A PROSODIC ANALYSIS OF DISYLLABICITY IN CHINESE HYPOCORISTICS

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PART ONE DESCRIPTION OF DATA

1. BACKGROUND

1.1. Basic Information on Chinese Names

Chinese names always include two parts, a family name followed by a given name. People are usually addressed with their full name (family name followed by given name) in public situations, such as a classroom or an office. The maximal number of syllables in a family name is two. However one-syllable family names are the most common type of family names. There are no two-syllable family names in my data. Similarly, the number of syllables in a given name can be one or two syllables. In contrast with family name, the most common type of given name is the two-syllable type.

Hypocoristics in Chinese can be formed by using either a family name or a given name. Regardless of family name or given name, the base names for hypocoristics in Chinese can be divided into two types, two-syllable base name and one-syllable base name.

1.2. Source of Data

As no previous studies were found on hypocoristic formation in Chinese, there are no data available to be analyzed. All data presented in this paper are first-hand data collected through questionnaires distributed to native speakers in China.

A questionnaire in Chinese was designed to collect the hypocoristics that are used by others to address the subject in daily life. A detailed explanation and examples are provided. The difference between a nickname and a hypocoristic are also implicitly pointed out in the explanation and claims are made that a phonologically unrelated lexical item which bears on the individual's appearance or personality is not wanted. Only hypocoristics which are formed with phonological relevance should be provided.

Altogether 100 questionnaires were sent out to native speakers in four big cities in China, Beijing, Nanjing, Shanghai and Guangzhou. As people in these areas use Mandarin as well as dialects, they were asked to indicate in what language a provided hypocoristic is used. Seventy-nine questionnaires were

collected.

As both family names and given names are possible base names for hypocoristic formation, there are 158 (79*2) possible base names. Altogether 210 tokens are formed out of these possible base names, and 197 of them are distinct hypocoristics.

2. MORPHOLOGICAL PROCESSES IN CHINESE HYPOCRISTICS FORMATION

Descriptively speaking, four morphological processes are identified in the formation of Chinese hypocoristics, including prefixation, suffixation, reduplication and truncation.

2.1. Prefixation

There are 74 out of 194 hypocoristics that are formed by prefixation. Four prefixes are found in these 74 hypocoristics, *a-*, *da-* 'big', *xiao-* 'little', *lao-* 'old', and *xiao-* which is the most productive. It is used in 49 hypocoristics out of 74.

All prefixes employed in hypocoristics consist of only one syllable. A prefix is usually observed to be attached to a one-syllable stem. This one-syllable stem may come from the one-syllable base name (family name or given name) or a truncated two-syllable base name. Out of the 74 hypocoristics which involve prefixation, 71of them are formed by adding the one-syllable prefix to a one-syllable stem. Only three of them are formed by adding a prefix to a one-syllable-stem with suffixation of *-zi* or reduplication[1].

Table 1 Prefix Types and Distribution in Chinese Hypocoristics

Prefix Type	**No. of Hypo. with prefix + 1-σ stem**	**No. of Hypo. with prefix + 1-σ stem + suffix *zi*-/reduplication**	**Total**
a-	22	0	22
xiao-	46	3	49
da-	2	0	2
lao-	1	0	1
Total	71	3	74

2.2. Suffixation

Suffixation is also used productively in Chinese hypocoristic formation. There are 52 hypocoristics out of 194 that are formed by suffixation. A suffix usually contains only one syllable. It can be found to attach to a one-syllable stem derived from one-syllable or two-syllable base names. Ten suffixes are identified with only two being productive, *-er* and *-zi*. Suffixes with lexical meaning, *-ge* 'elder brother' and *-jie* 'elder sister', are also used in hypocoristics but not necessary still bearing the meaning of being senior. Another suffix deserving special attention is the retroflex *-r*, which is only a feature. Different from other suffixes, retroflex *-r* is the only morpheme in Chinese that is smaller than a syllable (Lin, 2001a). The consequence is that the addition of this suffix to a stem will not increase the syllable number in a

[1] Theoretically speaking, a one-syllable base name with suffixation of retroflex -r is another source for the one-syllable stem, as the suffix becomes part of the stem syllable. However, my data do not show any such examples.

one-syllable hypocoristic.

Table 2 Suffix Types and Distribution in Chinese Hypocoristics

Suffix Type	**Example**	**Number**
-r	Deyong → Yong-r	7
-zi	Jingyan → Yan-zi	12
-zai	Hui → Hui-zai	4
-er	Chang → Chang-er	12
-ge	Yong → Yong-ge	6
-jie	Hao → Hao-jie	5
-tou	Zhu → Zhu-tou	3
other	Qin → Qin-a	3
Total		52

2.3. Reduplication

Reduplication is a very productive way of forming hypocoristics in Chinese. There are two kinds of reduplication, total reduplication and partial reduplication. If the base name is of only one syllable, the reduplication process will be total reduplication. If the base name is of two syllables, the reduplication will only be partial reduplication of one of the two syllables and the other half will be deleted. The syllable that gets "partially" reduplicated is predominantly the right syllable. In two exceptional cases, prefix and reduplication are used together to form hypocoristics.

Table 3 Reduplication Types and Examples in Chinese Hypocoristics

Reduplication Type		**Example**	**Number**
Total reduplication		Cheng → Chengcheng	24
Total reduplication with *-r* suffixation		Jin → Jinjin-r	1
Partial reduplication	of the right syllable	Xiaojun → Junjun	12
	of the left syllable	Guohui → Guoguo	2
Reduplication with prefix		Lin → xiao-Linlin	2
Total			41

2.4. Truncation

Truncation in Chinese hypocoristic formation refers to the process of clipping a two-syllable base name to a one-syllable stem. Forty-six hypocoristics are found to involve this process.

As we have mentioned already, the base names in Chinese can be divided into two kinds, one-syllable base name and two-syllable base name. The major difference between these two kinds of base names is that a two-syllable base name has to undergo truncation before it can go through any of the above mentioned morphological processes, i.e. affixation or reduplication to form a hypocoristic.

The truncation of a two-syllable base name to a one-syllable stem can proceed from left to right OR right to left.

Table 4 Truncation Types and Examples in Chinese Hypocoristics

Truncation Type	**Example**	**Alignment**	**Number**

Truncation without affixation or reduplication	Chunchang → Chang	right	2
Truncation with prefixation	Chunshi → *a*-Chun	left	18
Truncation with suffixation	Chaying → Cha-*zi*	left	12
Truncation with reduplication	Shuanglin → Linlin	right	14
Total			46

3. PROSODIC CHARACTERISTICS REVEALED IN HYPOCORISTIC FORMATION

A closer observation of the data has revealed two prosodic characteristics of Chinese hypocoristics, namely, right-edge alignment and disyllabicity.

3.1. Right-Edge Alignment Truncation

It is pointed out that the truncation of a two-syllable base name in forming hypocoristics can proceed from both directions, left to right or right to left. However these two directions of truncation are not employed with equal frequency in hypocoristic formation. Forty-one hypocoristics are clipped to the right while only five of the hypocoristics involve left-edge alignment in truncation.

Table 5 Left-edge Alignment Truncation Examples in Chinese Hypocoristics

Base Name	**Hypocoristics**	**Alignment**	**Hypocoristics type**
Yuanyuan[2]	Yuan-yuan	left	left-edge alignment truncation and reduplication OR a hypocoristic based on Base Name?
Chunshi	*a*-Chun	left	Prefixation *a*- after truncation
Chaying	Cha-*zi*	left	Suffixation -*zi* after truncation
Guohui	Guo-guo	left	Reduplication after truncation
Xiaojun	Xiao	left	Truncation

It is evident from these statistics that right-edge alignment is the productive method of truncation in Chinese hypocoristic formation.

3.2. Disyllabicity

Another prosodic characteristic revealed by the data is disyllabicity. Of the 197 distinct hypocoristics, 173 are disyllabic. Only seven are trisyllabic and another 17 are monosyllabic.

Furthermore, only three of the seven trisyllabic hypocoristics are formed through common morphological processes, such as affixation or reduplication. Two of the remaining four are dialectal variants. The other two are more like nicknames rather than hypocoristics, because the base name are used to form a new mono-morpheme word with three syllables. Thus, in the following seven examples of trisyllabic hypocoristics, only the first three are relevant for the discussion here.

Table 6 Trisyllabic Examples in Chinese Hypocoristics

Base Name	**Hypocoristics**	**Hypocoristic-Type**	**Hypo. σ Num**

[2] For this hypocoristic, it is unclear whether there is reduplication after left-edge alignment truncation or just the base name is used as the hypocoristic. It is treated in this analysis as a case of left-edge alignment truncation.

Lin	*xiao*-LIN-LIN	Reduplication with Prefixation xiao-	3
Fan	*xiao*-FAN-FAN	Reduplication with Prefixation xiao-	3
Xiao'an	*xiao*-AN-zi	Prefixation xiao- and Suffixation -zi	3
Xiao'an	AN-*wa-zi*	Special (in dialect)	3
Jin	*xiao*-JIN-*guan*	Special (in dialect)	3
Ding	da-tou-DING	Special (form a morpheme)	3
Yang Rong	YANG-mao-RONG	Special (form a morpheme)	3

In addition to the trisyllabic hypocoristics, there are 17 monosyllabic hypocoristics. Among these, 12 are formed by using monosyllabic base names. Only five disyllabic base names are truncated to monosyllabic hypocoristics.

In the 46 cases where disyllabic base names are truncated to one syllable, affixation and reduplication are vigorously employed in 41 cases to recover the two-syllable pattern from the truncated one-syllable stem. The disyllabic tendency of hypocoristics is also obvious from the cases where truncation is involved.

The other tendency in hypocoristic formation is to transform a monosyllabic base name to a disyllabic hypocoristic through various morphological processes. One hundred and eight disyllabic hypocoristics are formed out of the possible 112 monosyllabic base names through affixation or reduplication. In sharp contrast to this is the maintenance of the disyllabic base names. There are 46 disyllabic base names in the 158 possible base names, and 27 of them can used directly as two-syllable hypocoristics without any change. In other words, they can be used as hypocoristics without any morphological processes.

The difference here is very obvious. In order to satisfy the disyllabic pattern of hypocoristics, half of the two syllable base names can be kept intact. But the majority of monosyllabic base names choose to be involved in any possible morphological process in order to satisfy the disyllabic pattern of hypocoristics.

PART TWO FOCUSED THEORETICAL ANALYSIS

The observed morphological processes and prosodic characteristics in hypocoristic formation can provide valuable insights into the phonological structure of Chinese. In this part, theories and principles of prosodic morphology will be employed to account for the disyllabic pattern revealed by the Chinese hypocoristic formation.

4. THEORETICAL BACKGROUND OF CHINESE LINGUISTICS

4.1. The Salience of Syllable in Chinese

'Word' is a very common linguistic term for a lot of languages, such as English. However, it is not easy to define 'word' in Chinese. The corresponding term 'word' is very misleading and the borderline between 'word' and 'phrase' is hard to draw (Duanmu, 2000). Instead, in Chinese, "there is the term *zi*

'character' — a monosyllabic written graph that in most cases is also a morpheme" (Duanmu, 2000: 96). Furthermore, "[V]irtually all native Mandarin morphemes (i.e. morphemes that are not borrowed from a foreign language)...contain just one syllable" (Lin, 2001a: 52). Thus, 'syllable' serves as a bridge between morphology and phonology in Chinese. The addition of a morpheme is usually equal to the addition of a syllable and vice versa. A word, in turn, contains one or more morphemes, and thus one or more syllables. The relationship between 'word', 'morpheme' and 'syllable' can be shown in the following chart from Lin (2001a:55).

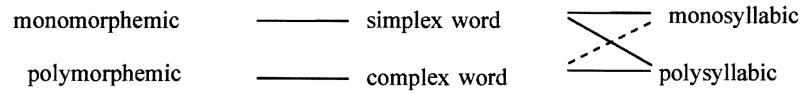

Figure 1 The Relationship between 'Word', 'Morpheme' and 'Syllable'

There are the following 4 combinations that are possible in Chinese.

1. monomorphemic, simple word, monosyllabic: e.g. [ta] 'he'
2. monomorphemic, simple word, polysyllabic: e.g. [jia.na.da] 'Canada'
3. polymorphemic, complex word, polysyllabic:
   e.g. [qian.bi] 'pencil' ([qian] 'lead'+[bi] 'a writing tool')
4. Polymorphemic, complex word, monosyllabic (The dotted line above to show that this is a very unusual case where a complex word can be monosyllabic.):
   e.g. [gai-r] 'lid' ([gai] 'cover'+[-r] 'nominal morpheme')

It is hard to define Chinese names in terms of words or morphemes. Are Chinese names words or phrases? How many morphemes are there in a Chinese name? These questions are hard to answer. It is only certain that a base name has at least one morpheme. In terms of syllable, the base names can be monosyllabic and disyllabic.

4.2. Disyllabicity in Chinese Word Formation

Despite the possibility of the above four combinations, the Chinese language has shown a clear preference for two-syllable words. Different statistical analyses have pointed to the same conclusion: disyllabic words are the most common word form in Chinese (Wang *et al* cited in Lin 2001a; He and Li 1987 cited in Duanmu 2000, 146).

There is a strong interaction between phonology and morphology in Chinese. Word-formation prefers a phonological form of two syllables. Almost all types of word-formation processes, affixation, compounding, reduplication and abbreviation, in Chinese "put together morphemes for no other purpose but to create a two-syllable form" (Lin, 2001a: 82).

As we have observed above, this tendency of disyllabicity is also observed in hypocoristic formation in Chinese.

5. AANALYZING DISYLLABIC HYPOCORISTICS IN PROSODIC MORPHOLOGY

Despite the complexity in hypocoristic formation, this paper will only focus on part of the data where affixation or reduplication are employed as morphological processes to give rise to a hypocoristic with or without the process of truncation. Due to the limitation of length, this paper will only provide an explanation of the two-syllable hypocoristics, ignoring the trisyllabic and monosyllabic hypocoristics.

It has been observed that disyllabicity is an overwhelming phenomenon in Chinese word formation. However, linguists have argued that the increase of disyllabic words in Chinese is a result of homophone-avoidance (Lü 1963; Li & Thompson 1981 cited in Duanmu 2000, 150). It was proposed that the historical decrease of the syllable inventory has created too many homophonous syllables and disyllabic words are thus needed to distinguish meaning.

Feng (1997) argued against this view and provided an analysis to account for the disyllabic tendency as a result of prosodic requirement. The preference for disyllabic hypocoristics provides further counterargument for the homophony-avoidance claim. There is no need to avoid homophones in hypocoristics. Homophones are even preferred in forming nicknames, as can be shown in the formation of the trisyllabic hypocoristic/nickname: *Ding* → *Da tou ding* 'tack'. There is no evidence why people would want to employ affixation or reduplication which form disyllabic hypocoristics to avoid homophones.

The present paper tries to account for the disyllabicity of hypocoristics within the framework of prosodic morphology. It is argued that the preference for disyllabic hypocoristics results from affix-inclusive disyllabic template.

5.1. Defining a Hypocoristic Template

"The Prosodic Morphology Hypothesis requires that templatic restrictions be defined in terms of prosodic units" (McCarthy and Prince, 1995: 320).

In accordance to the principle of prosodic morphology that templates should be defined in terms of authentic units of prosody listed here, there are two possibilities for defining a template for Chinese hypocoristics, in terms of syllable or in terms of foot, a monosyllabic template or a disyllabic template.

Figure 2 Hierarchy of Prosodic Units

5.1.1. Monosyllabic Template

The first proposal is that the hypocoristic template is a monosyllabic template. Subsequent affixation or reduplication is employed to yield a disyllabic hypocoristic.

Figure 3 Monosyllabic Template for Chinese Hypocoristics

For both kinds of base names in Chinese, a monosyllabic template seems to work well. For any monosyllabic base name, the base name is mapped to the monosyllabic hypocoristic template. An example of the formation of a hypocoristic from a monosyllabic base name is the following: *Chang* → *Chang-er*. First, the only syllable in the base name is mapped to the syllable slot in the hypocoristic template. Then, suffix *-er* is added to the template to make the disyllabic hypocoristic. For a two-syllable base name, it is a similar case, e.g. *Jingyan* → *Yan-zi*, can be explained as a process where one syllable of the base name is mapped to the template (note that the directionality will be discussed in later sections), and suffix *-zi* is added to the stem. The formation of a hypocoristic by reduplication after truncation can also be explained in this template. The case of *Guohui* → *Guoguo* is formed by mapping one syllable *guo* from the base name to the hypocoristic template. The stem is then reduplicated to produce the hypocoristic *Guoguo*.

It seems that the monosyllabic template can account for the hypocoristics collected. However, if the template of hypocoristics is monosyllabic, it is not explainable why Chinese hypocoristics are always disyllabic instead of monosyllabic or tri-syllabic.

If the template is monosyllabic, it is expected that affixes are not obligatory and monosyllabic hypocoristics would be the most natural type, as in the case of English hypocoristics where the suffix *-i* is not part of the bimoraic hypocoristic template and is only added afterwards. As a result, bimoraic monosyllabic hypocoristics without suffixes are rightly expected in English as the most common type. However, this is not the case in Chinese hypocoristics. Monosyllabic hypocoristics are very rare compared to the disyllabic hypocoristics.

5.1.2. Disyllabic Template

These problems lead to another possibility: a disyllabic hypocoristic template. As the most common type of hypocoristics identified in data is the disyllabic type, the natural hypothesis for the template would be a disyllabic foot as shown in figure 4.

Figure 4 Disyllabic Template for Chinese Hypocoristics

This template for Chinese hypocoristics is proposed to be a disyllabic morphonologically-headed foot. And the head of the foot will always be the stem. The two syllables in the foot template included a head, which would be the stem, and an affix.

In order to arrive at a same template for reduplication and affixation, it is important to propose reduplication to be a special kind of suffixation. The hypocoristic template can be modified in the following way in order to reflect the discussion above.

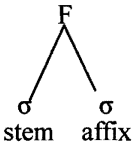

Figure 5 Disyllabic Headed Foot Template

A final point to discuss about the Chinese hypocoristic template is the linear order of the two syllables in the template. If the template consists of the head syllable followed by the syllable for affix, the only possible affix in hypocoristics would be suffixes. As we have observed in the data, not only suffix but also prefix are used in hypocoristic formation.In order to allow the possibility of prefix, we have to propose the template to be an un-ordered concatenation of two syllables. In the following schematic representation of the template, I will use dotted line to indicate the position of affix syllable as unfixed.

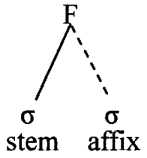

Figure 6 An Un-ordered Disyllabic Headed Foot Template

5.2. Straight Mapping from Base Name

Now that the hypocoristic template is proposed to be a disyllabic headed foot, the next step is to explain how a base name is mapped to this template. A template can be used in a language in two ways in forming hypocristics. In one process, a template is a target for mapping process, regardless of the prosodic structure of a base form (Mester 1990) and in the other process, a template is a delimiter, which circumscribes a particular domain of the base (Lipski 1995, 404). These two processes can be generalized as directly mapping (from a base name to the template) or mapping after circumscription (from base name to the template). Mapping after circumscription will be discussed in the next section. In the present section, I will discuss the possibility of direct mapping.

The first point of concern in direct mapping is directionality. One of the observations in hypocoristic formation in Chinese is right-edge alignment. In order to account for this characteristic, the

direction of mapping is proposed to be from right to left. Furthermore, it has to be stipulated that the mapping will only target for the head syllable in the hypocoristic template. That is to say, whatever is mapped from the base name is going to be the head of the hypocoristic. Subsequently, if prefixation follows, the prefix is going to be ordered on the left side of the head syllable and if suffixation (including reduplication) follows, the suffix is going to be placed on the right side of the head syllable. The example of the mapping of a one syllable base name can be demonstrated in Figure 7.

The directionality doesn't seem to be critical in mapping a monosyllabic base name to the template, as there is only one syllable. However, it is important in mapping from a two syllable base name. The mapping of the disyllabic base name to the template is shown below.

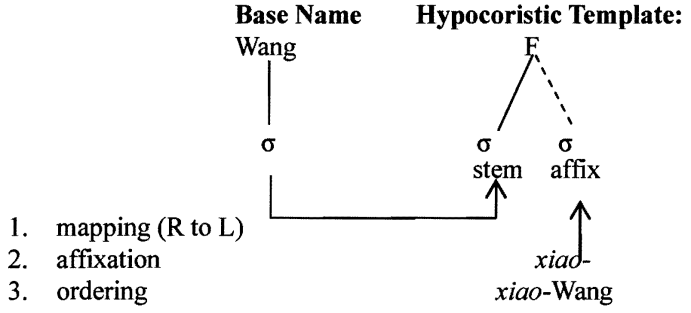

Figure 7 The Mapping Process of a Monosyllabic Base Name

If the mapping direction were from left to right, it would yield untested hypocoristic of **xiao*-Yong for the example in Figure 8. Thus, it is proposed that right to left is the proper direction of mapping.

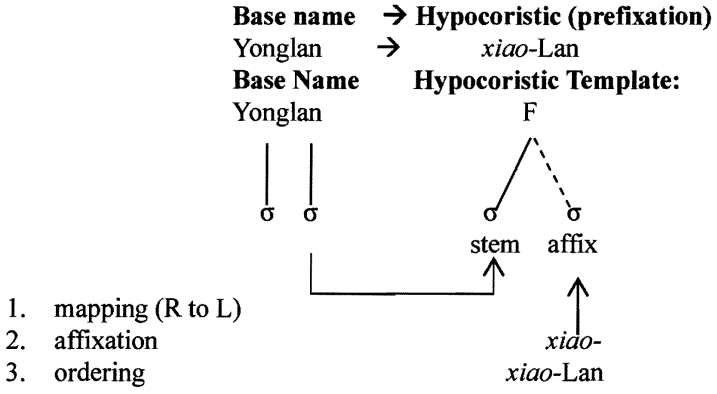

Figure 8 The Mapping Process of a Disyllabic Base Name

However, direct mapping from left to right will create a problem for the base name of *Yuanyuan*[3],

[3] It has to be pointed out that the name *Yuanyuan* is different from a name *YuanYuan*. The first base name is written with two identical Chinese characters and thus represents reduplication. The second is written with two different Chinese characters. It is clear that the second base name is not a reduplication of the first syllable of the base name. Another difference between the two is in tone. In the first base name *Yuanyuan*, the second syllable only bears a neutral tone. In contrast, the second base name, *YuanYuan*, each syllable has its own tone. The Right to Left mapping will not be a problem for the second base name, because, as other names, the right syllable (2nd)

where the base name itself is already a reduplication of the first syllable of the base name. In the base name where there is reduplication, the second syllable is of neutral tone. If the mapping proceeds from right to left, the second syllable in the base name is predicted to be mapped to the hypocoristic. However, it is not what observed in the data. The hypocoristic for *Yuanyuan* can be *Yuan-zi*, where the first syllable is not of neutral tone. In other words, it is not the right syllable of the base name that has been copied to the template, rather the left one. In the following derivation, the tone is represented as a number beside the syllable, with a neutral tone as tone 0.

Right to left mapping will predict the wrong hypocoristic **Yuan0-zi0* for a base name Yuanyuan, as shown above in Figure 9. It is thus concluded that direct mapping can account for all mapping from a monosyllable base name to the template and most two-syllable base names, but the directionality has created obstacles for the base name where there is reduplication.

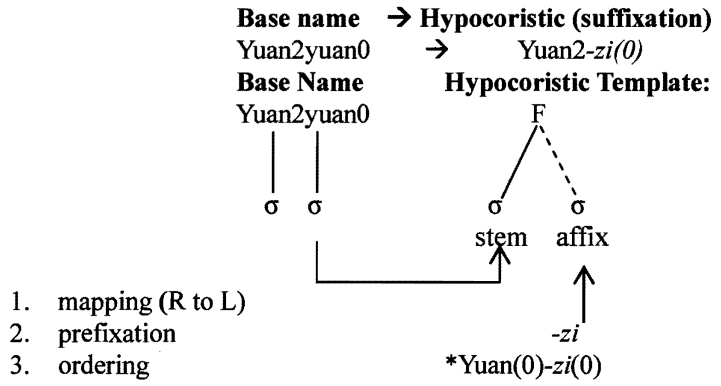

Figure 9 The Wrong Prediction for the Base Name of Yuanyuan

5.3. Mapping after Circumscription

An alternative to straight mapping from the base name is to employ the mechanism of circumscription of a template. A template can also be used "as mechanisms isolating a subdomain within the base form" (Mester 1990, 482). In this way, a template plays a more restrictive role in morphology. It is not only a passive target to which any information in the base can be mapped to freely. The template is actively involved in parsing information out from the base form. Anything not conforming to the template can not be directly mapped.

In the case of Chinese hypocristics, instead of using directionality, we can propose that the rightmost foot of the base name is parsed out by the parsing function and then the leftmost syllable (the first syllable) of the foot is mapped to template by the morphological operation.

McCarthy and Prince (1990) defined an extrametricality function Φ, which yields a constituent C at the edge E of a base B. The results of this function can be expressed in the following formula: B:Φ <C, E>. The residue of the parsing function can be expressed as B/Φ. The base can thus be expressed as a

will be used in hypocoristic formation.

concatenation of the parsing function and the residue: B = B:Φ * B/Φ, where * indicates non-ordered concatenation. Following Lipski (1995) in defining the algorithm of circumscription for Spanish, the Chinese algorithm can be expressed in functional notation in the following way. The parsing function is set to extract the rightmost foot of the base name: B:Φ<Foot, right>. For a base name in the shape of $\sigma_1\sigma_2\sigma_3$, there can be two possibilities: 1. $\sigma_1(\sigma_2\sigma_3)_f$ and 2. $(\sigma_1\sigma_2)_f\sigma_3$. This function will extract $\sigma_2\sigma_3$, if they are in a foot (example 1) and will extract only σ_3 if $\sigma_1\sigma_2$ are in a foot and σ_3 is in a separate foot (example 2). The residue of the parsing function can be expressed as B/Φ<Foot, right>. The residue of example 1 and 2 above will be σ_1 for example 1 and $\sigma_1\sigma_2$ for example 2, respectively. The deletion function operates on the residue: DEL(B/Φ) and the deletion function is thus: DEL/Φ(B)=B:Φ<Foot, right>*DEL(B/Φ). For example 1, the deletion function will delete σ_1 from the base name and for example 2, $\sigma_1\sigma_2$ will be deleted. At the present stage, the output of the above functions on example 1 will be $\sigma_2\sigma_3$. The output of example 2 will be σ_3. A second application of Φ<syl, left> will function on the output of the last round and parse out the left most syllable of the output of the previous functions. The process can be expressed as (DEL/Φ(B)):Φ<syl, left>, the output (DEL/Φ(B)) is submitted to the parsing function of Φ<syl, left>. This syllable parsing function will parse out the left syllable in example 1, thus σ_2 from $\sigma_2\sigma_3$. The parsing function will operate vacuously in example 2 and parse out the only syllableσ_3. The morphological operation can be defined as a function M which maps the extracted melody to the head syllable in the Chinese hypocoristic template. This process can be expressed as Φ<syl, left>((DEL/Φ<foot,right>):M.

Operating on both types of Chinese base names, monosyllabic and disyllabic, the algorithm will produce right output. I will demonstrate this in the following paragraphs.

For a one syllable base name, e.g. *Wang*, the parsing function B:Φ<Foot, right> will take the rightmost foot and that is *Wang*. There is no residue and the deletion function is applied vacuously here. The mapping function then takes the left syllable of the parsed foot, which is again *Wang*, and maps it to the head syllable in the hypocoristic template.

Two-syllable base names are more complicated. In order to parse out the rightmost foot in the base name, we have to introduce the stress pattern in the base names. There are two kinds of stress pattern for two-syllable base names[4].

In an ordinary full name which contains a one-syllable family name and a one-syllable given name, *Zhu Yonglan*, there are two feet, (Zhu Yong)(lan). The second syllable of the given name forms a degenerate foot of its own (Feng, 1997). In other words, the two syllables in the base name *Yonglan* are in the domain of two different feet. Based on this analysis, the Φ<Foot, right> will parse out the second syllable from the two syllable base name, *Yonglan*: B=B:Φ*B/Φ=lan*yong. Then, DEL/Φ(B) will delete the remaining syllable, i.e. the first syllable of the given name: DEL/Φ(B)=B:Φ*DEL(B/Φ)=lan*{Yong}, where *Yong* will

[4] Monosyllabic base names are always stressed. These come from monosyllabic family names or monosyllabic given names. A family name in any full name is always stressed. A monosyllabic given name is also stressed. Thus, a full name consisting of 1-syllable family name and a 1-syllable given name will have 2 feet instead of 1 and the family name and given name will be in 2 separate feet.

be deleted by the DEL function. After submitting the result of the DEL function to a second round of Φ<syl, left>, the result will still be [lan]. It is then submitted to the Mapping function and [lan] is mapped to the template. Together with affixation, this fills up the template and result in [*xiao*-lan].

There is another kind of stress pattern in a two-syllable given name. When the given name itself is already in reduplicated form, the stress pattern is different. In a full name of [Liu2 Yuan2yuan0], the family name [Liu] is in a foot and [Yuan2yuan0] is in another foot. The two syllables in the base name *Yuan2yuan0* are in a trochaic foot. As a result, the algorithm will yield different result for the given name [Yuan2yuan0]. First, the parsing function Φ<Foot, right> will parse out the foot consisting of two syllables from the two syllable base name, B=B:Φ*B/Φ=Yuan2yuan0*{ø}. This is different from the case of *Yonglan*. The residue of this function is ø because the only foot in the base name is parsed out. Then, DEL/Φ(B) will function vacuously. The result is submitted to a second round of parsing function Φ<syl, left> and (DEL/Φ(B)):Φ<syl, left>*(DEL/Φ(B))/Φ<syl,left>=Yuan2*yuan0. The parsed out part is [Yuan2] and the mapping function will only operate on the parsed output of Φ<syl, left>. Thus [Yuan2] is mapped to the template and together with affixation, fills up the template. The result will be [Yuan2-*zi0*].

The derivation in Figure 10 for all three kinds of base names will show that the mapping after circumscription will produce the right output in every case, and that the output of every step is different.

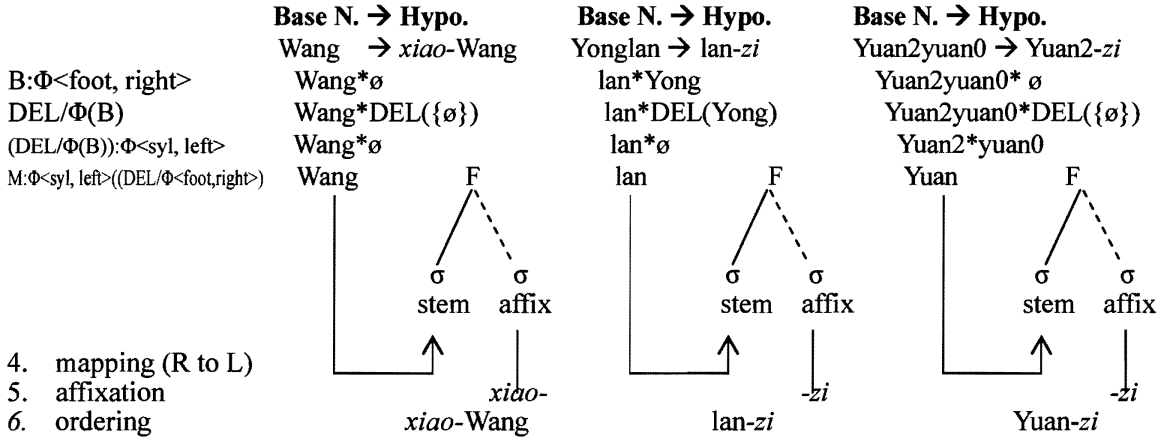

Figure 10 Deviation of Mapping after Circumscription for Three Base Names

6. CONCLUSION

Based on data collected through a questionnaire, this paper focuses on the formation of disyllabic Chinese hypocoristics which involve affixation and reduplication with or without truncation. The characteristics of the hypocoristics are analyzed within the framework of prosodic morphology.

It is proposed that the hypocoristic template is a disyllabic headed foot and that the affix is

included in this template. This template is more appropriate than a monosyllabic template because it accounts for the disyllabicity revealed in hypocoristic formation. Furthermore, it is shown that direct mapping to the template is problematic for one kind of base name which is already reduplicated. The mechanism of circumscription is argued to be more powerful in that it is able to account for the problematic base name as well as all other kinds of base names. It is thus concluded that the present Chinese hypocoristic data support the analysis of mapping to a template with the mechanism of circumscription.

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