

# Analysis of the Foot Types and Structures of Chinese Four-Syllable Abbreviations

Wei Ying<sup>1</sup> and Jianfei Luo<sup>2</sup>✉

<sup>1</sup> School of Humanities and International Education,  
Zhejiang University of Science and Technology, Hangzhou, China  
grace\_ying0192@163.com

<sup>2</sup> College of Advanced Chinese Training,  
Beijing Language and Culture University, Beijing, China  
jluo@blcu.edu.cn

**Abstract.** This paper investigates the foot types and structural features of Chinese four-syllable abbreviations. Results show that: first, whether for the need of complexity and richness of ideogram or for avoiding ambiguity, these abbreviated forms are an essential and meaningful part of modern Chinese abbreviations; second, most of the existing forms tend to present 2 + 2 balanced prosodic structure, nominal attribute in part of speech. In addition, there also exists the possibility of abbreviation further to less than four syllables under some specific conditions.

**Keywords:** Four-syllable · Abbreviation · Foot type · Syntactic structure

## Introduction

Abbreviations are a short form of words or phrases produced by abbreviating, aimed at making the complicated and lengthy expressions present much more efficiently, concisely, clearly and conveniently. Compared with the original forms, the number of syllables in abbreviations has been reduced obviously, with their original meanings exchanged completely, which meets the psychological requirements of people seeking convenience and the economic principle of language expression.

The previous studies of Chinese abbreviations mainly focus on the following three aspects. The first one is concerned about the definition of abbreviations. Lu & Zhu refer to abbreviations as 简称 [jiancheng] (shorter form) [1]. Xiao thinks of abbreviations as 词语减缩 [ciyu jiansuo] (word reduction) [2]. Li holds the view that the abbreviated forms mean the achievement of transformation successfully from a complicated and lengthy expression to a shorter structural form [3]. The second one is related to discussing the principles of abbreviating words or phrases. For instance, Yuan points out that abbreviations have to conform to the structural characteristics of words in modern Chinese language [4]. Niu holds that the most important feature of modern Chinese abbreviations is conciseness, thus the abbreviations should be the simplest form without affecting their conceptual expression [5]. The last one examines the varied number of abbreviated forms' syllables. For example, Liu believes that abbreviations mostly use two-syllable combination. According to his research, two-syllable

abbreviations represent about 84.2% of the total quantity of authentic language materials investigated by him, while the figure for others using more than two syllables is just around 15.8% [6].

As discussed above, it is evident that many previous studies usually explore Chinese abbreviations in definition, principle and quantity of syllables, taking the general abbreviated forms as their research object. Most arguments revolve around disyllables, which are widely regarded as the best choice among Chinese abbreviations. However, there still exist three syllables, four syllables, or even more than four syllables in Chinese abbreviations. Actually, all of them play an important role in our daily conversations, and also deserve to be investigated and researched fully. Therefore, this paper attempts to concentrate on examining the foot types and syntactic structure features of Chinese four-syllable abbreviations, including exploring the necessity of their existence and the possibility of abbreviation further.

## 2 Types of Four-Syllable Abbreviations

This paper exhaustively searches all four-syllable abbreviations in *Modern Chinese Abbreviation Dictionary* (2002 edn.), totaling 866. According to their features of the prosody and internal syntactic structure, they can be divided into two categories: balanced type and unbalanced type. The number of the former is 794, accounting for 91.6% of the total four-syllable abbreviations; the latter is only 72, representing 8.3% merely.

Further observation demonstrates that the balanced category can be classified into five types: "[1 + 1] + [1 + 1]", "[1 + 1] + 2", "1 + 1 + 1 + 1", "2 + [1 + 1]" and "2 + 2", while the unbalanced category only includes three types of "3 + 1", "1 + 3" and other types. The specific quantitative statistics of each type or situation are shown in Table 1.

Table 1. Distribution of different types of four-syllable abbreviations

Type	Balanced type (794)					Unbalanced type (72)			Total
	[1 + 1] + [1 + 1]	[1 + 1] + 2	1 + 1 + 1 + 1	2 + [1 + 1]	2 + 2	3 + 1	1 + 3	Others	
Number	114	290	46	206	138	26	43	3	866
Proportion	13.2%	33.5%	5.3%	23.8%	15.9%	3.0%	5.0%	0.3%	100%

## 3 Balanced Four-Syllable Abbreviations

### 3.1 [1 + 1] + [1 + 1] Type

There are 114 abbreviations of this "[1 + 1] + [1 + 1]" type in the dictionary, representing 13.2% of the total balanced type, for example:

of the Chinese language. The number of syllables in Chinese words is mostly four syllables.

Chinese people usually express Chinese words in terms of syllables, using the general principle of one syllable for every character. However, there are some Chinese words which are composed of more than four syllables in Chinese and play an important role in our daily communication and research. Therefore, this study is going to analyze the foot types and syntactic structure of these words, including exploring the necessity of the study further.

#### 4.1.2. Balanced type

Four-syllable abbreviations in *Modern Chinese* can be divided into two categories: balanced and unbalanced. The number of the former is 794, accounting for 36.5%, while the latter is only 72, representing 8.3%.

The balanced category can be classified into "[1 + 1] + [1 + 1]", "[1 + 1 + 1 + 1]", "[2 + [1 + 1]]" and "[1 + [1 + 1]]". It includes three types of "[1 + 1]", "[1 + 3]" and "[3 + 1]". The number of each type or situation are shown in Table 2.

#### 4.1.3. Internal category distribution of four-syllable abbreviations

	Unbalanced type (72)					Total
	[1 + 1] + [1 + 1]	[1 + 1 + 1 + 1]	[2 + 2]	[2 + 1 + 1 + 1]	Others	
Number	50	13	26	43	2	250
Proportion	20.0%	5.2%	10.4%	17.2%	0.8%	100%

#### 4.1.4. Internal category distribution

The "[1 + 1] + [1 + 1]" type in the dictionary, represented by the following example:

- a. [V+N] + [V+N]  
 减 租 减 息  
 jian zu jian xi  
 reduce rent lower interest  
 reduce the rent and lower the interest rate

- b. [M+N] + [M+N]  
 两 弹 一 星  
 liang dan yi xing  
 two bombs one satellite  
 atomic and hydrogen bombs and man-made satellite

- c. [M+V] + [M+V]  
 三 清 一 打  
 san qing yi da  
 three clean one reduce

clean up the book market, the audio and video market, printing enterprises and fight against lawbreakers who engage in producing pornographic and illegal publications.

The number of the above three subtypes is shown in the following Table 2.

Table 2. "[1 + 1] + [1 + 1]" internal category distribution

Type	[V + N] + [V + N]	[M + N] + [M + N]	[M + V] + [M + V]	Others	Total
Number	50	32	13	19	114
Proportion	44%	28%	11%	17%	100%

#### 4.2. [1 + 1] + 2 Type

The number of this "[1 + 1] + 2" type is 290, accounting for 36.5% of the total balanced abbreviations, which is the largest of the above five sorts of the balanced, as shown in Table 1. Further analysis shows that the position of "2" in this type is mostly an existing disyllabic noun. In addition, a small number of existing disyllabic verbs are used, and very few adjectives and adverbs appear, as shown in Table 3.

Table 3. "[1 + 1] + 2" internal category distribution

Type	Noun	Verb	Adjective	Total
Number	261	27	1	190
Proportion	90.0%	9.3%	0.3%	100%

### 3.2.1 Type of Head Word [N]

The Table 3 demonstrates that there are 261 abbreviations which place a disyllabic noun in the core position of 2, accounting for 90% of the total number of "[1 + 1] + 2" type. Further observation shows that the grammatical structure combination of the part "1 + 1" is not single, but presents a variety of forms. According to whether the two parts of speech of "1" are identical, this paper divides them into two basic categories, and then subdivides them further, considering the different grammatical properties of morphemes.

One basic category is that "[1 + 1]" consists of two monosyllabic morphemes with the same part of speech, and the morphemes are juxtaposed to modify the subsequent noun headwords. The number of these abbreviated forms is 152, accounting for 58.2% of the total "[1 + 1] + 2" abbreviations with the headword N. For example:

#### (2) a. [N+N] + N

客	货	列车
ke	huo	lieche
passenger	freight	train
passenger trains and freight trains		

#### b. [NR+NR] + N

马	恩	著作
Ma	En	zhuzuo
Marx	Engels	work
works of Marx and Engels		

#### c. [V+V] + N

采	编	人员
cai	bian	renyuan
interview	edit	staff
interviewers and editors		

The other is that the part of "[1 + 1]" is composed of two monosyllabic morphemes with different part of speech. The quantity of this sort is 110, representing 42.1% of the "[1 + 1] + 2" forms with the headword N. For example:

### 3.2.2 The Type

"2" in the type.

position of the

of the total num

the following as

Firstly, there

morphemes, suc

and road and by

labor earning mo

Secondly, an

independent mon

the position of [1

example, 三网养

da gaizao] (Three

to prevent the arm

In addition, the

verb morpheme to

chou touzi] (self

mapping).

### 3.3 "1 + 1 + 1 +

The abbreviations

monosyllabic morp

## (3) a. [M+A] + N

四	大	名绣
si	da	mingxiu
four	great	famous embroidery
Suzhou embroidery, Hunan embroidery, Sichuan embroidery and Guangdong embroidery		

## b. [M+Q] + N

三	项	制度
san	xiang	zhidu
three	item	system
the personnel system, the salary system and social security system		

## c. [N+V] + N

船	保	协会
chuan	bao	xiehui
ship	assure	association
China Shipowners Mutual Assurance Association		

## The Type of the Head Word [V]

The type of "[1 + 1] + 2" can also be a disyllabic verb, which occupies the core of the abbreviations. The amount of this type is 27, accounting for only 9.3% of the total number of [1 + 1] + 2. The subdivisions of this type can be illustrated as following aspects.

Firstly, there are 10 [1 + 1] parts composed of two parallel monosyllabic nominal morphemes, such as 陆空联运 [lu kong lianyun] (the united transportation by railway road and by air), 头脑倒挂 [ti nao daogua] (the social phenomenon of physical labor earning more than mental labor).

Secondly, an independent monosyllabic numeral morpheme combined with an independent monosyllabic quantifier or noun or adjective or verb morpheme occupies the position of [1 + 1]. The number of this sort abbreviations in the dictionary is 9, for example, 三网养鱼 [san wang yangyu] (the three ways to breed fish), 三大改造 [san da gaizao] (Three Great Remolding), 三防训练 [san fang xunlian] (the training aimed to prevent the army being damaged by nuclear, chemical and biological weapon).

In addition, there is a monosyllabic noun morpheme combined with a monosyllabic morpheme to form the part of [1 + 1], i.e. [N + V] + V type, such as 自筹投资 [zi chou touzi] (self-raised investment), 机助制图 [ji zhu zhitu] (computer-aided drawing).

## "1 + 1 + 1 + 1" Type

Abbreviations of "1 + 1 + 1 + 1" type are mainly composed of four independent monosyllabic morphemes with identical parts of speech. The morphemes are

juxtaposed, and semantically express four different aspects of the same category. There are 46 items of such type in the dictionary, of which 40 items are nominal morphemes, accounting for 87% of the total "1 + 1 + 1 + 1" type and only 6 items are verbal morphemes, accounting for 13%.

### 3.3.1 Composition of Nouns

The abbreviations of "1 + 1 + 1 + 1" type, which consist of four nominal monosyllabic morphemes, for example, 煤电油运 [mei dian you yun] (coal industry, electric power industry, petroleum industry and transportation), 理工农医 [li gong nong yi] (science, engineering, agriculture and medicine).

### 3.3.2 Composition of Verbs

Although most of the abbreviations of "1 + 1 + 1 + 1" are composed of nominal morphemes, there also exist some examples of verbal morphemes (V + V + V + V). There are six items of this category in the dictionary, such as 采分编流 [cai fen bian liu] (purchase, classify, catalog and circulate), 产供销贸 [chan gong xiao mao] (produce, supply, sell and trade), 关停并转 [guan ting bing zhuan] (shut down, production halts, merge with other enterprises, switch to other products).

## 3.4 "2 + [1 + 1]" Type

The total number of abbreviations of "2 + [1 + 1]" in the dictionary reaches 206, accounting for 25.9% of the total balanced type, ranking the second place among the five types. In this type, the position of "2" is mostly a disyllabic noun, such as 长江三峡 [Changjiang san xia] (the Three Gorges of Yangtze River), and a few are disyllabic adjectives or verbs, for instance, 民主妇联 [minzhu fu lian] (Democratic women's federation), 运输工联 [yunshu gong lian] (Transport workers' Federation).

In the part of "[1 + 1]", the former "1" is mostly monosyllabic nominal morphemes, such as 中国足协 [Zhongguo zu xie] (Chinese Football Association). There also exist a few forms that are monosyllabic verbal or monosyllabic numerals. For example, 外贸扩权 [waimao kuo quan] (Expand autonomy in foreign trade), 台湾两岸 [Taiwan liang' an] (the both sides of the straits of Taiwan).

## 3.5 "2 + 2" Type

The abbreviation of "2 + 2" is mainly composed of two existing disyllabic words. In the dictionary, 138 abbreviations are of this type, accounting for 17.4% of the total balanced abbreviations.

Further observation shows that the latter "2" of such type is mainly composed of disyllabic nouns or disyllabic verbs.

### 3.5.1 Ending with Nouns

The number of "2 + 2" abbreviations ending with nouns in the dictionary is as high as 124, accounting for 89.9% of the total number of these abbreviations. According to the grammatical differences of morphemes in the first "2" position, it can be summarized into three categories:

Analys

The f  
光谱 [guang  
missile) a  
gongsi] (I

The se  
disyllabic  
xiangmu]

The th  
disyllabic  
[minyong t

### 3.5.2 Ending with Verbs

There are  
accounting  
"N + V" ty  
口老化 [ren  
instance, 留

## 4 Unbalanced

As shown in  
accounting fo  
Further, accor  
of cohesion b  
"3 + 1" type  
three abbrevia  
yuangong] (fac  
science and tec

### 4.1 "3 + 1" Type

There are 26 ab  
anced abbreviat  
school and prim  
and low-end) an

### 4.2 "1 + 3" Type

There are 43 ab  
anced abbreviat  
divided into three



The first category is "N + N" type, in which "2" is a disyllabic noun, such as 荧光 [yingguang guangpu] (fluorescence spectrum), 液体导弹 [yeti daodan] (liquid missile) and so on. The first "2" can also be a proper noun, such as 麦道公司 [maidao gongsi] (Mc Donnell Douglas), 巴黎公约 [Bali gongyue] (Paris Convention).

The second category is "V + N" type. The first "2" in the structure is the existing disyllabic verb, such as 浮动价格 [fudong jiage] (floating prices), 引进项目 [yinjin xiangmu] (introduced project).

The third category is "A + N" type. The first "2" in the structure is the existing disyllabic adjective, such as 临时价格 [linshi jiage] (temporary price) and 民用燃具 [minyong ranju] (the burner for civil use).

### 3.2 Ending with Verbs

There are only 14 abbreviations of "2 + 2" ending with verbs in the dictionary, accounting for only 10.1% of the total. Further observation shows that most of them are "V + V" type, such as 工业审计 [gongye shenji] (an audit of industrial enterprise), 人口老化 [renkou laohua] (aging population). The remaining item is "V + V" type, for instance, 留用察看 [liuyong chakan] (be kept in office on a probationary basis).

## Unbalanced Four-Syllable Abbreviations

As shown in Table 1 above, there are only 73 unbalanced four-syllable abbreviations, accounting for 8.4% of the total number of four-syllable abbreviations in the dictionary. Further, according to its internal prosodic, syntactic, semantic features and the degree of cohesion between morphemes, it can be divided into two basic types, namely "3 + 1" type and "1 + 3" type. In addition, the prosodic structure of the remaining unbalanced abbreviations is different from the two basic types, such as 教职员工 [jiaozhi yuangong] (faculty and staff) (1 + 2 + 1), 文教科技 [wen jiao keji] (culture, education, science and technology) (1 + 1 + 2) and so on.

### 3.1 "3 + 1" Type

There are 26 abbreviations of "3 + 1" type, accounting for 36.1% of the total unbalanced abbreviations, for example, 大中小学 [da zhong xiao xue] (university, middle school and primary school), 高中低档 [gao zhong di dang] (high-end, medium-end and low-end) and so on.

### 3.2 "1 + 3" Type

There are 43 abbreviations of "1 + 3" type, accounting for 59.1% of the total unbalanced abbreviations, which is much higher than that of "3 + 1" type. They can be divided into three sub-categories of "1 + [1 + 1]", "1 + [1 + 2]" and "1 + 3".

- (4) 1+ [1+1+1] type
- |                                    |        |        |       |
|------------------------------------|--------|--------|-------|
| 港                                  | 康      | 体      | 局     |
| Gang                               | kang   | ti     | ju    |
| Hong Kong                          | health | sports | board |
| Hong Kong sports development board |        |        |       |
- (5) 1+ [1+2] type
- |                                 |        |             |
|---------------------------------|--------|-------------|
| 上                               | 投      | 公司          |
| shang                           | tou    | gongsi      |
| Shanghai                        | invest | corporation |
| Shanghai Investment Corporation |        |             |
- (6) 1+3 type
- |                   |            |
|-------------------|------------|
| 核                 | 反应堆        |
| he                | fanyingdui |
| nuclear           | reactor    |
| a nuclear reactor |            |

## 5 Conclusion

This paper mainly concentrates on investigating and analyzing Chinese four-syllable abbreviations from different perspectives. The results are in the following aspects:

First, these four-syllable abbreviations have strong function of description in semantics, by which people can express the diversity and complexity of events efficiently. For example, as in (1), each abbreviation contains rich semantic content, including all aspects of the event. Further reduction of the number of these abbreviated forms' syllables at random possibly results in failing to express the original meaning completely. Take two universities' name as another example: 华中师大 [Huazhong shida] (Central China Normal University), 华东师大 [Huadong shida] (East China Normal University). They can be abbreviated to "Huashi" by their students or local residents. But if people communicate with individuals with no related information, they cannot accurately understand which university "Huashi" refers to. Thus, the four-syllable abbreviations obviously have the necessity and value of existence in modern Chinese abbreviations.

Second, the four-syllable abbreviations mainly present the form of 2 + 2 balanced type. From Table 1, it can be found that the proportion of balanced and unbalanced abbreviations is basically 10:1. Some unbalanced types are usually linked with the expressions of representing three kinds of things or phenomena once, such as 大中小学 [da zhong xiao xue] (university, middle school and primary school), 海陆空军 [hai lu kong jun] (navy, army and air force). Furthermore, most of the four-syllable abbreviations are noun-based, which means that noun (or nominal morpheme) is the core of word formation, such as (2) and (3).

The last  
under some  
战 [er zhan  
gan] (Hepa

## Reference

1. Lu, S., Zh  
Chinese)
2. Xiao, W.:  
(in Chines
3. Li, X.: On
4. Yuan, H.,  
Beijing (20
5. Niu, X.: Re  
Normal Un
6. Liu, J.: An  
(2004). (in



e, the four-syllable abbreviations can continue to be abbreviated further  
 cific conditions, such as 二次大战 [er ci dazhan] (World War II) and 二  
 World War II), 甲型肝炎 [jiaxing ganyan] (Hepatitis A) and 甲肝 [jia  
 A).

.: Speech on Grammar and Rhetoric. The Commercial Press Beijing (1951). (in

the reduction of modern Chinese words. *Stud. Chin. Lang.* (3), 125–128 (1959).

contraction of Chinese words. *Chin. Mod.* (1), 88 (1983). (in Chinese)

n, X.: Modern Chinese Abbreviation Dictionary. Language and Culture Press,  
 . (in Chinese)

rch and standardization of modern Chinese abbreviations. Master thesis, Hebei  
 rsity, Shijiazhuang (2004). (in Chinese)

lysis of modern Chinese abbreviations. Master thesis, Anhui University, Wuhu  
 inese)