and research still require on whether it is floating tone or not.

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