國立政治大學語言學研究所碩士論文

National Chengchi University

Graduate Institute of Linguistics

Master Thesis

指導教授:何萬順 博士

Advisor: Dr. One-Soon Her

準確界定漢語中分類詞

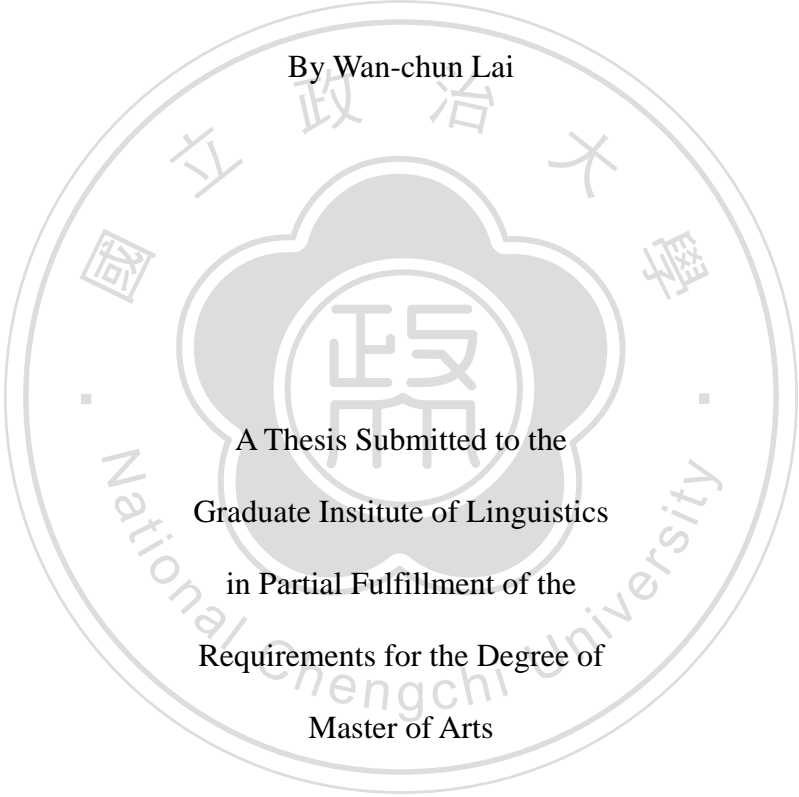Identifying True Classifiers in Mandarin Chinese

研究生:賴宛君 撰

Student: Wan-chun Lai

中華民國 100 年 9 月

September, 2011

Identifying True Classifiers in Mandarin Chinese

By Wan-chun Lai

A Thesis Submitted to the

Graduate Institute of Linguistics

in Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

September 2011

# Acknowledgements

## 誌謝

　　對於這篇論文的完成，首先我最感謝的是我的指導教授 何萬順老師。從這篇論文的開始到完成，老師總是不厭其煩的回答我所有疑惑，並提供我相關資源的協助，給予我很大的幫助。由衷地感謝您的諄諄教導及您的鼓勵，因為有您，我才能夠順利完成這篇論文。也感謝所上的老師在這兩年來對我的照顧以及教導，為我奠下學術基礎。此外，感謝　賴惠玲老師及師丈對我的照顧，我會永遠記得您給予的寶貴意見。也感謝我的口試委員： 張郇慧老師及師大 詹曉蕙老師，在我計畫書口試及論文口試時，不但撥空前來還提供了我許多重要的意見和建議，讓我的論文能夠趨近完善。

　　接著，感謝惠玲助教學姐總是傾聽我的煩惱，給我意見。謝謝我的同學們(晉偉、小貞、姿幸、婉婷、媛嫃、書豪、柏溫、心綸、美杏、侃彧)陪伴我度過研究所生活，因為有你們，我成長了許多。謝謝你們讓我在政大留下許多美好回憶。也謝謝一路上以來幫助我、支持我、聽我發牢騷的朋友智盛、芭比學姐、Dora、Monica、偉嘉哥、幫助我上政大的老師們、學長姐、學弟妹，還有好多好多的人，謝謝你們。

　　最後，感謝我強大的後援團(爸爸、媽媽、弟弟)，因為有你們強大的支持，我才可以毫無顧慮的往前邁進、通過一關又一關。謝謝你們！政大碩士學位獻給我強大的後援團。另外，也感謝上蒼，謝謝祢們賜給我的一切，對我現在所擁有的，我心存感激！

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論文名稱：準確界定漢語中分類詞

指導教授：何萬順博士

研究生：賴宛君

論文提要內容：（共一冊，二萬七千六百七十三個字，分五章）

　　漢語分類詞數量之歧異現象起因於未有一套共同界定分類詞之準則。因此，本篇論文採用四個以語言學為基礎之準則重新檢視漢語分類詞，並在眾多漢語分類詞分類中，採用五個語言學代表性研究提出之漢語分類詞分類為本篇語料來源。

　　研究分析之目的在於透過四個以語言學為基礎之準則重新檢視五個代表性人物提出之漢語分類詞分類，並使用二個數學法及一個問卷實驗法找出準確的漢語分類詞。最後，分析所得之準確的漢語分類詞再根據國語日報量詞典列出之分類詞語意做更進一步的語意分類。在分類詞語意分類上，本篇論文採用下到上之方向做分類詞語意分類而非傳統上到下之方向，提供完整且精確之漢語分類詞語意分類。

# Abstract

The discrepancy in the different inventories of Mandarin Chinese classifiers results from there being no identical and consentient tests to identify Mandarin Chinese classifiers. Thus, this thesis adopts four linguistic-based tests as norms to identify Mandarin Chinese classifiers and five Mandarin Chinese classifier categorizations proposed by representative studies (Chao 1968, Erbaugh 1986, Hu 1993, Huang et. al. 1997 and Malt and Gao 2009) as sources of data in Mandarin Chinese classifier categorizations.

The data analysis focuses on offering true classifiers in Mandarin Chinese through re-classifying five Mandarin Chinese classifier categorizations on the basis of four linguistic-based tests, applying two mathematical methods and using a questionnaire experiment. Ultimately, true classifiers will be further classified on the basis of their semantic meanings from the *Mandarin Daily Dictionary of Chinese Classifiers* (Huang et. al.) to provide an explicit semantic categorization in a bottom-up form, rather than a traditional top-down one.

# CHAPTER I

# INTRODUCTION

Previous studies have provided very different inventories of classifiers in Mandarin Chinese. The number of Mandarin Chinese classifiers estimated by previous studies has been given as in variable numbers, for example fifty-one (Chao 1968), one hundred and seventy-three (Huang et. al. 1997), one hundred and twenty-six (Gao and Malt 2009), four hundred and twenty-seven (Huang & Ahren 2003), two hundred (Hung 1996) and several dozen (Erbaugh 1986, Hu 1993). The main reason for this drastic discrepancy results from the different standards used in identifying classifiers.

In the traditional view of Chinese grammar, classifiers are regarded as on a par with measure words and no distinction is made between classifiers and measure words. For example, Chao (1968) regards classifiers as 'individual measure words' in *A Grammar of Spoken Chinese*. Li and Thompson (1981) blend classifiers and measure words and state that 'any measure word can be a classifier'. For instance, a measure word such as *bang4 磅* can function as a classifier in '*yi1 bang4 rou4*' 一磅 肉. A detailed explanation is given in Section 2.1.1.

The recent views of classifiers support the differentiation of classifiers and measure words. Tai and Wang (1990), for example, think that it is desirable and possible to differentiate classifiers and measure words. Thus, Tai and Wang (1990) postulate an important semantic distinction between measure words and classifiers: that the notion of measure words is based on quantification, while that of classifiers is based on qualification.

Apart from supporting the differentiation of classifiers and measure words, Ahren and Huang (1996) and Huang and Ahren (2003) propose that classifiers can be further divided into three subcategories, namely individual classifiers, kind classifiers and event classifiers. These three subcategories operate under the classifier system, which is a particular system of a natural language grammar. The above concept of three subcategories implies that classifiers seem to be more complicated and varied.

## 1.1 Motivation and Purpose

Although numerous studies have been conducted on Mandarin Chinese classifiers, discrepancies can be found in the inventories of the classifiers. The main reason for the discrepancies results from being no identical and consentient norms to identify classifiers.

Thus, this thesis will adopt four tests based on linguistic theory mentioned in

Chapter 3 to re-examine five Mandarin Chinese classifier categorizations proposed

by representative studies including Chao (1968), Erbaugh (1986), Hu (1993), Huang

et. al. (1997) and the Gao and Malt (2009), respectively.

The first purpose is to re-classify five Mandarin Chinese classifier categorizations

on the basis of the four norms and offer a solution for use in the classification of

ambiguous classifiers. Although the concept of ambiguous classifiers has been

mentioned by Tai and Wang (1990) and Tai (1992), such a classification for

ambiguous classifiers has not been proposed before.

The next purpose is to offer true classifiers[1] which are definite classifiers in

Mandarin Chinese through comparing the results of the analysis of five Mandarin

Chinese classifier categorizations, applying two mathematical methods and using a

questionnaire experiment.

The last purpose is to further classify true classifiers on the basis of their semantic

meanings as given in the *Mandarin Daily Dictionary of Chinese Classifiers* (Huang

et. al 1997) so as to offer an explicit semantic categorization in a bottom-up form,

rather than a traditional top-down one.

## 1.2 Conventions of the Data

Since the five Mandarin Chinese classifier categorizations are the source of the

data in Mandarin Chinese classifier categorizations in this thesis, many of the

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[1] A name given by this thesis to express some classifiers is 'precise classifiers'.

examples used herein thus come from these five Mandarin Chinese classifier categorizations, which include the grammar book 《中國話的文法》 *"A Grammar of Spoken Chinese"* edited by Chao (1968), the dictionary 《國語日報量詞典》 *"Mandarin Daily Dictionary of Chinese Classifiers"* edited by Huang et. al. (1997) and the PhD dissertation of Hu (1993), and two journal papers of Erbaugh (1986) and of Gao and Malt (2009). Since this thesis focuses on Mandarin Chinese classifiers, all the data in this thesis are from studies of Mandarin Chinese classifiers. The tone system used in this thesis is expressed as none for neutral tone, 1 for high level tone, 2 for high raising tone, 3 for falling raising tone and 4 for high falling tone.

## 1.3 Organization of the Thesis

The thesis is organized in the following way. Both traditional views and recent views of classifiers and measure words will be reviewed in Section 2.1.1 and 2.1.2. Brief introductions of the five Mandarin Chinese classifier categorizations adopted in this thesis will be provided in Section 2.2. Next, Chapter 3 presents the four tests based on linguistic theory tests used in this thesis to re-examine five Mandarin Chinese classifier categorizations proposed by representative linguists. The notion of numeral / adjectival stacking will be introduced in Section 3.1. Next, the notion of *de*-insertion and *ge*-substitution will be introduced in Section 3.2 and 3.3, separately. Section 3.4 provides the notion of *yi*-multiplier. The data analysis will be discussed

in Chapter 4 with re-classifications of the five Mandarin Chinese classifier

categorizations proposed by representative studies in Section 4.1. The notion and

reason of the emergence of true classifiers will be provided in Section 4.2 and a

semantic categorization of true classifiers in a bottom-up form in Section 4.3. Finally,

Chapter 5 concludes the study by summarizing the the main points of the thesis and

pointing out the implications for future study.

# CHAPTER II

# LITERATURE REVIEW

Although numerous studies have been conducted on numeral classifiers in Mandarin Chinese, especially the individual classifiers that are generally called classifiers in the following chapters in this thesis, the core issues addressed in these studies have been controversies in the different definitions and standards of identifying classifiers. In the following, two aspects will be concerned. First, different definitions of classifiers will be provided. One is the traditional view of classifiers and measure words proposed by Chao (1968) and by Li and Thompson (1981), and the other is the more recent one of that proposed by Tai & Wang (1990), by Tai (1992, 1994) and by Ahren & Huang (1996) and Huang & Ahren (2003), all of which will be individually discussed. Second, five Mandarin Chinese classifier categorizations proposed by representative studies will be briefly introduced. Finally, some remarks for this section will be given.

## 2.1 Classifiers and Measure Words

### 2.1.1 Traditional Views

In the traditional view of Chinese grammar, classifiers are regarded as on a par with measure words. For example, Chao (1968) treats classifiers as a subcategory of measure words in *A Grammar of Spoken Chinese*. Thus, the classifiers that I concentrate on in this thesis are called individual measure words in Chao (1968). Moreover, Li and Thompson (1981) blend classifiers and measure words and state 'any measure word can be a classifier.' The following examples from Li and Thompson (1981) can illustrate their opinions.

(1) a. 一　哩

   　*yi1　li3*

   　one　mile

   　'one mile'

   *b. 一　個　哩

   　*yi1　ge　li3*

   　one　C　mile

(2) a. 一　磅

   　*yi1　bang4*

   　one　　pound

   　'one pound'

   b. 一　磅　　肉

   　*yi1　bang4　rou4*

   　one　pound　meat

   　'one pound of meat'

Not only does a measure word generally not take a classifier as shown in (1), but

any measure word can be a classifier as shown in (2). The standard measure *li3* 哩 in

(1a) is acceptable, but not in (1b) because measure words do not take a classifier.

However, the standard measure *bang4* 磅 in (2) is regarded as a classifier by Li and

Thompson (1981) because the *a* phrase shows a measure word functioning as a noun

without a classifier and the *b* phrase shows the same measure word functioning as a

classifier with another noun. From observation of (2b), Li and Thompson thus think

that 'any measure word can be a classifier'.

## 2.1.2 Recent Views

The recent views of classifiers and measure words support the differentiation of

classifiers from measure words. For example, Tai and Wang (1990) suggest that it is

feasible and desirable to differentiate classifiers from measure words in order to

better understand the cognitive basis of the classifier system. Thus, Tai and Wang

(1990) were the first to study Mandarin Chinese classifiers on the basis of cognitive

categorization. According to the concept that 'a classifier denotes some salient

perceived or imputed characteristic of the entity to which the associated noun refers'

postulated by Allan (1977), Tai and Wang (1990) think that classifiers denote

relatively 'inherent' or 'permanent' properties while measure words denote

'contingent' or 'temporary' properties. Tai and Wang (1990) thus propose the

following distinction between 'permanent' and 'temporary' properties of entities as

the fundamental cognitive basis for distinguishing between classifiers and measure

words.

Semantic Distinction between Classifiers and Measure Words

ʻA classifier categorizes a class of nouns by picking out some salient perceptual properties, either physically or functionally based, which are permanently associated with the entities named by the class of nouns; a measure word does not categorize but denotes the quantity of the entity named by a noun.ʼ

But under the view of semantic distinction between classifiers and measure words, Tai (1992) points out that it is difficult to decide in the case of some ambiguous classifiers like *ba3* 把[2] and *kuai4* 塊[3] as to whether they are classifiers or measure words because these classifiers also function as measure words.

The other scholars supporting the recent view are Ahren and Huang (1996) and Huang and Ahren (2003). In addition to approving the existence of classifiers, they think that classifiers can be further divided into three subcategories, namely, individual classifiers, event classifiers and kind classifiers. Individual classifiers are those such *tiao2* 條, *mian4* 面 and so on. Event classifiers coerce event readings on the nouns that they occur with, for example, *chu1* 齣, *chang3* 場, *tong1* 通 and so on. Kind classifiers explicitly mark the nominal element that they select as having a kind reading, such *yang4* 樣, *zhong3*

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[2] *Ba3* 把 in *yi1 ba3 dao1zi* 一把刀子 can mean either ‘one knife’ functioning as a classifier or ‘one handful of knives’ functioning as a measure word.

[3] *Kuai4* 塊 in *yi1 kuai4 rou4* 一塊肉 can stress either ‘the shape of meat’ functioning as a classifier or ‘a portion of meat’ functioning as a measure word.

*種, shi4 式, kuan3 款* and so on. And these three subcategories, namely individual classifiers, kind classifiers and event classifiers, are under a classifier system which is a particular system of a natural language grammar. The relations of these three subcategories and the classifier system are represented below.
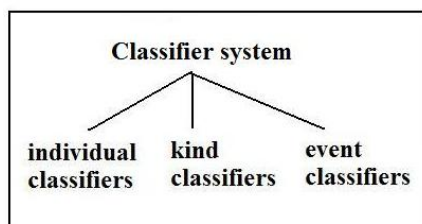


Figure 1: Classifier System

## 2.2 Mandarin Chinese Classifier Categorizations

Because of the large number of studies about Mandarin Chinese classifier categorizations, this thesis only adopts five Mandarin Chinese classifier categorizations proposed by representative studies. In this section below, these five categorizations will be briefly introduced.

### 2.2.1 Chao (1968)

The reason for adopting Chao (1968) is that Chao represents the traditional way of describing Chinese grammar. In *A Grammar of Spoken Chinese*, Chao postulates that measure words could be divided into nine categories and treats classifiers as a subcategory of measure words. This thesis only concentrates on the first category: individual measures. This category includes fifty-one individual measures as shown below. Tai (1992) mention that Chao's 'individual

measure' is actually a classifier on the basis of the semantic distinction between classifiers and measure words proposed by Tai and Wang (1990). Thus, I will call the first category of 'individual measures' in Chao (1968) classifiers in the following.

Table 1: The 51 Classifiers Proposed by Chao (1968)

| ba3 把 | ding3 頂 | guan3 管 | li4 粒 | shan4 扇 | zhang1 張 |
|---|---|---|---|---|---|
| ban4 瓣 | du3 堵 | hang2 行 | liang4 輛 | shou3 首 | zhi1 枝 |
| ben3 本 | dun4 頓 | jia1 家 | mei2 枚 | sao1 艘 | zhi1 隻 |
| bu4 部 | duo3 朵 | jia4 架 | men2 門 | suo3 所 | zhuang1 樁 |
| chu1 齣 | feng1 封 | jian4 件 | mian4 面 | tiao2 條 | zun1 尊 |
| chu4 處 | fu2 幅 | juan4 卷 | mu4 幕 | tou2 頭 | zuo4 座 |
| chuang2 床 | gan3 桿 | ke1 棵 | pi1 匹 | wei4 位 | |
| dan4 笪 | gen1 根 | ke1 顆 | pian1 篇 | ya2 牙 | |
| dao4 道 | ge 個 | kou3 口 | qi2 期 | zhan3 盞 | |

## 2.2.2 Erbaugh (1986)

Erbaugh is known for investigating classifiers from the view of acquisition. Erbaugh (1986) provides twenty-two core classifiers as shown in Table 2 covering virtually all the classifiers produced by both children and adults in Erbaugh's studies. No matter in what kind of conversations, adults to adults or adults to children or children to children, Erbaugh (1986) mentions that these core classifiers almost all appear in these conversations. That is to say, Erbaugh (1986) considers that these twenty-two classifiers are representative classifiers.

Table 2: The 22 Classifiers Proposed by Erbaugh (1986)

| ba3 把 | gen1 根 | ke1 棵 | shou3 首 | zhi1 枝 |
|---|---|---|---|---|
| ben3 本 | jia4 架 | ke1 顆 | tiao2 條 | zhi1 隻 |
| ding3 頂 | jian1 間 | kuai4 塊 | tou2 頭 | |

| duan4 段 | jia4 件 | li4 粒 | wei4 位 | |
| duo3 朵 | ju4 句 | pian4 片 | zhang1 張 | |

### 2.2.3 Hu (1993)

Hu (1993) is also known for investigating classifiers from the view of acquisition.

Hu (1993) provides twenty classifiers which are commonly used in the acquisition of

Chinese classifiers by young Mandarin speaking children as given in Table 3. Hu

also mentions that these twenty classifiers are classifiers which are used to qualify.

According to Adam and Conklin (1973), classifiers which are used to qualify usually

denote a permanent, particular intrinsic feature of the referent of the noun. On the

basis of the semantic distinction between classifiers and measure words provided by

Tai and Wang (1990), the concept of qualifying classifiers proposed by Adam and

Conklin (1973) corresponds to classifiers. Thus, I focus on the twenty qualifying

classifiers provided by Hu (1993) in this thesis.

Table 3: The 20 Classifiers Proposed by Hu (1993)

| ba3 把 | jian4 件 | liang4 輛 | shuang1 雙 | wei4 位 |
| ge 個 | ke1 顆 | pi1 匹 | tai2 台 | zhang1 張 |
| gen1 根 | kuai4 塊 | pian4 片 | tiao2 條 | zhi1 枝 |
| jia4 架 | li4 粒 | sao1 艘 | tou2 頭 | zhi1 隻 |

### 2.2.4 Huang et al. (1997)

A comprehensive dictionary of Mandarin classifiers named the *Mandarin Daily*

*Dictionary of Chinese Classifiers* was edited by Huang et. al. (1997). This dictionary

is a representative example of modern Mandarin Chinese. Although many Mandarin

Chinese classifier dictionaries have been published, Huang et. al. propose that their

dictionary marks a breakthrough in the lexicography of modern Mandarin Chinese.

The dictionary has the following two traits. First, the data in the dictionary is not

sourced from existing dictionaries or on the personal opinions, but based on findings

from a balanced large electronic corpus (Sinica Corpus) as the database for this

dictionary. Second, this dictionary is edited by many linguists with much experience

in analyzing Chinese. Thus, this dictionary is claimed to provide a completely new

and accurate listing of Mandarin Chinese classifiers.

In this dictionary, Mandarin Chinese classifiers are divided into seven categories.

This thesis only concentrates on the first category: individual classifiers which

include one hundred and seventy-three individual classifiers as shown in Table 4.

Table 4: The 173 Classifiers Proposed by Huang et. al. (1997)

| ba3 把 | dian3 點 | hang2 行 | ke1 顆 | pi3 匹 | tao4 套 | zhao1 招 |
|--------|----------|----------|--------|--------|---------|----------|
| ban1 班 | die2 疊 | hao4 號 | ke4 客 | pian1 篇 | ti2 題 | zhen1 針 |
| ban3 版 | ding3 頂 | hu4 戶 | ke4 課 | pian4 片 | tiao2 條 | zheng4 幀 |
| ban4 瓣 | ding4 錠 | hui2 回 | kou3 口 | piao4 票 | tie4 帖 | zhi1 支 |
| bang1 幫 | dong4 棟 | huo3 夥 | kuai4 塊 | pie3 撇 | ting3 挺 | zhi1 只 |
| ben3 本 | du3 堵 | ji2 級 | kuan3 款 | pou2 抔 | tou2 頭 | zhi1 枝 |
| bi3 筆 | duan4 段 | ji2 集 | kun3 捆 | qi2 畦 | tuan2 團 | zhi1 隻 |
| bing3 柄 | dui1 堆 | ji2 輯 | lan2 欄 | qi2 期 | tuo2 坨 | zhi3 紙 |
| bu4 部 | dui4 隊 | ji4 記 | li4 粒 | qi3 起 | wan1 彎 | zhou2 軸 |
| cai2 槽 | dui4 對 | ji4 劑 | lian2 聯 | qu3 曲 | wan1 灣 | zhu1 株 |
| ce4 冊 | duo3 朵 | jia1 家 | liang4 輛 | quan1 圈 | wan2 丸 | zhu4 柱 |
| ceng2 層 | fa1 發 | jia4 架 | lie4 列 | que4 闋 | wei3 尾 | zhu4 炷 |
| chong2 重 | fang1 方 | jian1 間 | liu3 綹 | qun2 群 | wei4 位 | zhuo1 桌 |
| chu4 處 | fang2 房 | jian4 件 | lu4 路 | shan4 扇 | wei4 味 | zong1 宗 |
| chuan4 串 | fen4 分 | jie1 階 | lun2 輪 | shen1 身 | xi2 席 | zu3 組 |
| chuang2 床 | fen4 份 | jie2 節 | luo4 落 | sheng1 聲 | xi2 襲 | zun1 尊 |
| chuang2 幢 | feng1 封 | jie2 截 | lyu3 旅 | shou3 首 | xian4 線 | zuo4 座 |

| cong2 叢 | fu2 服 | jie4 介 | lyu3 縷 | shu4 束 | xiang4 項 | |
|---|---|---|---|---|---|---|
| cu4 簇 | fu2 幅 | jin4 進 | mei2 枚 | shuang1 雙 | ye4 頁 | |
| cuo1 撮 | fu4 副 | jing1 莖 | men2 門 | si1 絲 | ye4 葉 | |
| da3 打 | gan3 桿 | ju4 句 | mian4 面 | sou1 艘 | yuan2 員 | |
| dai4 代 | gen1 根 | ju4 具 | ming2 名 | suo3 所 | ze2 則 | |
| dai4 帶 | ge 個 | juan3 卷 | pai2 排 | tai1 胎 | zha1 紮 | |
| dang3 檔 | gu3 股 | juan4 卷 | peng3 捧 | tai2 台 | zhan3 盞 | |
| dao4 道 | gua4 掛 | ke1 科 | pi1 匹 | tan1 攤 | zhang1 張 | |
| di1 滴 | guan3 管 | ke1 棵 | pi1 批 | tang2 堂 | zhang1 章 | |

## 2.2.5 Gao and Malt (2009)

Gao and Malt (2009), who lately provide Mandarin Chinese classifier categorizations, compile a list of one hundred and twenty-six classifiers in order to provide a basis for their studies and to serve as a resource for future research. Although several Chinese classifier dictionaries have been published, Gao and Malt (2009) claim that their list has some advantages. For instance, Gao and Malt (2009) claim that they only include individual classifiers in this list and that they only list classifiers which are familiar to speakers of Chinese. The sources of these classifiers are also very wide-ranging, from Chinese books, newspapers, and dictionaries to casual conversations between Gao and Malt and the other native Chinese speakers and their own knowledge of Chinese. Gao and Malt (2009) mention that these one hundred twenty-six classifiers are approved not only by themselves but also by six paid native speakers of Mandarin Chinese from Beijing (three graduate students at Lehigh University and three college-educated spouses of graduate students). As a result, Gao and Malt (2009) think that these one hundred twenty-six classifiers as

shown below are quite accurate classifiers.

Table 5: The 126 Classifiers Proposed by Gao and Malt (2009)

| ben3 本 | dong4 洞 | ji2 集 | liang4 輛 | qi2 期 | tang2 堂 | ye4 頁 |
|---|---|---|---|---|---|---|
| ba3 把 | dong4 棟 | ji4 劑 | liu3 綹 | qi3 起 | tang4 趟 | ze2 則 |
| ban1 班 | du3 堵 | jia1 家 | long3 壟 | qiang1 腔 | tiao2 條 | zhan3 盞 |
| ban4 瓣 | duan4 段 | jia4 架 | lü3 縷 | qu3 曲 | tie4 帖 | zhan4 站 |
| bi3 筆 | dui4 對 | jia4 駕 | lun2 輪 | quan1 圈 | ting3 挺 | zhang1 張 |
| bian4 辮 | dun4 頓 | jian1 間 | ma3 碼 | ren4 任 | tou2 頭 | zhang1 章 |
| bu4 部 | duo3 朵 | jian4 件 | mei2 枚 | sao1 艘 | tuan2 團 | zhao1 招 |
| ce4 冊 | fa1 發 | jie2 節 | men2 門 | shan4 扇 | tuo2 坨 | zhen4 陣 |
| chang3 場 | fen4 份 | jie2 截 | mian4 面 | shen1 身 | wan2 丸 | zhi1 支 |
| chu1 齣 | feng1 封 | jie4 屆 | ming2 名 | sheng1 聲 | wei4 位 | zhi1 枝 |
| chu4 處 | fu2 幅 | ju4 句 | mu4 幕 | shou3 首 | wei4 味 | zhi1 隻 |
| chuang2 床 | gan3 桿 | ju4 具 | pan2 盤 | shu4 束 | wo1 窩 | zhou2 軸 |
| chuang2 幢 | gen1 根 | juan4 卷 | pao4 泡 | si1 絲 | xi2 席 | zhu1 株 |
| cuo1 撮 | ge 個 | ke1 棵 | pi1 匹 | suo1 梭 | xian4 線 | zhuang1 樁 |
| dao4 道 | gu3 股 | ke1 顆 | pian1 篇 | suo3 所 | xiang4 項 | zhuo1 桌 |
| di1 滴 | gua4 掛 | kou3 口 | pian4 片 | tai1 胎 | xing1 星 | zong1 宗 |
| dian3 點 | guan3 管 | kuai4 塊 | pie3 撇 | tai2 台 | ya2 牙 | zun1 尊 |
| ding3 頂 | hu4 戶 | li4 粒 | qi2 畦 | tan1 灘 | yan3 眼 | zuo4 座 |

## 2.3 Remark

On the basis of previous studies in Section 2.1.1, I conclude that there are two

views to support the recent view that there needs to be a differentatiation between

classifiers and measure words. One view is from the set theory. Her (2011b)

mentions that classifiers do not contribute any semantic value that the noun has

already possessed to the semantics of the overall [Number C Noun] phrase. For

example, *yi1 wei3 yu2* 一尾魚 provided by Her (2011b). The classifier *wei3* 尾 will

not contribute the 'tail' value to *yu2* 魚 because having a tail is part of what

necessarily makes a fish. On the other hand, Her (2011b) claims that measure words

do contribute semantic value that the noun does not possess to the semantics of the overall [Number C Noun] phrase. For example, *yi1 xiang1 yu2* 一箱魚. The measure word *xiang1* 箱 will contribute 'box' value to *yu2* 魚 because *xiang1* 箱 will furnish additional information to the phrase, indicating that the fish are inside the box and mass boxful quantity. The other view is from Her's (2010, 2011b) *yi*-multiplier, a mathematic formula which can be used to differentiate classifiers and measure words. Her (2010, 2011b) proposes that classifiers are the multiplier *1* and *1* only. For example, the classifier *wei3* 尾 is the multiplier *1* and *1* only. Thus, *yi1 wei3 yu2* 一尾魚 will be equal to *1 x 1 yu2* 魚, which means one fish. Otherwise, measure words are other infinite possible values. For example, the measure word *da3* 打 is the multiplier *12*, rather than *1*. Thus, *yi1 da3 dan4* 一打蛋 is equal to *1 x 12 dan4* 蛋, which means twelve eggs. The details of Her's mathematic formula about the differentiation between classifiers and measure words will be discussed in Section 3.4. According to the above two views, I thus adopt differentiable concept of classifiers and measure words in this thesis and focus on classifiers.

In Section 2.1.2, there are also two aspects to note. First, although Tai (1992) notes that ambiguous classifiers like *ba3* 把 and *kuai4* 塊 can also be measure words, he does not provide any precise classification to show how these ambiguous classifiers should be regarded as classifiers or measure words. Thus, I will provide my solution to these ambiguous classifiers from morphology in the following Section 4.1. Second,

Ahren and Huang (1996) and Huang and Ahren (2003) propose that classifiers can be further divided into three subcategories, namely individual classifiers, event classifiers and kind classifiers. These three subcategories are under the classifiers system. However, a question arises, should these event classifiers and kind classifiers be regarded as classifiers? Because some studies from whom I have adopted Mandarin Chinese classifier categorizations in this thesis such as Chao (1968), Erbaugh (1986), Hu (1993) and Gao and Malt (2009) do not include kind classifiers into their classifier categories. But, event classifiers are included into classifier categories of Chao (1968) and of Gao and Malt (2009). Thus, my hypothesis to the above question is that kind classifiers should not be treated as classifiers and that it is possible for event classifiers to be classified as classifiers. In Section 4.1.4, the further evidence to support this hypothesis will be offered.

Ultimately, the most important thing is slove the discrepancy of the number of Mandarin Chinese classifiers. For example, fifty-one classifiers are given in Chao (1968), twenty-two in Erbaugh (1986), one hundred and seventy-three in Huang et. al. and one hundred and twenty-six in Gao and Malt (2009). The reason for these descrepancies results the lack of consentient norms in classifying Mandarin Chinese classifiers. Thus, I will adopt the four tests introduced in Chapter 3 to re-classify Mandarin Chinese classifier categorizations (Chao 1968, Erbaugh 1986, Hu 1993, Huang et. al 1997 and Gao and Malt 2009) in Chapter 4.

In the following chapters, the theoretical frameworks of this thesis will be introduced. Chapter 4 provides the data analysis of Mandarin Chinese classifier categorizations. Chapter 5 provides a short summary and indicates further points for further study in the future.

# CHAPTER III

# THEORETICAL FRAMEWORKS

Two well-known syntactic tests, adjective insertion and *de*-insertion have been used to differentiate the distinction between classifiers and measure words. In light of the on-going controversies over both tests, Her (2010) demonstrates that both tests can be made much more accurate and reliable. Below more accurate adjective insertion and *de*-insertion will be briefly introduced. In addition to the above two tests, two other tests will also be adopted. Altogether four tests, numeral/adjectival stacking (Her and Hsieh 2010, Her 2011b), revised *de*-insertion (Her and Hsieh 2010), *ge*-substitution (Tai and Wang 1990 and Tai 1994) and *yi*-multiplier Her (2010, 2011b), are used in this thesis to differentiate classifiers from measure words. These four tests will be successively introduced in this section. Finally, some remarks will be made to sum up the content of this section.

## 3.1 Numeral/adjectival stacking

According to Liang (2006), Mandarin Chinese measure words can be inserted and modified by an adjective while Mandarin Chinese classifiers can not, as shown in (3)

and (4), respectively.

(3) 一　　小　　　箱　　　書　　　(Her and Hsieh 2010, (8))

　　*yi1　xiao3　xiang1　shu1*

　　one　small　box　book

　　'one small box of books'

(4) *一　　小　　　隻　　　狗　　　(Her and Hsieh 2010, (9))

　　*yi1　xiao3　zhi1　gou3*

　　one　small　C[4]　dog

　　Although this test is confirmed by some linguists, many counter-examples to this test are found. For example, Her and Hsieh (2010) find numerous [Adj-C] examples from Google searches in the Taiwan domain as shown in (5a) and (5b), respectively.

(5) a. 一　　大　　顆　　蘋果　　(Her and Hsieh 2010, (10a))

　　*yi1　da4　ke1　ping2guo3*

　　one　big　C　apple

　　'one big apple'

　　b. 一　　大　　本　　　書　　(Her and Hsieh 2010, (10b))

　　*yi1　da4　ben3　shu1*

　　one　big　C　book

　　'one big book

　　Although the above examples represent that the adjective insertion test is unreliable, Her and Hsieh (2010) and Her (2011b) note crucial differences between classifiers and measure words.

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[4] Note that *C* refers to classifiers only throughout this thesis.

Her (2011b) proposes that the first observation relates to the scope of the numeral. Her and Hsieh (2010) point out that the pre-classifier numeral quantifies the noun together with the classifier, while a pre-measure word numeral only quantifies the measure word itself, not the noun. In the following examples, Her and Hsieh (2010) apply numeral quantification in pre-measure, as well as pre-classifier positions, as in (6a), or the stacking of measure words, as in (6b). Her (2011b) points out that these two phrases acceptable because the numeral that quantifies the measure words has its scope blocked by the measure words. Nevertheless, the reverse cases as in (7a) and (7b) are totally ill-formed because Her (2011b) points out that numeral that quantifies the classifiers must also quantify the measure words, thus yielding a nonsensical reading. For example, it can not be one and ten packs at the same time in example (7b).

(6) a. 一　　箱　　　十　　顆　　蘋果　　　(Her and Hsieh 2010, (11a))

　　　*yi1 xiang1　shi2　ke1　ping2guo3*

　　　one box　　ten　C　　apple

　　　'one box of ten apples'

　b. 一　　箱　　　十　　包　　　蘋果　　(Her and Hsieh 2010, (11b))

　　　*yi1　xiang1　shi2　bao1　ping2guo3*

　　　one　box　　ten　pack　apple

　　　'one box of ten packs of apples'

(7) *a. 一　　個　　十　　顆　　蘋果　　　(Her and Hsieh 2010, (12a))

　　　*yi1　ge　shi2　ke1　ping2guo3*

one   C   ten   C   apple

*b. 一　個　十　包　蘋果　(Her and Hsieh 2010, (12b))

　　*yi1　ge　shi2　bao1　ping2guo3*

one   C   ten   pack   apple

A formula for the first observation proposed by Her (2011b) is shown in (8).

(8) Classifiers / Measure words Distinction in Numeral Quantification Scope

　If [Num[5] X Num Y Noun] is well-formed, then X = M[6], X ≠ C, and Y = C/M.

Her (2011b) proposes that the second observation relates to the scope of the modification of adjectival. Three forms of adjectival modification, [Num – Adj – C/ M Noun], [Adj – C/ M – *de* – Noun] and [Adj – Adj – *de* – Noun], are included in this observation. Following, examples of these three forms will be demonstrated individually. First, Her and Hsieh (2010) provide the main concept in the second observation that the adjectival modification of a pre-measure word has only the measure word as its scope, while a pre-classifier adjective transcends the classifier to modify the noun and allows the scope of a pre-classifier adjective to cover nouns.

The first form [Num – Adj – C/ M Noun] of adjectival modification is shown in (9a) and (9b) provided in Her and Hsieh (2010). Example (9b) shows that a pre-classifier adjective transcends the classifier to modify the noun and allows the scope of a pre-classifier adjective to cover the noun; while example (9a) shows that measure words do not behave in this way.

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[5] Note that *Num* refers to cardinal numerals only throughout this thesis.
[6] Note that *M* refers to measure words only throughout this thesis.

(9) a. 一　大　箱　　蘋果　　≠一　箱　　大　蘋果

　　　*yi1　da4　xiang1　ping2guo3　yi1　xiang1　da4　ping2guo3*

　　　one　big　box　　apple　　one　box　　big　apple

　　　'one big box of apples'　　　　'one box of big apples'

　b. 一　大　顆　蘋果　　=　一　　顆　　大　　蘋果

　　　*yi1　da4　ke1　ping2guo3　yi1　ke1　da4　ping2guo3*

　　　one　big　C　apple　　one　C　　big　apple

　　　'one big apple'　　　　　'one big apple'

The second form of [Adj – C/ M – *de* – Noun] of adjectival modification is shown in (10a) and (10b). Example (10a) shows that a pre-classifier adjective transcends the classifier to modify the noun and allows the scope of a pre-classifier adjective to cover the noun; while example (10b) shows that measure words do not behave in this way.

(10) a. 大　顆　的　蘋果　　=　大　蘋果　　　　(Her 2011, (8a))

　　　*da4　ke1　de　ping2guo3　da4　ping2guo3*

　　　big　C　DE　apple　　big　apple

　　　'big apple(s)'　　　　　'big apple(s)'

　b. 大　箱　　的　蘋果　　≠　大　　蘋果　　　(Her 2011, (9a))

　　　*da4　xiang1　de　ping2guo3　da4　ping2guo3*

　　　big　box　　DE　apple　　big　　apple

　　　'apples that come in big boxes'　　'big apple(s)'

The third form of [Adj – Adj – *de* – Num – C / M –Noun] in adjectival modification is shown in (11a) and (11b) provided by Her (2011b). Example (11a) shows that a pre-classifier adjective transcends the classifier to modify the noun and

allows the scope of a pre-classifier adjective to cover the noun; while example (11b)

shows that measure words do not behave in this way.

(11) a. 大大的　　一　　顆　　蘋果　　＝一　　顆　　大　　蘋果

　　　*da4da4de　yi1　ke1　ping2guo3　yi1　ke1　da4　ping2guo3*

　　　big　　　　one　C　　apple　　　one　C　　big　　apple

　　　'one big apple'　　　　　　　　'one big apple'

　　b. 大大的　　一　　箱　　蘋果　　≠一　　箱　　　大　　蘋果

　　　*da4da4de　yi1　xiang1　ping2guo3　yi1　xiang1　da4　ping2guo3*

　　　big　　　　one　box　　apple　　　one　box　　big　　apple

　　　'one big box of apples'　　　　　　'one box of big apples'

A formula for the second observation proposed by Her (2011b) is shown in (12).

(12) C/M Distinction in Adjectival Modification Scope

If [Num A-X N] = [Num X A-N], [A-X-*de* N] = [A-N], or [AA-*de* Num X N]

= [Num X A-N], semantically and A refers to size, then X = C, and X ≠ M.

Her (2011b) proposes that the last observation comes from the inferences of the

above formula (12). Her (2011b) claims that whether the adjective modifies

classifiers or nouns, they all have the same scope. Her (2010) thinks that a

pre-classifier adjective and a pre-noun adjective in the same phrase can not

contradict each other, as shown in (13); while it is totally fine for a pre-measure word

to contradict a pre-noun adjective, as shown in (14).

(13)*a. 一　　大　　顆　　小　　蘋果　　　　　　　(Her and Hsieh 2010, (15a))

　　　*yi1　da4　ke1　xiao3　ping2guo3*

　　　one　big　C　　small　apple

*b. 大大的　　一　　顆　　小　　蘋果　　　　(Her and Hsieh 2010, (15b))

　　*da4da4de　yi1　ke1　xiao3　ping2guo3*

　　big　　　　one　C　　small　　apple

(14) a. 一　　大　　箱　　小　　蘋果　　　　(Her and Hsieh 2010, (14a))

　　*yi1　da4　xiang1　xiao3　ping2guo3*

　　one　big　box　　small　　apple

　　'one big box of red/small apples'

　b. 大大的　　一　　箱　　　小　　蘋果　　　(Her and Hsieh 2010, (14b))

　　*da4da4de　yi1　xiang1　xiao3　ping2guo3*

　　big　　　　one　box　　small　apple

　　'one big box of red/small apples'

Her (2011b) points out that example (13) does not have a congruent reading because apples can not be big and small at the same time. However, the example in (14) can have a congruent reading because the box can be big and the apples small at the same time. A formula for the last observation proposed by Her (2011b) is shown in (15).

(15) C/M Distinction in Antonym Stacking

Given antonyms $A_1$ and $A_2$, if [Num $A_1$ X $A_2$ N] is semantically incongruent, then X = C and X ≠ M; otherwise, X = M and X ≠ C

Finally, more accurate adjective insertion is revised as numeral/adjectival stacking including three subtests, C/M distinction in numeral quantification scope, C/M distinction in adjectival modification scope and C/M distinction in antonym stacking.

## 3.2 *De*-insertion

Many linguists claim that *de*-insertion is a further piece of evidence for the distinction between classifiers and measure words (e.g., Chao 1968, Tai and Wang 1990, Tai 1994). *De* may be optionally inserted after measure words, but not after classifiers, as shown in (16).

(16) 一 箱/*本 的 書 (Her and Hiesh 2010, (16) )

 *yi1 xiang1/ben3 de shu1*

 one box/C DE book

 'one box of/*C books'

However, M. Hsieh (2008) points out that there are many well-formed classifier-*de*-noun examples in the Sinica Corpus as in the following examples of (17) and (18).

(17) 五百萬 隻 的 鴨子 (Her and Hiesh 2010, (17) )

 *wu3bai3wan4 zhi1 de ya1zi*

 five-million C DE duck

 'five million ducks'

(18) 幾百 條 的 海蛇 (Her and Hiesh 2010, (18) )

 *ji3bai3 tiao2 de hai3she2*

 several-hundred C DE sea-snake

 'hundreds of sea snakes'

An explanation that is attempted for the above examples is N. Zhang's (2009) corroboration that in a [Number − classifier − *de* - noun] phrase, the lower the

number, the less acceptable the phrase. Thus, the higher the number, the more naturally *de* intervenes between classifiers and nouns.

However, Her and Hsieh (2010) indicate that if we apply the fractions of a number including those with a value smaller than one to [Number–classifier–*de*–noun], it will drastically increase acceptability. And they point out that there are seventy instances of 之一顆的 *zhi1 yi1 ke1 de* 'one fraction of' found in Google searches, as shown in (19).

(19) a. 八分之一　　顆　的　高麗菜　　(Her and Hsieh 2010, 21 (a))

　　　*ba1fen1zhi1yi1　ke1　de　gao1li4cai4*

　　　one-eighth　　　C　DE　cabbage

　　　'one-eighth (of a ) cabbage'

　　b. 四分之一　　顆　的　洋蔥　　(Her and Hsieh 2010, 21 (b))

　　　*si4fen1zhi1yi1　ke1　de　yang2cong1*

　　　one-eighth　　　C　DE　onion

　　　'one-eighth (of an) onion'

One explanation that is attempted for the above examples (19a) and (19b) is given by Tang (2005:444), where numeral contrast is interpreted as a contrast in 'information weight', the higher the number in [Number – classifier – *de* – noun], the higher its information weight.

However, Her and Hsieh (2010) provide another opinion that the higher the degrees of the computational complexity of the modifications before the classifiers are, the heavier the modifications are and the more acceptable the *de*-insertion

phrases are. In other words, any increase in the complexity of a classifier should increase the acceptability of *de*-insertion. In the following example (20) provided by Her and Hsieh (2010), they say that *ban4* 半 is computationally more complex than *yi1* 一, so the degree of acceptability of *ban4 ke1 de ping2guo3* 半顆的蘋果 is higher than that of *yi1 ke1 de ping2guo3* 一顆的蘋果. But, if we use the method of 'information weight', the degree of acceptability of *yi1 ke1 de ping2guo3* 一顆的蘋果 is higher than that of *ban4 ke1 de ping2guo3* 半顆的蘋果 because *yi1* 一 is heavier than *ban4* 半.

However, Her and Hsieh (2010) provide Google matches data[7], with twenty matches of *ban4 ke1 de ping2guo3* 半顆的蘋果 and merely one of *yi1 ke1 de ping2guo3* 一顆的蘋果, to further support the correctness of the argumentations of computational complexity.

(20) a. 半　　顆　　的　蘋果　　　(Her and Hsieh 2010, 22(a))

　　　*ban4　ke1　de　ping2guo3*

　　　half　　C　　DE　apple

　　　'half an apple'

　*b. 一　顆　　的　　蘋果　　　　　(Her and Hsieh 2010, 22 (b))

　　　*yi1　ke1　de　　ping2guo3*

　　　one　C　　DE　　apple

　　　'an apple'

(21) a. 一　　大　　條　　的　　　魚　　(Her and Hsieh 2010, 23 (a))

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[7] Data accessed on February 22, 2010 in Her and Hsieh (2010).

> *yi1* *da4* *tiao2* *de* *yu2*
>
> one    big    C    DE    fish
>
> 'one big fish'

  *b. 一    條    的    魚        (Her and Hsieh 2010, 23 (b))

> *yi1* *tiao2* *de* *yu2*
>
> one    C    DE    fish
>
> 'one fish'

Example (21) shows that the modification *da4* 大 increases the complexity of classifier itself which is also equal to increase the acceptability of *de*-insertion. Thus, the degree of acceptability of *yi1 da4 tiao2 de yu2* 一大條的魚 is higher than that of *yi1 tiao2 de yu2* 一條的魚.

In conclusion, Her and Hsieh (2010) assume that *one* is computationally the least complex number. They thus restate the test of *de*-insertion as shown in (22) in much more restricted terms and with much more precision.

(22) *De*-insertion (revised)

    [*yi* M/*C *de* Noun]

## 3.3 *Ge*-substitution

Tai and Wang (1990) and Tai (1994) propose that if *ge* 個, the neutral individual classifier, can definitely substitute the element without any changes in its truth conditions, then the element is a classifier rather than a measure word. Consider the following examples:

(23) 三    顆    蘋果      =      三    個    蘋果    (Her and Hsieh 2010, (24))

| *san1* | *ke1* | *ping2guo3* | | *san1* | *ge* | *ping2guo3* |
|--------|-------|-------------|---|--------|------|-------------|
| three | C | apple | | three | C | apple |
| 'three apples' | | | | 'three apples' | | |

(24) 三　　箱　　蘋果　　　≠ 三　　個　　蘋果　(Her and Hsieh 2010, (25))

| *san1* | *xiang1* | *ping2guo3* | | *san1* | *ge* | *ping2guo3* |
|--------|----------|-------------|---|--------|------|-------------|
| three | box | apple | | three | C | apple |
| 'three boxes of apples' | | | | 'three apples' | | |

Example (23) illustrates that *ke1* 顆 is a classifier because *ke1* 顆 can be replaced by *ge* 個 without any change in the numeral meaning of the apple, while (24) shows that *xiang1* 箱 should be categorized as a measure word because *xiang1* 箱 can not be replaced by the neutral individual classifier *ge* 個. As a result, Tai and Wang (1990) and Tai (1994) suggest that classifiers and measure words can be distinguished by *ge*-substitution.

But not all classifiers can be replaced by *ge* 個. For instance, Hsieh (2009) mentions that *ben3* 本 'a unit used for books' is typically regarded as a classifier, as in the case of *yi1 ben3 shu1* 一本書, but that the substituted form ? *yi1 ge shu1* 一個書 is not acceptable at all. And other examples that I have found, such as *yi1 gen1 dao4cai3* 一根稻草 will not be acceptable if we substitute *ge* 個 for their specific individual classifier, such as ? *yi1 ge dao4cai3* 一個稻草. Thus, words that can be substituted for *ge* 個 are certain to be classifiers but not all classifiers can be substituted for *ge* 個. In other words, *ge*-substitution is a sufficient but not a

necessary factor to distinguish classifiers from measure words. The following is a *ge*-substitution formula postulated by Her and Hsieh (2010) to distinguish classifiers from measure words.

(25)*Ge*-substitution

 If [Num X Noun] = [Num *ge* Noun] semantically, then X = C and X ≠ M.

## 3.4 *Yi* – Multiplier

 In supposing that coding of the operation of multiplication in language is necessary, Her (2011b) thinks that Au Yeung (2005, 2007) makes a convincing case for the essential role of the multiplicative identity, *1*, in the emergence of classifiers. Her (2011b) points out that in the number calling system of both Chinese and English, all multipliers above the ten are called. Take the number 6543 for example.

(26) 六　　千　　五　　百　　四　　十　　三 　　　　　(Her 2011b, (50))

　　liu4　qian1　wu3　bai3　si4　shi2　san1

　　six　thousand　five　hundred　four　ten　three

　　'Six thousand five hundred and forty-three'

 While, as Comrie (2006) points out, Chinese numbers are famously regular in their decimal pattern, (n × base) + m, where m < base, Her (2011b) mentions that the number 6543 can be derived as shown in (27) and (28).

(27) Derivation of the number 6543 in Chinese (I)　　　(Her 2011b, (51))

　　$(6 \times 10^3) + (5 \times 10^2) + (4 \times 10^1) + (3 \times 10^0)$

(28) Derivation of the number 6543 in Chinese (II)　　　(Her 2011b, (52))

　　$(6 \times 1000) + (5 \times 100) + (4 \times 10) + (3 \times 1)$

Her (2011b) points out that the multiplication, that is symbol ×, and addition, symbol +, in examples (27) and (28) is not pronounced, but that all of the bases, such as *qian1* 'thousand' ($10^3$), *bai3* 'hundred' ($10^2$), and *shi2* 'ten' ($10^1$) must be. Only, *ge* ($10^0$) will be viewed as a exception as a base but without pronunciation. Such an asymmetry between the rightmost digits such as *ge* and other digits such as *qian1, bai3,* and *shi2* has been noted by Au Yeung (2005). Au Yeung (2005) points out that the only phonetically null but numerically present slot is *ge* when a number is called in Chinese as shown in Table 6. The single digit 3 in Table 6 is equal to 3 × *ge* that *ge* is bound to appear but without pronunciation. Because *ge* is bound to appear and 3 × *ge* is equal to 3, the only possible multiplier for *ge* is the multiplier *1*. The single digit 3 is thus represented by the multiplication formula as 3×1. Because *ge* is phonetically null, *ge* is marked as *silent* to represent phonetically null.

Table 6: Asymmetry of the Rightmost Digit (Her 2011b, Table 1)

| Number 6543 | 6 | 5 | 4 | 3 |
|---|---|---|---|---|
| Position Naming | 千位 *Qian1-we4i* | 百位 *Bai3-wei4* | 十位 *Shi2-wei4* | 個位 *Ge-wei4* |
| Digit Value Calling | *Liu6-qian1* | *Wu3-bai3* | *Si4-shi2* | *San1- GE$_{silent}$* |
| Number Calling | 六 千 (6 qian1) *Liu4 qian1* | 五 百 (5 bai3) *wu3 bai3* | 四 十 (4 shi2) *si4 shi2* | 三 (*個) (3 × ge) *san1 GE$_{silent}$* |

As a result, Au Yeung (2005: 201) points out: "The silent classifier in the form of $1_{GE}$ in the CL slot could serve as a seed for the noisy sortal classifier to grow".[8] However, Her (2011b) mentions that Au Yeung (2005) does not follow his simple mathematical

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[8] Note that Au Yeung (2007) does not differentiate classifiers from measure words and uses 'classifiers' to include both of them. However, Au Yeung (2005) does differentiate classifiers which are called as sortal classifiers in his terminology from measure words which are called non-sortal classifiers in his terminology.

value of *ge* as classifiers, which is quite simply the multiplier *1*. Instead, Her (2011b)

points out that Au Yeung pursues a more complicated formula and takes a classifier as

having a numerical value '*one* token$_{object}$ per unit' and a measure word as '*n* token$_{object}$ per

unit'. Au Yeung (2007) further interprets 'token$_{object}$' as the size of the 'unit', or the set.

(1× 1set) in example (29) and (2× 1set) in example (30) are demonstrations of '*one*

token$_{object}$ per unit' and '*n* token$_{object}$ per unit', respectively.

(29) 三　　　個　　球　　　　　(Her 2011b (53))

　　　*san1*　*ge*　*qiu2* (*3×(1× 1set)×qiu2*)

　　　three　C　ball

　　　'three balls'

(30) 三　　　對　　球　　　　　(Her 2011b (54))

　　　*san1*　*dui4*　*qiu2* (*3×(2× 1set)×qiu*)

　　　three　pair　ball

　　　'three pairs of balls'

From the above two examples and the '*one* token$_{object}$ per unit' and '*n* token$_{object}$ per

unit' concepts, Her (2011b) proposes that Au Yeung's distinction between classifiers

and measure words rests on the value of *n*. If *n* is equal to *1*, it is a classifier. If *n* is

not equal to *1,* it is a measure word. Au Yeung's formula of is shown below.

(31) Au Yeung's (2005, 2007) Formula (Her 2011b (55))

　　　[Num X Noun] = [Num × (n× 1set) ×Noun], where X=C if *n=1* and X=M if *n≠1*

Although Au Yeung (2005, 2007) is possibly the first researcher to make the

above clear and mathematically precise distinction between classifiers and measure

words, Her (2011b) further provides a simpler proposal of Au Yeung's (2005, 2007)

formula.

Her (2010) proposes that if a classifier or a measure word is interpreted as having

a mathematical value, then the only possible mathematical function is multiplication

linking between numeral and classifiers or measure words. Simplifying Au Yeung's

formula, Her (2010) proposes that classifiers represents necessarily multiplier *1* and

*1* only while measure words represents other than *1*. The precise and simpler

distinction for distinguishing between classifiers and measure words of Her (2010) is

given as (32).

(32) Her's (2010) *Yi*-multiplier Formula

   [Num X Noun] = [Num×*n* Noun], where X=C *iff n=1*, otherwise X=M.

Finally, Her (2011b) mentions that many classifiers in Chinese are all of the same

mathematical value which is multiplier *1* and that measure words are the other

infinite possible values.

## 3.5 Remark

Theories to differentiate classifiers from measure words have been outlined in this

section. Numeral/adjectival stacking is not a perfect way to differentiate classifiers

and measure words because there are many variables. For example, a Mandarin

Chinese classifier *feng1* 封. Under the scope of numeral modification, *yi1 xiang1*

*shi2 feng1 xin4* 一箱十封信 is acceptable, but under the scope of adjectival

modification *yi1 da4 feng1 xin4* 一大封信 is semantically doubtful if it is equal to

*yi1 feng1 da4 xin4* 一封大信 or *da4 feng1 de xin4* 大封的信 is also semantically

doubtful if it is equal to *da4 xin4* 大信. Or, a Mandarin Chinese classifiers, *ju4* 具.

Under the scope of numeral modification, *yi1 xiang1 shi2 ju4 shi1ti3* 一箱十具屍體

is acceptable, but under the scope of adjectival modification *yi1 da4 ju4 shi1ti3* 一大

具屍體 is semantically doubtful if it is equal to *yi1 ju4 da4 shi1ti3* 一具大屍體 or

*da4 ju4 de shi1ti3* 大具的屍體 is semantically doubtful if it is equal to *da4 shi1ti3*

大屍體. The above situations in which classifiers are testified as classifiers in one

test but where there status is uncertain in others will increase the difficulties and lack

of accuracy in determining whether a Mandarin Chinese word is classifiers or

measure words. Moreover, it is impossible to have a definite dichotomous distinction

for classifiers and measure words.

   Although Her (2011b) has already revised the defects of *de*-insertion, I still found

some counter-examples through Google searches. For example, a classifier *jian4* 件

is allowed to have *de*-insertion such as in *yi1 jian4 de mao2yi1* 一件的毛衣[9]. A

classifier *mian4* 面 is also allowed to have *de*-insertion such as in *yi1 mian4 de*

*jing4zi* 一面的鏡子[10].   Though I found some counter-examples through Google

searches, most classifiers are still not allowed to have *de*-insertion. Words which are

not allowed to have *de*-insertion must be classifiers, while words which are allowed

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[9]  Data accessed on June 27, 2011.
[10]  Data accessed on June 27, 2011.

to have *de*-insertion are likely to be classifiers. Thus, I think that *de*-insertion is a sufficient but not necessary property for being a classifier.

Although Tai and Wang (1990) and Tai (1994) suggest that *ge*-substitution can distinguish classifiers from measure words, Hsieh (2009) mentions some counter-examples. I also found some counter-examples, such as ? *yi1 ge dao4cai3* 一個稻草. As a result, words which can be substituted for *ge* 個 are certain to be classifiers. However, such substitution does not work the other way as can be seen in some counter-examples. I thus conceive that *ge*-substitution is also a sufficient but not necessary property of being a classifier.

And the last test, *yi*-multiplier, the inspiration for which derives from mathematics, offers a dichotomous distinction between classifiers and measure words. Moreover, Her (2011b) points out that many classifiers in Chinese are all of multiplier *1* and measure words are multiplier other than *1*. As a result, I think that *yi*-multiplier is a sufficient and necessary property of being a classifier.

To sum up the above comments that I have made for each of the tests, *de*-insertion and *ge*-substitution are sufficient but not necessary properties of being a classifier. *Yi*-multiplier is a sufficient and necessary property of being a classifier. And numeral / adjectival stacking are optional because some variables are likely to occur. As a result, the decisive test to differentiate classifiers from measure words is the use of *yi*-multiplier. *De*-insertion, *ge*-substitution and numeral / adjectival stacking are used

to supplement and reinforce *yi*-multiplier. So, the order of these tests is *yi*-multiplier

first, then *de*-insertion or *ge*-substitution. The last one is numeral / adjectival stacking.

In the following data analysis chapter, the above order of the tests will be adopted to

re-classify Mandarin Chinese classifier categorizations.

# CHAPTER IV

# DATA ANALYSIS

On the basis of the theoretical frameworks discussed in Chapter 3, this chapter will present my data analysis of re-classifying five Mandarin Chinese classifier categorizations which are proposed by representative studies such as Chao (1968) in *A Grammar of Spoken Chinese*, Erbaugh (1986), Hu (1993), Huang et. al. (1997) in the *Mandarin Daily Dictionary of Chinese Classifiers* and Gao and Malt (2009).

In the following, three aspects will be discussed. First, due to a lack of consentient tests to identify the classifiers in these five categorizations, there are discrepancies in the number of Mandarin Chinese classifiers. Thus, I will make use of four consentient tests mentioned in Chapter 3 to re-classify five Mandarin Chinese classifier categorizations posed by Chao 1968, by Erbaugh 1986, by Hu 1993, by Huang et. al. 1997 and by Malt and Gao 2009. Second, after re-classifying the five Mandarin Chinese classifier categorizations by using the four consentient tests, the aim is to offer a group of true classifiers through using two mathematical methods and a questionnaire experiment. Third, true classifiers can be further classified according to their semantic meanings as given in the *Mandarin Daily Dictionary of*

*Chinese Classifiers* (Huang et. al 1997) in a bottom-up form to represent an explicit semantic categorization.

## 4.1 Re-classify Mandarin Chinese Classifier Categorizations

By using the four tests based on linguistic theory to analyze Mandarin Chinese classifier categorizations proposed by representative studies such as Chao (1968) in *A Grammar of Spoken Chinese*, Erbaugh (1986), Hu (1993), Huang et. al. (1997) in the *Mandarin Daily Dictionary of Chinese Classifiers* and Gao and Malt (2009), I propose that these classifier categorizations should be subcategorized into three portions, classifiers, *Xc* and *Xm* and measure words because some measure words like *dui4* 對 and *shuang1* 雙 the multipliers of which other than *1* are included in these classifier categorizations and ambiguous words which both have classifier functions and measure word functions like *ba3* 把*, pian4* 片 *and kuai4* 塊 do not have any precise classifications. In the following, I will explain the concepts and the reasons for proposing these three portions.

The first portion: classifiers. All of the words in this portion are not only identified as classifiers by Chao (1968), by Erbaugh (1986), by Hu (1993), by Huang et. al. (1997) and by Gao and Malt (2009), but also proved as classifiers by my analysis through using the four tests mentioned in Chapter 3. All of the words in this portion all have a sufficient and necessary property of being a classifier, which is multiplier *1*.

And all of the words abide by two sufficient but not necessary properties of classifiers, *ge*-substitution and *de*-insertion.

The second portion is that of *Xc* and *Xm*. The reason for why I propose the portion of *Xc* and *Xm* is in order to resolve two situations below. First, Tai and Wang (1990) and Tai (1992) mention that classifiers can be ambiguous in some contexts in that they can be interpreted as either classifiers or measure words. For instance, Mandarin Chinese classifiers like *ba3 把* in *yi1 ba3 dao1zi 一把刀子* can mean either 'one knife' or 'a handful of knives'. The former 'one knife' corresponds to classifier and the latter 'a handful of knives' corresponds to measure word. And *kuai4 塊* in *yi1 kuai4 rou4 一塊肉* can stress either the shape of an object or a portion of an object. The former which stresses the shape of an object corresponds to classifier and the latter which stresses the portion of an object corresponds to measure word. However, Tai and Wang (1990) and Tai (1992) do not propose any precise classification to show how these ambiguous classifiers should be classified as classifiers or measure words.

Second, each meaning of one classifier may contribute to different categories, classifiers or measure words. Thus, a classifier may be a classifier in one meaning, but a measure word in other meanings. For instance, when *kou3 口* is in the meaning of calculating a well or a spring, *kou3 口* is a classifier such as *yi1 kou3 jing3 一口井*. On the other hand, when *kou3 口* has in the meaning of calculating objects in the

oral cavity, *kou3* 口 is a measure word such as *yi1 kou3 zhu4 ya2* 一口蛀牙. The different meanings of *kou3* 口 contribute *kou3* 口 to be a classifier or a measure word. As a result, a question arises as to whether *kou3* 口 should be regarded as a classifier or as a measure words.

From the above two situations, I find that the similarity in these two situations is that ambiguous classifiers sometimes are classifiers, but are also sometimes measure words. Therefore, whether these ambiguous classifiers should be regarded as classifiers or measure words is an urgent issue that should be solved.

In order to solve this urgent issue and provide a simply categorization, I adopt the concept of the relation between lexemes and word-forms and the concept of the relation between word-forms from morphology to provide a precise classification. Lexemes which are abstract are realized by word-forms which are concrete. And the relation between word-forms is in complementary distribution. The hierarchy of lexemes and word-forms are shown in Figure 2.
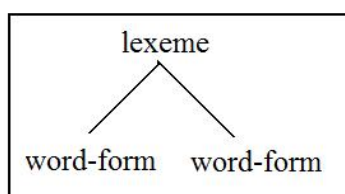


Figure 2: The Hierarchy of Lexemes and Word-forms

According to the relationship between lexemes and word-forms and the concept of the relationship between word-forms, I suppose that the above classifiers like *ba3* 把

and *kou3* 口 which function both as classifiers and measure words are actually two word-forms, namely *ba3* 把 as a classifier or as a measure word and *kou3* 口 as a classifier or as a measure word. Because the relation between word-forms must be in complementary distribution, *ba3* 把 and *kou3* 口 as classifiers also have to be in complementary distribution with *ba3* 把 and *kou3* 口 as measure words. The complementary distribution of *ba3* 把／*kou3* 口 as classifiers and as measure words can be inferred from their two interpretations, namely a classifier interpretation of *ba3* 把 or *kou3* 口 and a measure word interpretation of *ba3* 把 or *kou3* 口. For example, *ba3* 把 in *yi1 ba3 dao1zi* 一把刀子 has a classifier interpretation, 'a knife', and a measure word interpretation, 'a handful of knives'. *Kou3* 口 also has two interpretations, one as a classifier as in 'a well or spring' in *yi1 kou3 jing3* 一口井 and the other as a measure word as in 'a mouthful of decayed teeth' in *yi1 kou3 zhu4ya2* 一口蛀牙. Because hearers or speakers only make one interpretation at one time, namely a classifier interpretation or a measure word interpretation, a classifier interpretation for *ba3* 把 or *kou3* 口 and a measure word interpretation for *ba3* 把 or *kou3* 口 will not occur at the same time. This shows that a classifier interpretation for *ba3* 把 or *kou3* 口 and a measure word interpretation for *ba3* 把 or *kou3* 口 are in complementary distribution. As a result, my hypothesis that *ba3* 把 and *kou3* 口 as classifiers and measure words are actually two word-forms is provable. Moreover, *ba3* 把 and *kou3* 口 are listed as only one lexemes in Mandarin Chinese dictionaries,

rather as two lexemes such as one lexeme for being a classifier and the other for being a measure word. Thus, I infer again that *ba3* 把 and *kou3* 口 as listed in dictionaries are abstract lexemes and that *ba3* 把 and *kou3* 口 as classifiers and as measure words are actually two concrete word-forms. To sum up the above inferences and in order to have a clear distinction between classifiers and measure words, I propose *c* mark to symbolize classifiers and *m* mark to symbolize measure words. Thus, *ba3* 把 as a classifier will be presented as *ba3* 把*c* and *ba3* 把 as a measure word will be presented as *ba3* 把*m*. The same situation also applies for *kou3* 口*c* and *kou3* 口*m*. The hierarchy of *ba3* 把, *ba3* 把*c* and *ba3* 把*m* and of *kou3* 口, *kou3* 口*c* and *kou3* 口*m* will be shown in below.
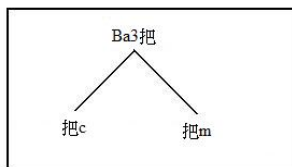


Figure 3: The Hierarchy of *ba3* 把, *ba3* 把*c* and *ba3* 把*m*
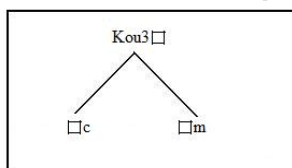


Figure 4: The Hierarchy of *kou3* 口, *kou3* 口*c* and *kou3* 口*m*

According to above inferences and observations, I also find that my propositional *Xc* and *Xm* can be further divided into two subcategories. One is for ambiguous classifiers like *ba3* 把. The other is for classifiers like *kou3* 口 in which each meaning of one classifier may contribute to different categories, classifiers or

measure words.

The last portion is measure words. All words in this portion are identified as classifiers by Chao (1968), Erbaugh (1986), Hu (1993), Huang et. al. (1997) and Gao and Malt (2009). However, these words are testified as measure words by making use of the four tests mentioned in Chapter 3. None of the words in this portion have a sufficient and necessary property of being a classifier, the multiplier *1*. Thus, none of the words in this portion should be included in the classifier categorization. The other three tests in Chapter 3 also support that none of the words in this portion are classifiers.

The following Table 7 shows the relations of these three portions. Briefly, these three portions can be simplified into two categories, classifiers and measure words. Table 7 presents that the classifier portion and *Xc* portion are regarded as belonging to classifier category and the measure word portion and *Xm* portion are regarded as belonging to measure word category. Thus, the classifiers that I discuss in the following sections will include both the classifier portion and *Xc* portion. And the measure words portion and *Xm* portion will not be discussed further here because they are not the focus of this thesis.

Table 7: The Relation of the Three Portions

| **Categories** | **Classifiers** | **Measure words** |
|---|---|---|
| **Portions** | classifiers , *Xc* | measure words, *Xm* |

In analyzing Mandarin Chinese classifier categorizations of the following studies (Chao 1968, Erbaugh 1986, Hu 1993 and Huang et. al. 1997 and Malt and Gao 2009), I will adopt four tests in Chapter 3 in the order of *yi*-multiplier, then *de*-insertion or *ge*-substitution, and then numeral / adjectival stacking to re-examine their classifier categorizations and to re-classify the classifiers which scholars have identified further into three portions, classifiers, *Xc* and *Xm* and measure words.

Below, there is a re-examination of Mandarin Chinese classifier categorization proposed by Chao (1968) in *A Grammar of Spoken Chinese* in Section 4.1.1, of that proposed by Erbaugh (1986) in Section 4.1.2, of that proposed by Hu (1993) in Section 4.1.3, of that proposed by Huang et. al. (1997) in the *Mandarin Daily Dictionary of Chinese Classifiers* in Section 4.1.4 and of that proposed by Gao and Malt (2009) in Section 4.1.5.

## 4.1.1 Chao (1968)

The fifty-one classifiers in *A Grammar of Spoken Chinese* edited by Chao (1968) will be re-examined by making use of the four tests mentioned in Chapter 3 and re-classified into three portions on the basis of the concepts of the three portions in Section 4.1. In the following, I will give one or two prototypical examples for each portion and then list the rest of words. Last, some words that I exclude from these three portions will be listed individually.

### 4.1.1.1 Classifiers

All of the words in this portion are proved to be classifiers not only by Chao (1968)

but also by my analysis. The prototypical examples listed here are *mei2 枚* and *ding3*

*頂*. Finally, all words in this portion are listed in 4.1.1.1.3.

**4.1.1.1.1 *Mei2 枚***

For example, *yi1 mei2 jiang3 zhang1 一枚獎章* 'one medal'.

***Yi*-multiplier:**

(33) 一　　枚　　獎章　　　　＝　一　　×1　　獎章

　　 *yi1　mei2　jiang3zhang1　　yi1　　yi1　jiang3zhang1*

　　 one　C　　medal　　　　　one　　one　medal

　　 'one medal'　　　　　　　　'one medal'

By using *yi*-multiplier, *mei2 枚* is tested to be a classifier.

***Ge*-substitution:**

(34) 一　　枚　　獎章　　　　＝　一　　個　　獎章

　　 *yi1　mei2　jiang3zhang1　　yi1　ge　jiang3 zhang1*

　　 one　C　　medal　　　　　one　C　medal

　　 'one medal'　　　　　　　　'one medal'

*Ge*-substitution shows that *mei2 枚* is a classifier.

***De*-insertion:**

(35) 一　　枚　　(*的)　　獎章

　　 *yi1　mei2　(* de)　jiang3zhang1*

　　 one　C　　DE　　medal

　　 'one *C medal'

The semantic meaning of *mei2 枚* in *de*-insertion shows that *mei2 枚* is a classifier.

**Numeral/adjectival stacking:**

(36) *一　　枚　　十　　個　　獎章

　　　*yi1*　*mei2*　*shi2*　*ge*　　*jiang3zhang1*

　　　one　　C　　ten　　C　　medal

(37) 一　　大　　枚　　獎章　　＝　一　　枚　　大　　獎章

　　　*yi1*　*da4*　*mei2*　*jiang3 zhang1*　　*yi1*　*mei2*　*da4*　　*jiang3 zhang1*

　　　one　big　C　　medal　　　　one　　C　big　　medal

　　　'one big medal'　　　　　　'one big medal'

(38) 大　　枚　　的　獎章　　＝　大　　獎章

　　　*da4*　*mei2*　*de*　*jiang3 zhang1*　　*da4*　　*jiang3 zhang1*

　　　big　　C　　DE　medal　　　　big　　medal

　　　'big medal(s)'　　　　　　'big medal(s)'

(39) 大大的　　一　　枚　　獎章　　＝　一　　枚　　大　　獎章

　　　*da4da4de*　*yi1*　*mei2*　*jiang3 zhang1*　　*yi1*　*mei2*　*da4*　*jiang3 zhang1*

　　　big　　　one　　C　　medal　　　　one　　C　big　　medal

　　　'one big medal'　　　　　　'one big medal'

(40) *一　　大　　枚　　小　　獎章

　　　*yi1*　*da4*　*mei2*　*xiao3*　*jiang3 zhang1*

　　　one　big　　C　　small　　medal

　　　*'one big small medal'

*Mei2* 枚 is also a classifier by applying the test of numeral/adjectival stacking. By using the above four tests to examine *mei2* 枚, *mei2* 枚 is proved as a classifier.

**4.1.1.1.2 *Ding3* 頂**

For example, *yi1 ding3 cao3 mao4* 一頂草帽 'one straw hat'.

***Yi*-multiplier:**

(41) 一　　頂　　草帽　　＝　一　　×1　　草帽

| yi1 | ding3 | cao3mao4 | | yi1 | yi1 | cao3mao4 |
|-----|-------|----------|---|-----|-----|----------|
| one | C | straw hat | | one | one | straw hat |

'one straw hat'  'one straw hat'

By using *yi-multiplier*, ding3 頂 is shown to be a classifier.

***Ge*-substitution:**

(42)　一　　頂　　草帽　　＝　一　　個　　草帽

| yi1 | ding3 | cao3mao4 | | yi1 | ge | cao3mao4 |
|-----|-------|----------|---|-----|-----|----------|
| one | C | straw hat | | one | C | straw hat |

'one straw hat'  'one straw hat'

*Ge*-substitution shows that *ding3* 頂 is a classifier.

***De*-insertion:**

(43)　一　　頂　　(*的)　　草帽

| yi1 | ding3 | (*de) | cao3mao4 |
|-----|-------|-------|----------|
| one | C | DE | straw hat |

'one *C straw hat'

*Ding3* 頂 in *de*-insertion shows that *ding3* 頂 is a classifier.

**Numeral / adjectival stacking:**

(44) *一　　頂　　三　　個　　草帽

| yi1 | ding3 | san1 | ge | cao3mao4 |
|-----|-------|------|-----|----------|
| one | C | three | C | straw hat |

(45)　一　大　頂　　草帽　　＝　一　　頂　　大　　草帽

| yi1 | da4 | ding3 | cao3 mao4 | | yi1 | ding3 | da4 | cao3mao4 |
|-----|-----|-------|-----------|---|-----|-------|-----|----------|
| one | big | C | straw hat | | one | C | big | straw hat |

'one big straw hat'  'one big straw hat'

(46) 大　頂　的　草帽　　＝　大　　草帽

| | da4 | ding3 | de | cao3 mao4 | | da4 | cao3mao4 |
| | big | C | DE | straw hat | | big | straw hat |

'big straw hat(s)'                    'big straw hat(s)'

(47) 大大的　　一　頂　　草帽　　＝　一　　頂　　大　草帽

*da4da4de　yi1　ding3　cao3 mao4　　yi1　ding3　da4　cao3mao4*

big　　　　one　C　straw hat　　one　C　　big　straw hat

'one big straw hat'　　　　　　　'one big straw hat'

(48) *一　　大　頂　小　草帽

　*yi1　da4　ding3　xiao3　cao3mao4*

　one　big　C　small　straw hat

　*'one big small straw hat'

*Ding3* 頂 is also a classifier by applying the test of numeral/adjectival stacking. From

the above analysis of *ding3* 頂, it can be seen that *ding3* 頂 is a classifier.

**4.1.1.1.3 Words Re-classified as Classifiers**

Thirty-nine words belonging to classifiers are listed below.

Table 8: 39 Words of Classifiers in Chao (1968) *'A Grammar of Spoken Chinese'*

| **ben3** 本 | yi1 ben3 shu1<br>一本書 | **guan3** 管 | yi1 guan3 mao2bi3<br>一管毛筆 | **shou3** 首 | yi1 shou3 er2ge1<br>一首兒歌 |
|---|---|---|---|---|---|
| **chu1** 齣 | yi1 chu1 xi3ju4<br>一齣喜劇 | **jia4** 架 | yi1 jia4 fei1ji1<br>一架飛機 | **sao1** 艘 | yi1 sao1 chuan2<br>一艘船 |
| **chu4** 處 | yi1 chu4 shang1kou3<br>一處傷口 | **jian4** 件 | yi1 jian4 mao2yi1<br>一件毛衣 | **suo3** 所 | yi1 suo3 da4xue2<br>一所大學 |
| **chuang2** 床 | yi1 chuang2 mian2bei4<br>一床棉被 | **ke1** 棵 | yi1 ke1 song1shu4<br>一棵松樹 | **tiao2** 條 | yi1 tiao2 wei2jin1<br>一條圍巾 |
| **dao4** 道 | yi1dao4zhuan1qiang2<br>一道磚牆 | **ke1** 顆 | yi1 ke1 xi1gua1<br>一顆西瓜 | **tou2** 頭 | yi1 tou2 da4xiang4<br>一頭大象 |
| **ding3** 頂 | yi1ding3 cao3mao4<br>一頂草帽' | **li4** 粒 | yi1 li4 hong2dou4<br>一粒紅豆 | **wei4** 位 | yi1 wei4 lao3shi1<br>一位老師 |
| **du3** 堵 | yi1 du3 qiang2<br>一堵牆 | **liang4** 輛 | yi1 liang4 jing3che1<br>一輛警車 | **zhan3** 盞 | yi1 zhan3 deng1<br>一盞燈 |

| duo3 朵 | yi1 duo3 mei2gui1<br>一朵玫瑰 | mei2 枚 | yi1 mei2 jiang3zhang1<br>一枚獎章 | zhang1 張 | yi1 zhang1 chuang2<br>一張床 |
|---|---|---|---|---|---|
| feng1 封 | yi1 feng1 xin4<br>一封信 | mian4 面 | yi1 mian4 jing4zi<br>一面鏡子 | zhi1 枝 | yi1 zhi1 shu4zhi1<br>一枝樹枝 |
| fu2 幅 | yi1 fu2 hua4<br>一幅畫 | mu4 幕 | yi1 mu4 qing2jing3<br>一幕情景 | zhi1 隻 | yi1 zhi1 mao1<br>一隻貓 |
| gan3 桿 | yi1 gan3 qiang1<br>一桿槍 | pi1 匹 | yi1 pi1 ma3<br>一匹馬 | zhuang1 椿 | yi1 zhuang1 yi4wai4<br>一椿意外 |
| gen1 根 | yi1 gen1 tou2fa3<br>一根頭髮 | pian1 篇 | yi1 pian1 wen2zhang1<br>一篇文章 | zun1 尊 | yi1 zun1 fo2xiang4<br>一尊佛像 |
| ge 個 | yi1 ge ren2<br>一個人 | shan4 扇 | yi1 shan4 men2<br>一扇門 | zuo4 座 | yi1 zuo4 shan1<br>一座山 |

### 4.1.1.2 *Xc* and *Xm*

If classifiers can be ambiguous in some contexts in that they can be either interpreted as classifiers or measure words or each meaning of one word may contribute to different categories, namely classifiers or measure words, these classifiers will be classified into *Xc* and *Xm*. *Xc* stands for an ambiguous classifier functioning as a classifier and *Xm* stands for an ambiguous classifier functioning as a measure word. The prototypical examples listed here are *ba3* 把 and *kou3* 口. Then, all of the words in *Xc* and *Xm* will be presented in 4.1.1.2.3.

#### 4.1.1.2.1 *Ba3* 把

For example, *yi1 ba3 dao1zi* 一把刀子 'one knife' or 'one handful of knives'.

***Yi*-multiplier:**

(49) a.　一　　　把　　　刀子　　＝　一　　×　1　　刀子

　　　　*yi1*　*ba3*　*dao1zi*　　　*yi1*　　*yi1*　*dao1zi*

　　　　one　C　knife　　　　one　　one　knife

　　　　'one knife'　　　　　　　'one knife'

b. 一　　把　　刀子　　≠　一　×　1　　刀子

　　*yi1*　　*ba3*　*dao1zi*　　　*yi1*　　*yi1*　*dao1zi*

　　one　　M　　knife　　　one　　one　　knife

　　'one handful of knives'　　'one knife'

This test demonstrates that the semantic meaning of *ba3* 把 is ambiguous because

*ba3* 把 in *yi1 ba3 jian3 dao1* 一把刀子 can mean 'a knife' or 'one handful of

knives'. The former is a classifier and the latter is a measure word.

***Ge*-substitution:**

(50) a. 一　　把　刀子　　=　一　　個　刀子

　　　*yi1*　　*ba3*　*dao1zi*　　　*yi1*　*ge*　*dao1zi*

　　　one　　C　knife　　　one　C　　knife

　　　'one knife'　　　　　'one knife'

b. 一　把　　刀子　　≠　一　　個　　刀子

　　*yi1*　*ba3*　　*dao1zi*　　　*yi1*　*ge*　　*dao1zi*

　　one　M　　knife　　　one　C　　knife

　　'one handful of knives'　'one knife'

*Ba3* 把 is tested to be both a classifier and a measure word because of the ambiguity

in the semantic meaning of *ba3* 把.

***De*-insertion:**

(51) a. 一　　把　　(*的)　刀子

　　　*yi1*　　*ba3*　*(\*de)*　*dao1zi*

　　　one　　C　　DE　　knife

　　　'one *C knife'

b. 一　把　　(的)　刀子

　　*yi1*　　*ba3*　*(de)*　*dao1zi*

| | | | |
|---|---|---|---|
| one | M | DE | knife |

'one handful of knives'

This test demonstrates that *ba3* 把 is ambiguous because it can both allow *de*-insertion and not allow *de*-insertion. When *ba3* 把 allows *de*-insertion, it is a classifier. When *ba3* 把 do not allows *de*-insertion, it is a measure word.

**Numeral/adjectival stacking:**

(52) *a. 一　把　十　個　刀子

　　 *yi1　ba3　shi2　ge　dao1zi*

　　 one　C　ten　C　knife

b. 一　把　十　個　刀子

　　 *yi1　ba3　shi2　ge　dao1zi*

　　 one　M　ten　C　knife

　　 'one handful of ten knives'

(53) a. 一　大　把　刀子　=　一　把　大　刀子

　　 *yi1　da4　ba3　dao1zi*　　*yi1　ba3　da4　dao1zi*

　　 one　big　C　knife　　　one　C　big　knife

　　 'one big knife'　　　　　'one big knife'

b. 一　大　把　刀子　≠　一　把　大　刀子

　　 *yi1　da4　ba3　dao1zi*　　*yi1　ba3　da4　dao1zi*

　　 one　big　M　knife　　　one　C　big　knife

　　 'one large handful of knives'　'one big knives'

(54) a. 大　把　的　刀子　=　大　刀子

　　 *da4　ba3　de　dao1zi*　　*da4　dao1zi*

　　 big　C　DE　knife　　　big　knife

　　 'big knife/knives'　　　'big knife/knives'

b. 大　把　的　刀子　　　≠　大　　刀子

　　*da4　ba3　de　dao1zi　　　da4　dao1zi*

　　big　M　DE　knife　　　big　knife

　　'large handful of knives'　　'big knife/knives'

(55) a. 大大的　　一　把　刀子　=　一　把　大　刀子

　　*da4da4de　yi1　ba3　dao1zi　yi1　ba3　da4　dao1zi*

　　big　　　one　C　knife　one　C　big　knife

　　'one big knife'　　　　　'one big knife'

b. 大大的　　一　把　刀子　≠　一　把　大　刀子

　　*da4da4de　yi1　ba3　dao1zi　yi1　ba3　da4　dao1zi*

　　big　　one　M　knife　one　C　big　knife

　　'large handful of knives'　　'one big knife'

(56)*a. 一　大　把　小　刀子

　　*yi1　da4　ba3　xiao3　dao1zi*

　　one　big　C　small　knife

　　*'one big small knife'

b. 一　大　把　小　刀子

　　*yi1　da4　ba3　xiao3　dao1zi*

　　one　big　M　small　knife

　　'one handful of small knives'

This test shows that *ba3* 把 can function as both a classifier and a measure word. According to the above analysis, *ba3* 把 is testified as belonging to *Xc* and *Xm* because *ba3* 把 can function as both a classifier and a measure word. Thus, 把 *c* represents that *ba3* 把 is a classifier and 把 *m* represents that *ba3* 把 is a measure word.

#### 4.1.1.2.2 *Kou3* 口

Meaning 1: calculating a well or a spring

For example, *yi1 kou3 jing3* 一口井 'one well'.

***Yi*-multiplier:**

(57) 一　　口　　井　　　=　一　　× 1　　井

　　 *yi1　kou3　jing3　　　yi1　yi1　jing3*

　　 one　 C　 well　　　 one　 one　 well

　　 'one well'　　　　　 'one well'

This test demonstrates that *kou3* 口 is a classifier, not a measure word.

***Ge*-substitution:**

(58) 一　　口　　井　　　=　一　　個　　井

　　 *yi1　kou3　jing3　　　yi1　ge　jing3*

　　 one　 C　 well　　　 one　 C　 well

　　 'one well'　　　　　 'one well'

*Kou3* 口 is tested to be a classifier by using *ge*-substitution.

***De*-insertion:**

(59) 一　　口　　(*的)　　井

　　 *yi1　kou3　(*de)　jing3*

　　 one　 C　 DE　 well

　　 'one *C well'

This test shows that *kou3* 井 is a classifier, not a measure word.

**Numeral/adjectival stacking:**

(60)* 一　　個　　十　　口　　井

　　 *yi1　ge　shi2　kou3　jing3*

one　C　ten　C　well

(61) 一　　大　　口　　井　　＝　一　　口　　大　　井

　　*yi1　da4　kou3　jing3　　yi1　kou3　da4　jing3*

　　one　big　C　well　　one　C　big　well

　　'one big well'　　　'one big well'

(62) 大　　口　　的　　井　　＝　大　　井

　　*da4　kou3　de　jing3　　da4　jing3*

　　big　C　DE　well　　big　well

　　'big well(s)'　　　　'big well(s)'

(63) 大大的　　一　口　井　　＝　一　口　大　井

　　*da4da4de　yi1　kou3　jing3　　yi1　kou3　da4　jing3*

　　big　　　one　C　well　　one　C　big　well

　　'one big well'　　　　'one big well'

(64)* 一　　大　　口　　小　　井

　　*yi1　da4　kou3　xiao3　jing3*

　　one　big　C　small　well

　　'one big small well'

*Kou3* 口 is tested to be a classifier by using this test. According to the above tests, *kou3* 口 in this meaning is a classifier. In the following, the other meanings of *kou3* 口 will be explained.

Meaning 2: calculating objects in an oral cavity

For example, *yi1 kou3 zhu4 ya2* 一口蛀牙 'one mouthful of decayed teeth'.

***Yi*-multiplier:**

(65) 一　　口　　蛀牙　　　　　≠　一　×　1　蛀牙

　　*yi1　kou3　zhu4ya2　　　yi1　yi1　zhu4ya2*

| one | M | decayed tooth | | one | one | decayed tooth |

'one mouthful of decayed teeth'  'one decayed tooth'

This test shows that *kou3* 口 is a measure word.

**Ge-substitution:**

(66) 一　　口　　蛀牙　　　　　≠　一　　個　　蛀牙

*yi1　kou3　zhu4ya2*　　　　　*yi1　ge　zhu4ya2*

| one | M | decayed tooth | | one | C | decayed tooth |

'one mouthful of decayed teeth'  'one decayed tooth'

This test shows that *kou3* 口 not a classifier, but a measure word.

**De-insertion:**

(67) 一　　口　　(的)　　蛀牙

*yi1　kou3　(de)　zhu4ya2*

| one | M | DE | decayed tooth |

'one mouthful of decayed teeth'

This test shows that *kou3* 口 is a measure word, not a classifier.

**Numeral/adjectival stacking:**

(68) 一　口　十　個　蛀牙

*yi1　kou3　shi2　ge　zhu4ya2*

| one | M | ten | C | decayed tooth |

'one mouthful of ten decayed teeth'

(69) 一　大　口　蛀牙　　　　　≠　一　口　大　蛀牙

*yi1　da4　kou3　zhu4ya2*　　　　*yi1　kou3　da4　zhu4ya2*

| one | big | M | decayed tooth | | one | M | big | decayed tooth |

'one mouthful of decay teeth'  'one mouthful of big decayed teeth'

(70) 大　口　的　蛀牙　　　≠　大　　蛀牙

| *da4* | *kou3* | *de* | *zhu4ya2* | | *da4* | *zhu4ya2* |
|-------|--------|------|-----------|---|-------|-----------|
| big | M | DE | decayed tooth | | big | decayed tooth |

'big mouthful of decay teeth'  'big decayed teeth'

(71) 大大的　　一　　口　　蛀牙　　≠　一　　口　　大　　蛀牙

| *da4da4de* | *yi1* | *kou3* | *zhu4ya2* | | *yi1* | *kou3* | *da4* | *zhu4ya2* |
|------------|-------|--------|-----------|---|-------|--------|-------|-----------|
| big | one | M | decayed tooth | | one | M | big | decayed tooth |

'one big mouthful of decayed teeth'  'one mouthful of big decayed teeth'

(72) 　一　　大　　口　　小　　蛀牙

| *yi1* | *da4* | *kou3* | *xiao3* | *zhu4ya2* |
|-------|-------|--------|---------|-----------|
| one | big | M | small | decayed tooth |

'one mouthful of small decayed teeth'

Although *xiao3 zhu4ya2kou3* 小蛀牙 and *da4 zhu4ya2* 大蛀牙 are semantically doubtful in examples, they will not affect the result that *kou3* 口 is testified as a measure word by use of numeral / adjectival stacking. From the above analysis, *kou3* 口 in meaning 2, which is used for the calculation of objects in an oral cavity, is a measure word. However, *kou3* 口 in meaning 1, which is used for the calculation of the number of a well or a spring, is a classifier. In this situation, in which *kou3* 口 can be both a classifier and a measure word, *kou3* 口 is regarded as belonging to *Xc* and *Xm* portion. Thus, 口 *c*, which stands for *kou3* 口, is a classifier and 口 *m*, which stands for *kou3* 口, is a measure word.

### 4.1.1.2.3 Words Re-classified as *Xc* and *Xm*

Six words belonging to *Xc* and *Xm* are listed below.

Table 9: 6 Words of *Xc* and *Xm* in Chao (1968) '*A Grammar of Spoken Chinese*'

| ba3 把 | ba3 把 c | yi1 ba3 dao1zi 一把刀子 | ba3 把 m | yi1 ba3 dao1zi 一把刀子 |
|---|---|---|---|---|
| ban4 瓣 | ban4 瓣 c | yi1 ban4 hua1ban4 一瓣花瓣 | ban4 瓣 m | yi1 ban4 mei2gui1 一瓣玫瑰 |
| bu4 部 | bu4 部 c | yi1 bu4 shu1 一部書 | bu4 部 m | yi1 bu4 shu1 一部書 |
| jia1 家 | jia1 家 c | yi1 jia1 gong1si1 一家公司 | jia1 家 m | yi1 jia1 ao4zhou1ren2 一家澳洲人 |
| kou3 口 | kou3 口 c | yi1 kou3 jing3 一口井 | kou3 口 m | yi1 kou3 zhu4ya2 一口蛀牙 |
| men2 門 | men2 門 c | yi1men2 da4pao4 一門大炮 | men2 門 m | yi1 men2 sheng1yi4 一門生意 |

### 4.1.1.3 Measure words

Although Chao (1968) identifies the words in this portion as classifiers, I think that all of the words in this portion should be excluded from a list of classifiers because all of the words are testified as measure words by four linguistics-based tests. The prototypical example listed here is *hang2* 行. And finally, all of the words in this portion will be listed in 4.1.1.3.2.

#### 4.1.1.3.1 *Hang2* 行

For example, *yi1 hang2 liu3shu4* 一行柳樹 'a line of willow trees'.

**Yi-multiplier:**

(73) 一　行　　柳樹　　　≠　一　×1　　柳樹

　　*yi1*　*hang2*　*liu3shu4*　　*yi1*　*yi1*　*liu3shu4*

　　one　M　　willow tree　　one　one　willow tree

　　'one line of willow trees'　　　'one willow tree'

*Yi*-multiplier shows that *hang2* 行 is a measure word.

**Ge-substitution:**

(74) 一　　行　　柳樹　　　≠　一　　個　　柳樹

　　*yi1*　*hang2*　*liu3shu4*　　*yi1*　*ge*　*liu3shu4*

one    M        willow tree      one    C      willow tree

'one line of willow trees'       'one willow tree'

*Hang2* 行 in *ge*-insertion shows that *hang2* 行 is a measure word.

**De-insertion:**

(75) 一    行        (的)    柳樹

    *yi1    hang2    (de)    liu3shu4*

one    M        DE      willow tree

'one line of willow trees'

*De*-insertion shows that *hang2* 行 is a measure word.

**Numeral/adjectival stacking:**

(76) 一    行    十    棵    柳樹

    *yi1    hang2    shi2    ke1    liu3shu4*

one    M    ten    C      willow tree

'one line of ten willow trees'

(77) 一    大    行    柳樹        ≠    一    行        大      柳樹

    *yi1    da4    hang2    liu3shu4        yi1    hang2    da4      liu3shu4*

one    large    M        willow tree      one    M        large    willow tree

'one large line of willow trees'        'one line of large willow trees'

(78) 一    大    行    小    柳樹

    *yi1    da4    hang2    xiao3    liu3shu4*

one    large    M        small    willow tree

'one large line of small willow trees'

*Hang2* 行 in numeral / adjectival stacking shows that *hang2* 行 is a measure word.

From the above tests, it can be seen that *hang2* 行 is a measure word.

**4.1.1.3.2 Words Re-classified as Measure Words**

Five words which are testified as measure words are listed below.

Table 10: 5 Words of Measure Words in Chao (1968) '*A Grammar of Spoken Chinese*'

| **dun4 頓** | yi1 dun4 mei3shi2 <br> 一頓美食 |
|---|---|
| **hang2 行** | yi1 hang2 liu3shu4 <br> 一行柳樹 |
| **juan4 卷** | dong1fang1za2zhi4 di4 yi1juan4 <br> 東方雜誌第一卷 |
| **qi2 期** | cai2jing1za2xhi4 di4yi1qi2 <br> 財經雜誌第一期 |
| **ya2 牙** | yi1 ya2 ju2zi <br> 一牙橘子 |

**4.1.1.4 A Dialect Word**

Because Chao (1968) points out that *dan4* 筲 only exits in one dialect of Chinese

and Chao (1968) also does not make more descriptions for *dan4* 筲, I ignore it and

do not include it in my analysis.

Table 11: A Dialect Word in Chao (1968) '*A Grammar of Spoken Chinese*'

| **dan4 筲** | （a dialect word） |
|---|---|

## 4.1.2 Erbaugh (1986)

Erbaugh (1986) lists twenty-two core classifiers. Erbaugh (1986) thinks that no

matter in what kind of conversations, adult-adult Mandarin or adult-child Mandarin

or child-child Mandarin, these twenty-two core classifiers almost all appear. Thus,

these core classifiers are regarded as typical classifiers. However, there are some

defects in Erbaugh's account of the twenty-two core classifiers. For example,

Erbaugh does not provide any precise classification to show how ambiguous

classifiers should be regarded as classifiers or measure words and Erbaugh does

include measure words in the twenty-two core classifiers. As a result, I will re-examine the twenty-two classifiers and re-classify them into three portions by using the four tests in Chapter 3. In my analysis, I re-classify the twenty-two classifiers into eighteen classifiers, three *Xc* and *Xm* and only one measure word. Because the methods and the processes of analysis used in analyzing the twenty-two classifiers are the same as those in Section 4.1.1, analysis sections will be omitted and only the words of three portions are listed.

**4.1.2.1 Words Re-classified as Classifiers**

Eighteen words belonging to classifiers are listed below.

Table 12: 18 Words of Classifiers in Erbaugh (1986)

| **ben3** 本 | yi1 ben3 shu1 一本書 | **jian4** 件 | yi1 jian4 da4yi1 一件大衣 | **tiao2** 條 | yi1 tiao2 yu2 一條魚 |
|---|---|---|---|---|---|
| **ding3** 頂 | yi1 ding3 mao4zi1 一頂帽子 | **ju4** 句 | yi1 ju4 hua4 一句話 | **tou2** 頭 | yi1 tou2 da4xiang4 一頭大象 |
| **duo3** 朵 | yi1duo3 mei2gui1 一朵玫瑰 | **ke1** 棵 | yi1 ke1 shu4 一棵樹 | **wei4** 位 | yi1 wei4 lao3shi1 一位老師 |
| **gen1** 根 | yi1 gen1 tou2fa3 一根頭髮' | **ke1** 顆 | yi1 ke1 xi1gua1 一顆西瓜 | **zhang1** 張 | yi1 zhang1 chuang2 一張床 |
| **jia4** 架 | yi1 jia4 fei1ji1 一架飛機' | **li4** 粒 | yi1 li4 hong2dou4 一粒紅豆 | **zhi1** 枝 | yi1 zhi1 shu4zhi1 一枝樹枝 |
| **jian1** 間 | yi1 jian1 shu1dian4 一間書店' | **shou3** 首 | yi1 shou3 er2ge1 一首兒歌 | **zhi1** 隻 | yi1 zhi1 mao1 一隻貓 |

**4.1.2.2 Words Re-classified as *Xc* and *Xm***

Three words belonging to *Xc* and *Xm* are listed below.

Table 13: 3Words of *Xc* and *Xm* in Erbaugh (1986)

| **ba3** 把 | ba3 把 **c** | yi1 ba3 dao1zi 一把刀子 | ba3 把 **c** | yi1 ba3 dao1zi 一把刀子 |
|---|---|---|---|---|
|  |  |  |  |  |

| | | | | |
|---|---|---|---|---|
| **kuai4 塊** | **kuai4 塊 c** | yi1 kuai4 rou4<br>一塊肉 | **kuai4 塊 c** | yi1 kuai4 rou4<br>一塊肉 |
| **pian4 片** | **pian4 片 c** | yi1 pian4 shu4ye4<br>一片樹葉 | **pian4 片 c** | yi1 pian4 shu4ye4<br>一片樹葉 |

### 4.1.2.3 Words Re-classified as Measure words

One word belonging to measure words is listed below.

Table 14: One Measure Word in Ebraugh (1986)

| **duan4 段** | yi1 duan4 gan1zhe4<br>一段甘蔗 |
|---|---|

## 4.1.3 Hu (1993)

Hu (1993) identifies twenty classifiers which are commonly used. However, some inadequencies mentioned in Section 4.1 also presents in Hu's classifier categorizaiotion. Thus, I will re-examine the twenty classifiers and re-classify them into three portions, namely classifiers, *Xc* and *Xm* and measure words. In my analysis, I re-classify the twenty classifiers into fifteen classifiers, four *Xc* and *Xm* and only one measure word. Because the methods and the processes of analysis used in analyzing the twenty classifiers are the same as those in Section 4.1.1, the analysis sections will be omitted and only the words which have been re-classified in the three portions are listed in the following.

### 4.1.3.1 Words Re-classified as Classifiers

By using the four tests mentioned in Chapter 3 to re-examine these twenty classifiers, fifteen classifiers which are re-classified as classifiers are listed below.

Table 15: 15 Words of Classifiers in Hu (1993)

| ge1 個 | yi1 ge ren2<br>一個人 | li1 粒 | yi1 li4 hong2dou4<br>一粒紅豆 | tou2 頭 | yi1 tou2 da4xiang4<br>一頭大象' |
|---|---|---|---|---|---|
| gen1 根 | yi1 gen1 tou2fa3<br>一根頭髮 | liang4 輛 | yi1 liang4 jing3che1<br>一輛警車 | wei4 位 | yi1 wei4 lao3shi1<br>一位老師 |
| jia4 架 | yi1 jia4 fei1ji1<br>一架飛機' | pi1 匹 | yi1 pi1 ma3<br>一匹馬 | zhang1 張 | yi1 zhang1 chuang2<br>一張床 |
| jian4 件 | yi1 jian4 da2yi1<br>一件大衣' | sao1 艘 | yi1 sao1 chuan2<br>一艘船 | zhi1 枝 | yi1 zhi1 shu4zhi1<br>一枝樹枝 |
| ke1 顆 | yi1 ke1 xi1gua1<br>一顆西瓜' | tiao2 條 | yi1 tiao2 yu2<br>一條魚 | zhi1 隻 | yi1 zhi1 mao1<br>一隻貓 |

### 4.1.3.2 Words Re-classified as *Xc* and *Xm*

Four *Xc* and *Xm* are given by re-classifying these twenty classifiers.

Table 16: 4 Words of *Xc* and *Xm* in Hu (1993)

| ba3 把 | ba3 把 c | yi1 ba3 dao1zi<br>一把刀子 | ba3 把 m | yi1 ba3 dao1zi<br>一把刀子 |
|---|---|---|---|---|
| kuai4 塊 | kuai4 塊 c | yi1 kuai4 rou4<br>一塊肉 | kuai4 塊 m | yi1 kuai4 rou4<br>一塊肉 |
| pian4 片 | pian4 片 c | yi1 pian4 shu4ye4<br>一片樹葉 | pian4 片 m | yi1 pian4 shu4ye4<br>一片樹葉 |
| tai2 台 | tai2 台 c | yi1 tai2 dian4shi4<br>一台電視 | tai2 台 m | yi1 tai2 ge1zai3xi4<br>一台歌仔戲 |

### 4.1.3.3 Words Re-classified as Measure words

One measure word in Hu (1993) is listed below.

Table 17: One Measure Word in Hu (1993)

| shuang1 雙 | yi1 shuang1 xie2<br>一雙鞋 |
|---|---|

## 4.1.4 Huang et. al. (1997)

One hundred and seventy-three classifiers are identified by Huang et. al in the

*Mandarin Daily Dictionary of Chinese Classifiers*. Since Huang et. al. (1997) also do

not provide any precise classification for ambiguous classifiers and do also include

measure word in classifier categorization, I will make use of the four tests mentioned in Chapter 3 to re-examine these classifiers. One hundred and seventy-three classifiers are re-classified into seventy-six classifiers, nineteen *Xc* and *Xm*, seventy-seven measure words and one word which does not belong to any portion.

In addition to providing classifier category in this dictionary, a kind classifier category and an event classifier category are also given. Recall the former hypothesis, kind classifiers should not be treated as classifiers and that event classifiers may be classifiers, which I made in Section 2.4. Some demonstrations will be offered to support my hypothesis in the following. Kind classifiers will be demonstrated first and event classifiers later.

The fourteen kind classifiers as shown in Table 18 are proposed by Huang and Ahren (2003). Because *yi*-multiplier is a decisive test to differentiate classifiers and measure words, I only use *yi*-multiplier to re-examine these kind classifiers. According to the *yi*-multiplier postulated by Her (2010, 2011b), such kind classifiers can be strongly proven as measure words because the multipliers of these kind classifiers are other than *1*. For example, a kind classifier *yang4 樣*, in *yi1 yang4 shui3guo3 一樣水果*, does not have the concepts of multiplier *1*. Thus, *yi1 yang4 shui3guo3 一樣水果* is not equal to *1× 1 shui3guo3* or one fruit because *yi1 yang4 shui3guo3 一樣水果* can mean more than one apple (in which *shui3guo3 水果* is a hypernym and an apple is a hyponym). Or a kind classifier *zhong3 種*, in *yi1 zhong3*

*mian4bao1 一種麵包,* also does not have the concepts of multiplier *1*. So, *yi1 zhong3 mian4bao1 一種麵包* is not equal to *1× 1 mian4bao1 麵包* or one bread because *yi1 zhong3 mian4bao1 一種麵包* can mean more than one croissant (in which *mian4bao1 麵包* is a hypernym and a croissant is a hyponym). The remaining event classifiers in Table 18 are also re-examined as measure words by *yi*-multiplier. Because processes in the analysis of the remaining kind classifiers are the same as with the above examples, the processes will be left out. In this thesis, kind classifiers are excluded from classifiers because they do not have a sufficient and necessary property of being classifiers, namely the multiplier *1*.

Table 18: The 14 Kind Classifiers Proposed by Huang and Ahren (2003)

| ban1 般 | yi1 ban1 ren2 一般人 | kuan3 款 | liang3 kuan3 xin1che1 兩款新車 | se4 色 | ge2 se4 ren2zhong3 各色人種 |
|---|---|---|---|---|---|
| dang3 檔 | yi1 dang3 shi4 一檔事 | lei4 類 | liang3 lei4 shui3guo3 兩類水果 | shi4 式 | ge2 shi4 zi1liao4 各式資料 |
| dang3zi 檔子 | yi1 dang3zi shi4 一檔子事 | ma3 碼 | yi1 ma3 shi4 一碼事 | yang4 樣 | yi1 yang4 shui3guo3 一樣水果 |
| deng3 等 | zhe4 zong3 shen1cai2 這等身材 | ma3zi 碼子 | yi1 ma3zi shi4 一碼事 | zhong3 種 | yi1 zhong3 mian4bao1 一種麵包 |
| hao4 號 | yi1 hao4 ren2wu4 一號人物 | pai4 派 | yi1 pai4 shi4li4 一派勢力 | | |

The thirty-five event classifiers as shown below in Table 19 are proposed by Huang and Ahren (2003).

Table 19: The 35 Event Classifiers Proposed by Huang and Ahren (2003)

| ban1 班 | yi1 ban1 fei1ji1 一班飛機 | fan1 番 | yi1 fan1 hua4 一番話 | quan1 圈 | yi1 quan1 ma2jiang4 一圈麻將 |
|---|---|---|---|---|---|
| bi3 筆 | yi1 bi3 mai3mai4 一筆買賣 | hui2 回 | yi1 hui2 shi4 一回事 | ren4 任 | yi1 ren4 zong3tong3 一任總統 |

| bo1 波 | yi1 bo1 mu4kuan3huo2dong4<br>一波募款活動 | jian4 件 | yi1 jian4 yi4wai4<br>一件意外 | tai2 台 | yi1 tai2 ge1zai3xi4<br>一台歌仔戲 |
|---|---|---|---|---|---|
| bu4 步 | di4 yi1 bu4 gong1zuo4<br>第一步工作 | jie2 節 | yi1 jie2 ke4<br>一節課 | tang4 趟 | yi1 tang4 lü3xing2<br>一趟旅行 |
| can1 餐 | yi1 can1 fan4<br>一餐飯 | jie4 屆 | di4 yi1 jie4<br>yun4dong4hui4<br>第一屆運動會 | tang2 堂 | yi1 tang2 ke4<br>一堂課 |
| chang3 場 | yi1 chang3 yin1yue4ju4<br>一場音樂劇 | ju2 局 | yi1 ju2 bang4qiu2sai4<br>一局棒球賽 | tong1 通 | yi1 tong1 dian4hua4<br>一通電話 |
| chu1 齣 | yi1 chu1 ge1wu3ju4<br>一齣歌舞劇 | lun2 輪 | yi1 lun2 bi3sai4<br>一輪比賽 | xi2 席 | yi1 xi2 hua4<br>一席話 |
| ci4 次 | yi1 ci4 hui4yi4<br>一次會議 | mu4 幕 | yi1 mu4 qing2jing3<br>一幕情景 | zhe2 折 | yi1 chu1 xi4<br>fen1 san1 zhe2<br>一齣戲分三折 |
| dang3 檔 | yi1 dang3 guo2pian4<br>一檔國片 | pan2 盤 | yi1 pan2 qi2<br>一盤棋 | zhen4 陣 | yi1 zhen4 ren2chao2<br>一陣人潮 |
| dao4 道 | yi1 dao4 shou3xu4<br>一道手續 | pao4 泡 | yi1 pao4 cha2<br>一泡茶 | zhuang1 樁 | yi1 zhuang1 yi4wai4<br>一樁意外 |
| duan4 段 | yi1 duan4 shi2qi2<br>一段時期 | qi2 期 | yi4 qi2<br>gai3jian4 gong1cheng2<br>一期改建工程 | zong1 宗 | yi1 zong1 yi4wai4<br>一宗意外 |
| dun4 頓 | yi1 dun4 fan4<br>一頓飯 | qi3 起 | yi1 qi3 yi4wai4<br>一起意外 | | |

Below, two pieces of evidences about event classifiers may be classifiers will be given. First, event classifiers are not described until Ahren and Huang (1996). However, the concept of event classifiers, denoting an instance or occurrence of an event, has been proposed by Li and Thompson (1981). But Li and Thompson do not treat a type of classifiers which denote an instance or occurrence of an event as an isolated classifier category. On the contrary, Li and Thompson (1981) regard indicating an instance or occurrence of an event as the other description for classifiers. I also find that Gao and Malt (2009) treat classifiers with indicating an

instance or occurrence of an event as classifiers, rather than as an isolated classifier category. Chao (1968) also treats such classifiers with indicating an instance or occurrence of an event as classifiers. Thus, I infer that indicating an instance or occurrence of an event is another description of classifiers and it is not necessary to have an isolated classifier category denoting an instance or occurrence of an event.

The other reliable reason for proving that event classifiers may be classifiers comes from the test of *yi*-multiplier (Her 2010, 2011b). The concept of multiplier *1* is a sufficient and necessary property for being a classifier. The thirty-five event classifiers listed by Huang and Ahren (2003) like *tong1* 通 in *yi1 tong1 dian4hua4* 一通電話 have a starting point of a phone ringing and the end point of that event, so a distance from a starting point to an end point is metaphorically viewed as one entity, that is the concept incorporated in multiplier *1*. Thus, *yi1 tong1 dian4hua4* 一通電話 corresponds to *yi1* 一 × *1 dian4hua4* 電話 which means receive one phone. Event classifiers like *zhuang1* 椿 in *yi1 zhuang1 yi4wai4* 一椿意外 , *jian4* 件 in *yi1 jian4 yi4wai4* 一件意外, *qi3* 起 in *yi1 qi3 yi4wai4* 一起意外 and *zong1* 宗 in *yi1 zong1 yi4wai4* 一宗意外 also have a starting point of an accident happening and the end point of that event, a distance from a starting point to an end point is also viewed as one entity, that is the concept incorporated in multiplier *1*. As a result, *yi1 zhuang1 yi4wai4* 一椿意外 or *yi1 jian4 yi4wai4* 一件意外 or *yi1 qi3 yi4wai4* 一起意外 or *yi1 zong1 yi4wai4* 一宗意外 all correspond to *yi1* 一 × *1 yi4wai4* 意外 which means

one accident.

However, not all of the event classifiers listed in Huang and Ahren (2003) incorporate the concept of multiplier *1*. For example, *qi2 期* in *yi4 qi2 gai3jian4 gong1cheng2* 一期改建工程 does not incorporate the concept of multiplier *1* because it is not necessary to finish the engineering project within one period of time. It can be finished in a further period of perionds of time, i.e., surpassing the number of one time. So, *yi4 qi2 gai3jian4 gong1cheng2* 一期改建工程 is not necessarily equal to *yi* 一 × *1 gai3jian4 gong1cheng2* 改建工程. Thus, event classifiers are likely to be classifiers, but it is not certain that they will be classifiers.

In my classifier portion, these thirty-five event classifiers proposed by Huang and Ahren (2003) should be re-examined to see which event classifiers incorporate the concept of multiplier *1*. If an event classifier is testified to incorporate the concept of multiplier *1*, I will include it in my classifier portion. Otherwise, I will not discuss such a classifier in any of the portions that I propose. According to my linguistic sense and the use of *yi*-multipler, thirteen typical and apt identification event classifiers are listed in Table 20. The examples of *jian4 件*, *qi3 起*, *tong1 通*, *zhuang1 樁* and *zong1 宗* have been demonstrated above, and examples (79) to (84) represent the rest of the examples of event classifiers such as *ban1 班*, *bi3 筆*, *chang3 場*, *chu1 齣*, *dang3 檔*, *mu4 幕*, *pan2 盤* and *ren4 任* in Table 20.

Table 20: 13 Event Classifiers Testified as Classifiers

| ban1 班 | yi1 ban1 fei1ji1 一班飛機 | jian4 件 | yi1 jian4 yi4wai4 一件意外 | tong1 通 | yi1 tong1 dian4hua4 一通電話 |
|---|---|---|---|---|---|
| bi3 筆 | yi1 bi3 mai3mai4 一筆買賣 | mu4 幕 | yi1 mu4 qing2jing3 一幕情景 | zhuang1 樁 | yi1 zhuang1 yi4wai4 一樁意外 |
| chang3 場 | yi1 chang3 yin1yue4ju4 一場音樂劇 | pan2 盤 | yi1 pan2 qi2 一盤棋 | zong1 宗 | yi1 zong1 yi4wai4 一宗意外 |
| chu1 齣 | yi1 chu1 ge1wu3ju4 一齣歌舞劇 | qi3 起 | yi1 qi3 yi4wai4 一起意外 | | |
| dang3 檔 | yi1 dang3 guo2pian4 一檔國片 | ren4 任 | yi1 ren4 zong3tong3 一任總統 | | |

(79) 一　　班　　飛機　　　＝　一　×　1　　飛機

　　*yi1　ban1　fei1ji1*　　　　*yi1　yi1　fei1ji1*

　　one　C　　airplane　　　one　one　airplane

　　'one airplane'　　　　　　'one airplane'

A process from taking off to landing is metaphorically viewed as one entity, that is the concept of multiplier *1*. Thus, *yi1　ban1　fei1ji1* 一班飛機 is equal to one airplane.

(80) 一　筆　　買賣　　　　＝　一　×　1　　買賣

　　yi1　bi3　mai3mai4　　　　　*yi1　yi1　mai3mai4*

　　one　C　　commerce　　　one　one　commerce

　　'one piece of commerce'　　'one piece of commerce'

A commerce or commercial process is one which has a starting point and a complete end point and also has the concept of the multiplier *1*. Thus, *bi3* 筆 is also regarded as a classifier because *bi3* 筆 incorporates the concept of multiplier *1*.

(81) a. 一　　場　　　音樂劇　　　＝　一　×　1　　音樂劇

　　　*yi1　chang3　yin1yue4ju4*　　*yi1　yi1　yin1yue4ju4*

　　　one　C　　music play　　　one　one　music play

　　　'one music play'　　　　　'one music play'

　　b. 一　　齣　　歌舞劇　　　　＝　一　×　1　　歌舞劇

> yi1    chu1   ge1wu3ju4                    yi1      yi1     ge1wu3ju4
>
> one    C     song and dance drama    one      one    song and dance drama
>
> 'one song and dance drama'          'one song and dance drama'

c. 一    幕    情景      =  一  ×  1    情景

> yi1   mu4   qing2jing3      yi1     yi1     qing2jing3
>
> one   C    scene              one    one      scene
>
> 'one scene'              'one scene'

A music play or a song and dance drama or a scene all have a starting point and an end point. Such a distance from starting point and an end point is metaphorically regarded as one entity, that is the concept of *1*. Thus, *chang3* 場, *chu1* 齣 and *mu4* 幕 all have the concept of multiplier *1*.

(82) 一    檔    國片          =  一  ×  1    國片

> yi1   dang3   guo2pian4        yi1    yi1    guo2pian4
>
> one    C     Chinese movie     one    one   Chinese movie
>
> 'one Chinese movie'          'one Chinese movie'

A schedule for a movie from the point of going into the theater to that of coming out of the theater is also the concept of *1*. Thus, *dang3* 檔 also has the concept of multiplier *1*.

(83) 一  盤    棋  =  一  ×  1      棋

> yi1  pan2   qi2      yi1     yi1     qi2
>
> one  C    chess     one     one    chess
>
> 'one board of chess'   'one board of chess'

To play a game of chess from start to end is a complete process. Thus, it can be viewed as having the concept of *1*.

(84) 一  任    總統        =  一  ×  1    總統

> yi1  ren4   zong3tong3      yi1     yi1    zong3tong3

| | one | C | presidency | | one | one | presidency |
| | 'one presidency' | | | 'one presidency' | | | |

*Yi1 ren4 zong3tong3* 一任總統 does not represent one president, but the term of office for being a president. Because the term of office of a president has a beginning point and an end point, such a process can also be viewed as having the concept of *1*.

The above evidences and inferences further support my hypothesis that kind classifiers should not be treated as classifiers and that it is possible that event classifiers may be classifiers is correct. In the following, except for seventy-six classifiers that I re-classify from one hundred and seventy-three classifiers, I will also include thirteen re-classified event classifiers in Table 20 in the following classifier portion. If the same classifiers both appear in the seventy-six classifiers and thirteen event classifiers, I will regard them as occurring once in my classifier portion such as *ban1* 班, *bi3* 筆, *dang3* 檔, *jian4* 件, *qi3* 起 and *zong1* 宗. Thus, there are eighty-three classifiers in classifier portion.

Because the analysis processes are the same as the above sections, they will be omitted and only the words of three portions are presented in the following.

### 4.1.4.1 Words Re-classified as Classifiers

Eighty-three classifiers are re-classified as classifiers are presented below.

Table 21: 83 Words of Classifiers in Huang et. al. (1997) '*Mandarin Daily Dictionary of Chinese Classifiers*'

| **ben3 本** | yi1 ben3 shu1<br>一本書 | **jian4 件** | yi1 jian4 da4yi1<br>一件大衣 | **ting3 挺** | yi1 ting3 ji1qiang1<br>一挺機槍 |
| **bi3 筆** | yi1 bi3 shou1ru4 | **jie4 介** | yi1 jie4 shu1sheng1 | **tong1 通** | yi1 tong1 dian4hua4 |

| | 一筆收入 | | 一介書生 | | 一通電話 |
|---|---|---|---|---|---|
| **bing3** 柄 | yi1 bing3 fu3tou2<br>一柄斧頭 | **jing1** 莖 | yi1 jing1 bai2fa3<br>一莖白髮 | **tou2** 頭 | yi1 tou2 da4xiang4<br>一頭大象 |
| **ce4** 冊 | yi1 ce4 shu1<br>一冊書 | **ju4** 句 | yi1 ju4 kou3hao4<br>一句口號 | **wan1** 彎 | yi1 wan1 ming2yue4<br>一彎明月 |
| **chang3** 場 | yi1 chang3 yin1yue4ju4<br>一場音樂劇 | **ju4** 具 | yi1 ju4 shi1ti3<br>一具屍體 | **wan1** 灣 | yi1 wan1 liu2shui3<br>一灣流水　　　　?[11] |
| **chu1** 齣 | yi1 chu1 ge1wu3ju4<br>一齣歌舞劇 | **juan3** 卷 | yi1 juan3 lu4yin1dai4<br>一卷錄音帶 | **wan2** 丸 | yi1 wan2 yao4wan2<br>一丸藥丸 |
| **chu4** 處 | yi1 chu4 shang1kou3<br>一處傷口 | **ke1** 棵 | yi1 ke1 song1shu4<br>一棵松樹 | **wei3** 尾 | yi1 wei3 yu2<br>一尾魚 |
| **chuang2** 床 | yi1 chuang2 mian2bei4<br>一床棉被 | **ke1** 顆 | yi1 ke1 xi1gua1<br>一顆西瓜 | **wei4** 位 | yi1 wei4 lao3shi1<br>一位老師 |
| **chuang2** 幢 | yi1 chuang2 lou2fang2<br>一幢樓房 | **li4** 粒 | yi1 li4 hong2dou4<br>一粒紅豆 | **xi2** 席 | yi1 xi2 dong3shi4<br>一席董事 |
| **dang3** 檔 | yi1 dang3 gu3piao4<br>一檔股票 | **liang4** 輛 | yi1 liang4 jing3che1<br>一輛警車 | **xi2** 襲 | yi1 xi2 bo2sha1<br>一襲薄紗 |
| **dao4** 道 | yi1 dao4 zhuan1qiang2<br>一道磚牆 | **mei2** 枚 | yi1 mei2 jiang3zhang1<br>一枚獎章 | **yuan2** 員 | yi1 yuan2 da4jiang4<br>一員大將 |
| **ding3** 頂 | yi1 ding3 mao4zi<br>一頂帽子 | **mian4** 面 | yi1 mian4 jing4zi<br>一面鏡子 | **ze2** 則 | yi1 ze2 xiao4hua4<br>一則笑話 |
| **ding4** 錠 | yi1 ding4 yuan2bao3<br>一錠元寶 | **ming2** 名 | yi1 ming2 xue2sheng1<br>一名學生 | **zhan3** 盞 | yi1 zhan3 deng1<br>一盞燈 |
| **dong4** 棟 | yi1 dong4 da4 lou2<br>一棟大樓 | **mu4** 幕 | yi1 mu4 qing2jing3<br>一幕情景 | **zhang1** 張 | yi1 zhang1 chunag2<br>一張床 |
| **du3** 堵 | yi1 du3 qiang2<br>一堵牆 | **pan2** 盤 | yi1 pan2 qi2<br>一盤棋 | **zhao1** 招 | yi1 zhao1 ce4lüe4<br>一招策略 |
| **duo3** 朵 | yi1 duo3 mei2gui1<br>一朵玫瑰 | **pi1** 匹 | yi1 pi1 ma3<br>一匹馬 | **zheng4** 幀 | yi1zheng4 jie2hun1zhao4<br>一幀結婚照 |
| **fa1** 發 | yi1 fa1 zi3dan4<br>一發子彈 | **pian1** 篇 | yi1 pian1 wen2zhang1<br>一篇文章 | **zhi1** 只 | yi1 zhi1 jiu3tan2<br>一只酒罈 |
| **fang1** 方 | yi1 fang1 yin4zhang1<br>一方印章 | **qi2** 畦 | yi1 qi2 dao4tian2<br>一畦稻田 | **zhi1** 枝 | yi1 zhi1 shu4zhi1<br>一枝樹枝 |
| **feng1** 封 | yi4 feng1xin4<br>一封信 | **qu3** 曲 | yi1 qu3 liu2xing2ge1<br>一曲流行歌 | **zhi1** 隻 | yi1 zhi1 mao1<br>一隻貓 |
| **fu2** 幅 | yi1 fu2 hua4<br>一幅畫 | **que4** 闋 | yi1 que4 gu3ci2<br>一闋古詞 | **zhi3** 紙 | yi1 zhi3 qie4jie2shu1<br>一紙切結書 |

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[11] Question marks represent that I adopt the author's opinion because my linguistic sense is not enough to identify if this word is a classifier.

| **gan3** 桿 | yi1 gan3 qiang1 一桿槍 | **ren4** 任 | yi1 ren4 zong3tong3 一任總統 | **zhou2** 軸 | yi1 zhou2 hua4 一軸畫 |
|---|---|---|---|---|---|
| **gen1** 根 | yi1 gen1 tou2fa3 一根頭髮 | **shan4** 扇 | yi1 shan4 men2 一扇門 | **zhu1** 株 | yi1 zhu1ying1hua1 一株櫻花 |
| **ge** 個 | yi1 ge ren2 一個人 | **sheng1** 聲 | yi1 sheng1 jian1jiao4 一聲尖叫 | **zhu4** 柱 | yi1 shu4 dian4xian4gan1 一柱電線杆 |
| **guan3** 管 | yi1 guan3 mao2bi3 一管毛筆 | **shou3** 首 | yi1 shou3 er2ge1 一首兒歌 | **zhu4** 炷 | yi1 shu4 xiang1 一炷香　　　　　? |
| **ji4** 記 | yi1 ji4 zuo3gou1quan2 一記右勾拳 | **sao1** 艘 | yi1 sao1 chuang2 一艘船 | **zhuang1** 椿 | yi1 zhuang1 yi4wai4 一椿意外 |
| **ji4** 劑 | yi1 jie4 qiang2xin1ji4 一劑強心劑 | **suo3** 所 | yi1 suo3 da4xue2 一所大學 | **zun1** 尊 | yi1 zun1 fo2xiang4 一尊佛像 |
| **jia4** 架 | yi1 jia4 fei1ji1 一架飛機 | **ti2** 題 | yi1 ti2 xuan3ze2ti2 一題選擇題 | **zuo4** 座 | zi1 zuo4 shan1 一座山 |
| **jian1** 間 | yi1 jian1 shu1dian4 一間書店 | **tiao2** 條 | yi1 tiao2 wei2jing1 一條圍巾 | | |

## 4.1.4.2 Words Re-classified as *Xc* and *Xm*

In the following, twenty-one Xc and Xm are listed.

Table 22: 21 Words of *Xc* and *Xm* in Huang et. al. (1997) '*Mandarin Daily Dictionary of Chinese Classifiers*'

| **ba3** 把 | **ba3** 把 **c** | yi1 ba3dao1zi 一把刀子 | **ba3** 把 **m** | yi1 ba3dao1zi 一把刀子 |
|---|---|---|---|---|
| **ban1** 班 | **ban1** 班 **c** | yi1 ban1 fei1ji1 一班飛機 | **ban1** 班 **m** | yi1 ban1 xue2sheng1 一班學生 |
| **ban4** 瓣 | **ban4** 瓣 **c** | yi1 ban4 hua1ban4 一瓣花瓣 | **ban4** 瓣 **m** | yi1 ban4 mei2gui1 一瓣玫瑰 |
| **bu4** 部 | **bu4** 部 **c** | yi1 bu4 shu1 一部書 | **bu4** 部 **m** | yi1 bu4 shu1 一部書 |
| **dian3** 點 | **dian3** 點 **c** | yi1 dian3 zhu1sha1ahi4 一點硃砂痣 | **dian3** 點 **m** | yi1 dian3 tang2 一點糖 |
| **fen4** 分 | **fen4** 分 **c** | yi1 fen4 bao4gao4 一分報告 | **fen4** 分 **m** | yi1 fen4 qing2yi4 一分情意 |
| **fen4** 份 | **fen4** 份 **c** | yi1 fen4 bao4gao4 一份報告 | **fen4** 份 **m** | yi1 fen4 qing2yi4 一份情意 |
| **jia1** 家 | **jia1** 家 **c** | yi1 jia1 gong1si1 一家公司 | **jia1** 家 **m** | yi1 jia1 ao4zhou1ren2 一家澳洲人 |

| jie2 節 | jie2 節 c | yi1 jie2 che1xiang1 一節車廂 | jie2 節 m | yi1 jie2 gan1zhe4 一節甘蔗 |
|---|---|---|---|---|
| kou3 口 | kou3 口 c | yi1 kou3 jing3 一口井 | kou3 口 m | yi1 kou3 zhu4ya2 一口蛀牙 |
| kuai4 塊 | kuai4 塊 c | yi1 kuai4 rou4 一塊肉 | kuai4 塊 m | yi1 kuai4 rou4 一塊肉 |
| lun2 輪 | lun2 輪 c | yi1 lun2 ming2yue4 一輪明月 | lun2 輪 m | yi1 lun2 bi3sai4 一輪比賽 |
| lü3 縷 | lü3 縷 c | yi1 lü3 xian4 一縷線 | lü3 縷 m | yi1 lü3 qing1yan1 一縷清煙 |
| men2 門 | men2 門 c | yi1 men2 da4pao4 一門大砲 | men2 門 m | yi1 men2 sheng1yi4 一門生意 |
| pian4 片 | pian4 片 c | yi1 pian4 shu4ye4 一片樹葉 | pian4 片 m | yi1 pian4 shu4ye4 一片樹葉 |
| qi3 起 | qi3 起 c | yi1 qi3 yi4wai4 一起意外 | qi3 起 m | yi1 qi3 ren2ma3 一起人馬 |
| tai2 台 | tai2 台 c | yi1 tai2 dian4shi4 一台電視 | tai2 台 m | yi1 tai2 ge1zai3xi4 一台歌仔戲 |
| xian4 線 | xian4 線 c | yi1 xian4 che1dao4 一線車道 | xian4 線 m | yi1 xian4 xi1wang4 一線希望 |
| ye4 葉 | ye4 葉 c | yi1 ye4 pian1zhou1 一葉扁舟 | ye4 葉 m | yi1 ye4 shu1 一葉書 |
| zhi1 支 | zhi1 支 c | yi1 zhi1 ge1 一支歌 | zhi1 支 m | yi1 zhi1 chun2mao2sha1 一支純毛紗 |
| zong1 宗 | zong1 宗 c | yi1 zong1 yi4wai4 一宗意外 | zong1 宗 m | yi1 zong1 huo4wu4 一宗貨物 |

### 4.1.4.3 Words Re-classified as Measure words

Below, seventy-five measure words are presented.

Table 23: 75 Measure Words in Huang et. al. (1997) '*Mandarin Daily Dictionary of Chinese Classifiers*'

| ban3 版 | yi1 ban3 xin1wen2 一版新聞 | hui2 回 | ba1shi2hui2 hong2lou2meng4 八十回紅樓夢 | piao4 票 | yi1 piao4 sheng1yi4 一票生意 |
|---|---|---|---|---|---|
| bang1 幫 | yi1 bang1 gong1ren2 一幫工人 | huo3 夥 | yi1 huo3 qiang2dao4 一夥強盜 | pie3 撇 | yi1 pie3 hu2xu1 一撇鬍鬚 |
| cao2 槽 | yi1 cao2 ya2 一槽牙 | ji2 級 | yi1 ji2 shi2jie1 一級石階 | pou2 抔 | yi1 pou2 tu3 一抔土 |

| | | | | | |
|---|---|---|---|---|---|
| **ceng2 層** | yi1 ceng2 lou2<br>一層樓 | **ji2 集** | yi1bai3ji2 lian2xu4ju4<br>一百集連續劇 | **qi2 期** | za2zhi4 di4yi1qi2<br>雜誌第一期 |
| **chong2 重** | wan4 chong2 shan1<br>萬重山 | **ji2 輯** | cong2shu1 di4yi1ji2<br>叢書第一輯 | **quan1 圈** | yi1 quan2 liu3shu4<br>一圈柳樹 |
| **chuan4 串** | yi1 chuan4 fo2zhu1<br>一串佛珠 | **jie1 階** | yi1 jie1 lou2ti1<br>一階樓梯 | **qun2 群** | yi1 qun2 peng2you3<br>一群朋友 |
| **cong2 叢** | yi1 cong2 ye3cao3<br>一叢野草 | **jie2 截** | yi1 jie2 zhu2zi<br>一截竹子 | **shen1 身** | yi1 shen1 yi1shang<br>一身衣裳 |
| **cu4 簇** | yi1 cu4 mei2gui1<br>一簇玫瑰 | **jin4 進** | yi1 jin4 fang2zi<br>一進房子 | **shu4 束** | yi1 shu4 xian1hua1<br>一束鮮花 |
| **cuo1 撮** | yi1 cuo1 mao2fa3<br>一撮毛髮 | **juan4 卷** | za2zhi4 di4yi1juan4<br>雜誌第一卷 | **shuang1 雙** | yi1 shuang1 xie2<br>一雙鞋 |
| **da3 打** | yi1 da3 qian1bi3<br>一打鉛筆 | **ke1 科** | ying1wan2yi1ke1<br>英文一科 | **si1 絲** | yi1 si1 rou4<br>一絲肉 |
| **dai4 代** | shang4 yi1 dai4 ren2<br>上一代人 | **ke4 客** | yi1 ke4 niu2pai2<br>一客牛排 | **tai1 胎** | yi1 tai1 xiao3gou3<br>一胎小狗 |
| **dai4 帶** | yi1 dai4 yu2cun1<br>一帶漁村 | **ke4 課** | yi1 ke4 shu4xue2<br>一課數學 | **tan1 灘** | yi1 tan1 shui3<br>一灘水 |
| **di1 滴** | yi1 di1 yan3lei4<br>一滴眼淚 | **kuan3 款** | di4yi1kuan3 gui1ding4<br>第一款規定 | **tang2 堂** | yi1 tang2 jia1ju4<br>一堂傢具 |
| **die2 疊** | yi1 die2 chao1piao4<br>一疊鈔票 | **kun3 捆** | yi1 kun3 dao4cao3<br>一捆稻草 | **tao4 套** | yi1 tao4 can1ju4<br>一套餐具 |
| **duan4 段** | yi1 duan4 gan1zhe4<br>一段甘蔗 | **lan2 欄** | yi1 lan2 xin1wen2<br>一欄新聞 | **tie4 帖** | yi1 tie4 zhong1yao4<br>一帖中藥 |
| **dui1 堆** | yi1 dui1 tu3<br>一堆土 | **lian2 聯** | er4lian2shou1ju4<br>二聯收據 | **tuan2 團** | yi1 tuan2 shi4bing1<br>一團士兵 |
| **dui4 隊** | yi1 dui4 shi4bing1<br>一隊士兵 | **lie4 列** | yi1 lie4 luo4tuo2<br>一列駱駝 | **tuo2 坨** | yi1 tuo2 nai3you2<br>一坨奶油 |
| **dui4 對** | yi1 dui4 fu1qi1<br>一對夫妻 | **liu3 綹** | yi1 liu3 tou2fa3<br>一綹頭髮 | **wei4 味** | hun1cai4 wu3wei4<br>葷菜五味 |
| **fang2 房** | yi1 fang2 er2sun1<br>一房兒孫 | **lu4 路** | yi1 lu4 ren2ma3<br>一路人馬 | **xiang4 項** | xing2fa3 di4ti1xiang4<br>刑法第一項 |
| **fu2 服** | yi1 fu2 zhong1yao4<br>一服中藥 | **luo4 落** | yi1 luo4 bao4zhi3<br>一落報紙 | **ye4 頁** | yi1 ye4 shu1<br>一頁書 |
| **fu4 副** | yi1 fu4 kuai4zi<br>一副筷子 | **lü3 旅** | yi1 lü3 bu4dui4<br>一旅部隊 | **zha1 紮** | yi1 zha1 zhi3hua1<br>一紮紙花 |
| **gu3 股** | yi1 gu3 xiang1qi4<br>一股香氣 | **pai2 排** | yi1 pai2 shi4bing1<br>一排士兵 | **zhang1 章** | di4yi1zhang1 nei4rong2<br>第一章內容 |
| **gua4 掛** | yi1 gua4 fo2zhu1 | **peng3 捧** | yi1 peng3 sha1 | **zhen1 針** | yi1 xhen1 qiang2xin1ji4 |

| | 一掛佛珠 | | 一捧沙 | | 一針強心劑 |
|---|---|---|---|---|---|
| **hang2 行** | yi1 hang2 liu3shu4 <br> 一行柳樹 | **pi1 批** | yi1 pi1 huo4 <br> 一批貨 | **zhuo1 桌** | yi1 zhuo1 cai4 <br> 一桌菜 |
| **hu4 戶** | yi1 hu4 nong2min2 <br> 一戶農民 | **pi3 匹** | yi1 pi3 bu4 <br> 一匹布 | **zu3 組** | yi1 zu3 ren2yuan2 <br> 一組人員 |

#### 4.1.4.4 Inapplicable Words

*Hao4 號* in Table 24 is a word which is used to mark number, rather than calculate the number of objects, for example, roads. *Hao4 號* is not like *ben3 本* in *yi1 ben3 shu1 一本書* denoting the sailent perceptual properties of the associated nouns or *jian4 件* in *yi1 jian4 yi4wai4 一件意外* having the concept of multiplier *1*. Thus, *hao4 號* is neither a classifier nor a measure word. I thus give it an NA (not applicable) mark and exclude it from our analysis.

Table 24: NA (not applicable) Words in Huang et. al. (1997)*'Mandarin Daily Dictionary of Chinese Classifiers'*

| *hao4 號* ‘第一號道路’ |
|---|

### 4.1.5 Gao and Malt (2009)

Gao and Malt (2009) provide a list which includes one hundred and twenty-six commonly recognized Mandarin Chinese classifiers. These one hundred and twenty-six Mandarin Chinese classifiers are collected from Chinese books, newspapers, dictionaries, and causal conversations between Malt and Gao and the other native Chinese speakers and their own knowledge of Chinese. Gao and Malt (2009) mention that six native speakers of Mandarin Chinese from Beijing (three graduate students at Lehigh University and three college-educated spouses of

graduate students) were paid to check if these one hundred and twenty-six classifiers are commonly used in Mandarin Chinese.

Even if Malt and Gao think that these one hundred and twenty-six classifiers are very reliable and familiar to college-educated speakers of Mandarin Chinese because they tested these one hundred and twenty-six classifiers again and again, I am able to point out certain defects in the list of these one hundred and twenty-six classifiers. As mentioned above in Section 4.1, a Mandarin Chinese classifier categorization proposed by Malt and Gao also does not provide any precise classification to show how an ambiguous classifier should be treated as a classifier or as a measure word and also includes measure words in their classifier categorization. As a result, I will re-classify the one hundred and twenty-six classifiers into three portions and the analysis processes will be omitted because they are the same as the above sections.

**4.1.5.1 Words Re-classified as Classifiers**

According to my re-classification, seventy-one classifiers are presented below.

Table 25: 71 Words of Classifiers in Gao and Malt (2009)

| ben3 本 | yi1 ben3 shu1<br>一本書 | jian1 間 | yi1 jian1 shu1dian4<br>一間書店 | suo1 梭 | yi suo1 zi3 dan4<br>一梭子彈 |
|---|---|---|---|---|---|
| bi3 筆 | yi1 bi3 shou1ru4<br>一筆收入 | jian4 件 | yi1 jian4 da4yi1<br>一件大衣 | suo3 所 | yi1 suo3 da4xue2<br>一所大學 |
| ce4 冊 | yi1 ce4 shu1<br>一冊書 | ju4 句 | yi1 ju4 kou3hao4<br>一句口號 | tang4 趟 | yi1 tang4 huo3che1<br>一趟火車　　　？ |
| chang3 場 | yi1 chang3 yin1yue4ju4<br>一場音樂劇 | ju4 具 | yi1 ju4 shi1ti3<br>一具屍體 | tiao2 條 | yi1 tiao2 wei2jing1<br>一條圍巾 |
| chu1 齣 | yi1 chu1 ge1wu3ju4<br>一齣歌舞劇 | ke1 棵 | yi1 ke1 song1shu4<br>一棵松樹 | ting3 挺 | yi1 ting3 ji1qiang1<br>一挺機槍 |

| | | | | | |
|---|---|---|---|---|---|
| **chu4** 處 | yi1 chu4 shang1kou3<br>一處傷口 | **ke1** 顆 | yi1 ke1 xi1gua1<br>一顆西瓜 | **tou2** 頭 | yi1 tou2 da4xiang4<br>一頭大象 |
| **chuang2** 床 | yi1 chuang2 mian2bei4<br>一床棉被 | **li4** 粒 | yi1 li4 hong2dou4<br>一粒紅豆 | **wan2** 丸 | yi1 wan2 yao4wan2<br>一丸藥丸 |
| **chuang2** 幢 | yi1 chuang2 lou2fang2<br>一幢樓房 | **liang4** 輛 | yi1 liang4 jing3che1<br>一輛警車 | **wei4** 位 | yi1 wei4 lao3shi1<br>一位老師 |
| **dao4** 道 | yi1 dao4 zhuan1qiang2<br>一道磚牆 | **long3** 壟 | yi1 long3 tian2<br>一壟田 | **xi2** 席 | yi1 xi2 dong3shi4<br>一席董事 |
| **ding3** 頂 | yi1 ding3 mao4zi<br>一頂帽子 | **mei2** 枚 | yi1 mei2 jiang3zhang1<br>一枚獎章 | **xing1** 星 | yi1 xing1 you2<br>一星油　　　　　? |
| **dong4** 棟 | yi1 dong4 da4 lou2<br>一棟大樓 | **mian4** 面 | yi1 mian4 jing4zi<br>一面鏡子 | **yan3** 眼 | yi1 yan3 jing3<br>一眼井 |
| **dong4** 洞 | yi1 dong4 qiao2<br>一洞橋　　　　? | **ming2** 名 | yi1 ming2 xue2sheng1<br>一名學生 | **ze2** 則 | yi1 ze2 xiao4hua4<br>一則笑話 |
| **du3** 堵 | yi1 du3 qiang2<br>一堵牆 | **mu4** 幕 | yi1 mu4 qing2jing3<br>一幕情景 | **zhan3** 盞 | yi1 zhan3 deng1<br>一盞燈 |
| **duo3** 朵 | yi1 duo3 mei2gui1<br>一朵玫瑰 | **pan2** 盤 | yi1 pan2 qi2<br>一盤棋 | **zhan4** 站 | yi1 zhan4 ju4li2<br>一站距離　　　? |
| **fa1** 發 | yi1 fa1 zi3dan4<br>一發子彈 | **pi1** 匹 | yi1 pi1 ma3<br>一匹馬 | **zhang1** 張 | yi1 zhang1 chunag2<br>一張床 |
| **feng1** 封 | yi4 feng1xin4<br>一封信 | **pian1** 篇 | yi1 pian1 wen2zhang1<br>一篇文章 | **zhao1** 招 | yi1 zhao1 ce4lüe4<br>一招策略 |
| **fu2** 幅 | yi1 fu2 hua4<br>一幅畫 | **qi2** 畦 | yi1 qi2 dao4tian2<br>一畦稻田 | **zhi1** 枝 | yi1 zhi1 shu4zhi1<br>一枝樹枝 |
| **gan3** 桿 | yi1 gan3 qiang1<br>一桿槍 | **qi3** 起 | yi1 qi3 yi4wai4<br>一起意外 | **zhi1** 隻 | yi1 zhi1 mao1<br>一隻貓 |
| **gen1** 根 | yi1 gen1 tou2fa3<br>一根頭髮 | **qu3** 曲 | yi1 qu3 liu2xing2ge1<br>一曲流行歌 | **zhou2** 軸 | yi1 zhou2 hua4<br>一軸畫 |
| **ge** 個 | yi1 ge ren2<br>一個人 | **ren4** 任 | yi1 ren4 zong3tong3<br>一任總統 | **zhu1** 株 | yi1 zhu1ying1hua1<br>一株櫻花 |
| **guan3** 管 | yi1 guan3 mao2bi3<br>一管毛筆 | **shan4** 扇 | yi1 shan4 men2<br>一扇門 | **zhuang1** 樁 | yi1 zhuang1 yi4wai4<br>一樁意外 |
| **ji4** 劑 | yi1 jie4 qiang2xin1ji4<br>一劑強心劑 | **sheng1** 聲 | yi1 sheng1 jian1jiao4<br>一聲尖叫 | **zun1** 尊 | yi1 zun1 fo2xiang4<br>一尊佛像 |
| **jia4** 架 | yi1 jia4 fei1ji1<br>一架飛機 | **shou3** 首 | yi1 shou3 er2ge1<br>一首兒歌 | **zuo4** 座 | zi1 zuo4 shan1<br>一座山 |
| **jia4** 駕 | yi1 jia4 ma3che1<br>一駕馬車　　? | **sao1** 艘 | yi1 sao1 chuang2<br>一艘船 | | |

### 4.1.5.2 Words Re-classified as *Xc* and *Xm*

Eighteen *Xc* and *Xm* are presented below after re-classifying the one hundred and

twenty-six classifiers.

Table 26: 18 Words of *Xc* and *Xm* in Gao and Malt (2009)

| ba3 把 | ba3 把 c | yi1 ba3dao1zi 一把刀子 | ba3 把 m | yi1 ba3dao1zi 一把刀子 |
|---|---|---|---|---|
| ban1 班 | ban1 班 c | yi1 ban1 fei1ji1 一班飛機 | ban1 班 m | yi1 ban1 xue2sheng1 一班學生 |
| ban4 瓣 | ban4 瓣 c | yi1 ban4 hua1ban4 一瓣花瓣 | ban4 瓣 m | yi1 ban4 mei2gui1 一瓣玫瑰 |
| bu4 部 | bu4 部 c | yi1 bu4 shu1 一部書 | bu4 部 m | yi1 bu4 shu1 一部書 |
| dian3 點 | dian3 點 c | yi1 dian3 zhu1sha1ahi4 一點硃砂痣 | dian3 點 m | yi1 dian3 tang2 一點糖 |
| fen4 份 | fen4 份 c | yi1 fen4 bao4gao4 一份報告 | fen4 份 m | yi1 fen4 qing2yi4 一份情意 |
| jia1 家 | jia1 家 c | yi1 jia1 gong1si1 一家公司 | jia1 家 m | yi1 jia1 ao4zhou1ren2 一家澳洲人 |
| jie2 節 | jie2 節 c | yi1 jie2 che1xiang1 一節車廂 | jie2 節 m | yi1 jie2 gan1zhe4 一節甘蔗 |
| kou3 口 | kou3 口 c | yi1 kou3 jing3 一口井 | kou3 口 m | yi1 kou3 zhu4ya2 一口蛀牙 |
| kuai4 塊 | kuai4 塊 c | yi1 kuai4 rou4 一塊肉 | kuai4 塊 m | yi1 kuai4 rou4 一塊肉 |
| lun2 輪 | lun2 輪 c | yi1 lun2 ming2yue4 一輪明月 | lun2 輪 m | yi1 lun2 bi3sai4 一輪比賽 |
| lü3 縷 | lü3 縷 c | yi1 lü3 xian4 一縷線 | lü3 縷 m | yi1 lü3 qing1yan1 一縷清煙 |
| men2 門 | men2 門 c | yi1 men2 da4pao4 一門大砲 | men2 門 m | yi1 men2 sheng1yi4 一門生意 |
| pian4 片 | pian4 片 c | yi1 pian4 shu4ye4 一片樹葉 | pian4 片 m | yi1 pian4 shu4ye4 一片樹葉 |
| tai2 台 | tai2 台 c | yi1 tai2 dian4shi4 一台電視 | tai2 台 m | yi1 tai2 ge1zai3xi4 一台歌仔戲 |
| xian4 線 | xian4 線 c | yi1 xian4 che1dao4 | xian4 線 m | yi1 xian4 xi1wang4 |

| | | 一線車道 | | 一線希望 |
|---|---|---|---|---|
| **zhi1 支** | **zhi1 支 c** | yi1 zhi1 ge1<br>一支歌 | **zhi1 支 m** | yi1 zhi1 chun2mao2sha1<br>一支純毛紗 |
| **zong1 宗** | **zong1 宗 c** | yi1 zong1 yi4wai4<br>一宗意外 | **zong1 宗 m** | yi1 zong1 huo4wu4<br>一宗貨物 |

## 4.1.5.3 Words Re-classified as Measure words

Thirty-seven measure words that should not be included in the classifier categorization are listed below.

Table 27: 37 Words of Measure words in Gao and Malt (2009)

| **bian4 辦** | yi1 bian4 da4suan4<br>一辦大蒜 | **liu3 綹** | yi1 liu3 tou2fa3<br>一綹頭髮 | **tie4 帖** | yi1 tie4 zhong1yao4<br>一帖中藥 |
|---|---|---|---|---|---|
| **cuo1 撮** | yi1 cuo1 mao2fa3<br>一撮毛髮 | **ma3 碼** | yi1 ma3 shi4<br>一碼事 | **tuan2 團** | yi1 tuan2 shi4bing1<br>一團士兵 |
| **di1 滴** | yi1 di1 yan3lei4<br>一滴眼淚 | **pao4 泡** | yi1 pao4 niao4<br>一泡尿 | **tuo2 坨** | yi1 tuo2 nai3you2<br>一坨奶油 |
| **duan4 段** | yi1 duan4 gan1zhe4<br>一段甘蔗 | **pie3 撇** | yi1 pie3 hu2xu1<br>一撇鬍鬚 | **wei4 味** | hun1cai4 wu3wei4<br>葷菜五味 |
| **dui4 對** | yi1 dui4 fu1qi1<br>一對夫妻 | **qi2 期** | za2zhi4 di4yi1qi2<br>雜誌第一期 | **wo1 窩** | yi1 wo1 xiao3gou3<br>一窩小狗 |
| **dun4 頓** | yi1 dun4 fa4<br>一頓飯 | **qiang1 腔** | man3 qiang1 re4cheng2<br>滿腔熱誠 | **xiang4 項** | xing2fa3 di4ti1xiang4<br>刑法第一項 |
| **gu3 股** | yi1 gu3 xiang1qi4<br>一股香氣 | **quan1 圈** | yi1 quan1 liu3shu4<br>一圈柳樹 | **ya2 牙** | yi1 ya2 ju2zi<br>一牙橘子 |
| **gua4 掛** | yi1 gua4 fo2zhu1<br>一掛佛珠 | **shen1 身** | yi1 shen1 yi1shang<br>一身衣裳 | **ye4 頁** | yi1 ye4 shu1<br>一頁書 |
| **hu4 戶** | yi1 hu4 nong2min2<br>一戶農民 | **shu4 束** | yi1 shu4 xian1hua1<br>一束鮮花 | **zhang1 章** | di4yi1zhang1 nei4rong2 第<br>一章內容 |
| **ji2 集** | yi1bai3ji2 lian2xu4ju4<br>一百集連續劇 | **si1 絲** | yi1 si1 rou4<br>一絲肉 | **zhen4 陣** | yi1 zhen4 ren2chao2<br>一陣人潮 |
| **jie2 截** | yi1 jie2 zhu2zi<br>一截竹子 | **tai1 胎** | yi1 tai1 xiao3gou3<br>一胎小狗 | **zhuo1 桌** | yi1 zhuo1 cai4<br>一桌菜 |
| **jie4 屆** | yi1 jie4 guan4jun1<br>一屆冠軍 | **tan1 灘** | yi1 tan1 shui3<br>一灘水 | | |
| **juan4 卷** | za2zhi4 di4yi1juan4<br>雜誌第一卷 | **tang2 堂** | yi1 tang2 jia1ju4<br>一堂傢具 | | |

## 4.2 True Classifiers

According to the above re-classifications of Mandarin Chinese classifiers from Section 4.1.1 to Section 4.1.5 (Chao 1968, Erbaugh 1986, Hu 1993, Huang et al. 1997 and Malt and Gao 2009), five groups of the classifier portion, the *Xc* and *Xm* portion and the measure word portion are given. Moreover, five groups of the classifier[12] portion of Chao (1968), Erbaugh (1986), Hu (1993), Huang et al. (1997) and Gao and Malt (2009) are also obtained. In the following, I will carry out further investigations on the basis of the words in these five groups of classifiers. In Section 4.2.1, the intersection method and union method in mathematics will be used to find core classifiers and non-core classifiers in the five groups of classifiers. In Section 4.2.2, a questionnaire experiment on identifying classifiers is used to examine the possibility for non-core classifiers to become true classifiers. Finally, the ultimate goal is to offer a group of true classifiers.

### 4.2.1 Core Classifiers and Non-core Classifiers

The intersection method and union method in mathematics are adopted in order to find core classifiers and non-core classifiers. In the following, I will individually discuss core classifiers through use of the intersection method and non-core classifiers through use of the union method.

First, core classifiers are obtained through use of the intersection method. In

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[12] Classifier here refers to both the classifier portion and *Xc* portion that have been mentioned in Table 7.

mathematics, the intersection (denoted as ∩) of two sects *A* and *B* is the set that

contains all of the elements of *A* that also belong to *B* (or equivalently, all of the

elements of *B* that also belong to A), but no other elements. The figure of the

intersection of two sets is as shown below. T. Givón (1986) mentions that the shaded

area in Figure 5 represents members which display all two 'characteristic' properties.

They are 'the most typical' members of the category, i.e., the prototype of the

category.
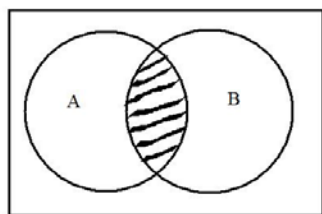


Figure 5: Intersection of Two Sets

Also T. Givón (1986) mentions that the area where three out of four properties

intersect are still 'fairly' typical except the area where four out of four properties

intersect when intersection of four sets. I thus infer that the most typical members,

which are *X* out of *X* intersect (*X* stands for any number), and also that fairly typical

members, which are *X-1* out of *X* intersect (*X* stands for any number), can be called

core members. As a result, core classifiers in this thesis will be found through the

above inferences of core members consisting of most typical members and fairly

typical members. Below two steps are used to find core classifiers. First, five groups

of the classifier portion are intersected, and then the most typical classifiers are

obtained. Second, four groups of the classifier portion are intersected, and then fairly typical classifiers are also obtained. To make a summary of the most typical classifiers and fairly typical classifiers, twenty-two core classifiers are represented as in Table 28. These twenty-two core classifiers are not only identified as classifiers by representative studies but also by my analysis. These twenty-two core classifiers are also shared by the five representative studies. The above dual certifications support that these twenty-two core classifiers are indubitable true classifiers.

Table 28: 22 Core Classifiers

| ba3 把 c | jian4 件 | pi1 匹 | wei4 位 |
|---|---|---|---|
| ben3 本 | ke1 棵 | pian4 片 c | zhang1 張 |
| ding3 頂 | ke1 顆 | shou3 首 | zhi1 枝 |
| gen1 根 | kuai4 塊 c | sao1 艘 | zhi1 隻 |
| ge 個 | li4 粒 | tiao2 條 | |
| jia4 架 | liang4 輛 | tou2 頭 | |

Next, non-core classifiers are obtained through use of the union method. In set theory, the union (denoted as ∪) of a collection of sets is the set of all distinct elements in the collection as shown in Figure 6.
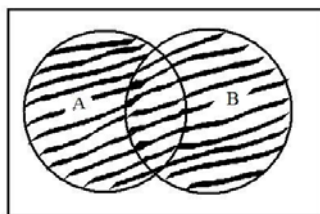


Figure 6: Union of Two Sets

Take a simple example for instance, A = {1, 2, 3, 4} and B = {2, 4, 5, 6}. Thus, A∪B = {1, 2, 3, 4, 2, 4, 5, 6} and subtract the reduplicated portion {2, 4} which is equal to A ∩ B. {1, 2, 3, 4, 5, 6} will be obtained.

However, the shaded area in Figure 6 does not correspond to the condition of non-core classifiers. The condition of the non-core classifiers in this thesis is that the non-core classifiers must be in the position outside the core classifiers. Thus, the shaded area in Figure 6 has to subtract the A ∩ B portion which represents core classifiers position again. The mathematical formula following represents the the concept of the non-core classifiers, A∪B － 2 × A∩B which can be simplified as [ A － (A∩B) ] + [ B － (A∩B) ]. The shaded area in Figure 7 shows the portion of the least typical classifiers to which A∪B － 2 × A∩B refers.
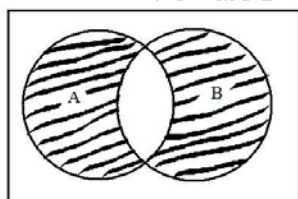


Figure 7: Portion of A∪B － 2 × A∩B

In this thesis, a mathematical formula, [ A－(A∩B) ] + [ B－(A∩B) ] is adopted to find non-core classifiers in the five groups of classifier portion. Table 29 below shows that non-core classifiers which are obtained through use of the above mathematical formula.

Table 29: 90 Non-core Classifiers

| ban1 班 | feng1 封 | mu4 幕 | xian4 線 c |
|---------|---------|--------|-----------|
| ban4 瓣 | fu2 幅 | pan2 盤 | xing1 星 |
| bi3 筆 | gan3 桿 | pian1 篇 | yan3 眼 |
| bing3 柄 | guan3 管 | qi2 畦 | ye4 葉 |
| bu4 部 c | ji4 劑 | qi3 起 | yuan2 員 |
| ce4 冊 | ji4 記 | qu3 曲 | ze2 則 |
| chang3 場 | jia1 家 c | que4 闋 | zhan3 盞 |

| | | | |
|---|---|---|---|
| chu1 齣 | jia4 駕 | ren4 任 | zhan4 站 |
| chu4 處 | jian1 間 | shan4 扇 | zhao1 招 |
| chuang2 床 | jie4 介 | sheng1 聲 | zheng4 幀 |
| chuang2 幢 | jie2 節 c | suo1 梭 | zhi1 只 |
| dang3 檔 | jing1 莖 | suo3 所 | zhi1 支 c |
| dao4 道 | ju4 句 | tai2 台 c | zhi3 紙 |
| dian3 點 c | ju4 具 | tang4 趟 | zhou2 軸 |
| ding4 錠 | juan3 卷 | ti2 題 | zhu1 株 |
| dong4 棟 | kou3 口 c | ting3 挺 | zhu4 柱 |
| dong4 洞 | long3 壟 | tong1 通 | zhu4 炷 |
| du3 堵 | lü3 縷 c | wan1 彎 | zhuang1 樁 |
| duo3 朵 | lun2 輪 c | wan1 灣 | zong1 宗 c |
| fa1 發 | mei2 枚 | wan2 丸 | zun1 尊 |
| fang1 方 | men2 門 c | wei3 尾 | zuo4 座 |
| fen4 分 c | mian4 面 | xi2 席 | |
| fen4 份 c | ming2 名 | xi2 襲 | |

According to identical norms to re-classify classifiers proposed by these representative studies, I find that these twenty-two core classifiers are shared by representative studies. Thus, these twenty-two core classifiers are definitely true classifiers. Non-core classifiers are not shared by representative studies, so these non-core classifiers are only classifiers, not true classifiers. However, I think that there is the possibility for these non-core classifiers to become true classifiers. Thus, through an obejective questionnaire experiment to double check the possibility for these non-core classifiers to become definitely true classifiers.

### 4.2.2 An Experiment on Classifier Identifications

In this section, a questionnaire experiment is adopted to investigate the degree of possibility by which the non-core classifiers could become definitely true classifiers.

The methodology, results and discussion are provided below.

Methodology

Our subjects in this questionnaire experiment limit to have a linguistic knowledge because subjects need linguistic knowledge when they use linguistic-based tests to differentiate classifiers and measure words. In this experiment, subjects are twenty-six linguistics graduate school students in National Chengchi University. They are all Taiwnese and Mandarin speakers and all have received formal linguistic training. The questionnaire experiment comprises two parts. Part One includes a brief introduction of using *yi*-multiplier, *de*-insertion and *ge*-substitution to distinguish classifiers from measure words and a pre-test of classifier identifications. Becasuse the numeral / adjectival stacking is an optional test, it is not included in the Part 1. The pre-test contains twenty-six test items with eighteen core classifiers from Table 22 and eight measure words whose multipliers are definitely not *1*. (Please refer to Appendix A for the details of the pre-test). Subjects were asked to do the pre-test after reading the introduction. No time limit was set for the introduction and the pre-test. In the pre-test, three options were offered for each test item. If subjects view the test item as a classifier, they are to circle option *C* which represents classifiers. If subjects view the test item as a measure word, they are to circle option *M* which represents measure words. Or, if it is possible for the test item to be both a classifier and a measure word, subjects are to circle option *O* which represents classifiers and

measure words. If subjects circle option *O*, they are asked to write down their

interpretations of the meaning of the classifiers and measure words. If the correctness

in the pre-test has 92 % to 100 %, subjects will be requested to do the formal test.

Totoally twenty subjects are requested to do the formal test. Part Two is composed of

ninety non-core classifiers that are obtained from Table 29. The details of the formal

test are shown in Appendix B. There is also no time limit during the formal test and

three options are also offered for each test item. Subjects are asked to carry out the

formal test in the same way as the pre-test.

<u>Results and Discussion</u>

In the data analysis, I use percentages to represent the statistics. If a subject circles

*C* (classifiers) once, then the classifiers will be calculated once. If a subject circles *M*

(measure words) once, then the measure words will be calculated once. Also, if a

subject circles *O*, *O* will be counted once. The percentage of three options in each

test item adds to one hundred percent. Table 30 shows the statistics of the results

from the formal test. In the following, two aspects from Table 30 will be discussed.

First, to discuss the relations between these three options from option *O*'s point of

view: the option *O* is chosen twenty-four times. This result shows that the subjects

have experienced some degree of confusion over these twenty-four items when

differentiating these twenty-four items as classifies or measure words. The higher the

percentage of the choice of the option *O*, the more uncertainty the subjects feel. For

example, the percentage of option *O* for *bi3* 筆 is 20 %. And the percentages of the occurrence of *bi3* 筆 as a classifier and of *bi3* 筆 as a measure word are 40 % and 40%, respectively. We can thus infer that if the percentage of the occurrence of option *O* is high, then the percentages of the occurrence of one word as a classifier and of one word as a measure word are likely to be concordant. However, this inference is not absolute because there are some counter-examples. For example, the percentage of the occurrence of option *O* of *chu4* 處 is 10% and the percentage of the occurrence of *chu4* 處 as a classifier and of *chu4* 處 as a measure word are 80% and 10%, respectively, and the percentage of the occurrence of option *O* of *dang3* 檔 is 5% and the percentage of the occurrence of *dang3* 檔 as a classifier and of *dang3* 檔 as a measure word are 65% and 30%, respectively. Although the percentage of the occurrence of option *O* of *chu4* 處 is higher than that of *dang3* 檔, the difference in the percentages of the occurrence of *chu4* 處 as a classifier and of *chu4* 處 as a measure word is larger than that for *dang3* 檔.

Second, the relations among percentages of one word as a classifier and as a measure word and as option *O* show the following three phenomena. One phenomenon is that the percentage of one word as a measure word is over than as a classifier, such as *bu4* 部 *c, lü3* 縷 *c, pan2* 盤, *tang4* 趟 and *xing1* 星. Most subjects circled option *M* for *bu4* 部 *c, lü3* 縷 *c* rather than option *C*. This implies that the properties of *bu4* 部 *c* and *lü3* 縷 *c* for being a measure word are more prominent than

for being a classifier for most subjects. Next, *pan2 盤* and *tang4 趟* are strongly

recognized as measure words by the subjects because the percentages of *pan2 盤* and

*tang4 趟* as a measure word is 50% more than that of *pan2 盤* and *tang4 趟* as a

classifier. This implies that *pan2 盤* and *tang4 趟* are measure words for most of

subjects. Last is *xing1 星*. Although *xing1 星* is rare in Taiwan Mandarin, most the

subjects regard *xing1 星* as a measure word. This implies that the subjects tend to

regard a new word as measure word. This further supports that measure words are an

open set and are acceptable to innovations as proposed by Her and Hsieh (2010).

The second phenomenon is that the percentages of one word as a measure word

and as a classifier are equal, such as *qi2 畦*. Unless the number of subjects is

increased, it will be difficult to show if *qi2 畦* is a classifier or a measure word.

The last phenomenon is the percentages of one word as a measure word and as a

classifier are quite similar, such as *jia4 駕, long3 壟* and *wan1 灣. Jia4 駕, long3 壟*

and *wan1 灣* may not so common in subjects' daily lives, or *jia4 駕, long3 壟* and

*wan1 灣*, may be metaphorical usages in literature, so subjects may have difficulties

in differentiating these words. Thus, the percentages of these words as a classifier

and as a measure word are quite close.

Table 30: Statistics of Non-core Classifiers

| No. | Test Items | Percentage of Test Items as a classifier (%) | Percentage of Test Item as a measure word (%) | Percentage of Test Item as both a classifier and a measure word (%) |
|-----|-----------|------|------|------|

| | | | | |
|---|---|---|---|---|
| 1 | ban1 班 c[13] | 90 | 5 | 5 |
| 2 | ban4 瓣 c | 100 | 0 | 0 |
| 3 | bi3 筆 | 40 | 40 | 20 |
| 4 | bing3 柄 | 100 | 0 | 0 |
| 5 | bu4 部 c | 30 | 65 | 5 |
| 6 | ce4 冊 | 70 | 25 | 5 |
| 7 | chang3 場 | 95 | 5 | 0 |
| 8 | chu1 齣 | 100 | 0 | 0 |
| 9 | chu4 處 | 80 | 10 | 10 |
| 10 | chuang2 床 | 70 | 30 | 0 |
| 11 | chuang2 幢 | 95 | 5 | 0 |
| 12 | dang3 檔 | 65 | 30 | 5 |
| 13 | dao4 道 | 85 | 10 | 5 |
| 14 | dian3 點 | 100 | 0 | 0 |
| 15 | ding4 錠 | 100 | 0 | 0 |
| 16 | dong4 棟 | 100 | 0 | 0 |
| 17 | dong4 洞 | 70 | 20 | 10 |
| 18 | du3 堵 | 95 | 5 | 0 |
| 19 | duo3 朵 | 100 | 0 | 0 |
| 20 | fa1 發 | 100 | 0 | 0 |
| 21 | fang1 方 | 80 | 20 | 0 |
| 22 | fen4 分 c | 80 | 15 | 5 |
| 23 | fen4 份 c | 75 | 15 | 10 |
| 24 | feng1 封 | 100 | 0 | 0 |
| 25 | fu2 幅 | 100 | 0 | 0 |
| 26 | gan3 桿 | 95 | 5 | 0 |
| 27 | guan3 管 | 100 | 0 | 0 |
| 28 | ji4 劑 | 95 | 5 | 0 |
| 29 | ji4 記 | 95 | 5 | 0 |
| 30 | jian1 間 | 100 | 0 | 0 |
| 31 | jia1 家 c | 100 | 0 | 0 |
| 32 | jia4 駕 | 55 | 45 | 0 |
| 33 | jie4 介 | 100 | 0 | 0 |
| 34 | jie2 節 c | 100 | 0 | 0 |
| 35 | jing1 莖 | 70 | 30 | 0 |
| 36 | ju4 句 | 90 | 5 | 5 |

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[13] C mark is used to symbolize this ambiguous classifier functioning as a classifier rather than as a measure word. C mark does not appear in the pre-test or the formal test.

| 37 | ju4 具 | 100 | 0 | 0 |
|---|---|---|---|---|
| 38 | juan3 卷 | 100 | 0 | 0 |
| 39 | kou3 口 c | 100 | 0 | 0 |
| 40 | long3 壟 | 55 | 45 | 0 |
| 41 | lü3 縷 c | 45 | 50 | 5 |
| 42 | lun2 輪 c | 85 | 10 | 5 |
| 43 | mei2 枚 | 100 | 0 | 0 |
| 44 | men2 門 c | 95 | 5 | 0 |
| 45 | mian4 面 | 100 | 0 | 0 |
| 46 | ming2 名 | 100 | 0 | 0 |
| 47 | mu4 幕 | 75 | 25 | 0 |
| 48 | pan2 盤 | 20 | 70 | 10 |
| 49 | pian1 篇 | 100 | 0 | 0 |
| 50 | qi2 畦 | 50 | 50 | 0 |
| 51 | qi3 起 | 100 | 0 | 0 |
| 52 | qu3 曲 | 100 | 0 | 0 |
| 53 | que4 闋 | 90 | 10 | 0 |
| 54 | ren4 任 | 80 | 20 | 0 |
| 55 | shan4 扇 | 90 | 5 | 5 |
| 56 | sheng1 聲 | 95 | 5 | 0 |
| 57 | suo1 梭 | 70 | 25 | 5 |
| 58 | suo3 所 | 100 | 0 | 0 |
| 59 | tai2 台 c | 100 | 0 | 0 |
| 60 | tang4 趟 | 25 | 75 | 0 |
| 61 | ti2 題 | 100 | 0 | 0 |
| 62 | ting3 挺 | 85 | 10 | 5 |
| 63 | tong1 通 | 85 | 15 | 0 |
| 64 | wan1 彎 | 80 | 10 | 10 |
| 65 | wan1 灣 | 55 | 40 | 5 |
| 66 | wan2 丸 | 100 | 0 | 0 |
| 67 | wei3 尾 | 100 | 0 | 0 |
| 68 | xi2 席 | 95 | 5 | 0 |
| 69 | xi2 襲 | 75 | 15 | 10 |
| 70 | xian4 線 c | 85 | 10 | 5 |
| 71 | xing1 星 | 35 | 55 | 10 |
| 72 | yan3 眼 | 95 | 5 | 0 |
| 73 | ye4 葉 c | 100 | 0 | 0 |
| 74 | yuan2 員 | 100 | 0 | 0 |

| 75 | ze2 則 | 100 | 0 | 0 |
|---|---|---|---|---|
| 76 | zhan3 盞 | 100 | 0 | 0 |
| 77 | zhan4 站 | 60 | 40 | 0 |
| 78 | zhao1 招 | 90 | 10 | 0 |
| 79 | zheng4 幀 | 100 | 0 | 0 |
| 80 | zhi1 只 | 100 | 0 | 0 |
| 81 | zhi1 支 c | 100 | 0 | 0 |
| 82 | zhi3 紙 | 95 | 0 | 5 |
| 83 | zhou2 軸 | 90 | 5 | 5 |
| 84 | zhu1 株 | 90 | 10 | 0 |
| 85 | zhu4 柱 | 95 | 5 | 0 |
| 86 | zhu4 炷 | 95 | 5 | 0 |
| 87 | zhuang1 樁 | 90 | 10 | 0 |
| 88 | zong1 宗 | 100 | 0 | 0 |
| 89 | zun1 尊 | 100 | 0 | 0 |
| 90 | zuo4 座 | 100 | 0 | 0 |

After discussing the relations between the three options, Table 31 shows the percentage of test items as a classifier from high to low. In Table 31, I strictly stipulate that only test items with a 100% identification as a classifier are true classifiers because these test items are not only classifiers that mentioned in Section 4.2.1 but also objectively reconfirmed as classifiers by twenty subjects. The above dual certifications support that test items with a 100% identification as a classifier are true classifiers. There are a total of thirty-nine test items with a 100% identification as a classifier in Table 31. These thirty-nine test items are thus definitely true classifiers under my stipulation. The remaining test items are classifiers, but they are not true classifiers because they violate my stipulation that only test items with a 100% identification as a classifier are true classifiers. Merely,

the remaining test items are closer to true classifiers if the percentage of the test

items as a classifier is higher. For example, test items with a score of 95% are closer

to true classifiers than those with one of 90%. Then, test items with a score of 90%

are closer to true classifiers than those with one of 85% again.

Table 31: Percentage of Test Items as a Classifier in Non-core Classifiers

| No. | Test Item | Percentage of Test Items as a classifier (%) | No. | Test Item | Percentage of Test Items as a classifier (%) |
|---|---|---|---|---|---|
| 1 | ban4 瓣 c | 100 | 46 | men2 門 c | 95 |
| 2 | bing3 柄 | 100 | 47 | sheng1 聲 | 95 |
| 3 | chu1 齣 | 100 | 48 | xi2 席 | 95 |
| 4 | dian3 點 c | 100 | 49 | yan3 眼 | 95 |
| 5 | ding4 錠 | 100 | 50 | zhi3 紙 | 95 |
| 6 | dong4 棟 | 100 | 51 | zhu4 柱 | 95 |
| 7 | duo3 朵 | 100 | 52 | zhu4 炷 | 95 |
| 8 | fa1 發 | 100 | 53 | ban1 班 c | 90 |
| 9 | feng1 封 | 100 | 54 | ju4 句 | 90 |
| 10 | fu2 幅 | 100 | 55 | que4 闋 | 90 |
| 11 | guan3 管 | 100 | 56 | shan4 扇 | 90 |
| 12 | jian1 間 | 100 | 57 | zhao1 招 | 90 |
| 13 | jia1 家 c | 100 | 58 | zhou2 軸 | 90 |
| 14 | jie4 介 | 100 | 59 | zhu1 株 | 90 |
| 15 | jie2 節 c | 100 | 60 | zhuang1 樁 | 90 |
| 16 | ju4 具 | 100 | 61 | dao4 道 | 85 |
| 17 | juan3 卷 | 100 | 62 | lun2 輪 c | 85 |
| 18 | kou3 口 c | 100 | 63 | ting3 挺 | 85 |
| 19 | mei2 枚 | 100 | 64 | tong1 通 | 85 |
| 20 | mian4 面 | 100 | 65 | xian4 線 c | 85 |
| 21 | ming2 名 | 100 | 66 | chu4 處 | 80 |
| 22 | pian1 篇 | 100 | 67 | fang1 方 | 80 |
| 23 | qi3 起 | 100 | 68 | fen4 分 c | 80 |
| 24 | qu3 曲 | 100 | 69 | ren4 任 | 80 |
| 25 | suo3 所 | 100 | 70 | wan1 彎 | 80 |
| 26 | tai2 台 c | 100 | 71 | fen4 份 c | 75 |
| 27 | ti2 題 | 100 | 72 | mu4 幕 | 75 |

| 28 | wan2 丸 | | 100 | 73 | xi2 襲 | 75 |
|----|---------|--|-----|----|--------|----|
| 29 | wei3 尾 | | 100 | 74 | ce4 冊 | 70 |
| 30 | ye4 葉 c | | 100 | 75 | chuang2 床 | 70 |
| 31 | yuan2 員 | | 100 | 76 | dong4 洞 | 70 |
| 32 | ze2 則 | | 100 | 77 | jing1 莖 | 70 |
| 33 | zhan3 盞 | | 100 | 78 | suo1 梭 | 70 |
| 34 | zheng4 幀 | | 100 | 79 | dang3 檔 | 65 |
| 35 | zhi1 只 | | 100 | 80 | zhan4 站 | 60 |
| 36 | zhi1 支 c | | 100 | 81 | jia4 駕 | 55 |
| 37 | zong1 宗 c | | 100 | 82 | long3 壟 | 55 |
| 38 | zun1 尊 | | 100 | 83 | wan1 灣 | 55 |
| 39 | zuo4 座 | | 100 | 84 | qi2 畦 | 50 |
| 40 | chang3 場 | | 95 | 85 | lü3 縷 c | 45 |
| 41 | chuang2 幢 | | 95 | 86 | bi3 筆 | 40 |
| 42 | du3 堵 | | 95 | 87 | xing1 星 | 35 |
| 43 | gan3 桿 | | 95 | 88 | bu4 部 c | 30 |
| 44 | ji4 劑 | | 95 | 89 | tang4 趟 | 25 |
| 45 | ji4 記 | | 95 | 90 | pan2 盤 | 20 |

Because the twenty-two core classifiers in Section 4.2.1 and the thirty-nine non-core classifiers in this section are definite true classifiers, both of them compose true classifiers which are a group of definitely true classifiers. Sixty-one true classifiers are shown in Table 32.

Table 32: 61 True Classifiers

| ban4 瓣 c | jia1 家 c | ming2 名 | ye4 葉 c |
|-----------|----------|----------|---------|
| ba3 把 c | jia4 架 | pi1 匹 | yuan2 員 |
| ben3 本 | jian1 間 | pian1 篇 | ze2 則 |
| bing3 柄 | jian4 件 | pian4 片 c | zhan3 盞 |
| chu1 齣 | jie2 節 c | qi3 起 | zhang1 張 |
| dian3 點 c | jie4 介 | qu3 曲 | zheng4 幀 |
| ding3 頂 | ju4 具 | shou3 首 | zhi1 支 c |
| ding4 錠 | juan3 卷 | sao1 艘 | zhi1 只 |
| dong4 棟 | ke1 棵 | suo3 所 | zhi1 枝 |
| duo3 朵 | ke1 顆 | tai2 台 c | zhi1 隻 |
| fa1 發 | kou3 口 c | ti2 題 | zong1 宗 c |

| feng1 封 | kuai4 塊 c | tiao2 條 | zun1 尊 |
|----------|-----------|---------|---------|
| fu2 幅 | li4 粒 | tou2 頭 | zuo4 座 |
| gen1 根 | liang4 輛 | wan2 丸 | |
| ge 個 | mei2 枚 | wei3 尾 | |
| guan3 管 | mian4 面 | wei4 位 | |

## 4.3 A Semantic Categorization of True Classifiers

Hsieh (2009) proposes that classifiers will profile the noun behind the classifier. For example, *yi1 tiao2 gou3* 一條狗 and *yi1 zhi1 gou3* 一隻狗. A classifier *tiao2* 條 profiles the long shape of dogs while a classifier *zhi1* 隻 profiles the animate character of dogs. The above two collocations with same nouns but different classifiers result in emphasizing the different portions of the noun. The reason is that classifiers have their own semantic meanings and belong to different semantic categories on the basis of their semantic meanings. Traditionally, semantic categorizations of Mandarin Chinese classifiers are arranged in a top-down form. Top-down parsing is a strategy of analyzing unknown data relationships by hypothesizing general parse tree structures and then considering whether the known fundamental structures are compatible with the hypothesis. Thus, a top-down form hypothesized the semantic categorizations of Mandarin Chinese classifiers first and then places Mandarin Chinese classifiers in their compatible categorizations.

However, many defects are found in such semantic categorizations of Mandarin Chinese classifiers. For example, a semantic categorization of Mandarin Chinese classifiers from Hu (1993) is shown in Appendix C. Two defects in Hu's top-down

semantic categorizations of Mandarin Chinese classifier may be pointed out. Fisrst, one classifier may simultaneously belong to more than one category. For example, a classifier *zhi1* 隻 in Hu (1993) belongs to four categories such as four-legged big animals, four-legged small animals, birds and arrangement. The classifier *tiao2* 條 in Hu (1993) also belongs to four categories such as big four-legged animals, fish, long and flexible objects and clothing for the lower body.

Second, the semantic meanings of classifiers are not complete and precise resulting in some acceptable collocations for classifiers and nouns being excluded in Hu (1993). For example, a classifier *ba3* 把 in Hu (1993) is regarded as belonging to the hand tool category, but *yi1 ba3 xiao3ti2qin2* 一把小提琴 and *yi1 ba3 yi3zi* 一把椅子 are not hand tools. Also, the classifier *jian4* 件 in Hu (1993) is regarded as belonging to the category of clothing for the upper body category, but *jian4* 件 can occur with other nouns such as in *yi1 jian4 wan2ju4* 一件玩具 or *yi1 jian4 yi4wai4* 一件意外.

The opposite of top-down form is bottom-up form. Bottom-up parsing is a strategy for analyzing unknown information that attempts to identify the most fundamental units first, and then to infer higher-order structures from them. Thus, a bottom-up form identifies Mandarin Chinese classifiers at the bottom and then infers higher levels from the bottom. This thesis finds that bottom-up form can avoid the two defects that I observed in Hu (1993) top-down categorization. As a result, the form of

the semantic categorization of Mandarin Chinese classifiers in this thesis will adopt a bottom-up form. The way of semantic categorization of Mandarin Chinese classifers in this thesis is to offer a brief description of the core semantic meanings of sixty-one true classifiers based on the *Mandarin Daily Dictionary of Chinese Classifiers* (Huang et. al 1997) and to make use of a bottom-up form to do with a semantic categorization that starts from the semantic meanings of each classifier to the highest general level, namely discrete level. Table 33 shows sixty-one true classifiers and their brief descriptions of the semantic meanings.

Table 33: Sixty-one True Classifiers and Their Semantic Meanings

| Classifier | Semantic meaning |
|---|---|
| ge4個 | calculation of abstract or concrete nouns, such as yi1 ge4 pai2zi一個牌子 |
| kou3口 | calculation of the number of persons in a household or the number of livestock, such as yi1 kou3 ren2一口人; yi1 kou3 zhu1一口豬; or use to calculation of objects or arms, such as yi1 kou3 bao3jian4一口寶劍, yi1 kou3 da4gang1一口大缸 |
| tiao2條 | calculation of objects or animals with long shape, such as yi1 tiao2 wei2jin1一條圍巾, yi1 tiao2 gou3一條狗; or calculation of abstract human like or abstract things with long shape in metaphorical use, such as yi1 tiao2 ren2ming4一條人命, yi1 tiao2 xin1wen2一條新聞 |
| zhi1隻 | calculation of animals, such as yi1 zhi1 mao1一隻貓; or calculation of one of a pair of organs of humans or animals, such as yi1 zhi1 jiao3一隻腳; or calculation of one of a pair of objects, such as yi1 zhi1 wa4zi一隻襪子 |
| ming2名 | calculation of humans, such as yi1 ming2 lao3shi1一名老師 |
| yuan2員 | calculation of members, such as yi1 yuan2 da4 jiang4一員大將 |
| wei4位 | calculation of humans, such as yi1 wei4 xian1sheng1一位先生 |
| wei3尾 | calculation of fishes or shrimps, such as yi1 wei3 yu2一尾魚, yi1 wei3 xia1一尾蝦 |
| tou2頭 | calculation of big animals with four legs, such as yi1 tou2 da4xiang4一頭大象 |
| pi3匹 | calculation of horses, such as yi1 pi3 ma3一匹馬 |
| ke1棵 | calculation of plants, such as yi1 ke1 xiao3shu4一棵小樹 |
| duo3朵 | calculation of objects with dot-shape, such as yi1 duo3 hua1一朵花; or calculation of abstract items with dot-shape in metaphorical use, such as yi1 duo3 yun2一朵雲 |
| gen1根 | calculation of long cylindrical objects, such as yi1 gen1 zhu2gan1一根竹竿 |
| zhi1枝 | calculation of long pole-shape objects, such as yi1 zhi1 mao2bi3一枝毛筆; or calculation of branches with leaves, such as yi1 zhi1 mei2hua1一枝梅花 |
| jie2節 | calculation of bamboos or sugar canes and so on with segment objects, such as yi1 jie2 zhu2zi一節竹子 or yi1 jie2 gan1zhe4一節甘蔗; or calculation of railway carriages, such as yi1 jie2 che1xiang1一節車廂 |
| zhang1張 | calculation of objects with a flat surface, such as yi1 zhang1 zhi3一張紙; or calculation of the main function of furniture is on a flat surface, such as yi1 zhang1 chuang2一張床 |
| mian4面 | calculation of flags, such as yi1 mian4 che1qi2一面旗 |
| pian4片 | calculation of small shape, such as yi1 pian4 mian4bao1一片麵包 |
| fu2幅 | calculation of paintings or calligraphic works, such as yi1 fu2 hua4一幅畫 |
| zhang4丈 | calculation of skin-shape objects, such as yi1 zhang4 bu4一丈布 |
| pian4片 | calculation of letters or telegrams, such as yi1 pian4 xin4一片信, yi1 feng1 dian4bao4一封電報 |
| zheng1幅 | calculation of pictures or testimonials or paintings, such as yi1 zhang1 hua4一幅畫 |
| duo3朵 | calculation of flowers or mushrooms, such as yi1 duo3 hua1一朵花, yi1 duo3 xiang1gu1一朵香菇 |
| ban4瓣 | calculation of petals or petals-shape objects, such as yi1 ban4 ju2zi一瓣橘子 |
| mei2枚 | calculation of round or coins-shape earcuts, such as yi1 mei2 tu2zhang1一枚圖章; or calculation of small and round objects, such as yi1 mei2 xun1zhang1一枚勳章 |
| ju4具 | calculation of corpses or cuboid objects, such as yi1 ju4 shi1ti3一具屍體 |
| guan4罐 | calculation of cylindrical objects with hollow inside, such as yi1 guan4 nai3fen3一罐奶粉 |
| pi1批 | calculation of objects stuffed like tube-shape, such as yi1 pi1 huo4一批貨 |
| dong4棟 | calculation of tools or Chinese ink sticks, such as yi1 dong4 mo4一錠墨 |

| Classifier | Description |
|---|---|
| kuai4块 | calculation of lump-shape objects, such as yi1 kuai4 zhuan1tou2—块砖头 |
| ding3顶 | calculation of objects with top, such as yi1 ding3 mao4zi—顶帽子 |
| zuo4座 | calculation of buildings, such as yi1 zuo4 tu2shu1guan3—座图书馆 ; calculation of isolated or protuberant lands, such as yi1 zuo4 shan1—座山 ; calculation of objects with a bottom, such as yi1 zuo4 jiang2bei1—座奖杯 ; calculation of large-sized chairs, such as yi1 zuo4 sha1fa1—座沙发 |
| zun1尊 | calculation of Buddhist statues, such as yi1 zun1 fo2xiang4—尊佛像 |
| wan2丸 | calculation of small and round objects, such as yi1 wan2 yao4wan2—丸药丸 |
| ke1颗 | calculation of granular objects or close to granular objects, such as yi1 ke1 zhen1zhu1—颗珍珠 |
| li4粒 | calculation of granular objects, such as yi1 li4 dan4zhu1—粒弹珠 |
| jian1间 | calculation of organizations, such as yi1 jian1 da4xue2—间大学 ; or calculation of buildings or rooms in buildings, such as yi1 jian1 xiao3mu4wu1—间小木屋, yi1 jian1 fang2jian1—间房间 |
| jia1家 | calculation of companies or organizations, such as yi1 jia1 gong1chang3—家工厂, yi1 jia1 bao4she4—家报社 |
| suo3所 | calculation of organizations, such as yi1 suo3 da4xue2—所大学 |
| zong1宗 | calculation of documents, such as yi1 zong1 wen2jian4—宗文件 ; or calculation of cargos, such as yi1 zong1 huo4wu4—宗货物 ; or calculation of incidents, such as yi1 zong1 yi4wai4—宗意外 |
| jian4件 | calculation of clothing, especially for coats, such as yi1 jian4 da4yi1—件大衣 ; or calculation of utensils, such as yi1 jian4 chui1ju4—件炊具 ; or calculation of incidents, such as yi1 jian4 yi4wai4—件意外 |
| tai2台 | calculation of machines, such as yi1 tai2 bing1xiang1—台冰箱 ; or calculation of vehicles, such as yi1 tai2 qi4che1—台汽车 |
| liang4辆 | calculation of vehicles, such as yi1 liang4 jing3che1—辆警车 |
| jia4架 | calculation of aircrafts, such as yi1 jia4 fei1ji1—架飞机 |
| sao1艘 | calculation of ships, such as yi1 sao1 chuan2—艘船 |
| zhi1只 | calculation of containers or implements, such as yi1 zhi1 wan3—只碗, yi1 zhi1 biao3—只表 |
| ba3把 | calculation of objects with handles, such as yi1 ba3 dao1—把刀 ; or calculation of objects held by hands, such as yi1 ba3 yu3san3—把雨伞 |
| bing3柄 | calculation of tools with handles, such as yi1 bing3 fu3tou2—柄斧头 |
| zhan3盏 | calculation of lights, such as yi1 zhan3 lu4deng1—盏路灯 |
| ben3本 | calculation of books, such as yi1 ben3 shu1—本书 |
| pian1篇 | calculation of complete articles, such as yi1 pian1 xiao3shuo1—篇小说 |
| ze2则 | calculation of paragraphic words, such as yi1 ze2 xin1wen2bao4dao3—则新闻报导 |
| ti2题 | calculation of questions, such as yi1 ti2 jian3da2ti2—题简答题 |
| qu3曲 | calculation of songs, such as yi1 qu3 liu2xing2ge1—曲流行歌 |
| shou3首 | calculation of poems, songs, such as yi1 shou3 shi1—首诗, yi1 shou3 er2ge1—首儿歌 |
| zhi1支 | calculation of songs or dances, such as yi1 zhi1 ge1—支歌, yi1 zhi1 wu3dao4you4—支舞土蝶 |
| chu1齣 | calculation of theatrical programs, such as yi1 chu1 xi4—齣戏 |
| dong4栋 | calculation of buildings, such as yi1 dong4 da4xia4—栋大厦 |
| fa1发 | calculation of bullets, such as yi1 fa1 zi3dan4—发子弹 |
| qi3起 | calculation of incidents, such as yi1 qi3 yi4wai4—起意外 |

Table 34 shows sixty-one true classifiers and the semantic categorizations of these sixty-one true classifiers. Each classifier starts from the lowest specific level, namely sematic meanings of each classifier, to the highest general level, namely discrete

level. Such a bottom-up form avoids the acceptable collections which are excluded in

Hu (1993).

Table 34: Sixty-one True Classifiers and Their Bottom-up Semantic Categorizations

| True Classifiers | Categorization | (Low → high) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ge個 | | | | | | | | discrete |
| kou3口 | | | | | | | | |
| tiao2條 | | | | | | | | |
| zhi1隻 | | | | | | | | |
| ming2名 | | | | | | | human | |
| yuan2員 | | | | | | | | |
| jie4介 | | | | | | | | |
| wei4位 | | | | | | honor | | |
| wei3尾 | | | | | tail | animate | non-human | |
| tou2頭 | | | | | large | | | |
| pi1匹 | | | | | riding | | | |
| ke1棵 | | | | | plant | inanimate | | |
| dian3點 | | | | dot-shape | shape | | | |
| gen1根 | | | long | one-dimension | | | | |
| zhi1枝 | | rigid | | | | | | |
| jie2節 | segment | | | | | | | |
| zhang1張 | | | flat | two-dimension | | | | |
| mian4面 | | | | | | | | |
| ye4葉 | | thin | | | | | | |
| fu2幅 | | | | | | | | |
| pian4片 | | | | | | | | |
| feng1封 | word | | | | | | | |
| zheng4幀 | pattern | | | | | | | |
| duo3朵 | flower-shape | | | | | | | |
| ban4瓣 | petal-shape | | | | | | | |
| mei2枚 | | | | three-dimension | | | | |
| ju4具 | | | long | | | | | |
| guan3管 | | hollow | | | | | | |
| juan3卷 | | tube-shape | | | | | | |
| ding4錠 | | | flat | | | | | |
| kuai4塊 | | | | | | | | |
| ding3頂 | | top | | | | | | |
| zuo4座 | | bottom | | | | | | |
| zun1尊 | | | | | | | | |
| wan2丸 | | small | round | | | | | |
| ke1顆 | | | granular | | | | | |
| li4粒 | | | | | | | | |
| jian1間 | | | | | function | | | |
| jia1家 | | | | | | | | |
| suo3所 | | | | | | | | |
| zong1宗 | | | | | | | | |
| jian4件 | | | | | | | | |
| tai2台 | | | | | | | | |
| liang4輛 | | | land | transport | | | | |
| jia4架 | | | air | | | | | |
| sao1艘 | | | water | | | | | |
| zhi1只 | | | | utensil | | | | |
| ba3把 | | | | | | | | |
| bing3柄 | | | handle | | | | | |
| zhan3盞 | | | light bulb | | | | | |
| ben3本 | | | | read | | | | |
| pian1篇 | | complete | content | | | | | |
| ze2則 | | paragraphic | | | | | | |
| ti2題 | | query | | | | | | |
| qu3曲 | | | | perform | | | | |
| shou3首 | | | | | | | | |
| zhi1支 | | | | | | | | |
| chu1齣 | | | play | | | | | |
| dong4棟 | | | | shelter | | | | |
| fa1發 | | | | number | | | | |
| qi3起 | | | | incident | | | | |

Figure 8 uses a tree diagram to express the bottom-up semantic categorization of

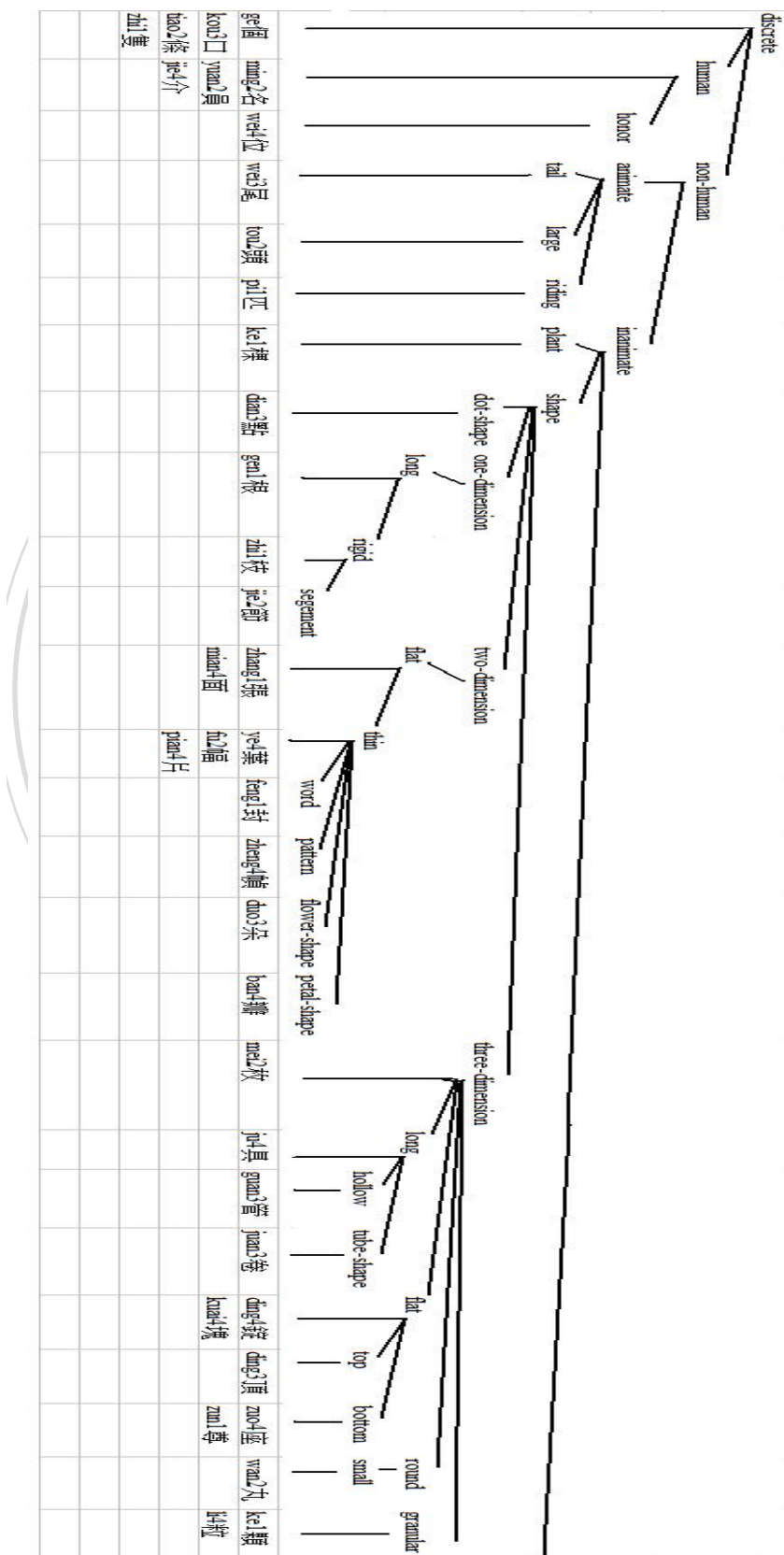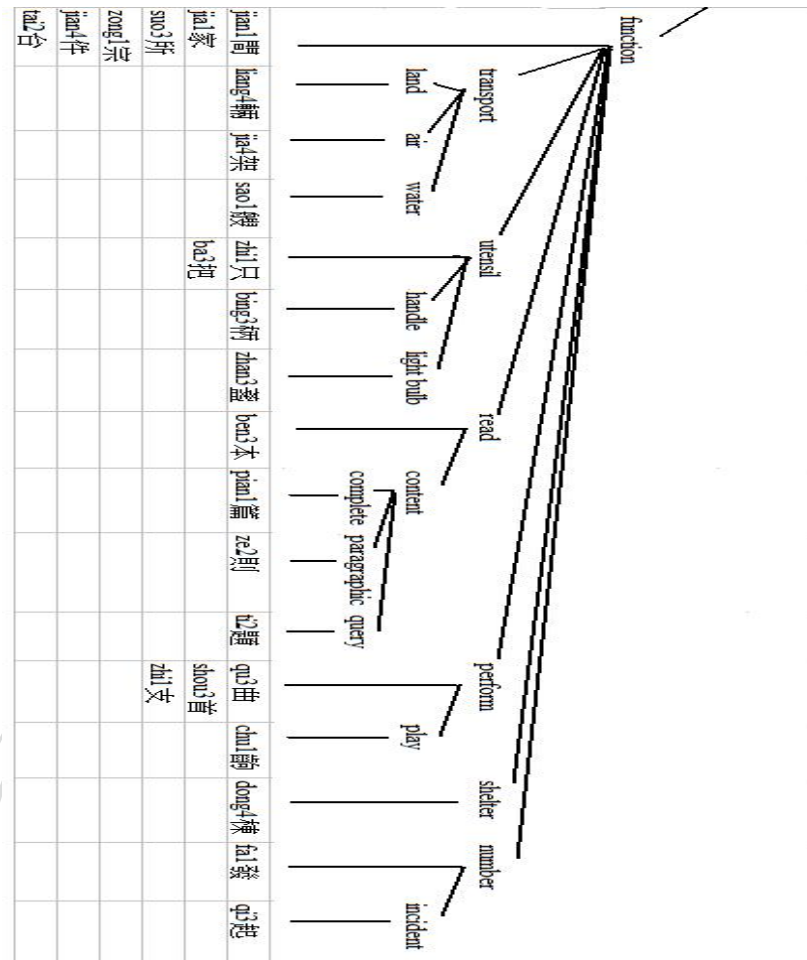sixty-one true classifiers.



Figure 8: A bottom-up Semantic Categorization of True Classifiers

In Figure 8, classifiers are identified first, and then higher-level are inferred from the lower level, namely classifiers. If classifiers have the similar features, they are categorized in the same category. And this thesis gives the category a name on the basis of the shared semantic features. If classifiers do not have the similar features, they will be an isolated category. And this thesis will also give the isolated category a name on the basis of the semantic feature of classifiers. In Figure 8, the name of these categories including human, non-human, animate, inanimate, shape, and function, are adopted from Allan (1977) and Hu (1993). The remaining names of categories are given according to the inferences that can be made as to the semantic

features of each classifier or shared semantic features of classifiers.

In shape category, this thesis adopts the opinion of Tai (1992) that longness, flatness and roundness and one dimensional, two dimensional and three dimensional are both needed in order to adequately describe the salient cognitive features. Thus, longness, flatness and roundness and one dimensional, two dimensional and three dimensional are used to classify these true classifiers. Finally, Figure 8 shows a tree diagram with the bottom-up form which is quite different from that of a top-down form. The tree diagram is metaphorical in that is like a fallen down tree with the highest general level, namely discrete level, as the roots of a tree and with the lowest specific level, namely classifiers, as the leaves of a tree. This bottom-up semantic categorization not only solves the defects that observed in Hu (1993) top-down semantic categorization but also provides an explicit semantic categorization of Mandrain Chinese classifiers.

# CHAPTER V

# CONCLUDING REMARKS

In this chapter, the summary of the thesis will be presented in Section 5.1. Then

the directions for future study will be pointed out in Section 5.2.

## 5.1 Summary of the Thesis

The core aim of this thesis is to re-classify Mandarin Chinese classifiers

categorizations by means of four tests based on linguistic theories.

The first part of the analysis rests on re-classifying five Mandarin Chinese

classifier categorizations proposed by representative studies, such as Chao (1968),

Erbaugh (1986), Hu (1993), Huang et. al. (1997) and Gao and Malt (2009). The

Mandarin Chinese classifier categorizations proposed by Chao (1968), by Erbaugh

(1986), by Hu (1993), by Huang et. al. (1997) and by Gao and Malt (2009) are

individually re-classified into three portions, a classifier portion, a *Xc* and *Xm* portion

and a measure word portion. Placement in the classifier portion represents that a

word is a classifier. The *Xc* and *Xm* portion is offered from morphology to show the

classifications of ambiguous classifiers. *Xc* stands for an ambiguous classifier

functioning as a classifier and *Xm* stands for an ambiguous classifier functioning as a measure word. The measure word portion is used to represent that a word belongs to a measure word, rather than a classifier. Furthermore, three portions can be further simplified into two categories, one is classifier category and the other is measure word category. Both the classifier portion and *Xc* portion belong to the classifier category while both the measure word portion and *Xm* portion belong to the measure word category. As a result, five groups of classifier portion and five groups of measure word portion are given through re-classifying five Mandarin Chinese classifier categorizations. Because the focus of this thesis is Mandarin Chinese classifiers, the following investigations are made using the five groups of classifier portion.

In the second part, the major task is to offer a group of true classifiers which are definite classifiers in Mandarin Chinese. In five groups of classifier portion provided in the first part, the intersection method in mathematics was used to find twenty-two core classifiers and the union method in mathematics was used to find ninety non-core classifiers. Twenty-two core classifiers are definitely true classifiers while it is possible, but not definite that the ninety non-corel classifiers may be true classifiers. In order to know the possibility for the non-core classifiers to become definitely true classifiers, a questionnaire experiment on identifying classifiers was carried out. Due to the stipulation that only test items with a 100% identification as a

classifier are true classifiers in this experiment, there were totally thirty-nine test items that are definitely true classifiers. Finally, both the twenty-two core classifiers and thirty-nine non-core classifiers are grouped together as sixty-one true classifiers in Mandarin Chinese.

In the third part, sixty-one true classifiers are further classified according to their semantic meanings from the *Mandarin Daily Dictionary of Chinese Classifiers* (Huang et. al. 1997) in the bottom-up form because there are some defects in the traditional top-down semantic categorization. In the bottom-up semantic categorization of Mandarin Chinese classifiers, each classifier is given a brief description of its semantic meanings. Also each classifier starts from the lowest specific level to the highest general level to form a tree diagram. This bottom-up semantic categorization not only solves the defects in top-down semantic categorization but also provides an explicit semantic categorization of Mandarin Chinese classifiers.

To sum up, this thesis offers sixty-one strongly-confirmed true classifiers in Mandarin Chinese by means of four consentient linguistic norms, two mathematical methods and a questionnaire experiment. A bottom-up semantic categorization consisting of these sixty-one true classifiers offering an explicit semantic categorization was then derived.

## 5.2 Issues for Future Study

Noting the discrepancies in the different inventories of Mandarin Chinese classifiers, this thesis offers a group of sixty-one true classifiers as definite classifiers in Mandarin Chinese. However, several issues remain unexplored. First of all, use statistics to analyze the result of the questionnaire experiment. The differences and the relations of the percentage of the three options in the questionnaire experiment can precisely explained through using statistics.

Second, there is the question as to whether these sixty-one true classifiers are also definite classifiers in other dialects such Taiwan Southern Min or Hakka. If these sixty-one true classifiers can also be identified as true classifiers in other dialects, these sixty-one true classifiers may be cross-linguistically approved as definitely true classifiers. If these sixty-one true classifiers do not all occur in other dialects, the classifier systems of different dialects are inferred to have cross-linguistical differences. Noticing, the language backgrounds of subjects have to be the same because the different language backgrounds may have an impact on the results.

Finally, there is an implication for these sixty-one true classifiers in the teaching Chinese as second language. As these sixty-one classifiers are definitely true classifiers, a list of these sixty-one classifiers will provide a norm for teachers when teaching classifiers and measure words and also help students to understand classifiers more easily.

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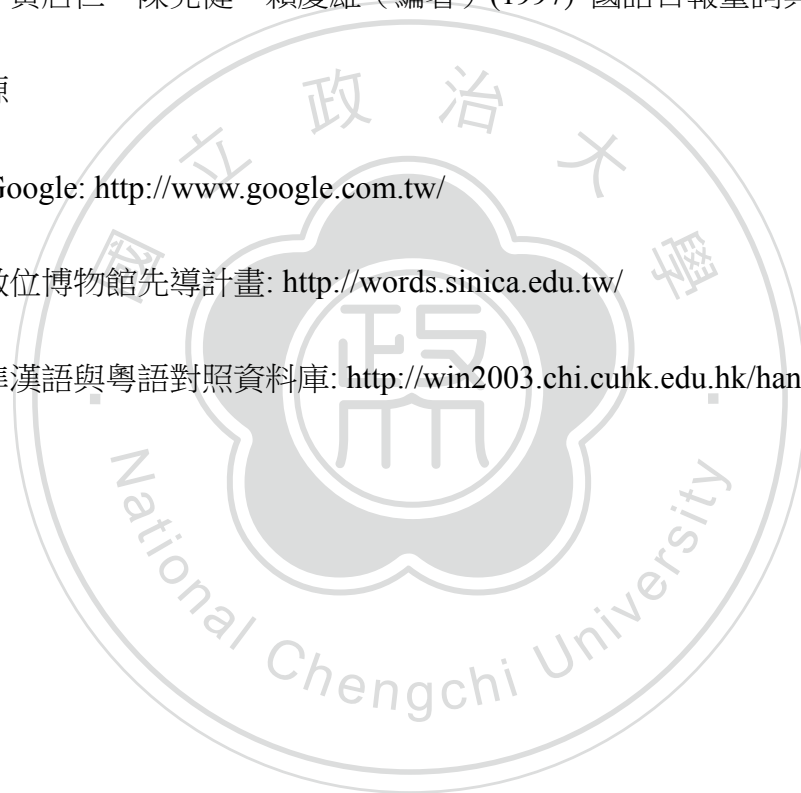
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網路資源

Taiwan Google: http://www.google.com.tw/

國科會數位博物館先導計畫: http://words.sinica.edu.tw/

現代標準漢語與粵語對照資料庫: http://win2003.chi.cuhk.edu.hk/hanyu/

# APPENDIX A

## Pre-test of Questionnaire Experiment

分辨分類詞 (classifier) 和量詞 (measure word)

簡述分類詞(以下簡稱 C)和量詞(以下簡稱 M)：

分類詞和量詞出現的位置為[ Numeral C/ M Noun]

分類詞具有 ：× 1 的概念

如：'顆'，'位'，'條' 為典型分類詞。

一顆西瓜 ＝ 一 × 1 西瓜 ＝ 一西瓜 的意思

一位老師 ＝ 一 × 1 老師 ＝ 一老師 的意思

二條繩子 ＝ 二 × 1 繩子 ＝ 二繩子 的意思

量詞具有:非 × 1 的概念

如：'對'，'打' 為典型量詞

一對魚 ≠ 一 × 1 魚 ≠ 一魚;而是,一對魚 ＝ 一 × 2 魚 ＝ 二魚

二打餅 ≠ 二 × 1 餅 ≠ 二餅;而是,二打餅 ＝ 二 × 12 餅 ＝ 二十四餅

分類詞具有: 可以被 '個' 取代，而不會改變片語本身的意思。

但並非所有分類詞都能被 '個' 取代，例如典型分類詞 '本'，'條' 等等則是例外。

如：'顆'，'位'，'條' 為典型分類詞

一顆西瓜 ＝ 一個西瓜 ＝ 一西瓜 的意思

二位老師 ＝ 二個老師 ＝ 二老師 的意思

上述提到並非所有分類詞都能被 '個' 取代的例子如下：

?二條繩子 ＝ 二個繩子 (? 表示此例子不太可接受)

?一本書 ＝ 一個書 (? 表示此例子不太可接受)

量詞具有:不可以被 '個' 取代 。

如：'對'，'打' 為典型量詞

一對魚 ≠ 一個魚 ≠ 一魚;而是,二魚。

二打餅 ≠ 二個餅 ≠ 二餅;而是,二十四餅。

在[ Numeral C/ M Noun] 中,

分類詞不允許和名詞中間插入 '的'。

如：'顆'，'位'，'本' 為典型分類詞

一顆西瓜 ＊一顆的西瓜

一位老師 ＊一位的老師

二本書 ＊二本的書

量詞允許和名詞中間插入'的'。

如:'對','打'為典型量詞

一對夫妻　　一對的夫妻

二打雞蛋　　二打的雞蛋

請利用上述分類詞及量詞的概念,分析以下例子。

如果您認為是分類詞,請圈選 C; 如果您認為是量詞,請圈選 M;

如果您認為分類詞和量詞都有可能,請圈選　O,並說明其歧義現象,分類詞表示之義為何,量詞表示之義為何。

例如: '一把刀' 具有分類詞概念和量詞概念。分類詞概念為'a knife',

量詞概念為'a handful of knives'。

| No. | Test Items | Examples | Options | No. | Test Items | Examples | Options |
|---|---|---|---|---|---|---|---|
| 1 | ding3 頂 | 一頂草帽 | C M O | 14 | zhang1 張 | 一張床 | C M O |
| 2 | gen1 根 | 一根頭髮 | C M O | 15 | zhi1 枝 | 一枝鉛筆 | C M O |
| 3 | ge 個 | 一個人 | C M O | 16 | kuai4 塊 | 一塊肉 | C M O |
| 4 | jia4 架 | 一架飛機 | C M O | 17 | pian4 片 | 一片樹葉 | C M O |
| 5 | jian4 件 | 一件毛衣 | C M O | 18 | chuan4 串 | 一串佛珠 | C M O |
| 6 | ke1 棵 | 一棵松樹 | C M O | 19 | dui1 堆 | 一堆土 | C M O |
| 7 | li4 粒 | 一粒紅豆 | C M O | 20 | hang2 行 | 一行柳樹 | C M O |
| 8 | liang4 輛 | 一輛警車 | C M O | 21 | lie4 列 | 一列駱駝 | C M O |
| 9 | pi1 匹 | 一匹馬 | C M O | 22 | qun2 群 | 一群朋友 | C M O |
| 10 | shou3 首 | 一首兒歌 | C M O | 23 | shuang1 雙 | 一雙鞋 | C M O |
| 11 | sao1 艘 | 一艘船 | C M O | 24 | shu4 束 | 一束鮮花 | C M O |
| 12 | tou2 頭 | 一頭大象 | C M O | 25 | tao4 套 | 一套餐具 | C M O |
| 13 | zhi1 隻 | 一隻貓 | C M O | 26 | zu3 組 | 一組人員 | C M O |

為求實驗正確性,請受試者保密不要透露內容讓其他受試者或潛在受試者知道。

# APPENDIX B

## Formal Test of Questionnaire Experiment

| No. | Test Items | Examples | Options | No. | Test Items | Examples | Options |
|---|---|---|---|---|---|---|---|
| 1 | ban1 班 | 一班飛機 | C　M　O | 46 | mu4 幕 | 一幕情景 | C　M　O |
| 2 | ban4 瓣 | 一瓣花瓣 | C　M　O | 47 | pan2 盤 | 一盤棋 | C　M　O |
| 3 | bi3 筆 | 一筆收入 | C　M　O | 48 | pian1 篇 | 一篇文章 | C　M　O |
| 4 | bing3 柄 | 一柄斧頭 | C　M　O | 49 | qi2 畦 | 一畦稻田 | C　M　O |
| 5 | bu4 部 | 一部書 | C　M　O | 50 | qi3 起 | 一起意外 | C　M　O |
| 6 | ce4 冊 | 一冊書 | C　M　O | 51 | qu3 曲 | 一曲流行歌 | C　M　O |
| 7 | chang3 場 | 一場音樂劇 | C　M　O | 52 | que4 闋 | 一闋古詞 | C　M　O |
| 8 | chu1 齣 | 一齣歌舞劇 | C　M　O | 53 | ren4 任 | 一任總統 | C　M　O |
| 9 | chu4 處 | 一處傷口 | C　M　O | 54 | shan4 扇 | 一扇門 | C　M　O |
| 10 | chuang2 床 | 一床棉被 | C　M　O | 55 | sheng1 聲 | 一聲尖叫 | C　M　O |
| 11 | chuang2 幢 | 一幢樓房 | C　M　O | 56 | suo1 梭 | 一梭子彈 | C　M　O |
| 12 | dang3 檔 | 一檔股票 | C　M　O | 57 | suo3 所 | 一所大學 | C　M　O |
| 13 | dao4 道 | 一道磚牆 | C　M　O | 58 | tai2 台 | 一台電視 | C　M　O |
| 14 | dian3 點 | 一點硃砂痣 | C　M　O | 59 | tang4 趟 | 一趟火車 | C　M　O |
| 15 | ding4 錠 | 一錠元寶 | C　M　O | 60 | ti2 題 | 一題選擇題 | C　M　O |
| 16 | dong4 棟 | 一棟大樓 | C　M　O | 61 | ting3 挺 | 一挺機槍 | C　M　O |
| 17 | dong4 洞 | 一洞橋 | C　M　O | 62 | tong1 通 | 一通電話 | C　M　O |
| 18 | du3 堵 | 一堵牆 | C　M　O | 63 | wan1 彎 | 一彎明月 | C　M　O |
| 19 | duo3 朵 | 一朵玫瑰 | C　M　O | 64 | wan1 灣 | 一灣流水 | C　M　O |
| 20 | fa1 發 | 一發子彈 | C　M　O | 65 | wan2 丸 | 一丸藥丸 | C　M　O |
| 22 | fang1 方 | 一方印章 | C　M　O | 66 | wei3 尾 | 一尾魚 | C　M　O |
| 21 | fen4 分 | 一分報告 | C　M　O | 67 | xi2 席 | 一席董事 | C　M　O |
| 23 | fen4 份 | 一份報告 | C　M　O | 68 | xi2 襲 | 一襲薄紗 | C　M　O |
| 24 | feng1 封 | 一封信 | C　M　O | 69 | xian4 線 | 一線車道 | C　M　O |
| 25 | fu2 幅 | 一幅畫 | C　M　O | 70 | xing1 星 | 一星油 | C　M　O |
| 26 | gan3 桿 | 一桿槍 | C　M　O | 71 | yan3 眼 | 一眼井 | C　M　O |
| 27 | guan3 管 | 一管毛筆 | C　M　O | 72 | yie4 葉 | 一葉扁舟 | C　M　O |
| 28 | ji4 劑 | 一劑強心劑 | C　M　O | 73 | yuan2 員 | 一員大將 | C　M　O |
| 29 | ji4 記 | 一記右勾拳 | C　M　O | 74 | ze2 則 | 一則笑話 | C　M　O |
| 30 | jian1 間 | 一間書店 | C　M　O | 75 | zhan3 盞 | 一盞燈 | C　M　O |
| 31 | jia1 家 | 一家公司 | C　M　O | 76 | zhan4 站 | 一站距離 | C　M　O |
| 32 | jie4 介 | 一介書生 | C　M　O | 77 | zhao1 招 | 一招策略 | C　M　O |
| 33 | jie4 節 | 一節車廂 | C　M　O | 78 | zheng4 幀 | 一幀結婚照 | C　M　O |
| 34 | jing1 莖 | 一莖白髮 | C　M　O | 79 | zhi1 支 | 一支歌 | C　M　O |

| 35 | ju4 句 | 一句口號 | C M O | 80 | zhi1 只 | 一只酒罈 | C M O |
|---|---|---|---|---|---|---|---|
| 36 | ju4 具 | 一具屍體 | C M O | 81 | zhi1 支 | 一支樹枝 | C M O |
| 37 | juan3 卷 | 一卷錄音帶 | C M O | 82 | zhi3 紙 | 一紙切結書 | C M O |
| 38 | kou3 口 | 一口井 | C M O | 83 | zhou2 軸 | 一軸畫 | C M O |
| 39 | long3 壟 | 一壟田 | C M O | 84 | zhu1 株 | 一株櫻花 | C M O |
| 40 | lü3 縷 | 一縷線 | C M O | 85 | zhu4 柱 | 一柱電線杆 | C M O |
| 41 | lun2 輪 | 一輪明月 | C M O | 86 | zhu4 炷 | 一炷香 | C M O |
| 42 | mei2 枚 | 一枚獎章 | C M O | 87 | zhuang1 樁 | 一樁意外 | C M O |
| 43 | men2 門 | 一門大砲 | C M O | 88 | zong1 宗 | 一宗意外 | C M O |
| 44 | mian4 面 | 一面鏡子 | C M O | 89 | zun1 尊 | 一尊佛像 | C M O |
| 45 | ming2 名 | 一名學生 | C M O | 90 | zuo4 座 | 一座山 | C M O |

為求實驗正確性，請受試者保密不要透露內容讓其他受試者或潛在受試者知道。
謝謝您參與本問卷 !!

# APPENDIX C

## A Semantic Categorization of Mandarin Chinese Classifier (Hu 1993)

A Semantic Categorization of Mandarin Chinese classifiers (Hu 1993)