



第22屆北美漢語語言學會 ❖ 第18屆國際中國語言學學會

Ptqeggf kpi u'qh'yj g 22<sup>pf</sup> "Nqtvj Ao gtlkcp Cqphgtgpeg  
qp'Ej kpgug Lkpi wku<sup>eu</sup>\*P CEEN/44+"cpf 'yj g 18<sup>yj</sup>  
Appwcn'Mggkpi "qh'yj g IpvgtpcvkqpcnAuudekcvkqp"qh  
Cj kpgug'Lkpi wku<sup>eu</sup>(IACL-18)

Vqnxo g 3

Edited by  
Lauren Eby Clemens and Chi-Ming Louis Liu

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Proceedings of the 22<sup>nd</sup> North American Conference on Chinese Linguistics (NACCL-22) and the  
18<sup>th</sup> the International Association of Chinese Linguistics (IACL-18)

Volume 1/edited by Lauren Eby Clemens and Chi-Ming Louis Liu

*Published by:*

Harvard University  
Cambridge, Massachusetts  
USA

*Distributed by:*

NACCL Proceedings Online  
Department of East Asian Languages and Literatures  
398 Hagerty Hall  
1775 College Road  
The Ohio State University  
Columbus, Ohio  
USA

URL: <http://naccl.osu.edu>

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## Editorial preface

The joint meeting of the 18<sup>th</sup> International Association of Chinese Linguistics (IACL-18) and the 22<sup>nd</sup> North American Conference on Chinese Linguistics (NACCL-22) was organized and hosted by Harvard University on May 20-22, 2010.

A total of 202 presentations by 252 researchers were given by researchers in the field, including talks from the following 10 invited speakers: Wolfgang Behr, Yang Gu, Jie Guo, Shoji Hirata, Hsin-I Hsieh, Shaoyu Jiang, Thomas Hun-Tak Lee, Paul Jen-Kuei, Li Jianming Lu, and Tsu-Lin Mei. The conference was further enhanced by keynote addresses given by 4 renowned scholars: Anthony Kroch, Y.-H. Audrey Li, Yen-Hwei Lin and Pang-Hsin Ting.

The presenters traveled from Japan, Hungary, Germany, Switzerland, Taiwan, and all over North American and China to Cambridge, Massachusetts to participate in the event. The diversity of topics was vast: researchers presented their work on synchronic and diachronic analysis of core linguistic subfields: phonetics, phonology, syntax, semantics and pragmatics. There were presentations on first and second language acquisition, as well as interdisciplinary work from the fields of sociolinguistics, dialectology, psycholinguistics and neurolinguistics.

These Conference Proceedings include 61 papers presented during the conference divided into two volumes. Volume 1 consists of six parts: Applied Linguistics; Diachronic Linguistics; Language Acquisition; Morphology; Phonetics and Phonology; and Psycholinguistics. Volume 2 consists of two parts: Semantics and Pragmatics; and Syntax.

On behalf of the many people involved in the organization of IACL-18 & NACCL-22, our sincere thanks to the many researchers who made this enriching event possible.

Sincerely,

C.-T. James Huang, Ph.D (host)  
Lauren Eby Clemens (proceedings editor)  
C.-M. Louis Liu (proceedings editor)

April, 2012  
Cambridge, Massachusetts

## Acknowledgements

The joint meeting of the 18th International Association of Chinese Linguistics (IACL-18) and the 22nd North American Conference on Chinese Linguistics (NACCL-24) was organized by Harvard University's Department of Linguistics and Department of East Asian Languages and Civilizations. We are grateful to the following sponsors for the generous way they supported our conference:

Chiang Ching-Kuo Foundation for International Scholarly Exchange  
Harvard-Yenching Institute  
Fairbank Center for Chinese Studies  
Department of East Asian Languages and Civilizations  
Chinese Language Program of EALC  
Asia Center, Harvard University  
Haide Foundation  
Cultural Division, Taipei Economic and Cultural Office

We would also like to acknowledge the Beijing Language and Culture University Press, Cambridge University Press, Commercial Press, and Peking University Press for their book donations.

Special thanks to the many researchers who together read and rated the hundreds of abstracts that were submitted to the conference.

Finally, thank you to Rose Cortese, Shengli Feng, Emily Huang and the other members of the organizational committee. Thank you also to the Harvard University student volunteers for organizational support.

Sincerely,

C.-T. James Huang, Ph.D (host)  
Lauren Eby Clemens (proceedings editor)  
C.-M. Louis Liu (proceedings editor)

April, 2012  
Cambridge, Massachusetts

## 從方言接觸看同義並列式的詞彙化

鄭縈、游孟庭  
新竹教育大學

本文方言間重複義時間副詞的比較，探討並列式複合詞形成的機制。臺灣閩客方言中多音節詞是方言密切接觸過程中，共同語的「又」、「再」與原有的「閣/過」因同義聯想機制促使新舊詞語結合，形成同義並列複合詞。臺灣共同語「又」、「再」連用時，「又再」可分為兩種：一是同義並列；一是連詞+重複義副詞，不屬於同一句法層次。

### 1. 前言

#### 1.1 緣起

董秀芳（2002）、劉承慧（2003）、丁喜霞（2005）等曾從歷時角度探討漢語並列式複合詞的形成過程，前者主張並列式複合詞(包括同義、反義或近義)的形成，往往是經由句法層面中個別單詞使用的自由組合(即詞組)，到固定的詞彙單位的演變過程；劉承慧（2003）由歷時材料考量複合詞的形成與來源，認為古漢語並列複合詞與其他類複合詞的形成方式有所不同，並列式是從並列複合所衍生的同義、近義並列複合詞，而其他類(如偏正、述賓式等)是從複合詞組演變的同形複合詞；丁喜霞（2005）則進一步主張同義並列雙音詞的成詞途徑與其他類並列式不同，其構成模式是基於語義聯想，把兩個同義單音詞並聯在一起構成的，無需經過詞組的階段。簡言之，針對同義的並列式複合詞的形成有兩種不同的主張：(一)是從句法到詞的詞彙化結果、(二)是直接構詞而來，前者認為同素異序現象是在詞組階段出現，詞彙化開始後詞序就固定了，所以詞序固定為判斷是否成詞的一個重要條件。這些研究也歸納出一些共同點：如採用歷時研究的方法(以古漢語為主)，從語言內部演變(古今變化)角度著眼，及分析的材料以實詞為主等。對這些研究中，有幾個問題值得進一步思考：如同義的並列式複合詞的來源是否可能受到語言接觸的影響？是

否可以採用共時的角度？討論的對象是否包括虛詞(如副詞)？

重複義副詞是用來表示一個動作(或狀態)重複或相繼發生，如現代漢語副詞「又」、「再」都表示同一動作、行為的重複或繼續，其中「又」多指已實現的動作，而「再」多指未實現或經常性的動作，底下例句及括弧內說明引自高林波、張維微(2008:39)：

- (1)a. 我又跑了一圈(重複動作的已完成狀態)  
 b. 我再跑一圈(動作的將要重複)

上述「又」(多指已實現的動作)與「再」(多指未實現或經常性的動作)的用法，可對應到閩南語口語中的「閣」和客家話口語中的「過」：

共同語	閩南語	客家話
他昨天 <u>又</u> 來了	伊昨昏 <u>閣</u> 來啊	佢昨晡日 <u>過</u> 來
他明天會 <u>再</u> 來	伊明仔載會 <u>閣</u> 來	佢韶早會 <u>過</u> 來

但是我們也可以看到閩南語的「閣」和客家話的「過」也出現其他變體。以閩南語為例，在臺灣閩南語常用詞辭典中還可以查到「又」、「再」、「又閣」、「閣再」等詞也都是重複義副詞。但是仔細觀察辭典中的例子，「又」、「再」的用法較偏向書面語或共同語，因此我們自然而然會推測「又」、「再」是借自共同語，而「又閣」、「閣再」則是「又」、「再」與「閣」混合而成的。因為臺灣地狹人稠，且通行多種方言，在這樣的語言環境下，方言之間接觸自然頻繁密切，尤其共同語在臺灣十分強勢，對閩南語勢必有所影響。客家話的情形也大致相同，閩南語和客家話的對應相當整齊(鄭綦 2009)，如下所示：

閩南語	客家話
閣/又/再	過/又/*再
又閣	又過
閣再	再過
又閣再	又再過

上表引發我們思考下列問題：閩南語和客家話中，單音節的「又」、「再」與共同語是同源關係或借詞？雙音節或三音節詞是詞彙化的結果或是直接構詞而來的？閩南語「閣」與「再」結合時，其詞序為何與「又閣」不同？閩南語的「閣再」與客家話的「再過」是否為同素異序現象？另外，學者也注意到共同語「又」與「再」的連用，或主張「又」與「再」是句法上不同層次(高林波、張維微 2008)，或主張是具有加強作用的複合詞(劉建華 2007)。就前者而言，這些連用的重複義副詞是否仍



為並列式？若是後者，是否直接構詞？這些問題本文\*都將加以探討。本文內容除了前言與結語外，第二、三節分別說明閩客方言中的「又、再」是經過方言接觸(與共同語)而來的借詞，與原來有「閣」、「過」因同義聯想而直接複合成詞。文中例句除了引用文獻內的例子外，臺灣共同語以中研院的平衡語料庫為主，閩南語與客家話的例子分別使用台語文語料庫與行政院客委會的認證語料。

## 2. 閩客方言中的「又、再」與方言接觸

前言中，我們可以看到閩客方言中的重複義副詞有「又」、「再」與「閣」或「過」，底下先釐清「閣」或「過」的本字為何，接著再討論閩客方言中的「又、再」與共同語是同源詞或是借詞。

### 2.1 閩南語「閣」和客家話「過」的本字

根據楊秀芳(2004)的考證，閩南語「閣」的本字為「故」，文中一方面從歷史演變的角度討論動詞「故」到時間副詞的演變過程，另一方面，從閩次方言的比較來看「故」的所有副詞用法。「故」從表使為之也的動詞到時間副詞的語義發展途徑可以簡化如下例(2)：

- (2) 使為之也→使「所得」為之，以致於「成」→回頭去看事件的根源→(a)  
依循事件的根源而延續其狀態→仍然  
→(b)讓過去的動作或事件重複出現→再次

歷史上雖然「故」發展出這些副詞用法(參漢語大字典)，但是共同語中的「故」只有仍然義，並未如閩南語一般產生再次義，也就是「故」並未發展為重複義的時間複詞。閩南語「故」從實詞到虛詞的同時，語音也從 koo5 變為 koh7，因為這樣的語音變化太大，後來的人無法辨識其本字，因此出現「閣」、「擱」、「恪<sup>1</sup>」、「復」、「更」等文字表示 koh，其中「閣」、「擱」、「恪」是因音近而借，而「復」、「更」則是借其義。「故」的讀音從 koo 去聲到 koh 入聲是一種弱化，與其語法化有關。此例顯示語義的虛化(或稱漂白 bleaching)伴隨著語音的弱化(phonological reduction) (Bybee et al. 1994:6)。

客家話重複義副詞「過」的用法與閩南語「閣」有頗多相似之處，我們可以判

\* 本文的寫作受到國科會(計畫名稱「臺灣閩客方言時間表達範疇調查與比較(NSC 98-2410-H-134-019-)及客委會(計畫名稱「四溪流域客語特徵詞調查 II」98-0399-06-0504-03~)的補助，謹在此致上謝意。

<sup>1</sup> 見於《廈門方言詞典》，其他用字可見於教育部的臺灣閩南語常用詞辭典。

斷「過」也應當來自「故」，底下依據楊秀芳(2004)的討論，將閩南語「閣」各種副詞的語義及其語法特點與客家話做一對照，如下表一：

表一 閩南語「閣」與客家話「過」的副詞用法比較

語義	語法特點	閩南語	客家話
仍然	後接動詞，表示這個動作仍然持續在進行中	故著笑(還在笑)	(過) <sup>2</sup>
再次	修飾動作動詞以表示動作的重複性，動作重複發生在「過去」	伊故跋倒矣(他又跌倒了)	又/又過
	修飾動作動詞以表示動作的重複性，動作的重複發生在「未來」	汝故去一逝(你再去一趟)	過/再過
表現積極進取的態度	常組合為「故較」，表示「無論如何累增」	故較好額也無路用(再怎麼富有也沒用)	又較/又過較/過較/再過較
又...又...	連接詞，用來連接並列的特徵或動作，表達並列諸項的皆取	(1) 端正故得儂痛(長得(又)端正又討人疼惜) (2) 房間故清氣故大間	(1) 又/又過/過 (2) 又...又...
竟然		伊故真有辦法哦(他還真是很有辦法哦)	—

就上表來看，「閣」與「過」的用法大致相當，語音又相近，兩者的本字都應該是「故」，但是在教育部的《閩南語常用詞辭典》、《客家語常用詞辭典》或行政院客委會的認證語料庫中分別寫作「閣」與「過」，因此底下的討論仍以俗寫字為主，不採用本字。另外，《台灣閩南語常用辭典》只記錄「閣」的副詞用法，如「伊閣來矣」；湯廷池(1999)討論「(又)閣...(又)閣...<sup>3</sup>」的意義與用法時，把「(又)閣...(又)閣...」分析為「連接副詞<sup>4</sup>」，而「(又)閣...(又)閣...」的第一個連接成分可以省略成為「...(又)閣...」。但是在客家話中，「又/又過/過」單用時可以連接兩項並列，只有「又」可

<sup>2</sup> 有的發音人認為可以用「過」，有的不同意，故以括弧表示。

<sup>3</sup> 文中「又閣」寫做「猶閣」。

<sup>4</sup> 呂叔湘(2004)則認為「(又)…又…」是副詞；「(又)閣…(又)閣…」的詞類究竟應該分析為副詞或連詞非本文主題，故不在此加以討論。

以合用，形成「又...又...」句式，而「又過/過」則不可(\*「(又)過...(又)過...」)。相較之下，閩南語「又」的用法比較單純，只能表示重複發生在「過去」的動作，也沒有「又...又...」的句式；同時在口語中，「又」、「再」較少聽到有人使用，往往出現在書面語或較文言的詞語中，如：「盤山過了又落嶺」、「一錯再錯」、「再世」，少見單獨使用。這一點顯示「又」、「再」並非閩南語本土詞，可能是受到共同語影響而借進來的，底下我們將討論其來源。

## 2.2 閩客方言「又」、「再」的來源

以往方言研究著墨較多的是語音部分(即文白讀)，但是有學者從方言接觸的角度看待文白讀，如王福堂(2010:9)提到：「漢語方言字音存在文白異讀，其中口語音是方言原有的，讀書音借自異方言。這一看法目前已經成為共識。」此處異方言通常是強勢方言，也就是共同語(臺灣稱為國語)。至於方言之間詞彙是否有移借現象則較少提及，張屏生、呂茗芬(2006)針對客家話中閩南語借詞加以分類，主要是依照借詞與原來閩南語的語音或詞形(即用字)的不同變化方式進行分類，而且所舉的例子皆以實詞(包括名詞、動詞等)為主。鄭縈(2009)則觀察到名詞之外，時間副詞也可能出現借用現象，形成另一種文白關係，此處將進一步舉出例證加以說明。

目前未見閩南語或客語有關重複義副詞的研究，但是學者對共同語「又」與「再」的異同有頗多討論，如呂叔湘(2004)、劉建華(2007)等，這些有助於我們對閩客方言重複義副詞的了解，因此底下先整理「又」與「再」的幾個重要特點，分別簡述如下：

### (一) 又

「又」的用法大致可分三個方面：

- 1) 表示一個已然的动作(狀態)重複發生，經常伴隨完成體助詞「了」出現；兩個動作(狀態)相繼發生或反復交替。例句分別如下：
  - (3) 這個人昨天來過，今天又來了 -- 一個已然的动作(狀態)重複發生
  - (4) 看完了上冊，又去借下冊 -- 兩個動作(狀態)相繼發生
  - (5) 裝了又拆，拆了又裝 -- 兩個動作(狀態)反復交替，其句式為「A了又B，B了又A」

「又」與情態動詞(即助動詞)「要、會」等共現，表示將要發生的事。一般來說，情態動詞出現於「又」之後：

- (6) 有時明明走出了一大步，卻又得往後退回大半步。-- 「又+情態動詞」
- 2) 表示幾個動作、狀態、情況累積在一起，與時間無關，例如：這孩子又會寫

又會算。

3) 「整數+又+零數」的結構中，表示相加，例如：一年又五個月。

4) 表示語氣，例如：他又不會吃人，你怕什麼。

(二) 再

1) 表示一個動作或狀態重複或繼續，多指未實現的或經常性的動作；「再」與情態動詞連用時，情態動詞前置的情況比較常見。

(7) 不能一錯再錯了-- 一個經常性的動作（狀態）重複發生

(8) 現在他在主管的心目中有分量，他不能再讓上級失望。-- 「情態動詞+再」

2) 表示一個動作將要在某一情況下出現。例如：先把問題調查清楚，(然後)再研究解決的辦法。此處「再」表示後面動作將在前一個動作結束後出現。

3) 「再+形容詞」表示程度的增加。例如：還可以寫得(比這)再精煉些。

4) 另外，又，例如：一個是...再一個是...、再一次(多用於書面)

《閩南語常用詞辭典》與《客家語常用詞辭典》對「閣/過」、「又」或「再」的介紹十分簡要或闕如，分別介紹如下：

(一)《閩南語常用詞辭典》收錄「閣」、「又」或「再」三詞。

(一 a)「閣」有下列兩種用法—

1)又、再、還，例如：今仔日伊閣來矣。(今天他又來了。)

2)反倒、出乎意料，例如：伊第一擺煮的菜閣袂歹食。(他第一次煮的菜還不難吃。)

(一 b)「又」

再、復，例如：你又閣來矣。

(一 c)「再」

重複、第二次、又一次，例如：再世。

(二)《客家語常用詞辭典》僅收錄「過」與「又」的用法。

(二 a)「過」

再、又，例如：無罇！過添碗飯來！（不夠！再添碗飯來！）

(二 b)「又」

1)反覆相同，例如：想了又想。

2)並、且，表示強調的語氣，例如：又毋係。

3)可是、卻，表示轉折，例如：又驚。

4)特別、格外，例如：又大碗又便宜。

5)另外加上，例如：二又二分之一。

因為辭典未必能完全呈現各詞的用法，我們只能依賴自己及周遭朋友的語感加以判斷。對照表一(閩南語「閣」與客家話「過」的副詞用法比較)，底下將「閣/過」、「又」或「再」各種用法對照共同語的以便比較，如表二：

表二 副詞「閣/過」、「又」或「再」的用法比較

語義	語法特點	閩南語	客家話	共同語
仍然	後接動詞，表示這個動作仍然持續在進行中	閣	—	—/還
再次	修飾動作動詞以表示動作的重複性，動作重複發生在「過去」	閣/(又) <sup>5</sup>	又/過	又
	修飾動作動詞以表示動作的重複性，動作的重複發生在「未來」	閣/(再) <sup>6</sup>	過	再
(又)...又...	連接詞，用來連接並列的特徵或動作，表達並列諸項的皆取	XP 閣 XP 閣 XP 閣 XP	XP 又/過 XP 又 XP 又 XP	XP 又 XP 又 XP 又 XP
竟然	語氣詞	閣	又	又
相加	整數+又+零數	閣/(又)	又	又
另外，又		閣/(再)	過	再

上表中，閩南語「閣」的功能是共同語「又」與「再」用法的總合，而閩南語「又」與「再」正好分別對應共同語「又」與「再」的用法，同時閩南語「又」與「再」都使用在書面語，因此我們把閩南語「又」與「再」視為來自共同語的借詞。就共同語而言，同義詞的產生多半是古今詞的不同，如古代詞語「面」、「口」如今以「臉」、「嘴(巴)」替代；但是對現代方言而言，同義詞的產生還有一個可能性是共同語強

<sup>5</sup> 括弧表示語料庫雖然可以看到例子(如：「死後的確受上帝的審判，天父這款疼人；我又辜負伊的恩典」)，但是這些例子我們的發音人都認為口語中不太使用。

<sup>6</sup> 例句，如：「所以愛不時觀察思考各種人物的動作言行，再用五指模仿練習，甚至弄埤仔對鏡練習，…」。

勢的影響而移借新詞語，新舊詞語並存時，往往書面語會表現與口語不同。

在不同語言之間出現借詞時，多半是因為新事物或新文化的產生，而引入新的詞語；但是在同一語言底下的不同方言之間，因為語法結構沒有明顯的差異，進行語碼交替或語碼轉換時，反而專注在兩個方言中語義對等、用法相當的同義詞的轉換使用。同義詞因經常聯想使用，進而借入其詞彙系統中。同義詞引入後可能出現兩種情況：一是本土詞與借詞形成同義詞關係，彼此競爭進而形成分工，如閩南語「又/再」往往出現在書面語或較文言的詞語中，「閣」較為口語；二是形成同義並列連用，如閩南語「又閣/閣再」或客家話「又過/再過」。下一節將討論雙音節重複義副詞的形成是一種詞彙化現象，或是經由構詞規律而來。

### 3. 從方言比較看閩客方言雙音節重複義時間副詞的形成

前一節的討論顯示，閩客方言的「閣/過(故)」與「又」、「再」有本土詞與借詞的關係，這一節我們將先釐清閩客方言中雙音節重複義時間副詞的形成方式，對照外來詞中音義兼用詞來看，雙音節時間副詞應該是構詞而來，而且口語中三音節詞也足以做為佐證；最後再與共同語中「又」與「再」的連用進行比較。

#### 3.1 閩客雙音節重複義時間副詞的形成

《閩南語常用詞辭典》中收入「又閣」與「閣再」二詞，且都歸入副詞：

(一)「又閣」—又、再，表示動作或現象的重複。例如：伊又閣來矣。(他又來了)

(二)「閣再」—再度、重新。例如：自彼工了後，伊就毋捌閣再提起彼層代誌矣。(從那天以後，他就不會再提起那件事了。)

至於《客家語常用詞辭典》中，雙音節副詞僅收入「再過」一詞卻未收「又過」，但是我們在客語認證的語料庫中卻可找到「又過」的例子：

(9)又起風哩，敢係又過愛落雨？(又起風了，難道又要再下雨？)

(10)佢這擺又過連任當選議員，可見佢受著選民个肯定。(他這次又再連任當選議員，可見他受到選民的肯定。)

上述例句對客家發音人而言，「又過」都可以「過」替代，顯示「又過」確實成詞。就閩或客方言的雙音詞來看，基本上都是以「借詞+本土詞」的方式結合，只有「閣再」例外，本該是「再閣」，變成「本土詞+借詞」的組合後，與其他雙音詞有異序現象。再者，閩南語的「閣再」與客家話的「再過」，若還原為本字就是「故(閣)再」與「再故(過)」，兩個方言之間成為同素異序的關係。在董秀芳(2002)的理論中，並列式由句法層面中個別單詞使用的自由組合(即詞組)，到固定的詞彙單位的演變過

程，同素異序屬於詞組階段。我們是否可以把共時的方言之間的同素異序視為一種過渡階段？這些問題讓我們不得不思考：為何閩南語會出現「閣再」而非「再閣」？

閩南語中有一個副詞 *tsiah*，辭典暫時以「才」代替，用法包括以下幾種：

- 1)方、始，例如：這馬我才知影伊是騙我的。(現在我才知道他是騙我的。)
- 2)只有，例如：伊才十七歲爾爾，袂使淋酒。(他才十七歲而已，不能喝酒。)
- 3)表強調的語氣，例如：我才無欲相信你講的話！(我才不相信你說的話！)
- 4)再。表示接續在另一動作之後，例如：後擺我才共你講。(以後我再告訴你。)；電影看煞才來去食飯。(電影看完再去吃飯。)

其中第四義與其他語義之間的聯繫不明顯，反而接近「再」表示一個動作將要在某一情況下出現；至於語音部分，可能和「故」因弱化轉為入聲字(「閣」的情況相似。在口語中我們也確實出現 *tsiah* 與「閣」連用的情形，例如：「我明天 *tsiah* 閣提來(我明天再拿來)」，因此當共同語「再」重新進入閩南語時，已經無法使用「再閣」的形式，只能改為「閣再」。我們也看到 *tsiah* 與「閣再」連用的例子如下：

- (11)...準備考試嘛較要緊。明年若有機會阮才閣再來，即馬佇遮俗恁講再會咸 ByeBye, ...。(準備考試也比較要緊。明年若有機會我再來，現在在這兒與你們說再會和 ByeBye...。)

上述 *tsiah* 或「閣再」的功能相似，都是表示「來」動作將要「明年若有機會」的情況下發生。

丁喜霞(2006)從中古時期的並列式研究中，得出的結論是同義並列雙音詞的構成模式是基於語義聯想，把兩個同義單音詞並聯在一起構成的。她對聯想的解釋如下(丁喜霞 2006: 122)：

在語言的演變過程中，聯想是詞義詞形演變的心理基礎。詞義不是客觀對象的直接反映，而是用來表達概念的，概念的確立包含著人的思維活動，在詞義和客觀對象間，思維起中介作用。詞義的產生同人的思維活動有密切關係，是客觀對象在人們意思中的反映，是人的認識的成果。如“江”由專指長江到泛指一般河流，因為長江與一般的河流雖然規模不同，但性質是相同的，都是流動的水系，人們就依據這樣的相似點進行聯想並應用。

就語言內部而言，性質相同或相近的詞語因聯想而複合成詞；就方言之間而言，因經常語碼轉換或交換，詞義相近或相同的詞語也常常因聯想而並陳，進而構成同義並列雙音詞。同義並列式複合詞形成的原因除了同義聯想外，就方言接觸的角度來看，還有本土化理據的因素。Zuckermann(2000)將借詞分為兩大類：A類是利用源語言的語言材料創造新詞，如漢語直接引進的日語借詞「經濟、政府」等；B

類則為利用目標語的現有的詞根或構詞要素(*roots/lexemes*)做為基本材料創造新詞，包括譯音詞、譯義詞、音義兼用詞等。對於世界上語言引進借詞時多半使用 B 類，而非 A 類，Zuckermann 提出「本土化理據論」<sup>7</sup>(*Folk- Etymological Nativization; FEN*)加以解釋。Folk- Etymology 最早是 Stern(1965)提出的一種語言現象，指人們遇到發音陌生或難理解的借詞時，往往用某個自己熟悉的、發音或形態相似或意義相關的詞去取代。經過長期使用，這種取代詞便逐漸成爲一個新詞，一個更像本族語的詞，這種語言現象即叫做「理據」化（方欣欣 2004:44）。而音義兼用詞(混合詞)所以成爲現代漢語譯詞的較常見的組合方式就是一種理據化的結果，而閩客的雙音詞甚至三音詞「又閣(再)」、「又再(過)」等結構上雖屬於並列式，也算是一種「音譯+義譯」或「義譯+音譯」，都是透過語義聯想而複合爲並列式，最終目的也是爲了本土化。

了解重複義雙音副詞形成的原因後，接下來的問題是，爲何閩客方言不約而同選擇「借詞+本土詞」的模式而非「本土詞+借詞」？這裏我們可以借助於學者對有關語言間的借詞分類，其中一種爲音義兼用詞(*hybrid*)。音義兼用詞 (*hybrid loan-word*)，又稱「混合詞」，是以部分依音而部分依義的方式去翻譯外國語詞彙，如：「吉普車」以「吉普」譯音，而以「車」補義。(湯廷池 1989)。閩客方言雙音節重複義時間副詞的形成也是一種混合詞，「借詞+本土詞」的詞序相當於外來詞的「音譯+義譯」，因爲前者只是音節對譯，有賴於後者(義譯)的說明，而外來詞因爲是名詞音譯與義譯呈現爲偏正結構，而雙音節重複義時間副詞則成爲並列結構<sup>8</sup>。

### 3.2 閩客方言的三音節重複義副詞

在鄭縈(2009)的調查中，閩客方言的重複義副詞實際上分別都出現三音節的例子，即「又閣再」、「又再過」，這一節將討論這兩個形式是三音節詞或詞組，若是詞又是如何形成等問題。三音節的研究比雙音節詞來得晚，但也有不少成果，如

<sup>7</sup> 此處 Zuckermann(2000)根據方欣欣(2004: 43-49)的討論。

<sup>8</sup> 我們發現在另外一套時間詞似乎呈現「本土詞+借詞」的組合，如表示「晚上」的詞在三個方言中分別如下：

共同語—晚上、夜晚

閩南語—暗暝、暗時、暝時、下暗、暗頭(仔)

客家話—暗晡、暗晡夜、暗晡頭

上述詞語對照顯示，閩客有共同詞素「暗」，客語「暗晡夜」的「夜」是否爲共同語借詞，或是源自古詞，有待深入研究。



卞成林（1998）研究現代漢語三音節複合詞結構分析結構特徵為主，對現代漢語三音節複合詞的結構層次，關係和語法屬性進行了定量分析。楊愛姣（2005）對近代漢語三音節的形成及發展有相當完整的討論。她從詞典、書籍中收集到3046個三音詞<sup>9</sup>，歸結出近代漢語三音詞在結構類型<sup>10</sup>上，大致繼承了中古的構詞方式。三音詞的搭配功能、句法功能與雙音詞相比較具有以下特點：

- （一）三音詞詞性比雙音詞要穩定，基本上無活用或兼類。實詞形態變化很少，虛詞的詞綴可有可無<sup>11</sup>。
- （二）三音詞的搭配能力普遍要比雙音詞弱些。
- （三）三音詞具有同類的雙音詞的基本句法功能，同時在此基礎上有所拓展<sup>12</sup>。
- （四）三音詞的修辭特點具體表現為鮮明的形象性、豐富的表情性、通俗的口語性、濃郁的民俗性，流暢的韻律性五方面。

對閩客方言的「又閣再」、「又再過」而言，發音人認為這種三音節連用是為了強調，顯示其語用上的功能。

另外，楊愛姣（2005：2-9）提出三音詞的界定方式，我們整理成如下表三以方便了解：

表（三）楊愛姣（2005）三音詞與三音詞組的界定

區分	三音詞	三音詞組
意義	具有整合性、融通性、單純性與穩定性(即語義不透明)	具有綜合性、理據性、機械性與分解性(語義可從組成成分分析)
結構	具有封閉性、凝固性(無法擴展)	具有開放性、靈活性
語音	具有連貫性，即詞素之間原則上沒有語音停頓	可有語音停頓，不必一氣呵成

<sup>9</sup>楊愛姣（2005）以許少峰主編《近代漢語詞典》、高文達主編《近代漢語詞典》、龍潛庵主編《宋元語言詞典》、袁賓主編《宋語言詞典》和其他相關詞典、書籍中總共收集到 3046 個三音詞。

<sup>10</sup>三音詞為附加式、偏正式、主謂式、聯合式、述賓式、重疊式。

<sup>11</sup>胡正微說：「隨著音系的簡化，大量的單音節詞變為雙音節或多音節詞，語素間的相互制約使詞義更明確，詞性漸趨穩定。」

<sup>12</sup>史有為說：「語音長度越大，意義越確實，功能也就越窄小，而這樣單位也就越容易自由組合，數量就越多。」

組成成分的次序	成組成分的次序及關係固定 <sup>13</sup> ，如「小聰明」不能改為「聰明小」	在整體意義不變的情況下，次序可以作一定顛倒，如「腳掌大」與「大腳掌」語義相當
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對照上表，閩客方言中的「又閣再」、「又再過」都是同義詞連用，所以語義整合性程度高；但是語音部分，傾向於以先「又」而後「閣再/再過」來切分，而且次序不能顛倒，這幾點顯示「又閣再」、「又再過」的結合不夠緊密。楊愛姣（2005）並同意呂叔湘認為在現代漢語的語句裡，雙音節是佔優勢的基本語音段落。把單音節的補充成雙音節，把超過兩個音節的減縮為雙音節—雙音化是現代漢語的主要節奏傾向，就三音化與雙音化彼此消長的情況來看，漢語詞彙的複音化主要仍採用雙音形式<sup>14</sup>。附加式三音虛詞幾乎都可還原成雙音詞。當雙音詞擴展為三音詞，四音詞壓縮為三音詞的同時，三音詞壓縮為雙音詞的現象也同時開始。漢語詞彙在這種一方面要求表義複雜化，另一方面又要求音節數目簡單化的矛盾中不斷發展結果，因此漢語詞彙的雙音化依然佔優勢，三音詞有節制地發展，因此三音化不能成為漢語詞彙發展的主流。就閩客方言中的「又閣再」、「又再過」來說，只有少部分人使用或接受：

(12) 伊 又閣再 想起伊的故鄉

(13) 你若是 又閣再 哭，小朋友就都不跟你玩了

(14) 限勢佢就一肚屎懊惱，愛嗷毋得嘴扁吔，你仰好 又再過 撩佢。(他已經一肚子懊惱了，欲哭無淚，你怎麼又再戲弄他。)

(15) 你係過不聽話，又再過 仰樣，涯會打死分你。(你若再不聽話，又再這樣，我會打死你。)

上述例子中，「又閣再」(又再過)都可以改用「閣/又閣」(過/又過)，顯示三音詞的使用比起雙音詞而言仍不易進入。三音詞形成的原因，丁喜霞（2006）認為也是聯想作用促使三音節同義聯用，和雙音節同義聯用一樣。就閩客方言中的「又閣再」、「又再過」的例子來看，這兩個三音詞都是雙音詞直接並列合成而來，即「又閣+閣再」、「又過+再過」複合的結果。

<sup>13</sup>少數例外，如「作客漢」與「客作漢」；「耳爬子」與「爬耳子」等。

<sup>14</sup>許少峰主編《近代漢語詞典》中收集到 234 組同一個詞的三音節與雙音節並存的例子。如：「絆馬索」與「絆索」、「打背工」與「打背」、「霎時間」與「霎時」、「後生家」與「後生」、「公事人」與「公事」等。

### 3.3 共同語重複義時間副詞的連用

現代漢語中，除了「又」、「再」單用外，也有「又再」或「再又」連用的現象：

(16) 走了約十分鐘以後，忽然鐘聲又再響起(「鐘聲又再響起(李家同故事繪本)」)

(17)a. 這樣回憶著，再又從初見老胡，說夜訪白慶庵“沒有啥不便”想起，一直到眼前的情景(高陽《紅頂商人胡雪岩》)

b. 繼承者之後再又有繼承者。(袁昌英《遊新都後的感想》)<sup>15</sup>

對上述「又再」或「再又」的連用，劉建華(2007)認為「又再」或「再又」基本義與「又」或「再」相當，這些重複義頻率副詞表示重複義的加強。但是在高林波、張維微(2008)的分析中：[又[再[聽了一遍]]]，顯示「又」和「再」並非在同一個句法層次，「又再」並非複合詞。董秀芳(2002)基於 Givon 提過的一個著名觀點：今天的詞法曾是昨天的句法，主張漢語雙音詞的一個重要來源是同形詞組，因此漢語的詞組與複合詞結構的一致性是有歷史根源，幾種主要的詞組結構類型也都明顯的表現在複合詞中。董秀芳認為雙音詞在成詞之初，由於地位不平等因此會有詞化程度的級差，她訂出四個判斷原則，以動詞性並列雙音詞的詞化程度評比結果，推及其他類型：

- 1) 存在一個單音詞同義形式，但組成成分不能換序。
- 2) 不再有同義的單音對應形式。
- 3) 意義上發生了由具體到抽象或由泛指到專指的引申。
- 4) 句法功能發生轉化，包括：**a.動轉名**；**b.動轉形**；**c.動轉副**；**d.動轉介**。

就上述例子來看，「又再」與「再又」雖然有異序現象，但是各自可以「又」或「再」加以替代，選擇雙音詞的原因是配合音節，例如：「忽然+鐘聲+又再+響起」全都雙音節組合而成。

然而語料庫中「又再」或「再又」也並非全都詞彙化，在我們搜尋平衡語料庫後，「又再」出現 11 筆，「再又」則沒有找到例子：

(18) 真是至高無上的真理，他覺得身心輕安，又再向前走。

(19) 下半場五十四分鐘，明德蔡暉鎧又再射進一球，終場明德以二比一險勝大直。

在上面二例中，例(18)「又再」的用法相當於「又」；例(19)「又再」則可以「再」替代，二例的「又再」有詞彙化的趨勢。另外有些「又再」連用的例子中，「又」與

<sup>15</sup> 此二例引自劉建華(2007:35)。

「再」顯然不是複合詞：

(20)a. 趕緊塗掉，卻又寫，又塗掉，又[再寫]，又塗，…就這樣反覆了好幾次。

(平衡語料庫)

b. 等又[再等]，又[再等]又[再等]，始終等你/海膽不到

(21)經由我們的結合，我們又[再一次]與大自然合而為一

例(20)的「又」是連詞，「再」才是重複義副詞；例(21)是 Google 上搜尋到例子，「又」與「再一次」都有重複義，但是「再一次」已經是複合詞，與「又」並列。

平衡語料庫中並未找到「再又」的例子，在 Google 上搜尋到有個標題<sup>16</sup>出現「再又」如下例(22)：

(22)「中概股」變「港資」，**再又**變「旺旺時報」?!

但是在這個標題底下的內文卻不再出現「再又」連用，只有「又」、「再」各自分開使用：「...台灣本土報業版圖等於是再被攻佔一大塊，而且未來媒體生態的趨勢與發展，可能又會有重大的轉變...」。

#### 4. 結論

以往討論同義並列式多半從歷時的角度著手，本文嘗試從共時角度進行方言比較來探討並列式複合詞的形成方式及原因。閩南語與客家話表重複義的副詞有單音節及多音節詞，其中多音節詞中部分詞素與共同語有重疊，如下所示：

	共同語	閩南語	客家話
單音節	又、再(、還、也)	閣、又、再	過、又
多音節	(又再、再又)	又閣、閣再、又閣再	又過、再過、又再過

研究結果顯示，就閩南語與客家話兩個方言的重複義頻率副詞因接觸而雙音化的過程來看，「又」、「再」這些借詞可能因為經常語碼轉換而熟悉，進而借入閩南語與客家話中，因同義聯想機制促使新舊詞語結合，形成同義並列複合詞。就臺灣的共同語來看，「再又」十分少見，「又再」須分為兩種，一是同義並列，一是連詞+重複義副詞，不屬於同一句法層次。

#### 引用書目

王福堂.2010.〈文白異讀中讀書音的幾個問題〉，《漢語方言論集》，原載於《語

<sup>16</sup>此標題網址 <http://ash1118.pixnet.net/blog/post/22926530>。

- 言學論叢》第32輯，商務印書館，2006年。
- 卞成林.1998.現代漢語三音節複合詞結構分析，《漢語學習》，4期。
- 方欣欣.2004.《語言接觸問題三段兩合論》，華中師範大學博士論文。
- 史有為.2001.《漢語外來詞》，北京：商務。2003年，2刷。
- 李如龍.2001.論漢語方言特徵詞，漢語方言的比較研究，北京：商務印書館
- 呂叔湘.2004.《現代漢語八百詞(增訂本)》，商務印書館。
- 吳福祥.2007.〈關於語言接觸引發的演變〉，《民族語文》，第2期。
- 吳為善(2003)〈雙音化語法化和韻律詞的再分析〉，《漢語學習》2：8-20。
- 高林波、張維微.2008.〈副詞再和又的多角度分析〉，《長春大學學報》第18卷第6期頁38-41。
- 洪麗娣.1997.〈古代漢語中同素異序詞的研究〉《瀋陽師範學院學報》1：43-45。
- 張屏生、呂茗芬.2006.〈六堆地區客家方言島的語言使用調查—以武洛地例〉，《第三屆台灣羅馬字國際學術研討會論文集》網路版：  
<http://iug.csie.dahan.edu.tw/giankiu/GTH/2006/ICTR/lunbun/20.pdf>。
- 張誼生.2004.《現代漢語副詞探索》，上海：學林出版社。
- 湯廷池.1989.《漢語詞法句法續集》，台北：台灣學生書局 初版。
- 湯廷池.1999.〈閩南語連詞‘及、抑(是)、(猶)閣...(猶)閣...、那...那...’的意義與用法〉，《閩南語語法研究試論》，229-267頁，台北：台灣學生書局。
- 陳聖欣.2009.《台灣客家話中閩南語借詞》，中央大學客語所碩士論文。
- 楊秀芳.1993.〈論文白異讀〉，《王叔岷先生八十壽慶論文集》，台北：大安出版社。
- 楊秀芳.2004.〈論「故」的虛化及其在閩方言中的表現〉，《臺大文史哲學報》第六十期頁199-242。
- 楊愛姣.2005.《近代漢語三音詞研究》，武漢大學出版社。
- 溫昌衍.2001.《客家方言特徵詞研究》，暨南大學伯博士論文。
- 鄭縈.2009.〈語言接觸與詞彙化 - 以客家話為例〉，四溪計畫期末論文發表會，國立交通大學客家學院12月12-13日。
- 鄭縈、游孟庭.2010.〈接觸引發閩南語重複義時間副詞的詞彙重整與方言的平整化〉，苗栗聯合大學。
- 鄭良偉主編(1989/1992)《國語常用虛詞及其台語對應詞釋例》，臺北市：文鶴
- 鄒嘉彥、馮良珍.2000.〈漢語\_五地\_與日語新概念詞語對比研究-從新聞視窗看詞匯衍生與重整〉，《語言研究》3:51-70。
- 劉承慧.2003.〈古漢語實詞的複合化〉，收於何大安主編：《古今通塞：漢語的歷史與

發展 -第三屆國際漢學會議論文集(語言組)》，中央研究院語言學研究所。  
頁107-139。

劉建華.2007.《副詞“還、也、又、再”的重複義研究》，邊延大學碩士論文。

董秀芳.2002.《詞彙化：漢語雙音詞的衍生和發展》，成都：四川民族出版社。

羅肇錦.2000.《臺灣客家族群史·語言篇》，南投：台灣省文獻委員會。

羅肇錦.1990.〈閩客方言與古籍訓釋〉，《第八屆全國聲韻學學術研討會論文集》，收入  
《聲韻學論叢》，第3輯，台北：學生書局

Bybee, J., R. Perkins & W. Pagliuca 1994 *The evolution of Grammar*, The University of  
Chicago Press

Haugen, Einar. 1950. The Analysis of Linguistic Borrowing, *Language* 26.2: 210-231.

Zuckermann, Ghil'ad. 2000. Camouflaged Borrowing: "Folk-Etymology Nativization" in  
the Service of Puristic Language Engineering. D.Phil. Thesis. University of Oxford.

## Tgeqxgt lpi 'E wwt cniK gpvkw' 'c'pf 'T ght guj lpi 'Ej lpgug' Hcxqt u' ' Hqwt 'Ncpi wci g'Rqdekgu'lp'vj g'T gr wdike'qh'Mqt gc '3; 6: /4232''

Ik-sang Eom 严翼相  
Hanyang University

This paper attempts to examine how the language policies in Korea since 1948, when the republic was founded, are related with the Chinese language in the context of globalization. It will point out that old Chinese flavor has been diluted in the Korean language in the past six decades while new Chinese flavor has been added to the language through changing the Chinese name of Seoul, reading Chinese proper names in Mandarin pronunciations, exclusively using *Hangŭl*, the Korean alphabet, in writing and so on. It notes also that the Korean language policies have been moving toward globalization.

### 30Kpvtqf wvkwq''

One can find an interesting phenomenon from the language policies of the Korean government since 1948, when the Republic of Korea was founded, up to date. The followings are those policies that this paper is going to deal with. "

- (1) a. 2005 Changing Chinese Name of Seoul from *Hancheng* to *Shouer*
- b. 1986 Birth of Koreanization System of Chinese Loan Words
- c. 1948 Law of Using *Hangŭl*, the Korean Alphabet, in Writing
- d. 1948-2010 Conflicts on Korean Romanization Systems

The goal of this study is to present a consistent tendency in the Korean language policies in the past 60 years or so such as (a) the change of Chinese name of Seoul from *Hancheng* to *Shouer* (2005), (b) reading Chinese proper nouns not in Sino-Korean pronunciations but in Mandarin pronunciations, and (c) the policy of using *Hangŭl* in public writings (1948), which was extremely controversial until the beginning of the 70's. In addition, this paper will examine the reason why Korean Romanization systems have never successfully settled down even up to now. It will attempt to point out the efforts to establish Korean identity, which was sometimes favorable or unfavorable as the country strived from nationalism and globalism.

### 40Shouer<Vj g'P gy 'Ej lpgug'P co g'qh'Ugqwl'

*Hancheng* has been the Chinese name of Seoul for the past 700 years or so. It was the

official name of the capital city of the *Chosŏn* dynasty.<sup>1</sup> However, it was used only in the written language and *Hanyang*, the name of the city during the *Koryŏ* dynasty, was still in use in the colloquial language. The name of the city underwent the following changes:

(2) Koryŏ (918-1356)	Hanyang
Chosŏn (1392-1910)	Hanyang (C), Hansŏng (L)
Japanese Occupation (1911-1945)	Kyŏngsŏng
Republic of Korea (1946/48-present)	Seoul

One can notice that *Hansŏng* or *Hancheng* in Chinese has been used for a long time. If so, why did the Koreans want to change it? There were several reasons.

Firstly, both *Sŏul* (Seoul) and *Hansŏng* are commonly used in the Korean language. For instance, there are many institutions named after *Sŏul* (Seoul) and *Hansŏng* in Korea. Some examples are as follows:

(3) a. Seoul National University	Hansŏng University
b. Seoul High School	Hansŏng High School
c. Seoul Food Company	Hansŏng Food Company
d. Seoul Daily	Hansŏng Daily Newspaper

There is no confusion between two names in each set in Korean. Nevertheless, when they are translated into Chinese, the apparent distinction between them often disappears because both of them are translated as *Hancheng* into Chinese as shown below:

(4) a. (Guoli) Hancheng daxue	(Sili) Hancheng daxue
b. Hancheng gaozhong	Hancheng gaozhong
c. Hancheng shipin gongsi	Hancheng shipin gongsi
d. Hancheng ribao	Hancheng ribao

Due to such ambiguity, mails from China were often delivered mistakenly to a wrong institution, which caused inconvenience in daily life.

Secondly but more importantly, the name of Seoul has been widely used in the world except for the regions where Chinese is spoken. Considering the population of Chinese speakers, this weakened the brand power of Seoul to a great degree. Having two different names, Seoul and *Hancheng*, in the international community was not beneficial for the Seoul Metropolitan Government to promote the city to be widely known to more and more people in the world.

Thirdly, some Korean intellectuals were concerned about the literary meanings of the name. Although it may not carry the following images to most Chinese, *Hancheng* can

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<sup>1</sup> The Romanization of Korean in this paper follows McCune-Reischauer system.



literary mean any of the followings:

- (5) a. a city of the *Han* people  
b. a wall of China

Lastly, in relation with the literary meaning of *Hancheng*, Seoul carries significance as an indigenous Korean name. As one can see in (2), the names of the city were all in Chinese style in the past. There is no distinction between Korean and Chinese place names because most of place names except for some small villages have Chinese style names. It is not difficult to find place names being shared by both Korea and China. Following are some examples:

(6) Name	Location in Korea	Location in China
安山	【京畿】	【冀鲁】
板桥	【京畿】	【京苏皖豫鄂湘琼川黔滇甘】
城东	【首尔】	【冀】
大田	【大田】	【浙皖赣粤琼】
东海	【江原】	【沪浙闽台】
高城	【江原】	【赣鲁鄂】
湖南	【全罗】	【湘浙】
江北	【首尔】	【川】
江东	【首尔】	【湘】
江南	【首尔】	【湘川】
江西	【首尔釜山】	【滇】
金川	【庆北】	【吉】
金村	【京畿】	【浙】
锦江	【忠清】	【赣】
晋州	【庆南】	【冀】
丽水	【全南】	【浙】
梁山	【庆南】	【鲁】
马山	【庆南】	【浙粤】
南海	【庆南】	【闽台粤琼】
清平	【京畿】	【鲁川】
全州	【全北】	【桂】
太白	【江原】	【赣黔甘】
天安	【忠南】	【琼】
西山	【忠南】	【赣京】
新安	【全南】	【蒙古黑苏赣湘】

The above list is, of course, not exhaustive. Yet, it implies that there are many places names that are exactly identical between Korea and China. Korean place names, in fact, were changed to Chinese style names in 757 A.D. by King *Kyōngdōk* of the Unified Silla dynasty. *Mich'uhol*, for instance, was changed to *Inchōn* or *Renchuan*. It was the turning point when many indigenous place names in native Korean were changed to Chinese style names in Sino-Korean. Since then, many place names in Korea could be written in Chinese characters. Since Seoul is a native Korean word, meaning the capital city, it cannot be written in Chinese characters. That is why the Chinese people continued to call the city *Hancheng* even after the name was no longer in use in Korea from the early twentieth century. Since *Sōul* is almost the only indigenous place name among big and small cities in Korea, it carries a significantly symbolic meaning. The native Korean name was given to Seoul in 1946, a year after liberation from Japan. It was certainly an announcement of Korea's independence from Japanese occupation and heavy influence from China and other foreign powers for hundreds of years in the past.

The new Chinese name of Seoul, *Shouer*, was chosen from close to one thousand candidates suggested from 1,041 people in 2004. The committee for selecting a new Chinese name finally chose *Shouer*, which Ik-sang Eom and 36 more people proposed, after careful examinations and internet votes both in Korea and China over the year.<sup>2</sup> As a matter of fact, Eom suggested *Shouer* in his journal article as early as 2003. The new Chinese name, *Shouer* now matches to the spirit behind an indigenous name of Seoul. It is, thus, related to rebuilding their cultural identity. It is also a step closer to globalization because all the people in the world now call the city Seoul or similar to it.

#### 50Mqt gcplk cvlqp 'U{ wgo 'qhlEj lpgug'Nqcp'Y qtf u'

The Koreans called Chinese personal and place names in their own Sino-Korean pronunciations for thousands of years. For instance, the following personal and place names were called and written in Sino-Korean pronunciations:

(7) Chinese Proper Names	Sino-Korean Pronunciations
a. Mao Zedong	毛澤東 모택동 Mo T'aektong
b. Deng Xiaoping	鄧小平 등소평 Tong Sop'yōng
c. Jiang Zemin	江澤民 강택민 Kang T'aekmin
d. Beijing	北京 북경 Pukkyōng
e. Shanghai	上海 상해 Sanghae
f. Chongqing	重慶 중경 Chungkyōng

<sup>2</sup> For detail, one may refer to Ōm (2005), Yan (2005) or Eom (2010).

People in North Korea and the Korean Autonomous Prefecture in Yanbian, China are still reading Chinese names in Sino-Korean pronunciations. In South Korea, however, the Chinese proper names are often read not in Sino-Korean but in modern Mandarin pronunciations. The examples in (7) are supposed to be spelled in Hangŭl based upon their Mandarin pronunciations.

(8) Chinese Proper Names	Mandarin Pronunciations in Hangŭl <sup>3</sup>	
a. Mao Zedong	마오쩌둥	Mao Tchöddong
b. Deng Xiaoping	뎡샤오핑	Ttöng Siaop'ing
c. Jiang Zemin	지앙쩌민	Chiang Tchömin
d. Beijing	베이징	Ppeijing
e. Shanghai	상하이	Sanghai
f. Chongqing	충칭	Ch'ongch'ing

This tendency was led by major mass media, such as KBS (Korean Broadcasting Station) and the *Chosŏn Daily* since 1997 and now is rather widely adopted by all the government institutions, almost all the news media and many scholars. This change is based upon the notification of writing foreign loan words, which was revised in early 1986. The first regulations on writing Chinese loan words can be traced back as early as early 1960, when the government regulated how to write the loan words from Chinese, Japanese, French, German and Italian.

However, not many people paid attention to this government notification up to 1997 except for a small group of scholars in the circle of Chinese studies. They were Ch'oe Yöngae and Kim Yongok who first emphasized the necessity of writing Chinese proper nouns in Mandarin pronunciations in Hangŭl writings. They published a table for conversion from Hanyu pinyin to Korean in 1985. The research on Koreanization of Mandarin was conducted by Ik-sang Eom in full scale in 1996. Eom presented his own table of Koreanization of Mandarin in 1996 and the revised table in 2002. In the mean time, he has published a number of articles addressing why and how Chinese proper nouns ought to be spelled in Korean. Although Eom's table is different from that of Choe and Kim, he shares the same reason with them for reading Chinese proper nouns not in Sino-Korean but in Mandarin. That is consistency in writing foreign personal and place names in Korean writings. They questioned why only Chinese names should be written in Sino-Korean pronunciations while all other foreign names are spelled as they are pronounced in the language where the name originated. Eom points out that it is particularly inconsistent to read and write Chinese personal and place names in Sino-Korean pronunciations while Japanese names are read and written in Japanese pronunciations. Eom's successive studies on this issue triggered many other studies by

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<sup>3</sup> The Korean spellings of Mandarin are based upon Ik-sang Eom's revised system (Öm2002).

many scholars from 1999. The shift of writing Chinese names in Mandarin pronunciations has become visible in the past decade although there are a number of people, including scholars, who still use Sino-Korean pronunciations to write Chinese names.

The new tendency of reading and writing Chinese names in Mandarin has a significant meaning from a Chinese perspective. Although Sino-Korean originated from Chinese, modern Sino-Korean is far different from modern Mandarin. It is because Sino-Korean (SK) is based upon Middle Chinese (MC), which is different from modern Mandarin (MM). The following are examples from Öm (2002:330-331):

(9)	Gloss	SK	MC	MM
學生	student	haksɛŋ	*ɣɔkʃɛŋ	ɛyeʃɛŋ
學校	school	hakkjo	*ɣɔkɣau	ɛyeɕiau
教室	classroom	kjosil	*kauɕt	ɕiaʊʃɪ
英語	English	jɛŋɕ	*ɛŋŋio	iŋy
學習	learning	haksip	*ɣɔkzɛp	ɛyeɕi

As one can see in the above, reading Chinese words in Sino-Korean often does not sound like Chinese to the Koreans because more than 70% of the modern Korean lexicon are Chinese loan words or Chinese based words and the Koreans used Chinese characters for more than two thousand years. Accordingly, reading Chinese names in modern Mandarin pronunciations increased Chinese flavor in the Korean language. To be exact, this is more like refreshing Chinese flavor in the Korean language, rather than an addition of Chinese flavors, because Sino-Korean is a Chinese flavor in the past while modern Mandarin is that of the present.

This shift is closely related with two social changes in relations with China: (a) massive personnel exchanges between Korea and China (b) mutual interests in learning Korean and Mandarin. Since the diplomatic normalization in 1992, the relationships between the two countries have grown very rapidly. China is now number one trade partner with Korea, leaving the long term top and second partners, the U.S. and Japan, behind. Korea is the third to fourth largest trade partner with China now. Chinese students are the largest foreign student body in Korea and Korean students are the largest group among foreign students in China too. Accordingly, Mandarin became one of crucial foreign languages to learn in Korea. Thus, it is a timely change to read and write Chinese names in Mandarin in Korea.

This newly developed tendency, in turn, helps Koreans to cope with the rapidly changing international society in the era of globalization. More importantly, by reading Chinese proper nouns in modern Mandarin pronunciations, Koreans began to practice one

principle in spelling foreign loan words. That is to follow the original pronunciation of a loan word. If not, they follow the conventional pronunciation, mostly the English pronunciation for some European and South American names. This new policy indicates that Chinese names are no exception as well as Japanese names, which were already read and written not in Sino-Korean but in Japanese pronunciations. Since this policy makes a clear distinction between Korean and Chinese personal and place names, it is also more or less related to the issue of recovering cultural identity of the Korean people.

**60Gzenwukg'Wug'qhMqtgcp'Crj cdgvlp'Y tskpi "**

The two policies discussed above are, in turn, closely related with the earlier policy of the use of Hangŭl in writing in terms of recovering Korean identity. The following examples demonstrate how Korean sentences can be written:

- (10) a. 우리는 民族中興의 歴史的 使命을 띠고 이 땅에 태어났다.  
 b. 우리는 민족 흥의 역사적 사명을 띠고 이 땅에 태어났다.  
 We were born to carry out a historical mission to prosper the people of the nation. (The National Charter of Education)

The policy of using Hangŭl in public writings was established from the beginning of the Republic of Korea in 1948. However, the mixed writing with Hangŭl and Chinese characters has been the norm in modern Korea until the late 60's. There had been serious debates on whether to accept the Hangŭl only policy or keep using Chinese characters in their Korean writings until 1972 when the former president Park Chunghee promoted to the use of Hangŭl only. It may be true that using some Chinese characters in Korean writings can certainly enhance distinction of meanings as is exemplified below:

- |         |       |    |         |            |
|---------|-------|----|---------|------------|
| (11) a. | 伸張    | 신장 | Sinjang | expansion  |
|         | b. 腎臟 | 신장 | Sinjang | kidney     |
|         | c. 新裝 | 신장 | Sinjang | renovation |
|         | d. 身長 | 신장 | Sinjang | height     |

In addition, Chinese is often claimed to have a stronger function of word formation compared to Korean. The following may support such a claim because it might be difficult to coin these words in native Korean:

- |         |                   |       |       |                     |
|---------|-------------------|-------|-------|---------------------|
| (12) a. | video             | 동영상   | 動映像   | tongyöngsang        |
|         | b. vacuum cleaner | 진공청소기 | 眞空清掃器 | chingong ch'öngsogi |
|         | c. excavator      | 굴삭기   | 掘削機   | kulsakki            |

However, the distinction can be easily made within the context of a sentence. There are also some examples where Sino-Korean words have been replaced by English as follows:

(13) a. printer	인쇄기	印刷機	프린터	p'urint'ō
b. fax	전송사진	電送寫眞	팩스	p'aeksū

At any rate, the option of mixed writing was discarded because the exclusive use of Hangŭl gained more support from more people, who might have been tired of learning difficult Chinese characters. The more fundamental reason was that they had a strong sense of recovering the national identity. The policy of exclusive use of Hangŭl was implemented in the past forty years; now it has taken root firmly on the ground among the Koreans under fifty or so. The Japanese colonial policy banned using Korean and Hangŭl in public places such as schools during their occupation. Considering this experience, it is understandable to have such policy. This policy may not seem to be closely related with globalization and/or localization. The exclusive use of Hangŭl may be understood as localization because Hangŭl is used only in the Korean peninsula. However, partly using Chinese characters could be understood as localization too because Chinese characters are used only in East Asia. Thus, even if the Koreans decided to use both Hangŭl and Chinese characters in their writing, it might be difficult to claim it as a policy toward globalization.

#### 70E qphlew'ŏp'Mqt gcp'Tqo cphk cvkqp'U{ wgo u'

The Korean government is currently reviewing the system of Korean Romanization, which was revised in 2000 (hereafter RR: the Revised Romanization). As a matter of fact, the Korean Romanization system has never firmly settled down to date because the government adopted four different systems in the past 60 years or so. The Korean Romanization system underwent the following changes:

- |      |      |   |
|------|------|---|
| (14) | 1948 | McCune-Reischauer System                      |
|      | 1959 | Ministry of Education System                  |
|      | 1984 | (Slightly revised) McCune-Reischauer System   |
|      | 2000 | Revised Romanization System of the Government |

When the Republic of Korea was founded in 1948, it adopted the McCune-Reischauer system (hereafter MR). The so called MR system was first designed by George M. McCune with assistance from Korean linguists, such as Ch'oe Hyŏnbae, Chong Insŏp, and Kim Sŏngi, and was revised by Edwin O. Reischauer in 1939. George McCune was born in P'yŏngyang in 1908 as the son of an American educational missionary and received his primary education in Korea. Edwin Reischauer was an East Asian historian, who specialized in Japan. The McCune-Reischauer system is transcriptional so is

considered to be close to the actual pronunciations of Korean. It has been widely used in the world up to now. The following are some examples of Korean personal and place names Romanized in McCune-Reischauer system:

(15) a. Yi Myǒngbak	李明博	e. Sǒul	서울
b. No Muhyǒn	盧武鉉	f. Pusan	釜山
c. Kim Taejung	金大中	g. Taegu	大邱
d. Pak Chǒnghŭi	朴正熙	h. Cheju	濟州

Despite being widely used, the McCune-Reischauer system was often criticized by the Koreans particularly when it was adopted as the official Romanization system of the country. The most crucial criticism concerned its use of the diacritical marks on some vowels and consonants. It uses the breve on vowels u and o to denote the central high vowel [ɨ] and the open mid back vowel [ʌ] or schwa [ə] respectively. The breve is used to differentiate these vowels from high and mid back vowels, [u] and [o] respectively.

(16) a. 음성 Ŭmsǒng	음승 Őmsŭng
b. 언양 Ŏnyang	온양 Onyang
c. 신촌 Sinch'on	신천 Sinch'ŏn
d. 울산 Ŭlsan	을산 Ŭlsan

The apostrophe is also used to denote aspiration on obstruents, such as p', t', k', ch'. Some examples are shown in (17):

(17) a. 병장 Pyǒngjang	평창 P'yǒngch'ang
b. 대안 Tae'an	태안 T'ae'an
c. 갈바위 Kalbawi	칼바위 K'albawi

The currently used Revised Romanization system, on the other hand, removed these cumbersome diacritical marks by making following modifications:

(18) ǒ → eo	ǔ → eu
p → b	p' → p
t → d	t' → t
k → g	k' → k
ch → j	ch' → ch

These changes to MR worked well in terms of simplicity. According to the Revised Romanization system, (16a) and (17a) can be Romanized as follows:

- (19) a. 음성 Ŭmsǒng → Eumseong  
 엄승 Ŏmsǔng → Eomseung  
 b. 병장 Pyǒngjang → Pyeongjang  
 평창 P'yǒngch'ang → Pyeongchang

Simplification, however, caused another problem, which is the discrepancy between Romanized words and the actual pronunciations. Since the McCune-Reischauer system is phonetic, it is closer to the actual pronunciations. On the other hand, the revised Romanization system is phonemic. If the former is more like a transcription, the latter is more like a transliteration. As a result, the sound correspondence between Romanized words and the original pronunciations is weaker in RR than in MR. For instance, the syllable with 'eo' or 'eu' is often mistakenly pronounced in two syllables as is in the following examples:

- (20) a. 宣陵 Seon.neung → Se.on.ne.ung  
 b. 驪州 Yeo.su → Ye.o.su  
 c. 平昌 Pyeong.chang → Pye.ong.chang  
 d. 仁川 In.cheon → In.che.on  
 e. 陰城 Eum.seong → E.um.se.ong  
 f. 京畿 Gyeong.gi → Gy.e.ong.gi

This is certainly a weakness of the current system and has received much criticism.

Accordingly, the Presidential Council of National Competitiveness (hereafter PCNC) reviewed the current Romanization system in 2009. The Ministry of Culture, Sports, and Tourism (hereafter MCST) has been also reviewing the current system since 2010. The PCNC conducted a survey on the current status of the Korean Romanization system among 118 specialists on Korea, including scholars, translators, librarians, curators, and businessmen over the world in 2009. The results of their survey, reported by Eom (Ŏm 2009), can be summarized as follows:

- (21) a. MR is being used by almost all the libraries in the world except for the Asian region.  
 b. 67% of the scholars of Korean studies are using MR while 25% are using RR.  
 c. 64% of the specialists are using MR while 30% are using RR.  
 d. 53% of the specialists are considering MR is the most idealistic system while 39% are considering RR.  
 e. 49% of the specialists suggest the Korean government to adopt MR while 39% of them do RR.



Now the government seems to have two options:

- (22) a. To maintain the current system and work hard to make it spread more widely in the world.
- b. To discard the current system and adopt MR again with or without modifications.

Since the survey by the MCST is still in process, the final conclusion is still awaited. Regardless of what kind of conclusion the MCST may make, it is apparent that the Korean Romanization system may be still controversial.

As a matter of fact, the Korean government adopted MR during 1948-1959 and 1984-2000. The government replaced MR with their own systems during 1959-1984 and 2000-the present. Policy moved back and forth for four times over 62 years in the past. The strong point of MR is that MR is the most widely used system in the world. If MR is adopted, there is no need for concern about discrepancies inside and outside Korea. On the other hand, there seems to be more reason to refuse MR other than the inconvenience of using diacritical marks and complexity of the system for use. The additional, maybe more fundamental, reason why some Koreans are reluctant to adopt MR might be that fact that MR was designed by foreign hands. If this is the case, the adoption of RR is also tied with the issue of Koreans' cultural identity. Some policy makers in Korea might have strong wish to use a Romanization system that was made by their own hands when they adopted RR in 2000.

They may think now is *Hanyu pinyin* the role to follow because it is the most widely accepted Romanization system of Mandarin Chinese in the world. The Wade-Giles system was the official Romanization system for more than 100 year in almost all the libraries in the west. It was originally developed by Thomas Wade in the mid nineteenth century. He was a British ambassador in China and was the first professor of Chinese studies at Cambridge University. His system was revised by Herbert Giles in 1892 and refined by his son Lionel in 1912. Since then, it became the standard Romanization system of Mandarin in western society. Accordingly, even after the People's Republic of China started to use *Hanyu pinyin* in 1958, the Library of Congress of the U.S. and all other libraries in the western world continued to use Wade-Giles system for decades until very recently. However, as the users of *Hanyu pinyin* consistently increase and the International Organization for Standardization (IOS) accepted it as the international standard in 1982, the Library of Congress (LOC) also started to consider changing it from the late nineties. The Library of Congress finally adopted *Hanyu pinyin* in 2000 after extensive debates and research over many years. This change may sound promising to Korean policy makers because LOC may also adopt the governmental system of Korean Romanization in the near future.

However, there is doubt about such possibilities because Korean case is very different from the Chinese case for the following reasons:

- (23) a. PRC has been using the same system for more than 60 years while ROK adopted four different systems during the same period of time.
- b. PRC has been using *Hanyu pinpin* all the time without any exception but ROK used it much less extensively. For instance, Korean Romanization systems have been used mainly in the public sector while general people have tended to freely Romanize their personal names, addresses, and private institutions and so forth.

Accordingly, it is really a tough question for the Korean government whether or not they have to continue to use the current system of Romanization and make it the international standard or adopt McCune-Reischauer system as the international standard.

### 80Egpenwukp"

This paper examined four language policies in Korea from 1948 to the present. They are the following, repeated from (1) above:

- (24) a. 2005 Changing Chinese Name of Seoul from *Hancheng* to *Shouer*
- b. 1986 Birth of Koreanization System of Chinese Loan Words
- c. 1948 Law of Using Korean Alphabet Exclusively in Writing
- d. 1948-2010 Conflicts on Korean Romanization Systems

Concerning Korean language policies, the fundamental controversy arose from the conflict between globalization and localization in the debates on these policies. The issue of cultural identity played a role in decision making. Thus, these policies can be examined from following perspectives: globalization, localization, and cultural identity:

(25)	Globalization	Localization	Identity
a. Seoul	+	-	+
b. Koreanization	+	-	+
c. Hangŭl Only	(-)	(+)	+
d. Romanization	-	+	+

As one can see from the above table, the most apparent characteristic in the four language policies discussed in this paper is the Koreans' efforts to build up their cultural identity. The Koreans wanted to be perceived as different from Japanese, Chinese, or any other people. Another significant characteristic, which can be found from (25ab), is replacing Chinese flavors from Sino-Korean to modern Mandarin along the path to globalization. Replacement of *Hancheng* to *Shouer* in 2004 means departing from

localization and moving towards globalization. The new trend of reading Chinese personal and place names in modern Mandarin pronunciations, started approximately from 1997, was triggered by massive human exchanges between China and Korea since 1992, when the two countries normalized the diplomatic relations. Since then, the Chinese flavors in the Korean language have been changed from old fashioned Sino-Korean, the Tang flavors, to modern Mandarin flavors. As a result, one can hear more words being pronounced in modern Mandarin in both spoken and written language in modern Korea.

Table (25) indicates the two directions the Korean language policies have been moving toward. They are cultural identity and globalization. These findings suggest what kind of decision should be made on the future of the Korean Romanization system. The above table implies also the reason why this issue has been so controversial over the last 60 years. It involved a choice between two contrary values: globalization and localization. If they chose the value of globalization, it deteriorated the identity value. If they chose the value of localization, it satisfied the identity value. The problem, however, was that localization was not the ideal direction of the Korean language policies. If a certain Romanization system could satisfy both values of globalization and identity, it would be the best choice for the Koreans to choose. However, neither system currently available satisfies both values. The only resolution to this contradiction might be for Koreans to regard MR as the Romanization system which does not violate their value of cultural identity. Recall that McCune was born in Korea and he consulted with three eminent Korean linguists when he first developed the system. Korea is now mature enough to accept global standards that are closely related to the Koreans even if the standards were not originally set up by Korean hands. If Koreans are still reluctant to accept MR with or without modifications, the only remaining choice is to wait until the current system of Romanization (RR) becomes the global standard. The final questions are then how thoroughly the Koreans will use the current system and how long it will take to take over the current position of the McCune-Reischauer system. It is not easy to answer these questions at this point.

### **Tgltgpegu'**

- Eom, Ik-sang. 2009. "A Never Ending Story: Korean Romanization Systems." Oregon-Hanyang Linguistics Symposium, The University of Oregon, Eugene, August 12-13.
- Eom, Ik-sang. 2010. "A Journey from *Hancheng* 汉城 to *Shouer* 首尔: Linguistic Backgrounds and Popular Perception." In Ik-sang Eom et al. eds. *Perspectives on Chinese Language and Culture*. Taipei: The Crane Publishing Company.
- Öm Iksang. 2002. *Chungguk öñöhak Hanguksiguro hagi* [Chinese Linguistics from a Korean Perspective]. Seoul: Hanguk munhwasa.
- Öm Iksang. 2003. "Chunggugö Hangül p'yogi muötsi munje inga [What are the problems of Koreanization of Mandarin?]" *Chungguk üi ch'ang* [Windows to China], 2:80-92.
- Öm Iksang..2005. "The Theoretical Background of the New Chinese Name of Seoul.[In

- Korean]" *Chungŏ Chungmun* [KJCLL], 36:117-149
- Öm Iksang. 2009. *A Report on the Current Status of Korean Romanization Systems Abroad*. Seoul: Presidential Council of National Competitiveness.
- Yan Yixiang [严翼相]. 2005. "Cong yuyanxue de jiaodu kan diming Shouer [从语言学的角度看地名首儿]" *Dangdai Hanguo* [当代韩国], 47:54-61.

## Vj g'P qwp'Rj t cug'Ceegukdkw' 'J lgt ct ej { 'lp'Ej kpgug'cu'c'Hqt gli p' Ncpi wei g'Ngct pgt u'kpgtncpi wei g<sup>3</sup>"

Yi Xu  
*University of Pittsburgh*

Recent studies on the acquisition of putative “relative clauses” (RCs) in East Asian languages have raised the question of whether the Noun Phrase Accessibility Hierarchy (NPAH, or AH) (Keenan & Comrie, 1977) is applicable to those languages. In this paper, I report findings from Chinese as a foreign language learners’ production data in a sentence combination task. Results from this experiment show that while the NPAH may not accurately predict the acquisition difficulty of different types of Chinese RCs, individual learners’ interlanguage in the use of relativization strategies always acts within the constraints of the AH.

### 30kvt qf wevkp"

Relative clauses (RCs) are a frequently used and important sentence structure in many languages. In 1977, a generalization of the typology of RCs, referred to as the Noun Phrase Accessibility Hierarchy (NPAH, or AH), was made by Keenan and Comrie. The NPAH is often thought to be predictive of the relative difficulty of different types of RCs in language acquisition, until recent doubts have been raised as to the hierarchy’s applicability to East Asian languages. A simplified form of the NPAH can be presented as Subject>Object>Indirect Object>Object of Preposition, whereas “>” means “easier to relativize”. English examples of these types of RCs are illustrated below:

- (1)a. [NP the mani [CP that [TP \_\_\_i kissed me]]] – Subject RC (SU)
- b. [NP the mani [CP that [TP I kissed \_\_\_i ]]] – Direct Object RC (DO)
- c. [NP the mani [CP that [TP I gave the book to \_\_\_i]]] – Indirect object RC (IO)
- d. [NP the mani [CP that [TP I talk to \_\_\_i]]] – Object of Preposition RC (OPrep)

The relativized item moves from within the TP, leaving a gap, and the gap co-indexes with the relative head N, referred to as the “filler.”<sup>2</sup> The AH is generally understood as

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<sup>1</sup> This research is supported by a Language Learning Dissertation Grant from Language Learning, the journal, and the Social & Behavioral Science Research Institute Dissertation Grant from the SBSRI, University of Arizona.

an implicational order, where the existence of a level of relativization, e.g. OPrep, means the existence of all other types of relativization higher on the hierarchy. In other words, if language X has Indirect Object relative clauses, then it must also have SU and DO relativization, but it may not necessarily have Object of Preposition relative clauses.

An overwhelming number of acquisition studies in both first and second language (L1 and L2) of the postnominal RCs, i.e., English type of RCs where the head noun occur first, find that acquisition difficulty and orders are often consistent with the AH: learners acquire RC types in more accessible positions (i.e., positions higher on the hierarchy) first, and when different types of RCs were elicited from learners at a particular stage, accuracy rate in learners' production of RCs in more accessible positions is higher (Gass, 1979; 1982; Doughty, 1991; Eckman, Bell, & Nelson, 1988; Hamburger & Crain, 1982; McKee, McDaniel & Snedeker, 1998). To explain such consistency between the behavioral patterns in acquisition and natural language typology, it was proposed that processing ease might be responsible for the AH. However, several recent L2 acquisition studies in East Asian languages, including Japanese, Korean, Cantonese, etc. report findings that are not consistent with the NPAH (Jeon & Kim, 2007; Ozeki & Shirai, 2007; Yip & Matthews, 2007). Previous works on the processing ease and acquisition studies of Chinese RCs also yield controversial findings.

One possibility that was sometimes raised to account for these unsettling results in East Asian language studies is that putative RCs in those languages, as Comrie (2002) argues, might be "attributive clauses" rather than relativizations in nature. We will not delve into this controversy here. Readers are directed to Aoun & Li (2003) and Huang, Li & Li (2009) for a formal linguistic analysis of Chinese RCs. Through literature review and by comparing the syntactic characteristics "attributive clauses" and putative Chinese RCs, Xu (2010) argues against the proposal of treating putative Chinese RCs as "attributive in nature" as Comrie (2002) suggests for languages such as Japanese. Chinese RCs are true relativization structures that normally involve a gap and movement. The current project sets out to examine whether the NPAH can be applicable to L2 Chinese. Could the AH rightfully indicate the relative difficulty of different types of Chinese RCs? Could the NPAH be a meaningful predictor of Chinese as a Foreign Language (CFL) learners' learner language? If there is consistency between observed behavioral facts and the typological markedness observed in natural languages, then such evidence could possibly be taken as support from the behavioral science point of view for the linguistic proposal to analyze Chinese RCs as true relativization structures.

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<sup>2</sup> According to Chomsky(1977)'s original operator movement analysis, the actual structure in (1a) should be (i).

(i) [NP[The mani] [CP Opi [C that [TP ti kissed me]]].

In general, though, the difference between (1a) and (i) does not concern us, since all structures in (1a-d) involve such an operator and movement to the Spec of CP, and the hierarchy is more concerned with the differences between these different types of RCs.

**40Dceni tqwpf "**

(2a-d) illustrate examples of Chinese relative clauses.

- (2) a. [[ *e* xihuan Lisi de] na ge ren] zai Beijing shangxue.  
*e* like Lisi DE that CL person at Beijing study.  
 'The person who likes Lisi is studying in Beijing right now.'
- b. [[Lisi xihuan *e* de] na ge ren] zai Beijing shangxue.  
 Lisi like *e* DE that CL person at Beijing study  
 'The person that Lisi likes is right now studying in Beijing.'
- c. [[Wo jie-gei ta shu de] na ge ren] xuexi hen renzhen.  
 I lend-to he book DE that CL person study very serious  
 'The person that I lent the book to studies very hard.'
- d. [[Wo xiang ta wen-lu de] na ge ren] feichang naixin.  
 I toward he ask-way DE that CL person very patient.  
 'The person whom I asked the way of is very patient.'

The relativization strategies of these examples follow the Noun Phrase Accessibility Hierarchy but are different from the ones used in the English examples in (1a-d).

A more detailed illustration of the NPAH is in need here. The Hierarchy states that there are different relative clause forming strategies. The primary strategy is the gap strategy and an alternative strategy is the resumptive pronoun strategy. The Hierarchy has the following stipulations:

- (a) A language must be able to relativize subjects;
- (b) Any RC-forming strategy must apply to a continuous segment of the hierarchy;
- (c) Strategies that apply at one point of the AH may in principle cease to apply at any lower point (Keenan & Comrie, 1977, p. 67).

The use of the resumptive pronoun strategy has the reverse implicational order than the primary gap strategy: if a resumptive pronoun is used in position X on the hierarchy, the resumptive pronoun must be used in all lower positions that can be relativized at all (Comrie & Keenan, 1979). The hierarchy also allows a possible overlap of the strategies as long as a particular strategy applies to a continuous segment of the hierarchy.

As seen from (2a-d), both the gap strategy (in which there is movement) and base generation with resumptive pronoun strategies are available to derive relative clause structures in Chinese: The gap strategy is used in SU and DO relative clauses, and resumptive pronouns are obligatory in IO and OPrep relativization.

Although there is an increasing number of behavioral studies on Chinese RCs in the recent decades, results remain controversial. Results from both L1 processing, L1 acquisition and L2 acquisition studies of Chinese are inclusive so far. Readers are directed to Lin (2006), Hsiao and Gibson(2003), Kuo and Vasishth (2006) for results in L1 studies comparing the psychological difficulty of Subject versus Object RCs. The existing few L2 studies on Chinese RCs usually only compare Subject versus Object RCs, often with inclusive results, perhaps due to the complications of other variables or issues in design (Chen, 1999; Packard, 2008). Without other types of RCs taken into consideration, these studies often do not look at relativization strategies used by learners.

**50Gzr gtlo gpv<Ugpgpeg'Ego dlpcvkp'Vcuni'**

**5000 gj qf u'**

**5000Rct vlek cpw'**

In the current experiment, 45 participants who were native speakers of English participated in the experiment. All were CFL students enrolled in an intensive language program at an institute in North America that specializes in foreign language teaching. Prior to the conduct of the experiment, these participants received language instruction for 4 hours a day on weekdays for 2.5 semesters. Those participants were judged by the institutes' trained professionals to be intermediate-mid to intermediate-high L2 speakers of Chinese by the American Council on the Teaching of Foreign Languages (ACTFL) standard. Participants ranged from 18 to 36 years old. Data from 34 of these participants were analyzed. Justification of inclusion is provided in the Scoring section. Because this experiment does not focus directly on developmental sequence, but aims to investigate the mental representation of learner language (perhaps at a particular stage), data from participants at a unanimous proficiency group is thought to be meaningful enough to indicate acquisition difficulty. From learners' production accuracy and errors, issues regarding learners' (in)competence can be discussed.<sup>3</sup>

**50000 cvgt kni'cpf 't qegf wt g'**

A Written Sentence Combination Task was used to elicit production. This task was frequently used in second language acquisition (SLA) studies (Gass, 1979; Roberts, 2000; Ozeki & Shirai, 2007). To the author's knowledge, this task has not been used in SLA studies of Chinese RCs.

Each participant was given a written test paper with 20 pairs of sentences and was instructed to combine pairs of sentences in each item, following the examples in the instruction section. (3) provides a test item with a pair of sentences. In the experiment,

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<sup>3</sup> A group of 24 L1 participants (native speakers of Chinese) also participated in this experiment, but this procedure was conducted to elicit data to analyze native speakers' preference for other issues such as the demonstrative position in Chinese RCs. Native speakers made no errors in this task and therefore performance of the L1 and L2 group differences will be discussed in this paper.



the items were presented in simplified Chinese characters, with *pinyin*/Romanization at the top of each character.

- (3) --- Gangcai wo mama zai zhao yi ge nvren.  
 Just now I mother PRG look.for one CL woman  
 ‘Just now, my mother was looking for a woman.’
- Na ge nvren xing Li.  
 That CL girl name Li  
 ‘That girl is named Li.’

The targeted answer for (3) is a DO relative clause, i.e., (4), which combines the information in the two statements in (3).

- (4) Gangcai wo mama zai zhao de na ge nvren xing Li.  
 Just.now I mother PRG look.for DE that CL woman name Li.  
 ‘The woman that my mother was looking for just now was named Li.’

The 20 test items include 4 items eliciting each of the following types of RCs: SU, DO, ID, OPrep, and Possessive RC in the Object position. Only the first four types of RCs are analyzed here.<sup>4</sup> See Appendix for the test.

The items are randomly ordered and controlled for animacy: sentence (b) always has a stative verb (e.g. ‘live’, ‘like’), or a predicate AdjP (which is roughly equivalent to a stative verb), or a copula, and the head noun of the target RC is [+human]. For sentences eliciting SU and DO RCs, sentential AdjPs like *gangcai* (‘just now’) are added, as in (3), so that the lengths of the expected productions for all RCs approximately match. The experiment also has a counterbalanced design for SU and DO relatives: each SU relative has a DO relative counterpart. For instance, a counterpart to (3), a DO relative clause, is (5), a Subject relative clause.

- (5) --- Gangcai you ge nvren zai zhao wo mama.  
 just now exist CL women PRG look-for I mother.  
 ‘Just now a woman was looking for my mother.’
- Na ge nvren xing Li.  
 That CL woman name Li.  
 ‘That woman is named Li.’

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<sup>4</sup> Possessive RCs were not analyzed in the current study because the grammaticality of relativizing a Possessive RC in an Object position without a resumptive pronoun depends on dialectal differences. The purpose of including Possessive RCs in this experiment was to collect preliminary data to initiate possible future studies in Chinese Possessive RCs.

This experiment was administered in a regular class period of 50 minutes. Two instructors at that institute and the author together administered the experiment. A five-minute practice session with sample items was conducted before the main experiment. While the participants were allowed to do so, they did not raise questions about vocabulary and did not use any reference books.

### 5040Ueqtlpi "

The test was scored based on whether the participants produced the target sentence, as shown by the example in (4). The scoring was either 1 (correct) or 0 (incorrect). Alternative target-like productions that also received 1 point are grammatical RCs with a demonstrative occurring first (i.e., *na-ge gangcai wo mama zai zhao de nvren*) or without a demonstrative (i.e. *gangcai wo mama zai zhao de nvren*).

Some participants combined pairs of sentences into a sequence that is not target-like by using the first sentence in the pair as the main sentence in their production. (6) is an example of such an error.

- (6) Gangcai        wo        mama zai        zhao        yi ge        xing Li        de        nvren.  
 Just now        I        mother PRG        look.for one CL name Li        DE        woman  
 ‘Just now my mother was looking for a woman named Li.’

Such productions often do not yield a production with a relativization structure (when the second sentence in the pair contained a copula or Adj). Following Ozeki and Shirai (2007), such production is considered as a *miscombination* error.

Because seven participants made the error of *miscombination* for almost all the test items, with only one to two target-like productions, their data were excluded from analysis; Another four participants’ production data were also excluded because for all test items, they produced sequences that could not be analyzed as a relative clause structure in anyway, or could not use the relativizer *de* throughout the questionnaire. Therefore, data in the following analysis were based on 34 participants’ production.

### 5050Tgwnu'

The scoring for each type of RCs is summarized in Table 1; nine categories of errors were identified and summarized in Table 2.

Table 1 *Scoring of Different Types of RCs*

RC type	Subject RC	Object RC	Indirect Obj.	Obj. of Prep
Score (total)	121	117	27	39
Mean accuracy	88.97%	86.03%	19.85%	28.68%

*Note.* Three types of responses that differed slightly from the exact “target production” shown in example (7) but were nevertheless counted towards correct responses in Table 1. Those three

types of responses include using *yi-ge* (“one-Classifier”) instead of demonstrative-CL, not using demonstrative-CL, and using demonstrative-CL at the beginning of the RC (forming a demonstrative-first relative clause). For the purpose of this study, all of these are equally considered “target-like productions.”

Table 2 *Error Types in Different Types of Relative Clauses*

Type of errors	Subject RC	Object RC	Indirect Obj. RC <sup>a</sup>	Obj. of RC	Prep	Total
Pronoun retention	0	2				2
Resumptive NP			3	4		7
Missing pronoun	/	/	90	46		136
Miscombination	3	6	3	6		18
Change into SU RC type	/	4	7	14		25
Preposition missing & Preposition wrong				17+2		19
RC marker <i>de</i> missing	1	2				3
Structural errors	11	4	4	6		25
Others		1	4	2		7

<sup>a</sup>There were two cases within IO errors where the errors were counted twice, because the sentences involved both a “missing pronoun” error and a misuse of *gei* “give” or a *ba* (light verb)-construction.

*Pronoun retention* refers to cases where a pronoun was used in a position where there should be a gap, i.e., in the relativization of SU and DO positions in Chinese. *Missing pronoun* errors are cases where learners failed to use a resumptive pronoun in IO and OPrep relative clauses. *Resumptive NP* errors occur only in IO and OPrep relativization in the data. That is, instead of using a resumptive pronoun, learners used the head NP in the position that was being relativized. An example was given in (7), with ‘one-CL friend’ within the RC as the resumptive NP.

- (7) Xiao Zhang gei-le yi ge pengyou wubai-kuai-qian de na-ge pengyou  
 Xiao Zhang give-PERF 1 CL friend 500-CL-money DE that-CL friend  
 mei-you gongzuo  
 not-have job  
 Intended: The friend whom Xiao Zhang gave 500 dollars to does not have a job.

In some cases where DO, IO, or OPrep relative clauses were being elicited, learners produced SU RCs instead, sometimes with the addition of passive marker *bei* in their production and occasionally involving a meaning change. Such errors were categorized as *change into a SU RC type*. There were no cases where targeted Subject RCs were changed into other types of relativization by learners. For instance, a paired-item eliciting an OPrep relative clause was shown in (9a), with the targeted production in (9b). An example of such an error of *change into SU RC type* was given in (10).

- (9) a. Wo mama xiang yi-ge ren wen-lu. Na-ge ren shi ge lao taitai.  
 I mother from one-CL person ask-way. That-CL person BE CL old lady  
 ‘My mother asked a person for directions. That person was an old lady.’
- b. Wo mama xiang ta wen-lu de na-ge ren shi ge lao taitai.  
 I mother from her ask-way DE that-CL person BE CL old lady  
 ‘The person that my mother asked directions from was an old lady.’
- (10) Xiang wo mama wen-lu de ren shi ge lao taitai.  
 from I mother ask-way DE person BE CL old lady  
 ‘The person who asked my mother for directions is an old lady.’

*Structural errors* are cases of productions without anything that could be potentially analyzed as a relative clause. Other errors include *orthographical errors* and errors with *gei* (‘give’) and *ba*-structures in targeted IO relativization. The last four types of errors in Table 2 will not be discussed in detail in this paper.

### 5060Fkwukp'''

### 5060Uwdlgev'xu0Qdlgev'TE u'

The scores for SU and DO RC productions were higher than the scores of IO and OPrep RCs, indicating that the latter two types of relativization are much harder, consistent with the implicational order that one would assume based on the NPAH.

At the same time, scores of SU versus DO RCs were close, i.e. 121 vs. 117, which did not seem to provide support for the expected ease of SU relatives. But this was not evidence against the hierarchical difference either; it could be explained in terms of a “ceiling effect”, as “the hierarchy does not exclude grammars in which both SU and DO relatives emerge simultaneously and are acquired before [other types of] relatives”

(Eckman, 2007, p. 325). It is possible that these L2 learners of Chinese have acquired similar competence in SU and DO relativization at the time of the experiment.

Additionally, the error of *changing RC type* may indicate that Subject RCs could indeed be easier than other types, since participants tended to produce Subject RCs even when they have to add an additional grammatical element such as the passivizer *bei* or changed the meaning of the combined sentence.<sup>5</sup>

### 50601Q'c'pf 'QRt gr 'TEu'

The score for IO relatives is higher than the score for OPrep relative clauses (27 vs. 39). This might be taken to imply that learners have acquired better competence with OPrep than IO relativization, which would be puzzling if one believes that consistency between the hierarchy and acquisition difficulties should be universal.

At the same time, it is noticeable that the most prevalent error in IO relativization is *missing pronoun*, which directly leads to less accuracy with IO RCs. Learners made fewer errors of *missing pronoun* with OPrep RCs. Recall that the NPAH states that both the gap strategy and the resumptive pronouns are legitimate strategies in a language. If one considers the the participants' learner language, or interlanguage (IL) to be an independent language, disregarding how much the IL conforms to the target language, the learners' relativization strategies can be summarized into something that is represented by Table 3. In Table 3, instances of *missing pronoun* were temporarily not considered as an "error" but were instead analyzed as the learners' use of a gap strategy in these positions. Recall that there were also two instances of *pronoun retention* error in Direct Object RCs as seen from Table 2. These were also considered as a relativization strategy instead of an error here. It is obvious from Table 3 that as the position goes lower on the hierarchy, L2 learners tend to rely more on the resumptive pronoun strategy and avoid the gap strategy. That is consistent with the original observation stated by the NPAH, that pronoun retention is more common in lower positions.

Table 3 *Strategies Used for Different Types of RCs*

RC type	Subject RC	Object RC	Indirect Obj.	Obj. of Prep
Gap strategy	119	117	90 (*)	46 (*)
Pronoun strategy	0	2 (*)	27	39

*Note.* \* indicates that using the pronoun strategy for DO and the gap strategy for IO and OPrep RCs are not target-like.

"

<sup>5</sup> The same type change error was reported in Ozeki and Shirai (2007)'s study, in which almost all (38 out of 40) type change errors involved changing other types of RCs into Subject RCs by passivization, case markers, and verb changes. While noting that this was consistent with the NPAH, Ozeki and Shirai cautioned that the DO/OPrep RC to SU conversion may not be triggered by grammatical relationships but by the animacy of the head noun instead.

**506501pf klf wcrif cvc''**

But it is more important to examine individual learners' use of relativization strategies. Eckman (2007) points out that analysis of whether the L2 acquisition of RCs in a given language is consistent with the NPAH should be best performed when based on individual data, instead of group data (p. 325-326). This is because one cannot assume that the interlanguage of all learners is exactly the same. If individual learners' data adhere to the NPAH, then one has more solid evidence for the applicability of the Hierarchy in the SLA of Chinese.

Again, assuming both gap strategy and the resumptive strategies are candidates of legitimate strategies in a learners' IL, and a few productions with other error types such as *change into SU RC type* were excluded from consideration here, since the alternation of relativization strategies are the focus of analysis here. Individual learners' use of different strategies are summarized in Table 4, with comparable natural language examples cited in Keenan & Comrie (1977) listed.

Table 4 *Patterns of Pronoun Retention in RCs in Learners' IL*

SU	DO	IO	OPrep	Number of L2 Learner	Natural language comparisons
-	(+)	+	+	2	Persian; Genoese
-	-	+	+	5	Chinese (target language)
-	-	-	+	7	Shano
-	-	-	-	17	Japanese; English (L1)
-	-	(+)	(+)	1	?
-	-	-	?	2	

*Note.* “-” means that pronouns are not retained in that position when it is being relativized (a gap strategy is used when relativizing an NP in that position); “+” means that a pronoun strategy is used when relativizing an NP in that position. “(+)” means that the retention of the pronoun varies in the learners' production and is optional in the natural language examples. “?” indicates lack of data. Irrelevant errors such as RC internal structural errors and miscombination are excluded from consideration in this table.

Two learners started using the pronoun retention strategy occasionally at the DO position on the hierarchy, and they used the pronoun strategy systematically for IO and OPrep RCs. Seven L2 learners used the gap strategy systematically for the RCs on SU, DO, and IO positions, and they used the pronoun strategy systematically for OPrep RCs.<sup>6</sup> Five participants used relativization strategies that conform to the grammar of the target language, i.e., Chinese: they used the gap strategy on SU and DO positions, and the

<sup>6</sup> Keenan and Comrie (1977)'s observation is that the pronoun strategy is used optionally in relativizing OPrep in Shano, and is used obligatorily in relativizing lower positions, i.e., in Genitive RCs and in Object of Comparison relativization. Still, the pattern of using pronoun retention in relativization in Shano is largely similar to those learners' IL grammar.

pronoun strategy at lower positions. Seventeen L2 learners used the gap strategy to relativize all the four positions. That matches with the grammar of relativization strategies in English. Finally, two learners used the gap strategy systematically for SU, DO, and IO positions, but there is no evidence of their using either the gap or the pronoun strategy for OPrep RCs because they made other errors such as *miscombination*, changing RC type, etc. In sum, although the patterns that participants adopted in using different strategies did not always adhere to the target language form or the native language form, learners were using alternative strategies in a way consistent with the principles dictated by the NPAH. Perhaps one learner's production appeared to be somewhat of an exception. This learner used the gap strategy systematically for SU and DO RCs, but uses the pronoun strategy occasionally for IO and OPrep RCs (This learner used the pronoun strategy in one out of four test items for both types of RCs, and used the gap strategy in three other items.) Still, this learner's IL is not inconsistent with the hierarchy, as the AH does not exclude a grammar that permits flexibility within the two relativization options (gap and pronoun) on two adjacent positions. In sum, detailed analysis of individual learners' interlanguage conforms to the original stipulation of the NPAH: Learners used one particular relativization strategy on a continuous segment on the hierarchy, and the resumptive pronoun strategy has the reverse implicational order as the NPAH. In other words, the NPAH is applicable to the SLA of Chinese, in the sense that L2 Chinese speakers' IL conforms to this generalization based on natural language constraints.

However, if one is to interpret higher accuracy automatically as "less difficulty" or "better competence", it seems that the AH does not always predict the learners' acquisition difficulty: L2 participants achieved higher scores for targeted OPrep than IO relative clauses. To this, the author would like to entertain a possibility that some psycholinguistic factors may have caused the more L2 participants to use the gap strategy in IO position, committing errors of *missing pronouns*. Obviously L1 transfer could be at play, since English uses the gap strategy for relativization in all the four positions, SU, DO, IO and OPrep. The reason that seven of these L2 participants successfully used the pronoun strategy in OPrep position may not be their knowledge of the target language form or a competence to produce OPrep relative clauses in Chinese. Instead, some underlying factors related to language processing could have caused the difference. Section 3.4.5 would discuss such a possibility.

#### **50660T guwo r vkg'P Ru'epf 'qvj gt 'gttqtu''**

There were three cases of resumptive NP error with IO relative clauses and four cases with OPrep RCs. While these cases are not counted in the "resumptive pronoun" strategy in Table 3, they do indicate that those learners are also using a non-movement strategy in relativizing these positions. Relativization using a resumptive NP is not referred to as a legitimate relativization strategy by the NPAH, but examples of resumptive NP were reported in the L1 acquisition of Chinese RCs by Chinese children (Hsu, Hermon, & Zukowski, 2009). It is possible that learners were aware of the subordinate relationship

of the relative clause to the main clause, as well as a co-indexing relationship of the relative head to the relativized position. Their use of a non-movement strategy by repeating the head N to achieve the co-indexing relationship could indicate a processing difficulty of doing syntactic extraction or movement.

There were also a few errors associated with three-argument verbs and Prepositional Phrases, indicating that, in some aspect, IO and OPrep relativizations are harder because grammatical production would hinge on acquisition of not only the relativization structure, but also the learners' competence in other aspects of the language. But these are issues of a different nature than the innate difficulty of the relativization structure itself.

**50670Ngct pgt uŋt gr vskk cvkqp'lt cvgi lgu'čpf 'ruŋ ej qŋpi wkwle'b qv&c vŋpu'**

As was mentioned earlier, linguists believe that psychological motivations could have been responsible for both the hierarchy in natural languages, and its implication in SLA. Keenan & Comrie (1977) themselves discussed possibilities from the processing perspective to explain the AH, and numerous L1 processing studies in Indo-European languages find that processing ease is consistent with the NPAH (Ford, 1983; Gibson, Desmet, Grodner, Watson, & Ko, 2005; Keenan & Hawkins, S., 1987). In previous SLA studies that examined the relative difficulty of SU versus DO relative clauses in English, researchers also discussed the relevance of psycholinguistic factors in learner production (Hamilton, 1994; Izumi, 2003, etc.). In this section, a connection would be made between a psycholinguistic theory, namely the Filler-Gap Domain Theory (FGD) and the alternation of relativization strategies that one observes in natural languages and in the current L2 data.

The FGD was proposed by Hawkins (1999) primarily to account for the behavioral effects in L1 processing studies. A FGD is the set of minimum number of nodes on a syntactic tree structure required to establish a filler-gap relation or a particular type of relativization structure (Hawkins, 1999, p.248). The human processor prefers smaller FGDs. For instance, the minimum number of nodes required for establishing a Subject-extraction relative clause is five, including a V node for the verb, VP as the maximum projection, CP or S for the relative clause, head N, and maximum projection NP (with an embedded CP). Note that Object N and Object NP projection nodes are not necessary for Subject relativization (since the verb within the RC could be intransitive). On the other hand, the number of nodes required to establish an Object RC is seven, as Object RCs need two more nodes: Subject N (NS) and NPS to establish a filler-gap relation. Hawkins(1999) illustrates that different number of nodes are needed for relativization at different positions, and the minimum FGD are are summarized below:



- (11) Subject RC= 5 {N, NP, V, VP, CP}  
 Object RC =7 {N, NP, N<sub>S</sub>, NP<sub>S</sub>, S, V, VP}  
 Indirect Object RC=9 {N, NP, N<sub>S</sub>, NP<sub>S</sub>, S, V, VP, N<sub>O</sub>, NP<sub>O</sub>}  
 Object of Preposition RC =9 {N, NP, N<sub>S</sub>, NP<sub>S</sub>, S, V, VP, P, PP}  
 (Adapted from Hawkins, 1999, p. 255)

Such a relative ranking of positions remains the same regardless of the linear ordering of the syntactic elements, i.e., whether relative clauses in that particular language are head-initial or head final, the rankings will be maintained.

The FGD can explain why it is “easier” to relativize a position that is higher on the hierarchy, despite language differences. It can also explain the continuous use of the gap strategy on a segment on the hierarchy, and the reverse implications of the alternative, resumptive pronoun strategy. Hawkins reasons that a resumptive pronoun can make the processing easier because it more explicitly marks the head’s role in the relative clause, and an empty category does not need to be inferred from context (p. 257-258). Therefore, when the structural distance between the potential filler-gap is too much (i.e., when the relativized position is lower on the hierarchy), the language may use this alternative strategy for relativization, namely by base-generating a resumptive pronoun. Meanwhile, gaps are still preferred in higher positions because of the advantage in the “economy of expression” (Hawkins, 1999, p. 250-260).

It is conceivable that such an alternation between the gap and the pronoun strategies is not applicable to L1 processing, but to L2 speakers’ processing too. That is why learners tended to rely more on the pronoun strategy as the relativized position goes lower on the hierarchy. Recall that seven participants consistently used the gap strategy for SU, DO and IO positions. Those seven learners did not acquire relativization at the IO position. At the same time, it might be reasonable to suspect that those L2 participants, despite their use of resumptive pronouns in targeted OPrep RC production and hence higher scores for OPrep RC, were not really competent of OPrep relativization either. It may simply be that in those L2 learners’ interlanguage grammar, the alternation between the gap and the resumptive pronoun strategy took place in the OPrep position. In other words, L2 Chinese learners used resumptive pronouns in the OPrep RCs, possibly because extraction to establish a filler-gap relation becomes harder in this lower position, not because their innate knowledge of the target language grammar

Still, some comments need to be made regarding Hawkins’ stipulation of the FGD, because in (11), the IO and the OPrep relativization involve the same number of nodes. Hawkins does not explain why a difference in OPrep and IO still exist even though the numbers of nodes for these two RC structures are the same, given his definition of the FGD.<sup>7</sup> It is perhaps possible that Hawkins’ detailed definition of the minimum FGD

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<sup>7</sup> Hawkins (1999)’ illustration of FGD includes discussions of several other types of RCs that are lower on the hierarchy than OPrep; those include relativization on a genitive within a Subject NP

might need modification. For instance, some maximum projections could be inherently harder to process than others. Whatever the details may be, the FGD theory does provide some rationale to explain why natural language constraints would be observed in L1 processing researches, and it would not be a surprise that the same processing factor, rather than anything related to competence, would have prompted some L2 participants in this current experiment to use a resumptive pronoun to relativize an OPrep position. It could be argued that universal processing factors that stem from the innate difficulty of the structure, rather than issues in acquisition, could be the underlying factor affecting L2 learners' performance, and perhaps higher score in some SLA studies should not be taken directly as evidence of "competence" without considering other interacting factors.

### **60Eqpenwukp''**

There is evidence from this experiment that Indirect Object and Object of Preposition Relative Clauses are indeed harder than Subject and Object RCs. This could be due to either the learners' transferring relativization strategies in their L1 (English), or the fact that relativization in these positions is inherently more difficult, with the involvement of more terminal nodes in those structures, as the FGD suggests.

L2 learners can produce Direct Object and Subject relative clause with similar accuracy. This can be interpreted as a ceiling effect; on the other hand, evidence such as *change into SU RC type* errors may indicate that Subject RCs could be easier in terms of less processing cost.

To address our first research question: Can the NPAH predict the relative difficulty of different types of RCs? If accuracy rate is taken as an indicator of production ease, then the AH could not serve as such a predictor. While such consistency of the relative accuracy rate and the AH was found in English as a second language studies, this could be largely due to the fact that English RCs use the gap strategy throughout the four positions under examination, and therefore processing difficulty, which results in the markedness described in the AH, would have triggered learners to progressively rely more on resumptive pronoun strategies in lower positions, resulting in less accuracy in those less accessible positions. At the same time, if accuracy rate could be taken in some sense as indicators of "less difficulty in acquisition", results in this study could only be considered relevant to CFL learners whose first language is English. Since a large proportion of the errors that surfaced in this study are related to relativization strategies (i.e., using a gap or a pronoun, extraction or base-generation), the L1-L2 differences certainly plays an important role in learner production.

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(Gen-SU), Gen-DO, Gen-IO, and Gen-Object of Preposition, and the minimum FGD in those RCs are 9, 11, 13, 13 nodes, respectively (p.255). Other types of RCs are not investigated here, and although the minimum FGD is the same for some positions that are adjacent to each other, the FGD theory in general is capable of explaining language facts beyond the four types of RCs discussed in this paper.

However, one must interpret the “applicability” of the NPAH in SLA in the right way: The NPAH was not originally formulated as a predicator of acquisition difficulty or acquisition order. The reportedly consistency between English L1/L2 speakers’ earlier acquisition or better performance of RC types higher on the hierarchy could be, except for the fact that they are both affected by processing difficulties to some extent, coincidental. What should be of real interest to SLA researchers is whether learners’ interlanguage, of L2 English or Chinese, adheres to the same constraints described by the NPAH. In the current study, both group and individual data do indicate that learners’ interlanguage adheres to this natural language constraints: Learners used the gap strategy as the primary strategy, starting at the highest position (i.e., Subject), and used that strategy on a continuous segment on the hierarchy; and they used pronoun coindexation as an alternative strategy at lower positions, also on a continuous segment on the hierarchy. In that sense, L2 Chinese speakers’ learner language exhibits patterns consistent with the AH. To put it another way, evidence from this study shows that the “rule” of NPAH is indeed in effect in L2 Chinese. It is interesting that learners should all use the two relativization strategies continuously on the AH, and perhaps this in turn could lend support for the linguistic analysis of treating putative Chinese RCs as true relativization structures instead of “attributive” or “noun-modifying” clauses.

**Tghgt gpegu'**

- Aoun, Joseph. & Yen-hui Audrey Li. 2003. Essays on the representational and derivational nature of grammar: The diversity of wh-constructions. Cambridge, Mass: MIT.
- Chen, Chunyin. 1999. The second language acquisition of Chinese relative clauses. *The World of Chinese Language* 94. 59-76.
- Comrie, Bernard & Edward L. Keenan. 1979. Noun phrase accessibility revisited. *Language* 55. 649-664.
- Comrie, Bernard. 2002. The case of relative clauses. In Anna G Ramat (ed.), *Typology and second language acquisition*, 19-37. Berlin: Mouton de Gruyter.
- Doughty, Catherine. 1991. Second language instruction does make a difference: Evidence from an empirical study of SL relativization. *Studies in Second Language Acquisition* 13. 431-469.
- Eckman, Fred R. 2007. Hypotheses and methods in second language acquisition: testing the noun phrase accessibility hierarchy on relative clauses. *Studies in Second Language Acquisition* 29. 321-327.
- Eckman, Fred R., Lawrence Bell & Diane Nelson. 1988. On the generalization of relative clause instruction in the acquisition of English as a second language. *Applied Linguistics* 9. 1-20.
- Ford, Marily. 1983. A method for obtaining measures of local parsing complexity throughout sentences. *Journal of Verbal Learning and Verbal Behavior* 22. 203-218.
- Gass, Susan M. 1979. Language transfer and universal grammatical relations. *Language Learning* 29. 327-344.
- Gass, Susan M. 1982. From theory to practice. In *On TESOL '81: Selected papers of the fifteenth annual Conference of Teachers of English to Speakers of Other Languages*, edited by Mary Hines & William Rutherford, 129-139. Washington DC: TESOL.
- Gibson, Edward, Timothy Desmet, Daniel Grodner, Duane Watson & Kara Ko. 2005. Reading relative clauses in English. *Cognitive Linguistics* 16. 313-353.
- Hamburger, Henry & Stephen Crain. 1982. Relative acquisition. In *Language development: Syntax and semantics*, Kuczaj, Stan (ed.), II. Hillsdale, NJ: Lawrence Erlbaum.
- Hamilton, Robert L. 1994. Is implicational generalization unidirectional and maximal? Evidence from relativization instruction in a second language. *Language Learning*, 44(1), 123-157.
- Hawkins, John A. 1999. Processing complexity and filler-gap dependencies across grammars. *Language* 75, 244-285.
- Hsiao, Franny, & Edward Gibson. 2003. Processing relative clauses in Chinese. *Cognition* 90(1). 3-27.

- Hsu, C.-C. Natalie, Gabriella Hermon & Andrea Zukowski. 2009. Young children's production of head-final relative clauses: Elicited production data from Chinese children. *Journal of East Asian Linguistics* 18. 323-360.
- Huang, C.-T. James, Audrey Y.-H. Li & Yafei Li. 2009. *The syntax of Chinese*. London: Cambridge University Press.
- Izumi, Shinichi. 2003. Processing difficulty in comprehension and production of relative clauses by learners of English as a second language. *Language Learning* 58(2). 285-323.
- Jeon, K. Seon & Hae-Young Kim. 2007. Development of relativization in Korean as a foreign language: The noun phrase accessibility hierarchy in head-internal and head-external relative clauses. *Studies in Second Language Acquisition* 29. 253-276.
- Keenan, Edward L. & Bernard Comrie. 1977. Noun phrase accessibility and universal grammar. *Linguistic Inquiry* 8. 63-99.
- Keenan, Edward L. & Sarah Hawkins. 1987. The psychological validity of the accessibility hierarchy. In Edward L. Keenan (ed.), *Universal grammar: 15 essays*, 60-85. London: Croom Helm.
- Kuo, Kuei-Lan & Shravan Vasishth. 2006. Processing relative clauses: Evidence from Chinese. <http://www.ling.uni-potsdam.de/~vasishth/vasishth2.html>. (10 January, 2007.)
- Lin, C.-J. Charles. 2006. *Grammar and parsing: a typological investigation of relative-clause processing*. Tucson, AZ: University of Arizona dissertation.
- McKee, Cecile, Dana McDaniel & Jesse Snedeker. 1998. Relatives children say. *Journal of Psycholinguistic Research* 27. 573-596.
- Ozeki, Hiromi, & Shirai, Yasuhiro. 2007. Does the noun phrase accessibility hierarchy predict the difficulty order in the acquisition of Japanese relative clauses? *Studies in Second Language Acquisition* 29. 169-196.
- Packard, Jerome L. 2008. Relative clause processing in L2 speakers of Mandarin and English. *Journal of the Chinese Language Teachers Association* 43. 107-146.
- Roberts, Michael A. 2000. *Implicational markedness and the acquisition of relativization by adult learners of Japanese as a foreign language*. Manoa, HI: University of Hawaii at Manoa dissertation.
- Xu, Yi. 2010. *The syntax, processing, and second language acquisition of Chinese relative clauses*. Tucson, AZ: University of Arizona dissertation.
- Yip, Virginia & Stephen Matthews. 2007. Relative clauses in Cantonese-English bilingual children: Typological challenges and processing motivations. *Studies in Second Language Acquisition* 29(2). 277-300.

**Crr gpf lz''**

Sentence Combination Task Survey Sheet

(Indication of relative clause types such as SU, DO in brackets was added for the convenience of the readers of this paper.)

"

**Ego dlpq'Ugvppegu'合成句子''**

Following the examples, combine each pair of the sentences into one.

请按照例子，把两句话合成一句话。

- Gzco riq<** (a) 一个朋友送了我一束花。那个朋友是美国人。 → 送了我一束花的那个朋友是美国人。  
 (b) 小王昨天遇见一个女生。那个女生很漂亮。 → 小王昨天遇见的那个女生很漂亮。  
 (c) 昨天晚上王先生跟一个女孩子跳舞。那个小姐是我的同学。 → 昨天晚上王先生跟她跳舞的那个女孩子是我的同学。  
 有个朋友送了我一件礼物。那个朋友对大家都很友好。 → 送了我一件礼物的那个朋友对大家都很友好。

**Gzgt ekgu<'**

- |                                  |         |
|----------------------------------|---------|
| (1) 刚才有个女人在找我妈妈。那个女人姓李。          | (SU)    |
| (2) 王经理赔了一个客人三百美金。那个客人很不讲道理。     | (IO)    |
| (3) 张力一直鼓励一个同学。那个同学和他在一个班上学中文。   | (DO)    |
| (4) 安妮和一位老师在吃饭。那位老师会说法语。         | (OPrep) |
| (5) 昨天小王帮了一个美国学生。那个美国学生是班上新来的同学。 | (DO)    |
| (6) 坏人打伤了一个女人的丈夫。那个女人非常担心。       | (Poss)  |
| (7) 王先生在屋子里等一个朋友。那个朋友是他中学同学。     | (DO)    |
| (8) 小李在路上问候了一个人。那个人以前也在这个学校读书。   | (DO)    |
| (9) 我妈妈向一个人问路。那个人是个老太太。          | (OPrep) |
| (10) 坏人抢了一个男人的钱包。那个男人非常生气。       | (Poss)  |
| (11) 我弟弟送了一个女孩一本书。那个女孩很高兴。       | (IO)    |
| (12) 小偷偷了一个同学的电脑。那个同学很不高兴。       | (Poss)  |
| (13) 我哥哥向一个朋友买了一台电脑。那个朋友在电脑公司工作。 | (OPrep) |
| (14) 有个小孩在路上撞倒了小王。那个小孩很小还不太会走路。  | (SU)    |
| (15) 小张给了一个朋友五百块钱。那个朋友没有工作。      | (IO)    |
| (16) 我哥哥借给了一个人一本中文书。那个人想了解中文文化。  | (IO)    |
| (17) 我向一位老师请教了这个问题。那位老师对学生特别好。   | (OPrep) |
| (18) 小林弄坏了一个孩子的玩具。那个孩子很不开心。      | (Poss)  |
| (19) 有个朋友每个周末都陪小李。那个朋友和他关系特别好。   | (SU)    |
| (20) 有个同学昨天拜访了小张。那个同学对人很热情。      | (SU)    |

## 汉译佛典的“S，N是”句及其来源研究 以梵、汉本《撰集百缘经》、《金光明经》、《维摩诘经》、《妙法莲华 经》的对勘为例

陈秀兰  
西南科技大学

本文探讨了两个问题：①调查了“S，N是”句在汉译佛经中的使用情况，通过分析，认为：“S，N是”的“是”表示判断。②调查了典型的梵语文学作品，如：*upaniṣads*（《奥义书》）、*raghuvamśam*（《罗怙世系》）、*kumārasambhavam*（《鸠摩罗出世》）等，归纳出梵语判断句的类型，有四种：A.  $N_1, \sqrt{as}$ ；B.  $N_1, N_2\sqrt{as}$  ( $\sqrt{bhū}$ )；C.  $N_1, \sqrt{as}$  ( $\sqrt{bhū}$ )  $N_2$ ；D.  $N_1, N_2$ 。然后，对勘梵、汉本《撰集百缘经》、《金光明经》、《维摩诘经》、《妙法莲华经》中的“S，N是”判断句。通过对勘，我们发现：四种汉译佛经有160例“S，N是”句，其中，126例有对应的梵文原典。这些梵文原典的句子都是梵文的判断句，有三种类型：A.  $N_1, N_2\sqrt{as}$  ( $\sqrt{bhū}$ )；B.  $N_1, \sqrt{as}$  ( $\sqrt{bhū}$ )  $N_2$ ；C.  $N_1, N_2$ 。经过逐一地分析这些句子，我们认为：汉译佛典的“S，N是”句是梵文“ $N_1, N_2\sqrt{as}$  ( $\sqrt{bhū}$ )”的对译，句中的“是”表示判断。由于类推的作用，原典判断动词位于  $N_1, N_2$  之间的判断句“ $N_1, \sqrt{as}$  ( $\sqrt{bhū}$ )  $N_2$ ”与原典未带判断动词的判断句“ $N_1, N_2$ ”也汉译成“S，N是”。

汉译佛典是一种翻译文学作品，不同于正统的中土文献，有它自己的特点，主要表现在两种混合上：一是汉语与大量原典语言成分的混合，二是文言与大量口语、俗语和不规范成分的混合。<sup>1</sup>因此，当我们阅读汉译佛典时，常常会看到一些比较特别的语言现象，这些语言现象不同于传统的中土文献。比如：我们常常会看到“是”后置的句子。如：“尔时高行梵志，则吾身是也；五百弟子，今若曹是；时谏师者，舍利弗是也。”（后汉县果共康孟详译《中本起经》卷下，4/163c<sup>2</sup>）这样的句子多出现在讲解佛、菩萨的本生故事中，如：《六度集经》、《撰集百缘经》、《生

<sup>1</sup> 参看朱庆之《佛教混合汉语初论》，《语言学论丛》第二十四辑，商务印书馆，2001，PP7-8。

<sup>2</sup> 阿拉伯数字及英文字母分别表示引文在《大正新修大藏经》中的册数、页数、上中下栏。

经》，或者是出现在通过打比方来讲道理的佛经中，如：《贤愚经》、《杂宝藏经》。下面我们将此类“是”后置的句子进行整理、归类。

### 一. 汉译佛典“S，N 是”句的种类<sup>3</sup>

汉译佛典“S，N 是”句有四种类型：

1 · N<sub>1</sub>者，N<sub>2</sub>是也，如：

(1) 时和默王者，吾身是也。(三国康僧会译《六度集经》卷三，3/11c)

2 · N<sub>1</sub>，N<sub>2</sub>是也，如：

(2) 善光梵天，今持心梵天是也。(西晋竺法护译《持心梵天所问经》卷三，15/21b)

3 · N<sub>1</sub>者，N<sub>2</sub>是，如：

(3) 时王者，吾身是。(三国康僧会译《六度集经》卷一，3/3c)

4 · N<sub>1</sub>，N<sub>2</sub>是，如：

(4) 欲知彼时老耄比丘，今此耶奢蜜多是。(吴支谦译《撰集百缘经》卷九，4/246c)

其中，S 可以是名词 N，也可以是“N+者”。关于这种“是”应该如何理解，学术界的看法不一致，有两种观点：一种观点认为其中的“是”表示判断（刘世儒 1957，香坂顺一 1983，张华文 2000，江蓝生 2003，张美兰 2003，陈秀兰 2003/2004/2008，朱冠明 2005，龙国富 2005，蒋绍愚 2009），另一种观点则认为其中的“是”表示复指，是指示代词（姜南 2008、2010）。“S，N 是”句中的“是”到底表示判断，还是表示复指？

我们知道，在汉语的发展史上，判断句的发展经历了两个阶段：

第一个阶段：上古汉语的判断句不用系词，用“者”“也”帮助判断，有四种类型

<sup>4</sup>：

<sup>3</sup> 江蓝生在《语言接触与元明时期的特殊判断句》一文中将汉文佛典的特殊判断句分为三类：a、N<sub>1</sub>者，N<sub>2</sub>是也；b、N<sub>1</sub>者，N<sub>2</sub>是；c、N<sub>1</sub>，N<sub>2</sub>是。《语言学论丛》第二十八辑，商务印书馆，2003年，P56。我们利用语料库，调查了从东汉到南北朝时期的124部汉译佛典，466卷，约460万字。其中，“N<sub>1</sub>者，N<sub>2</sub>是也”使用241次，“N<sub>1</sub>，N<sub>2</sub>是也”使用78次，“N<sub>1</sub>者，N<sub>2</sub>是”使用430次，“N<sub>1</sub>，N<sub>2</sub>是”使用130次。

<sup>4</sup> 参看王力《汉语语法史》，商务印书馆，2000年，PP182-183。



## 陈：汉译佛典的“S，N是”句

A. N<sub>1</sub>者，N<sub>2</sub>也，如：

(5) 彼后王者，天下之君也。(《荀子·非相》)

B. N<sub>1</sub>，N<sub>2</sub>也，如：

(6) 仲尼，日月也。(《论语·子张》)

C. N<sub>1</sub>者，N<sub>2</sub>，如：

(7) 虎者，戾虫。(《战国策·秦策二》)

D. N<sub>1</sub>，N<sub>2</sub>，如：

(8) 荀卿，赵人。(《史记·孟子荀卿列传》)

第二个阶段：汉代时，使用系词“是”以表示判断<sup>5</sup>，判断词置于主语和谓语之间。如：

(9) 韩是魏之县也。(《战国策·魏策三》)

(10) 西门豹曰：“巫姬弟子是女子也。”(《史记·滑稽列传》)

将汉译佛典的“S，N是”句与上古汉语的判断句比较，可以发现：在名词性谓语 N<sub>2</sub> 之后多了一个“是”。<sup>6</sup>在这四种类型的句子中，“是”之前的 S 与 N 可以互换位置，而它们所表达的语义是完全相同的。如例(1)的“时和默王者，吾身是也。”把“时和默王者”与“吾身”对换位置，变成“吾身，时和默王者是也。”这两个句子所表达的语义是完全相同的。也就是说，S 与 N 所指同一，完全重合。因此，我们认为，只有当“是”在这些句子中表示判断，S 与 N 互换位置之后它们所表达的语义才可能是完全相同的。

如果“S，N是”句子中的“是”不表示判断，是用作复指的代词，那么，S 与 N 是不能互换位置的。因为换了位置之后，它们所表达的语义就不同了。“臣闻七十里

<sup>5</sup> 参看杨伯峻、何乐士《古汉语语法及其发展》(下)，语文出版社，2001年，P713。

<sup>6</sup> 这几种形式中的“是”与上古汉语中“……者，……是也”“……，……是也”“……，……者是也”形式中的“是”虽然在形式上具有一定的相似性，但是它们的语法功能和含义是不一样的。如：“臣闻七十里为政于天下者，汤是也。”(孟子·梁惠王下)“昔者三代圣王，尧、舜、禹、汤、文、武是也。”(墨子)“夫国亦有猛狗，用事者是也。”(晏子春秋·内篇问上)这些句子中的“是”是代词，复指前面谈到的人、事物、情况。参看江蓝生《语言接触与元明时期的特殊判断句》，《语言学论丛》第二十八辑，商务印书馆，2003年，P54。

为政于天下者，汤是也。”（孟子·梁惠王下）句子中的 N 仅仅是对前面的 S 的一个举例，并不与 S 所指同一、完全重合。N 只是 S 所指的某种个例，并不是全部。这也就是“是”表示判断与表示复指的区别。

关于汉译佛典“S，N 是”句的来源问题，学术界有四种观点：一是认为它是古汉语判断句的变体（刘世儒 1957，香坂顺一 1983），二是认为它是梵文的对译（江蓝生 2003，陈秀兰 2003/2004/2008，朱冠明 2005，龙国富 2005），三是认为它是佛经语言判断句与汉语自身类似表达相结合的产物（张美兰 2003），四是认为它是原始汉藏语 SOV 结构的遗留（张华文 2000）。到底哪一种观点更接近汉语发展的真实情况？为了回答这个问题，我们觉得有必要再次利用梵汉对勘的方法，首先看看典型的梵语文学作品中的判断句类型，再次是对勘不同历史时期、一定数量的汉译佛经与它的梵文原典，看看汉译佛经“S，N 是”句在梵文佛经中的情况。

## 二·梵汉对勘情况

为了对勘梵、汉两种不同语言的判断句，首先必须了解梵语判断句的类型，然后对勘梵、汉本佛经《撰集百缘经》、《金光明经》、《维摩诘经》、《妙法莲华经》的“S，N 是”句。

### （一）梵语判断句的类型

梵语判断句的系词，通常以 *as* 或 *bhū* 表示，或者被省略。我们调查了 *upaniṣads*（《奥义书》）、*raghuvamśam*（《罗怙世系》）、*kumārasambhavam*（《鸠摩罗出世》），判断句有四种类型：

1 · N<sub>1</sub>，√*as*，如：

(11) *ko asi (upaniṣads)*<sup>7</sup>

直译：谁 (N.) 你是 (√*as*，2. sg. pres. p.)

汉语今译：你是谁？

2 · N<sub>1</sub>，N<sub>2</sub>√*as*；N<sub>1</sub>，N<sub>2</sub>√*bhū*，如：

(12) *so aham asmi (upaniṣads)*<sup>8</sup>

直译：他 (N.) 我 (N.) 我是 (√*as*，1. sg. pres. p.)

汉语今译：我是他。

<sup>7</sup> *the early upaniṣads—annotated text and translation*, Patrick Olivelle, Munshiram Manoharlal Publishers Pvt.Ltd., 1998, P368 第 4 段。

<sup>8</sup> *the early upaniṣads—annotated text and translation*, Patrick Olivelle, Munshiram Manoharlal Publishers Pvt.Ltd., 1998, P408 第 16 段。

(13) sarvāṅy eva etāni prajñānasya nāmadheyāni

直译：所有 (N.) 即 (Adv.) 这些 (N.) 知识 (G.) 名称 (N.)

bhavanti|| (*upaniṣads*)<sup>9</sup>

是 (√bhū, 3. pl. pres. p.)

汉语今译：所有这些即是知识的名称。

3 · N<sub>1</sub>, √as N<sub>2</sub>; N<sub>1</sub>, √bhū N<sub>2</sub>, 如：

(14) vṛṣa iva devo devānām rājñām

直译：因陀罗 (N.) 象 (Adv.) 神 (N.) 众神的 (G.) 众国王的 (G.)

rājā babhūva saḥ || (*raghuvamśam*)<sup>10</sup>

国王 (N.) 是 (√bhū, 3. sg. pf. p.) 他 (N.)

汉语今译：他是众国王的国王，如同因陀罗是众神的神。

(15) api arthakāmau tasya āstām dharma

直译：即使 (Adv.) 财富欲望 (N.) 他 (G.) 是 (√as, 3. du. impf.) 法 (N.)

eva manīṣiṇaḥ (*raghuvamśam*)<sup>11</sup>

即 (Adv.) 智者 (G.)

汉语今译：即使财富、欲望，即是智者的正法。

4 · N<sub>1</sub>, N<sub>2</sub>, 如：

(16) annam vai prajāpatiḥ (*upaniṣads*)<sup>12</sup>

直译：食物 (N.) (强调性的语气词) 创造主 (N.)

汉语今译：创造主是食物。

从梵语判断句的四种形式来看，有三种句型都带有系词，其中有两种句型的系词置于句末，一种句型的系词置于句中，另一种句型没有系词。梵语判断句的形式多以第二种和第四种居多。无论梵语判断句是否有系词，翻译时我们都必须把省略的系词补足<sup>13</sup>。

<sup>9</sup> *the early upaniṣads—annotated text and translation*, Patrick Olivelle, Munshiram Manoharlal Publishers Pvt.Ltd., 1998, P322 第 1 段。

<sup>10</sup> *works of kālidāsa*, Motilal Banarsidass, Delhi, Vol.2, 1986, P343, 第 77 偈。

<sup>11</sup> *works of kālidāsa*, Motilal Banarsidass, Delhi, Vol.2, 1986, P6, 第 25 偈。

<sup>12</sup> *the early upaniṣads—annotated text and translation*, Patrick Olivelle, Munshiram Manoharlal Publishers Pvt.Ltd., 1998, P460 第 14 段。

<sup>13</sup> 有的学者将此种现象称为 as 或 bhū 的特殊用法，是动词的冗余表达法。参看 FRANKLIN EDGERTON *BUDDHIST HYBRID SANSKRIT GRAMMAR AND DICTIONARY* Vol.1: Occasionally forms of as and bhū are used as quasi-particles; cf. the Skt. usages mentioned

(二) 梵、汉本《撰集百缘经》、《金光明经》、《维摩诘经》、《妙法莲华经》的“S，N是”句对勘

汉译本《撰集百缘经》<sup>14</sup>、《金光明经》、《维摩诘经》、《妙法莲华经》有“S，N是”句 160 例，其中，126 例有对应的梵文。在这 126 例梵文的判断句里，有三种类型：

1 · N<sub>1</sub>，N<sub>2</sub>√as (19 例)<sup>15</sup>；N<sub>1</sub>，N<sub>2</sub>√bhū (32 例)<sup>16</sup>

此类判断句中的判断动词√as 或√bhū 可以是 N<sub>2</sub>的判断动词，也可以是 N<sub>1</sub>的判断动词。如：

(17) aham sa tena kālena tena samayena rājā

直译：我 (N.) 那 (N.) 那时 (I.) 国王 (N.)

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by Speyer, Skt. Synt. p.234. So *āsīt* in SP 135.12(prose) *pūrvam cāham alpaprajñō 'lpapratīsamvedy andhabhūto 'smy āsīt,* 'formerly I was of little intelligence or experience, blind'; lit. 'I am ..., it was...'; (p199,41.1) The periphrastic verb expressions, involving use of participles with or without forms of *as* and *bhū* as copulas, mentioned in Sen 56-7, are on the whole hardly characteristic of BHS in distinction from Skt. (See Renou, *Études de gram. skte.*, Paris, 1936; on periphrastic use of present pples., especially 22-24.) (p199,41.2)

<sup>14</sup> 关于《撰集百缘经》的年代问题，日本学者出本充代博士的博士论文《avadānaśataka 的梵汉比较研究》(1998)，认为该经不是三国吴支谦所译，年代可能晚一些。日本学者辛岛静志对出本充代的博士论文撰写评论，赞同此论点。就我们所接触到的文献来看，我们以为此论点尚需进一步论证，将另外撰文专门讨论这个问题。因此这里仍然采用以前学者的观点。

<sup>15</sup> *saddharmapuṇḍarīka* [Bibliotheca Buddhica X], edited by Prof. H. Kern and Prof. Bunyiu Nanjio., Motilal Banarsidass Publishers Private Limited. Delhi, 1992, P384、P384。  
*avadānaśataka* [Bibliotheca Buddhica III], edited by Dr. J. S. Speyer, Motilal Banarsidass Publishers Private Limited. Delhi, 1992, I/P211、P237、P245、P301、P349、P353、P358、P366、P370、P383、P387, II/P23、P66、P88、P97、P101、P172。说明：我们在做统计时，把带有判断动词的主从复合句也算在内。[下同]

<sup>16</sup> *saddharmapuṇḍarīka* [Bibliotheca Buddhica X], edited by Prof. H. Kern and Prof. Bunyiu Nanjio., Motilal Banarsidass Publishers Private Limited. Delhi, 1992, P28、P187、P258、P258、P381、P382、P414、P470、P470、P470。  
*avadānaśataka* [Bibliotheca Buddhica III], edited by Dr. J. S. Speyer, Motilal Banarsidass Publishers Private Limited. Delhi, 1992, I/P66、P70、P82、P87、P92、P101、P105、P111、P118、P172、P176、P181、P186、P191、P222, II/P177。  
*suvarṇaprabhāsasūtram* [Buddhist Sanskrit Texts NO.8], edited by Dr. S. Bagchi, Published by The Mithila Institute of Post-graduate Studies and Research in Sanskrit Learning, Darbhanga, 1967, P105、P105、P105、P105、P122。《梵藏汉对照〈维摩经〉》，Edited by Study Group on Buddhist Sanskrit Literature, The Institute for Comprehensive Studies of Buddhism, Taisho University, P490。

**abhūvam** | (*saddharmapuṇḍarīka*, P259)

是 (√bhū, 1. sg. aor. p.)

abhūvam 是 N<sub>1</sub>“我”的判断动词，“我”是主语，“那时那个国王”是表语。

鸠摩罗什译：尔时王者，则我身是。(《妙法莲华经》卷四，9/34c)

鸠摩罗什译文“我身”是表语，“尔时王者”是主语。

汉语今译：我是那时那个国王。

(18) aham sa tena kālena tena samayena jalavāhanaḥ

直译：我 (N.) 那 (N.) 那时 (I.) 流水 (N.)

śreṣṭhidārako **būt** | (*suvarṇaprabhāsasūtram*, P105)

长者子 (N.) 是 (√bhū, 3. sg. aor. p.)

abūt 是 N<sub>2</sub>“流水长者子”的判断动词，“流水长者子”是主语，“我”是表语。

昙无讖译：尔时流水长者子，今我身是。(《金光明经》卷四，16/353c)

昙无讖译文“我身”是表语，“流水长者子”是主语。

汉语今译：那时那个流水长者子是我。

2 · N<sub>1</sub>, √as N<sub>2</sub> (4 例)<sup>17</sup>; N<sub>1</sub>, √bhū N<sub>2</sub> (8 例)<sup>18</sup>

此类判断句中的判断动词√as 或√bhū 可以是 N<sub>2</sub>的判断动词，也可以是 N<sub>1</sub>的判断动词。如：

(19) aham ca **āsīt** tada<sup>19</sup>

直译：我 (N.) 又 (indec.) 是 (√as, 3. sg. impf. p.) 当时 (adv.)

dharmabhāṇakaḥ | (*saddharmapuṇḍarīkasūtram*, P28)

法师 (N.)

āsīt 是 N<sub>2</sub>“法师”的判断动词，“法师”是主语，“我”是表语。

鸠摩罗什译：妙光法师者，今我身是。(《妙法莲华经》卷一，9/5b)

鸠摩罗什译文“法师”是主语，“我身”是表语。

汉语今译：当时，法师是我。

(20) tvam **abhūh** kuladevate tena kālena tena

直译：你 (N.) 是 (√bhū, 2. sg. aor. p.) 善女天 (V.) 那时 (I.)

samayena vṛkṣadevatā | (*suvarṇaprabhāsasūtram*, P105)

树神 (N.)

abhūh 是 N<sub>1</sub>“你”的判断动词，“你”是主语，“树神”是表语。

<sup>17</sup> *saddharmapuṇḍarīka*, P28。 *suvarṇaprabhāsasūtram*, P81、P122、P122、P122。

<sup>18</sup> *saddharmapuṇḍarīka*, P23、P432。 *suvarṇaprabhāsasūtram*, P80、P105、P122、P122、P122、P122。

<sup>19</sup> 参看 BHSG§3.27“a for ā”

昙无讖译：尔时树神现半身者，今汝身是。（《金光明经》卷四，16/353c）  
昙无讖译文“你”是表语，“树神”是主语。

汉语今译：善女天，你是那时的树神。

3·N<sub>1</sub>，N<sub>2</sub>（63例）<sup>20</sup>，如：

(21) sa mām evam āha|

直译：他（N.）我（Ac.）这样（indec.）说（√ah，3. sg. pf. p.）

āgacchāmi bodhimaṇḍād iti tam ahaṃ etad

到来（ā-√gam，1. sg. pres. p.）道场（Ab.）（引号）他（Ac.）我（N.）这样（indec.）

avocam bodhimaṇḍa iti ka(a4)sya etan nāma

说（√vac，1. sg. aor. p.）道场（N.）这样（indec.）什么（G.）这样（indec.）名（N.）

sa mām etad avocat bodhimaṇḍa iti

他（N.）我（Ac.）这样（indec.）说（√vac，3. sg. aor. p.）道场（N.）这样（indec.）

kulaputra āsayamaṇḍa eṣo 'krīmatayā prayogamaṇḍa eṣa

善男子（V.）阿世耶心（N.）这（N.）不欺骗（I.）修行心（N.）这（N.）

ārambhottāraṇatayā|（《梵藏汉对照〈维摩经〉》，P146，148）

无上修行（I.）

此例的判断句没有判断动词，“道场”是主语，“阿世耶心”、“修行心”是表语。

支谦译：答我言：“吾从道场来。”我问：“道场者，何所是？”言：“道场者，无生之心是，检一恶意故；淳淑之心是，习增上故。”（《佛说维摩诘经》卷上，14/524a）

支谦译文“道场”是主语，“无生之心”、“淳淑之心”是表语。

汉语今译：他对我说：“我从道场来。”我对他说：“什么叫做道场？”他对我

<sup>20</sup> *saddharmapuṇḍarīka*，P234、P234、P234。 *avadānaśataka*，I/P181、P191、P191、P211、P237、P239、P255、P269、P287、P299、P301、P335、P335、P362，II/P13、P18、P30、P35、P51、P109、P117、P160、P164、P185、P196、P205。  
*suvarṇaprabhāsasūtram*，P122。《梵藏汉对照〈维摩经〉》，P146、P148、P148、P148、P148、P148、P148、P148、P148、P148、P150、P150、P150、P150、P150、P150、P150、P150、P150、P150、P150、P150、P152、P152、P152、P152、P152、P152、P152、P152、P152。在这63例“N<sub>1</sub>，N<sub>2</sub>”判断句中，有19例主从复合句、44例简单句。其中，有32例简单句是“N<sub>1</sub>，N<sub>2</sub>N<sub>3</sub>N<sub>4</sub>N<sub>5</sub>N<sub>6</sub>N<sub>7</sub>N<sub>8</sub>N<sub>9</sub>N<sub>10</sub>N<sub>11</sub>N<sub>12</sub>N<sub>13</sub>N<sub>14</sub>N<sub>15</sub>……”的形式，见于《梵藏汉对照〈维摩经〉》。

说：“善男子，道场**是**这阿世耶心<sup>21</sup>，因为不欺骗的缘故；**是**这修行心，因为无上修行的缘故。”

(22) kim manyadhve bhikṣavo yo asau

直译：怎么 (Ac.) 想 (√man, 2. pl. pres. A.) 比丘们 (V.) 其 (N.) 那 (N.)

tena kālena tena samayena āvāsiko bhikṣuḥ ayam eva asau

那时 (I.) 有住处 (N.) 比丘 (N.) 此人 (N.) 即 (Adv.) 那 (N.)

jāmbālaḥ | (avadānaśataka, P287)

嚩婆罗 (N.)

此例是没有判断动词的主从复合句，从句 *yo asau tena kālena tena samayena āvāsiko bhikṣuḥ* 是主句 *asau jāmbālaḥ* 的关系从句，“有住处比丘”是主语。

支谦译：欲知彼时寺主比丘恶口骂者，今嚩婆罗比丘**是**。（《撰集百缘经》卷五，4/228a）

支谦译文“彼时寺主比丘恶口骂者”是主语，“此人”（即“嚩婆罗”）是表语。

汉语今译：比丘们，你们怎么想？那时那个有住处比丘是这个人（嚩婆罗）。

### 三·梵汉对勘的结论

从梵、汉本《撰集百缘经》、《金光明经》、《维摩诘经》、《妙法莲华经》“S，N 是”句的对勘来看，有些“S，N 是”对译的是梵文带有判断动词的简单判断句，有些对译的是梵文带有判断动词的主从复合句，有些对译的是梵文没有判断动词的简单判断句，有些对译的是梵文没有判断动词的主从复合句。带有判断动词的判断句有 63 例，没有带判断动词的判断句有 63 例。

在 63 例带有判断动词的判断句中，判断动词位于  $N_2$  之后的判断句有 51 例，判断动词位于  $N_1$  之后的判断句有 12 例。从这里可以看出，梵文带有判断动词的判断句以判断动词位于  $N_2$  之后、或者是不带判断动词的用例居多。这与判断句在典型的梵语文学作品中所表现出来的情况相类似。带有判断动词的判断句，无论判断动词是在  $N_2$  之后，还是在  $N_1$ 、 $N_2$  之间，如果判断动词是  $N_2$  的判断动词，那么译文的主语就是  $N_2$  的有 52 例；当判断动词是  $N_2$  的判断动词，译文的主语是  $N_1$  的只有 2 例；如果判断动词是  $N_1$  的判断动词，那么译文的主语是  $N_1$  的只有 3 例；如果判断动词是  $N_1$  的判断动词，译文的主语是  $N_2$  的有 6 例。也就是说，原典的 N 是主语、译文仍然是主语的情况居多，有 52 例，占 82.5%，如例 (18)、(19)、(21)、

<sup>21</sup>āśayamaṇḍa 支谦译为“无生之心”，āśaya 有“休息处、直心”之义，鸠摩罗什即译为“直心”。prayogamaṇḍa 支谦译为“淳淑之心”，prayoga 有“修行”之义，鸠摩罗什即译为“发行”。

(22)；原典的 N 是主语、译文是表语的情况比较少，有 11 例，占 17.5%，如例 (17)、(20)。将汉译本“S，N 是”句与占有优势的梵文原典“ $N_1, N_2\sqrt{as} (\sqrt{bhū})$ ”比较一下，很明显，汉译本的“S，N 是”句就是对译梵文判断句“ $N_1, N_2\sqrt{as} (\sqrt{bhū})$ ”，句中的“是”表示判断。由于类推的作用，那种不占优势的“ $N_1, \sqrt{as} (\sqrt{bhū}) N_2$ ”也汉译成“S，N 是”。

在 63 例“ $N_1, N_2$ ”判断句中，有 23 例“ $N_1, N_2$ ”的汉语译文是  $N_2$  作主语（19 例是主从复合句，4 例是简单句），有 40 例“ $N_1, N_2$ ”的汉语译文是  $N_1$  作主语（全部是简单句）。那么，汉语译文是按照什么原则翻译的？在 19 例主从复合句中，从句都是  $N_2$  的从句，如例 (22)。在 40 例简单句中，有 32 例是属于  $N_1N_2N_3N_4N_5N_6N_7N_8\dots$  这种类型，汉语译文  $N_1$  是主语，其他全是表语，如例 (21)。虽然说“ $N_1, N_2$ ”型判断句原典没有判断动词，但是汉语译文均于表语之后添加了一个表示判断的“是”，这是翻译的需要。无论梵语判断句是否有判断词，翻译时我们都必须把省略的判断词补足。<sup>22</sup>梵文“ $N_1, N_2$ ”型判断句既可以汉译成“ $N_1$  主  $N_2$  表”，也可以汉译成“ $N_2$  主  $N_1$  表”，这是由于梵文判断句的主语、表语均是体格，翻译时，既可以  $N_1$  作主语，也可以  $N_2$  作主语。但从所调查的文献用例来看，多数以  $N_1$  作主语，占 64%。

综上所述，我们认为：汉译佛典的“S，N 是”句就是原典判断句“ $N_1, N_2\sqrt{as} (\sqrt{bhū})$ ”的对译，句中的“是”表示判断。由于类推的作用，原典判断动词位于  $N_1, N_2$  之间的判断句“ $N_1, \sqrt{as} (\sqrt{bhū}) N_2$ ”与原典未带判断动词的判断句“ $N_1, N_2$ ”也汉译成“S，N 是”，句中的“是”表示判断。

#### 四·问题讨论

1·关于“S，N 是”对译的是梵文带有判断动词的简单判断句，比如例 (18) 那种类型，有学者<sup>23</sup>认为汉译佛典的“S，N 是”对译的不是一个简单的梵文判断句，而是对译的一组成对使用的句子。如：

(23) *syātkhalu punaḥ kulaputrā yuṣmākam kāñkṣā vā vimatirvā vicikitsā vā anyā sā tena kālena tena samayena vimaladattā nāma rājabhāryābhūt| na khalu punaḥ kulaputrā yuṣmābhirevam draṣṭavyam| tatkasya hetoḥ| ayam sa vairocana-raśmipratimaṇḍitadhvajarājo nāma bodhisattvo mahāsattvastena kālena tena samayena vimaladattā nāma rājabhārya [abhūt] tasya rājñāḥ śubhavyūhasyānukampāyai teṣām ca sattvānām rājñāḥ śubhavyūhasya bhāryātramabhyupagato 'bhūt| syātkhalu punaḥ kulaputrā yuṣmākam kāñkṣā vā vimatirvā vicikitsā vā anyau tau tena*

<sup>22</sup> 参看《新修梵语学》，原著者，榊亮三郎，新修者，工藤成树，编译者，如实佛学研究室，P21。

<sup>23</sup> 参看姜南《基于梵汉对勘的〈法华经〉语法研究》，北京大学博士论文，2008，PP96-98；姜南《汉译佛经“S，N 是”句非系词判断句》，《中国语文》2010 年 1 期，PP59-66。



kālena tena samayena dvau dārakāvabhūvatām| na khalu punaḥ kulaputrā yuṣmā-  
bhirevam draṣṭavyam| tatkasya hetoḥ| imau tau bhaiṣajyarājaśca bhaiṣajyasamud-  
gataśca tena kālena tena samayena tasya rājñāḥ śubhavyūhasya putrau [abhūvatā-  
m] ( *saddharmapuṇḍarikasūtram* , P470 )

上面这段梵文原典，鸠摩罗什只翻译了下面横线的句子，其他的句子都没有译出。然而他所翻译的句子都是完整的梵文句子，这些句子都是带有判断动词的完整的判断句，并不是繁琐的句型。很明显，汉译“S，N是”就是原典“N<sub>1</sub>，N<sub>2</sub>√bhū（是）”的对译，句中的“是”表示判断。

鸠摩罗什译：其净德夫人，今佛前光照庄严相菩萨是。哀愍妙庄严王及诸眷属故，于彼中生。其二子者，今药王菩萨药上菩萨是。（《妙法莲华经》卷七，9/60c）

汉语今译：那么，善男子，你们感到疑惑，或许那时那个名叫净德的国王妻子是其他人。善男子，你们的确不应当这样认为。什么原因？那时那个名叫净德的国王妻子是这个名叫净光庄严相国王菩萨大士。因为哀愍妙庄严王和他的眷属、妻子而来到此处。那么，善男子，你们感到疑惑，或许那时那两个儿子是其他人。善男子，你们的确不应当这样认为。什么原因？那时妙庄严国王的两个儿子是这药王菩萨和药上菩萨两个人。

象这种情况的翻译在其他汉译佛经里也有，如：

(24) atha khalu bhagavānpunastām bodhisattvasamuñcayām kuladevatām-  
etadavocat||syāt khalu punaryuṣmākam kuladevate 'nyaḥ sa tena kālena tena  
samayena sureśvaraprabho nāma rājā babhūva| na khalu punarevam  
draṣṭavyam|tatkasya hetoḥ|daṇḍapāṇiḥ śākyastena kālena tena samayena  
sureśvaraprabho nāma rājā babhūva| syātkhalu punaḥ kuladevate 'nyaḥ sa tena  
kālena tena samayena jaṭim̄dharo nāma śreṣṭhī babhūva| na khalu punarevam  
draṣṭavyam| tatkasya hetoḥ|rājā śuddhodanaḥ sa tena kālena tena samayena  
jaṭim̄dharo nāma śreṣṭhi abhūt||

syātkhalu punaste kuladevate 'nyaḥ sa tena kālena tena samayena jalavāhanaḥ  
śreṣṭhidārako 'bhūt| na khalu punarevam draṣṭavyam| tatkasya hetoḥ|aham sa tena  
kālena tena samayena jalavāhanaḥ śreṣṭhidārako [bhūt]||syātkhalu punaste  
kuladevate 'nyā sā tena kālena tena samayena jalavāhanasya jalāmbujagarbhā nāma  
bhāryābhūt| na khalu punarevam draṣṭavyam| tatkasya hetoḥ| gopā nāma  
śākyakanyā tena kālena tena samayena jalavāhanasya jalāmbujagarbhā nāma  
bhāryābhūt| rāhulabhadrastena kālena tena samayena jalāmbaro nāma dārako  
[bhūt] ānandaḥ sa tena kālena tena samayena jalagarbho nāma dārako [bhūt]  
syātkhalu punaste kuladevate 'nyāni tāni tena kālena tena samayena  
daśamatsyasahasrāṇi babhūvuḥ| na punarevam draṣṭavyam| tatkasya hetoḥ| amūni  
tāni jvalanāntaratejorājapramūkhāni daśadevaputrasahasrāṇi tena kālena tena  
samayena daśamatsyasahasrāṇi [babhūvuḥ] | yāni mayodakena saṁtarpitāni|

bhojanavareṇa ca gambhīraśca pratītyasamutpādo dharmo deśitaḥ|  
ratnaśikhinastathāgatasyārhatāḥ samyaksaṃbudhasya nāmadheyam śrāvitaḥ| tena  
kuśaladharmahetunā mamāntika ihāgatāni yenaitarhyanuttarāyām samyaksaṃbo-  
dhau vyākṛtāni| atīva prītiprāsādapramodyena dharmāśrutigauraveṇa sarvavyā-  
karaṇanāmadheyāni pratilabdhanīti|| (*suvarṇaprabhāsaśūtram*, P104-105)

对于上面这三段梵文原典，昙无讖在翻译时只翻译了下面横线的句子，其他都没有译出。但他所译出的句子也都是完整的梵文句子，其中，“S，N 是”句都是对译梵文带有判断动词的完整的判断句，并不是繁琐的句型。很明显，汉译“S，N 是”就是原典“N<sub>1</sub>，N<sub>2</sub> √bhū（是）”的对译，句中的“是”表示判断。

昙无讖译：尔时世尊告道场菩提树神：“善女天，欲知尔时流水长者子，今我身是。长子水空，今罗睺罗是。次子水藏，今阿难是。时十千鱼者，今十千天子是。”（《金光明经》卷三，16/353c）

汉语今译：于是世尊又对菩提树神善女天这样说：“那么，善女天，或许那时那个名叫天自在光的国王是其他人。的确不应当这样认为。什么原因？那时那个名叫天自在光的国王是释迦持杖。那么，善女天，或许那时那个名叫持髻的长者是其他人。的确不应当这样认为。什么原因？那时那个名叫持髻的长者是净饭王。

“那么，善女天，或许那时那个流水长者子是其他人。的确不应当这样认为。什么原因？那时那个流水长者子是我。那么，善女天，或许那时那个名叫水莲藏的流水的妻子是其他人。的确不应当这样认为。什么原因？那时名叫水莲藏的流水的妻子是名叫俱夷的释迦女。那时名叫水空的儿子是罗睺罗，那时那个名叫水藏的儿子是阿难。那么，善女天，或许那时那些十千鱼是其他人。的确不应当这样认为。什么原因？那时那些十千鱼是这些以火光中王为首的十千天子。我用水和美味的食物喂饱它们，开示了甚深缘起法，宣说了宝髻如来阿罗汉三藐三佛陀的名号。由于善法的原因，它们来到我身边。因此，我为它们授记阿耨多罗三藐三菩提。由于听法极喜悦、极尊重，它们得到了所有的授记名号。”

2·原典无判断动词的“N<sub>1</sub>，N<sub>2</sub>”汉译为“S，N 是”，其中的“是”在原典中没有对应词。应该如何看待这种现象？有学者<sup>24</sup>以为此类“S，N 是”中的“是”也是用作代词，复指主语，并以本土化程度更高的鸠摩罗什译《妙法莲华经》的“如来衣者，柔和忍辱心是；如来座者，一切法空是”为例。关于这种现象，前文已有说明。我们以为：翻译的需要和类推的作用，使得原典没有判断动词的判断句也汉译成“S，N 是”，句中的“是”表示判断。这种现象在支谦译《佛说维摩诘经》中比较突出，有 33 例。其中，有 32 例是用在 N<sub>1</sub>N<sub>2</sub>N<sub>3</sub>N<sub>4</sub>N<sub>5</sub>N<sub>6</sub>N<sub>7</sub>N<sub>8</sub>.....的句子中。如：

(25) bodhimaṇḍa iti kulaputra āśayamaṇḍa eṣo 'krītrimatayā prayogamaṇḍa eṣa ārambhottāraṇatayā| adhyāśayamaṇḍa (a5) eṣa viśeṣāvīgamatayā bodhicittamaṇḍa

<sup>24</sup> 同上。

eṣa asaṃpramoṣaṇatayā dānamaṇḍa eṣa vipākāpratīkāmkṣaṇatayā | śīlamaṇḍa eṣa prañidhānaparipūraṇa(a6)tayā kṣāntimaṇḍa eṣa sarvasatvapratihatacittatayā vīryamaṇḍa eṣa avinivarttanatayā||||||| (《梵藏汉对照〈维摩经〉》，P148)

上面这个例子就只有一个 N<sub>1</sub>“bodhimaṇḍa”，后面的是 N<sub>2</sub>N<sub>3</sub>N<sub>4</sub>N<sub>5</sub>N<sub>6</sub>N<sub>7</sub>N<sub>8</sub>……，所以支谦译为：

道场者，无生之心**是**，检一恶意故；淳淑之心**是**，习增上故；圣贤之心**是**，往殊胜故；道意之心**是**，不忘舍故；布施之心**是**，不望报故；持戒之心**是**，得愿具故；忍辱之心**是**，不乱众人故；精进之心**是**，无退意故；……（《佛说维摩诘经》卷上，14/524a-b）

如果说其中的“是”复指前文，是代词，那么，象这种连续使用 32 个“是”复指前文的代词的语言现象在中土文献中不太能够见得到。后来的译师鸠摩罗什和玄奘都是译为常式判断句：

直心**是**道场，无虚假故；发行**是**道场，能办事故；深心**是**道场，增益功德故；菩提心**是**道场，无错谬故；布施**是**道场，不望报故；持戒**是**道场，得愿具故；忍辱**是**道场，于诸众生心无碍故；精进**是**道场，不懈退故；……（姚秦鸠摩罗什译《维摩诘经》卷上，14/542c）

淳直意乐**是**妙菩提，由此意乐不虚假故；发起加行**是**妙菩提，诸所施为能成办故；增上意乐**是**妙菩提，究竟证会殊胜法故；大菩提心**是**妙菩提，于一切法无忘失故；清净布施**是**妙菩提，不憍世间异熟果故；固守净戒**是**妙菩提，诸所愿求皆圆满故；忍辱柔和**是**妙菩提，于诸有情心无恚故；勇猛精进**是**妙菩提，炽然勤修不懈退故；……（唐玄奘译《说无垢称经》卷 2，14/565b）

其实，象玄奘这样的本土译经大师也有将“N<sub>1</sub>, N<sub>2</sub>√bhū”这种判断句译为“S，N 是”句的情况。如：

(26) aham sa tena kālena tena samayena śomacchatro nāma rājakumāro  
[bhūvam] (《梵藏汉对照〈维摩经〉》，P492)

abhūvam 是 N<sub>1</sub>“我”的判断动词，“我”是主语，“月盖王子”是表语。

支谦没有译出此句，鸠摩罗什和玄奘都译为“S，N 是”句：

月盖比丘即我身**是**。（姚秦鸠摩罗什译《维摩诘经》卷下，14/557a）

彼时护法月盖王子，岂异人乎？即我身**是**。（唐玄奘译《说无垢称经》卷 6，14/587b）

文中所用缩略符号说明：

A. ātmanepada, middle-voice 为己；Ab. Ablative 从格；Ac. Accusative 业格；adv. adverb 副词；aor. aorist 不定过去时；G. Genitive 属格；

## 陈：汉译佛典的“S，N是”句

impf. imperfect 未完成时；indec. indeclinable 不变化词；I. Instrumental 具格；N·Nominative 体格；P. parasmaipada, active-voice 为他；pf. perfect 完成时；pl. plural 复数；ppp. past-passive-participle 过去被动分词；pres. present 现在时；sg. singular 单数；V·Vocative 呼格。

### 参考文献：

- 1· 陈秀兰，2003/2004/2008，《魏晋南北朝文与汉文佛典语言比较研究》，浙江大学博士后出站报告，2003年4月；新星出版社（韩国），2004；中华书局（中国），2008。
- 2· 陈秀兰，2009，《“S，N是”句型在梵汉本〈撰集百缘经〉中的对勘》，《中国语文》6期。
- 3· 江蓝生，2003，《语言接触与元明时期的特殊判断句》，《语言学论丛》第二十八辑。
- 4· 姜南，2008，《基于梵汉对勘的〈法华经〉语法研究》，北京大学博士论文。
- 5· 姜南，2010，《汉译佛经“S，N是”句非系词判断句》，《中国语文》1期。
- 6· 蒋绍愚，2009，《也谈汉译佛典中的“NP<sub>1</sub>，NP<sub>2</sub>+是也/是》，《中国语言学集刊》第三卷第二期，中华书局。
- 7· 刘世儒，1957，《略论魏晋南北朝系动词“是”字的用法》，《中国语文》12期。
- 8· 龙国富，2005，《从梵汉对勘看中古汉译佛经中的特殊判断句》，“汉语史中的语言接触”国际学术研讨会，北京香山。
- 9· 张华文，2000，《试论东汉以降前置宾语“是”字判断句》，云南师范大学学报1期。
- 10· 张美兰，2003，《〈祖堂集〉语法研究》，商务印书馆。
- 11· 朱冠明，2005，《中古汉语佛典语法专题研究》，北京大学博士后出站报告。
- 12· 朱庆之，2001，《佛教混合汉语初论》，《语言学论丛》第二十四辑，商务印书馆。
- 13· Franklin Edgerton, 1953, *Buddhist Hybrid Sanskrit Grammar and Dictionary*, 2 volumes, New Haven: Yale University Press.
- 14· Heine, B. & Kuteva, T., 2005, *Language Contact and Grammatical Change*, Cambridge: Cambridge University Press.
- 15· M· Monier-Williams, 1899/2003, *A Sanskrit-English Dictionary*, Motilal Banarsidass Publishers Private Limited. Delhi.

## 談《論語》中的“也已矣”連用現象\* (A Study on the Phenomenon of “YeYiYi” (也已矣) in the *Analects*)

曹銀晶 Gwp/Igqpi 'Ej q  
北京大學 Peking University

This paper, to integrate the handed texts with the unearthed texts, is to put forward a new view on “YeYiYi” (也已矣) in the *Analects*. According to the unearthed documents, we argue that “YeYiYi” (也已矣) can be seldom found in the pre-Qin period. To the Han Dynasty, “YeYiYi” (也已矣) might increase gradually at the end of the sentence in the *Analects*. The Huang Kan text has 13 sentences with “YeYiYi” (也已矣), while the Ruan Yuan text has 8 sentences. We have comprehensively investigated the use of the words “Ye” (也), “Yi” (已), and “Yi” (矣) both when they were used separately and when they were used together. This paper analysed the changes in grammatical function during different periods when they were used, and revealed the reasons for their differences.

\* 本文由蔣紹愚先生指導完成，并先後得到張聯榮、宋紹年、胡敕瑞、劉子瑜、大西克也等先生的指正。原稿曾在“國際中國語言學學會第十八屆年會(IACL-18)”(哈佛大學，2010年5月)上宣讀，承多位與會先生指教。其中平田昌司先生對《四庫全書》所收《論語義疏》的可靠性提出質疑。因此本稿改選上海古籍流通處景印的《知不足齋叢書》所收《論語義疏》。謹此一并致謝。本文第二部分曾在“中國簡帛學國際論壇2009”(武漢大學，2009年6月)上宣讀，題目為《談〈論語〉句末語氣詞“也已矣”早期的面貌》，已刊于《簡帛》第5輯。但與這裏的論述不盡相同：已刊稿是從阮元本的8例入手，而認為先秦和西漢不見“也已矣”符合《論語》當時語言的實際面貌；本稿是從皇侃本的13例入手，而認為《論語》中可能本有“也已矣”但數量不多，並且進一步討論了“也”“已”“矣”單用及其各種連用的形式，分析了“也已矣”在不同時期語法功能的變化，揭示了皇侃本和阮元本有差異的原因。為了解說方便，已刊稿提到的部份內容以及材料，本稿仍會引用，但是如非正文敘述所需，儘量避免重複。對於第二部分所引材料的詳細情況，請參考《簡帛》第5輯已刊稿；而第二部分的觀點，請以本文為主。本文將在《中國語言學集刊》上發表，同時也要感謝匿名評審專家兩次提出的寶貴意見。文中已經適當接受了評審建議。原稿認為《論語》中的“也已矣”產生于漢朝之後，但參考評審意見，筆者感覺到：就目前掌握的材料，此種判斷說服力不強。因此這裏把原有觀點修正為：《論語》中可能本有“也已矣”，但數量不多。為此特別感謝評審專家。本文因為篇幅所限減除了部份內容以及腳註。更多內容看《中國語言學集刊》將刊稿。文中仍有之錯誤概由作者負責。

## 1. 引言

《論語》裡有這樣一種現象：把兩個或三個語氣詞連在一起使用表達某種語氣。可是目前研究這種現象時所依據的材料一般都是傳世本，而傳世古籍中的文字有時很難避免出現訛誤。因此，本文想利用新發現的《論語》材料跟今本《論語》進行比較，探討《論語》中語氣詞連用的情況。因為篇幅所限，本文僅對“也已矣”加以考察，以期能夠得出比較符合實際的結論。首先要說明的是，本文以清阮元刊刻的《十三經注疏》本《論語》（下稱“阮元本”）和《知不足齋叢書》所收的皇侃《論語義疏》（下稱“皇侃本”）為主，以《定州漢墓竹簡〈論語〉》（下稱“定州本”）著錄的《論語》、《唐寫本論語鄭氏注及其研究》著錄的鄭玄《論語注》（下稱“敦鄭本”）、《敦煌〈論語集解〉校證》著錄的何晏《論語集解》（下稱“敦集本”）和《景刊唐開成石經》（下稱“唐石經”）著錄的《論語》作為對比對象，對《論語》中“也已矣”使用情況進行比較。

## 2. 《論語》中“也已矣”早期的面貌

### 2.1 引言

皇侃本《論語》共見 13 例“也已矣”。即：

- (1) 泰伯，其可謂至德也已矣。（《泰伯》）
- (2) 周德，可謂至德也已矣。（《泰伯》）
- (3) 悅而不釋，從而不改，吾末如之何也已矣。（《子罕》）
- (4) 何傷乎？亦各言其志也。……亦各言其志也已矣。（《先進》）
- (5) 浸潤之譖，膚受之愬，不行焉，可謂明也已矣。（《顏淵》）
- (6) 浸潤之譖，膚受之愬，不行焉，可謂遠也已矣。（《顏淵》）
- (7) 不曰“如之何，如之何”者，吾末如之何也已矣！（《衛靈公》）
- (8) 日知其所亡，月無忘其所能，可謂好學也已矣。（《子張》）
- (9) 君子食無求飽，居無求安，敏於事而慎於言，就有道而正焉，可謂好學也已矣。（《學而》）
- (10) 攻乎異端，斯害也已矣。（《為政》）
- (11) 夫子之文章，可得而聞也。夫子之言性與天道，不可得而聞也已矣。（《公冶長》）
- (12) 如有周公之才之美，設使驕且吝，其餘不足觀也已矣。（《泰伯》）
- (13) 四十、五十而無聞焉，斯亦不足畏也已矣！（《子罕》）

## 曹：“也已矣”連用現象

皇侃《論語義疏》於南宋失傳。此書的日本刻本，於乾隆年間傳入中國，刻入《知不足齋叢書》。要確切說出此書的來龍去脈還是有一定的困難，不過從字詞的使用情況等看，我們還是認為皇侃本《論語》在一定程度上反映南北朝時《論語》的語言面貌。

上舉皇侃本《論語》當中的 13 例“也已矣”，在邢昺《論語注疏》（即阮元本）僅見 8 例，即上例的(1)至(8)。至於例(9)至(13)，阮元本各作“也已”、“也已”、“也”、“也已”和“也已”。為什麼有這樣的差異呢？《論語》早期的面貌究竟是怎樣的？皇侃本中的 13 例是什麼時候出現的？為什麼出現？到阮元本為什麼又剩下 8 例？為了解決這些問題，我們先來看看其在《論語》各本中的使用情況。下面按定州本、敦煌寫本、唐石經本先後次序，分別考察這 13 例“也已矣”在各本當中的使用面貌。

### 2.2 “也已矣”在西漢時期定州本《論語》中的使用情況

定州本《論語》有很多殘缺，所以上錄皇侃本《論語》“也已矣”連用的 13 例中，只有(3)、(4)、(7)、(10)、(12)、(13)六例的文字見於定州本，原文各作：

(3a) 說而不擇，從而不改，吾無如之何矣。（定州本《論語·子罕》簡 238）

(4a) 何傷？亦各言其志也。……[亦各言其志]也。（定州本《論語·先進》簡 305-7）

(7a) 不曰“如之何，如之何”者，吾未如之何也。（定州本《論語·衛靈公》簡 430）

(10a) 功乎異端，斯害也已。（定州本《論語·為政》簡 21）

(12a) 如周公之材之美已，使驕且鄰，其餘無可觀。（定州本《論語·泰伯》簡 201）

(13a) 卅、五十而無[ ]，此亦不足畏也。（定州本《論語·子罕》簡 235-6）

通過對比，我們很容易發現皇侃本作“也已矣”的部分，在定州本作“矣”、“也”、“也已”或不加任何語氣詞。不過這幾例當中，(10a)、(12a)、(13a)的後文殘缺不全，因此我們不能排除此三例後頭原來很可能有其他語氣詞的可能。並且不見於定州本《論語》的其餘 7 例說不定當時真的用“也已矣”來表達。但是，有一點可以肯定的是，定州本《論語》的“也已矣”比皇侃本少見很多。即最起碼有三例——即定州本中的例(3a)、(4a)、(7a)，無疑各作“矣”、“也”和“也”，這 3 例在定州本肯定不作“也已矣”。

我們認為當時少用“也已矣”是符合當時《論語》面貌的。我們曾對定州本《論

曹：“也已矣”連用現象

語》的語氣詞作過全面考察，它不僅沒有三個語氣詞連用的情況，就是兩個語氣詞連用的情況也很少（只佔 6%左右），絕大多數（94%）是單個語氣詞。筆者認為定州本《論語》比較接近《論語》原貌，而且和戰國時代對孔子語言的記錄有繼承關係。本文就戰國出土文獻的孔子言語語錄作為比較對象——《上海博物館藏戰國楚竹書》（下文稱“上博簡”）中的有關孔子對答的文章，對其進行了調查統計。結果發現其語氣詞使用情況跟定州本《論語》極其相似，即不見三個語氣詞連用，兩個語氣詞連用僅佔 5%左右，而絕大多數（95%）是單個語氣詞。可見，這些上博簡的孔子語錄體當中也尚未發現“也已矣”連用的情況。

據此，我們可以認為定州本《論語》中可能會有“也已矣”，但數量應該不是很多。既然如此，那麼皇侃本《論語》中的 13 例“也已矣”中，肯定有的是後人改動的，特別是例(3)、(4)、(7)幾句中的“也已矣”，無疑是後人改動的。那麼這些“也已矣”到底始於何時？為此，筆者考察了另一種新發現的《論語》文獻，即敦煌寫本《論語》。

2.3 “也已矣”在敦煌寫本《論語》中的使用情況

上文已經提到過，敦煌寫本《論語》可分為鄭玄《論語注》和何晏《集解》（即本文所謂的“敦鄭本”和“敦集本”）。筆者認為敦鄭本和敦集本雖然是唐寫本，不過從字詞使用情況看，在一定程度上繼承了東漢末和魏晉時期《論語》的面貌。下面請看皇侃本《論語》13 例“也已矣”在敦鄭本和敦集本中的使用情況。如：

[表 1] 皇侃本《論語》13 例“也已矣”在敦煌寫本中的使用情況  
（“-”為該件殘缺而沒有此句）

例句參看	敦鄭本	敦集本								
	伯 2510	斯 0800	伯 2123	伯 2628	伯 3192	伯 2620	伯 3643	伯 2618	伯 3305	伯 2699
(1)	也已矣	也已矣	-	-	-	-	-	-	-	-
(2)	也已矣	也已矣	-	-	-	-	-	-	-	已矣
(3)	已矣	-	-	-	-	-	-	-	也已矣	-
(4)	-	-	-	-	也	也已矣	-	-	-	-
(5)	-	-	-	-	已矣	矣	-	-	-	-
(6)	-	-	-	-	也已矣	矣	-	-	-	-
(7)	-	-	也已矣	-	-	-	-	-	-	-
(8)	-	-	-	也已矣	-	-	-	-	-	-



曹：“也已矣”連用現象

(9)	-	-	-	-	-	-	-	也已矣	-	-
(10)	-	-	-	-	-	-	-	也已	-	-
(11)	-	-	-	-	-	-	也	-	-	-
(12)	也已	也已矣	-	-	-	-	-	-	-	也已
(13)	也已	-	-	-	-	-	-	-	也已矣	-

由[表 1]可以看出，上述皇侃本 13 例“也已矣”在敦煌寫本裡作“也”、“矣”、“也已”、“已矣”、“也已矣”。這裡有兩點值得注意：（一）可能在東漢末的鄭注本中至少已出現兩處“也已矣”。其他材料也可以說明這種可能性是較大的。如《漢書·地理志》引《泰伯》云：“孔子美而稱曰：太伯可謂至惠也已矣。”另外，除了《論語》，東漢其他文獻還有 3 處作“也已矣”。如揚雄《法言》：“學以治之，思以精之，朋友以磨之，名譽以崇之，不倦以終之，可謂好學也已矣。”馬融《忠經詳解·廣至理》：“古者聖人以天下之耳目為視聽，天下之心為心，端旒而自化，居成而不有，斯可謂致理也已矣。”荀悅《申鑒·俗嫌》：“誕哉！未之也已矣！”（二）可能在魏晉的何晏《集解》中也出現“也已矣”。有兩處引文也可以證明這一點。如《後漢紀·孝和皇帝紀》云：“孔子曰：太伯其可謂至德也已矣。”孫盛《周太伯三讓論》云：“孔子曰：太伯其可謂至德也已矣。”

2.4 “也已矣”在唐石經《論語》以後的使用情況

唐石經的 13 例用法，跟阮元本完全一致。即例(1)至(8)兩者都用“也已矣”；例(9)、(10)、(12)、(13)兩者都用“也已”；例(11)兩者都用“也”。阮元本《論語》是據“宋十行本”校刻的。而此“宋十行本”多襲宋朝廖瑩中校刻的九經版本。可以說，阮元本的來源可以追溯到宋朝。通過阮元本《論語》“也已矣”在承襲唐石經這一事實，我們可以知道唐石經的刊刻完成對當時經籍起到了強有力的規範作用，使經籍文字混亂的情況得到了控制。此時，宋朝印刷術的發達，又使得其內容得到廣泛推廣。宋朝以後《論語》注釋本也正好可以證明此點。根據現有的傳世文獻材料，宋朝以後的《論語》各種注疏本語氣詞使用情況基本上跟唐石經一致。請看下表：

[表 2] 阮元本《論語》13 例“也已矣”在宋朝以後注疏本中的使用情況

例句 參看	宋		明		清		
	2.1	蔡節 《論語集說》	陳祥道 《論語全解》	郝敬 《論語詳解》	劉宗周 《論語學案》	陳鱣 《論語古訓》	戴望注 《論語》

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(1)	也已矣	也已矣	也已矣	也已矣	也已矣	也已矣	也已矣
(2)	也已矣	也已矣	也已矣	也已矣	也已矣	也已矣	也已矣
(3)	也已矣	也已矣	也已	也已矣	也已矣	也已矣	也已矣
(4)	也已矣	也已矣	也已矣	也已矣	也已矣	也已矣	也已矣
(5)	也已矣	也已矣	也已矣	也已矣	也已矣	也已矣	也已矣
(6)	也已矣	也已矣	也已矣	也已矣	也已矣	也已矣	也已矣
(7)	也已矣	也已矣	也已矣	也已矣	也已矣	也已矣	也已矣
(8)	也已矣	也已矣	也已矣	也已矣	也已矣	也已矣	也已矣
(9)	也已	也已	也已	也已	也已	也已	也已
(10)	也已	也已	也已	也已	也已	也已	也已
(11)	也	也	也	也	也	也已矣	也
(12)	也已	也已	也已	也已	也已	也已	也已
(13)	也已	也已	也已	也已	也已	也已	也已

2.5 小結

綜上，從目前筆者掌握的材料看，我們推斷定州本《論語》寫本有可能存在“也已矣”，但數量不多，而在東漢末的鄭注本中出現兩處“也已矣”。“也已矣”在魏晉南北朝時期增多，皇侃本《論語》出現 13 例。到唐石經就和阮元本完全一致，都是 8 例。宋朝以後的《論語》原文也基本上承襲唐石經。

[表 3] 《論語》所見 13 例“也已矣”在各個時代的使用情況

(“-”表該寫本殘缺而沒有此句、“[]”表後文殘缺不全)

例句 參看 2.1	西漢	東漢	魏晉	南北朝	唐	宋以後 注疏本	阮元本
	定州本	敦鄭本	敦集本	皇侃本	唐石經		
(1)	-	也已矣	也已矣 2	也已矣	也已矣	也已矣 7	也已矣
(2)	-	也已矣	已矣 1 也已矣 2	也已矣	也已矣	也已矣 7	也已矣
(3)	矣	已矣	已矣 1 也已矣 1	也已矣	也已矣	也已矣 6 也已 1	也已矣
(4)	也	-	也 1 也已矣 1	也已矣	也已矣	也已矣 7	也已矣
(5)	-	-	已矣 1 矣 1	也已矣	也已矣	也已矣 7	也已矣
(6)	-	-	也已矣 1 矣 1	也已矣	也已矣	也已矣 7	也已矣

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(7)	也	-	也已矣 1	也已矣	也已矣	也已矣 7	也已矣
(8)	-	-	也已矣 1	也已矣	也已矣	也已矣 7	也已矣
(9)	-	-	也已矣 1	也已矣	也已	也已 7	也已
(10)	也已[]	-	也已 1	也已矣	也已	也已 7	也已
(11)	-	-	也 1	也已矣	也	也 6 也已矣 1	也
(12)	無三字[]	也已	也已 2 也已矣 1	也已矣	也已	也已 7	也已
(13)	也[]	也已	也已 1 也已矣 1	也已矣	也已	也已 7	也已

至於皇侃本中為什麼有 13 例“也已矣”？這個 13 例，到了唐石經為什麼又是 8 例？“也已矣”到底表達什麼語氣？等等，下文接著討論。爲了說解方便，先從句末語氣詞“也”、“矣”、“已”在出土文獻當中的基本用法開始。

### 3. 句末“也”“矣”“已”在出土文獻當中的基本用法

#### 3.1 引言

“也”、“矣”、“已”是先秦漢語中的語氣詞，其中“也”、“矣”兩個語氣詞在句末出現的頻率相當高。郭錫良 (1989) 認爲句末語氣詞是從西周時期產生的，到春秋時代形成了一個語氣詞系統。陳永正 (1992) 根據出土文獻材料，認爲句末語氣詞在西周、春秋銅器銘文中很不發達。句末語氣詞表達什麼語氣，傳統的看法一般認爲是一個語氣詞擁有多功能，表達多種語氣，如楊樹達 (1984)、楊伯峻 (1981) 等主之。郭錫良 (1988、1989) 論證了語氣詞多功能的傳統看法的不妥，提出了先秦語氣詞單功能的觀點，劉曉南 (1991) 從之。這些前人的研究成果值得我們認真吸收。本部分通過對出土文獻中“也”、“矣”、“已”使用情況的調查，初步描寫它們在先秦西漢語言當中的基本面貌。

#### 3.2 位於句末的“也”在出土文獻當中的基本用法

“也”是在句中或句末出現的頻率最高的語氣詞。關於“也”字的來源，李家浩 (2008) 認爲早期的“也”作像張口啼號之形，疑是“嘸”字的象形初文。虛詞“也”該爲當“嘸”講的“也”字的假借用法。對“也”的功能，古人曾有一定的認識，認爲它有“決辭”、“語之餘”、“語已辭”、“語助”、“語之頓挫”、

“結上文”、“起下文”等功能，甚至可作“矣”。馬建忠 (1983:323-341) 認為“也”是“傳信助字”，助論斷之語氣，用法上助句、助讀、助實字。今人一般把“也”看作“語氣詞”，如楊伯峻、王力、郭錫良先生等認為語氣詞“也”表示判斷、解釋或說明、論斷、肯定等靜態語氣。李佐豐 (2004:222) 認為“也”是“決斷詞”，主要表論斷。我們認為 NP 後邊出現的“也”是表判斷；VP 後邊出現的“也”是它的擴展用法，表確定。

據郭錫良 (1989)，“也”不見於西周金文和《尚書》，而《詩經》、《左傳》、《論語》和戰國以後的典籍卻用得很多。出土文獻中，它最早見於春秋中期的欒書缶銘文裡，作：“正月季春，元日己醜，余畜孫書也，擇其吉金，以作鑄缶”。戰國晚期的平安君鼎裡出現“也”在句末的用法，即：“卅三年，單父上官塚子熹所受平安君者也”。這一時期的竹簡文字上，“也”字出現頻率相當高。據筆者初步考察，僅在郭店簡和上博簡裡出現 913 例的“也”，西漢出土文獻裡也見使用。“也”可用在 NP 後邊，表判斷語氣。如：

(14) 《大雅》，盛德也。(上博簡《孔子詩論》簡 2)

(15) 禮者，君子學也；盜者，小人之心也。(張家山漢簡《秦讞書》簡 178)

“也”還可以用在 VP 後邊，表示確定語氣，這是上述用法的擴展。如：

(16) 《邦風》，其納物也。(上博簡《孔子詩論》簡 3)

(17) 《小弁》、《巧言》，則言人之害也。(上博簡《孔子詩論》簡 8)

(18) 來送南而娶為妻，非來誘也。(張家山漢簡《秦讞書》簡 20)

### 3.3 位於句末的“矣”在出土文獻當中的基本用法

“矣”是古漢語中出現頻率次高的語氣詞，一般位於句末。對於“矣”的性質，古今學者都有不同的看法。古人認為“矣”有“語已辭”、“決辭”、“語盡辭”、“斷句之助”、“起下文”、通“也”等功能。馬建忠 (1983:323) 把“矣”稱為“傳信助字”，認為助敘說之辭氣，用法上助句、助讀、助靜字。今人一般把“矣”稱為“語氣詞”，把它的功能歸為已然或將然等動態用法上，如呂叔湘 (1990:258)、楊伯峻 (1981)、王力 (1989)、郭錫良 (1989) 等都屬之。李佐豐 (2004:229) 認為“矣”是“決斷詞”，表動態的說明。我們認為“矣”表示完成或實現。

據郭錫良 (1989)，“矣”不見於西周金文，而《尚書》、《詩經》、《左傳》、《論語》和戰國以後的典籍都用得很多。據張富海 (2006)，出土文獻當中的虛詞“矣”，最早用例見於戰國時代。戰國中期的中山王昔鼎見“矣”，作：“昔者，……聞於天下之勿矣，猶迷惑於子之而亡其邦。”據筆者初步統計，同一時期的郭店簡和上博簡文字裡，“矣”共出現 95 例，主要用在敘述句中，表示完成或實現。如：

(19) 子曰：“貧賤而不約者，吾見之矣。”(上博簡《弟子問》簡 6)

### 曹：“也已矣”連用現象

“矣”的這些表示完成或實現的功能還可以用在已然、將然和某種條件之下的完成/實現，所以它常跟“既”、“嘗”、“將”、“必”、“則”等字搭配出現。

- (20) 若此三者，既聞命矣。敢問導民興德如何？（上博簡《仲弓》簡20）
- (21) 夫爲其君之故殺其身者，嘗有之矣。（郭店簡《魯穆公問子思》簡5）
- (22) 孔子曰：善哉，商也！將可教詩矣。（上博簡《民之父母》簡8）
- (23) 苟能固守而行之，民必服矣。（上博簡《季康子問于孔子》簡13）
- (24) 五臟虛，則玉體利矣。（張家山漢簡《脈書》簡53）

“矣”也用在描寫句中，同樣是表達完成或實現。如：

- (25) 子曰：予，汝能慎始與終，斯善矣，爲君子乎？（上博簡《弟子問》簡11）
- (26) 故夫舜之德，其誠賢矣。（上博簡《子羔》簡8）

“矣”還可用在感嘆句中。如：

- (27) 子夏曰：異哉，語也！美矣！宏矣！大矣！（上博簡《民之父母》簡9）
- (28) 則祈諸鬼神曰：“天地明棄我矣！”（上博簡《競建內之》簡7）

例(27)和(28)的“矣”都表達完成或實現，兼表感嘆。楊伯峻(1981)、王力(1989)、郭錫良(1989)都注意到了這種“矣”的感嘆用法。筆者認爲它們雖然可以表達感嘆語氣，但是“矣”的主要功能還是在於表達“完成/實現”，所以不能去掉“矣”。因此我們認爲這一時期的“矣”還是“兼表”感嘆，而不是“單表”感嘆。

### 3.4 位於句末的“已”在出土文獻當中的基本用法

古人對“已”也有所論述，認爲它有“辭”、“語詞”、“語助詞”、“語終辭”、“助句”、“助聲”等功能，甚至既可作“也”又可通“矣”。馬建忠(1983:347)認爲“已”爲“語終辭”，與“矣”同義。今人一般把“已”看作“語氣詞”，而把它的用法基本鎖定在與“矣”相同這一點上，王力(1989)、呂叔湘(1990:271)、陳永正(1992)、孫錫信(1999:14)等屬之。楊樹達(1978:359)還主張“已”、“矣”二字是同音；楊伯峻(1981)主張“已”既同“也”又同“矣”；周法高(1950)注意到“已”和“矣”多方面的相同處，并指出“已”比“矣”多一點情感的語氣，近似白話的“啦”（“了+啊”）。魏培泉(1982:380-381)、Pulleyblank(1994)都認爲“已”是兼具“也”和“矣”兩種功能的語氣詞。郭錫良(1989)主張“已”的語氣雖同“矣”近，但是“已”還是表達限止語氣。李佐豐(2004:245)認爲“已”是“決斷詞”，主要表示限定、確認。本文認爲句末出現的“已”在戰國秦漢出土文獻當中一般表達與“矣”近似的語氣，即“完成/實現”。

李宗江(2005:139)根據傳世文獻，認爲古代漢語裡的語氣詞“已”主要見於春秋晚期和戰國時代，至漢代衰落，東漢後不見。出土文獻當中，語氣詞“已”最早

## 曹：“也已矣”連用現象

見於春秋戰國之際的吳王光鑿裡，作：“往已，叔姬。”陳永正（1992）、張振林（1982）認為其功能相當於“矣”。據筆者初步考察，句末語氣詞“已”在戰國及西漢出土文獻中用例不是很多，僅見 10 多例。它主要用在 VP 後邊，其功能相當於“矣”。如：

- (29) 自姑、尤以西，聊、攝以東，其人數多已。（上博簡《景公瘡》簡 10）
- (30) 天下皆知美爲美也，惡已；皆知善，此其不善已。（郭店簡《老子甲》簡 15）
- (31) 吾夕（亦）無死已。（銀雀山漢簡《晏子春秋》簡 592）
- (32) 將欲取[天下而爲之，吾見其弗]得已。（帛書乙《老子》）
- (33) 子曰：“起予商也！始可與言《詩》已。”（定州本《論語·八佾》簡 42）

上舉幾例中的“已”都處於“矣”所在的位置，其功能與“矣”近似，表達完成/實現。例(29)的“其人數多已”，在《左傳》、《晏子春秋·外篇上》作“其爲人也多矣”，《晏子春秋·內篇諫上》作“此其人民眾矣”。（參看劉建民（2009:18））例(30)“此其不善已”的“不善已”在帛書甲、乙都作“不善矣”。例(31)的“吾夕（亦）無死已”，在明本《晏子·內篇雜上》第二章作“吾亦無死矣。”（參看汝鳴（2006:164-166））例(32)的“弗得已”，蘇轍《老子解》云：“不可得矣”。例(33)的“始可與言《詩》已”的“已”在今本一般作“已矣”，而注疏文字中基本上沒有對“已矣”二字甚解，可見這裡“已”在古人看來其功能跟“矣”近似的語氣詞。

可見，從現有的材料來看，位於句末的“已”在戰國西漢時期出土文獻語言裡一般表達“完成/實現”。

## 4. “也已”“已矣”“也已矣”連用分析

### 4.1 引言

根據出土文獻，先秦時僅見極少數的“也已”連用，“已矣”、“也已矣”都不見使用。學者們對其有不同的稱呼，馬建忠（1983）稱爲“合助助詞”，郭錫良（1989）稱爲“語氣詞連用”，朱承平（1998）稱爲“語氣詞組合”，楊永龍（2000）稱爲“語氣詞同現”等。對於它們連用時表達的語氣，目前有兩種看法：楊伯峻（1965）、李宗江（2005）等認爲它們是獨立的詞彙單位，表達單一的語氣；馬建忠（1983）、郭錫良（1989）、朱承平（1998）、楊永龍（2000）等認爲它們各自都發揮作用，主張單功能語氣詞表達複合語氣，如“也已”的“也”表達論斷、“已”表達限止語氣，“也已”整個是限止語氣帶有論斷語氣。這些前賢意見，各有理由，也各有認同者。本文考察“也已”、“已矣”和“也已矣”面貌時，引進時間因素，從語言歷時平面的差異中認識它表達的語氣如何。下面談談筆者對其的看法。

#### 4.2 “也已”連用分析

對“也已”連用表達的語氣，郭錫良(1989)主張單功能，即“也”表論斷，“已”表限止，各自表達自己的功能，而“也已”是限止語氣帶有論斷語氣，表示說話人認為情況肯定只限於這樣。馬建忠(1983:378)也曾主張單功能，不過他還談到了“也已”的結構層次，說《論語》所見“可謂好學也已”之“也已”者，“也”助“好學”，是斷詞；“已”助“可”，所以決其已然也。楊伯峻(1965:18)認為表達單一語氣，即“也已”是加強“也”字肯定語氣的，而翻譯成現代漢語的“了”。

“也已”連用，戰國時期郭店簡、上博簡各僅見1例。而西漢張家山漢簡、帛書本《老子》都不見使用，定州本《論語》僅見3例。出土文獻當中的“也已”都用在陳述句中。即：

- (34) 由丘觀之，則美言也已。(上博簡《季康子問于孔子》簡13-14)
- (35) 入之或入之，至之或至之，至而亡及也已。(郭店簡《語叢四》簡27)
- (36) 能近取辟，可謂仁之方也已。(定州本《論語·雍也》簡137)
- (37) 子曰：“功乎異端，斯害也已。”(定州本《論語·為政》簡21)
- (38) 雖欲從之，未由也已。(定州本《論語·子罕》簡224)

上文說過，“已”在戰國西漢出土文獻當中的功能與“矣”近似。這一現象在“也已”的“已”上表現得極其明顯。例(34)的“也”助NP“美言”，表判斷；“已”助整句，功能相當於“矣”。例(35)是例(34)的擴展用法，“也”助VP“至而亡及”，表確定；“已”助整句，功能相當於“矣”。例(36)“也”助VP“可謂仁之方”，表確定；“已”助整句，表如果“能近取辟”的話，那麼“可謂仁之方”了。例(37)“也”助VP“害”，表確定；“已”助整句，表某種條件之下的實現。例(38)“也”助“未由”，表確定；此句前邊出現“雖”字，跟句末的“已”搭配，表示即使“欲從之”，“沒有路子”了。“已”的這種用法，一直沿用到後代。如定州本《論語·子罕》：“四十、五十而無聞焉，此亦不可畏也”的“也”，在敦鄭本和阮元本都作“也已”，加“已”表達某種條件之下的實現。

先秦傳世文獻裡的語氣詞“也已”連用，除了《論語》之外還見於《禮記》4例、《左傳》20例、《公羊傳》1例，用法與之相當。如：

- (39) 曾子曰：“晏子，可謂知禮也已，恭敬之有焉。”(《禮記·檀弓下》)
- (40) 天之棄商久矣，君將興之，弗可赦也已。(《左傳·僖公二十二年》)

例(39)至(40)的“也”都表確定，“已”助整句。

### 4.3 “已矣”連用分析

對於“已矣”連用表達的語氣，王引之、楊伯峻(1965)等認為表達單一語氣；馬建忠(1983)、郭錫良(1989)等認為表達複合語氣。如郭錫良(1989)認為“已矣”合用表達限止語氣兼報導語氣，表示說話人所報導的事物只限於這種情況。

語氣詞“已矣”連用，先秦出土文獻和西漢張家山漢簡、帛書本《老子》都不見使用，定州本《論語》僅見一例，用在VP之後。即：

(41) 抑爲之不厭，誨人不倦，則已矣。(定州本《論語·述而》簡183-184)  
此句殘缺部份在阮元本作“則可謂云爾已矣。”此句皇疏云：“學而不厭，又教誨不倦，乃可自謂如此耳。”邢疏云：“孔子言已學先王之道，不厭教誨，於人不倦，但可謂如此而已矣。”可見，它可以表達限止語氣。

先秦傳世文獻裡的句末語氣詞“已矣”連用，除了《論語》之外還見於《禮記》2例、《左傳》1例、《孟子》2例等。如：

- (42) 其設心以爲不若是，是則罪之大者，是則章子已矣。(《孟子·離婁下》)  
(43) 是故君子以義度人，則難爲人；以人望人，則賢者可知已矣。(《禮記·表記》)  
(44) 夫以強取，不義而克，必以爲道。道以淫虐，弗可久已矣。(《左傳·昭公元年》)  
(45) 亡矣！喪矣！不可復見已矣！(《禮記·問喪》)

例(42)的“是則章子已矣”爲“NP+已矣”，宋孫奭疏云：“是則章子之行以此而已”。可見，此句“已”還是表達限止語氣。例(43)至(44)的“已矣”，用在VP後邊。上文說過，位於句末的“已”在戰國時期多數表達一個功能與“矣”類似的成分，一般助整句。例(45)至(46)的“已矣”連用，實際上把“已”和“矣”的關係更爲緊密，使得“已矣”表達同樣的功能。這時候的“已”，基本上不表達限止語氣。如例(43)唐孔穎達疏云：“故云則賢者可知已矣。已矣，語助也。”例(44)唐孔穎達疏云：“以不義謂之爲道，而淫虐爲之民所不堪，不可久矣。”可見，“已”和“矣”的關係已經很密切。這種用法一直沿用到後代，如果想表達“完成/實現”語氣，“已”後加“矣”或“矣”前加“已”都有可能。如定州本《論語·八佾》：“始可與言《詩》已”的“已”在敦集本和阮元本都作“已矣”。再如定州本《論語·子罕》：“說而不擇，從而不改，吾無如之何矣”的“矣”在敦鄭本作“已矣”。

這種用法，還可以用在表示讚譽或較強感情的感嘆句中，兼表感嘆。如例(45)的“已矣”前邊出現“亡矣！喪矣！”這樣的感嘆句，“不可復見”隨之表達強烈的感情，使得“已矣”兼表感嘆。即它表達“[+完成/實現][+感嘆]”。

### 4.4 “也已矣”連用分析

至於“也已矣”連用表達什麼語氣，宋以後學者有三種不同的理解。一是認爲



在“而已”意義上添加餘聲“矣”的。如《論語》“子曰：亦各言其志也已矣。”邢昺疏云：“言三子亦各言其所志而已，無他別是非也。”元盧以緯《助語詞》：“‘而已’、‘也已’則語義截然；有‘矣’字又帶餘聲。”二是認為“也”上添加“已矣”的。如袁仁林《虛字說》：“‘也已矣’三合聲。‘也’字稍稍勒住，交入‘已矣’二字，止息明瞭，意盡無餘。”三是似乎把“也已矣”當作表達感嘆語氣的。如劉淇《助字辨略》：“《論語》‘周之德，其可謂至德也已矣。’凡語已辭，詠歎深至，則辭氣闡緩而長，故重疊言之也。”

今人楊伯峻(1965:18)還是主張單一語氣，認為“也已矣”是加強“也”的肯定語氣的，而把它翻譯成現代漢語的“罷了”。馬建忠(1983:377-9)說《論語》中“其可謂至德也已矣”的“也已矣”，“也”貼“至德”，而“已矣”兩字，“重言以決其事之已定而無可少疑也，是則仍謂之雙合助字可也。”郭錫良(1989)還是主張單功能，認為“也已矣”的“也”表肯定語氣，“已”表限止語氣，“矣”表報導新情況的語氣，也就是說把某一事實當作肯定的、止於此的新情況報導出來。魏培泉(1982:380)說：“‘也已矣’中的‘已’決不能是實義詞，因為‘已’總連在助詞‘也’後，和‘而已矣’的‘已’不能混同。”Pulleyblank(1994)認為“也已矣”是“也已”的擴展形式。

“也已矣”連用，先秦出土文獻以及張家山漢簡、帛書本《老子》、定州本《論語》都不見使用，而見於敦鄭本、敦集本《論語》當中，已見上文。就傳世文獻來看，“也已矣”唐宋以前共見26例。其中排除皇侃《論語義疏》所見《論語》原文13例的話，共有13例“也已矣”。其中包括他書引用的《論語》原文5例和其他8例。下面請看具體例子及其分析。

“也已矣”先秦時僅見2例。即：

(46) 君子曰：此亦妄人也也已矣。（《孟子·離婁下》）

(47) 子言之曰：後世雖有作者，虞帝弗可及也已矣。（《禮記·表記》）

例(46)“也”助NP“妄人”，表判斷；“已”表限止；“矣”助整句，表示某種條件之下的完成或實現。這裡的“NP+也已矣”表達“[+判斷][+限止][+完成/實現]”。此句的意思是說：孟子說，如果君子多次省察了自己，有人還是“橫逆”君子的話，此人是妄人罷了。例(47)“也”用在VP後邊，表示確定。這裡的“也已矣”可以分析為“也+已矣”，表“[+確定][+完成/實現]”。

東漢“也已矣”，共見5例，排除《論語》引文一處的話，共有4處，且都用在VP後邊。即：

(48) 學以治之，思以精之，朋友以磨之，名譽以崇之，不倦以終之，可謂好學也已矣。（揚雄《法言》）

(49) 古者聖人以天下之耳目為視聽，天下之心為心，端旒而自化，居成而不有，斯可謂致理也已矣。（馬融《忠經詳解·廣至理》）

(50) 先遇明，後遭險，君之易移也已矣。（袁康《越絕書》第十四）

曹：“也已矣”連用現象

(51) 或問神僊之術曰：“誕哉！未之也已矣！”（荀悅《申鑒·俗嫌》）

例(48)至(51)的“也已矣”也既可以分析為“也+已矣”，也可以分析為“也+已+矣”。前者表“[+確定][+完成/實現]”，後者表“[+確定][+完成/實現][+強調/感嘆]”。如例(48)晉李軌注云：“上士聞此五者，勤而行之，不可謂不好也。”此句表達如果“上士聞此五者，勤而行之”的話，“可謂好學”了。例(51)為感嘆句，“VP+也已矣”的“矣”如果用在表示讚譽或較強感情的感嘆句中，可以表示感嘆。為了說解方便，我們把表“[+確定][+完成/實現]”的“也已矣”寫作“也/已矣”，而表“[+確定][+完成/實現][+強調/感嘆]”的寫作“也已/矣”。當然，這種“也已/矣”，其中的“也已”都有自己的作用，從這個角度看，也可以寫做“也/已/矣”，三個語氣詞都有自己的功能。但三個語氣詞的功能都已不同於《孟子》的“也/已/矣”，寫做“也/已/矣”容易和《孟子》的混淆。而且，為了便於和“也已矣”比較，我們還是把它寫做“也已/矣”。這種“也已/矣”和“也/已/矣”內部結構不同：“也已/矣”三個語氣詞都起作用，“也/已/矣”的“已矣”只起一種作用。功能也不同：“也已/矣”表“[+強調/感嘆]”，“也/已/矣”不表“[+強調/感嘆]”。

魏晉南北朝，共見3處“也已矣”，都是《論語》引文。即：

(52) 孔子曰：太伯其可謂至德也已矣。（《後漢紀·孝和皇帝紀》引《泰伯》）

(53) 孔子曰：太伯其可謂至德也已矣。（孫盛《周太伯三讓論》引《泰伯》）

(54) 周之德，其可謂至德也已矣。（沈麟士《沈氏述祖德碑》引《泰伯》）

這一時期的“也已矣”，既可分析為“也/已矣”，也可分析為“也已/矣”。我們之所以採取這兩種分析，是因為這兩種用法在敦集本當中都出現。先看“也/已矣”：例(4)“亦各言其志也已矣”，在定州本作的“也”；在敦集本的伯3606、伯3192、伯3402寫卷裡也作“也”；而在斯3011、伯2687、伯2620寫卷加“已矣”作“也已矣”。再看“也已/矣”：例(13)“斯亦不足畏也已矣”，在定州本作“也已”；而在敦集本的伯3305加“矣”作“也已矣”。

隋朝，共見3處“也已矣”。其中兩處為《論語》引文，作“吾末如之何也已矣”。其餘一例是：

(55) 猶六經皆有所失，未之深也已矣。（王劭《述佛志》）

例(55)意思是說：“（佛教）也猶如六經皆有所失，只是不很深而已”，是表限止而非強調。它可以分析為“[+確定][+限止][+完成/實現]”。上文指出過先秦文獻裡“已矣”的“已”或可以表達限止語氣，這些語氣在南北朝時期少數還保留著。

唐以後的“也已矣”連用，在著書原文和注文裡都常見使用。如：

(56) 人而不為，吾末如之何也已矣！（裴休《大方廣圓覺修多羅了義經略疏序》）

(57) 嗚呼，創業垂統之君，規模若是，亦可謂遠也已矣！（《宋史》卷三）

(58) 其可知也者，皆可知也。其不可知也者，則不可知也已矣！（劉敞《公是先生弟子記》）

(59) 盧侯以心感神，以身律人，可謂善政也已矣！（唐喬琳《巴州化成縣新移

文宣王廟頌並序》)

(60) 公之德，必將大其名也已矣！（李太白《故翰林學士李君墓誌》）

(61) 嗚呼！三公皆不處此地，……小子所不能知也已矣！（李舟《獨孤常州集序》）

這種使用多少帶點仿古的色彩。值得注意的是，唐宋以後的“也已矣”，多數用在感嘆句中，表達感嘆語氣。如例(56)至(61)皆是。這種感嘆語氣，甚至還可以添加感嘆語氣詞“乎”來加強它的語氣。如韓愈《送齊暉下第》：“非百年必世，不可得而化也。非知命不惑，不可得而改也已矣乎！”因此例(56)至(61)可以分析為“也已/矣”，表“[+確定][+完成/實現][+強調/感嘆]”。

附帶說一下，“也已矣”連用形式在中古以後基本上退出了口語，尤其是魏晉南北朝時期“也已矣”基本上僅見於《論語》當中（或引用《論語》語句的其他文獻中）。而本文所謂的唐人的語言習慣，指的是他們對“文言文”的語感。目前，漢語史一般只看重口語的演變發展，不看重文言文的演變發展。我想，文言文也有它本身的發展軌跡，雖然沒有口語的發展那麼明顯，不過還是有的。我要談的對象就是漢朝以後各個時期的古人對先秦文言文的語感。

## 5.《論語》中的“也已矣”連用分析

上文 4.4 論證過，唐宋以前的“也已矣”可以分析為“也/已矣”或“也已/矣”，前者不表“[+強調/感嘆]”，後者表“[+強調/感嘆]”。這些語氣也反映在唐宋以前的《論語》寫本當中。即敦鄭本、敦集本的“也已矣”都可以分析為“也/已矣”或“也已/矣”。不過我們傾向於認為敦鄭本的“也已矣”是表強調和感嘆。這是因為敦鄭本出現的兩例都作：“可謂至德也已矣”。而例(1)在敦鄭本《論語》鄭注云：“三讓之德，莫大於此。”例(2)在敦鄭本《論語》鄭注云：“周王之德，乃能以多事寡，故可謂至德。”“泰伯”、“周之德”皆為孔子美之，故鄭注本這兩句“可謂至德也已矣”都表讚譽。這種表達讚譽的句子的語氣比較強烈，因此可以說此兩句在表“[+確定][+完成/實現][+強調/感嘆]”，可分析為“也已/矣”。

南北朝時期的皇侃本《論語》13 例也是如此，它們同樣可以分析為不表“[+強調/感嘆]”的“也/已矣”和表“[+強調/感嘆]”的“也已/矣”。我們認為例(1)、(2)、(10)是可分析為“也已/矣”，這是因為皇侃解說“也已矣”強調語氣時，用“深遠”、“極”、“深”等詞來表達。如例(1)皇疏云：“泰伯有讓德深遠，雖聖不能加，故云其可謂至德也已矣。”這種解說在跟我們說明，皇侃對例(1)、(2)、(10)的認識可能是“也已/矣”。其餘例子，皇侃一般只用假設條件複句這一形式，加“雖”、“若”、“如”、“假令”等詞，表示在這種條件之下會實現上舉的 VP，即可分析為“也/已矣”，表“[+確定][+完成/實現]”。如例(5)、(6)皇疏云：“言若使二事不

行，非唯是明，亦是高遠之德也。”

皇侃本的 13 例“也已矣”，唐石經以後的《論語》中只保留了 8 句，爲什麼會有這樣的變化呢？這是因爲，如上文所說，在唐人眼裡“也已矣”基本上都是“也已/矣”（表“[+強調/感嘆]”），按照唐人對《論語》的語感，他們把不表“[+強調/感嘆]”的(9)–(13)的“矣”去掉，只用“也已”或“也”來表達語氣。而(1)–(8)，有的句子顯然是表“[+強調/感嘆]”的（如(1)、(2)），有的句子在皇侃看來是不表“[+強調/感嘆]”（如(5)–(8)），但看作表“[+強調/感嘆]”的也可以，所以“也已矣”保留了下來。<sup>1</sup>

至於皇侃本中爲什麼有 13 例“也已矣”，我們認爲，有的可能原來就有（如例(1)、(2)），有的是在《論語》的流傳過程中後人改動的。皇侃本是根據當時傳抄的情況而收錄 13 個“也已矣”結尾的句子的。那麼後人根據什麼來增損？本文認爲，他們在讀先秦的文獻時會有自己的理解（他們對先秦語言的“語感”），有時他們還會用先秦的語言形式寫作（比如仍用“也已矣”），根據的就是這種語感。到今天，我們可以根據六朝人或唐人寫的古文中的“也已矣”，來判斷他們對先秦語言的“語感”。大體上，他們根據自己對古代文獻的語感，覺得這句表達“[+完成/實現]”的話，在“也”上加“已矣”；覺得這句表達“[+強調/感嘆]”的話，在“也已”上加“矣”。或者，他們覺得在表示“[+強調/感嘆]”的句子末尾應該有“也已矣”（這在鄭注本的兩個“也已矣”的句子中表現得最明顯），因此，把一些原來句末只有兩個、一個，甚至沒有語氣詞的句子，改爲由“也已矣”結尾。不過，對這種語氣的認定會有較大的主觀性，各人的感覺可能不同，照皇侃本人的理解，其中很多句子并不表示強調或感嘆；而在唐人看來，其中的(1)–(8)表示強調或感嘆，(9)–(13)不表示強調或感嘆。(1)–(8)的“也已矣”一直保留到如今。在《論語》中，經後人改動而一直保留至今的不止一例。最明顯的是阮元本《論語·公冶長》中的“願車馬衣輕裘”中的“輕”，是後人誤加的。這在錢大昕《金石文跋尾》中已經論證得很充分。<sup>2</sup> 這說明即使像《論語》這樣的經典，後人也會根據自己的語感（有時候這種語感并不一定符合先秦的語言實際）加以改動，而且這種改動還可能保存至今。

綜上，定州本《論語》中可能有“也已矣”，但數量不多；皇侃本中的 13 例，有的是在流傳過程中增加的；唐石經中只有 8 例，是唐人改定的。皇侃本和唐石經都不是《論語》的原貌。皇侃本和唐石經增刪的依據，是六朝人和唐人對《論語》的語感。

至於“也”“已”“矣”爲什麼有時候可以交叉使用？“也矣”連用爲什麼幾乎不見於先秦？等等，有待進一步研究。

<sup>1</sup> 當然，人們對語氣強弱的感受往往有較大的主觀性，例(10)“攻乎異端，斯害也已”其實語氣很強，邢昺也注云：“人若不學正經善道，而治乎異端之書，斯則爲害之深也。”不過唐石經還是去掉了“矣”。

<sup>2</sup> 此爲蔣紹愚老師跟我提供的例子。

引用文獻

- Pulleyblank, Edwin G. 1994. *Aspects of aspect in Classical Chinese*. 高思曼、何樂士編《第一屆國際先秦漢語語法研討會論文集》，313-363。長沙：岳麓書社。
- 《十三經注疏》第八冊《論語》。臺北：藝文印書館，1989年。
- 清鮑廷博輯《知不足齋叢書（三）》第七集所收《論語集解義疏》十卷。臺北：興中書局，1964年。
- 《景刊唐開成石經》第四冊。北京：中華書局，1997年。
- 河北省文物研究所整理小組整理 1997.《定州漢墓竹簡論語》。北京：文物出版社。
- 河南省文化局文物工作隊編 1959.《信陽楚墓》。鄭州：河南人民出版社。
- 湖北省荊沙鐵路考古隊編 1991.《包山楚簡》。北京：文物出版社。
- 湖北省文物考古研究所、北京大學中文系編 2000.《九店楚簡》。北京：中華書局。
- 張家山二四七號漢墓竹簡整理小組編 2001.《張家山漢墓竹簡[二四七號墓]》。北京：文物出版社。
- 荊門市博物館編 1998.《郭店楚墓竹簡》。北京：文物出版社。
- 馬承源主編 2001~5.《上海博物館藏戰國楚竹書》（一）~（五）。上海：上海古籍出版社。
- 郭沫若 1999.《兩周金文辭大系圖錄考釋》（下）。上海：上海書店出版社。
- 高明 1996.《帛書老子校注》。北京：中華書局。
- （元）盧以緯著、王克仲集注 1988.《助語詞集注》。北京：中華書局。
- （清）袁仁林著、解惠全注 2004.《虛字說》。北京：中華書局。
- （清）劉淇 2004.《助字辨略》。北京：中華書局。
- （清）王引之 2000.《經傳釋詞》。南京：江蘇古籍出版社。
- 于省吾主編 1996.《甲骨文字詁林》。北京：中華書局。
- 張世超、金國泰等編 1996.《金文形義通解》。京都：中文出版社。
- 何琳儀 1998.《戰國古文字典——戰國文字聲系》。北京：中華書局。
- 黃永武主編 1983-1986.《敦煌寶藏》。臺北：新文豐出版公司。
- 李方 1998.《敦煌〈論語集解〉校證》。南京：江蘇古籍出版社。
- 王素 1991.《唐寫本論語鄭氏注及其研究》。北京：文物出版社。
- 王素 2002.《敦煌吐魯番文獻》。北京：文物出版社。
- 陳永正 1992.《西周春秋銅器銘文中的語氣詞》，《古文字研究》第19輯，565-579。北京：中華書局。
- 馮勝君 2004.《論郭店簡〈唐虞之道〉、〈忠信之道〉、〈語叢〉一~三以及上博簡〈緇衣〉為具有齊系文字特點的抄本》，北京大學博士后研究工作报告。
- 郭錫良 1988.《先秦語氣詞新探（一）》，《古漢語研究》1988.1:50-55、49。
- 郭錫良 1989.《先秦語氣詞新探（二）》，《古漢語研究》1989.1:74-82。

曹：“也已矣”連用現象

- 李家浩 2008.《釋老簋銘文中的“澆”字——兼談“只”字的來源》，《古文字研究》第 27 輯，245-250。北京：中華書局。
- 李宗江 2005.《試論古漢語語氣詞“已”的來源》，《中國語文》2005.2:139-145。
- 李佐豐 2004.《古代漢語語法學》。北京：商務印書館。
- 劉曉南 1991.《先秦語氣詞的歷時多義現象》，《古漢語研究》1991.3:74-81、62。
- 呂叔湘 1990.《中國文法要略》，《呂叔湘文集》第一卷。北京：商務印書館。
- 馬建忠 1983.《馬氏文通》。北京：商務印書館。
- 裘錫圭 1988.《文字學概要》。北京：商務印書館。
- 孫錫信 1999.《近代漢語語氣詞》。北京：語文出版社。
- 孫欽善 1994.《中國古文獻學史》。北京：中華書局。
- 王力 1989.《漢語語法史》。北京：商務印書館。
- 魏培泉 1982.《庄子语法研究》，台灣師範大學碩士論文。
- 吳麗君 2005.《〈唐開成石經〉刊刻的社會背景綜述》，《承德民族師專學報》2005.3:38-40。
- 許建平 2006.《敦煌經籍敘錄》。北京：中華書局。
- 徐望駕 2002.《皇侃〈論語集解義疏〉版本研究述評》，《古籍整理研究學刊》2002.2:88-91。
- 楊伯峻 1965.《文言虛詞》。北京：中華書局。
- 楊伯峻 1981.《古漢語虛詞》。北京：中華書局。
- 楊樹達 1978.《詞詮》。北京：中華書局。
- 楊樹達 1984.《高等國文法》。北京：商務印書館。
- 楊永龍 2000.《先秦漢語語氣詞同現的結構層次》，《古漢語研究》2000.4:23-29。
- 張富海 2006.《說“矣”》，《古文字研究》第 26 輯，502-504。北京：中華書局。
- 張振林 1982.《先秦古文字材料中的語氣詞》，《古文字研究》第 7 輯，289-308。北京：中華書局。
- 趙長才 1995.《先秦漢語語氣詞連用現象的歷時演變》，《中國語文》1995.1:51-57。
- 趙平安 2008.《對上古漢語語氣詞“只”的新認識》，武漢大學簡帛研究中心主編《簡帛》第三輯，1-6。上海：上海古籍出版社。
- 周法高 1950.《上古語法札記》，《中央研究院歷史語言研究所集刊》22:171-207。
- 朱承平 1998.《先秦漢語句尾語氣詞的組合及組合層次》，《中國語文》1998.4:299-303。
- 裘燮君 2000.《先秦早期不同文體文獻在語氣詞運用上的差異》，《徐州師範大學學報（哲學社會科學版）》2000.4:62-66。
- 劉洪濤 2008.《上博竹書〈民之父母〉研究》，北京：北京大學碩士學位論文。
- 劉建民 2009.《上博竹書〈景公瘡〉注釋研究》，北京：北京大學碩士學位論文。
- 汝鳴 2006.《銀雀山漢墓竹簡異文研究》，上海：華東師範大學碩士學位論文。

## 文字层面的词汇扩散现象 A Study of Lexical Diffusion in Chinese Characters

赖佳瑜 NCKEJ KC'[ GG  
Nanyang Technological University

本文主要以“阜”、“水”为研究个案，从甲骨文、金文、战国文字、小篆到隶书，分析比较其在合体字中的形体演变现象，着重观察并归纳出不同合体字在演变前后之间的演变速度。本文尝试将语言学上已成功解释音变现象的词汇扩散理论运用于文字层面的演变中，为汉字演变的研究提供一个崭新的视角。研究结果显示，在演变的过程中，并非所有的字都一次性地发生演变。在同一条件下，有些变了、有些处于变化中、有些则未变，这便体现了词汇扩散的现象。

### 第一章 引言

一般的汉字研究者对于汉字已作了丰富的研究，主要着重于汉字的考释或者对汉字在特定时期的演变进行描述。其中就有裘锡圭对甲骨文“𠄎”字的考释，证明“𠄎”字实为伤害之“害”的本字，纠正了前人将其释为“它”的讨论。<sup>1</sup>朱德熙则分别从字形和文义上考释出战国匋文中“𠄎”字实为“者”，纠正了前人将其释为“向”或“尚”的讨论，并因此读通了匋文。<sup>2</sup>这些都是对单个汉字作出的考释，因此对于某个字在特定时期的演变能够考察得很清楚，并建立了形体演变系列，为后人在文字的考证上提供了强而有力的基础。同时，这也突破了前人的局限，做了比较系统性的分析和整理。

<sup>1</sup> 裘锡圭〈释“𠄎”〉，见《裘锡圭自选集》（以下简称《裘》）（郑州：河南教育出版社，1983），页17-26。

<sup>2</sup> 朱德熙〈战国匋文和玺印文字中的“者”字〉，见《朱德熙文集》第五卷（以下简称《文集》）（北京：商务印书馆，1999），页109-112。

在汉字整体的演变上，历来学者归纳出汉字演变的规律和趋势主要有三：简化、声化和规范化。<sup>3</sup>这些研究指出，汉字在演变的过程中，基本上都一致遵循简化、声化、规范化这三条规律，可说是一种总体性的演变。

一些则多为从某一时间点到另一时间点的演变的研究。其中，裘锡圭就对一些汉字如水、肉、玉等的形体演变现象进行了分析。他提到：“汉字由篆文变为隶书，偏旁的写法往往随其在合体字中的位置而异，例如‘水’旁的位置在上或在下时，就仍作‘水’而不作‘氵’，如沓、浆。”<sup>4</sup>他也分析道：“在睡虎地秦简中，所有左边从‘水’的字都把‘水’旁写作‘氵’，像正规篆文那样写作‘𠂇’的例子连一个也没有。”<sup>5</sup>高明将这一演变视为由小篆变为隶书的简化。<sup>6</sup>

高明在〈古文字的形旁与其演变〉一文中从甲骨文到隶书对 120 个古文字的形旁与演变进行了分析。<sup>7</sup>这里只举一个例子进行说明。他指出，古文水字偏旁，形体大同小异，发展到隶书时，本字写作“水”，凡立于左侧之偏旁，一律写作“氵”形。

随着对汉字认识的加深，近年来，黄文杰在《秦至汉初简帛文字研究》一书中已经提到篆隶刚从秦篆变化而来，许多字还保留着秦篆的写法，例如马王堆帛书《五十二病方》等十几种医书文字的“水”旁仍多写作𠂇，如汗、温、治、酒、汁、汤等，与单字的𠂇和漿等字在下方的𠂇无别，与益字的上部也相同。而睡虎地秦简等“水”旁几乎都写作𠂇（只有《语书》8号简“江”字所从“氵”作𠂇），已是隶书的写法了。<sup>8</sup>这里，他与裘锡圭同样对睡虎地秦简的“水”进行了分析，可是他所观察到的并非裘锡圭所观察的“像正规篆文那样写作‘𠂇’的例子连一个也没有”。他已经观察出这段期间处于“江”字左边的“水”写作𠂇，可见左边从“水”的合体字并不是毫无例外地都写作𠂇。虽然黄文杰所使用的材料有限，

<sup>3</sup> 李孝定提出汉字演变的规律为规范化、声化和简化。李孝定《汉字的起源与演变论丛》（以下简称《论丛》）（台北：联经出版事业公司，1986），页 77-78。林沄提出汉字的演变规律主要为简化、分化和规范化。林沄《古文字研究简论》（吉林大学出版社，1986），页 71。高明提出汉字演变的规律为简化和规范化。高明《中国古文字学通论》（以下简称《通论》）（北京：北京大学出版社，1996），页 159-161。裘锡圭也提到汉字形体上的变化主要是简化，繁化的现象虽然也存在，但是其影响跟简化不能相提并论。裘锡圭《概要》，页 30。

<sup>4</sup> 裘锡圭《概要》，页 83。

<sup>5</sup> 同上，页 68。



<sup>6</sup> 高明《通论》，页 164。

<sup>7</sup> 同上，页 57-129。

<sup>8</sup> 黄文杰《秦至汉初简帛文字研究》（简称《简帛研究》）（北京：商务印书馆，2008），页 47。





未观察马王堆简帛文字的全貌<sup>9</sup>，但其观察依旧为我们提示了每个汉字演变的速度可能不一样的线索。

可见，裘锡圭和高明的研究皆假设了汉字形体的演变是一次性的，重视的是演变前后的两个阶段，因此所观察到的演变为“毫无例外的”、“一律的”，并未观察前后两个阶段之间不同字的演变快慢。黄文杰已观察到秦至汉初到在合体字中的演变并非一次性的。然而，其目的在于提出秦至汉初简帛文字呈现出从古文字向今文字过渡的变动形式，尚未提出不同字在演变过程中的速度不同。对于这还未被广泛提及与讨论的这一块，正是本论文所关注之处。

综上所述，前人的研究都集中在对于未变之前和已变之后两个静止阶段形体的比较描写上，而对于处于这两个静止状态之间的动态过程却未有论及。基于前人的研究，本文的目的主要在于观察个别汉字在演变前后处于中间那一阶段的演变速度。在语言层上，词汇扩散理论已经成功地解释了音变现象。这个理论指出，一个音变在发生时，所有符合音变条件的词是在时间推移中逐个地变化的。同一个偏旁部首的不同合体字的演变不是一次性的，而是有先后次序的，这似乎和语言层面的词汇扩散有相似之处，提示我们文字形体的历时演变，可能也存在着词汇扩散的现象。对于这个问题，目前尚未有学者给予关注。因此，本文将对汉字层面的词汇扩散现象进行探讨。

## 第二章 研究方法

### 第一节 独体字、合体字

汉字偏旁化是汉字的一种历史演变现象，是汉字隶变<sup>10</sup>过程中所发生的一种普遍的形体变异现象。所谓汉字的偏旁化，是指当一个独体字用作偏旁构成合体字时，隶变之后所发生的一种形体变化现象。如“水”作为独体字使用时，小篆写作，今文字写作“水”。当“水”作偏旁使用时，古汉字还是原来的写法，可是隶变之后就会变作“氵”如海、汗、“冰”如泰，只有少数写作“水”如浆。<sup>11</sup>可见，今文字“水”作偏旁使用，处在不同位置时，写法也不同。因此，本文主要对各个时期独体字在合体字中的形体演变现象进行探讨，着重观察并归纳出不同合体字在演变前后之间的演变速度。

<sup>9</sup> 关于马王堆简帛中“水”字的演变，详见本文第三章的个案二。

<sup>10</sup> 隶变是汉字形体从小篆到隶书的一次重要改革，隶变的完成是汉字形体一个根本性的变化。

<sup>11</sup> 王玉新著、葛本仪主编《汉字认知研究》（山东：山东大学出版社，2000），页 101-102。

本文对独体字在合体字中形体演变的探讨，主要以《说文》部首为依据，对独体字在合体字中充当部首时的形体演变进行分析，收录此部首下的所有合体字。此外，本文也将对《说文》五百四十部中凡是有此部首的其他部首下所收的合体字进行讨论。

## 第二节 研究工具

### 一、文字编

汉字按照时代先后和形体上的特点，可分为商代甲骨文、西周春秋金文、战国文字、秦代的小篆和隶书五个时期。

本研究以《甲骨文编》<sup>12</sup>、《金文编》<sup>13</sup>、《战国文字编》<sup>14</sup>、《楚文字编》<sup>15</sup>、《包山楚简文字编》<sup>16</sup>、《郭店楚简文字编》<sup>17</sup>、《说文解字》<sup>18</sup>、《睡虎地秦简文字编》<sup>19</sup>、《马王堆简帛文字编》<sup>20</sup>以及《银雀山汉简文字编》<sup>21</sup>为材料依据，对汉字在这五个时期的历时演变进行观察。各文字编是把搜集到的出土文字分别部居，依据许慎《说文解字》体例编成的字书。本文将从汉字发展的纵线条，即时代的先后进行分析。

各个文字编表现了不同历史阶段的材料，因此文字编当中所收的字形也就反映了不同时期的汉字形体。通过对各文字编的考察，将使我们了解汉字的历时演变。

### 二、图表、统计图表

本文首先对同时期的文字材料进行整理，并对其进行分析与讨论，在讨论的当中将列图呈现这些形体，以达到更仔细的探讨。接着，本文也对各个阶段同个独体字在不同合体字中的演变现象进行数据统计并形成相应的表格与图表，以便更清楚地观察与归纳出不同合体字在演变前后之间的演变速度。

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<sup>12</sup> 孙海波《甲骨文编》（北京：中华书局出版，1965）。

<sup>13</sup> 容庚《金文编》（以下简称《金文》）（北京：中华书局出版，1985）。

<sup>14</sup> 汤余惠《战国文字编》（以下简称《战国》）（福州：福建人民出版社，2001）。

<sup>15</sup> 李守奎《楚文字编》（上海：华东师范大学出版社，2003）。

<sup>16</sup> 张守中《包山楚简文字编》（北京：文物出版社，1996）。

<sup>17</sup> 张守中、张小沧、郝建文《郭店楚简文字编》（北京：文物出版社，2000）。

<sup>18</sup> 许慎《说文解字》（北京：中华书局，1963）。



<sup>19</sup> 张守中《睡虎地秦简文字编》（以下简称《睡虎地》）（北京：文物出版社，1994）。

<sup>20</sup> 陈松长《马王堆简帛文字编》（以下简称《马王堆》）（北京：文物出版社，2001）。







<sup>21</sup> 骈宇騫《银雀山汉简文字编》（以下简称《银雀山》）（北京：文物出版社，2001）。

### 第三节 研究过程

本文依序分别从甲骨文、金文、战国文字、小篆、隶书，对独体字在合体字中的形体演变进行分析讨论。其中，楚文字又以包山楚简在先，郭店楚简在后。睡虎地秦简文字属于秦隶，故将之排在《说文》小篆之后。隶书按时间排列为马王堆在前、银雀山在后。

本文所使用的文字编都以《说文》分别部居。在某个部首下，《说文》所无而见于其他文字编的字，如收录在《甲骨文编》的水部下、收录在《银雀山汉简文字编》的水部下，但二字并不收录在《说文》的水部，这些字也列入本文的研究之中。

由于篇幅有限，在同一批竹简、帛书等材料中所收录的多个形体一样的字，本文仅将摘录一个较清晰的形体为代表列在图中。再者，独体字与合体字中众多的异体，以及数量众多的合体字例，将只摘录一部分具代表性又字形清晰完整的字体列在图中。统计图表则对所取用的字进行全面的统计。另外，统计图表中将各时期的汉字简称为甲骨文、金文、包山、郭店、小篆、睡虎地、马王堆以及银雀山。

另外，在图表中，本文将以三种演变方式对同个独体字在合体字中的演变情形进行归类，即“未变”、“变化中”和“已变”。“未变”所收的形体为前一阶段的形体，即、。“已变”则收录以隶书为主的形体，即、。同个“未变”的形体若位于合体字中的位置不同，左右上下不拘，本文也将其视为“未变”的形体，一律列入“未变”中。“变化中”收录同时具有“未变”和“已变”形体的合体字，即同时写作与的。

在统计图表中，若同个合体字的多个异体演变情况都属未变或已变的，将以一个字的单位分别计算进“未变”和“已变”二栏；同个合体字的多个异体若同时具有未变和已变的形体，也将以一个字的单位计算进“变化中”一栏。字形模糊以至无法判断的将被排除在本文的研究之外，不列入统计图表中。一些合体字或其异体当中也会出现不从水又不从其他形体或者从其他形体的字，这些字皆无法进行分析，所以本文也将其排除在外。这在下一节将以具体的例子进一步说明。

### 第三章 研究结果与分析




前两章已对本文的研究目的与方法进行了说明，此章将对具体的汉字进行比较分析与数据统计。



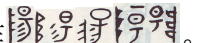
由于汉字的数量庞大，无法全部进行探讨，因此本文只能选取某些字进行深入的分析与研究，这些字须以下列的汉字充当部首、偏旁或部件。


(一) 阜 (二) 水


个案一：阜

本节依据许慎《说文解字》，将阜部以及五百四十个部中凡有“阜”的部首所收的合体字合并为一类进行探讨，因此以下所讨论的字分别来自阜部与𠂔部。


甲骨文“阜”写作诸形，均像山坡层层重叠之形，乃较高的地方，但与山、岳有别，近似于后代所说的山岗、高岗。<sup>22</sup>合体字中，“阜”的形体与独体字一样，异体很多，而且位置不固定，可位于合体字的左边或右边，如𠂔字就有好几种异体：。其中的显示了形体的极不固定，因此无法判断其为未变、变化中或已变当中的任何一项。

金文未收录独体字“阜”。合体字中，“阜”形体延续甲骨文，异体很多，而当中多写作，也有写作的，将中空的部分填黑了。在合体字中，同样的可位于左边或右边，而且其形体方向在一些合体字中也不固定，如陽字写作。因此，本文也无法将它们归入未变、变化中或已变的其中任何一项。





包山和郭店楚简都未收录“阜”字。“阜”在合体字中写作，如𠂔𠂔（陽），而其位置相对固定，皆位于合体字的左边。虽然如此，其形体仍不稳定，所以同样无法判断其为未变、变化中或已变的形体。此三个阶段都为古文字的阶段，形体不固定的现象经常出现，因此无法将其形体归入未变、变化中或已变任何一项。

到了小篆，文字大致定型，“阜”在作为独体字与合体字时皆统一写作，本节将这一形体视为未变的形体。小篆为规范化的文字，因此“阜”在所有合体字中的形体都呈现了一致性。例子如下：

独体字	合体字					
	 (陵)	 (陰)	 (陽)	 (陸)	 (險)	 (𠂔)

睡虎地未收录“阜”字。在合体字中，有些“阜”字的形体仍近似小篆，写作，如𠂔（陵），因此本文将其视为未变的形体。其他例子有：

 (阪)	 (隅)	 (阮)	 (隱)	 (隕)	 (隄)	 (院)	 (隄)
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<sup>22</sup> 赵诚《甲骨文简明词典》（以下简称《词典》）（北京：中华书局，1988），页 193。另外，叶玉森解为：从像土山高冢，、、并像阪级。于省吾《甲骨文诂林》（北京：中华书局，1996），页 1253。

## 赖：文字层面的词汇扩散现象

有些字则发生了变化，写作 $\beta$ ，如陞（陸），从三个坡变成了两个坡，接近今隶和楷书的写法“阝”，因此其被列为已变的形体。其他例子有：

陞（陸） 陞（陸）

另一些字则处于变化中，同时写作 $\beta$ 和 $\beta$ ，如陞陞（陰）。其他例子如下：

陽陽（陽） 險險（險） 陞陞（降） 陞陞（隄） 陳陳（陳） 除除（除）

马王堆也未收录“阜”的独体字，“阜”在合体字中出现了与睡虎地一样的演变情形。一些未变、一些变了、一些则处于变化中。这些形体如下：

未变	阝（阪）	阝（陝）	陞（陸）	陞（陶）	陽（隅）	陞（隄）	陞（喻）
变化中	陞陞（降）	除除（除）	陳陳（陳）	陽陽（陽）	陞陞（陵）		
已变	阝（阿）	阝（附）	陞（陞）	陞（隄）	陽（陽）		

其中，“阜”在降、陞、陵、陰、陳、陽、隅、隱八字中的形体有些模糊不清，无法判断，但仍有些形体是清楚可判断的。所以，本文只对形体清楚的进行探析，而将形体模糊的排除在外，被排除的形体如下：

降陞（降） 陞（陞） 陞陞（陵） 陞陞（陰） 陞（陳） 陽（陽） 隅（隅） 隱（隱）

此外，阮、陪、陞、階、險五字中的“阜”形体皆模糊不清，无法进行判断，因此这些字不在本文的论述范围内。这些字如下：

阮（阮） 陪（陪） 陞（陞） 階（階） 險（險）

银雀山中，独体字“阜”已发生变化，写作 $\beta$ 。在合体字中，“阜”同样出现了处于变化中、已变的形体，而未发生变化的形体已经没有了。其中，有一部分的字是在马王堆中处于未变及变化中的，到了银雀山却已经发生了演变。可见，当中确实有个渐变的过程。这些字如下图所示：

变化中	陞陞（陵）	險陞（險）	陞陞（隱）	陳陳（陳）		
已变	陞（陰）	陽（陽）	陞（陸）	陽（隅）	陞（陝）	陞（陷）

其中，“阜”在陰、陽二字中有些形体模糊不清，因此无法判断，亦被排除在外，如下所示：

陰（陰） 陽（陽）

从以上的分析中，我们不难发现，“阜”字到了小篆中，不论在充当独体字与合体字时其形体都大致定型；接着来到睡虎地便开始发生了变化。但，这一演变并

非一次性的发生在所有合体字中。从睡虎地到银雀山，都出现了未变、变化中、已变的字。由此可见，在这一阶段中，同样以“阜”为部首、偏旁或部件的合体字的演变不是一致的，而是有个速度的差别的。

根据以上的分析，本文在此对各个时期“阜”在合体字中的形体演变现象，进行数据统计并列表呈现。至于甲骨文、金文、包山和郭店的“阜”由于无法判断其在合体字中的形体属于未变、变化中或已变，因此不进行统计。

表 1：“阜”在合体字中的演变现象

阜	未变	变化中	已变	总计
小篆	97(100%)	0(0%)	0(0%)	97
睡虎地	9(42.86%)	9(42.86%)	3(14.29%)	21
马王堆	8(40%)	7(35%)	5(25%)	20
银雀山	0(0%)	4(23.53%)	13(76.47%)	17

根据表 1，我们可以观察到，从睡虎地到银雀山已变字所占的比例明显在增加，尤其从马王堆到银雀山增加的数量很大；未变字的比例则逐渐减少，甚至到了银雀山时连一个也没有了；变化中的字也逐渐在减少。可见，当中有个演变的速度。

然而，表 1 的演变数据可能显示了同个书写者或不同书写者的书写差异，那么这一演变便是偶然性的，将无法运用这个数据来探讨汉字的历时演变现象。偶然性呈现的是一种无规律、杂乱的现象，这就不是一种内部的演变。因此，本文将采用互证的方法进一步论证以上演变究竟属于偶然性或是内部的演变。

马王堆和银雀山隶书来自不同地域<sup>23</sup>，但时间点极为相近，其中马王堆比银雀山稍早。因此，二者若出现一致性的演变，将证明其演变并非偶然发生的，这将为互证提供很好的材料。<sup>24</sup>在此，本文以互证的方法，将两本书排列在一起，观察与分析当中的演变情形是否一致。其中，1 个已变的合体字“陞”同时收录在马王堆和银雀山中，3 个变化中的字陵、隱、陳同时收录在二书中，而未变的合体字都没有同时收录在二书中。可见，1 个已变的字和个 3 变化中的字在马王堆和银雀山中显示了一致性。若是个人书写差异的话，这四个字不太可能在两本书中都出现同样的演变情形。又，阪、陶、陵、隃 4 字是在马王堆中未变而银雀山已变的；降、除、陰、陽 4 字在马王堆为变化中而银雀山为已变。此八字证明了演变是有特定规律的。它们在两本书中呈现了一个线性时间序列的演变，都只有一个演变的方向，

<sup>23</sup> 马王堆汉墓遗址位于长沙市东郊，银雀山汉墓的遗址位于山东临沂市。《马王堆》序 1、《银雀山》前言 1。









<sup>24</sup> 互证并不适用于睡虎地秦隶，可能由于其收字不全，因此本文不对睡虎地秦隶进行互证。




即从马王堆到银雀山的演变。其余则有 4 字在马王堆未变而在银雀山未被收录；4 字在马王堆已变而银雀山未收录；1 字在银雀山为变化中而马王堆形体模糊；另有 4 字在银雀山已变而马王堆却未收录。这些字都不影响本文对互证的讨论。由上可见，在一个历时的层面上，银雀山已变的字涵盖了 1 个马王堆已变的字，8 字则从马王堆中未变和变化中的字演变而来，其余 4 字则为其独有的。因此，通过互证，我们可以发现在时间点相近的两个不同地域的文字中，其演变是有特定规律并呈现出一致性的。这证明了这一演变并不是个人差异所致，而是系统内部的演变。在接下来的个案中，本文也将用互证说明其演变并非偶然性的。



### 个案二：水













本节依据许慎《说文解字》，将水部以及五百四十个部中凡有“水”的部首所收的合体字合并为一类进行探讨，因此以下所讨论的字分别来自沝部、灇部、洑部。

甲骨文中“水”字繁省不一，写作等形。像水流之形，其旁之点像水滴。或作，水滴数亦多寡不一，形体很不定型，异体极多，但基本都可看出其为水流屈曲形。在合体字中，“水”的形体同样有增笔和省笔外，方向也很不固定，可位于合体字的上下或左右边，造成大量的异体字产生。如“河”写作诸形，其中的、、显示了形体的极不稳定，因此无法判断其为未变、变化中或已变的形体。




来到金文这一时期，“水”在作独体字与合体字时其形体仍延续甲骨文。可是，独体字“水”的形体较甲骨文固定，皆写作直放的形。在合体字中，它的位置同样的很不固定，而且可直放或横放，但其形体基本固定，仍没什么变化，都属于未变的形体。这些字如下：

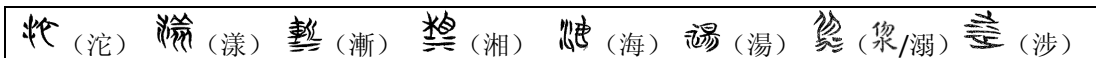


其中，“沮”不从水写作且、“潘”不从水写作番；滕、淑、澆、潜、涕五字都不从水而从其他形体。这些不从水的字，无法进行分析，因此都排除在本文的讨论之外。淵、涇二字则有一个异体不从水分别写作、；汪、淺、灇三字的异体有些不从水从其他形体，但这些字的其他异体仍从水。这些不从水的异体皆无法进行分析，因此不列入本文的讨论范围内，本文只对从水的字进行分析统计。排除的形体列表如下：

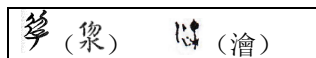
不从水的字	 (沮)  (潘)  (滕)  (淑)  (澆)  (潜)  (涕)
不从水的异体	 (涇)  (淵)  (汪)  (淺)  (灇)

## 赖：文字层面的词汇扩散现象


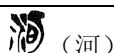
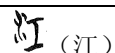
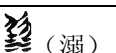
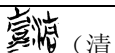

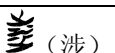
在包山楚简中，独体字和合体字的“水”形体都一致。只是独体字的形体为直放的、形，而合体字中则有直放也有横放的，但形体与前期一样，没有什么变化。唯独渊字省水，写作，但仍可看出当中的水滴形，同样列为未变的形体。其他合体字如下图所示：




其中，泉字有一异体不从水从子，故将此异体排除；澮字中的“水”形体模糊，无法辨认，亦被排除在外。











郭店楚简中，独体字与合体字的“水”形体与包山一致，皆有直放横放的形体，如下所示：

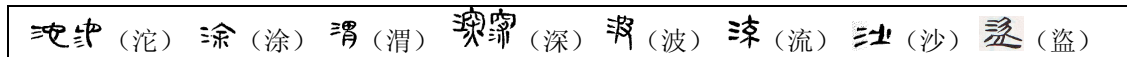
独体字	合体字
	 (河)  (江)  (灑)  (清)  (淵)  (涉)


总的来说，楚文字的“水”在合体字中，并没有发生任何变化，仍写作旧有的形体。







小篆中，“水”在作独体字与合体字时的形体都一律写作，延续前期的写法，但是变得更加规整了：

独体字	合体字
	 (河)  (江)  (泰)  (林)  (涉)  (灑)  (次)  (盜)

睡虎地秦简中，独体字“水”仍旧写作水流屈曲形、、。在合体字中，只有少数的“水”仍写作，即 (江)、 (暴) 二字，为未变的形体。其余的字大部分都发生了演变，写作，如 (河)，接近今隶和楷书的写法“彳”，因此本文将之视为已变的形体。其他的字有：



可见，这一时期的“水”字在合体字中已开始发生变化，而且不同的字演变速度不同。盗字有一异体不从水从，而这一形体在之后都没再出现，因此这可能只是当时人偶然的写法，故本文将之排除在外。

马王堆隶书中，独体字“水”的形体仍延续小篆，写作、、等形。只是变线条为直线，并呈扁平形。在一些合体字当中，“水”的形体仍与独体字一样，未发生变化。可是，大部分都发生了变化，写作。另一些则处于变化中，同时有写作和的形体。这些形体如下：



赖：文字层面的词汇扩散现象

未变	𣎵 (汜) 𣎵 (湮) 𣎵 (洙) 𣎵 (衍) 𣎵 (淒) 𣎵 (泰) 𣎵 (漿)
变化中	𣎵 (汁) 𣎵 (汗) 𣎵 (沙) 𣎵 (注) 𣎵 (流)
已变	江 (江) 沂 (沂) 冲 (冲) 沙 (河) 沮 (沮) 沫 (沫) 涉 (涉)

泰字有一异体中的“水”形体模糊、頻字中的“水”形体模糊，无法判断，因此将其排除。

𣎵 (泰)	𣎵 (頻)
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银雀山隶书的“水”字同样延续小篆的形体，写作𣎵、𣎵、𣎵、𣎵等形。如下图所示，在合体字中，大部分的“水”都发生了演变，写作𣎵。其中，已变的字有 22 个涵盖了马王堆已变的字，这些字为汗、池、沂、没、河、沮、洫、津、海、涓、涕、凌、淫、浅、渠、渴、沟、溜、泽、济、涉、浮。这又再一次揭示了演变的一致性。以下这批字也能说明演变的规律性。其中，已变的字有 1 字“溪”是从马王堆中的未变字变化而来的；沙、决、汲、治、注、涂、浴、深、漬、濡、流、汤、温、湿 14 字是从马王堆变化中的字演变而来的；17 个字则为其独有的字。只有泰字中的“水”仍写作𣎵，与马王堆一样，处于变化中的字则没有了。其余则有 32 字在马王堆为未变而银雀山不收录；15 字在马王堆为变化中而银雀山不收录；另有 82 字在马王堆已变但银雀山却未收录，这些都不影响演变的讨论。可见，“水”字从马王堆到银雀山的演变呈现了一致性与规律性，因此其演变并非个人差异，而是历时的演变。

未变	𣎵 (泰)
已变	𣎵 (河) 𣎵 (温) 𣎵 (沮) 𣎵 (涂) 𣎵 (治) 𣎵 (流) 𣎵 (涉)

根据以上的分析，本文将对各个时期“水”在合体字中的形体演变情形进行统计并列表呈现。由于甲骨文无法判断其属于哪一项演变，因此不被列入统计中。

表 2：“水”在合体字中的演变现象

水	未变	变化中	已变	总计
金文	72(100%)	0(0%)	0(0%)	72
包山 郭店	24(100%) 47(100%)	0(0%) 0(0%)	0(0%) 0(0%)	24 47
小篆	499(100%)	0(0%)	0(0%)	499

## 赖: 文字层面的词汇扩散现象

睡虎地	2(4.17%)	0(0%)	46(95.83%)	48
马王堆	33(19.88%)	29(17.47%)	104(62.65%)	166 <sup>25</sup>
银雀山	1(1.82%)	0(0%)	54 (98.18%)	55

如表所示,从睡虎地到银雀山中,越来越多合体字中的“水”已发生了演变,在银雀山就占了 98.18%。而未变和变化中的字也相对地在逐渐减少,这确实呈现了演变的速度。

从“阜”与“水”在合体字中的演变,本文发现这些演变都发生在秦隶和汉隶中。从汉字发展的历史来看,隶书的出现是一个重要的转折点。从商代的甲骨文一直到秦代的小篆,尽管当中经历了许多变化,但总的说来,仍是一脉相承的,属于古文字的范畴。从隶书开始,汉字开始进入近代文字的范畴。隶书和古汉字的根本区别首先是全面地符号化,即完全抛开了古汉字的象形因素,使文字变成抽象的记号;其次是笔画化,即把字形分解为若干基本笔画的累积。秦始皇命李斯制定小篆是为了统一正规字体,命程邈制定隶书,则是为了统一日常通用的字体。<sup>26</sup>日常通用的字体则必然要经历较激烈的演变,不同于统一的正规字体。由此可见,本文所观察到的现象与文字历时演变的阶段是一致的,即演变都发生在隶书中。

## 第四章 讨论

### 第一节 文字层面的词汇扩散现象

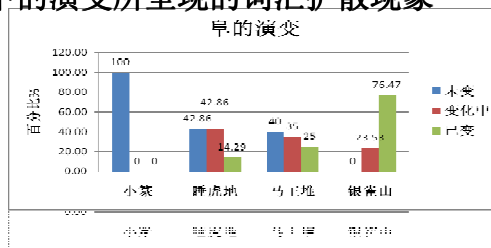
从以上两个个案的探析,我们看到了演变前后的两个阶段之间,在同个条件下,不同合体字的演变速度会有不同,有的字变得慢,有的字变得快。每个字的演变不是一次性的,而是逐个的。这一演变模式可类比于语言层面的词汇扩散理论。

首先,“阜”在合体字中,一直到睡虎地其形体才发生变化。在同一条件下,即凡位于合体字左边的“阜”,有未变的、处于变化中的以及已变的形体。为了更清楚地观察各阶段“阜”在合体字中的演变趋势,本文在此将第三章的统计表绘制成柱状图,所示如下:

<sup>25</sup> 马王堆中汉字演变数据的探讨详见第四章第一节。

<sup>26</sup> 朱德熙《书同文字》,页 78-79。

图2：“水”在合体字中的演变所呈现的词汇扩散现象

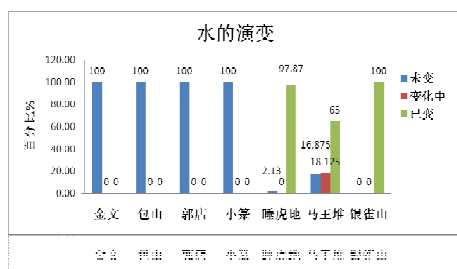


从图1中，睡虎地的“阜”在合体字中一开始只有14.29%发生演变，大部分的字仍旧未变。到了马王堆，已变的字则增至25%，同时未变与变化中的字慢慢在减少。最后来到银雀山，已变的字已占了大多数，而未变的字则没有了。在同一条件下，不同合体字是在时间推移中逐个地变化的，这很好地体现了词汇扩散的现象。再者，通过前一章的互证，本文观察到银雀山一部分已变的字涵盖了马王堆已变的字，一部分则从马王堆中未变和变化中的字演变而来，其余为其独有的字，这逐渐演变的过程呈现了扩散式的演变。

至于“水”的形体，同样的到了睡虎地、马王堆、银雀山，才发生了演变。左边从“水”的合体字都有不同的演变速度。但是，位于合体字下部的“水”如泰、暴等字都未发生变化，这呈现的是新语法学派的“语音演变无例外”的现象，即同个条件下所有的合体字都未变。因此，这里讨论“水”的演变中的词汇扩散现象，不应包括下边从“水”的合体字。另外，衍字中的“水”位于中间，形体为未变，而且为单例，因此也不包括在词汇扩散的讨论中。那么，这里将对前一章的统计表进行修改，只对处于合体字左边的“水”的演变情况进行统计，所得出的统计表和柱状图如下：

表3：“水”在合体字中的演变现象（修改后）

水	未变	变化中	已变	总计
睡虎地	1(2.13%)	0(0%)	46(97.87%)	47
马王堆	27(16.875%)	29(18.125%)	104(65%)	160
银雀山	0(0%)	0(0%)	54(100%)	54



演变开始时，睡虎地中已变的字所占的百分比很高，为97.87%；未变的字则相对很低。来到马王堆，未变与变化中的字的百分比增加了，已变的字的百分比却减

少了。接着到了银雀山，未变与变化中的百分比再次减少至0%，已变的百分比则再次增加至100%。从“阜”在合体字中的演变现象，本文已观察出其呈现了词汇扩散的现象。但是，“水”在合体字中的演变所呈现的现象则较为特殊，似乎不能看出当中的词汇扩散现象。这有可能是因为此三本书所出土的文字数量不同而造成的。睡虎地和银雀山所收的“水”的合体字不多，而马王堆所收的“水”的合体字比它们多出了三倍。相较于“阜”字，这三本文字编所收的“水”合体字的字量不一样，不具有相同比例的样本数量，因此难免会影响到统计结果，出现不平衡的数据。从统计表中，若以数量来看，马王堆中已变的“水”字确实在增加，但当本文将其计算成百分比时，比例的分母是所有合体字的总数，那么它的数量将造成很大的影响。举例来说，1000和100的20%分别是200和20。所以，百分比在这一个案上并不能很好地说明演变的多少。<sup>27</sup>

为了避免结果有太大的误差，本文只对具有同样样本数量的睡虎地和银雀山进行比较。<sup>28</sup>从睡虎地到银雀山，所有合体字中的“水”都发生了演变，而未变和变化中的字也都没有了，这当中呈现了词汇扩散的现象。但是，相较于“阜”，“水”在睡虎地中刚开始发生演变时已有一大批字发生了演变，“阜”则只有一小部分发生演变。通常在词汇扩散中，演变的初期应该只有一小部分的词发生变化，而“水”的演变则较为特殊，这可能因为各个汉字都有自己演变的过程。另外，若单从马王堆来看，这一阶段中位于合体字左侧的“水”也呈现了不同的演变速度。这是共时演变中的词汇扩散。虽然就比例而言，我们较为着重睡虎地和银雀山的比较，不过就考察同一批已变字，从中寻找词汇扩散的线索而言，我们观察到前一章银雀山一部分已变的字涵盖了马王堆已变的字，一部分的字则从马王堆中未变及变化中的字变化而来的，其余则为其独有的字，这正证明了词汇扩散现象的存在。因此，根据前面所提及的出土数量不同的问题，“水”的这一词汇扩散方式可能并不完全这样。虽然如此，在同一条件下，“水”在演变的过程还是呈现了词汇扩散现象。

## 第二节 S型图 (S-curve)

音变在词汇中的扩散现象通常可用S型图表示，横坐标表时间、纵坐标表变化的百分比。

29

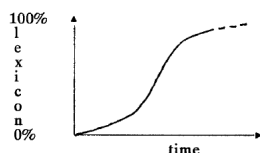
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<sup>27</sup> 有关更多统计学的方法与设计可参看 Sharon L. Lohr, "Introduction," in Sharon L. Lohr ed., *Sampling: Design and Analysis* (Duxbury press, 1999), 1-16.

<sup>28</sup> 在“阜”的个案中，睡虎地、马王堆和银雀山相对而言比较具有相同比例的样本数量，因此能够进行比较。

<sup>29</sup> Lien Chin-fa, "Lexical Diffusion," in *The Encyclopedia of Language and Linguistics* (1994), 1.

图 3：音变在词汇扩散中所呈现的 S 型图

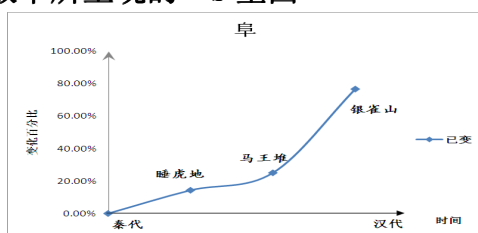


演变一开始是缓慢的，到了中段愈发急速；趋向终点演变再次减缓，最后更递减直至停止，显示出独特的S字弧线。如果没有其他音变力量的干扰，这一演变将会完成全过程，表现出它的规律性。若是另一种音变规律闯进来竞争，则将使演变中断而产生残留现象。可是，音变的词汇扩散现象并不一定经历了像S型图一样的“慢-快-慢”的模式，这是由于演变的过程会因不同的因素而有所改变。<sup>30</sup>另一方面，张敏对北京话的句法演变所描绘的图呈现了独特的锯齿形（zigzag-curve）<sup>31</sup>，这是句法演变的词汇扩散。

本节将对文字层面的词汇扩散现象进行描绘。以下所有的图形的横坐标为时间，本文假设每段时间的间隔相同，因为本文所探讨的五个时期的文字之间的时间差距并不十分明确，只能肯定其时间秩序；纵坐标表示已变的合体字所占的百分比。

首先，“阜”字的词汇扩散呈现类似S型的曲线，如下所示：

图 4：“阜”在词汇扩散中所呈现的“S 型图”



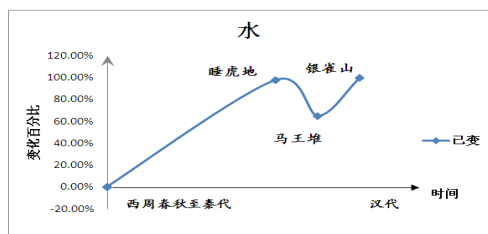
演变开始时较缓慢，只影响了一些字。到了中段以后，即从马王堆到银雀山，演变开始加速，大量的字在相对短的时间内受到影响。

至于“水”的演变过程中，则出现了以下情形：

<sup>30</sup> 同上。

<sup>31</sup> Zhang Min, “Lexical Diffusion in Syntactic Change: Evidence from Mandarin Dialects,” *Journal of Chinese Linguistics* (1995), 10.

图 5：“水”在词汇扩散中所呈现的 zigzag 图



与“阜”的演变不同，“水”在演变一开始时就非常急速，从小篆到睡虎地秦隶中大量的字已发生了变化。接着到了马王堆中已发生演变的字突然减少，速度也减缓了；最后来到银雀山时演变速度再次增加，所有的字也都发生了变化，呈现的是锯齿形的图。这与张敏对北京话的句法演变所描绘的图是类似的。值得注意的是，本文在前一节已提到，睡虎地、马王堆、银雀山出土数量不同，这可能也是此一特殊图形产生的原因。

## 第五章 结语

本文通过两个个案的分析，发现它们的演变模式确实符合词汇扩散理论。音变在词汇中的扩散单位是一个音素或音位，文字演变的扩散单位是一个部件。在演变的过程中，“阜”很好的体现了词汇扩散现象，通过柱状图可以清楚地看到这一点，它的词汇扩散也呈现了类似 S 型的曲线；而“水”的词汇扩散现象较为特殊，呈现的是锯齿形，其演变一开始便迅速地影响到大部分的合体字，经减速后再加速影响了所有的字。可见，文字的演变体现了音变的规律。再者，从大量的数据显示，词汇扩散理论在文字演变中是可行的，而且也很好的体现出来。此外，本文也通过对马王堆和银雀山二书进行互证，证明了这些汉字的演变并非个人差异所致，而是系统内部的演变，从而证明了词汇扩散现象。

然而，从这两个个案中，还未曾看到由于另一种演变力量的干扰，而迫使变化的中断，出现音变中常见的残留现象。这是文字演变与音变的不同。另外，扩散也有一定的规律，各个形体的演变在合体字中的扩散都有其明确的方向。可见，汉字的发展过程，既是一个不断丰富、不断发展变化的过程，也是一个不断趋于统一的过程，而词汇扩散是此演变得以实现的途径之一。

纵观上述，本文的工作假设是以各文字编作为研究汉字历时演变材料，并对两个个案进行探讨，而这当中可能还有些尚未出土或因损坏而不被保留下来的文字材料，呈现了不同的演变现象。但是，从现有的这些偶然保留下来的文字材料中，本文确实观察到了汉字形体在演变的过程中呈现了特定的规律与一致性，并成功将词汇扩散理论运用于文字层面的演变上，深入了汉字演变的研究。同时，也丰富了词汇扩散的理论。由此可见，这种规律从另一层面证明了本文的工作假设是合理的。

总的来说，这次的初步探讨提供了不少宝贵的观察和结果。本文希望能以此论文作为参考和起点，继续将所得的观察和结果套用在其他的汉字里，从而丰富汉字演变的研究。

## 参考书目

### 一、中文

#### 文字编

- 陈松长《马王堆简帛文字编》（北京：文物出版社，2001）  
李守奎《楚文字编》（上海：华东师范大学出版社，2003）  
骈宇騫《银雀山汉简文字编》（北京：文物出版社，2001）  
容庚《金文编》（北京：中华书局出版，1985）  
孙海波《甲骨文编》（北京：中华书局出版，1965）  
汤余惠《战国文字编》（福州：福建人民出版社，2001）  
许慎《说文解字》（北京：中华书局，1963）  
许慎撰、段玉裁注《说文解字注》（上海：上海古籍出版社，1981）  
张守中《睡虎地秦简文字编》（北京：文物出版社，1994）  
张守中《包山楚简文字编》（北京：文物出版社，1996）  
张守中、张小沧、郝建文《郭店楚简文字编》（北京：文物出版社，2000）

#### 专著

- 陈初生《金文常用字典》（高雄：復文图书出版社，1992）  
高明《中国古文字学通论》（北京：北京大学出版社，1996）  
黄文杰《秦至汉初简帛文字研究》（北京：商务印书馆，2008）  
焦立为、冉启斌、石锋《二十世纪中国语言学丛书》（太原：书海出版社，2004）  
李家树、吴长和《汉字的演变和发展趋向》（香港大学出版社，2005）  
李孝定《汉字的起源与演变论丛》（台北：联经出版事业公司，1986）  
李学勤《古文字学初阶》（北京：中华书局，1985）  
林沄《古文字研究简论》（吉林大学出版社，1986）  
刘兴隆《新编甲骨文字典》（台北：文史哲出版社，1997）  
裘锡圭《裘锡圭自选集》（郑州：河南教育出版社，1983）  
裘锡圭《文字学概要》（北京：商务印书馆，1996）  
苏培成《现代汉字学纲要》（北京：北京大学出版社，2002）  
王士元《王士元语言学论文集》（北京：商务印书馆，2002）  
王文耀《简明金文词典》（上海：上海辞书出版社，1998）  
王玉新著、葛本仪主编《汉字认知研究》（山东：山东大学出版社，2000）  
[清]吴大澂《字说》（台北：学海出版社，1998）

## 赖：文字层面的词汇扩散现象

- 徐通锵《历史语言学》（北京：商务印书馆，1996）  
徐中舒《甲骨文字典》（成都：四川辞书出版社，2006）  
杨五铭《文字学》（长沙：湖南人民出版社，1986）  
姚孝遂《许慎与说文解字》（北京：中华书局，1983）  
于省吾《甲骨文诂林》（北京：中华书局，1996）  
张桂光《汉字学简论》（广州：广东高等教育出版社，2004）  
赵诚《甲骨文简明词典》（北京：中华书局，1988）  
朱德熙《朱德熙文集》第五卷（北京：商务印书馆，1999）

## 二、英文

### 专著

Lien Chin-fa, "Lexical diffusion," in *The Encyclopedia of Language and Linguistics* (1994), 1-6.

Sharon L. Lohr, "Introduction," in Sharon L.Lohr ed., *Sampling: Design and Analysis* (Duxbury press,1999), 1-16.

Wang, W.S-Y. & Lien Chin-fa, "Bidirectional Diffusion in Sound Change: An Interactive Approach," In Jones Charles ed. , *Historical Linguistics: Problems and Perspectives* ( London and New York: Longman Group UK Ltd.,1993), 1-37.

### 期刊

Mieko Okura & Wang, W.S-Y, "Snowball Effect in Lexical Diffusion—The Development of -s in the Third Person Singular Present Indicative in English," *English Historical Linguistics* (1996):119-141.

Wang, W.S-Y, "Competing Change as a Cause of Residue," *Language* 45(1969): 9-25.

Wang, W.S-Y, "Lexical Change: A Lexical Perspective," *Annual Review of Anthropology* Vol.8(1979):353-371.

Zhang Min, "Lexical Diffusion in Syntactic Change: Evidence from Mandarin Dialects," *Journal of Chinese Linguistics*(1995):1-30.



## 《唐書釋音》音釋與宋代江西德興方言探微

李 凱  
中國傳媒大學

摘要：本文通過與《廣韻》對比，對宋代音義書《唐書釋音》中不同性質的音切進行甄別離析，對其中不同于通語的聲類加以分析，以期對宋代德興方言研究，以及早期贛語、徽語研究提供幫助。我們也把《釋音》中反映出的語音現象與《四聲等子》做出比較，希望能對後者的研究提供旁證。

《新唐書》由北宋宋祁、歐陽修等撰，宋仁宗嘉佑五年（1060）完成。隨後宋人董衡為其注音釋義，著成《唐書釋音》。董氏雖然在其書中大量使用《廣韻》的反切，但並沒有拘泥於此，從自己的實際語音出發新制了許多切語。因此該書可以幫助我們考察宋代的實際語音系統，是很可靠的語音史資料。通過對書中所提供的材料中不同性質的音切進行甄別離析，我們可以考求通語、辨明方音，彌補詩詞用韻研究在聲母方面的不足之處。

董氏宋史無傳，僅在《宋史·藝文志》中有“董衡唐書釋音二十卷”。目前可以看到諸版本的《唐書釋音》中均未收錄作者原序，僅在正文之前有“宋將侍郎前權書學博士董衝進”一語，生平籍貫不詳。經我們考證發現，作者籍貫為饒州德興，以薦辟入仕，官至太學博士。《釋音》成書至遲不會晚於1190年，故書中反映出的是11、12世紀時期的宋代語音。

因為作者的注音中因襲《廣韻》的反切較多，所以我們採用音注類比法進行研究。全書被注音字共有11922個，但除去重文，其實只有3370個字。其中注音跟《廣韻》相同的有2279個（同一詞前後出現時往往使用不同的反切來注音，其中只要有一個與《廣韻》相同的就計入此類），不同的有918個。

考察那些與《廣韻》不同的注音，可以發現聲母中反映出的語音現象眾多。除了來母，其他所有聲母間都互有混切。除了輕重唇分化、非敷奉合并、知照合并、零聲母範圍擴大、匣溪曉混切等現象之外，《釋音》中還有許多與通語演變規則不相符的語音事實，當屬方音現象。

董氏為宋代饒州府德興縣人，德興位於江西省東北部，地處贛、浙、皖三省交

界處，東接浙江省開化縣（今屬吳語處衢片龍衢小片），東南與玉山縣、上饒縣毗鄰（今屬吳語處衢片龍衢小片），南和橫峰縣、弋陽縣相接（今屬贛語鷹弋片），西接樂平市（今屬贛語鷹弋片），北連婺源縣（今屬徽語休黟片）。德興原來屬於贛語區，自從 1988 年出版的《中國語言地圖集》把徽語劃分為一個獨立的方言大區之后，就劃歸了徽語區。

盡管在徽語是否自成一區上學術界還存在不同的意見，但把徽語從官話中分出去目前已是多數學者的意見。查《徽語分布圖》得知，德興屬於徽語祁德片。歷史上，“直至六朝這里應與吳語一樣同屬江東方言區。但由於南、西、西北都受贛語包圍，在贛語強大影響之下，形成一種非吳非贛的方言，即韻母像南吳語而聲母像贛語的徽語來。”<sup>①</sup>

即便在今天，徽語的聲母系統也與贛語類似。在整個宋代方言體系并不明確的狀況下，我們并不能斷言在千年之前的宋代，德興是屬於贛語區還是徽語區，但文獻資料中記載的語音現象本身是清晰可考的，它可以幫助我們了解這一地區的語音情況。

## 一 發音部位

### 1、唇音

在《唐書釋音》中，重唇音幫母出現 35 次，滂母 45 次，並母 77 次，明母 74 次，共 231 次。輕唇音非母出現 79 次，敷母 45 次，奉母 73 次，微母 52 次，共 249 次。唇音共出現 480 次。

其中，重唇音之間，幫滂混切 3 次，幫並混切 3 次，滂並混切 4 次；輕唇音之間，非敷混切 7 次，非奉混切 4 次，敷奉混切 6 次；輕重唇之間，幫非混切 8 次，敷滂混切 4 次，並奉混切 5 次，明微混切 12 次。各聲母之間混切的比例并不高，但該書中的反切大多因襲《廣韻》，所以作者改動的反切即便數量不多，亦屬難能可貴，往往能夠反映出作者心中實際的語音繫統。

首先我們可以肯定的是，明母保持獨立，不與幫滂並發生關係。微母也同樣如此，與非敷奉沒有合用現象。

輕重唇音之間多有混切，但比例比《廣韻》小了很多，顯然作者有意把許多類隔切改換成了音和切。那些與《廣韻》反切下字相同，只是上字不同的切語，更能顯現出這種痕跡。《釋音》中輕重唇混切共 29 次，其中有 25 例的注音都與《廣韻》完全相同，當是因襲之故。作者對反切的改動，透露出了輕重唇已經分化的信息。而明母與微母之間多達 12 次的混切，可能與方音有關。在今天的德興方言中，微母字白讀都有 m 聲母的讀法。

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<sup>①</sup>侯精一《現代漢語方言概論》，上海教育出版社，2002 年，90 頁。

非敷奉之間混切比例較高。尤其是敷母，共出現 45 次，與非母混切 5 次，與奉母混切 2 次，比例高達 1/5。根據該書反切多直接取自《廣韻》的特點，我們大致可以判斷出輕唇音非敷奉已經沒有太大差異。

我們注意到，在《四聲等子》中，同樣有非敷混切的現象：

在遇攝內三重少輕多韻中，麌韻敷母位置上出現的字為“撫”，撫為方武切，非母；臻攝外三輕重俱等韻中，諄韻敷母位置上出現的字為“芬”，芬為府文切，非母；山攝外四輕重俱等韻中，獮韻敷母位置上出現的字為“篇”，篇為方典切，非母；咸攝外八重輕俱等韻重，梵韻非母位置上出現的字為“汎”，汎為孚梵切，敷母。物韻敷母位置上出現的字為“拂”，拂為分勿切，非母。

王力先生在研究朱熹反切時，指出其中有以敷切非，以敷切奉的例子，但並沒有深入討論。董氏音切中恰恰相反，多見以非切敷，鮮見以敷切非。我們可以看到《四聲等子》中反映出的現象與《釋音》相似，多把非母字放在敷母字位置上。

## 2、喉牙音混切

喉音和牙音由於發音部位靠近，常常互諧互通。《釋音》中反映出的喉牙音關係相當密切，混切例子較多。如：

以匣切溪：詰，奚吉/去吉<sup>①</sup>；以溪切匣：壺，苦木/戶吳；匣溪曉混切：詢，許候、胡邁/苦候；以曉切溪：綺，荒故/苦故；屺，虛里/墟里；以影切見：齋，烏猛/古猛；以見切曉：曠，古鑊/虛郭；沅，古穴/呼決；以曉切見：劇，呼外/居衛；以見切匣：鞵，居謁/胡葛；缸，古雙/下江；以匣切見：絙，胡登/古恒；杆，侯吁/古案；以雲切見：穀，友岳/古岳；以見切雲：鄙，俱雨/王矩；以喻切群：俟，育其/渠之；以疑切見：薊，魚計/古詣；估，五故/公戶；以見切疑：唵，古吟/魚金。

從大量的諧聲字可知，上古時期喉牙音關係密切。在《廣韻》中，兩組音是井然有序的。但在《釋音》中，兩組音之間似乎混而不分，這與今天北方話的事實不符，很可能是方音現象。

嚴修鴻《客家話匣母讀同群母的歷史層次》中說：“匣母讀同群母在南方是很廣泛的存古層次，不只吳閩獨有。就典型性而言，閩語為最，客贛吳次之，粵湘的情況據初步了解，也是零星地存在。”<sup>②</sup>《釋音》中這種喉牙音相混的現象，可能正與贛方言有關。

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<sup>①</sup> “/”之前為《唐書釋音》中的音注，之后為該字在《廣韻》中的注音。

<sup>②</sup> 嚴修鴻，《客家話匣母讀同群母的歷史層次》，《汕頭大學學報》2004年第1期，41~44頁。

孫宜志也指出，在贛方言中，溪母和群母存在讀為[h]的現象。比如，在永修b類、蓮花類、永興、太和，溪母和群母逢開口洪音時，都讀為[h]。<sup>①</sup>

不過我們還可以看到，上面例子中的“缸”在《廣韻》中為下江切，《集韻》胡江切，都在匣母。《中原音韻》音岡。但是《釋音》中“缸”為“古雙切”，與今音相同，宋代已經如此了，並非到了《中原音韻》時代才出現了與今讀相同的讀音。

## 二 發音方法

### 1、濁音清化

《廣韻》中的全濁聲母在今天的普通話中都變為清音了，擦音沒有送氣與不送氣的分別，它們的演變較為簡單，都變為相應的清音。塞音與塞擦音的清化規律都是平聲送氣仄聲不送氣。在《釋音》中，清化的跡象非常明顯，只是塞音與塞擦音的清化並不符合這個規律。

並母與幫滂混切：以並切幫：狽，薄蓋/博蓋、蹇，婢亦/必益；以幫切並：唄，北邁/薄邁；別、筆列/皮列；以並切滂：踣，部口/匹候、撲，蒲萄/普木；以滂切並：辟，匹亦/房益、驃，匹召/毗召。

另外還有兩例，《廣韻》中沒有此音，但《釋音》中為這同一個詞注音時用了音韻地位不同的切語：胖，〔蒲官〕並、〔普安〕滂/無；旁，〔布浪〕幫、〔部浪〕並/無。這說明了作者心中，全濁清音並母與幫滂無別。

澄母與知徹混切：以澄切知：中，直眾/陟仲；以知切澄：瑑，拄兗/持兗；以澄切徹：緜，直林/丑林、瑒，長章/丑亮。

定母與端、透混切：以端切定：蹬，丁鄧/徒互、闐，党練/堂練；以定切端：□，大計/都計、鞞，田黎/都奚；以透切定：賁，它得/徒得、緜，天黎/杜奚；以定切透：拖，徒我/吐邏、躡，徒合/他合。

群母與見、溪混切：以群切見：捷，其偃/居偃、捷，渠言/居言；以見切群：璩，車營/渠營、檠，居月/其月；以溪切群：璩，丘于/強魚、戮，棄追/渠追。

從母與精、清混切：以精切從：鬢，子宗/藏宗、嘈，則癆/昨勞；以清切從：靚，七正/疾政、瘠，七亦/秦昔；以從切清：鞞，才奏/倉奏；清從混切：灌，徂回、取偃/無。

崇母與莊、初混切：以莊切崇：譔，鄒免/士免、齟，壯所/床呂；以初切崇：儻，楚監/士鹹；崇莊混切：苴，〔鋤駕〕崇、〔側下〕莊/《集韻》側下切。

在以上塞音和塞擦音濁音清化的例子中，平聲送氣 19 次，不送氣 11 次。仄聲

<sup>①</sup> 孫宜志，《江西贛方言語音研究》，語文出版社，2008年，125頁。

送氣 19 次，不送氣 17 次，既然不符合北方方言濁音清化的規律，那麼反映出來的應該是方音。

我們知道，古全濁聲母今讀塞音、塞擦音時不論平仄一律讀送氣清音，是贛方言的顯著特點。雖然古全濁塞音聲母清化時是否送氣並不能看出條例，正是《中國語言地圖集》所列舉出的徽語獨立成為一個方言區的理由之一。但徽語中濁音清化的規律與贛語相似，大多都是全濁聲母與次清聲母相混。<sup>①</sup>顯然，《釋音》中反映出的情況與此不符。反倒是吳語與閩語，濁音清化的規律不明。

胡松柏等認為，贛東北地區古全濁聲母清化的復雜語音特點，反映了各方言之間的相互影響。“如德興話中部分古全濁聲母字讀不送氣清音，可能是受吳語玉山話的影響。”<sup>②</sup>

在宋代的德興方言中，全濁聲母逢塞音、塞擦音時的清化規律並不明確，可能與語言接觸有關，也可能與作者語音系統中的“全清與次清音相混”有關。

## 2、全清與次清音相混

《釋音》有為數不少的全清與次清聲母混切，不僅僅是非敷合併。幫與滂、莊與初、知與徹、章與昌都有混切，見母與溪母混切的竟有十多例。如：

以幫切滂：膊，補各/匹各、沛，博蓋/普蓋；以徹切知：紬，敕律/竹律；以昌切章：菑，昌裏/諸市；以初切莊：鬚，測華/莊華、簣，楚革/側革；以莊切初：汊，側亞/楚嫁；以溪切見：鄺，苦郭/古晃、嶝，去博/古博；以見切溪：邗，古衡/苦浪、褰，古穎/口迴。

最典型的是下面這些例子：

幫滂並混切：舶，〔傍陌〕並、〔溥陌〕滂、〔布伯〕幫/〔傍陌〕並；

見溪群混切：龜，〔祛尤〕溪、〔渠尤〕群、〔居求〕見/〔居求〕見；

精清心混切：脰，〔子泉〕精、〔苟緣〕心、〔此緣〕清/〔子泉〕精；

端透定混切：菑，〔田聊〕定、〔他苗〕透、〔丁聊〕端/《集韻》田聊切。

這些全清與次清混切全部發生在塞音和塞擦音之間，是送氣與不送氣音之間的混淆，也是方音現象。尤其是在後面幾個聲母相互混切的例子中，作者用同一發音部位的全清、次清、全濁來給同一個字注音。我們當然不能說幫滂並、見溪群、精清心、端透定都已經合併，只能說在作者的方言中，送氣音與不送氣音有可能混淆，加之全濁音清化，所以三者之間可以混並。

在《四聲等子》中，除了非敷相混之外，也還有許多全清聲母與次清聲母混并的例子，如：

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<sup>①</sup> 胡松柏《贛東北方言調查研究》，江西人民出版社，2009年，178頁。

<sup>②</sup> 同上，184頁。

宕攝內五中，覺韻溪母位置上為“穀”，古岳切，見母；果攝內四中，麻韻精母位置上為“嗟”，千邪切，清母；山攝外四中，山韻端母位置上為“譚”，他單切，透母。薛韻幫母位置上為“擊”，普蔑切，滂母；遇攝內三中，麌韻徹母位置上為“褚”，知呂切，知母；臻攝外三中，臻韻穿母位置上為“瀨”，側洗切，照母。從所列例子我們可以看到，每對塞音和塞擦音都有全清與次清混并的現象，這與《釋音》中反映出來的情況非常一致。

這種送氣與不送氣音混並的現象在今天徽語中可以看到。“就徽州方言的發音而言，其中有一些字，在普通話裏原屬聲母‘b’的系列，到了方言中，卻將其聲母改為‘p’，且儘管為數不少，卻似無規律可循……還有將聲母‘d’改為‘t’的……將聲母‘j’改為‘z’的……將聲母‘s’改為‘x’的……總之，看上去這好像是一種集體行動，並非是單個字的無組織、無紀律的串崗。”<sup>①</sup>

### 3、塞擦音與擦音之間混切

知組與照組之間為數不少的混切應該是知莊章合併的表現。在守溫的三十六字母中，照二與照三已經合併為照穿床審禪了。昌初、崇船、生書分別合併形成穿、床、審沒什麼疑問。昌徹、初徹、崇澄混切也沒什麼問題，但除此之外，《釋音》中還有許多與通語不符的混切，略舉如下：

以初切章：箠，楚彙/主蕊；以崇切生：槩，士角/所角；以禪切船：贖，石證/實證、舐，甚爾/神紙；以船切禪：脊，食刃/時刃、褶，實入/是執；以禪切章：招，市招/止遙、診，上忍/章忍；以章切禪：縝，之忍/上刃、桴，朱緣/市緣；以禪切書：挺，市連/式連；以書切禪：口，束玉/市玉；以崇切禪：崇，鉏山/市連；以章切徹：輻，章倫/醜倫；以徹切昌：掣，丑曳/尺制；以書切徹：挺，尸連/丑延；以徹切初：柵，敕革/楚革；以章切澄：診，章刃/直刃；以澄切崇：砦，持艾/豺夫；以禪切知：咤，涉駕/陟駕。

在作者的語音系統中，送氣與不送氣似乎並沒有嚴格的區分，章昌可以混切、莊初可以混切。但從《釋音》中反映出的情況來看，章母與初母、書母、禪母、澄母、徹母可以混切，昌書、崇生、書徹、知禪也都可以混切。似乎塞擦音與擦音也沒什麼區別。禪母的情況尤其複雜。

《釋音》中，禪母共出現了43次，與船母混切5次，與章母混切2次，與書母混切1次；船母出現11次，與禪母混切3次；章母出現83次，與禪母混切5次。

禪母清化為書母並無異議。至於章禪混切，從中古語音到現代語音的演變過程中，禪母職韻字確實演變為zh，但書中所反映的情況不在此範圍中，所以也與通語不合。

<sup>①</sup>江聲皖：《徽州方言探秘》，安徽人民出版社，2006年，第74、75頁。

船母與禪母的關係向來複雜，六朝時期它們相混，顏之推認為是方言特點。但在五個世紀之后的宋代，《切韻指掌圖》船禪亦混，《集韻》中也有船、禪合并的傾向。這時，船、禪之間的混并現象應該已經不是方言特點了。但當我們把它放在全書反映出的語音繫統中看時，似乎仍該認為體現的是方音。因為作者不僅僅是船禪混切，還拿禪母“市”來切崇母“孱”，這種擦音、塞擦音不分的現象應該是方音。而且船禪、崇禪這些全濁聲母之間的混切，可能也表明了作者的語音繫統中還保留著濁音。

《四聲等子》中，也有類似現象。山攝外四輕重俱等韻中，銑韻禪母位置上出現的字為“口”，昌善切，昌母。阮韻禪母位置上出現的字為“膊”，職緣切，章母。願韻禪母位置上的字為“搏”，持緣切，澄母；臻攝外三輕重俱等韻中，諄韻穿母位置上為“口”，直倫切，澄母。準韻禪母位置上為“拮”，食尹切，船母；止攝內二重少輕多韻中，物韻澄母位置上為“朮”，食聿切，船母。之韻禪母位置上為“熬”，俟甯切，崇母。止韻禪母位置上為“俟”，牀史切，崇母。《四聲等子》中的這些昌禪、章禪、澄禪、穿澄、船禪、船澄、崇禪相混並的現象，恰與《釋音》相吻合。

在今天的徽語和贛語中，船禪崇讀音都是有分別的，書中反映出的現象似乎與吳方言相似。

#### 4、零聲母範圍變大

在《廣韻》聲母中，只有“影”母是零聲母。在現在普通話中，影母、雲母（喻三）、以母（喻四）、微母、疑母大都變成了零聲母。《釋音》中，影母、雲母、以母、微母、疑母彼此之間有混切，應該是它們中至少一部分字變為零聲母了，所以才可以用。

以雲切影：优，羽求/於求、洧，羽軌/榮美；以影切雲：員，於問/王問；以影切以：縝，於幘/以淺、宛，於元/餘袁；以雲切以：掾，于眷/俞絹、輦，于如/羊茹；以疑切影：畹，五遠/於阮；以微切雲：械，亡伐/王伐；以匣切影：竭，何葛/烏葛；以疑切曉：閱，倪歷/馨激；以匣切疑：垠，戶恩/語斤；以以切曉：歛，逸及/許及；以雲切曉：輦，于韋/許歸。

從上述例子中反映出的情況來看，現在普通話中的零聲母格局已初具雛形。影以雲三者之間相互混切合并，微母、疑母可能已經開始零聲母化，所以能夠與雲母、影母混切。影、喻、疑也許并非在十四世紀才完全相混，在十一、十二世紀的《釋音》中，它們之間已經多有混切，甚至連微母也可以與之相混。

至于匣母與影母混切，則可能屬於方音現象。在今天的贛東北方言中，匣母字，吳語多讀零聲母，贛語多讀 x、f，徽語多讀 x 聲母。而且在當時作者的語音繫統中，

曉母也有可能讀為零聲母，所以它可以與影母、疑母、喻母混切。

同樣，《四聲等子》中也有同類現象。曾攝內八重多輕少韻重，德韻影母位置上出現的是“獲”，胡郭切，匣母。

## 5、精莊與知章對立

在宋代，知莊應該已經合流為照組了，但是從《釋音》中反映出的情況來看，莊組與章組還是有差別的，各組混切類型如下：

以莊切精：迓，側革/則落、鄩，側盱/則盱；以精切初：擱，則角/測角；以清切初：衰，倉回/楚危；以從切初：警，粗八/初八；以從切崇：劓，徂銜/鋤銜；以心切生：菟，肅鳩/所鳩、漶，蘇后/疎有；以心切書：僊，相吏/式吏。

《釋音》一書中，齒頭音與正齒音混切共有 10 例，除了 1 例是以心切書之外，其餘 9 例都發生在精組與莊組之間。很明顯，精組與莊組關係更為密切。我們雖然不知道在作者的音系中精組與莊組的具體音值，但從混切的情形來看，精莊與章組應該是對立的，這一特點在今天的贛方言中可以見到。在贛方言中，莊組與精組、知二組的變化總是相同的，知三組與章組的變化總是相同。

## 三 單個聲母之間的混切

### 1、日母與娘、影、喻混切

《釋音》中，日母一共出現 61 次，只有三例混切，分別是與娘母、影母、喻母，如下：娘日混切：輻，女之、如之/無；以影切日：然，燕山/如延；以日切以：訥，而銳/餘芮。

這些例子雖然都是孤例，但比較可靠。在現代贛方言中，日母讀 n 或有ㄋ的白讀，在今天的徽語中，日母以 n、ㄋ為主，也有零聲母讀法。既然在今天讀 n，那麼自然可以和娘母混切。又有零聲母的讀法，那麼當然也就可以與影母、喻母混切。

而在《四聲等子》中，日母也有與娘混切的例子。深攝內七全重無輕韻中，寢韻泥娘母位置上為“衽”，如甚切，日母；遇攝內三重少輕多韻中，燭韻泥娘母位置上為“褥”，而蜀切，日母。

### 2、匣母與奉母混切

曉、匣合口字與非組混切同讀 f，這是贛方言的一大特點。《釋音》中僅有一例匣奉混切：墳，戶吻切。《廣韻》為房吻切。戶為匣母，房為奉母。各版本文字一致，並無刊刻錯誤，則此例雖為孤例，已足以反映出一個重要的語音現象。



### 3、雲母與心母混切

《釋音》中只有一例雲母與心母混切：愼，員緣切。《廣韻》中此字為須緣切。員、須字形有些相似，因為只有一例，不好判斷是否反映了一種語音現象。但我們從《四聲等子》中找到了類似的心母與喉音字混並的例子。如：山攝外四輕重俱等韻中，月韻心母位置上為“說”，弋雪切，喻母；蟹攝外二輕重俱等韻中，怪韻心母位置上為“滅”，呼會切，曉母；曾攝內八重多輕少韻中，靜韻心母位置上為“穎”，餘頃切，喻母。這些例子證明了《釋音》中的孤例應該并非訛誤。

### 四 小結

總之，從《釋音》中的反切我們可以看到，宋代德興地區的聲母系統除了體現出輕重唇分化、非敷奉合并、娘泥混切這些與通語演變規律相同的特點之外，還有諸多方言特點，主要是：

全濁聲母清化，但并未遵循平聲送氣仄聲不送氣的規律，也并非像現在的贛方言一樣不論平仄全部讀送氣清音，規律不明；塞音和塞擦音的全清聲母與次清聲母混切且為數不少，送氣音與不送氣音不分；知莊章似已合并，但知二莊與知三章有對立傾向。不僅全清與次清混切，塞擦音與擦音似乎也沒有什麼區別；零聲母範圍擴大，影母、喻母、疑母與微母的部分字之間可以混切，普通話中的零聲母格局已初具雛形。由于方音的關係，匣母與溪母似乎也有部分讀為零聲母；齒音中，從邪混并、精清從與心母混切。齒頭音多與莊組互切，鮮與章組混切，可能莊章還是有差別的；喉音與牙音大量混切，屬於方音現象；日母與娘母、影母、喻母混切，體現出零聲母化的趨勢；匣母與奉母混切；雲母與心母混切。

語言本身就是一種不斷變化的繫統，內部分化與外部接觸交互進行。身處贛、浙、皖三省交界，德興特殊的地理位置決定了它的語音演變受外部接觸的影響會更大。從大的方面來說，贛方言東北部與吳方言的接觸，是以徽語作為過渡的，德興恰恰處於這個過渡區，因此這一地區的方音音系可能更復雜。

從《唐書釋音》聲類中反映出的方言情況來看，今天贛語、徽語、吳語中的許多區別性特征，在宋代已經形成。但書中反映出的聲類系統，今天的漢語方言中沒有與之完全對應的，這些真實而復雜的語音材料對於研究宋代方言具有重要價值。

而關於《四聲等子》，學界的研究本來就不多，且作為一部韻圖，人們多從韻、調的角度來關注，唐先生也只歸納了韻母系統，但我們發現聲類中也反映出了許多語音現象。《唐書釋音》中的反映出的方音現象，除了匣奉混切，其他的在《四聲等子》中都能找到相對應的例子，且如出一轍。據此，我們認為，《等子》的成書年代應該是與《釋音》相差不遠的，約在12世紀，其反映出的“時音”也應該是與《釋音》的語音體系非常接近的某種南方方言。

**參考文獻：**


- [1] 陳彭年. 宋本廣韻[M]. 南京：江蘇教育出版社，2002.
- [2] 侯精一. 現代漢語方言概論[M]. 上海：上海教育出版社，2002.
- [3] 胡松柏. 贛東北方言調查研究[M]. 南昌：江西人民出版社，2009.
- [4] 江聲皖. 徽州方言探秘[M]. 合肥：安徽人民出版社，2006.
- [5] 孫宜志. 江西贛方言語音研究[J]. 北京：語文出版社，2008.
- [6] 唐作藩. 《四聲等子》研究[A]. 語言文字學術論文集——慶祝王力先生學術活動五十周年[C]. 上海：上海知識出版社，1989.
- [7] 嚴修鴻. 客家話匣母讀同群母的歷史層次[J]. 汕頭大學學報，2004，(1).

## “钞”和“抄”词义演变考

潘牧天  
上海师范大学

现代汉语中，“钞”多表示钱币，而“抄”字多指书写、抢掠等义。“抄”作为“钞”的假借字出现，而后从“钞”字的词义中分离出来独立成词，二词在中古时期使用情况混淆不清，在许多义位上混用；至唐宋，二词词义大为发展，二词所辖范围逐渐明晰。文章在考察各时代代表性文献中二词用例的基础上，尽可能地作了一些穷尽性统计，试厘清“钞”和“抄”词义发展脉络及内部联系，尝试探究二词词义衍变的内部原因，并为《汉语大词典》的几处可商榷处提出意见。

### 一、“钞”和“抄”的产生时期

“钞”字的出现当在战国中晚期之前，其义为用以叉取的金属器具。包山楚简第 263 号中出现“金钞”一词，“钞”字写作。王颖先生释“金钞”为“用以刮削简牍的削刀”。<sup>1</sup>段玉裁《说文解字注·金部》：“剽即钞字之假借也。”王念孙《广雅疏证》曰：“剽、勦、钞并通。”“剽”有削断义，又为“钞”之假借字，段玉裁《说文解字注·金部》：“字从金者，容以金银诸器刺取之矣。”可见释“金钞”为削刀无误。马叙伦《说文解字六书疏证》：“‘又也’乃‘钞’字本义，又犹下之册叉。‘又’为‘钞’之俗名。亦借字也。”<sup>2</sup>无论是“下之册叉”或“用以刮削简牍的削刀”，都是指一种从侧面或底部叉取的器具，“钞”之本义似是一个名词。

传世文献中，《十三经注疏》中正文部分没有出现“钞”字，说明在先秦书面语中，“钞”字的使用频率是相当小的。“钞”字首见《管子·幼官》：“器成于僂，教

<sup>1</sup> 王颖《包山楚简词汇研究》：“《考释》：钞，读作削。《考工记》：‘筑氏为削’，郑注：‘今文书刀’，即用以刮削简牍的削刀。胡雅丽认为指一件柁木质的束发头饰。”见《包山楚简词汇研究》第 35 页，厦门大学出版社，2008 年 5 月第一版。

<sup>2</sup> 见《古文字诂林》第十册第 605 页，古文字诂林编撰委员会，上海教育出版社，1999 年 12 月第一版。

行于钞。”郭沫若先生认为“钞”同“妙”，表仔细的意思。<sup>3</sup>戴望云：“‘钞’当为‘眇’之借字，眇，本训目小，引申之为微眇之义。”<sup>4</sup>又《管子·幼官图第九》：“听于钞，故能闻无极。视于新，故能见未形。”戴望认为此处“钞”也是“眇”之假借字。<sup>5</sup>《管子集校》中所引各家之论大多认为“钞”同“眇”、“杪”、“妙”，戴望甚至断论其是“眇”之借字。那么“钞”是作为“眇”的假借字出现的么？但“钞”字在《管子》一书中是不是因为后世刊刻、传抄而为“眇”、“杪”之形讹呢？前人未作过多的考证，且仅此一例似乎不能说明“钞”的产生及先秦时的表义情况。

《墨子》卷十四《备蛾傅第六十三》记载：“客则蛾傅城，烧荅以覆之，连、抄大皆救之以车两走，轴间广大，以圉犯之，融融其两端以束轮，遍遍、涂其上，室中以榆若蒸，以棘为旁，命曰火掣，一曰传汤，以当队。”参考孙诒让《墨子间诂》：“抄大当作沙火。”<sup>6</sup>这里的“抄大”疑是后世流传讹误，并非原文中使用了“抄”字。

较早出现“钞”的确切文献资料为《汉书·列传第六九下·王莽下》：“是岁，赤眉力子都、樊崇等以饥馑相聚，起于琅邪，转钞掠，众皆万数。”<sup>7</sup>此处“钞”表“抢掠；强取”义。《汉语大词典》引王符《潜夫论》例为首证，可以《汉书》例补。“钞”字为什么会由金属器物义变为“抢掠，强取”义呢？《释名疏证补·释姿容》引叶德炯说：“叉取、遮取<sup>8</sup>皆从后袭取之词，手出其下，正钞之本义。”<sup>9</sup>可见“钞”之“劫掠”义是由其“手出其下”的词义特征而来的，而其“手出其下”义则正是由其名词义引申而来的。一个字造字之初往往是表示某种较形象的意义，而逐渐在使用过程中引申出较抽象的意义。“钞”最早为一种用以叉取的金属器具，而其“叉取”的特性使“钞”引申出动词义。从非正面角度叉、削等动作又形象地引申作“抢掠、强取”义了。

《三国志》中“钞”字出现 17 次，其中 16 次表“抢劫，强取”义，仅有一次表书写方面的意义，《三国志·吴书·潘濬陆凯传》：“虚实难明，故不著于篇，然爱

<sup>3</sup> 郭沫若《管子集校·幼官篇第八》：“沫若按：……‘教行于钞’，‘钞’同‘妙’，则今言仔细也。”见《郭沫若全集·历史编》第五册第 216 页，人民出版社，1984 年 10 月第一版。

<sup>4</sup> 见《郭沫若全集·历史编》第五册第 216 页，人民出版社，1984 年 10 月第一版。

<sup>5</sup> 郭沫若《管子集校·幼官篇第八》：“下文‘听于钞’亦当读为‘眇’。”见《郭沫若全集·历史编》第五册第 216 页，人民出版社，1984 年 10 月第一版。

<sup>6</sup> 见《墨子间诂》，第 335 页，孙诒让，《诸子集成》第四册，中华书局，2006 年 10 月第二版。

<sup>7</sup> 见百衲本《汉书》下册，卷九十九下，第 1281 页，台湾商务印书馆，1989 年 1 月第六版。

<sup>8</sup> 慧琳《一切经音义》卷四十八引服虔《通俗文》：“遮取谓之抄掠。”见《〈一切经音义〉三校校本合刊》中册，第 1355 页，上海古籍出版社，2008 年 12 月第一版。

<sup>9</sup> 见《释名疏证补》卷三，第 86 页，中华书局，2008 年 6 月第一版。

其指撻皓事，足为后戒，故钞列于凯传左云。”<sup>10</sup>《汉语大词典》“誊写”义下首引《抱朴子》为书证，可以该例补之。“钞”字之书写义是如何形成的？笔者推测可能是由其“叉取”义引申而来的，取一份文献中的文字移至另一份文献上，这便形成了“誊写”义。而“钞”字在包山楚简中为“刮削简牍的削刀”，与书写本就有关，“钞”之书写义抑或由此而来。“抄”字在《三国志》正文中没有出现，仅在裴松之注中出现3次。

《说文解字》有“钞”而无“抄”字。“抄”字最初是作为“钞”的假借字、俗字出现的，其出现应略早于两晋时期。<sup>11</sup>在魏晋南北朝至唐朝很长一段时间内，“钞”和“抄”的词义基本处于重合，“抄”字出现之后，在许多意义的表示上取代了“钞”字，其使用频率一直较“钞”字要高许多。唐代两字词义开始逐渐分离，产生了一些新的意义。至宋朝，“钞”与“抄”的词义有了很大的变化，两词意义所辖范围逐渐明晰。宋以后两字所表示的意义基本定型也逐渐规范化。

《抱朴子》是笔者所见文献中较早出现“抄”字的，其为东晋葛洪所著，葛洪的生活时期为晋武帝至晋哀帝时期，故推测“抄”字产生的年代应略早于两晋时期。而《抱朴子》中也使用“钞”字，可见“抄”出现之后，“钞”并没有被完全替代，继续承担部分原有的表义任务。

《抱朴子》内外篇中出现“抄”共5次，出现“钞”共3次，可见“抄”在造字之初就被广泛使用了，人们更容易接受并更喜好使用“抄”字而减少了“钞”的使用。一个汉字的创造必然有其原因，“抄”作为假借字被创造出来而更广泛地应用，这是一种人类认知习惯作用，或许“手”旁较“金”旁书写更方便，故更多地被士民阶层用于平时的著作、记载。

《抱朴子》中的“钞”只表示书写方面的意义，兹举三例：

1. 《抱朴子内篇·金丹》：“余今略钞金丹之都较，以示后之同志好之者。”<sup>12</sup>
2. 《抱朴子内篇·登涉》：“余少有入山之志，由此乃行学遁甲书，乃有六十余卷，事不可卒精，故钞集其要，以为《囊中立成》，然不中以笔传。”<sup>13</sup>
3. 《抱朴子内篇·遐览》：“其变化之术，大者唯有《墨子五行记》，本有五卷。昔刘君安未仙去时，钞取其要，以为一卷。”<sup>14</sup>

<sup>10</sup> 见《三国志》六十一，第五册，第1404页，中华书局，1982年7月第二版。

<sup>11</sup> 《说文解字·金部》：“叉取也。从金，少声。”徐铉注曰：“今俗别作抄。”段玉裁《说文解字注·卷十四·金部》：“叉者，手指相遣也。手指突入其间而取之，是之谓钞……今谓窃取人文字曰钞，俗作抄。”《释名·释姿容》：“操，钞也，手出其下之言也。”叶德炯曰：“《说文》：‘钞，叉取也，从金，少声。’此本字也，俗借用抄。”《广韵·肴韵》、《广韵·效韵》皆表明“钞”与“抄”同。《集韵·爻韵》：“钞，或作剿、抄、攸。”

<sup>12</sup> 见《抱朴子内篇校释》卷四，第63页，中华书局，1980年1月第一版。

<sup>13</sup> 见《抱朴子内篇校释》卷十七，第276页，中华书局，1980年1月第一版。

<sup>14</sup> 见《抱朴子内篇校释》卷十九，第309页，中华书局，1980年1月第一版。

## 潘：“钞”和“抄”

《汉语大词典》中“誊写”义项下以例1为书证，笔者认为这是不恰当的。此三处“钞”都有归纳、总结、记录的意思，尤其第1例，显然并不是照抄文字的意思，而是归纳记录经验。故我认为《汉语大词典》仅仅一种“誊写”义并不能概括所有文献中“钞”的书写意义。

其余动词义皆由“抄”字表示，书中出现“抄盗”、“抄取”等词，例如：

1. 《抱朴子外篇·疾谬》：“或有不通主人，便共突前，严饰未办，不复窥听，犯门折关，逾堙穿隙，有似抄劫之至也。”<sup>15</sup>

2. 《抱朴子外篇·疾谬》：“夫以抄盗致财，虽巨富不足嘉；凶德胁人，虽见惮不足荣也。”<sup>16</sup>

3. 《抱朴子内篇·取良非法》：“用铅十斤内铁釜中，居炉上露灼之，铅销，内汞三两，早出者以铁匙抄取之，名曰良非也。”<sup>17</sup>

1、2例中“抄”应释为“掠夺、强取”义，出现了新词“抄劫”、“抄盗”。“抄劫”《汉语大词典》释为“掠夺”，所举例为《周书·陆腾传》：“陵州木笼獠恃险麤犷，每行抄劫，诏腾讨之。”此例较《抱朴子》例晚，可以例1补之。而“抄盗”《汉语大词典》未收，似乎应当补收。例3的“抄取”应释为“用匙取物”，《汉语大词典》释之为“强取”，可在“抄取”条下增补“用匙取物”义项并补例3为书证。

同时，《抱朴子》中的“抄”字也有表达书写方面的意义，如《抱朴子内篇·论仙》：“夫作金皆在神仙集中，淮南王抄出，以作《鸿宝枕中书》。”<sup>18</sup>又《抱朴子外篇自叙》：“又抄五经七史百家之言，兵事方伎短杂奇要三百一十卷，别有目录。”<sup>19</sup>

综上所述，可见《抱朴子》中“抄”字有三种意思：1. 掠夺、袭击；2. 用匙取物；3. 誊写。这三种意思均假借“钞”字而来。<sup>20</sup>

<sup>15</sup> 见《抱朴子外篇校笺》上册，卷二十五，第622页，中华书局，1992年11月第一版。

<sup>16</sup> 见《抱朴子外篇校笺》上册，卷二十五，第612页，中华书局，1992年11月第一版。

<sup>17</sup> 见《抱朴子内篇校释》卷十六，第266页，中华书局，1980年1月第一版。

<sup>18</sup> 见《抱朴子内篇校释》卷二，第20页，中华书局，1980年1月第一版。

<sup>19</sup> 见《抱朴子内篇校释》附录一，第346页，中华书局，1980年1月第一版。

<sup>20</sup> “钞”之掠夺义除了《汉书》例外，在东汉王符《潜夫论》也使用频繁，如《潜夫论·劝将第二十一》：“东寇赵、魏，西钞蜀、汉，五州残破，六郡削迹。”笺曰：“《后汉书·王涣传》韦怀注：‘钞，掠也。’《一切经音义》引《通俗文》云：‘遮取谓之抄掠。’‘抄’与‘钞’同。”（见《潜夫论笺校正》卷五，第251页，中华书局，1985年第一版。）《潜夫论·救边第二十二》：“往者羌虏背叛，始自凉、并，延及司隶，东祸赵、魏，西钞蜀、汉，五州残破，六郡削迹，周回千里，野无孑遗，寇钞祸害，昼夜不止，百姓灭没，日月焦尽。”（见《潜夫论笺校正》卷五，第257页，中华书局，1985年第一版。）《潜夫论·实边第二十四》：“寇钞贼虏，忽然而过，未必死伤。”（见《潜夫论笺校正》卷五，第280页，中华书局，1985年第一版。）可见“抄”之掠夺义借“钞”而来。“抄”之“用匙取物”义借“钞”之本义。而“钞”字表书写义在《三国志》中已见（例见前文），可见“抄”字的书写义也是继承“钞”字而来。

正如叶德炯“钞，俗借用抄”所说，“抄”字在两晋时期即其初创时期作为“钞”的俗借字，在意义上基本上继承了“钞”字，可以说两字的意义在两晋南北朝时期基本上处于重合。但尽管“抄”字在词义上仍然依附于“钞”，但它一经创造，应用便相当广泛，负担了“钞”的大部分动词义，而“钞”字的应用逐渐减少。并且，“抄”字在“钞”原有的词义上已有了一些发展，如将“叉取”义引申为“用匙取物”，这是二字日后词义分离的基础。

考察南朝史著《后汉书》，书中出现“钞”字仅5次，皆表抢掠义。而“抄”字出现了36次，其中34次表掠夺、袭击义，2次表书写义。表书写义的例子如《后汉书·章帝八王传第四十五》：“初，迎立灵帝，道路流言惶惶不得立，欲抄征书，而中常侍郑飒、中黄门董腾并任侠通剽轻，数与惶交通。”<sup>21</sup>又《后汉书·儒林列传第六十九下》：“又抄风角杂书，列其占验，作《兴道》一篇。”<sup>22</sup>

唐初所修《晋书》中仅出现“钞”字2次，皆表抢掠义。“抄”字出现27次，表掠夺、袭击义25次，表书写义2次。表书写义如《晋书·志第二十·刑法》：“是时侍中卢珽、中书侍郎张华又表：‘抄《新律》诸死罪条目，悬之亭传，以示兆庶。’有诏从之。”<sup>23</sup>又《晋书·列传第三十八·纪瞻》：“瞻性静默，少交游，好读书，或手自抄写，凡所著述，诗赋笺表数十篇。”<sup>24</sup>

两部官方史著皆大量使用“抄”字，使用频率明显超过“钞”，并且表达书写义的全是“抄”字，可见经过南北朝至唐初时期，官方也已接受了“抄”字而减少了其本字“钞”的使用。南北朝数十年乃至数年便易朝换代，社会上的俗用字对官方的影响尤大。在这样的社会影响下，“抄”字逐渐呈现了承担“钞”字原有词义的趋势。但总的来说，二字的词义并没有分离，仍处于基本重合的状态。

## 二、“钞”和“抄”词义的发展期

唐代“钞”和“抄”的词义在基本重合中发生了一些变化。在唐代诗歌总集《全唐诗》中，“钞”与“抄”的词义有了新的发展。“钞”在《全唐诗》中共出现6次，其中表示书写义的有3次，例如：

1. 杜甫《赠李八秘书别三十韵》：“沈绵疲井臼，倚薄似樵渔。乞米烦佳客，钞诗听小胥。”<sup>25</sup>

2. 姚合《寄灵一律师》：“梵书钞律千馀纸，净院焚香独受持。童子病来烟火绝，清泉漱口过斋时。”<sup>26</sup>

<sup>21</sup> 见《后汉书》卷五十五，第七册，第1798页，中华书局，1965年5月第一版。

<sup>22</sup> 见《后汉书》卷七十九下，第九册，第2572页，中华书局，1965年5月第一版。

<sup>23</sup> 见《晋书》卷三十，第三册，第931页，中华书局，1974年11月第一版。

<sup>24</sup> 见《晋书》卷六十八，第六册，第1824页，中华书局，1974年11月第一版。

<sup>25</sup> 见《全唐诗》卷二百三，第七册，第2514页，中华书局，1960年4月第一版。

<sup>26</sup> 见《全唐诗》卷四百九十七，第十五册，第5636页，中华书局，1960年4月第一版。

## 潘：“钞”和“抄”

3. 韩偓《思录旧诗于卷上，凄然有感，因成一章》：“缉缀小诗钞卷里，寻思闲事到心头。自吟自泣无人会，肠断蓬山第一流。”<sup>27</sup>

以上三例所表示的都是具体的誊写义。

《全唐诗》中的“钞”字出现了表示“经过选录而成的集子”的意思，兹举二例：

1. 孟郊《宿空侄院寄澹公》：“夜坐冷竹声，二三高人语。灯窗看律钞，小师别为侣。”<sup>28</sup>

2. 周贺《哭闲霄上人》：“林径西风急，松枝讲钞馀。冻髭亡夜剃，遗偈病时书。”

29

此处“钞”是由其誊写义演变而来的名词义，为诗、词、文、赋、佛经、律、令等经过选编、抄写而成的诗集、文集等，如《大乘经论疏钞》<sup>30</sup>、《北堂书钞》以及《清稗类钞》等。曹先擢先生指出此类“钞”应表选取、选编义，由《说文》又取义引申而来。<sup>31</sup>蔽见认为“钞”在此处似应作名词义更恰当，此义当是由其书写义衍生出来的。

《全唐诗》中又出现了一个新的词汇“钞主”。陆畅《题悟公禅堂》：“临坛付法十三春，家本长城若下人。芸阁少年应不识，南山钞主是前身。”<sup>32</sup>《大正藏·止观辅行传弘决》卷四曰：“故南山钞主依之承用，相部对内虽异于此，其如南山有教可凭，智者大师依教承用。”<sup>33</sup>《佛学大辞典》释“南山”曰：“唐道宣，四分律宗之祖也，住终南山之紵麻兰若，故号南山大师。”<sup>34</sup>此处“南山钞主”当为南山律宗之祖南山大师道宣，道宣又称“南山律师”、“南山律主”，曾撰《四分律删繁补阙行事钞》三卷、《四分律拾毗尼义钞》三卷、《四分律删补随羯磨疏》二卷等，又有《续高僧传》三十卷、《广弘明集》三十卷、《大唐内典录》十卷等，在疏解、编订佛教戒律以及编撰佛教史籍方面卓有成就，故人们称之为“律师”、“律主”。“主”有总领之义，“钞主”应是整理佛经以及为佛经作疏解的总领，《汉语大词典》、《佛学大辞典》等均未收录。

《全唐诗》中的“抄”表“誊写”义有二十余处，如：贾岛《原居即事言怀赠

<sup>27</sup> 见《全唐诗》卷六百八十三，第二十册，第7839页，中华书局，1960年4月第一版。

<sup>28</sup> 见《全唐诗》卷三百七十八，第十二册，第4239页，中华书局，1960年4月第一版。

<sup>29</sup> 见《全唐诗》卷五百三，第十五册，第5724页，中华书局，1960年4月第一版。

<sup>30</sup> 《祖堂集》卷六《草堂和尚》：“制数本《大乘经论疏钞》，《禅论》百卷、《礼忏》等，见传域内。”见《祖堂集》上册第288页，中华书局，2007年10月第一版。

<sup>31</sup> 见曹先擢《“钞”字的一个义项》，《辞书论稿与辞书札记》第413页，商务印书馆，2010年1月第一版。

<sup>32</sup> 见《全唐诗》卷四百七十八，第十四册，第5443页，中华书局，1960年4月第一版。

<sup>33</sup> 《大正新修大藏经·法华部·天台宗·摩柯止观·止观辅行传弘决》卷四第一。

<sup>34</sup> 见《佛学大辞典》第776页，文物出版社，1984年1月第一版。



## 潘：“钞”和“抄”

孙员外》：“避路来华省，抄诗上彩笺。”<sup>35</sup>孟郊《自惜》：“倾尽眼中力，抄诗过与人。”<sup>36</sup>而由“誊写”义又引申出：

1. 记名。王建《宫词一百首》：“月冷江清近猎时，玉阶金瓦雪渐渐。浴堂门外抄名入，公主家人谢面脂。”<sup>37</sup>

2. 计数。元稹《江边四十韵》（官为修宅，卒然有作，因招李六侍御，此后并江陵时作。）：“绿柚勤勤数，红榴个个抄。池清漉螃蟹，瓜蠹拾蟹螯。”<sup>38</sup>

此处“抄”与“数”对出，“抄”由其书写义引申出记录义又引申为计数义，“抄”的“计数”义《汉语大词典》未收。

《全唐诗》中“抄”又有“掠夺，袭击”义，如元稹《和李校书新题乐府十二首·缚戎人》：“边头大将差健卒，入抄禽生快于鹞。但逢赧面即捉来，半是边人半戎羯。”<sup>39</sup>皮日休《奉和鲁望渔具十五咏·罩》：“人立独无声，鱼烦似相抄。满手搦霜鳞，思归举轻棹。”<sup>40</sup>

“抄”又由“掠夺，袭击”义引申为“抄掠袭击的人”，如元稹《和李校书新题乐府十二首·蛮子朝》：“夜防抄盗保深山，朝望烟尘上高冢。鸟道绳桥来款附，非因慕化因危悚。”<sup>41</sup>此处“抄盗”一词也指抄掠袭击的人。

《汉语大词典》“用匙取食物”义首引杜甫《与鄠县源大少府宴浹陂》：“饭抄云子白，瓜嚼水精寒。”<sup>42</sup>仇兆鳌注：“北人称匕为抄，乃抄转也。”<sup>43</sup>《全唐诗》中表此义的还有白居易《与沈、杨二舍人阁老同食敕赐樱桃玩物感恩因成十四韵》：“手擘才离核，匙抄半是津。”<sup>44</sup>韩愈《赠刘师服》：“匙抄烂饭稳送之，合口软嚼如牛嚼。”<sup>45</sup>“用匙取食物”应是由《抱朴子》中“用匙取物”义引申而来，不过将“物”具体化为“食物”。

《汉语大词典》中“抄”有“叉；交叉”义，首引《儿女英雄传》为书证。古时两手相抄是一种表示恭敬的礼节。徐时仪先生释“叉手”曰：“意谓两手在胸前交拱，表示一种尊敬的姿势……古人行跪拜礼，跪后两手相拱，俯头至手，称为拜手，

<sup>35</sup> 见《全唐诗》卷五百七十三，第十七册，第6675页，中华书局，1960年4月第一版。

<sup>36</sup> 见《全唐诗》卷三百七十四，第十一册，第4202页，中华书局，1960年4月第一版。

<sup>37</sup> 见《全唐诗》卷三百二，第十册，第3439页，中华书局，1960年4月第一版。

<sup>38</sup> 见《全唐诗》卷四百八，第十二册，第4536页，中华书局，1960年4月第一版。

<sup>39</sup> 见《全唐诗》卷四百十九，第十二册，第4619页，中华书局，1960年4月第一版。

<sup>40</sup> 见《全唐诗》卷六百十一，第十八册，第7043页，中华书局，1960年4月第一版。

<sup>41</sup> 见《全唐诗》卷四百十九，第十二册，第4619页，中华书局，1960年4月第一版。

<sup>42</sup> 见《全唐诗》卷二百二十四，第七册，第2399页，中华书局，1960年4月第一版。

<sup>43</sup> 钱笺：……葛洪《丹经》：云子碎云母也。朱注：云子，以拟饭之白耳。见《杜诗详注》第一册，卷三，第186页，中华书局，1979年10月第一版。

<sup>44</sup> 见《全唐诗》卷四百四十二，第十三册，第4943页，中华书局，1960年4月第一版。

<sup>45</sup> 见《全唐诗》卷三百四十，第十册，第3812页，中华书局，1960年4月第一版。

拜必叉手，叉手则不一定要拜。”<sup>46</sup>“抄手”亦作“叉手”，徐文中引张保嗣《戏示诸妓》为例：“绿罗裙上标三棒，红粉腮边泪两行。抄手向前咨大使，这回不敢恼儿郎。”<sup>47</sup>又《敦煌变文集新书·舜子变》：“舜子抄手启阿耶：‘阿耶若取得计阿娘来，也共亲阿娘无二！’”项楚先生注“抄手”曰：“亦云‘叉手’，即拱手，表示恭敬。”<sup>48</sup>《敦煌变文集新书·父母恩重经讲经文》：“有一类门徒弟子，为人去就乖疏，不修仁义五常，不管温良恭俭。抄手有时望（忘）却，万福故是隔生；斋场上谢座早从，吊孝有时失笑。”项注同上。<sup>49</sup>“‘叉手’作为唐宋以来的一种常礼，相对于揖拜而言比较随意，不似礼拜那么庄重，作为一种较随意的常礼，故‘叉手’一词又有‘随便悠然’义。”<sup>50</sup>廖匡图《和人赠沈彬》：“名利最为浮世重，古今能有几人抛。逼真但使心无著，混俗何妨手强抄。”<sup>51</sup>此处“抄”字已不是表示恭敬的意思了，而是指双手交叉，不再管事。诗人一个“抄”字描写出了叉手不理世事的形象，而体现出自己对世俗名利的淡然处之，而“强”字又体现了诗人矛盾的心理，二字用得相当好。“抄手”又是宋代最具时代特征的砚台形制，它从唐代箕形砚演变而来。长方形抄手砚为宋代主流，砚底挖空，两边为墙足，用手抄底托起，使用方便，体现了宋士大夫简约、方正的审美情趣。“抄手”又称“插手”、“手抄”或者“太史砚”。这种砚制体现了“抄”字的本义“叉”，手指突入其间而取之。

### 三、“钞”和“抄”词义的成熟期

宋代“钞”的词义发生了极大的变化，产生了一些新义并普遍使用。以《朱子语类》为例，其中使用“钞”5次，“抄”21次，典型体现了“钞”和“抄”在宋代的使用情况。

先谈“钞”字。

“钞”在宋代成为一种税务收取时使用的票据。《朱子语类·学四·读书法上》：“读书不要贪多。向见州郡纳税，数万钞总作一结。忽错其数，更无推寻处。其后有一某官乃立法，三二十钞作一结。观此，则读书之法可见。”<sup>52</sup>此处朱子以“数万钞作一结”至“三二十钞作一结”的制度改良来说明读书不要贪多，当从细小精微处着手。又《朱子语类·朱子八·论民》：“据某说时，只教有田底便纳米，有地底便

<sup>46</sup> 见徐时仪《近代汉语词语札记》，喀什师范学院学报，1996年第3期。

<sup>47</sup> 见《全唐诗》卷七百七十，第二十二册，第8745页，中华书局，1960年4月第一版。

<sup>48</sup> 见《敦煌变文选注》上册，第324页，中华书局，2006年4月第一版。

<sup>49</sup> 见《敦煌变文选注》下册，第1479页，中华书局，2006年4月第一版。又第1503页有“时时两手不抄，往往便三言不逊”句，项楚先生注曰：“此云‘时时两手不抄’，言其不知礼貌也。”

<sup>50</sup> 见徐时仪《近代汉语词语札记》，喀什师范学院学报，1996年第3期。

<sup>51</sup> 见《全唐诗》卷七百四十，第二十一册，第8441页，中华书局，1960年4月第一版。

<sup>52</sup> 见《朱子语类》卷十，第一册，第166页，中华书局，1986年3月第一版。

纳绢，只作两钞；官司亦只作一仓一场。”<sup>53</sup>此处亦是此义。

“钞”在宋朝已经成为度量、经济、钱货等方面使用的名词。《朱子语类·本朝四·自熙宁至靖康用人》：“又以盐钞、茶引成柜进入，上益喜，谓近侍曰：‘此太师送到朕添支也。’由是内庭赐予，不用金钱，虽累巨万，皆不费力。钞法之行，有朝为富商，暮为乞丐者矣！”<sup>54</sup>此例反映了宋代的政治情况和当时的经济制度。“盐钞”是宋代官府发给商人支领和运销食盐的凭证，后称盐引、盐票。<sup>55</sup>“盐钞”、“茶引”是宋代一种特殊的经济制度，宋代茶、盐、矾等物的生产运销由政府管制，政府发给特许商人支领和运销这类产品的证券，名茶引、盐引、矾引，统称“钞引”。而例中“钞法”是“钞引法”的简称，指纸币的发行制度。例句中“钞法之行”说明当时的纸币在民间使用已比较普遍。“钞”在南宋时已形成纸币义。《汉语大词典》中“钞”的“纸币名”义项下引用明陶宗仪《辍耕录》例，可用《朱子语类》补其书证。

《明史·食货志五》：“钞始于唐之飞钱，宋之交会，金之交钞。元世始终用钞，钱几废矣。”<sup>56</sup>史家多认为纸币最早称“钞”的是金之“交钞”。南宋徽宗崇宁五年曾发行过一种名为“小钞”的纸币，《密斋笔记》记载：“崇宁五年敕节文：小钞，知通监造……大观二年第一料，其样于今会子略同：上段印‘准伪造钞已成流三千里，以行用者处斩，至庚寅九月更不用’……小钞至庚寅（大观四年）九月更不用。”<sup>57</sup>小钞上段印有对“伪造钞”者的处罚措施，说明“钞”字在宋代已经成为极为流行的甚至是官方认定的对纸币的称呼。《朱子语类》中“钞”也已经比较明确地指代钱币，并指出了政府已经实施了“钞法”。

《朱子语类》中的“钞”字都与金融贸易、税收制度、钱币财货有相当大的联系，推测“钞”代表纸币义，便是从官府所发盐钞等一系列代表政府授权的贸易票据而逐渐变为政府授权的可以兑换金属货币的纸样凭据，进而演变为具有法律效应的与金钱同样具有流通效力的纸币。为什么纸币的意义会落到“钞”字上而由其承担呢？笔者认为，由于“钞”字有誊写义，引申为记录某些事物的纸本，<sup>58</sup>逐渐引申成为了记录某些事物的凭证，宋代纸币产生之后，便自然而然地由“钞”表示了。但为什么不由“抄”字表示呢？词汇的意义的长期演变过程中，使用者即人的认知

<sup>53</sup> 见《朱子语类》卷一百一十一，第七册，第2715页，中华书局，1986年3月第一版。

<sup>54</sup> 见《朱子语类》卷一百三十，第八册，第3127页，中华书局，1986年3月第一版。

<sup>55</sup> 《汉语大词典》：“【盐钞】宋代官府发给商人支领和运销食盐的凭证。后称盐引、盐票。《宋史·食货志下三》：‘七年，中书议 陕西 盐钞，出多虚钞，而盐益轻。’宋陆游《曾文清公墓志铭》：‘都城受围，太府盐钞无自得，商贾不行。’《续资治通鉴·宋神宗熙宁十年》：‘东南旧法，盐钞一席毋过三千五百，西盐钞一席毋过二千五百，尽买入官。’”

<sup>56</sup> 见《明史》卷八十一，第七册，第1961页，中华书局，1974年4月第一版。

<sup>57</sup> 见李跃《楮币史说》第44页，浙江大学出版社，2008年12月第一版。

<sup>58</sup> 如上文提到的《北堂书钞》、《大乘经论疏钞》、“律钞”等。

习惯起了重大作用，“抄”字从“手”而逐渐承担更多的动词义，而“钞”字从“金”便更多地被人们用作于表示钱财货币等原来主要由金属物质构成的事物。

再看“抄”字。

《朱子语类》中“钞”没有一例表示动词义，而“抄”字大多表示掠夺、记录、书写等动词义。

《朱子语类》中“抄”多表誊写义。如：《朱子语类·学五·读书法下》：“编次文字，须作草簿，抄记项头……编次文字，用簿抄记，此亦养心之法。”<sup>59</sup>《朱子语类·朱子十七·训门人八》：“是底都抄出，一两字好亦抄出。”<sup>60</sup>《朱子语类·程子门人·尹彦明》：“渠初见伊川，将朱公揆所抄语录去呈，想是他为有看不透处。”<sup>61</sup>

《朱子语类》中出现了“抄录”一词。《朱子语类·朱子十四·训门人五》：“既受诗传，并力抄录，颇疏侍教。”<sup>62</sup>《朱子语类·易三·纲领下》：“一日访之，见他案上有册子，问是甚文字，渠云：‘是某有见抄录。’”<sup>63</sup>“抄录”即记录之义，与现代汉语“抄录”近义。《汉语大词典》未收，可补收。《资治通鉴·梁纪三·武帝天监十一年》：“请五礼各置旧学士一人，令自举学古一人相助抄撰，其中疑者，依石渠、白虎故事，请制旨断决。”胡三省注曰：“抄，楚交翻，录也。”<sup>64</sup>又《资治通鉴·晋纪一·武帝秦始四年》：“中书侍郎范阳、张华请抄新律死罪条目，悬之亭传以示民；从之。”胡三省注曰：“抄，楚交翻，誊写也。”<sup>65</sup>敝见认为，“抄”的“誊写”义与“记录”义应当区分开，而《汉语大词典》仅仅有“誊写”义项，笔者认为当补“记录”义项。前文提到“绿柚勤勤数，红榴个个抄”中“抄”之计数义亦是由记录义而引申来的，并非直接由誊写义而来。

《朱子语类》中又出现了“抄札”一词。如《朱子语类·朱子三·外任》：“绍兴时去得迟，已无擘画，只依常行，先差一通判抄札城下两县饥民。其人不留意，只抄得四万来人。外县却抄得多，遂欲治之而不曾，却托石天民重抄得八万人。”<sup>66</sup>《汉语大词典》释“抄札”曰：“‘抄札’亦作‘抄札’。查抄没收。”此处“抄札”应解释作“记录，统计”，句中几处“抄”字皆同此义。<sup>67</sup>《汉语大词典》似可补收此义。

<sup>68</sup>

<sup>59</sup> 见《朱子语类》卷十一，第一册，第195页，中华书局，1986年3月第一版。

<sup>60</sup> 见《朱子语类》卷一百二十，第七册，第2886页，中华书局，1986年3月第一版。

<sup>61</sup> 见《朱子语类》卷一百一，第七册，第2577页，中华书局，1986年3月第一版。

<sup>62</sup> 见《朱子语类》卷一百一十七，第七册，第2809页，中华书局，1986年3月第一版。

<sup>63</sup> 见《朱子语类》卷六十七，第五册，第1681页，中华书局，1986年3月第一版。

<sup>64</sup> 见《资治通鉴》卷一百四十七，第十册，第4603页，中华书局，1956年6月第一版。

<sup>65</sup> 见《资治通鉴》卷七十九，第六册，第2505页，中华书局，1956年6月第一版。

<sup>66</sup> 见《朱子语类》卷一百六，第七册，第2643页，中华书局，1986年3月第一版。

<sup>67</sup> 前文已提到“抄”字的计数义。

<sup>68</sup> 又《朱子语类·杂类》：“当时若是聚众与之抄札封锁，则庶几无今日之患！”（见《朱子语类》卷一百三十八，第八册，第3293页，中华书局，1986年3月第一版。）此处“抄札”

“抄”表掠夺义又表现在“掠抄”一词上。《朱子语类·朱子三·外任》：“平时附鬼为妖，迎游于街衢而掠抄于闾巷，亦皆相视敛戢，不敢辄举。”<sup>69</sup>《汉语大词典》释“抄掠”为“抢劫；掠夺”。“掠抄”与“抄掠”似为同素异序，亦为此义。

“抄”又引申为“插、抢”义。《朱子语类·学五·读书法下》：“譬如听人说话一般，且从他说尽，不可剿断他说，便以己意见抄说。”<sup>70</sup>此处“剿”为截断之义，而“抄说”则为抢着说、插嘴之义。此句为朱熹告诫学生听人说话必须让人说完，不能抢别人的话头说。

《朱子语类》中表示非动词义的“抄”仅有一例。《朱子语类·论语十八·子罕篇上》：“八十缕，四十抄也。”<sup>71</sup>《汉语大词典》“量词。二缕为一抄”义项下正以此例为书证。

《朱子语类》成书于宋元之际，正是处于文白转型期，其语言可以说是一种文白混杂的半口语化的语言，既有宋代的口语成分又有文言成分；保留了大量近代汉语词汇、口语词汇以及俗、俚语。<sup>72</sup>从《朱子语类》中的材料看来，至少可以说明，南宋“钞”已较少表示动词如书写、抢掠等意思，而大多用“抄”来表达；“钞”的动词义至宋代已基本转移给“抄”，而“钞”则负担起了表示经济、货币、金融等新的意义。唐宋以来政治、经济、文化迅速发展，许多新事物的出现带来了语言的极度丰富。宋代“交子”等纸币的出现，导致了“钞”承担了纸币义却逐渐“遗忘”了其动词义。

#### 四、“钞”和“抄”词义的规范期

宋代以后，“钞”和“抄”的词义基本沿用了宋代的使用习惯并形成了一定的使用规则。

元代文献中出现了“钱钞”一词。钱钞泛指钱财，关汉卿《包待制三勘蝴蝶梦》第一折：“这事少不的要吃官司，只是咱家没有钱钞，使些甚么？”<sup>73</sup>又《感天动地

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为“查抄没收”义，可补《汉语大词典》之书证。

<sup>69</sup> 见《朱子语类》卷一百六，第七册，第2653页，中华书局，1986年3月第一版。

<sup>70</sup> 见《朱子语类》卷十一，第一册，第191页，中华书局，1986年3月第一版。

<sup>71</sup> 见《朱子语类》卷三十六，第三册，第951页，中华书局，1986年3月第一版。

<sup>72</sup> 徐时仪《汉语白话发展史》中提到：“朱熹讲学用的是当时文人交际用的口语，他的门人弟子写入笔记虽然会有所加工，加以书面化，但毕竟是边听边记，不可能完全改成书面语，往往是直录朱熹的原话，保存了大量活的口语。……《朱子语类》中的口语成分与当时白话文学作品中所记录下来的口语又不尽相同，当时白话文学作品中所记录下来的许多口语成分在《朱子语类》中或者很少见到，或者根本没有。……因此，大抵可以将《朱子语类》看作朱熹与其门人讲学问答的实录，反映了当时文人的口语概貌。……反映了当时语言的使用状况和文白演变的概貌，文献史料的可靠程度较高。”详见该书第40页，北京大学出版社，2007年8月第一版。

<sup>73</sup> 见《关汉卿全集》第142页，广东高等教育出版社，1988年10月第一版。

窦娥冤》第四折：“我看你也六十外人了，家中又是有钱钞的，如何又嫁了老张，做出这等事来？”<sup>74</sup>明李贽《焚书·杂述·罗近溪先生告文》：“且夫市井小儿，辛勤一世，赢得几贯钱钞，至无几也。”<sup>75</sup>

“钞币”一词形成于元代。元杨维桢《送天使僧》：“钞币勤中赐，恩荣拜曲施。”<sup>76</sup>明沈德符《万历野获编·两中乡试》：“仁宗即位，以潜邸恩，升宁国府同知，赐钞币以归。”<sup>77</sup>又凌蒙初《二刻拍案惊奇·王渔翁舍镜崇三宝，白水僧盗物丧双生》：“只见一辆车子倒在地上，内有无数量件，金银钞币，约莫有数十万光景。”<sup>78</sup>“钞”指纸币；“币”指金属货币，“钞币”泛指钱。而《汉语大词典》释“钞币”为“纸币”，并引明王琦《寓圃杂记》例为首证。显然“钞币”一词并不完全指纸币，《汉语大词典》似可斟酌。

“钞票”一词出现于清代笔记、小说中。指纸币，又用作钱的通称。清以来小说中常见“钞票”一词，《花月痕·第二十四回 三生冤孽情海生波 九死痴魂寒宵割臂》：“牛氏见了钞票，自然眉开眼笑的去了。”<sup>79</sup>此处似泛指钱财，并不仅仅指纸币。又《二十年目睹之怪现状·神出鬼没母子动身，冷嘲热谑世伯受窘》：“又将五百两折成钞票，一齐交来道：‘恐怕路上要零用，所以这五百两不打在汇票上了。’”<sup>80</sup>可见当时之“钞票”已与“汇票”区分开来，钞票已是市面上可直接流通的货币。

“抄”在宋以后基本沿用了旧义。《汉语大词典》中“从侧面绕过去”义项下引元郑廷玉《楚昭公》第三折：“既然这等，您兄弟则往这小路上抄出大路相会。”笔者认为此义似是从“袭击”引申而来，战斗中“袭击”或预先埋伏或从敌人意料不到的线路进攻，出其不意地打击敌人。如《晋书·列传第三十》：“鼎得书，便欲诣洛，流人谓北道近河，惧有抄截，欲南自武关向长安。”<sup>81</sup>又《晋书·列传第四十三》：“若穷寇虑逼，送死一决，东西互出，道尾俱进，则廩粮有抄截之患，远略乏率然之势。进退惟思，不见其可。”<sup>82</sup>二例中“抄截”一词表“绕道攻击”义，其实“抄”字在此处虽然仍然有“袭击”义，但是已出现了“绕道、绕近道、绕小道”的概念。元代只是将其“绕道”义明确了而将“袭击”义弱化了。

<sup>74</sup> 见《关汉卿全集》第38页，广东高等教育出版社，1988年10月第一版。

<sup>75</sup> 见《李贽文集》第154页，北京燕山出版社，1998年1月第一版。

<sup>76</sup> 见《元诗选初集·辛集》。

<sup>77</sup> 见《万历野获编》中册，卷十六，第412页，中华书局，1959年2月第一版。

<sup>78</sup> 见《二刻拍案惊奇》卷三十六，第468页，中华书局，2001年10月第一版。

<sup>79</sup> 见《花月痕》第二十四回，第206页，福建人民出版社，1981年10月第一版。

<sup>80</sup> 见《二十年目睹之怪现状》上册，第二十回，第164页，人民文学出版社，1959年7月第一版。

<sup>81</sup> 见《晋书》卷六十，第六册，第1647页，中华书局，1974年11月第一版。

<sup>82</sup> 见《晋书》卷七十三，第六册，第1925页，中华书局，1974年11月第一版。

《现代汉语词典》中“抄”有“誊写”、“照着别人的作品、作业等写下来当做自己的”、“搜查并没收”、“从侧面或较近的小路过去”、“两手在胸前相互地插在袖筒里”、“抓取，拿”六个义项，全部表动词，而这些义项皆是继承了历史时期所引申演变出来的词义。“钞”仅有“指钞票”一个义项。

“钞”字作为表示器具的名词产生，而演变为动词，最终在现代汉语中被规范为表示纸币的专有名词。而“抄”作为“钞”之假借字产生，继承了“钞”之动词义后不断衍化、引申出大量新的动词义，大部分词义被保留到了现代汉语中，也有一部分词义在汉语演变中随着时代的发展、新旧事物的更替被淘汰抛弃了。在长期历史演化中，“钞”与“抄”的词义逐渐由重合变为离合不定最后变为完全分离，其中有千余年二词是可以互通、共同存在的。二字的词义逐渐清晰、使用逐渐规范，则是长期以来人类认知习惯的逐渐渗透与新事物产生二者共同作用造就的。“抄”字从“手”表行为动作，且书写简单使“抄”字越来越多地承担动词义，以致完全取代了“钞”担负了其动词意义。而宋代纸币的产生使得从“金”旁的“钞”被规定为表示纸币的名词。这是一个长期的思想与社会进化演变过程，绝非一朝一夕可成就的。

然而必须注意的是，中国历代文人总有一种尚古情节。故当代社会仍有许多学者、书法家在作品中出现“钞”表示“誊写、记录”的意思。按汉语文法，这种用法只能算作是“通假”而非其规范用法了。

### 【主要参考文献】

- [1]罗竹风主编，《汉语大词典》[M].上海：汉语大词典出版社，1993年11月。
- [2]中国社会科学院语言研究所词典编辑室，《现代汉语词典》[M].北京：商务印书馆，2005年6月第五版。
- [3]曹寅（清）等，《全唐诗》[M].北京：中华书局，1960年4月。
- [4]徐时仪点校，《〈一切经音义〉三种校本合刊》[M].上海：上海古籍出版社，2008年12月。
- [5]丁福保，《佛学大辞典》[M].北京：文物出版社，1984年1月。
- [6]黎靖德（元），《朱子语类》[M].北京：中华书局，1986年3月。
- [7]孙诒让（清），《墨子间诂》，《诸子集成》[M].北京：中华书局，2006年10月第二版。
- [8]郭沫若，《郭沫若全集·历史编》[M].北京：人民出版社，1984年10月。
- [9]项楚，《敦煌变文选注》[M].北京：中华书局，2006年4月。
- [10]徐时仪，《汉语白话发展史》[M].北京：北京大学出版社，2007年8月。
- [11]李跃《楮币史说》[M].浙江：浙江大学出版社，2008年12月。
- [12]徐时仪，《近代汉语词语札记》[J].喀什师范学院学报，1996年第3期。

# 近代汉语合口细音的演化

叶荧光  
集美大学

汉语中古音韵母系统的内在结构特点是：开合洪细与入声韵配阳声韵。中古音进一步发展，由“开合洪细”逐渐演化为“开齐合撮”，由“入配阳”到“入配阴”再到入声韵并入阴声韵，这是近代汉语韵母系统演化的基本脉络。三四等合并，一二等合流，开合洪细向开齐合撮转变是必然的趋势。开齐合撮格局形成的基本条件是撮口呼韵母的形成。根据相关资料的考察，开齐合撮格局形成于明代后期。“开合洪细、开齐合撮、合口细音、撮口呼”是四个不同的基本概念，相互间既有联系又有区别。

汉语中古音韵母系统的基本格局是：开合洪细与入声韵配阳声韵。中古音进一步发展，由“开合洪细”逐渐演化为“开齐合撮”，由“入配阳”到“入配阴”再到入声韵并入阴声韵。把这两条线索理清了，汉语近代音韵母系统演化的脉络也就清楚了。

中古音的演化是有规律的，其韵母系统对照现代普通话音系，大体上是开口一、二等演化为现代的开口呼，开口三、四等演化为齐齿呼，合口一、二等演化为合口呼、合口三、四等演化为撮口呼。其间也有因为声母的影响和音节结构内在特点导致韵母出现“例外”的变化，这些变化也是有条件、有规律的，而且没有超出开齐合撮四呼的范围。

考查合口细音的演化和撮口呼韵母形成的过程，是研究近代汉语语音史的一项重要工作，有许多问题值得探讨研究。本文拟通过对近代相关语音资料的考查，来梳理合口细音演化的脉络，并对一些问题作出适当的解释。

## 1. 中古合口三、四等韵的演化

现代普通话音系中的撮口呼韵母主要是由中古合口三、四等韵演化而来的。考查合口三、四等韵的演化，有助于弄清楚现代撮口呼韵母形成的历史、成因及其演化规律。

《广韵》音系 16 摄中含有合口三、四等韵的是：果摄合口三等戈韵；遇摄合口三等鱼、语、御，虞、麌、遇；蟹摄合口三等祭、废，四等齐、霁；止摄合口三



等支、纸、寘，脂、旨、至，微、尾、未；咸摄合口三等凡、范、梵、乏；山摄合口三等仙、猕、线、薛，元、阮、愿、月，四等先、铣、霰、屑；臻摄合口三等諄、准、稕、術，文、吻、问、物；宕摄合口三等阳、养、漾、药；曾摄合口三等职；梗摄合口三等庚、梗、映，清、静、昔，四等清、迥；通摄合口三等东、送、屋，钟、肿、用、烛。16 摄中假、效、流、深、江 5 摄没有合口三、四等韵。果摄只有合三戈韵。蟹摄合口三等只有独立去声韵祭、废，四等只有齐、霁。咸摄开口一二三四等俱全，合口韵只有合三凡、范、梵、乏。曾摄只有合三职韵。在开合洪细的格局中合口细音所占比例偏少，与开口洪音、开口细音、合口洪音相对而言是不均衡的。

底下逐摄考查中古合口三、四等韵的演化：

### 1.1 果摄合口三等戈韵

[iwo]—[iuɛ]—[yɛ/yə]—[yɛ]（癩、靴、月𠂔）

合口三等戈韵《洪武正韵》归十六遮部，是与[iɛ]相对的合口韵[iuɛ]。《韵略易通》、《韵略汇通》的“遮蛇”与《洪武正韵》遮部相同。《等韵图经》归拙摄[yɛ]韵。

《音韵阐微》归并情况与《洪武正韵》相似，其五歌开口三等韵（迦、𠂔、茄）按语：“以上戈韵三音齐齿呼，切韵指南与遮车等字合谱，故借遮耶二字切之。”其五歌合口三等韵按语：（𠂔宅、癩、靴、月𠂔、月恋）“以上戈韵五音撮口呼。”合口三等戈韵读[yɛ/yə]，已是典型的撮口呼韵母。在清代后期官话音材料中，合口三等戈韵《正音咀华》、《正音通俗表》读[yə]，《官话新约全书》读 ũ e[yɛ]。

### 1.2 遇摄合口三等鱼、语、御、虞、虞、遇

现代[y]韵主要来自合口三等鱼、虞，但实际上它们只是部分演化为[y]韵。

[iwo]、[iu]—[iɯ]—[y]

↓  
[ɥ]/[ɯ]—[u]（非组庄知章组）

唐时“虞模同用，鱼独用”，鱼、虞有别，唐以后二者混同。首先，中唐以后伴随着唇音的分化，虞韵轻唇音由[iɯ]—[ɯ]—[u]，并入模韵。其次，宋元时期，庄组三等韵受声母影响发生同样的变化：[iɯ]—[tʂɥ/tʂɯ]—[tʂu]。明后期，知章组转为舌尖后音与庄组混同。知章组合口三等韵受声母影响亦发生同样变化。

《洪武正韵》鱼、模分韵，合口三等鱼虞已有转向撮口呼的倾向。《书文音义便考私编》（1587年）“鱼虞”大部分已读[y]，但知章组仍读细音[iɯ]。《西儒耳目资》（1625年）知章组合口三等鱼虞记作中音 ɯ（[ɥ]/[ɯ]）与模韵[u]相区别，其他声

组字读[y]。清初《五方元音》知章组合口三等鱼虞已并入七虎[u]韵，合口三等鱼虞（非庄知章外）读[y]。相对而言，基础方言口语音的变化要快一些，《等韵图经》（1606年）音系知章组已与庄组完全合流，转为舌尖后音。知章组合口三等鱼虞归在止摄[ɥ]韵，与祝摄[u]韵仍有区别。陆志韦（1945年）认为，“i的合口应当是y。所可疑的，‘珠、樗、乳、书’要是也作为y，跟现代北平音不能联络。那么徐孝的方言就不能是国音的祖语。这韵的元音也许跟《西儒耳目资》的‘u中’相同。‘珠’是[tʂu]，不是[tʂy]。国语的[tʂu]是更后起的。”我们同意陆先生的意见，将知章组合口三等鱼虞拟作[u]或[ɥ]（拟作圆唇舌尖元音更好一些）。[ʃiu]—[tʂu/tʂɥ]—[tʂu]，这种演化不但符合近代音的演变规律，而且把[ɥ]当作与[ɲ/ʎ]配对的合口韵也是合适的。其止摄含[ɲ]、[ʎ]、[ɥ]、[i]、[y]、[ə]6个韵母。《等韵图经》将知章组合口三等鱼虞安置在止摄而与祝摄[u]韵相区别，《西儒耳目资》将知章组合口三等鱼虞记作中音u（[u]），揭示了知章组合口三等鱼虞演化的一个过度阶段，具有很高的资料价值。感谢陆先生的独特眼光。

遇摄合口三等韵除先后并入合口一等模韵的非组、庄组、知章组外，其余声组字均演化为[y]韵。只有个别字例外，如：“庐”读[lu]，可能是后起的俗读音。

### 1.3 蟹摄合口三等祭、废，合口四等齐、霁

祭[iwɛi]、废[iwɛi]、齐[iwei]、霁[iwei]，它们共同的特点是具有[iw-]介音和[-i]韵尾，它们合流以后仍保持这种结构模式，因而[-i]介音容易受韵尾的异化而丢失，转化为合口洪音：[iwei]—[wei]，这是韵母自身结构特点使然。非组字（废、吠、肺）的[-i]介音也可看作受唇齿音声母的影响而丢失（实际上是双重影响），[fwei]进一步发展变为[fei]。

《洪武正韵》合三祭、废（非组外）、合四齐霁归七灰[wei]韵。

### 1.4 止摄合口三等支、纸、寘，脂、旨、至，微、尾、未

止摄合口三等韵的结构特点及演化规律与蟹摄合口三等韵大致相同。逐渐并入蟹摄合口一等韵。来母字：累、垒、类、泪，现代音读：[lei]，由合口变开口，这是北方话晚近产生的俗读音。例外字有：揣、衰、摔、帅、季。王力先生认为，“支脂两韵庄系合口字起了特殊的变化，跑到蟹摄里去了（‘揣’[tʂuai]，‘衰帅摔’[ʂuai]）。”（王1980年 P160）“季”当读[kuei]，读[tʂei]可能是受开口三等韵影响产生的俗读。

合口三等微韵（非组）同样由合口再变开口[ei]。

在《洪武正韵》和《中原音韵》中，蟹摄合口三四等韵、止摄合口三等韵均已与合口一等韵混并。合三微（唇音）《洪武正韵》并入支部。

## 叶：近代汉语合口细音的演化

蟹摄、止摄合口细音没有演化成撮口呼韵母，它们转为合口洪音的时间相对较早，宋元时期已经完成转变。

阴声韵假、效、流三摄没有合口三四等韵。

### 1.5 咸摄合口三等凡、范、梵、乏

咸摄合口三等凡范梵乏，只有少量唇音字，受轻唇音声母影响，韵头[i]、[w]渐次丢失，演化为开口韵：凡 [biwæm]—[bviwæm]—[vwæn/fwæn]—[fan]，乏 [biwæp]—[bviwæp]—[vwæp/fwæp]—[fa<sup>?</sup>]—[fa]

《洪武正韵》合口三等凡乏并入二十一覃 [am]/[ap]，已是开口洪音。《韵略易通》虽然保存緘咸、廉纤，但“凡乏”已并入山寒读 [an]—[a<sup>?</sup>]，这与唇音声母的影响有关。

深摄没有合口三、四等韵。

### 1.6 山摄合口三等仙猕线薛、元阮愿月，合口四等先銑霰屑

唇音合口三等元阮愿月受轻唇音声母影响渐次演化为开口呼：[piwɛn]—[fwɛn]—[fan]，[piwɛt]—[fwɛt]—[fa<sup>?</sup>]—[fa]。知章组合口三等仙猕线薛，受舌尖后音声母影响变读合口呼 [uan]/[uo]：专 [tɕiwɛn]—[tʃiwɛn]—[tʂwɛn]—[tʂuan]，拙 [tɕiwɛt]—[tʃiwɛ<sup>?</sup>]—[tʂuɛ<sup>?</sup>]—[tʂuo]。其他声组的山摄合口三、四等韵混并演化为 [yɛn]/[yɛ]：[iwɛn]—[yɛn]，[iwɛt]—[iwɛ<sup>?</sup>]—[yɛ]。例外字：“攀、恋、劣”，受来母影响而变读；“沿、铅、兗、县”：[iɛn]，是后起的俗读。

《洪武正韵》山摄合口三四等韵混同，归十一先 [iwɛn]/[iwɛt] 韵；《韵略易通》归六先全 [iuɛn]/[iuɛ<sup>?</sup>]，与《洪武正韵》先部基本相同；《韵略汇通》山摄合口三四等归先全 [iuɛn]/[iuɛ<sup>?</sup>]，是承接《韵略易通》而来，没有表现出明显的变化。清初《五方元音》已读 [yɛn]/[yɛ<sup>?</sup>]；《等韵图经》知章组合口三等韵已转入 [uan]/[uo]，其他声组字已是典型的撮口呼 [yɛn]、[yɛ]。“恋”《等韵图经》读 [lyɛn]。

### 1.7 臻摄合口三等淳、准、稔、术，文、吻、问、物

唇齿音“文吻问物”，由合口细音变开口韵：分 [piwəŋ]—[fwəŋ]—[fəŋ]，佛 [iwənt]—[fwənt]—[fu<sup>?</sup>]—[fu]。知章组“淳准稔术”变读 [uən]/[u]：春 [tʃ'iwəŋ]—[tʂ'uən]，出 [tʃ'iu<sup>?</sup>]—[tʂ'u<sup>?</sup>]—[tʂ'u]。其他声组字自然演化为 [yn]/[y]。

《韵略易通》合口三等文（唇音）与合口一等魂读同 [uən]，“分”读 [fuən]，合

口三等淳、合口三等文（牙喉音）读[iuəŋ]：伦、遵、春、唇、君……

《西儒耳目资》合口三等文（唇音）归[uəŋ]，合口三等淳（知章组）归[uəŋ]韵。其他声组字归[yn]，来母字“沦、伦、论、轮”重见 27 摄[luəŋ]。

《五方元音》知章组淳韵归[uəŋ]韵，其余合口三等韵读[yn]：伦、君、群……

《等韵图经》合口三等文（唇音）读[əŋ]，知章组合口三等淳韵读[uəŋ]，其他声组读[yn]。

《等韵图经》第 10 臻摄是否仍保持合口细音[iuəŋ]，可以讨论。陆志韦（1945 年）认为：“来母下还是分一、三等的，所以我们猜想第三排的音大概还是 iun，不是 yn。因为‘论’假如已经读 lyn，好像不能再变为今音的 lun（或是俗音[lin]）。（参《耳目资》‘论’字 lun 跟 liun 重读）”

我们以为，陆先生的意见值得商榷，《等韵图经》音系开齐合撮的格局已经形成，知章组与庄组混同，读舌尖后音，除去唇音、庄组、知章组，其他声组的合口三等韵应当是比较典型的撮口韵了。《等韵图经》臻摄第十九合口篇，不仅来母分一、三等，其他声组也分一、三等。徐孝将合口一等字“论”放在第三排，这并不能说明本图第三排的音还是[liuəŋ]，不是[lyn]。徐孝这样处理应该是另有原因。即象《西儒耳目资》一样，“论”有[luəŋ]、[lyn]两读，来母臻撮合口一、三等的“论、伦、沦、轮”等的谐声声旁相同导致混读。虽然“论”当时可读[lyn]，但是徐孝在制作韵图时将合口一等“论”放在第三排，严格说来不是很合适，因为容易产生误解。

例外字“遵、皴、筍、樵”读[uəŋ]，同样是受合口一等字或知章组字的影响所致。“率、蟀”读[suai]，与止摄“摔帅衰”类似，“尹”读[in]，较特殊，可能与“伊”的影响有关，也是俗读。

### 1.8 宕撮合口三等阳、养、漾、药

合口三等非组变读开口呼，如：“方”[piwɑŋ]—[fuɑŋ]—[fɑŋ]。牙喉音合口三等阳受合口一等唐的牵引与合口一等韵混同。强势的牙喉音声母挤掉[i-]介音：[kiwɑŋ]—[kuɑŋ]，这种变化可能发生得比较早。入声韵的情况却不同，如：“纒”[kiwɔk]—[kiwɔʔ]—[kiwoʔ]—[kyoʔ]—[tɕyɛ]。

《洪武正韵》合口三等阳（唇音）变开口洪音[ɑŋ]，牙喉音变合口洪音[uɑŋ]。

《中原音韵》的情况与《洪武正韵》相似。《韵法直图》光韵注：“匡狂王三字，横图属<sup>山</sup>韵，莊窗床霜四字横图属姜韵。此图俱属于光，所呼不同，予莫能辨，惟博雅者酌之。”<sup>1</sup>合口三等阳（匡狂王）《横图》属[yɑŋ]，开口三等阳（庄组）（莊窗床霜）《横图》属[iɑŋ]，《直图》俱属[uɑŋ]，合口三等阳（牙喉音）已变读合口呼。

<sup>1</sup> 《续修四库全书》（经部 233 册）梅膺祚《字汇》P418

### 1.9 宕摄开口三等药韵和江摄开口二等觉韵

开口三等药韵（知章组除外）和开口二等觉韵（牙喉音）逐渐演化为撮口韵，如：[iɔk]—[iɔk]—[iɔʔ]—[ioʔ]—[yoʔ]—[yo]—[yɛ]（文读音）

↓  
[iɔ<sup>w</sup>]/[ia<sup>w</sup>]—[iaɯ]（白读音）

开口二等觉韵（牙喉音）由[ɔk]—[iɔk]，与开口三等药韵合流。

清初《五方元音》开口三等药韵（除知章组外）和开口二等觉韵（牙喉音）归在八驼入声[iɔʔ]/[ioʔ]，如：“略、爵、削、角、学”。《音韵阐微》读[iɔʔ]（合口三等药读[yoʔ]）。清末《官话新约全书》读ioh [ioʔ]，如：“药、脚、雀、略、学、岳、确、角”。《李氏音鉴》之北京音读 [yo]。[yo]并入[yɛ]韵是很晚近的事。

由于开口三等药韵、开口二等觉韵在演化的过程中主元音一直保持圆唇化的倾向，导致[-i-]介音被同化为[y]。但北方话的白读音舒化较早，而保持齐齿呼。例外字“握”。

这是汉语近代音中由开口细音演变为合口细音的特例。

### 1.2 曾摄合口三等职，梗摄合口三等庚梗映、清静昔，合口四等青迥

合口三等职，如：域 [iwǎk]—[iwəʔ]—[yəʔ]/[yʔ]—[y]。曾摄合口三等只有入声职韵。

《洪武正韵》合口三等庚清、合口四等青归在十八庚的[iuəŋ]韵：“兄、荣、永、倾、琼、莹、迥。”合口三等职昔并为陌韵[iwǎk]：“域、疫、役”。《韵略易通》域[iuʔ]，疫役[iʔ]（俗读），合口三等庚清、合口四等青读[iuəŋ]。《韵略汇通》已将《韵略易通》[iuəŋ]并入东洪的[iuŋ]。《等韵图经》将《中原音韵》东钟[iuŋ]、庚清[iuəŋ]并为[yŋ]。《五方元音》合口三等庚清、合口四等青读[yŋ]，如：倾、兄、莹、迥。七虎[iuʔ]韵不配阴声韵。年希尧本将[kiuʔ]、[iuʔ]改为地韵，与[yʔ]合并，“域、疫、役”读[yʔ]。《音韵阐微》合口三等职、昔，读[yʔ]，合口三等庚清、合口四等青并入合口三等东冬，读[yŋ]。清末《官话新约全书》合口三等庚清、合口四等青记作iong[iouŋ/yŋ]，合口三等职昔：“域、役、疫”记作 iuh[iuʔ /yʔ]。“倾、顷、营、颖”读[iŋ]，在北方话口语中产生的时间估计也不会太早。

### 1.3 通摄合口三等东、送、屋，钟、肿、用、烛

合口三等东钟（唇音）由合口细音变开口洪音，东钟合流：[iwouŋ]、[iwəŋ]—[iuŋ]—[fuŋ]/[foŋ]—[fəŋ]。通摄合口三等韵，除知照组外，其余声组字也没有全部变读撮口呼。

《洪武正韵》合口三等东钟[iuŋ]（唇音庄组）由细变洪，读[uŋ]；其他声组字

保持合口细音。合口三等屋烛[iuk]，除合口三等屋（唇音庄组）变读洪音[uk]外，还有部分字变读洪音，如：“六、陆、绿、录，卢谷切；肃，苏谷切；促，千木切。”

《韵略易通》东洪与《洪武正韵》东屋相当，但泥、来、精组的合口三等韵已转为洪音，如：“浓、隆、龙、从、嵩、松”，读[un]；“六、陆、宿、绿、足、促、俗”，读[u<sup>2</sup>]。

《韵法直图》弓韵收合口三等东钟及合口一等冬韵字，后注“撮口呼”，“本图首句四声惟穷字合韵（‘弓穹穷颀’）余及纵从等字若照汉音当属公韵，今依洪武等韵收在本韵，则读‘弓’字似扁字之音。”<sup>2</sup>合口三等韵依例当读撮口呼，若照汉音当属公韵（合口呼），就是说“弓”等实际已读[un]，牙喉音合口三等冬钟韵中读合口呼的不少，如：弓、躬、宫、恭、供、拱、巩、共、恐，等。

合口三等“屋烛”演化为[y]的也只有牙喉音声母字。“绿、续”[u]、[y]两读。

以上我们对中古合口细音演化的大致情况作了初步的考查梳理。对于现代汉语普通话撮口呼韵母偏少的原因有了较为清楚的认识。首先，因为撮口呼韵母主要源自中古合口细音，而中古音系的合口细音分布不均衡，偏少；现代撮口呼韵母自然不会多。第二，唇音和知、庄、章声母导致合口细音由细变洪，甚至泥、来母和见组声母也导致[i-]介音的丢失，比如：合口三等东钟韵的泥、来母及见组、精组都发生了此类变化，使合口三等东钟的大部分字转为洪音。牙喉音对合口三等阳韵的影响更为全面。第三，蟹摄合口三、四等韵、止摄合口三等韵，因为自身结构特点，既有[i-]介音又以[i]为韵尾，发生异化导致[i-]介音丢失，使蟹摄、止摄失去产生撮口呼的可能。第四，近代音的演化总体趋向简化，导致相近韵母混并，特别是北音入声消失，撮口呼入声韵只能并入相应的阴声韵。

通过考查我们发现中古合口细音的演化进程是缓慢和不平衡的。不同声类对合口细音的影响有先有后，而且是分步走的，比如：轻唇音对合口三等韵的影响，一定是经过合口洪音，即先丢失[i-]介音，再到开口韵，即再丢失[w-]介音，两个阶段的。基础方言口语音的合口三等韵的演化，相对而言，比标准音（官话音）快一些。这只要将代表基础方言口语音的《中原音韵》、《等韵图经》、《李氏音鉴》的北京音等跟《洪武正韵》、《韵略易通》、《韵略汇通》、《音韵阐微》、《正音咀华》、《官话新约全书》等做个比较就清楚了。

从开合洪细演化为开齐合撮，关键要素是撮口呼韵母的形成，即单韵母[y]和合口三、四等[iw-]介音的[y]化。根据相关资料的考查，近代音完成开齐合撮格局转化的时间，大致是明代后期这段时间。关于单韵母[y]形成的具体时间学界尚无定论。

## 2. 开齐合撮格局的形成

中古音往前发展，三、四等细音合流，一、二等洪音混并，开合洪细的格局向

<sup>2</sup> 《续修四库全书》（经部 233 册）梅膺祚《字汇》P413

开齐合撮转变已成为必然之势，只不过这种转变是一个缓慢的过程，不同韵、撮演化的快慢也不一样，而且韵母的演化明显受制于声母，常常是以声母为条件的。韵母系统开齐合撮格局的形成，其关键则在于撮口呼韵母的形成。我们并不认为中古合口细音就是撮口呼，实际上合口三、四等韵演变为撮口呼韵，体现为一个逐渐演化的过程，是整个韵母系统内部结构关系的调整变化。

汉语近代音开齐合撮格局形成于明代后期这段时间，也就是到了明代后期近代音韵母系统已完成了从开合洪细向开齐合撮的转变。我们同意这种看法，因为有许多语音资料支持这种看法。

薛凤生：“明清以来，中国学者有关北京音韵的著作，为数甚多。他们或则用传统韵书的形式，或则用改良式的韵图，为我们提供了许多近代汉语的资料，以及一些颇具新意的见解（当然糟粕也不少），对汉语音节性质上分为‘开齐合撮’四类的确认。就是在这段时间里达成的。”（薛 1986 年 P9）

邵荣芬：“最初创立四呼分类的是明末（1612 年）无名氏所作的《韵法直图》一书，后来在清初潘耒所作的《类音》（1712 年）一书里，对四呼作了更为准确的描写。他说：‘凡音皆自内而外，初出于喉，平舌舒唇，谓之开口；举舌对齿，声在舌颚之间，谓之齐齿；敛唇而蓄之，声满颐辅之间，谓之合口；蹙唇而成声，谓之撮口。’

……明清学者创立了这种韵母分类法，不但表明当时学者们分析语音的能力很高，而且也告诉我们汉语[y-]介音在那个时候已经产生了。”（邵 1979 年 P71）

薛先生、邵先生只是说，开齐合撮格局形成的时间大致是明末清初，说的不是很确切。我们可以看看以下几分材料的情况。

《中原音韵》（1324 年）音系“鱼模”合韵，虽然合口三等韵鱼（庄）、虞（非、庄）已转化为洪音并入模韵[u]，北音鱼模合韵主要是由于叶韵的缘故，实际上鱼、模主元音已有一定差别，但鱼韵还不可能有[y]，因为[u]、[y]是不可能合韵通押的。

《洪武正韵》（1375 年）根据“其音谐韵协者并入之，否则析之”的原则，将《广韵》206 韵重新归并为 76 部，平上去各 22 部，入声 10 部。其特点在于大胆改定《礼部韵略》的韵部，以“中原雅音”为标准进行归并。但整个韵母系统仍保持开合洪细，入声韵配阳声韵的传统模式。

有的学者认为《韵略易通》（1442 年）居鱼、呼模分韵，表明[y]韵已经形成，其实情况并不是那么简单。《韵略易通》大体仍维持开合洪细的格局，特别是维持入声韵配阳声韵的传统模式，显得比较保守，虽然体例上有所创新，音系内在的关系却没有大的变化。该书作者兰茂及后来的本悟和尚均无关于开齐合撮的说明，或许他们还没意识到这种变化。虽然居鱼、呼模分部，但合口三等鱼虞（知章组）仍读合口细音，影响了其他声组字韵母的[y]化。

《韵略汇通》（1642 年）居鱼、呼模分部，而且把《易通》西微的[i]韵移作居鱼的开口，同时改西微为灰微，看来居鱼的合口韵已与《易通》的居鱼不同，可能

已是接近[y]的音。但是大部分知章组合口三等韵仍读合口细音，且《汇通》承接《易通》而来，在形式上仍刻意维持开合洪细、入声韵配阳声韵的模式，[y]化的趋势没有很好表现出来。

《西儒耳目资》(1625年)采用罗马字母记音，作者是外国传教士，不受音韵传统的束缚，记音相当精细。金书韵母(字母)共分50摄，其中第五[u]摄又分“甚次中”三等，第二[e]摄、第四[o]摄、第十四[ie]摄、第十五[io]摄、第二十四[uo]摄的入声又各分“甚次”二音。根据金氏自己的统计“母有字者104，子有字者1403，其余无字，”带调音节“共计5585，此是全局隔方之密。”(《西儒耳目资·列音韵谱问答》) 根据叶宝奎(2001年)的归纳整理，共有韵母56个，其中入声韵17个。作者采用加点的方法标示韵母(元音)的甚次中，次者元音上加一点，如：“ü”；中者元音下加点，如：“u̇”；“甚者，自鸣字之完声也”，不加点。“ü”记的是[ɿ]，“u̇”记的是[ʊ/ʉ]。这是金氏对于不能用罗马字标注的音所采用的补救办法(因为不是采用国际音标注音，对撮口呼韵母的标记亦有不便之处，而采用iu-表示合口细音可能也是出于方便的考虑)。该书所记合口细音韵母有：iue(含入声韵)、iu(含入声韵)、iuen、iun、ium。《西儒耳目资》大部分知章组的三等韵已由细变洪。合口三等鱼虞的知章组演化为u̇ [ʊ/ʉ]。第十六iu 摄只有中音，无甚次。对照合口细音韵母，iu 韵应该是[y]或接近[y]的音，iue 应是接近[yɛ]/[yɛʔ]的音，iuen、iun、iun 应是接近[yɛn] [yn] [yn]的音。(参见叶宝奎2001年 P120-127)

《西儒耳目资》音系与《洪武正韵》相比已经有了很大变化，入声韵已改配阴声韵，撮口呼韵母已基本成型。

《书文音义便考私编》(1587年)的韵谱与旧等韵不同，其编制以韵为主，每韵上列声母，下列韵字。每母之下注以呼法，如：见合、见撮之类。“见合”表示某韵(见母)合口呼，“见撮”表示某韵(见母)撮口呼。对合口细音明确标示撮口呼。其韵母系统开齐合撮的格局已基本形成。只是因为知章组尚未与庄组混同，部分知章组合口三等韵尚未由细变洪，还跟别的声组的合口三等韵在一起，使得合口三等韵的演化尚不完全。《韵法横图》、《韵法直图》的情况与之大体相近。

代表北音的《等韵图经》(1606年)知章组三等韵全部变读洪音，合口三等韵转为撮口呼韵母的过程已经完成。只是祝摄第三格还有“衄、育、倏”为[iu]与止撮合口“女、玉、旭”略有区别。合口三等鱼(庄)、虞(非、庄)归祝摄[u]韵，知章组归在止撮读[ʊ]，其他声组字归在止撮[y]韵，止撮含：[ɿ]、[ʌ]、[ʊ]、[i]、[y]、[ə]6个韵母。[i]与[y]，[ɿ]/[ʌ]与[ʊ]开合相配整齐。

《等韵图经》音系开齐合撮的格局已经形成，整个音系与现代北京音已经很相近了。

清初《五方元音》、《音韵阐微》撮口呼的演化也已完成，只是官话音仍保持入声韵而已。

(以上几分材料中有关合口细音韵母演化的基本情况，参见叶宝奎《明清官话



音系》2001年)

合口细音韵母表

《洪武正韵》	[iuŋ] [iuk] [iɯ] [iuəŋ] [iuət] [iuɛ n] [iuɛ t] [iuɛ ] [iuəŋ] [iuək]
《韵略易通》	[iuŋ] [iɯ <sup>?</sup> ] [iɯ] [iun] [iɯ <sup>?</sup> ] [iuɛ n] [iuɛ <sup>?</sup> ] [iuɛ ] [iuəŋ] [iɯ <sup>?</sup> ]
《西儒耳目资》	[yŋ] [y] [y <sup>?</sup> ] [yn] [yɛ n] [yɛ ] [yɛ <sup>?</sup> ]
《韵略汇通》	[iuŋ][iɯ <sup>?</sup> ] [iɯ/y] [iun] [iɯ <sup>?</sup> ] [iuɛ n] [iuɛ <sup>?</sup> ] [iuɛ ]
《书文音义便考私编》	[yŋ] [y/iɯ] [yn] [yɛ n/iuɛ n] [yɛ ] [yəŋ] [y <sup>?</sup> /iɯ <sup>?</sup> ] [yo <sup>?</sup> ] [yɛ <sup>?</sup> ]
《韵法横图》	[yŋ] [y/iɯ] [yəŋ] [yɛ n] [yɛ ] [yəŋ] [y <sup>?</sup> /iɯ <sup>?</sup> ] [yɑŋ] (𠂔) [yə <sup>?</sup> ] [yo <sup>?</sup> ]
《韵法直图》	[yŋ] [y <sup>?</sup> /iɯ <sup>?</sup> ] [y/iɯ] [yn/iun] [yɛ n/iuɛ n] [yɛ <sup>?</sup> /iuɛ <sup>?</sup> ] [yəŋ] [yə <sup>?</sup> /iɯ <sup>?</sup> ] [yɛ ]
《等韵图经》	[yŋ] [y/iɯ] [yɛ ] [yn] [yɛ n]
《五方元音》	[yɛ n] [yn] [yŋ] [y] [y <sup>?</sup> ] [yɛ ] [yɛ <sup>?</sup> ]
《音韵阐微》	[y] [y <sup>?</sup> ] [yo] [yo <sup>?</sup> ] [yɛ <sup>?</sup> ] [yɛ n] [yn] [yŋ]

面对新变化新现象，明代中期以后，学者们的看法、认识是不一样的。比如：《书文音义便考私编》的作者李登关于韵之开合的意见是“诸母所谓开者，开口呼也，呼毕而后开。闭者闭口呼也，呼毕而口闭。卷谓卷舌，舌卷上腭而为声，‘因烟’是也。抵谓抵齿，舌抵上齿而为声，‘之师’是也。撮谓撮口呼，唇聚而出，‘聚遇’是也。合谓合口呼，两颐内鼓，‘胡禄’是也。正谓正齿，别於抵齿也。为其同韵同母而有此分辩，不得不立此字，但一会意，即皆筌蹄。”（《书文音义便考私编·例论》）

李氏说明虽不很准确，但关于撮口呼、合口呼的描述简洁明了，李氏已经意识到韵母系统由开合洪细向开齐合撮的转变。

《韵法横图》的作者李嘉绍，是《书文音义便考私编》作者李登的儿子，可见两书的关系。其篇首明言：“等韵旧法精妙至矣，但门法多端，初学难入。兹妄不揣祖述其意而为此谱。……”<sup>3</sup>这部韵图原名《射标切韵法》，梅膺祚取以附于《字汇》之后，改称《韵法横图》。

<sup>3</sup> 《续修四库全书》（经部 233 册）梅膺祚《字汇》P433

《韵法横图》舒声分为 42 韵，入声单立 16 韵，总共 58 韵。作者对这 58 韵都一一作了分类标注，在各韵开头分别注以“合口、撮口、开口、齐齿、闭口、混”。他虽然把大部分韵都纳入了“开齐合撮”的框架，但还是没有摆脱《书文音义便考私编》的影响，仍把韵尾[-m] [-n]掺入分类的标准。将[-m]尾韵归为“闭口”，如：间、监两韵归入齐齿呼本是准确的，却缀上“卷舌”，“卷舌而闭”。所谓“卷舌”大概指发[n]时舌尖上翘。监韵后附注：“音与间同，但旋闭口。”间韵为“齐齿卷舌”，那么监韵自然就是“齐齿卷舌而闭”了。

混呼就所辖的韵来看，大概指两韵同列。如：肱和炯是一合一撮；光和上去声的冈是一合一开；<sup>𠄎</sup>和上去声的姜是一撮一齐；牙音姜韵既有二等江韵字又有三等阳韵字，也是一开一齐；入声角韵内部含合口与撮口两呼。值得注意的是，标为“混”的主要是：“光、<sup>𠄎</sup>、冈、姜、角”五韵。它们都属江宕两摄，后来由于语音演变而互混，到了《四声等子》遂有“内外混等”，“江阳借形”一类的说法。《韵法横图》“混”呼之名可能是受了《四声等子》的影响，略加扩展延伸至肱炯两韵。

《韵法直图》则于每韵后附注呼法：公韵，“合口呼”。冈韵，“平入开口呼，上去混呼”。骄韵，“齐齿呼”。基韵，“齐齿呼”。居韵，“撮口呼”。弓韵，“撮口呼”。庚韵，“开口呼”。根韵，未注。京韵、巾韵、金韵，注：“京巾金三韵似出一音，而潜味之，京巾齐齿呼，金闭口呼，京齐齿而启唇呼，巾齐齿呼而旋闭口，微有别耳”。簪韵，“闭口呼”。钩韵，“撮口呼”。肩韵，“混呼”。棍韵，“合口呼”。光韵，注：“匡狂王三字，横图属<sup>𠄎</sup>韵，莊窗床霜四字，横图属姜韵，此图俱属於光，所呼不同，予莫能辨，为博雅者酌之”。觥韵，注：“崩烹彭盲，横图属庚韵，此图属合口呼，若属庚韵则开口呼矣。二图各异或亦风土固之欤。”江韵，“混呼”。规韵，“合口呼”。姥韵，“合口呼”。费韵，“咬齿之韵”。乖韵，“合口呼”。该韵，“开口呼”。皆韵，“齐齿呼”。瓜韵，“合口呼”。嘉韵，“齐齿呼”。拏韵，“舌向上呼”。迦韵，“齐齿呼”。韵，“撮口呼”。戈韵，“合口呼”。歌韵，“开口呼”。官韵，“合口呼”。涓韵，“撮口呼”。干韵，“开口呼”。坚韵，“齐齿呼”。兼韵，“闭口呼”。关韵，“合口呼”。艰韵，“齐齿卷舌呼”。甘韵，“闭口呼”。监韵，“齐齿卷舌而闭”。高韵，“开口呼”。交韵，“齐齿呼”。钩韵，“开口呼”。鸠韵，“齐齿呼”。

《韵法直图》的呼法标注，大致沿袭《韵法横图》而来，二者差别不大。

明代后期学者对于开齐合撮的认识不很准确是不奇怪的，因为它是新变化、新现象。清初学者的认识就清楚多了。因为它已是学者们所熟悉的普遍事实了。

《音韵阐微》关于各韵开齐合撮四呼的注释说明，简洁明了，十分详尽。其《凡例》云：“依韵辨音各有呼法，旧分开合二呼，每呼四等，近来审音者於开口呼内又分齐齿呼，于合口呼内又分撮口呼，……今于每韵内分注开口呼、齐齿呼、合口呼、

撮口呼各若干音，以为按母分音之据，乃呼法也。”<sup>4</sup>而特殊变化者均于按语中予以说明，例如：四支合口三等韵按语：“以上三十九音共分三等，其居第二等者为合口呼，居第三等第四等者按韵谱宜作撮口呼，今音读作合口呼。”<sup>5</sup>九佳开口二等韵牙喉音按语：“以上十一音，韵谱例属开口呼，今读作齐齿呼。”<sup>6</sup>又如，四支开口三等韵按语：“以上三十一音共分三等，其居第二等者为开口呼，居第三等第四等者为齐齿呼，今于第四等齿头数音皆读作开口呼。”<sup>7</sup>这说明四支开口三等韵已分为[i]、[ɿ]、[ʅ]三韵。其居第二等者庄组为[ʅ]，于第四等齿头音者精组今读[ɿ]，皆开口呼，余为齐齿呼。

### 3. “合口细音”与“撮口呼”既有联系又有区别

近现代的撮口呼是由中古的合口细音演化而来的，开齐合撮的格局是由开合洪细的格局演化而来的。它们相互间既有联系又有区别。如果将他们混同起来，就可能造成认识上的混乱。

开齐合撮与开合洪细的关系前辈学者曾有过讨论。

曾运乾说：“顾自两宋以降，为斯学者，无虑数十百家，其中著闻者，如宋司马光之《切韵指掌图》、郑樵之《七音略》、张麟之之《指微韵镜》、元刘鉴之《切韵指南》、无名氏之《四声等子》、清江永之《四声切韵表》、戴震之《声类表》、陈澧之《切韵考·内外篇》，率皆牵强附会，未符隋唐旧法，……”（曾 1996年 P18）

曾先生认为两宋以来的等韵图“率皆牵强附会，未符隋唐旧法”。何以见得呢？他说“开合各分四等，本宋元明等韵谬误之点，无名氏之《字母切韵要法》始证其误。考《要法》各摄皆分开口正韵、开口副韵、合口正韵、合口副韵，所谓四等也……清潘次耕《类音》承其说，以开口正韵为开口呼，开口副韵为齐齿呼，合口正韵为合口呼，合口副韵为撮口呼。而《华梵字谱》亦用其名。盖此种分别，实近于自然也。至如等韵家所以误分八等之故，潘次耕尝辩之。其说云：‘三十六母并列一格，而以开口齐齿合口撮口分置四等，则出切行韵，划一分明，有何门法之可言哉。……是则开合各分四等者，实诸家等韵谱之削足适履也。’”所谓等韵家误分八等之弊，曾先生还援引了陈东塾、劳乃宣、黄侃等人的意见。“由数家所说推之，则知音韵之别，本不过开齐合撮四呼，等韵之列成开口四等、合口四等者，非真有八等之殊音，实立法未善之故也。”（曾 1996年 P70-71）

又如章太炎《音理论》云：“……始作字母，未有分等。同母之声，大别之不过合口开口。分其视合口而减者为撮口；分其视开口而减者为齐齿。开口合口皆外声，

<sup>4 5 6 7</sup> 《四库全书》（文渊阁影本）240册 李光地《音韵阐微》P11, P52, P68, P49

撮口齐齿皆内声也。依以节限，则合口为一等，撮口其细也；开口为一等，齐齿其细也。本则有二，二又为四，此易简可以告童孺者。季宋以降，或谓合口开口皆四等，而同母同收者可分为八，是乃空有其名，言其实，使人哽介不能作语。验以‘见’母收舌之音，‘昆群根斤’以外，复有他声可容其间耶？”（见 史存直 1997 年 P303）

史存直《韵等新探》云：“现在为多数人所接受的解释，是清朝江永所提出的解释：‘一等洪大，二等次大，三四皆细，而四尤细。’这个解释之所以为多数人所接受，乃是因为它表面上最有道理。由一等至四等，依次而下，逐渐由洪而细，岂不像是很合理。其实是最不合理的。为什么呢？因为他没有弄清‘洪细’指的是什么：是介音呢还是韵的主要元音。如果是介音，那就只能有洪细两等，而不会有洪大、次大、细、尤细四等。如果是韵的主要元音，那么不合理就更为明显。既然连主元音的开度都不同了，何以会有二三四等字同属一韵现象？”（史 1997 年 P302）

赵荫棠《等韵源流》（1985 年 P328-329）指出：“宋人四等之意义与明人四呼之意义，是不相同的，若拿历史的眼光看起来，两者都有存在的理由。但是决不可将二者混而为一，以后者就是前者的。不幸‘等’说失亡之后，学者反以‘呼’说诋诬之。遂演成等与呼混淆之局面。至民国，首起而辩之者，则为高元氏。他说：‘等呼论的重要著作有：《七音略》、《韵镜》、《切韵指南》、《等韵切音指南》、《切韵要法》、《华梵字谱》、《等韵一得》等书。中间以《等韵切音指南》同《切韵要法》为界。《等韵切音指南》以上同《切韵要法》以下，两者内容截然不同。前者北方人或中部人读之，茫然不解，所以历来音韵学者对于前者韵书，攻击不遗余力，而潘氏（稼堂）更闹了一个大笑话，他用自己的方音做评判古音的标准（见《类音》、《等韵一得》引言），大骂《指南》不合。殊不知若以广东音读之，则潘氏所谓不合者无一一切于实际，而对于《切韵要法》、《等韵一得》诸书所列，反觉茫然。这个差别，向来论者只以为一是八等分法，一是四等分法，不过一个分得疏略些，一个分得精细些，分类标准并没有改变。这便大错了。其实两派并不是程度上差别，乃是性质上差别，他们分类之结果同为四等，而所持分类标准则全然不同，……’（高元《国音学》三章八节《辟等呼论》）”

赵先生关于宋人四等之意义与明人四呼之意义不相同的意见是正确的，所引高元氏的观点也是对的。明清以来部分学者以今律古，混淆开合洪细和开齐合撮的区别，无异于抹杀语音的历时变化，以近代音的开齐合撮去否定中古音的开合洪细，显然与实际情况不相吻合。他们共同的毛病就在于以变化了的事实去套中古音，自然有失偏颇。若以《切韵要法》各摄皆分开口正韵、开口副韵、合口正韵、合口副韵，去证明或推论《韵镜》等诸家韵图“未符隋唐旧法”，那才是牵强附会。

王力先生的《汉语史稿》（上册）对近代汉语四呼的形成和相互转变交替作了较为具体的考察。他指出：“四呼是近代汉语和现代汉语的特点，韵头的转化是具有比较普遍的规律的。开口可以变为齐齿，齐齿可以变为开口，开口可以变为合口，

合口可以变为开口；撮口可以变为合口，也可以变为开口。齐齿和合口、撮口的关系比较不密切，但也有齐齿变合口、撮口的特殊情况。除了零星的例外，凡是转化，都是有条件的，主要是受了声母的影响。”（王 1980 年 P136）

王先生点出了从“开合洪细”向“开齐合撮”转化的关键。但是说“撮口可以变为合口，也可以变为开口”却不很准确，似乎把“开齐合撮”与“开合洪细”混同起来了。因为根据历时的观点，中古音的合口三、四等韵并不等同于后来的撮口呼，近现代已经形成的撮口呼是不好再变回合口呼、开口呼的；而且也有一些韵母的转化并不是受声母的影响所致。

王先生关于“撮口向开口、合口的转化”的具体说明，有些表述也不够准确。如：

“1 本来有韵头  $y / iw / iu$  或全韵为  $y / iu$ ，后来失去了韵头，变为开口呼。有些是先经过合口呼然后变为开口呼的。所以它们是和‘内、雷’同一类型的。这一类的字不多，常见的只有下面几个例子：

支韵：累  $liw\epsilon - lei$ （不是  $lui$ ）

脂韵：垒、类、泪  $lwi - lei$ （不是  $lui$ ）

另一种则是在某些韵类的重唇音变为轻唇音（非敷奉）的同时，撮口就变成了开口。例如：

废韵：废  $p\dot{i}w\epsilon i - fei$  吠  $b' iw\epsilon i - fei$

微韵：飞  $piw\epsilon i - fei$  肥  $b' iw\epsilon i - fei$

.....”（1980 P139）

其实“累、垒”与“内、雷”是有区别的，前者是合口三等韵，后者是合口一等韵。来母合口三等“支、脂”先变合口，再变开口。变开口是受泥、来母的影响，近代北音中，泥、来母排斥合口介音  $[w-]$  的特点，可能与唇音声母的感染有关。合口三等韵变合口并非受声母影响，而是韵头  $[i]$  受韵尾的影响（异化）而脱落。

轻唇音声母对合口三等韵的影响，其演化也应该是先经过合口然后变为开口呼，体现为  $[i-]$  介音和  $[w-]$  介音渐次丢失的过程。又如：

“2 本来有韵头  $y / iw / iu$  或全韵为  $y / iu$ ，后来变为韵头  $u$ ，或全韵为  $u$ 。这是撮口变合口。这个发展规律是和齐齿变开口的发展规律同一类型的：都是基本上由于受卷舌声母  $t\dot{\varsigma}$   $t\dot{\varsigma}'$   $\dot{\varsigma}$   $\dot{\zeta}$  的影响。因为  $y$  的发音部位和  $i$  的发音部位是相同的，只是一个圆唇，一个不圆唇罢了。下面是一些撮口变合口的例子：

遇摄 书  $\dot{\varsigma}io - \dot{\varsigma}iu - \dot{\varsigma}u$  住  $\dot{\zeta}iu - t\dot{\varsigma}u$  树  $\dot{\zeta}iu - \dot{\varsigma}u$

蟹摄 缀  $t\dot{\varsigma}iw\epsilon i - t\dot{\varsigma}ui$  赘  $t\dot{\varsigma}iw\epsilon i - t\dot{\varsigma}ui$

止摄 吹  $t\dot{\varsigma}'iw\epsilon - t\dot{\varsigma}'ui$

.....”（王 1980 年 P140）

知章庄组合口三等韵变读合口呼，并不是由  $[y]$  变  $[u]$ ，比如：“书”  
 $[\dot{\varsigma}io] - [\dot{\varsigma}iu] - [t\dot{\varsigma}iu] - [t\dot{\varsigma}u] / [t\dot{\varsigma}u] - [t\dot{\varsigma}u]$ ，  
 “专” $[t\dot{\varsigma}iw\epsilon n] - [t\dot{\varsigma}iw\epsilon n] - [t\dot{\varsigma}w\epsilon n] - [t\dot{\varsigma}uan]$ 。

蟹、止合口三等韵[i-]介音的丢失是受韵尾异化的结果，并不是受卷舌声母的影响。它与齐齿变开口的规律不是同一类型的： $[k̚ i w \epsilon i] - [t \bar{s} i w \epsilon i] - [tʃ w \epsilon i] - [t \bar{s} u i]$ ，在知章组声母还没有变读舌尖后音之前，韵头[i-]介音已经丢失。

王先生把阳韵的庄系字和江韵的知、庄两系字变读合口呼看成是齐齿变合口的特殊情况。他说：“为什么我们认为江韵的知庄两系字也是由齐齿变合口呢？因为我们认为它们在未变合口以前还经过一个齐齿阶段，如‘双’ $[ʃ \bar{c} \eta] - [ʃ a \eta] - [ʃ i a \eta] - [ʃ u a \eta]$ 。这样，它们就和阳韵庄系字在同一条件下发展了。”（王 1980 年 P141-142）我们觉得王先生的解释不能令人满意。开口三等韵（庄组）受卷舌声母影响，介音[i-]丢失，通常变读开口呼，但是阳韵的情况比较特殊，韵母主元音圆唇倾向显著，这是变读合口呼的内在原因。江韵庄知组的情况更明显，如：“双” $[ʃ \bar{c} \eta] - [ʃ u \bar{c} \eta] - [ʃ u a \eta]$ 。开口二等江韵（牙喉音）腭化，知庄组是否也能腭化呢？

薛凤生说：“在遵守上述原则的基础上，我们确认所谓‘开口’，意思就是韵头为零‘ø’，‘齐齿’韵头为‘i’，‘合口’韵头为‘u’，撮口韵头为‘ü’。……我们将用/y/表示齐齿，用/w/表示合口。由于撮口分别与齐齿及合口含有共同的特征，我们将用/yw/这个合体代表它。早在赵元任先生等制定的‘国语罗马字’里，撮口就以‘iu’的形式出现了，但据说这只是为了节约与方便。观念上把撮口解释为齐齿与合口的合体则自美国学者哈特门（Hartman, 1944 年）开始。我们接受他这一看法但又与他有所不同。他把这个合体中的两个符号认作两个音位，而且次序上/y/必须出现在/w/之前。我们则认为这个合体只代表一个音位，用两个符号只是为了方便，而且它们的顺序也不是先后的而是共时的。它们实际上代表两个正性的区别特征，/y/代表腭化，/w/代表唇化。采用这个观念，所谓四呼的真义便可以清楚地界定如下了：

开口 -ø-	-腭化（既非腭化又非唇化）
	-唇化
齐齿 -y-	+腭化（仅为腭化而非唇化）
	-唇化
合口 -w-	-腭化（仅为唇化而非腭化）
	+唇化
撮口 -yw-	+腭化（既为腭化又为唇化）
	+唇化

在这个理论基础之上，要说明‘开、合’两呼与‘洪、细’两音的原理，也就顺理成章了。”（薛 1986 年 P141-142）

我们以为，薛先生的理论是比较合理的。对于中古合口三四等韵来说[-yw-]代表两个音位，而且[y]必须在[w]之前。对于现代撮口呼韵母来说[-yw-]只代表一个音位而且它们的顺序也不是先后的，而是共时的。这就是中古合口细音与现代撮口呼的区别。

参考文献

- [1]. (元)周德清(1324)《中原音韵》，《四库全书》(文渊阁影本)1496册，台湾商务印书馆
- [2]. (明)乐韶凤等(1375)《洪武正韵》，《四库全书》(文渊阁影本)239册，台湾商务印书馆
- [3]. (明)兰茂(1442)《韵略易通》，《四库全书存目丛书》208册，齐鲁书社，1997年
- [4]. (明)李登(1587)《书文音义便考私编》，《四库全书存目丛书》209册，齐鲁书社，1997年
- [5]. (明)梅膺祚(1612)《字汇》附录之《韵法直图》、《韵法横图》，《续修四库全书》233册，上海古籍出版社，1995年
- [6]. (明)金尼阁(1626)《西儒耳目资》，《四库全书存目丛书》213册，齐鲁书社，1997年
- [7]. (明)毕拱辰(1642)《韵略汇通》，掖海丛书本
- [8]. (清)樊腾凤(1654-1662)《五方元音》，《四库全书存目丛书》219册，齐鲁书社，1997年
- [9]. (清)李光地、王兰生(1724)《音韵阐微》，《四库全书》(文渊阁影本)240册，台湾商务印书馆
- [10]. (清)莎彝尊(1853)《正音咀华》(咸丰癸丑天平街维经堂本)
- [11]. (清)潘逢禧(1870)《正音通俗表》(逸香斋稿本)
- [12]. 《罗马字官话新约全书》，伦敦大英圣书会印，1888年
- [13]. 陆志韦《记徐孝重订司马温公等韵图经》，《燕京学报》第32期，1945年
- [14]. 邵荣芬《汉语语音史讲话》，天津人民出版社，1979年
- [15]. 薛凤生《北京音系解析》，北京语言学院出版社，1986年
- [16]. 叶宝奎《明清官话音系》，厦门大学出版社，2001年
- [17]. 曾运乾《音韵学讲义》，中华书局，1996年
- [18]. 史存直《汉语音韵学论文集》，华东师大出版社，1997年
- [19]. 赵荫棠《等韵源流》，(台湾)文史哲出版社，1985年
- [20]. 王力《汉语史稿》上册，中华书局，1980年

## 赣语小称儿尾词“伢”(li)之音韵溯源<sup>①</sup> ——兼论汉语儿化音的历史层次与类型分布

张民权

中国传媒大学

汉语儿化词尾的读音在各方言中有不同的表现，赣方言名词小称儿尾“伢”就是其中一种。本文从“儿”音史的研究出发，考察了“儿”音的历史演变及其在南北方言中的读音表现，归纳了汉语儿化音的五种类型，论证了赣语名词后缀“伢”的儿尾性质，它属于边音型儿化音系列，其历史层次则为宋代官话“儿”音的历史遗留。从赣语儿尾“伢”的分布状态看，它实际上成为区别赣语与否的一个重要特征。“伢”的儿尾性质及其历史层次的揭示，是本文对赣方言研究的一大贡献。

### 一 问题的提出

“儿”和“子”是现代汉语中两个非常活跃的名词后缀形式，诸如花儿、瓶儿、盒子、盖子之类。就语音的历史变化而言，“子”在南北各地方言中音变形式不是很大，但“儿”尾音读差异却非常大，有的甚至根本看不出其后是个“儿”尾形式，如赣方言的“伢”（一般读 li）就是如此，“雀伢”其实就是“雀儿”，即普通话的鸟儿之意（今宜春、南城、余干等地区仍然叫“鸟伢”，详见下文）。

然而，很多研究赣方言的著作并没有注意到它的“儿”尾性质，只是把它视为与“子”相同的词尾形式。如袁家骅《汉语方言概要》、熊正辉《南昌方言词典》，陈昌仪先生的《赣方言概要》及后来主编的《江西省方言志》、李如龙、张双庆《客赣方言调查报告》等，都未曾涉及其语音实质问题。《汉语方言概要》赣语部分举了南昌话的“子”和宜春话的“立”作为两个常用词尾形式加以讨论（如茄立、鞋立、

<sup>①</sup> 本文曾先后在第二届赣方言学术研讨会（2009 南昌大学）和第十八届国际中国语言学研讨会上宣读（2010 哈佛大学），略有修改和补充。会上，王福堂、邢向东、孙景涛等专家学者多有赐教，另外，匿名评审专家也提出了很好的修改建议，其中一些意见本文修改时虽未能完全采纳，但于本人研究多有启发，在此深表谢忱。



麻雀鸟立，第 142 页），其音韵来源问题却没有论及，且认为南昌话没有“儿”尾。《方言志》虽然以相当的篇幅讨论了名词词尾“子”“伢”及其变化形式（第 11-12 页），而历史来源却未加以解释。

论文方面，熊正辉先生早年发表的《南昌方言的子尾》一文（《方言》1979 年第 3 期），只讨论了“子”尾的分布及其用法问题，没有涉及“伢”的词尾性质及其音读问题。后来谢留文先生发表《南昌县（蒋巷）方言中的“子”尾和“里”尾》（《方言》1991 年第 2 期），全面讨论和描写了“子”“里”的用法，但就“里”的语音来源问题也未能加以讨论。“里”（li，轻读）即本文所说的“伢”，但该文所描写的形容词加“里”的形式，却不属于小称儿化词范围，如：衣服穿得厚厚里，跑得快快里，等等。此“里”为“子”或“的”的音变互用形式。或认为轻读的“里”相当于词尾“子”“儿”，如许宝华、宫田一郎主编的《汉语方言大辞典》第二卷“里”（li）字条：

词后缀，放在物品名词之后，相当于“子”“儿”，(一)赣语。江西永修[li°]桌~|裤~。  
(二)客话。广东五华：刀~刀子|细人~小孩儿。（第 2682 页）

其实它就是“儿”尾，不是“相当”的问题。尽管上述文献有多种书写形式：“立”、“伢”、“里”，或写成“哩”（《调查报告》记为“哩”），但其实都是“儿尾”音读的借音标记，只是因为今之赣语“儿”字读音[ə]（熊正辉先生拟作[ə]，音色相近），与[li]音相距甚远，才掩盖了其历史真正面目。本文遵从陈昌仪先生的研究，使用“伢”代替其它书写形式，并试从其语音史及其语言类型分布两个方面加以论证。

## 二 判断赣语“伢”为儿尾音的语音依据

考“儿”字之历史音变，其变化形式最为复杂。大致可分为南北两系：北方官话区大部分由《中原音韵》的支思韵[z<sub>ɿ</sub> i]（ɿ, ʅ）演变为儿化韵 əɾ（[əʔ]）。南方方言区则保留了更古老的语音痕迹，以鼻音[nɿ]为主。依本人研究，其祖音应当是隋唐时期的卷舌鼻音[n<sub>ɿ</sub>ie]或闪音[ɾie]。自宋元之后，“儿”字才在北方官话区发展为卷舌边音[lɿ]和[zɿ]，今天在北方官话区的一些次方言区域内“儿”字读音仍是如此。声纽[n]、[ɾ]、[l]都是舌尖后音，音色非常相近，因此，儿尾词的读音在南方方言中就有可能朝着两个方向演变，一系是鼻音化声母，如吴语儿尾形式：ŋɿ 或 nɿ（如南部吴语），一系则由 [ɿ] 变为 li，如赣方言区。由于赣方言没有卷舌音即舌尖后音，故今普通话声母读 r 的字（绝大部分为中古日母字）很少读成 z<sub>ɿ</sub>-，要么读 n<sub>ɿ</sub>-（细音前）或 n-（洪音前），要么读 l-，如南昌话把太阳说成“日头”[n<sub>ɿ</sub>it<sub>2</sub> t<sub>2</sub>əu]，瓜瓢读成[kua<sub>2</sub> laŋ]，少数中古为喻母而普通话读 r- 的字仍读零声母，如“容易”读

成[ $\text{t͡sioŋ} \text{ i}^2$ ]。所以赣语中的“雀伢”应当是“雀儿”的儿化词形式，它是历史语音的遗留。

赣方言没有儿化韵，普通话读[ə]的词如“儿耳二贰”等单念时只读[ə]（音位变体有 e、ɛ、ɔ 等），后面没有卷舌动作。另外，在南昌话中，少数中古日母遇摄字如“如儒乳”等也读[ə]，如街道“孺子路”，老年人一般念成[ $\text{ə} \cdot \text{tsɿ}^2 \text{ lu}$ ]，只有年轻人才按照普通话的读音念读。许多名字听起来像“国儿”“保儿”的，其实都是“国如”“保如”的念读。于是，有些中小学生或教师由于不明其音读关系，则直接将名字“国如”写成“国儿”。但作为儿化词形式的“雀儿”之“儿”，却没有按照[ə]音读，而是念成了“雀伢”或“鸟伢”。它保留着更古老的历史语音层次，而单念[ə]者则因为近代以来受官话音的影响所致。

### 三 儿尾“伢”在省境内的分布状态

与普通话一样，赣方言名词词尾“子”“儿”（“伢”）的用法非常活跃，一般情况下，表示物件或动物鸟类等单音节词都可以后缀“子”或“伢”，下面以南昌话为例：

(1) 一子：刀子、凳子、柜子、板子、棍子、镜子、包子、钩子、叉子、锤子、锯子、桔子、柚子、格子（窗子，过去农村房屋窗户均由木条格子组成），等等；

(2) 一伢（儿）：裤伢、褂伢、裙伢、鞋伢、带伢、雀伢、鸽伢、珠伢、梳伢、帚伢、树丫伢、竹伢、崽伢、猪牯伢、星伢、影伢、痨病壳伢（有肺病的人，有时为骂詈之语），丝伢（如头发丝伢）、蚊伢、蝇伢（苍蝇），等等；

有时人名也可以儿化表示亲昵或爱称，如名字为“根宝”可以叫“根伢”，女孩名称“淑华”“国华”之类的可以叫“华伢”。在普通话的影响下，“伢”的使用范围不如“子”，且有萎缩之势，城里青年人一般说“子”。上述裤伢、褂伢、裙伢、鞋伢、雀伢、鸽伢之类都可以换成裤子、褂子、裙子、鞋子、雀子、鸽子，等等。但一些以“子”作后缀的词一般不说成“伢”，如凳子、柜子、板子、锤子、锯子、格子等一般不以“伢”后缀，只有桌子才一般可叫“桌伢”；同时“丝伢”“蝇伢”之类也不可换成“子”尾。

“子”在一部分地区音变叫“得”，如南昌县河头乡就是如此，如凳得、柜得、板得、锤得、锯得、格得，等等，在省境内其它县市区也多以“得”作名词后缀。

下面以普通话“鸟儿”为例，详细列写省境内各个县区的读音情况，从中可以考察儿尾“伢”的分布范围。材料取自《江西省方言志》（原书第 506-507 页）。

张：赣语小称"

"

星子"	鸟"tiəu" "	金溪"	鸟tiau" "	高安"	雀子tiəu. tsu"	崇义"	鸟儿tiə" . lə"
都昌"	鸟得tiəu . ɛ"	崇仁"	鸟伢tio?" . li"	宜丰"	鸟仔tiəu . tɕi"	上犹"	鸟儿tiau . lə"
武宁"	鸟子tiau . sɿ"	宜黄"	鸟伢tiau" . li"	上高"	鸟崽tiəu . tse"	于都"	鸟子tiə"tsɿ"
安义"	鸟n̩iəu""	乐安"	雀崽tɕioʔ . tɔi"	万载"	鸟得tiau" . tɛ"	兴国"	鸟伢tiau""li"
新建"	雀仔 tɕ <sup>h</sup> ioʔ . tɕi"	南城"	鸟伢tiau" . li"	丰城"	□□仔 rɕ <sup>2</sup> rɕ <sup>2</sup> . tɕi""	宁都"	鸟子tiau . tsə"
南昌"	雀子 tɕ <sup>h</sup> ioʔ . tsɿ"	黎川"	鸟伢tiau" . i"	樟树"	鸟仔tiəu . tɕi"	瑞金"	鸟子tiə" . tsɿ"
彭泽"	鸟"tiau""	南丰"	雀伢tɕioʔ . li"	新干"	鸟崽tiau . tse"	石城"	鸟子tiau . tsɿ"
波阳"	鸟"n̩iəu""	广昌"	鸟tio?" "	峡江"	鸟得"tiau . tɛ"	九江"	鸟儿 <sup>h</sup> ioʊr""
乐平"	鸟"tiəu""	永丰"	鸟得tiəu" . tɛ"	新余"	鸟得"tiəu . tɛ"	瑞昌"	鸟n̩iɿ" "
万年"	鸟伢tiəu" . li"	吉安"	鸟伢tiau" . li"	分宜"	鸟得"tiəu . tɛ"	上饶"	鸟tiə" "
余干"	鸟伢tiəu . li"	泰和"	鸟伢tiau . li"	宜春"	鸟伢tiəu" . li"	玉山"	鸟儿tiəu . ni"
横峰"	鸟"tiau""	安福"	鸟tiau ʔ" "	萍乡"	鸟仔tiau . tɕi"	广丰"	鸟tiəu" "
铅山"	鸟"tiau" "	永新"	鸟伢tiə" . li"	定南"	鸟儿tiəu . uə"	婺源"	鸟liou" "
贵溪"	鸟伢ia" . li"	莲花"	鸟仔tiau . tɕi"	龙南"	鸟得"ia" . ɛ"	德兴"	鸟tiə" "
余江"	鸟伢tiau" . li"	遂川"	鸟伢tiau . li"	寻乌"	鸟子tiau . tsɿ"	浮梁"	雀儿"tsien"
进贤"	鸟崽"tiəu"tɛi"	万安"	鸟儿tiau . lə"	会昌"	鸟崽tiə"tsei"	赣州"	鸟子tiə" . tsɿ"
东乡"	鸟伢tiəu" . li"	靖安"	雀伢tɕ <sup>h</sup> ioʔ . li"	大余"	鸟儿"tiə" . læ"	"	"
临川"	鸟崽tiəu"tsei"	奉新"	雀伢tɕioʔ . li"	南康"	鸟子tiə"tɛ"	"	"

说明：上表所列 70 个县区“鸟”的称名，笔者限于足迹，未能一一核实，但大部分可以感知。笔者母语为南昌话，在后来工作和生活中与周围很多县区的人有所接触。只是其中有些“子”缀的地区仍可读“伢”，如南昌、新建、安义大部分地区读“雀伢”。然而，即使是同一个县区内，其名称或读音也有差异，描写只能就大体而言，因此，其间可能有少些参差，但基本数据可信。

从上表所列“鸟儿”称名中，可以看出如下几个特点：

1、“鸟”字声母绝大部分地区读舌音[t]，还保持中古时期都了切（《广韵》）的读音，只有极少数地区读[n̩]（《洪武正韵》之后读尼了切），这是客赣方言的基本特点；

2、除了 15 类单名“鸟”外，其余 55 例都有后缀词，或为“伢”（儿），共 26 例；或为“子”和“得”“崽”等，共 29 例。从中可见“伢”和“子”的互用

问题，同时也可以说明“仃”的萎缩性。其中“仔”“得”“崽”等都是“子”音的讹变。

3、在以“仃”作后缀的26例词语的读音中，大部分读[li]，少数读[lə]，如崇义、上犹二县，个别地区声母弱化，读[i]，如黎川县。<sup>①</sup>这是主流。此外，受官话影响，九江地区则为卷舌儿化韵，且儿尾不能自成音节，“鸟儿”念成[niɔ̃ur]；<sup>②</sup>其次是受吴语或徽语影响，赣东北地区的玉山、浮梁等县儿化后韵尾成-n或自成音节[ni]，<sup>③</sup>如横峰话“毛伢儿”读成[mau<sup>33</sup> ɲa<sup>44</sup> ni]。

由此可以得出一个结论，儿化词尾“仃”的音读形式是赣语的一个重要特征，也是区别赣方言与否的一个重要特征，<sup>④</sup>并由此可以考察其与省境外周边地域及其方言的关系，如与客家方言、湘方言、吴方言或徽语及江淮官话的关系。

#### 四 “儿”音的历史发展及现代汉语儿化音的历史层次

为了进一步弄清赣方言儿化音的语音性质，我们有必要运用历史比较法原理，就现代汉语儿化音的历史发展作一番探讨，并从现代汉语南北各地方言儿化音的语音类型分布上做一个比较全面的考察，以印证赣方言儿化词尾“仃”的历史语音遗留问题。

然而，探讨“儿”字的历史音变是一个非常棘手的问题，高本汉曾言：“拟测古代汉语的声母系统，日母是最危险的暗礁。”<sup>⑤</sup>属于日母的“儿”字更甚于此。尽管许多前辈学者及其时贤在这方面开掘甚多，成绩可嘉，但其中有些问题仍未能解释清楚。随着近年来方言调查和方言研究的深入，使我们对这些问题有了更进一步的认识。

首先，我们必须辨析清楚这样几个概念：儿化词、儿化韵、儿化音。

儿化词不等于儿化韵，儿化词是汉语词汇双音化的产物。根据诸多学者的研究，自汉魏以后，具有小称意义的儿化词开始出现，如《史记·外戚列传》有“臧儿”（景帝王皇后之母亲），《汉书·王莽传》有“卖饼儿”，以表示人名或职业身份，带有贱称之色彩。经历南北朝至唐宋之后，儿化词已经是个非常普遍的词汇现象，

<sup>①</sup>黎川方言儿尾 i 在前一个韵母辅音后会产生相应的鼻音儿化，如“燕儿”[iɛn ni]，“影儿”[i aŋ ŋi]，参见颜森《黎川方言的仔尾和儿尾》，《方言》1989年第1期。

<sup>②</sup>在鼻音后作 ne，如棍儿 kun<sup>41</sup> ne。参见张林林《九江话里的儿化现象和儿尾》，江西师范大学学报 1992年第2期。

<sup>③</sup>广丰话儿尾亦读[ni]，当地人一般写作“闾”。参见胡松柏《广丰方言的“儿”尾》，上饶师范学院学报 1983年第2期。

<sup>④</sup>“会后有专家对此有异议，因为至今没有哪个方言学著作提出过类似观点。我想，只要认真地审视上文图表内容乃至《江西省方言志》中所有名词词尾形式，你一定会同意本文所提出的观点。”

<sup>⑤</sup>高本汉《中国音韵学研究》，第338页。商务印书馆1995年3月（赵元任等译）

由开始的人名可以泛称鸟兽草木鱼乃至生活用品等物什，沿用至今。但儿化韵——也就是现在北京话的卷舌元音[ɤ̌]——产生的年代则很晚，根据李思敬、薛凤生、鲁允中等前辈学者的研究，大致是在明代中期。因此，在很多方言中，都有表示小称的儿化词，但不等于就有儿化韵。儿化音则是指儿化词的儿尾音读及其在后来方言中的音变形式，因此，儿化韵[ɤ̌]只是儿化音中的一种音变形式。在今天的南方方言中，虽然没有儿化韵，但不等于没有儿化音，只是它的尾音与今日所谓的儿化韵不同而已，而赣语的名词后缀“伢”(li)就是其中一种。显然，如果把汉语儿化音局限于北京话的儿化韵，在认知上是有缺陷的。

这里需要说明的是，很多方言学者严格区分“儿尾”与“儿化”一对概念，所谓能够自成音节者为“儿尾”，不能自成音节而能引起音变的为“儿化”。然而，在很多方言里，有的既能够做“儿尾”又能发生音变，所谓“儿化”，两者往往难以区分。实际上，“儿化”只是“儿尾”音变的进一步发展，即使在北京的“儿化”词里，老年人“儿”音əɾ仍可自成音节，“花儿”[xuar]可以说成[xua əɾ]。又如梅县客家话儿尾为e，自成音节，但在前面韵母尾音的影响下，可以发音成诸如ne、me、ŋe、pe之类。因此本文从语音史出发，把名词儿尾的读音及其在方言中的演变均称为“儿化音”，<sup>①</sup>以便于行文表述，同时又与“儿化韵”相对区别开来。

根据我们对汉语语音史的研究和现代方言学的成果，我们有理由认为，现代方言中的各种儿化音形式，其元音应当是隋唐时期的[ŋje]或闪音[ɽje]，<sup>②</sup>也就是说，《切韵》时代“儿”字读音是[ŋje]（支韵），后来随着《切韵》支、脂、之三韵合流，则变为[ŋj]，大致在唐五代之后发展为[nj]和[ɽj]。<sup>③</sup> [nj]可能是早期语音状态，[ɽj]有可能是后来的语音蜕变。随着后来北方人口迁徙和民族融合，早期形态的儿音朝两个方向发展：[nj]音系发展为南部吴语的鼻音形式ŋj或ni（大部分客家话也是如此），[ɽj]在当时的北方官话区则演变为[lj]，其演变完成时间大致是在宋金时期，ɽ为闪音，类似卷舌边音ɭ，在某种意义上ɭ是ɽ的音位变体。今天山东莱芜、河北武安、井陘、山西祁县和西南官话中的遵义等地方言中“儿”读[lj]者（作儿尾时有

<sup>①</sup>“邢向东和孙景涛先生建议是否可改为“儿尾音”，可以接受。但本文使用的“儿化音”是因承词汇意义的儿化词说的，因此在行文中有时又直接以“儿尾音”称之。”

<sup>②</sup>“这种拟音也许会面临着很大的挑战，因为有学者可能会提出质疑：[ŋje]或[ɽje]都具有舌尖后卷舌性质，《切韵》时代有没有舌尖后声母，值得怀疑，从语音系统上看，齿音照组系列还没有演变为舌尖后卷舌声母。但是我们认为，拟音都是近似，从谐声系统看，日母在中古以前肯定是个鼻音，从泥母[p]到娘母[n]以及疑母[ŋ]之间，属于鼻音的只有[n]和[ŋ]，而[n]与[ɽ]和[l]发音部位相同，可以解释它们的语音历史变化关系，也许日母是率先跨出其系统的声母。否则，我们只好采用高本汉的拟音nɟ。”

<sup>③</sup>“关于《切韵》的日元音值，高本汉拟为鼻音与浊擦音的结合体：nɟ，王力《汉语史稿》与后来的《汉语语音史》和《汉语音韵》表述均不同。《汉语史稿》描写其音变轨迹为：n（上古）→nɟ（中古）→ɟ（元明至今）。《汉语语音史》则描写为：n（上古至隋唐）→r或ɽ（晚唐至今）。”

的自成音节)，是这种语音的遗留。宋元之后 [l] 进一步发展则为 [z]，不卷舌则为 [z̥]，如甘肃武山和陕西商县张家塬地区“儿”字仍读 [z̥ ɿ]。

根据《蒙古秘史》等元明时期的蒙汉对音材料，表示声母 r 和 l 的文字常常可以互用，尤其是 ri 的音节，或用日母字“而儿尔”，或用来母的“里力黎”，这种混用表明当时读日母的“儿”与读来母的“黎”有近似之音。但两者又有区别，当辅音 r 自成音节或处于一个词的音节之后时，其对应的汉字一般是“儿”；当 r 带有元音处于一个词音节中间时，一般用来母字注音，但其旁必加注一小字“舌”，表明这一个字在来母读音的基础上要变读为日母的字。例如，在《蒙古秘史》中，表示变格后缀的词 dur、tur 等，一律译为“都儿”“秃儿”等。又如下面的例子：

兀儿——ni ur(面 104) 只兀儿——ji ür(翅 212) 阿兀儿——aur(怒 139)  
帖舌里兀——teri ü(头 254) 中合舌里兀——qari u(回 227) 者额儿迭——j ärde(赤马 255) 失兀迭舌里——si üderi (露 105) ①

又如《华夷译语》：

门都儿——mündür(雹) 中合札儿——qajar(地) 纳兀儿——naqur(湖) 腾吉舌里——tegri(天) 塔舌里颜——tari yan(田) 古舌里延——huri yen(圈子) 帖儿格兀儿——terhehur(大道) 石兀迭舌邻——si üderin(露) ②

这种现象似乎可以说明，“儿”的声母读音与来母[l]一定有相似之处，在元代北方官话区正处于[ɾi]或[li]向[z̥ɿ]过渡的时期；并且，作为音节中间或音节末尾的“儿”字韵母（主要元音）与加注“舌”字的“里”（ri）或许有细微的差别，尤其是尾音的“儿”（-r）与我们现代汉语普通话的“儿化韵”的形成有无影响，当引起我们的深思。这些都是我们研究元代“儿”音史时必须加以留意的地方。

《中原音韵》产生了新的韵部支思韵，一般认为其韵母为[i]（ɿ, ʅ）。“儿”在支思韵，因此，人们似乎有理由认为其音读为[z̥ɿ]。③ ɿ 和 ʅ 都是洪音，在舌尖浊擦音的作用下容易产生音位变体 ə（e、u、ɛ、ɐ 等都可以成为它的音位变体）。这点

①“以上例子及其拟音取自昂奇《对元代蒙古口语语音的研究》，《内蒙古社会科学》1994 年第 2 期。括号里面的文字表示蒙文意义，数字为《蒙古秘史》总译的段节数。“合”字前小注“中”字者为喉音标记，《华夷译语凡例》：“字傍小注中字者，乃喉内音也。”又：“字傍小注舌字者，乃舌头音也。”这个“舌头音”在当时可能还不是[z̥]音状态。”  
②“以上例子的拟音取自贾敬颜、朱凤《蒙古译语、女真译语合辑》，天津古籍出版社 1990 年，第 25-27 页。按，《华夷译语》与《蒙古秘史》的汉译往往有相异之处，如最后一例“露”的蒙汉对音即如此。它们的汉译虽在明初，但使用的是蒙元时期的汉语语音系统。”  
③“关于宋元时期的日母及其儿音的拟音，本人原则上接受王力先生的看法，日元音值为[ɾ]而非[z̥]，这里姑且采用比较通行的说法。”

完全可以从现代汉语方言中得到印证，在很多地区方言的儿化词中，当儿尾前的韵母为 ɿ 和 ʅ 的音节时，则变成 əɿ 或 əʅ 等形式，如：

河北安国话：写字儿 [siε<sup>213</sup> tsər<sup>51-213</sup>];

井陘话：写字兒 [eiɿ<sup>35</sup> tsəɿ<sup>51</sup>];

蔚县话：写字兒 [eiɿ<sup>55</sup> tsəɿ<sup>13</sup>];

如果保留 ɿ 和 ʅ 时，儿尾则必须独立成音节，如迁安话：写字儿 [eiε<sup>214-21</sup> tSɿəu<sup>51</sup>]。

①实际上从发音原理上说，[ʅɿ]是个很难发的音节，现代汉语普通话这个音节中只有一个“日”字，可以说明这个问题。②当[ʅɿ]发音时，必须发出一个近似“则”的音才能够比较顺畅，也就是说它的元音音值实际上是一个近似ə的混浊元音。③如果说，《中原音韵》“儿”音是[ʅɿ]的话，也只是维持了一个非常短暂的时期就被ə元音扩张而发生“讹变”，大致在元明以后的中原官话区，“儿”字语音的声母开始弱化，声母脱落后成零声母状态。当“儿”音脱落声母以后，由于没有声母的约束，它获得了一个相对独立自由的发展空间，然而，[i]是难以单独发音的，要表现它的存在就必须转换它的身份标志，也就是说改变它的读音，于是才有了ə或e、ɯ、ε、乃至u的元音变体系列，由于它脱胎于卷舌声母，在它分离过程中必然还会带着卷舌音的痕迹，由此我们可以理解在《西儒耳目资》有uɿ或əɿ的语音存在，ɿ与r都是卷舌音，同位互转，因此，əɿ转变成ər都是很自然的事情。

关于儿音əɿ或ər，我们还可以提供另外一种音理上的解释，ɿ或r和ɿ都是响音，可自成音节，在它完成这个发音动作之时，就伴有一个模糊的ə，于是就形成了əɿ或ər这样的音节。④也有学者认为这有可能是自宋金以来北方少数民族进入中原以后，在语言的汉化过程中而产生的语音讹变。⑤ər当时作儿尾时还能自成音节，后来才发展为与前面韵母融合共存的卷舌儿化韵音节，如北京话的“花儿”[xuar]。

①"以上例子取自李巧兰《河北方言中的“X—儿”形式研究》，山东大学4229年博士论文。"

②"《现代汉语词典》(商务印书馆4224年版)tk音节收有“日驹”两个字，后一个为文言词。又《广韵》质韵日小韵也只有7个字：日驹、日驹、日驹、日驹、日驹、日驹、日驹。"

③"支思韵早期也有可能是个圆唇的[ɿ]，根据吴棫《韵补》对资思韵的描述，它是一个读似鱼虞的音，因此，笔者颇疑《中原音韵》的支思韵的音值是[ɿ]，而不是[h]。笔者有相应研究论文《论宋代资思韵的历史演变及其语音性质》，该文曾在4232年第十六届中国音韵学年会(山西太原)学术讨论会上宣读，正在发表中。"

④关于儿化韵生成的语音机制，薛凤生先生解释为“语音易位”(《国语音系解析》第9页)。不过笔者认为，从语音史的演变出发加以解释可能更富有合理性。例如，根据古畏吾儿蒙古语音材料，类似于tk的音节很容易在声母前衍生一个ə的语音形式。“在蒙古突厥等阿尔泰诸语言中，有以r-音起始的词首加上一个元音的习惯。”(亦邻真2004)儿音əɿ或ər或由此而来。"

⑤参见季永海《汉语儿化音的发生与发展—兼与李思敬先生商榷》，《民族语文》3;::;年第7期"

这是儿化音的进一步发展。

今天赣语的儿尾音“伢”，其直接来源则是宋代北方官话区的卷舌边音[l̪i]，由于在赣语中没有卷舌音，因此，它直接变为li或lə，这与赣语的历史形成有关。<sup>①</sup>

因此，现代汉语儿化音可以归结为三大历史派系：鼻音系、边音系和元音系。它们各有不同的历史层次。鼻音系是最古老的层次，边音次之，但其源头可能是闪音ɾi。闪音后来向两个方向发展，一是边音化，二是朝着卷舌声母ɻ方向发展，最后随着声母脱落，ə音或相对独立，音位变体有u、ε、a、ai、ei等；或舌位逐渐后移而产生卷舌动作，从而形成了以北京话为代表的所谓儿化韵ər。其历史演变及其历史层次可以简略地表述如下。

第一层次鼻音型：ɳie→ɳi→ɳi /ŋ、n （隋唐时期）

第二层次边音型：ɾi→ɾə→l̪ə→l̪i /li （宋金时期）

第三层次ə音扩张型：z̪l̪→z̪ə→əz̪ /əl̪ （元明时期）

第四层次卷舌儿音型：ə→ər （清至现代）

鼻音型的历史层次可以得到现代吴语、粤语乃至越南汉音的证明，边音型层次可以得到杭州话和山东、山西、河南和河北部分地区方言的证明。在浙江吴语区，除杭州以外，“儿”尾均为鼻音型，或ɳi或ɳi，或ŋ或n，唯有杭州儿尾读边音[l̪]。杭州为南宋都城，此边音无疑是宋室南渡从中原移植过来的语音，其底层语音应当是与其它吴语区一样的鼻音，由于北来人口的势众，强大的吴语并没有把它淹没乃至同化。不过，杭州儿尾本为卷舌边音[l̪]，由于吴语中没有卷舌音，故为平舌[l]。<sup>②</sup>第三层次应当是元明时期的语音，第四层次则是清代以后的语音。

## 五 现代汉语儿化音的类型分布

从“儿”音史的情况看，现代汉语儿化音在音型结构上至少有五种语音类型：

1. 卷舌元音型儿化音系列ər；
2. 舌面元音型儿化音系列；

<sup>①</sup>“笔者认为，现代赣语的形成包含着三大要素，唐宋时期的古楚语（现代江淮官话是其中重要成分）、北方中原地区官话和吴语。”

<sup>②</sup>“关于吴语儿尾鼻音和杭州儿尾边音ɳi的历史来源问题，很多学者虽然有所解释，但大多语焉不详。如《汉语方言概要》：“浙江有些地方有‘儿’尾，大概是南宋以后受了杭州话的影响。”（第9页）这里混淆了吴语儿尾音的本末关系。郑张尚芳则曰：“有人曾推测浙江方言的儿尾‘大概是南宋以后受了杭州话影响’而产生的。依我们看，倒很可能是杭州话本来的ɳi尾受了北方方音的影响变成ɳi尾。”（《温州方言的儿尾语音变化（一）》，《方言》3；2年第6期）但问题是，为什么ɳi尾受了北方方音的影响就会变成ɳi尾？是杭州人ɳi和ɳi不分？不是。合理的解释就是其前身是卷舌边音[l̪]，而杭州话没有卷舌音，才如此。”



3. 鼻音型儿化音系列;
4. 边音型儿化音系列;
5. 舌尖浊擦音儿化音系列。

在讨论汉语方言儿化音的类型分布问题之前,先介绍一些相关研究。本文研究基本完稿以后,调查相关文献,惊讶地发现与有自己类似的研究成果。一是上世纪九十年代初,俄国学者莫景西(A·MONASTYRSKI)此问题也早有研究,所分五种类型与本人研究不谋而合,论文发表在《中山大学学报》1992年第4期上,题曰《“儿化”、“儿尾”的分类和分区初探》。可惜此文未能引起国内研究方言的学者注意,在讨论儿化音的类型时沿用的还是旧的说法。但该文也有不足之处,没有对儿化音的历史层次加以研究,在说明儿化音的类型时,举例有不恰当之处,如在说明元音类型儿化音时,所举南昌话儿尾[ə]为例不确。南昌话儿尾为[li],所举“猫儿”读[ə]为特殊例子,南昌话今读[mau·ni](有可能是爱称“猫女”音读),除此以外,绝大多数儿尾词读[li],轻声。

另一项重要研究成果是王福堂先生的《汉语方言语音的演变和层次》一书(1999年语文出版社),原书第六章《儿化韵》所言儿化音在音型结构上的五种语音类型也已导乎先路。但王先生似乎没有讨论儿化音的历史层次问题,所言“儿化韵”的分布地区有三:(1)官话方言区,(2)相连的吴方言、徽方言和赣方言地区,(3)粤方言区。所谓赣方言区的儿化韵盖意指与徽语区“相连”的赣东北地区的玉山、浮梁等县鼻音形态的-n尾儿化韵,但举例甚少,文中仅列举了余干和都昌方言女儿的一个儿化韵的例子,而关于“仃”是否为儿化韵问题则未能涉及。<sup>①</sup>

以上研究虽先得于我心,但在赣语儿尾问题上仍有研究不足的地方。因此,本文有必要阐释自己的看法及其研究成果。

#### 1. 卷舌元音型儿化音系列ər。

又可以分为自成音节和不能自成音节的两种。自成音节的如河北易县“豆儿”[təu əɾ];不能自成音节的如北京话“小屋儿”[ɕiəu ur],这是ər音的进一步发展。其发展的轨迹仍然可以从一些官话方言中观察出来,其初它既可自成音节,又可同时与前面韵母发生融合关系而改变原有的韵母结构,如湖南永顺方言(属西南官话区)儿化后吞没前面的韵母,仅保留其介音及其声母,故其儿化韵母有固定的四个:-ər、-iər、-uər、-yər。<sup>②</sup>有的则根据前一个音节尾音情况而形成新的儿化音节,如湖南安乡话“狗儿”[kəu ŋər]。<sup>③</sup>不过,在有些官话区,具有卷舌性质的-r音有消失的趋势,如云南滇南地区方言,“沙梨儿”:liər→liə。老官儿:kuaər→kuə。<sup>④</sup>

①“以上内容均为拙文原稿后记部分,今修改时以示尊重,移入正文。”

②“参见李启群《湖南永顺方言中的儿化》,《吉首大学学报》3;4年第3期。”

③“参见应雨田《湖南安乡方言的儿化》,《方言》3;2年第3期。”

④“参见陈叟《滇南方言的儿化音变》,《红河学院学报》3;8年第3期。并参见同期学报署



音变现象，情况比较复杂，有  $\text{ɿ}$ 、 $\text{iɿ}$ 、 $\text{uɿ}$ 、 $\text{yɿ}$ 、 $\text{æɿ}$ 、 $\text{iæɿ}$ 、 $\text{uæɿ}$ 、 $\text{yæɿ}$  等多种形式。<sup>①</sup>不卷舌边音儿化音主要分布在赣语地区、杭州地区以及广东五华客家方言等，这些地区的语音系统往往没有卷舌音声母，故如此。属于这一系列还有安徽宿松方言，“儿”字读舌尖后边音  $[\text{ɻ}]$ ，作儿尾时自成音节，如“马儿”“羊儿”“猪儿”之类均读为  $[\text{ɻ}35]$ 。<sup>②</sup>此外还有山西晋语区的岚县、祁县、武乡方言，其儿尾读音也是如此，边音声母自成音节；兴县则为  $[\text{lə}]$ ，后面带有元音  $[\text{ə}]$ 。<sup>③</sup>重庆儿化音有文白二读，文读为  $[\text{ər}]$ ，白读为  $[\text{lə}]$ ，郊区和老年人一般为白读。<sup>④</sup>由此可以看出重庆儿化音的历史发展及其历史底层问题。

#### 5. 舌尖浊擦音儿化音系列。

在这些地区，“儿”字声母一般读  $[\text{z}]$  或  $[\text{ʐ}]$ ，如江苏丹阳和湖北阳新“儿”读  $[\text{z}]$ ，甘肃武山、甘谷一带则把儿尾念成  $[\text{z}]$ ，自成音节，如“刀儿” $[\text{təu} \cdot \text{z}]$ 。舌尖后浊擦音  $\text{ʐ}$  见于山西平遥方言，儿尾读  $[\text{ʐ}ʔ]$ ，带喉塞音，阴入，与本地“热”字同音，如“锥儿” $[\text{tsuei} \text{ ʐ}ʔ]$ 。另外山西岚县儿尾重读时，声母也读  $[\text{z}]$ ，儿尾读  $[\text{z}ʔ]$ ，如“猪儿” $[\text{tsu} \text{ z}ʔ]$ 。据高本汉调查，民国初安徽凤台话“儿”字也读  $[\text{z} \text{ ʔ}]$ 。

以上纯粹是从“儿”作名词词尾的音型结构分析着手而归类的，它既有历时音变，又有共时音变。鲁允中先生将儿化音分为自成音节、不能自成音节和附着于韵尾后起卷舌作用三种，这只是功能归类而不是语音归类。赵元任先生以现代  $\text{ər}$  音为范围，认为其来源于方位词“里”、时间词“日”和名物词尾的儿 ( $\text{ər}$ )，李思敬先生则补充了京东话时态助词“了”读“儿” ( $\text{ə}$ ) 音而成四个来源。我们认为，这些“来源”只能说明  $\text{ər}$  音的语法功能扩大，无法解释“儿”音史及其音变类型问题。“这里”与“这儿”，“今日”与“今儿”，它只是换了一个“说法”而已。至于京东话“心里就象开儿锅似的”，将“了”念成“儿”，只是地方音变，更不属于名词“儿尾”意义上的儿化音，把它说成“来源”云云是不恰当的。在此，本文有必要加以辨正。

## 六 结语

本文讨论了“儿”的语音史问题以及在现代南北方言中的儿化音形式，从其类

①“参见胡光斌《遵义方言的儿化尾》，《方言》3；；6年第3期。”

②“参见唐爱华《宿松方言研究》，第349页。中国社会科学出版社4227年9月。”

③“这方面的研究文章有：乔全生《山西方言的“儿化、儿尾”研究》（《山西大学学报》4222年第4期），沈明《山西方言的小称》（《方言》4225年第6期），高永鑫《山西祁县话的儿尾》（《陕西教育学院学报》4229年第6期）。下文所言晋语方言特点参考文献同此。”

④ 参见徐海英《重庆话的儿尾》，《重庆师专学报》2001年第3期。”

型分布中，可以看出赣方言的儿化词尾“仃”无疑属于方言学上的“儿尾”词，属边音型儿化音系列，在南北方言中都有它的“姊妹”存在，因此，它决不是现代汉语方言中的另类。正是从这些“姊妹”关系中，我们可以考察它的历史层次。沿着杭州话儿化音的边音线索，并参考其它官话方言，我们可以得出一个基本的结论，它是宋代官话“儿”音的遗迹。

这个结论不仅仅是来自方言的历史比较，还有历史移民及其赣方言形成的历史研究。篇幅所及，将另文讨论。

或疑曰：赣方言中古日母三等字声母为n，而本文将“仃”看成“儿”音，声母为来母，何以如此？其实，从上述列举的各地方言儿尾音的语音形态看，并不难理解。儿化音是个比较特殊的音，一旦形成后便具有自己独立的语音形态，它与“儿而尔二”等系列字及其它日母字的语音发展并不平行，无论在声母和韵母上都是如此。赣方言儿尾“仃”是一个历史语音的沉积，只是时间久了，语音形态固定下来，身份隐蔽，人们不易察觉而已。

#### 参考文献

- 曹志耘《南部吴语语音研究》，商务印书馆2002年9月。
- 陈昌仪《赣方言概要》，江西教育出版社1991年9月。
- 《江西省方言志》，方志出版社2005年6月。
- 黄雪贞《梅县客家话的语音特点》，《方言》1992年第4期。
- 李巧兰《河北方言中的“×—儿”形式研究》，山东大学2007年博士论文。
- 李如龙、张双庆《客赣方言调查报告》，厦门大学出版社1992年1月。
- 李思敬《汉语“儿”[ɚ]音史研究》，商务印书馆1994年。
- 鲁允中《轻声和儿化》，商务印书馆2001年。
- 莫景西《“儿化”、“儿尾”的分类和分区初探》，《中山大学学报》1992年第4期。
- 乔全生《山西方言“儿化、儿尾”研究》，《山西大学学报》2000年第2期。
- 王福堂《汉语方言语音的演变和层次》，语文出版社，1999年。
- 谢留文《南昌县蒋巷方言的“子”尾和“里”尾》，《方言》1991年第2期。
- 熊正辉《南昌方言词典》，江苏教育出版社1995年5月。
- 徐海英《重庆话的儿尾》，《重庆师专学报》2001年第3期。
- 薛凤生《国语音系解析》，台湾学生书局1986年9月。
- 亦邻真《元代汉字译写蒙古语音的惯例》，《蒙古学信息》2004年第1期。
- 袁家骅《汉语方言概要》，文字改革出版社1989年6月（第二版）。
- 赵日新《徽语的小称音变和儿化音变》，《方言》1999年第2期。
- 赵元任《中国话的文法》（丁邦新译），《中国现代学术经典》丛书本，河北教育出版社1996年8月。

## 《元曲选》中的差比句式

张全真

····· 南京大学

本文基于对《元曲选》60篇杂剧中差比句式的考察。重点讨论了“xw似/如y”式及“x比yw”式差比句式在当时的使用情况，以及前者被后者逐渐替代的句法层面上的表现。通过对x/y/w等项的考察分析，可以发现两种句式当时基本呈互补分布，“xw似/如y”式的歧义倾向是导致该句式衰落的重要原因，而“x比yw”式的语法功能尚未发育成熟。文中也试着探讨了差比句发展过程中逆行结构取代顺行结构的内部原因。

汉语发展的历史上差比句中逆行结构对顺行结构的替换历来为不少学者们的所重视。·桥本万太郎（1985）、·太田辰夫（1987）、·黄晓惠（1992）、·赵金铭（2002）、李蓝（2003）、张赫（2005）等，都曾从语言类型学、汉语的历史发展变化、方言的角度对汉语的差比句式进行过研究。本文截取元明时的一个断面，通过对随机抽取的《元曲选》中的60种杂剧中差比句式的使用情况进行较为细致地考察和分析，探讨顺行结构的差比句式在元明时期衰落、逆行结构的差比句式兴起的内部动因。

在具体讨论中我们又将差比句式分为肯定式、否定式和疑问式进行分类描写，以求反映出在60篇杂剧中，“xw似/如y”式和“x比yw”式的使用情况，以及后者逐渐取代前者的表现和内部原因。

### 1. 肯定式的差比句式

在《元曲选》肯定式的差比句中“xw似/如y”作为与上古汉语一脉相承的顺行结构，仍然是大量使用的句式，肯定式合计93例，占肯定式差比句式的63%，而新兴的“x比yw”式也表现出新兴句式的特点，共计66例，并在某些功能上逐渐替代了前者。

#### 1.1 “xw似/如y”式

该式应源于上古的“xw於/乎y”式，如：

- (1)子曰：“以吾一日长乎尔，毋吾以也。”（论语·先进）
- (2)宰我曰：“以予观於夫子，贤於尧舜远矣。”（孟子·公孙丑）
- (3)你救孩儿一身苦，强似把万僧斋。（看钱奴·二·倘秀才）

对比这两种句式的用法，除了表比较的介词“如”“似”替代了“於”“乎”以外，两种句式没有本质的区别。

#### 1.1.1 “似”“如”

在93例“XW似/如Y”式中，用“似”52例，用“如”41例，两者在唱词及宾白中均有出现，似无差别。如：

(4)一壁厢花间四友争陪奉，胜似那蓬莱八洞相随从。(扬州梦·二·醉太平)

(5)老虔婆唱叫扬疾，更狠如剔髓挑筋索命鬼；见袜子掀天扑地，不弱如打家劫舍杀人贼。(玉壶春·四·驻马听)

(6)则道咱三口儿受贫，又有艰难似俺的也。(赵礼让肥·一)

#### 1.1.2 W成分

W成分在“XW似/如Y”式中表现出较多的局限性，大多以单音节形容词为主，只有少数的双音节词。而在单音节形容词中，又多集中在一些常用搭配中。如“强”（55例，占62.6%）、“胜”（10.2%）、“狠”（4.7%），其他还有一些出现频率并不高的如：“热”、“穷”、“快”、“弱”、“宽”、“高”、“深”、“远”、“疼”、“险”、“多”、“大”、“稳”等，而双音节词作为W成分只出现“艰难”1例，“狠劣”1例。这种单音节性一方面反映出“XW似/如Y”式中W由于处在“似”“如”之前，其长度受到限制，另一方面当单音节的W成分与其后的“似”“如”组合构成双音节时，更符合汉语的音步节拍。

#### 1.1.3 X和Y成分

在考察中我们还注意到“XW似/如Y”式中X和Y成分大多数为谓词和谓词性短语，共计71例，少数为名词和人称代词22例。这大概可以从两个方面来考虑：其一，当X、Y项为名词和人称代词时，由于“似”“如”是从比喻义动词发展而来，而比喻的喻体多为名词性成分，故而句式中的“比较”义与“比喻”义容易互相干扰，出现歧义倾向。而且确实需要根据具体的语境来判断句子到底表示的是比喻还是比较。其二，由于新生的“X比YW”式开始普遍使用，使得两种句式在元明时期形成微妙的互补分工，这两点在后文中还将论及。

#### 1.1.4 程度副词

在“XW似/如Y”式中，程度副词使用普遍，除唐后运用广泛的“更”“还”外，还有“敢”、“煞”、“索”、“恰”等。如：

(7)只要他今夜里休贪睡，重向书帷叙别离，敢胜似百补参芪。(张天师·一·二煞)

(8)则被你称了心也么哥，煞强似占鳌头稳步瀛洲远。(金钱记·二·叨叨令)

(9)但得一个生忿子，拽布披麻扶灵柩索强似那孝顺女，罗裙包土筑坟台。(老

生儿·一·混江龙)

(10)但得个无烦恼，恰胜似紫袍金带。(铁拐李·四·么篇)

#### 1.1.5 “XW 似/如 Y”式的歧义倾向成为该句式发展的阻力之一

“似”“如”的歧义倾向成为该句式发展的阻力之一。当“似”“如”为表比较的介词时，与“於”“乎”同。“似”“如”为表比喻的动词时，从比喻中本体和喻体的关系来看，又有平列、相等的含义。所以具体到使用中，容易产生歧义倾向。如下例中都可以有两种理解：

(11)那里也色胆天来大，却原来酒肠宽似海。(留鞋记·二)

(12)半生四海无着落，空着我穷似投林鸟。(黄粱梦·二·么篇)

(13)随江山生扭作唐世界，也则是兴亡成败，怎禁那公人狼劣似狼豺。(来生债·三·紫花儿序)

这些很容易被误解为单纯的比喻，那以(11)为例，是“色胆像天一样大”还是“色胆比天还大”？在当时的语境中似乎应该认为是差比句。但因为在今天现代汉语的语感中比喻义更加凸显，使我们的理解容易发生偏差。语言发展的过程也证明，一些肩负太多语义的词汇会渐渐去掉部分包袱。“似”“如”本身肩负意义过多大约是促使该句式在明清的发展中逐渐被取代的原因之一。事实上，元曲中“XW 似/如 Y”式在我们收集到的例子中，根据上下文语境，全部是差比句。差比和比喻同现时，二者并不矛盾。有时两种句式分别在宾白和唱词中互为证明。如下例：

(14)[令史云]我这笔比刀还快哩。(正旦唱)你那笔尖快如刀刃，杀人啊须再不还魂。(救孝子·二·滚绣球)

宾白中使用了“X 比 YW”式，而较文雅的唱词中使用了“XW 似/如 Y”式，这从一个侧面反映出两种句式在当时口语和书面语上的使用情况。明代宾白的改动比唱词更大，更能代表当时的口语。

仔细分析该种具有歧义倾向的句式，可以使我们加深对该句式使用情况的理解：

其一，W 成分为“强”“似”等二价形容词（关涉两个名词，不能单说他强/胜）时，不会发生歧义倾向。这也是该句式常用的多为二价形容词的原因。而当 W 成分为“热”、“穷”、“快”、“宽”、“大”、“深”、“稳”、“难”等可以用于单个事务描写的一价形容词时容易产生歧义倾向。这也是为什么目前山东方言等有类似句式的方言中“强起”等成为固定搭配、更为常用的原因。

其二，前后比较项 X\Y 为名词性成分（包括代词）时，容易与比喻中的本体、喻体发生纠葛，产生歧义倾向的比率高。22 例 X/Y 为名词性成分的“XW 似/如 Y”

式中 12 例有歧义倾向。这也是这种句式中 X/Y 为谓词性成分占多数的原因。这些都成为这一句式发展的阻力。

#### 1.1.6 “似”“如”省略形式及特定条件

当 X/Y 为数量结构，即“一+量+W+似/如+一+量”时，“似”“如”有省略现象。统计的 5 例中，有 2 例省略“似”“如”。如下例：

(15) 如今秋雨淋漓，一日难走一日，快与我行动些。（潇湘雨·三）

(16) [贾仁云]不知什么缘故，颠倒一日穷一日了。（看钱奴·一）

这两例都出现在宾白中，应是当时口语的反映。后一例中 W 成分“难走”为偏正短语，亦属罕见。

#### 1.2 “X 比 YW”式

黄晓惠（1992）曾指出“X 比 YW”式源于先秦的“比 X 於 Y”式，新生于汉魏六朝。先秦时，“比”后加“於”表明其动词性，魏晋时，W 成分多与“X 比 Y”成分脱离，“比”仍具有动词性。《元曲选》中的“X 比 YW”式已趋于成熟，66 例中，无一例带“於”，仅有 3 例“X 比 Y, W”式，且多为叙述需要或受曲律限制，“比”为介词无疑。

##### 1.2.1 X/Y 项的名词性

“X 比 YW”式中，X/Y 为名词性短语 62 例，谓词和谓词性短语只有 2 例，此外，还有“X 比 Y<sub>1</sub>W<sub>1</sub>, Y<sub>2</sub>W<sub>2</sub>”式 2 例。如：

(17) 则这的将来比较，可不做官的比做客的庄么？（老生儿·二·滚绣球）

(18) 妾身比你却长一岁。（争报恩·楔子）

(19) 好女人也，比夜来增十分颜色。（鲁斋郎·二）

(20) 咱两个离愁虽似茶烟湿，归心更比江流急。（青衫泪·三·二煞）

(21) 我则待伴素兰风清月朗，比为官另有一种风光。（玉壶春·三·贺新郎）

(22) 我比那买官的省些玉帛，求仕的费些草鞋。（王粲登楼·二·滚绣球）

在上述例中，Y 成分（17）为“的”字短语、（18）为代词、（19）为时间名词、（20）偏正短语、（21）动宾短语，（22）为承前省略“比”的情况。

##### 1.2.2 W 成分的自由性

在“X 比 YW”式中，W 成分不仅限于形容词，更多由动宾短语充当，而且还可以是主谓短语：

(23) 你比我才学浅，我只比你命运囊。（冻苏秦·三·牧羊关）

W 成分的自由性，也使得“X 比 YW”式较“xw 似/如 Y”式在表达上更具自由



度，为取而代之提供了又一理据。

1.2.3 程度副词位于W前，大量使用，如前例中“却”“更”等。此不详述。

1.2.4 特殊的“比……不同”式

《元曲选》中还有一类“比……不同”的固定句式，W成分多为否定成分，仅泛泛表明X/Y项的不同，在当时跟“与……不同”“和……不同”并存，现代汉语中已经消失。如：

(24) 熙载，你比外郡太守不同。(风光好·二)

(25) [家童云]这里比济南不同。(丽堂春·四·双调五供养)

(26) 婆婆，元来你心与我不同。(来生债·二)

由于W成分使差比义界模糊，此外可能是受到“和/与……一般”句式的类化作用，通语中“比”字句后来专门表示差比。

1.3 “X似/如Y”式与“X比YW”式的比较

相同点：1. 都有X、Y、W项。2. X、Y的语义强弱自由排列。两种句式都可以选择“X强Y弱”或“X弱Y强”式。

不同点：1. 形式不同，主要表现为语序不同。2. 功能不同：1) “X似/如Y”式中X、Y多为谓词性成分；“X似/如Y”式中X、Y多为名词性成分。2) 前式中W成分多为单音节形容词；后式中W成分可以是形容词、动宾短语、主谓短语等。1) 2) 两点使这两种句式在元曲比较句中基本呈现出互补的特征。3) 发展趋势不同：前式由于使用中的局限性在通语中越来越为后式所取代。到现代汉语口语中，X、Y成分在“X比YW”式中已扩大到动宾短语、介宾短语等谓词性成分，完全取代了“X似/如Y”式。而《元曲选》中所反映出来的两种句式互补的情况，在今天一些北方方言中仍有所体现。

## 2. 否定式的差比句式

2.1 几种主要的否定式差比句

元曲中，否定式差比句主要有“X不如Y”“X不比Y”“X比不得Y”“X不及Y”等几种。

2.2 “X不如Y”式基本无W成分

“X不如Y”先秦时已经成为常用句式，元曲中W成分仍不多见，在统计的90余例中，只出现1例“X不如YW”式。如下：

(27) 常言道灰不如火热，多敢怕我信口开合。(酷寒亭·三·菩萨凉州)

2.3 “X不比Y”式的两种语义模式

“X不比Y”式并非简单的“X比Y”式的否定式。根据其语义特征，可以分为

“肯定 X 否定 Y”和“否定 X 肯定 Y”两种语义模式。两者在具体语境中并不会引发歧义，根据上下文即可断定为那种语义模式。如：

- (28) 对金銮壮志吐虹霓，不比你那青山满眼骑驴背。(荐福碑·四·七兄弟)  
 (29) 这开封府王条清正，不比那中牟县官吏糊涂。(东堂老·一)  
 (30) 观花不比观娇态，饮酒合当饮巨瓿。(谢天香·四·二煞)

这种原因的形成主要源于“比”的两个语义来源，一为“比较”，一为“比并、相提并论”。前者形成了“否定 X 肯定 Y”的语义模式，后者形成了“肯定 X 否定 Y”的语义模式。跟“不比”相似的还有“非比”式，成因相同。

2.4 几种否定形式的语义特征分布表：

句式	数目	肯定 X 否定 Y	否定 X 肯定 Y
不如	91	-	+
不比	41	+ (87.9%)	+ (12.1%)
不及	2	-	+
非比	3	+	-
比不的	1	-	+

### 3. 疑问式的差比句式

我们统计的《元曲选》篇目中，表差比的疑问句有“怎（争）似/如”24例，“怎比（得）”11例、“怎及”1例，“岂比”2例。

无独有偶，在“X 怎比（得）Y”中，也存在着与否定句相似的“肯定 X 否定 Y”的语义模式。现代汉语中“怎比”和“怎比得”已趋于等义，且只存在“否定 X 肯定 Y”一种语义模式，但在我们的统计中，元曲选中的“怎比”和“怎比得”的语义模式截然不同。如下例：

- (31) 你是一个朽木材，怎比得他真栋梁；你是一个寒鸦儿，怎比得他丹山凤。  
 (小尉迟·一·油葫芦)  
 (32) 俺本是广寒宫冰魂素魄，怎比那阎浮世浊骨凡胎。(张天师·四·折桂令)

元曲中“怎比”一律为“肯定 X 否定 Y”式，而“怎比得”全为“否定 X 肯定 Y”式。

#### 4. 小结

通过对《元曲选》中差比句式的抽样调查，并深入例证进行细致分析，我们可以看到，在元明时期，“XW 似/如 Y”式还是一种相当活跃的句式，使用频率高于“X 比 YW”，但其使用已呈现出固定搭配化的倾向，新兴的“X 比 YW”式已经基本取代了其名词性成分之间比较的语法功能，并在 W 成分的自由性方面体现出一定的优越性。“不比”与“怎比”式均未出现 W 成分，由于“比”字本身的多义导致句式有两种语义模式，使得在以后的发展中“不比”最终未能取代“不如”。“怎比”和“怎比得”在元曲时代是有差别的，现代汉语中逐渐淘汰了“比”的“比并”义，导致二者趋同。

#### 参考文献

- 桥本万太郎. 1985. 语言地理类型学. 北京大学出版社.  
太田辰夫. 1987. 中国语历史文法. 北京大学出版社.  
黄晓惠. 1992. 现代汉语差比句的来源及演变. 中国语文. 3: 213  
赵金铭. 2002. 汉语差比句的南北差异及历史嬗变. 语言研究. 3:49-55  
李蓝. 2003. 现代汉语方言差比句的语序类型. 方言. 3:214-232  
张赫. 2005. 从汉语比较句看历时演变与共时地理分布的关系. 语文研究. 94: 43-48

## “东西”与“物事”成词及词义演变探论

徐时仪

上海师范大学

“东”、“西”由方位名词连用而可泛指四方，又由“四方”义引申可指四方的物产，进而成为各种具体事物或抽象事物的通称。在“东西”凝固成词的过程中，交际语境中人们的随机意向导致了“买卖四方的物产”这一临时性动态词义的激活，认同意向成为词义运动变化的潜在制约力，而联想机制也为义素的变异充当了中介。在表“物品、东西”这个意义上，“物”、“事”、“事物”和“物事”又与“东西”同义。元代“东西”成为南北的通用词，明清时“东西”的使用频率渐超过“物事”，发展到现代汉语而与“事物”并用成为表“物品、东西”的常用词。

在表“物品、东西”这个意义上，“东西”与“物事”同义。“东西”与“物事”的成词及词义演变涉及汉语词汇的复音化、成词的理据和兴替演变等，本文拟就此略作考察。

### 一、“东西”的成词和始见例

“东”、“西”本为方位名词，由于常并列组成词组表示“方向”，在人们心理上的组块过程中使得原来分立的“东”、“西”变得互相依赖，原并列词组结构的较为清晰的理据性逐渐变得模糊，渐由并列词组凝固而词汇化为复合词。如汉焦贛《易林·讼之未济》：“避患东西，反入祸门。”例中“东西”可指“东”或“西”，也可指四方。由此引申又泛指“方向”。如汉刘向《九叹·远逝》：“水波远以冥冥兮，眇不睹其东西。”

由方位上的相对引申又有“分离、离开”义。如《全唐诗外编》载吕岩《西江月》词：“两情恩爱事因媒，义重争相东西。”意谓怎能相分离。《王梵志诗》：“耶娘年七十，不得远东西。”意谓不得远离。《维摩诘经讲经文（一）》：“年才长大，稍会东西，不然，遣学经营，或即令学习文笔。”例中“东西”意谓小孩

稍大后，父母不用再怀抱手牵，片刻不能离身。裴鏞《郑德璘传》：“邻舟女善笔札，因睹韦氏妆奁中有红笺一幅，取而题所闻之句，亦哦吟良久，然莫知谁人所制也。及旦，东西而去。”《庐山远公话》：“山神曰：‘若要别事即难，若要寺舍住持，浑当小事。汝也不要东西，与我点检山中鬼神，与此和尚造寺。’”两例中“东西”亦皆为“离开”义。

由“分离、离开”义引申又有“外出”和“逃亡”义。如中国科学院历史研究所资料室编《敦煌资料》（1961）辑集的契约文书《辛丑年罗贤信贷生绢契》：“若东西不平善者，一仰口承弟定德丑子面上取本褐。”新疆吐鲁番唐墓所出《麟德二年卜老师举钱契》载：“若身东西不在，一仰妻儿权后。”<sup>1</sup>《慧琳音义》卷二十九释《金光明最胜王经》第七卷枷缚：“上音加。案枷者，禁系罪人之刑具也。以木枷人颈，令不东西，桎梏之类也。从木加声。”<sup>2</sup>例中“令不东西”即“令不逃亡”。《祖堂集》卷一：“师曰：‘你来去为阿谁？’对曰：‘替渠东西。’”又卷五：“依则榻着地，不依则一任东西。”<sup>3</sup>

“东”、“西”由方位名词连用而可泛指四方，又由“四方”义引申可指四方的物产，进而成为各种具体事物或抽象事物的通称。“东西”一词通称“各种具体事物或抽象事物”义始于何时，学术界有认为始于东汉、南北朝和唐代等说法，然多语焉不详，且有讹误。

如田书华《“物称东西”的俗语源浅探》一文说，“‘东西’一词早在汉代已出现”，以《公羊传·襄公十六年》“君若赧旒然”汉何休注为证。<sup>4</sup>今考何休注：“旒，旒旒。赧，系属之辞，若今俗名就壻为赧壻矣。以旒旒喻者，为下所执持东西。旒者，其数名。”<sup>5</sup>孔颖达疏：“解云亦是妻所持挈，故名之云尔。”何休所注似指旒的东西方向为下所执持，意谓赧壻听凭妻所持挈，似还不是指物之义。

又如《辞海》释“东西”一词有“泛指一切物件”义，以《南齐书·豫章王嶷传》“上谓嶷曰：‘百年复何可得，止得东西一百，于事亦济’”为语源，<sup>6</sup>陈江《买

<sup>3</sup> 参段观宋《文言小说词语通释》，广西人民出版社 3；5 年版、蒋礼鸿《敦煌资料（第一辑）词释》，《中国语文》3；9：年第 4 期和廖名春《吐鲁番出土文书语词管窥》，《古汉语研究》3；2 年第 1 期。“东西”由“外出”和“逃亡”义引申又用作死的讳词。《说文》：“亡，逃也。”段玉裁注：“亦谓死为亡。孝子不忍死其亲，但疑亲之出亡耳。”江蓝生、曹广顺《唐五代语言词典》据此指出“东西”有“死”义，与“亡”之有“死”义为一理也。

<sup>4</sup> 《慧琳音义》今存最早传本为高丽藏本，1737 年日本狮谷白莲社据以翻刻。本文所据为上海古籍出版社 1986 年影印狮谷白莲社藏版《正续一切经音义》本。

<sup>5</sup> 参蒋绍愚《入唐求法巡礼行记中的口语词》，《近代汉语研究》，商务印书馆 3；4 年版。

<sup>6</sup> 田书华《“物称东西”的俗语源浅探》，《前沿探索》422：年第 8 期。

<sup>7</sup> “旒，旒旒。赧，系属之辞”，田书华《“物称东西”的俗语源浅探》标点为“旒旒旒赧，系属之辞”。

<sup>8</sup> 《辞海》缩印本，上海辞书出版社 2002 年版第 361 页。

东西考》一文又以齐武帝所说为萧齐王室争嗣秘事底蕴的确证。据《隋书·食货志》所记萧梁钱制，其时钱制混乱，币面值与实际价值不一，大致以地域分为东钱和西钱，东钱八十当百，西钱七十当百，故豫章王萧嶷言愿武帝极寿百岁，武帝则以“东西一百”自期。周一良据此推论其时“齐武帝之意以为百岁难期，遂借东西钱短陌之数为喻，犹言寿如东钱之八十西钱之七十于事亦济耳”。<sup>7</sup>《南齐书·豫章王嶷传》中“东西”是指东钱西钱。

再如《辞源》释“东西”此义云：“物产于四方，约言之曰东西，犹记四季而约言春秋。《南齐书·豫章王嶷传》‘上曰：百年复何可得，止得东西一百，于事亦济。’唐大中二年正月制：‘所在逃户见在桑田屋宇等，多是暂时东西，便被邻人与所由等计会推去代纳税钱，悉将斫伐折毁。’（《文献通考》卷十《户口》一引）皆指产业而言。后来泛指物件为东西。”《辞源》所引《南齐书·豫章王嶷传》中“东西”是指东钱西钱，《文献通考》卷十《户口》中“东西”作“产业”解，于文义不合，“桑田屋宇等”是“东西”，但似不是“暂时东西”。

《汉语大词典》释“东西”此义似也承《辞源》所释而云：“物产于四方，约言称之为东西。古代亦以指产业。宋王溥《唐会要·逃户》：‘大中二年制：所在逃户，见在桑田屋宇等，多是暂时东西。’”据中华书局1955年据国学基本丛书本原版重印《唐会要》卷八十五《逃户》载，唐宣宗大中二年正月制：“所在逃户见在桑田屋宇等，多是暂时东西，便被邻人与所由等计会。虽云代纳税钱，悉将斫伐折毁。及愿归复，多已荡尽，因致荒废，遂成闲田。从今而后，如有此色，勒乡村老人与所由并邻近等同检勘分明，分析作状，送县入案。任邻人及无田产人且为佃事与纳税粮。如五年不来复业者，便任佃人为主，逃户不在论理之限，其屋宇桑田树木等，权佃人。逃户未归五年内不得辄有毁除斫伐。如有违犯者，据限日量情与科责，并科所由等不检校之罪。”<sup>8</sup>例中“东西”一词，《汉语大词典》作为“什物”义的早期语例。廖名春《吐鲁番出土文书语词管窥》一文认为“暂时东西”，主语当为“所在逃户”，因而可理解为“他们离开桑梓，系被迫暂时逃亡”。<sup>9</sup>据《唐会要》文意，例中“东西”一词尚指“外出”义，还不是“产业”义。

据有关文献记载，唐代已可以“东西”指具体的事物。如唐道世《法苑珠林·俗女部·奸伪》：“又善为人子，不惟养恩，治生制财，不以养亲，但以东西，广求淫路，怀持宝物，招人妇女。”<sup>10</sup>例中“东西”指财物，但唐代用例不多，似还以

<sup>7</sup> 周一良《魏晋南北朝史论集·读书杂识》，中华书局1963年版第387页。

<sup>8</sup> 核考《四库全书》本《唐会要》，“多是暂时东西”为“多有暂时东西”，“虽云代纳税钱”为“推云代纳税钱”，“勒乡村老人”为“勒令老人”，“且为佃事与纳税粮”为“且为佃事与税纳”，“据限日量情与科责”为“据粮口量情与科责”。

<sup>9</sup> 廖名春《吐鲁番出土文书语词管窥》，《古汉语研究》3；2年第1期。

<sup>10</sup> 台湾商务印书馆影印文渊阁《四库全书》本《法苑珠林》卷三十士女篇第十二，662页上栏。《四库全书总目提要》称道世此书成于高宗总章元年（88:）。符淮青《现代汉语词汇》

说“物”为主。如S1000《藏汉对照词语》B第十六条：“要什么物？”

## 二、“东西”的语源和理据

关于方位名词“东”、“西”凝固成“东西”一词而泛指各种事物的语源，历来说法也不一。<sup>11</sup>我们认为语言机制是普遍认知机制的一部分，语言的词义系统实际上是整个客观世界与人类主观精神凝结的体系，具有反映外界客观事物的功能。语言的意义不只限于语言系统内部，而是植根于人与客观外界互动的过程，新词的产生、旧词的消亡、词义的变化无不与一个社会的物质生产活动、社会活动、政治生活以及人们的观念息息相关。“东西”一词泛指各种事物的语源似还可从人的认知角度作一些探讨。考北朝乐府诗《木兰诗》咏木兰替爷从征，已有“东市买骏马，西市买鞍鞞，南市买辔头，北市买长鞭”之语。汉代长安设有东市和西市，唐宋亦同。如元稹《估客乐》：“经游天下遍，却到长安城。城中东西市，闻客次第迎。”吴自牧《梦粱录》卷十八《物产》：“谚云：‘东菜西水，南柴北米’，杭之日用是也。”词在静态时其词义具有概括性和相对的稳定性，而进入动态时则呈活跃状态，具有流动性和变异性。二者在交际语境中互相制约，完成自身的功能调节。人们的交际依赖于词在语用中的动态变化才能更好地完成，只有在交际双方对词的静态、动态内容都能完全理解和把握的状况下，交际行为才能达到交际的目的。由于人们东西奔走于东市和西市买各种物品，“东”、“西”由静态的表方位变异为动

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（北京大学出版社3；7年版457页注5）误引为：“不惟养恩治生，制财不以养亲，但以东西广求淫路。”

<sup>11</sup>大致有如下一些说法：1、春秋始成说。明张叔行《雅俗稽言》卷十三：“或曰万物始于春而成于秋。春，木，震位，东也；秋，金，兑位，西也。故曰东西。”清顾雪亭进而又有东作西成说。2、南火北水说。《通俗编》卷二十六：“（明周）延儒曰：南方火北方水，昏夜叩人之门求水火，无弗与者，此不待交易。故但言买东西而不及南北。”又发展有东木西金说。东代表木，西代表金，木、金可以放在篮子里，而水、火不能用篮子装，故物称东西，不称南北。3、东京西京说。清龚炜《巢林笔谈续编》卷上《买东西考》云：“愚以此语定起东汉，其时都市之盛，侈陈东西两京，俗语买东、买西，言卖买者，非东即西，沿习日久，遂以东西为货物替身。”4、四方约言说。清梁章矩《浪迹丛谈续谈》卷七：“物产四方而约举东西，正犹史记四时而言春秋耳。”5、东洋西洋说。陈江《买东西考》（《历史研究》3；8年第8期）云为明嘉、万年间东南沿海地区行业方言，与东西洋舶来品有关。6、东市西市说。任筱萌《“东西”指称万物的由来及其流变》（《汉字文化》1999年第1期）认为：“‘东西’组合在一起表示世间万物应起于唐，来源于唐代都城长安的东市和西市。”7、同纬度说。柴萼《梵天庐丛录》：“近闻一人解之曰：以地理之学论之，同纬度者物产必相同，同经度者物产必不相同。例如吾华与美国为同一纬度，其物产不甚悬殊，其近者更可知矣。称物为东西者，言东有此物西亦有此物，故以东西为物之代名词也；若南北物产本不相类，故指一切可名之为东西，而不能名之为南北。”8、东乌西兔说。9、东王公西王母说。

态的表四处购买物品，买各种物品也可说“买东买西”。如李开先《林冲宝剑记》第二十九出：“买东买西使官钱，点驴点马是买卖。”《醒世恒言·徐老仆义愤成家》：“却说阿寄，那一早差他买东买西，请张请李，也不晓得又做甚事体。”龚炜《巢林笔谈续编·买东西考》：“愚以此语定起东汉，其时都市之盛，侈陈东西两京，俗语买东买西，言卖买者非东即西，沿习日久，遂以东西为货物替身。”从认知语言学的角度看，在词义演变的过程中，也伴随着主观化。<sup>12</sup>人们的自我表达心理和创造心理是造成语言不断变化的一个动因。<sup>13</sup>“东西”一词表示泛指“事”或“物”义的语源似与买卖四方的物产有一定关系，即在人们主观认知的介入下由方位词借代为买卖四方物产的专称，进而泛指一般的物品。<sup>14</sup>如晋束皙《贫家赋》：“债家至而相敦，乃取东而偿西。”例中“东”“西”已由分指方位而含有指物品、财物业。在“东西”凝固成词的过程中，语义内部个别义素的凸现、偏移和变异，义位的组合和重新聚合都涉及到人的心理认知。交际语境中人们的随机意向导致了“买卖四方的物产”这一临时性动态词义的激活，认同意向则成为词义运动变化的潜在制约力。语言交际时，词所蕴涵的所有义素只有某一部分成为信息的焦点显现出来。<sup>15</sup>同时，联想机制也为义素的变异充当了中介。我国封建社会发展到唐宋时期，社会经济有较大发展，手工业商业发达，城市经济繁荣，东西南北四方物产的流通也或多或少促成了由东西的买卖趋于买卖的东西而形成“东西”的泛指“物品”义，<sup>16</sup>故宋元时用例渐多。如宋佚名《昭忠录·密佑都统制》记密佑，淮人，起行伍，为将尝戍荆岳。与元军战，负伤被俘，坚执不降。“临刑，其子市北饭以进。佑吒曰：‘此岂是吾吃底的东西？亟将去！’复市南饭以后进，饭讫临刑。”又如元张养浩《朱履曲》：“家庭中添些盖作，囊篋里攒些东西，教好人每看做甚的。”王实甫《西

<sup>12</sup>[英]戴维·克里斯特尔编，沈家煊译《现代语言学词典》：“主观性（subjectivity）是指语言的这样一种特性，即在话语中多多少少总是含有说话人‘自我’的表现成分。也就是说，说话人在说出一段话的同时表明自己对这段话的立场、态度和情感，从而在话语中留下自我的印记。”“主观化（subjectivisation）则是指语言为表现这种主观性而采用相应的结构或经历相应的演变过程。”商务印书馆2000年版。

<sup>13</sup>郭锦桴《语义网络初探》：“语义的形成和表现，从客观事物到心理反映、认识、概括反应，形成大脑内层语义，然后由这内层语义转换为内部言语底层，最后由言语底层变为外部的言语形式，这是一个复杂的心理认知和言语表达连续过程。”《汉语学习》3；；2年第8期。

<sup>14</sup>参拙文《“买东西”考献疑》，《历史研究》3；；：年第4期。

<sup>15</sup>王军《汉语词汇的动态发展变化探析》指出：“一个词中的规约义素和隐含义素，在不同的言语环境中，都面临着被言语主体重新选择的问题。人们选择了一个词，而所需要的可能只是这个词中的某几个义素，如此才导致了义素的偏移、凸现和以某一义素为基点的变异。”山东大学出版社4224年版379页。

<sup>16</sup>马永康《“东西”的语源：一个模糊而有趣的问题》认为“一个圆满的解答显然要将词语的源头、构词依据以及演变动力结合起来”。《深圳职业技术学院学报》2007年第4期。



## 徐：“东西”与“物事”

厢记》五本一折：“姐夫得了官，岂无这几件东西？”明清沿用。如朱有燉《豹子和尚自还俗》：“我又无甚希奇物，我又无甚好东西，他偷我个甚的？”又如《红楼梦》第三十五回：“凤姐笑道：‘这一宗东西，家常不大做；今儿宝兄弟提起来了，单做给他吃。’”

从认知科学的概念整合理论看，“东”、“西”的凝固成词也就是把来自不同认知域的框架结合起来的一系列认知活动，体现了一个动态的概念整合过程：

输入空间 1：心理空间中的方位概念，隐喻有四面八方的到处义；

输入空间 2：心理空间中东西南北四方物产流通的概念；

类属空间：四方的物产和一般的物品；

整合空间：由买卖四方物产的专称进而泛指一般的物品。

在新的整合空间中，方位概念和四方物产概念这两个心理空间相互映射，整合成买卖四方物产的新的心理空间，进而形成了泛指一般物品的新概念。<sup>17</sup>

值得指出的是语言的变化发展往往是从词义开始的，语言作为社会交际的工具，其功能在于具体应用时能表情达意。“东”、“西”在组成一些固定词组时也有“四方”义，如“东寻西觅、东奔西跑、东张西望、东游西荡、东碰西撞、东支西吾、东央西告、东挪西借、东拉西扯、东不着边，西不着际”等。诸词皆有泛指四面八方的到处义，其中“东寻西觅”指四处寻找，又可说成“寻东觅西”。“寻东觅西”也是指到处寻找，但语意可理解为寻找东西，“东”、“西”的表方位义在具体应用中原有词义虚化而泛指物品。<sup>18</sup>又如“东问西问”指四处询问，而“问东问西”则可指问这问那，语意可理解为问这件事问那件事，“东”、“西”表方位义的原词义在具体应用中虚化为泛指事物。“东 X 西 X”组成表四处做某一动作的四字格词语模，<sup>19</sup>而“X 东 X 西”则组成表做这做那的四字格词语模。“X 东 X 西”中“东”、“西”的具体意义因所处语境的不同而渐虚化为泛指事物，得到人们的理解和认可而形成模因复制。“东”、“西”的表方位义在人们主观认知的介入下可表指代义，经人们不断地运用而得以传播，<sup>20</sup>进而泛指物事。如《朱子语类》卷八十四：“如今

<sup>17</sup>Fauconnier 在《思维与语言中的映射》一书中提出概念映射理论，认为联想和认知推理过程就是使一个心理空间中的概念与另一个或多个心理空间中的概念产生映射关系，从而形成新的心理空间，即形成新的概念的过程。简言之，概念整合就是把来自不同认知域的框架结合起来的一系列认知活动。

<sup>3</sup>授课时讲到“寻东觅西”，魏现军老师提出的一个说法颇有新意。他认为居室一般都坐北朝南，东、西为厢房住人或放置器物，人们寻找物品不外东、西厢房，而不会在南、北，故也有可能由此形成“东西”的泛指“物品”义。

<sup>3</sup>词语模指具有新造词语功能的各式各样的框架，由“模标”和“模槽”两部分构成，“模标”指词语模中固定不变的词语，“模槽”指词语模中的可填充的空位。参何自然《语用三论：关联论·顺应论·模因论》，上海教育出版社 2007 版。

<sup>42</sup>何自然《语言中的模因》（《语言科学》2005 年第 6 期）一文指出，模因论“试图从历

人须是理会身心。如一片地相似，须是用力仔细开垦。未能如此，只管说种东种西，其实种得甚么物事！”例中“种东种西”中的“东”、“西”与下文的“物事”对应，指种这种那，人们的主观认知则可理解为种这东西种那东西而泛指“物事”。

“东西”一词还可重叠为“东东西西”。如《朱子语类》卷一百零四：“譬如人治生，也须先理会个屋子安着身己，方始如何经营，如何积累，渐渐须作成家计，若先未有安着身己处，虽然经营，毕竟不济事。为学者不先存此心，虽说要去理会，东东西西，都自无安著处。”例中“东东西西”，据上下文文意可理解为指四面八方，也可理解为泛指各种物品，体现了“东西”一词由泛指四方渐凝固为通称各种具体事物或抽象事物的趋势。<sup>21</sup>

认知语义学将共时的语义分析与语义的历时演变结合起来，重视人的认知对词义形成的作用，指出认知语言结构反映人们在对客观世界的知觉和认知基础上形成的概念和概念结构，即语言结构与人的经验结构之间有一种必然的联系。语义学和语用学形成一个连续统（continuum），二者都作用于语言的意义。语言的意义并不限于语言系统内部，而是植根于人类与世界互动过程中形成的物质经验，植根于说话人的知识和信仰系统。“东西”一词的具体事物义产生后作为人类与世界互动过程中形成的物质经验，还可用以特指酒杯。<sup>22</sup>如宋王炎《和尧章九日送菊》之一云：“对花懒举玉东西，孤负金钱绿满枝。”又如黄庭坚《次韵吉老十小诗》：“佳人斗南北，美酒玉东西。”也可指酒。如宋周紫芝《南柯子》词云：“殷勤犹劝玉东西，不道使君，肠断已多时。”清王士禛《分甘余话》卷三：“一树山茶红破蕊，花前催进玉东西。”“东西”又作“西东”。如宋卢祖皋《乌夜啼》：“闲意态，小房栊，丁宁须满玉西东。”吴儆《浣溪沙》：“玉人争劝玉西东。醉拥雕鞍金蹀躞，夜归花院玉葱茏。”辛弃疾《临江仙》：“画楼人把玉西东。舞低花外月，唱澈柳边风。”例中“西东”是出于押韵的需要调换词序而与“东西”构成同素逆序词。

### 三、“物事”的成词和始见例

“物”指物件、东西。如《易·系辞下》：“近取诸身，远取诸物。”宋苏轼《前赤壁赋》：“且夫天地之间，物各有主，苟非我之所有，虽一毫而莫取。”也可泛指万物。如《礼记·中庸》：“诚者物之终始。”“事”有“事情”义，可指

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时和共时的视角对事物之间的普遍联系以及文化具有传承性这种本质特征的进化规律进行诠释”。模因复制有同化、记忆、表达、传播四个阶段，参何自然《语用三论：关联论·顺应论·模因论》，上海教育出版社2007版。

<sup>43</sup>《赵州录》上：“问：正当二八时如何？师云：东东西西。学云：如何是东东西西？师云：觅不着。”例中东东西西有四处浪荡义。

<sup>44</sup>“东西”指酒杯或酒，可能由西为宾、东为主引申指酒席之四座。如王安石《寄程给事》：“舞急锦腰迎十八，酒酣金盏照东西。”意谓酒酣干杯以照四座，再引申而指酒杯或酒。参郑张尚芳《东西探源三题》，《南阳师范学院学报》4229年第32期。

人类生活中的一切活动和所遇到的一切现象。《书·益稷》：“股肱惰哉，万事堕哉！”又可指物件，东西。如《百喻经·水火喻》：“火及冷水二事俱失。”宋蔡绦《铁围山丛谈》卷五：“元丰、大观二藏，虽研墨，盖何事不俱，乃丰盛异常尔。”“物”、“事”在表“物品、东西”义上同义。如《礼记·大学》：“物有本末，事有终始。”“物”、“事”同义并列组成复合词“物事”也可指“物品、东西”，汉代已出现此词。如《论衡》卷三《偶会篇》：“若夫物事相遭，吉凶同时，偶适相遇，非气感也。”又卷十四《状留篇》：“占大以小，明物事之喻，足以审天。”又如何休注《公羊传·隐公元年》“渐进也”云：“渐者物事之端，先见之辞。”唐宋使用渐广，如魏征等《隋书·张衡传》：“衡妄言衡怨望，谤讪朝政，竟赐尽于家。临死，大言曰：‘我为人作何物事，而望久活？’”又如《二程语录》卷十二：“夫小人心中，只得些物事时便喜，不得，便不足。”《三朝北盟会编》卷十三《燕地税赋》：“今若更要税赋，须是又添物事，如何交得出。”《朱子语类》卷一：“阴阳是气，五行是质。有这质，所以做得物事出来。五行虽是质，他又有五行之气做这物事，方得。”例中“物事”皆指“物品、东西”。宋以后沿用。如《西游记》第十二回：“玄奘大喜，即便谢了恩，领了物事，更无留滞之意。”《初刻拍案惊奇》卷一：“我自到海外一番，不曾置得一件海外物事。”《水浒传》第二回：“史进自此常常与朱武等三人往来，不时间，只是王四去山寨里送物事。”孔尚任《桃花扇·访翠》：“若中了意，便把物事抛上楼头，他楼上也便抛下菓子来。”

#### 四、“物事”、“事物”与“东西”

“事”、“物”又可组成复合词“事物”，指“客观存在的一切物体和现象”，汉代亦已出现。如《尹文子·大道上》：“察其所以然，则形名之与事物，无所隐其理矣。”<sup>23</sup>又如《汉书·律历志上》：“令事物各得其理。”汉以后沿用。如韩愈《送高闲上人序》：“天地事物之变，可喜可愕。”“物事”与“事物”构成同素逆序词，又都可泛指“事”或“物”，但“事物”还可指“客观存在的一切现象”。<sup>24</sup>如《朱子语类》中“事物”有289例，大多指“客观存在的一切物体和现象”。“事物”还可重叠为“事事物物”，如《朱子语类》卷五：“理则就其事事物物各有其则者言之。”又卷九：“事事物物上皆有个道理，元无亏欠也。”例中“事事物物”亦皆指“客观存在的一切物体和现象”。

<sup>45</sup> 《尹文子》，相传为战国时尹文所著，今本在魏晋人袭录增删残文基础上又经后人整理撰写而成。

<sup>46</sup> 《现代汉语词典》第7版释“事物”为“指客观存在的一切现象”，释“物事”为①>书@事情。②>方@物品；东西。商务印书馆4227年版第3668页和第3669页。“事物”又有“事务；事情”义。如刘肃《大唐新语·聪敏》：“同州事物殷繁，司户尤甚。”参《汉语大词典》第3册，上海辞书出版社3；：8年版第76：页。

在表“物品、东西”这个意义上，“物”与“事物”同义。如《荀子·君道篇》：“如是，国者，事物之至也如泉原，一物不应，乱之端也。”例中“一物”即“一事物”。“事”又与“东西”同义。如元乔吉《金钱记》第一折：“待要与他些什么东西为信物，身边诸事皆无，只有‘开元通宝’金钱五十文。”例中“事”即“东西”。<sup>25</sup>

大致而言，作为构成同素异序词的两个语素一般为同一语义场，而一对同义或近义语素表达的并列关系或一对反义语素表达的对立关系在意义上具有完整的统一性，这构成了同义或近义语素并举和反义语素对举皆能凝固成复合词的逻辑基础。

“东西”和“西东”为联合式反义同素逆序词，“物事”和“事物”为联合式近义同素逆序词。“物事”和“事物”二词在表“物品、东西”义上与“东西”同义，“事物”多指抽象的物体，“物事”多指具体的物体，“东西”则可泛指各种具体的或抽象的事物。<sup>26</sup>

## 五、“物事”与“东西”的兴替

在表“物品、东西”义上，“东西”晚于“物事”成词，宋元时两词并行共用，由具体的事物又引申可泛指抽象的事物。如《清平山堂话本》卷二《简帖和尚》：“只见官人入来，便坐在凳了上，大惊小怪道：‘婆子，你把我三百贯钱物事去卖了，经一个月日，不把钱来还。’婆子道：‘物事自卖在人头，未得钱。支得时，即便付还官人。’官人道：‘寻常交关钱物东西，何尝推许多日？讨得时，千万送来！’”例中官人前言“三百贯钱物事”，后言“钱物东西”，皆为泛指。就地域而言，“物事”多见于南方文献，《朱子语类》中用例颇多，计有799例。如卷六：“告颜子以‘克己复礼’，克去己私以服於礼，自然都是这意思。这不是待人旋安排，自是合下都有这个浑全流行物事。”卷十一：“史是皮外物事，没紧要，可以札记问人。”又同卷：“如吃物事相似：将甚么杂物事，不是时节，一顿都吃了，便被他撑肠拄肚，没奈何他。”<sup>27</sup>

<sup>47</sup>英语中“物”为 *vj lpi*, *o cwgt*, *qdlgev*；“事”为 *o cwgt*, *chhct*, *vj lpi*, *dwulpguu*；“事物”为 *vj lpi*, *qdlgev*, *cttcpi go gpv*；“物事”为 *chhct*, *dwulpguu*；“东西”泛指示各种具体的或抽象的事物、物体为 *vj lpi*。此外，“物体、物品、物件、物什”等词也有“东西”义。

<sup>48</sup>《现代汉语词典》第7版释“东西”为①泛指各种具体的或抽象的事物。②特指人或动物（多含厌恶或喜爱的感情），商务印书馆4227年版第547页。

<sup>49</sup>又如卷十三：“有是理，方有这物事。”卷六十五：“既成个物事，便自然如此齐整。”卷一百十六：“其慈，其孝，这便是仁；各亲其亲，各子其子，这便是义。这个物事分不得，流出来便是仁；仁打一动，义理智便随在这里了。……且如心性情虚明应物，知得这事合恁地，那事合恁地，这便是心；当这事感则这理应，当那事感则那理应，这便是性；出头露面来底便是情，其实只是一个物事。”卷一百二十二：“他上文本意主张形势，而其末却如此说着，盖他也知仁义是个好底物事，不得不说，且说教好看。”诸例中“物事”皆指“事”或“物”。

“东西”和“物事”由泛指抽象的事物还都可带有一定的感情色彩来特指人或动物，较早的用例见于元代。如马致远《青衫泪》第三折云：“但犯着吃黄齏者，不是好东西。”又如蒋正子《山房随笔》记贾似道失势被谪，赵介如馆人语郑虎臣云：“天使今日押使至此，度必无生理，曷若令速殒，免受许多苦恼。”郑即云：“便是这物事受得这苦，欲死而不死。”<sup>28</sup>元以后沿用。如《警世通言·皂角林大王假形》：“这神道是个作怪的物事，被栾太守来看，故不敢出来。”又如《红楼梦》第一〇三回：“王夫人哼道：‘糊涂东西！有紧要的事，你到底说呀！’”

沿至明清，“东西”一词的使用频率渐渐超过“物事”一词，<sup>29</sup>发展到现代汉语而与“事物”并用成为表“物品、东西”的常用词，“物事”一词则在吴方言等方言中沿用至今。<sup>30</sup>由“物事”在吴方言等方言中沿用似可推测“东西”最初在北方使用，元代蒙古族入主中原后各民族间的交融加强了语言的交流，北方官话渐处于主导地位，<sup>31</sup>“东西”也就成为南北通行的常用词而沿用至现代汉语。

## 六、结语

“东西”与“物事”的成词和兴替既体现了汉语词汇的双音化发展趋势，同时也与人的认知和社会经济的发展以及元代北方官话占主导地位密切相关。词汇作为语言的建筑材料具有历史的继承性，同时又处在经常的变化与发展之中。语言的词汇是动态的不断发展的，词汇发展的主要方式是创造新词，而新词的创造又是在已有的语言材料和构词方法的基础上进行的。人类的词汇不只是大量随意记下的表述单位及相关的意义，在人类概念系统和语言系统之中，大部分意义单位既不是彻底任意性的，也不是彻底组合的，而是在某种程度上具有其理据性，且不同民族不同语言认知的理据也有不同。<sup>54</sup>因而，多侧面、多层面、多角度地考察分析这些语言现象，这不仅对揭示汉语词汇演变发展的规律具有重要的学术价值，而且对探讨普通语言学有关词义形成的理论也无疑具有重大的学术意义。

基金项目：国家社会科学基金重大项目（10&ZD104）；上海市教委 085 工程项目“宋代文献整理与研究”。

<sup>4</sup> 现代汉语中可用“老东西”、“小东西”等指代人，在不同语境中的具有不同的感情色彩。

<sup>4</sup> 据陈江《买东西考》一文统计，《古今小说》出现“物事”28次，“东西”50次；《警世通言》“物事”34次，“东西”52次；《拍案惊奇》“物事”16次，“东西”112次。

<sup>52</sup> 古轻唇皆为重唇，“物”上古明母物部入声，中古微母物韵入声，吴方言存古音仍读明母。许宝华、宫田一郎主编《汉语方言大词典》释“物事”：①东西。（一）徽语。（二）吴语。（三）闽语。（四）土话。②家伙。官话。元马致远《岳阳楼》第三折：“哎，村～！泼东西！怎到的那里。”中华书局3；；；年版第5627页。

<sup>53</sup> 参拙文《略论汉语文白的转型》，《上海师范大学学报》422：年第4期；《汉语白话发展史》，北京大学出版社3；；9年版。

<sup>54</sup> 如汉语用“蚯蚓”，英语用“gctj y qto”，指称的意义相同，而汉语在认知上着重该动物运动时的屈伸动作，英语在认知上则着重其生存的环境。

## 徐：“东西”与“物事”

### 参考文献

- [1] 陈江. 买东西考[J]. 历史研究. 3; ; 8\*8+0
- [2] 马永康. “东西”的语源：一个模糊而有趣的问题[J]. 深圳职业技术学院学报. 4229\*6+0
- [3] 任筱萌. “东西”指称万物的由来及其流变[J]. 汉字文化, 1999(1).
- [6] 田书华. “物称东西”的俗语源浅探[J]. 前沿探索. 422: \*8+0
- [7] 徐时仪. “买东西”考献疑[J]. 历史研究. 3; ; : \*4+0
- [8] 徐时仪. 汉语白话发展史[M]. 北京大学出版社. 3; ; 90
- [9] 徐时仪. 略论汉语文白的转型[J]. 上海师范大学学报. 422: \*4+0
- [8] 郑张尚芳. 东西探源三题[J]. 南阳师范学院学报. 4229\*32+0
- [9] 周一良. 魏晋南北朝史论集[M]. 中华书局, 1963.
- [10] Hwepplgt. I 0Vwtpt, O 04224. *The Way We Think: Conceptual Blending and the Mind's Hidden Complexities* [M]. [P gy 'l qtmDcuk'Dqqm0  
(徐时仪 上海师范大学古籍研究所)

## 韩国汉语学习者的汉语元音音系范畴原型的特点

Sun Hee Lee 李善熙

北京语言大学

目前，围绕英语学习者的第二语言和外国语语音习得研究已获得丰硕的成果，尤其是20世纪末出现的话语学习模型（Speech Learning Model）、知觉同化模型（Perceptual Assimilation Model）以及母语磁极效应（Native Language Magnet theory）等语音习得理论有助于分析学习者语音习得程序和特点。但，我们发现在韩国汉语学习者的语音习得过程中出现了仅应用以往理论很难解决的现象。因此，本研究通过汉/韩单元音之间的感知、声学相似性以及韩国学习者的汉语单元音发音和听辨正确度密切观察韩国学习者形成汉语单元音音系范畴的程序和特点，并破解韩国学习者将汉语单元音发为二合元音的具体原因。本稿根据 SLM、PAM 以及 NLM 等理论利用音姿（gesture）和声学等参数证明韩国学习者形成的汉语音系范畴不同于汉语母语者的音系范畴，并证明在学习者认知系统里存在两种不同的汉语音系范畴原型——同等原型（Identical Prototype）和类似原型（Analogical Prototype）。我们探讨韩国学习者的汉语范畴原型发挥何等作用，重点观察类似原型引起的原型磁极效应在汉语交际中产生的正负效果。

### 1. 研究背景

#### 1) 对学习者的研究——对比语言学

Flege基于对比语言学提出将心理学的同等类别概念应用于音位范畴感知的假设（1987），并从此发展成“SLM——语音学习模型理论（1995）”。SLM提出学习者习得与母语相似的目标语音位时更会保留母语的口音，而在习得陌生音位时语音更靠近目标语母语者的口音。不同于以往的学习者语音研究大多依靠研究者的听感而缺乏科学性，这一理论给广泛的二语语音研究者提供一个科学的研究方法。

#### 2) 语音感知——范畴化和归一化研究

研究学习者发音的学者们一般注意到学习者语音的输出，但研究语音感知的学者更加注重学习者对“输入”的处理。

Kuhl (1991) 通过观察六个月的婴儿和黑猩猩对元音/i/的反映, 提出“母语磁极 (native language magnet)”的概念, 并主张人在出生六个月以内就与以动物不同的感知类别方式形成母语的音系范畴。Kuhl和Iverson在1995年又共同提出较完善的母语磁极模型 (NLM) 并主张大脑天生拥有以声学参数为范畴依据的普遍音系原型, 这一普遍原型原本能辨别所有的外部语音, 但有了母语经验之后这一普遍原型中不在母语音系里的则失去功能只有能区别自己母语音系范畴原型继续发挥磁极效应。他们认为人在听外部语音的时候, 大脑将外部输入的线性语音散开为单个音位而范畴原型发挥磁极效应将与自己配对的音位拉拢到自己的范畴里, 从而实现人类的语言活动。

Best (1995) 基于行动主义心理学和生态心理学提出了 PAM (perceptual assimilation model), 该理论主张母语音系范畴在大脑的一般认知过程所形成的。她反对其它心理声学研究者提出人脑里天生存在以声学空间分布的方式布置的音系表征。PAM认为人对语音的感知过程是一般的认知过程主管的而不是在大脑语言单元所主管的, 人类形成母语音系范畴的时候不仅使用察觉声学特征的听觉感官, 还使用察觉发音音姿的发音器官、视觉等复合感官。这样形成的母语音系范畴自然以音姿参数 (gesture) 和声学参数等为判断范畴的标准。

## 2. 以往研究的问题和本文理论取经

目前的二语语音习得研究大多都基于SLM进行, 本研究也得力于SLM的实验办法和理论假设, 并借此推展思路, 但我们还得指出在假设方面SLM有内部矛盾的地方。SLM根据两个语言语音的相似性预测学习者的二语习得顺序, 但研究者不能仅对比两个语言的抽象音位系统而决定两个语言音系之间的相似度。虽然研究者根据SLM对两个语言的音系进行声学分析, 但声学相似度不一定与学习者的感知相似度相一致。

NLM也有限制, 它的母语磁极模型有说服力地解释人类对语音的感知类别, 但它合理解释语言运用 (Language Performance) 中的一个环节, 并不意味着它在语言能力 (Language Competence) 方面所前提的“人有天生内在的语音表征”的想法也得到证明。

最后, 本研究虽然在母语音系范畴形成过程中同意PAM的立场, 但一些部分也跟它有不同的看法。首先, 本研究同意人使用听觉、视觉、发音器官等的复合型感官而形成母语的音系范畴, 因此所形成的母语音系范畴同时以音姿和声学参数为其范畴标准。问题是, PAM基于生态环境学的立场不支持与动物区别的人脑天生的能力, 我们却基于一些认知语言学观点同意人脑天生有逻辑的能力 (Crain 2009)。虽然, 婴儿形成母语的音系范畴不需要天生的音系表征,



但还是需要有将所听的语音刺激归类的逻辑能力 (logical thinking)。

此外, 学习者语言的语音习得研究主要都围绕英语进行, “语音感知范畴”就涉及到音位范畴, 但从汉语教学的立场对学习者的汉语音位范畴反应进行了研究并发现了对应于二语音位的感知反应不一定在学习者母语音位层次上出现。我们的研究观察到了学习者反映目标语音位的表征有时候复合元音的单位, 并使用复合元音来形成该音位的范畴, 例如韩国学习者将汉语音位/y/听或发成二合元音[wi]。

### 3. 本研究创新价值

1) 以往的二语语音研究的对象主要都是英语, 以其他语言的语音研究实例比较少, 本研究以韩国汉语学习者为例有效地验证PAM主张的音姿参数是形成母语音系范畴的重要的条件等观点。

2) 我们与以往语音习得研究不同不仅根据汉/韩语元音的声学相似性, 还根据汉/韩语感知相似性将确定韩国学习者所形成的汉语音系范畴。本研究首次提出韩国学习者汉语语音系统的两种原型: 一, 汉语元音音位正确符合于韩语元音音位范畴的“同等原型 (identical prototype)”<sup>1</sup>; 二, 汉语元音音位不一致于韩语音位的“类似原型 (analogical prototype)”<sup>1</sup>。

3) 本研究与以往研究不同, 汉语母语者听辨组分成两组, 第一组是有语音学专业知识的专业组, 而第二组是一般的母语者。如此组成的听编组可以更明确地显示, 虽然学习者犯发音和听辨偏误, 但这一语音偏误对二语母语者和学习者产生的结果并不一样, 对双方具有不同的意义。

### 4. 研究假设以及方法

为了深入探讨上述的问题而进一步达到合理的结论, 本研究设计的假设和方法如下:

1) 韩国学习者在感知汉语 (目标语) 音位时, 反映汉语音位的范畴原型与汉语母语者不同。我们的研究结果支持SLM, 将证明韩国学习者形成的汉语音系范畴不同于汉语母语者的音系范畴。本研究将进行汉韩语元音声学 and 感知相似度调查分析而证明韩国学习者对汉语音系形成的范畴与汉语母语者有何等差异。

2) 类似原型/[wi]/发挥的磁极效应给学习者感知和发音带来的结果与同等

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<sup>1</sup> 相对于“母语”的原型, 本人在此首次提出学习者语言的原型概念——同等原型和类似原型。

原型/i/的磁极效应不一样,对学习者感知和发音上产生的影响程度也不如同等原型那么大。韩国学习者汉语原型的磁极效应在他们的汉语输入(感知)和输出(发音)程序上反映出来,我们将通过听辨、分析等实验详细验证学习者音系范畴的特点。

3) 韩国学习者使用类似原型/[wi]/而产生的结果在汉韩两国人的语言交际中对汉语母语者和韩国学习者具有不同的意义。韩国学习者使用类似原型的结果对听觉感知和发音上会产生偏误。但由于类似原型的磁极效应学习者的偏误也会具有系统性,因而汉语母语者不很注意到他们的语音偏误。我们通过/i/和/y/来组成的双音节非词和单词的感知和发音实验,将验证学习者产生的语音偏误对学习者和汉语母语者具有不同的语言交际意义。

## 5. 单元音感知和发音:归纳韩国学习者汉语元音音系范畴

### 1) 汉/韩元音声学分析以及韩国学习者的汉语单元音声学分析

#### a. 实验过程

我们为了分析汉/韩语的声学特征征集了20个发音人,其中汉语普通话者为10人,男女各5名,标准韩语母语者为10人,3男7女。这些发音人分别发自己母语单元音,则6个汉语单元音/a[a]、e[ɛ]、o[o]、u[u]、i[i]、ü[y]/和7个韩语单元音/아[a]、에[e]、어[ɐ]、오[o]、우[u]、으[ɯ]、이[i]/<sup>2</sup>。我们另在北京语言大学找韩国学习者,具体为5名初级水平韩国汉语学习者和5名高级水平汉语学习者,都是18岁以后开始学习汉语,在中国居留期间控制为初级6个月以下、高级2年以上。

我们的录音材料彻底基于单独成音节的单元音,于是从林焘(1998)的8个单元音中在实验材料里不包括汉语单元音中[r]和[ʃ],这一点与王韞佳和邓丹(2009)一样。

我们先提供利用声学图比较汉韩语元音音位的声学空间上的分布,然后从声学分析的角度探讨韩国学习者韩语单元音发音特点,尤其形成偏误的/y/音位再提供汉语母语者和韩语学习者的语图,从而明确地显示韩国学习者对该音位形成的偏误有何种特点。本研究所有录音是在北京语言大学语音实验室进行的,所使用的一起为鸿雁公司的CD1-41和Soundcraft公司的SpiritLive4/2以及CoolEditPro.2.1软件,在录音时以44000赫兹为录音样本采取频率标准。每一个发音人把一个单元音读两次。我们从录音的每一个单音节采取基频(F0)、第

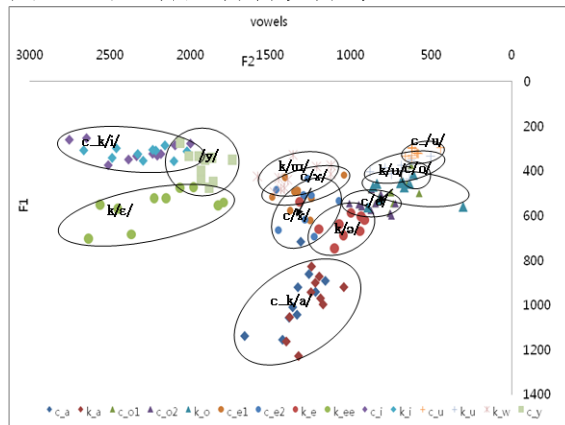
<sup>2</sup> 下文若不是需要区分的情况,一般为了标记方便统一使用音系标记“/ /”而写国际音标。

一共振峰（F1）以及第二共振峰（F2）的起点、中点、终点的三个点，并算出三个点的平均值后把它作为该音节的F0、F1以及F2值。而汉语半高元音音位 /ɤ、o/ 等共滑移动程较大的语音特别多采取两个点——共振峰弯曲的开头点、共振峰弯曲的结束点以及共振峰弯曲结束后的平直部分的首、中、尾的三个点，从而尽量得出其滑移的移动轨迹。

b.分析结果

我们通过声学分析可以观察汉/韩语单元音音系的实际语音分布，其结果发现音系的抽象性和语音的实际物理的属性会有差异。先看图1。

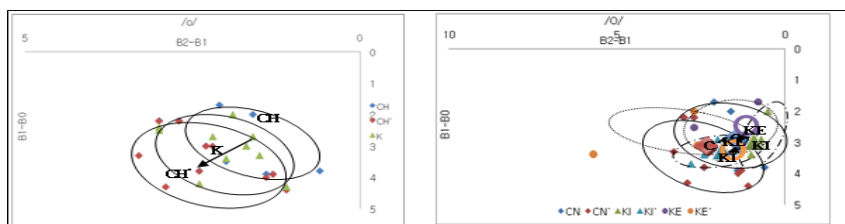
图 1: 汉/韩语元音音位分布



以往研究分析汉韩语的/i/声学分布大概一致，韩语/a/比汉语稍微靠后，另外韩语的/u/高低维度上与汉语有差异（梁春基 2008、Lee,Mikyong[韩] 2006），但大致上汉、韩语的/i/、/u/以及/a/的声学空间分布在很大程度上重叠在一起。实际上我们的学习者汉语单元音声学分析结果表明，韩国学习者对汉语/a、i、u/与汉语母语者一样，因此我们在本文中不分析该三个音位的学习者发音。

此外，因为汉语音位/o/、/ɤ/的实际语音是复元音，它们在声学空间里几个韩语音位相交，例如/o/和/ə/、/u/等。我们先看汉/韩语母语者的/o/巴尔克图以及韩国学习者与母语者的汉语/o/巴尔克图。

图 2: 中元音/o/



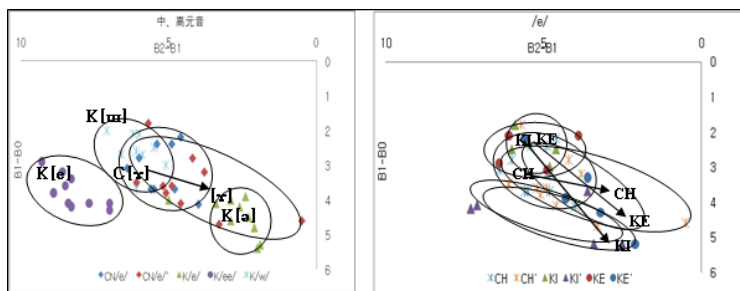
汉/韩语母语者的/o/

汉语母语者和韩国学习者的汉语/o/

在图2左图里“CH”指汉语母语者的/o/、“K”指韩语母语者的/o/，在右图里三角形“KI(Korean, inexperienced learner)”是指初学者的汉语/o/平均值以及圆形“KE(Korean, experienced learner)”指高学者的汉语/o/平均值。左图显示汉语/o/有明显的动程而韩语/o/在声学空间里正好分布于汉语/o/滑移前和滑移后分布范围的中间。右图显示，学习者会感觉到汉韩语/o/的发音差异并充实地反应在汉语/o/的发音上。

此外，汉语中元音/ɤ/也像/o/有滑移的音姿特点，并且分布于韩语高元音/ɯ/和中元音/ə/的中间。/ɤ/发音的起点靠近于高元音/ɯ/而结尾接近于中元音/ə/，先看图3。

图 3: 汉/韩语中元音、韩语高元音/으[ɯ]/以及母语者和学习者汉语/e[ɤ]/

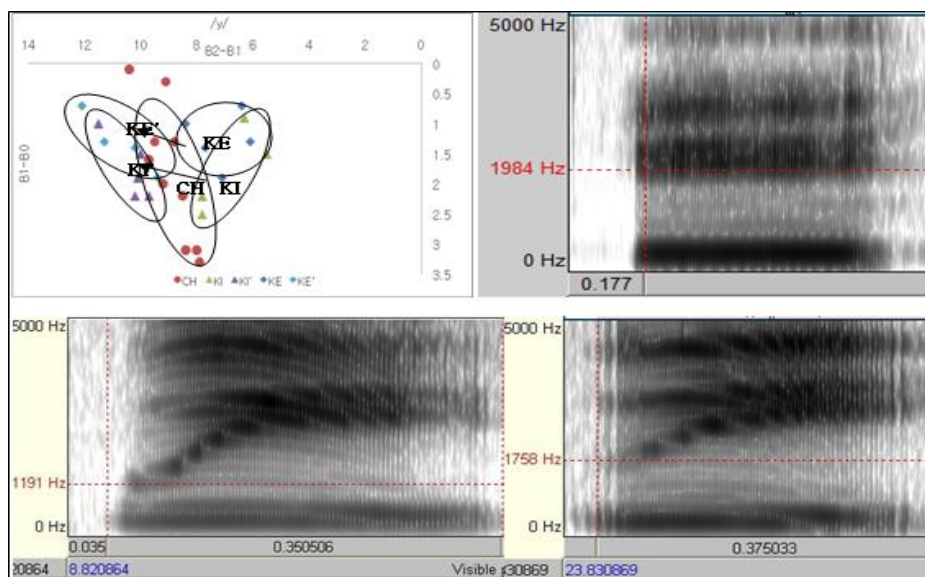


/e[ɤ]/、/어[ə]/、/에[e]/、/으[ɯ]/

母语者和学习者的汉语/e[ɤ]/

图3显示韩国学习者在发不带任何辅音的汉语单元音/e[ɤ]/时，虽然在高低维度上与汉语母语者稍有差异但还是能反映滑移的音姿。最后，汉语高元音音位/y/是在汉语音系里独有的音位，在声学空间里并没有与它相交的韩语元音音位。我们再看汉语母语者和韩国学习者的汉语/y/巴尔克图以及语图。

图 4: 汉语母语者和韩国学习者的汉语/y/以及语图



从左上方图表顺时针方向：/y/巴尔夫图、汉语母语者的/y/语图以及初、高级学习者的/y/

图4显示韩国学习者的汉语/y/与汉语母语者不同，学习者/y/是从后到前滑移的复元音。根据韩国学习者汉语单元音声学分析结果，除了/y/其它单元音并没有出现系统性的偏误，学习者只对/y/产生同样类型的语音偏误。无论是初级还是高级学习者都将/y/发成二合元音，第二共振峰开头有较明显的滑移动程。我们接着以没有汉语经验的韩国人为对象继续进行感知实验，并观察韩国人感知上的汉语元音音位相似性。

## 2) 汉/韩元音感知相似度

### a. 实验过程

我们以汉、韩元音音位为材料向在韩国国内居住并没有学过汉语的韩国人进行跨元音感知相似度调查。本实验的听辨材料是用在汉韩元音音位声学分析时录音的10名汉语发音人的6个汉语单元音/a[a]/、/o[o]/、/e[ɛ]/、/u[u]/、/i[i]/、/ü[y]/和10名韩语发音人的7个韩语单元音/아[a]/、/어[ɚ]/、/오[o]/、/우[u]/、/으[ɯ]/、/이[i]/、/에[e]/。这样一共得到10×6=60个汉语发音样本和10×7=70个韩语发音样本。听音人为韩国高丽大学的15名韩国学生，除了4名学生都没有学过汉语的经历，而这4名学生的汉语学习期间也不到2个月。我们将总共130个发音样本以随机的次序给听音人播放，听音人被告知所听样本为中国人学习韩语的发音，并使他们判断这些样本是韩语中的哪个元音。相似

度的计算方式根据每一个研究者的实验设计而不同，李英浩（2009）使用五分等距尺度计算，王韞佳和邓丹（2009）用Strange的算数方式导出相似度。本文采用王韞佳的计算方式。

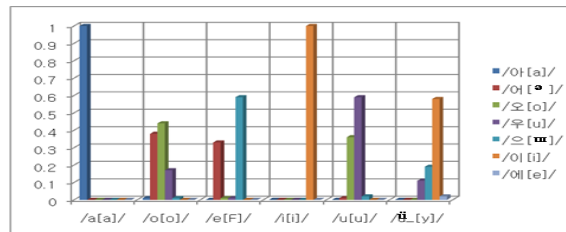
**公式 1：相似度=被选择为某个元音的人次/（听音人数目×发音人目）**

我们进行实验时，为了更正确地显示韩国人对韩语音系里不存在的汉语/y/音位的感知反应，设计了两个不同的听辨问卷并进行了两次的实验。第一次实验的判断方式为七择一的强迫式选择，则放音之后使韩国人在问卷里每题七个韩语单元音选项中选一个，而在第二次听辨实验的问卷里多增加了一个韩语二合元音/wi/构成8个选项，就为八择一的强迫式选择。我们以韩国高丽大学的“社会科学研究统计法”课程硕士生为对象分两天进行两次的听辨实验。在130个单元音录音样本中，每个样本都录两次单元音读音，总录音时间为7分。为了避免第一次听辨的选择，进行第一次的听辨一周后，再进行第二次的听辨。

#### b. 实验结果

两次听辨的结果表明韩国人对汉语低元音/a/和高元音/i/的归类100%一致于使用同一个语音符号的韩语/a/和/i/。除了这两个音位，其它四个汉语音位的韩国人感知分类都出现几个不同的归类结果。我们具体分析第一次感知相似度调查的结果。

**图 5： 韩国人对汉语单元音的感知相似度（第一次调查）**



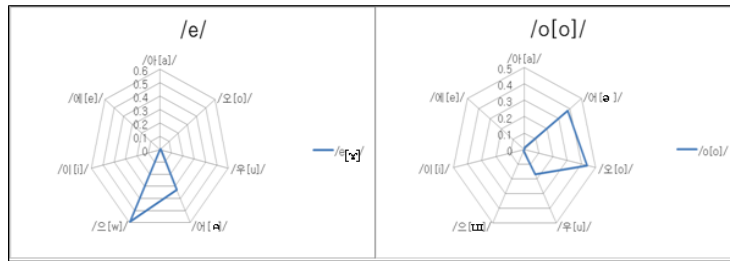
在/o/、/ɤ/、/y/相似度选择中，一些人放弃了判辨那些音位的类别，是因为那些音位在他们的听觉里无法找到相配的韩语音位，具体为/o/在150个回答结果中有两个空项、/ɤ/有四项，/y/有十五项。相似度调查结果显示，没有汉语经验的韩国人对汉语/a/和/i/的归类一致为感觉相似的韩语/a/和/i/，而在/o/、/ɤ/、/u/以及/y/觉得相似的语音出现分歧。

根据“母语原型磁极效应”概念，我们推论韩国人在听汉语/a/和/i/时，韩语音位/a/和/i/就能发挥较强的磁极效应，将汉语/a/和/i/拉拢到自己范畴里。因此Flege（1987），汉、韩语/a/和/i/的情况不是形成新的范畴的习得过程而是同化过程。本文将目标语音位和母语的某个音位在感知归类和声学分布上几乎完全一致的/a/和/i/叫做“同等原型”，这些音位在的学习者发音与汉语母语

者一样。我们根据NLM将感知相似度结果画成抽象的方位图。整个图表示听者的感知空间，七角形的正中央点是听者所听取的音位，七角形的七个顶点表示听者认知系统里已经固定（embody）的韩语元音音位，这些韩语音位对汉语音位发挥磁极效应并使韩国人判辨用哪一韩语音位来反映多听的语音。因为，汉语/a、i/的感知相似度结果成为几乎100%，所以我们不显示那两个音位的感知相似度方位图。

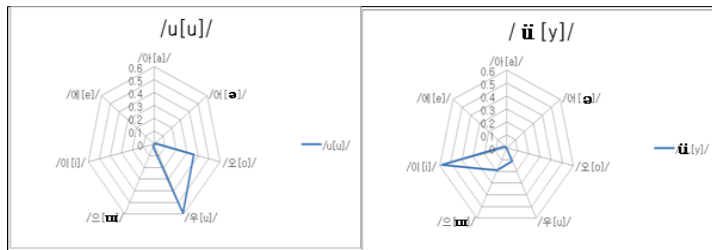
下面是以汉语/e[ɻ]/为核心音位编成7个单元音音系方位的相似度图表。

图 6: 感知相似度结果有分歧的中元音/e[ɻ]/、/o[o]/



左图显示韩国人能察觉汉语/ɻ/滑移前后的音质特征。在韩国人大脑里已构建的母语/으[ɯ]/和/어[ə]/等音位范畴原型成员发挥了磁极效应将汉语/ɻ/拉到了自己范畴之内。结果像图，韩国人将汉语/ɻ/归类最多的语音分别是/으[ɯ]/和/어[ə]/。值得注意的是，根据我们的声学分析，/으[ɯ]/和/어[ə]/是在声学空间里与汉语/ɻ/相交的韩语音位。根据右图，对汉语/o/发挥了磁极效应的韩语音系原型为/우[u]/、/오[o]/和/어[ə]/三类。考虑到声学分布，这一结论与汉语/ɻ/的感知归类结果一样，韩语/우[u]/、/오[o]/和/어[ə]/正好在声学空间上与汉语/o/相交。

图 7: 感知相似度结果有分歧的高元音/u[u]/和/ü[y]/



从左图我们可以知道韩语单元音/o/和/u/都对汉语/u/发挥磁极效应。像PA M所假设的一样，由于人在构建母语音系范畴的时候积极使用复合型的感知机制，于是所形成的大脑里的母语音系范畴就以发音器官的音姿参数和听觉感官的声学参数来分辨外部的语音刺激是否能放在自己范畴里。而在感知外国语或第二语言的时候，已经形成的母语音系范畴就成为原型成员，对所听到的外国



语语音刺激发挥磁极作用并积极地把外国语的语音分类后纳入到自己范畴里。我们在声学分析的时候，对汉韩语/u/的分析结果显示虽然韩语/u/稍微偏低靠前，但两个语言的/u/声学空间上的分布大致上一致。出乎意料，感知相似度结果里却有与韩语/o/匹配的结果。我们录音的韩语/u/比汉语/u/声学空间上的分布更散而广泛、与此相比汉语/u/在声学空间里却密集在偏高的部分。因而没有汉语经验的韩国人听汉语/u/的时候，就察觉其分布差异，并有人把它选为与/u/音姿一样的韩语/o/。

根据图7的右图，韩国人对汉语高元音/y/的感知类别分为三类；高元音/i/、/ɯ/、/u/。这三个元音音位都属于韩语的高元音，韩国人正确地察觉汉语/y/音位的“高”特征，而其中相似度最高的是/i/，相似度最低的是/u/。根据图1的声学分布，我们很容易理解这一归类结果，由于汉语/y/的分布和韩语/i/最近，/i/的相似度最高。

尽管感知相似度结果一致于韩语元音的声学分布，但我们在此有必要探讨一样研究所得出来的结论，则以往的汉语教学研究结果表明韩国学习者在发汉语/y/时，将它发成韩语/wi/类似的语音（毛世真 2008、郭宏 2007、胡晓研 2007、宋春阳 1998）。我们为了观察这一点，将韩国学习者的汉语/y/和他们自己的韩语的/wi/进行对比分析。我们从韩国人的/wi/和韩国学习者的/y/中随机选一个语图供参考。

图 8：韩国学习者的韩语/wi/和汉语/y/

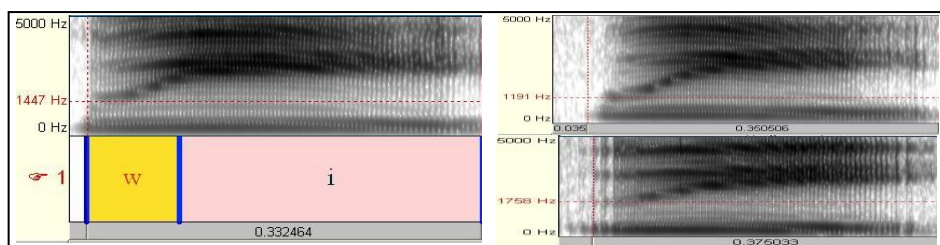
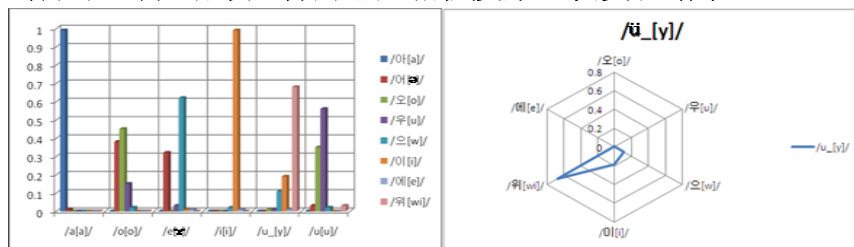


图8显示，韩国学习者对/y/产生的发音偏误是从母语/wi/迁移过来的。为了更正确地分析韩国人对汉语/y/的感知反映，我们在其它元音之外又添加了以往感性研究里给/y/带来发音偏误的韩语元音/위 [wi]/进行第二次实验。其结果其它汉语单元音的相似度结果并未出现任何大的差异，最大的变化就是汉语单元音/y/和韩语二合元音/위 [wi]/的选配。其结果如下图9。

图9：韩国人对汉语单元音的感知相似度第二次实验结果





通过实验, 韩国人对/y/的感知相似度很明显的展示出来, 在选择项中并没有提供/wi/的情况下, 韩国人对/y/的感知类别中/i/占得最多, 而在提供/wi/的情况下最多的配选为/wi/, 其相似度与只提供单元音的时候集中在/i/的情况(0.58)相比也稍微高(0.68)。从此可以知道, 因为韩语的二合元音介音的音长短于300毫秒, 在整个二合元音中/i/的感知印象更大(Shin, Jiyoung[韩]2007), 所以韩国人在没有/wi/选项的第一次实验里, 大多数的人以/i/选为汉语/y/的相似元音。在这里, 我们可以提出一个问题“人脑处理非母语音位的时候, 母语二合元音是否能当成非母语音位的范畴原型?”, 我们的研究结论是“在韩国学习者的语音系统里韩语的二合元音可以作为汉语音系范畴的原型”。NLM所涉及的原型是单元音音位, 这是因为语音范畴研究本来是从婴儿的母语语音习得研究开始, 而其范畴都基于分类范畴的“最小单位”特征概念, 所以它涉及到的范畴原型也只能是母语的最小语音单位“音位”。与此不同, 我们却研究成人对外国语的感知反映, 发现了韩国人将汉语单元音/y/听成二合元音/wi/的情况, 因此我们应该将我们所分析的对象从单元音音位原型扩展到二合元音原型并试图更正确地分析其原因。

总之, 我们的元音相似度调查证明根据汉语音位的音姿参数和声学参数特征, 韩国人对一个汉语元音音位可以提出几个不同的韩语元音, 与韩语的任何元音相比音姿和声学等参数稍微不同的汉语/o/、/ɤ/、/u/和/y/归类结果就是其例子。韩国人感知上的汉韩语相似性可能与汉/韩语元音音位的声学相似性同样会影响韩国学习者形成汉语元音音位范畴的程序, 从而导致所形成的学习者汉语元音音系范畴的原型与汉语母语者不同的情况。但根据我们的声学分析, 韩国学习者的/o/、/ɤ/、/u/的发音与汉语母语者相差不大, 因而我们不能仅依靠相似度归类结果说学习者对/o/、/ɤ/、/u/也形成与母语者不同的范畴, 与此不同韩国学习者的/y/无论是初级还是高级学习者都显示为[wi]。我们根据SLM假设(七)“双语者所形成的二语音系范畴有可能不同于该语言母语者认知系统里的音系范畴”, 推论韩国学习者所形成的汉语/y/范畴不同于汉语母语者。

SLM和PAM说明, 与母语完全一致的目标语音位在母语音系里很容易找到其范畴原型, 而对应的母语音位范畴直接把它(目标语音)纳入到自己范畴里面, 这一过程在PAM和SLM都认为是“同化”过程。我们在上面已经定义, 本研究认为这些同化的范畴原型为“同等原型”, 并期待“同等原型”对目标语音能够发挥和对母语该音位发挥的一样的影响力, 例如由于韩国学习者将汉语/i/直接纳入到韩语/i/的范畴里, 汉、韩语/i/分享一个范畴并拥有单一的同等原型/i/, 于是韩国人像听辨韩语/i/一样容易听辨汉语/i/。与此不同, 汉语

/y/的感知相似度结果出现几个不一致的分类,在声学空间里没有任何一个韩语单元音相交,并且单元音层次上的学习者发音也形成偏误,从此我们认为韩国学习者对汉语/y/使用的(形成的)范畴与汉语母语者不同,韩国人的大脑里反映汉语/y/的表征为[wi]。如此与母语者不同的目标语范畴原型为“类似原型”,并期待类似原型对/y/的磁极效应以及其影响力没有同等原型那么大,于是可以产生与同等原型不同的原型磁极效应结果。虽然,汉语/o/、/ɤ/、/u/的相似度结果也出现分歧,但那些音位的声学分析上不出现偏误,所以在此暂且将它们也视为拥有同等原型的音位。此外,与/y/的情况不同,我们在第二次的相似度实验对/o/、/ɤ/、/u/没有多加整合它们音姿参数的复合元音而再进行相似度调查的理由是,在韩语音位系统里,/y/的归类结果/u/和/i/以/u(w)+i/的形式存在,但/o/的感知归类结果整合的/[o]+[ə]/复合元音或/ɤ/的结果整合的/[ə]+[o]/组合并不存在。

而且我们的相似度调查问卷所采用的单项选择题的方式也可能给韩国人带来一些影响,这样就不能充分反映韩国人对汉语的感知反应。因此我们先要确定没有汉语经验的韩国人听汉语/y/并记录下来的结果也仍然集中于/[wi]/,那样才可以推出韩语的二合元音/[wi]/能作为汉语/y/的范畴原型。与此同时,也分析韩国人将其汉语/y/放在/[wi]/范畴的时主观评价的适合程度如何。

## 6. 双音节感知和发音:类似原型对韩国学习者和汉语母语者具有的意义

我们在此使用/y/和/i/构成的非词进行听辨、听而发音(跟读)和朗读实验,将观察韩国学习者的类似原型/wi/给学习者带来什么样的影响。两个实验都采用2×4两因素的混合设计,则以汉语学习水平和双音节词类型为自变观察三项实验的准确度如何。双音节词类型因素分为4类——“yiyi”、“yiyu”、“yuyi”、“yuyu”等。在此进行的三项实验结果中,听辨准确度用于测量被试的语音感知有何种特点,听而发音(跟读)准确度用于测量被试的短时音位记忆和长期音位记忆的互动的表现如何,朗读准确度用于测量被试长期记忆里的汉语元音音位范畴在学习者语音里如何表现。

### a. 实验过程

#### i) 实验材料

我们先编了/i/和/y/结合的所有情况的双音节非词。为了排除语音刺激和语义之间产生相互作用给听辨带来的影响,我们先使用非词进行试验,然后再下一阶段用实际的汉语单词或短语进行实验。非词实验材料中,第三声和第三声的组合与第二声和第三声的组合理论上其发音相同,因而将第三声和第三声的组合不放在材料范围内,最后得到60个非词音节。

ii) 发音人、被试人以及听辨人情况

汉语发音人与上次范畴适合度相同。初、高级被试的条件与上次范畴适合度实验相同，听辨实验的被试为15名初级和15名高级学习者对象听而发音和朗读被试对象为重新找的初级20名和高级20名的韩国汉语学习者。我们为了更正确观察汉语母语者对韩国学习者发音的感知评估，以汉语母语专业背景为依据将母语者听编组分两组，一组由语音学专业的研究生来组成的“语音学专业组(简称语音学组)”，另外一组由一般的本科学生组成的“本科组”，两个听辨组各由10名汉语母语者来组成。然后，将40名韩国学习者也分两组，每一组由10名初级和10名高级学生组成，最后分给不同的听编组进行母语者的主观评价。

iii) 实验进行

我们将非词形式任意分成AB两组，每组有30个非词项目，然后再随机给参加实验的韩国学习者A组或B组的录音而进行听辨。本实验要观察的内容为韩国学习者对元音音位的感知准确度，因此我们为了影响学习者注意的因素进控制为元音音位，需要将声调给学习者选项时带来的影响减到最低程度，所以问卷选题一律只写元音的拼音，不标记声调而。

例如：

先让被试者听“(女)yì yú (男)yì yú”，然后使他们从一到四的答案中选一。

具体的答案为：

- 1) yi yi      2) yi yu      3) yu yi      4) yu yu

我们给一名初级学习者和一名高级学习者同时播放30个非词形式。然后，以40名韩国学习者对象进行“听而发音”和“朗读”实验，为了全面观察学习者原型的特点，在实验里努力更充分地反应类似原型/wi/引起的影响在短时记忆的支持的情况和只用长期记忆里汉语范畴的情况的差异，进行跟读和朗读两次实验。最后，将“听而发音”和“朗读”的录音样本分给两个听编组进行母语者主观评估。我们给被试者提供的评价表有汉语拼音和6分等距尺度的选项。评价方式如此，给听编组听“yìyǔ”的时候，在分给他们的评价表上只写不带声调的“yiyu”，而要求他们听音之后评价所听的语音的准确度，尤其告知他们注意听/y/是否发为二合元音。为了控制听辨人认真参加评估，在评价样本里每隔150项录音放一个干扰项，比如问卷上写拼音“yuyu”但却播放“a-yi”。如果，对该项的评分超过4分，我们判断该那部分评分没有客观性，就不使用包括该项目的30个录音和前后60项的150项评分结果。

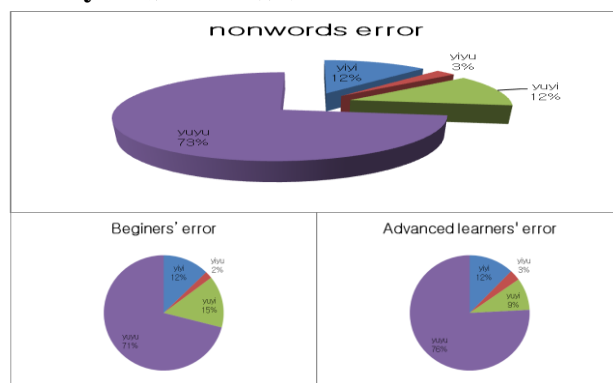
b. 实验结果

i) 听觉准确度

我们将15名初级和15名高级学习者进行十次的听觉准确度实验，总共播放900

个双音节非词。我们先对结果进行基础统计，发现所有的听音结果里产生偏误的项目为81占全体的9%。再分析每一个非词类型上发生偏误的比率发现，整体的偏误率虽然仅为9%，但在“yuyu”的250个样本里发生59个项目听错，错误率为24%。其中初级有34个错误、高级有25个错误。极端地说学习者若听到使用类似原型“yu”重复组成的语音，其中四分之一会听错。我们以偏误发生的项目做图看具体的情况。

图 10: 学习者对汉语/y/听辨错误结果



从图10可以发现，整个偏误项目中“yuyu”占的比率为73%，初级组内部偏误中“yuyu”的比率为71%、高级组“yuyu”偏误比率为76%，可以知道不分初高级在自己组产生的错误里“yuyu”占的比率同样高达70%以上。接着，我们为了分析非词类型和被试所选的偏误类型之间的关系，对非词类型和偏误类型进行交叉分析，分析结果显示了如果知道给学习者听的非词类型可以预测他们会选择什么样的偏误答案 ( $\chi^2=31.31$ ,  $df=9$ ,  $p<0.05$ ,  $\lambda=0.289$ )。其中学习者在“yuyu”的错误里选错的答案比率为“yiyi” 13.6%、“yiyu” 28.8%以及“yuyi” 57.63%。仅看非词的听辨结果，我们知道学习者在重复使用类似原型/wi/的语音环境里产生了最多的偏误，学习者常常将“yuyu”的两个/y/中后一个/y/听成/i/。

总之，我们可以导出两个结论：第一、/i/和/y/的非词听觉正确率达到90%。第二、虽然类似原型/wi/发挥的磁极效应大致上有助于学习者正确地感知汉语/y/，但他们如果遇到/y/重复出现的语音环境，/wi/发挥的磁极效应却导致了高达24%的听觉偏误，造成学习者的听觉混乱。

#### ii) 听而发音和朗读准确度

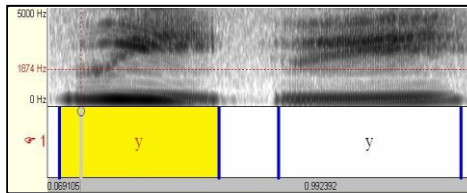
语音学组和本科组分别对20名被试的“听而发音”和“朗读”结果进行主观评价结果一致，评分最高的音节为“yiyi”而最低的音节为“yuyu”。此与学习者的听辨准确度结果一致。既然如此，根据听辨人的专业背景具体的评分出现

比较大的差异，我们利用两个听编组的“yiyi”和“yuyu”评分统计做表进行比较。

根据一维方差分析结果，我们知道无论学习者的汉语水平或实验类型，在两组的结果中对“yiyi”的评分共同达到4、5分的高分。但对“yuyu”的评分结果出现差异，本科组的评分高于4分，但语音学组给3分以下的低分。因为本科组的评分都一律高，所以我们继续分析之前先要确定本科组所听的韩国学习者/y/发音是否准确的单元音音位。因此，我们从本科组的被试中任意选初级的1名和高级的1名被试，并分析他们的语图。其结果如下：

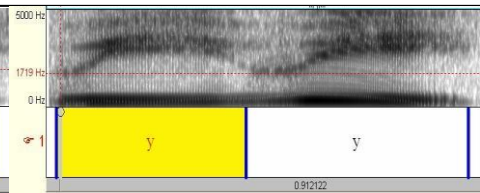
图 61: 本科组的被试语图

(1) 初级组被试“听而发音”



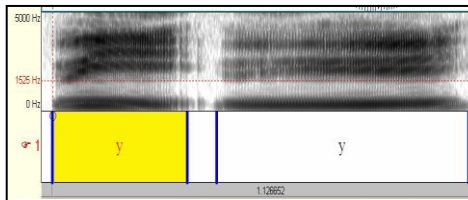
(本科组给的平分平均 4.4)

初级组被试“朗读”



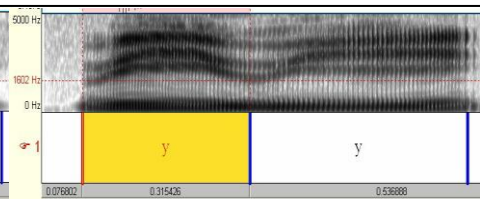
(本科组给的平分平均 4.6)

(2) 高级组被试“听而发音”



(本科组给的平分平均 4.1)

高级组被试“朗读”



(本科组给的平分平均 4.9)

图11显示，除了高级学习者的“听而发音”，其他的发音都没有很大的差异。虽然，初级学习者的“听而发音”与他的“朗读”语图相比，音节开头的第二共振峰下垂的幅度稍微变小，但总的来说无论是“听而发音”还是“朗读”，初学者的发音仍然受到类似原型/[wi]/的影响。与此不同，高级水平学习者，在朗读的语音里虽然受类似原型/[wi]/的影响，但与初级相比第二共振峰开头移位时长变短、幅度也变小。尤其是在高级学习者的“听而发音”语图里，非词的第二个音节发得比较准确，并未出现弯曲的共振峰。无论如何，本科组对这四项目的语音样本的评分中“朗读”的分数最高。虽然本科组的汉语母语者也同样知道评分的标准是“被试人的/y/是否正确”，但他们的评分却没有差异的原因有二；第一、由于汉语里/[wi]/并未具有任何区别性意义，所以一般汉语母语者对该音不很敏感。第二、本科组在评分时注意力不能全部投入到/y/的发音上，还有学习者的音高、音强、音长等其他语音特征影响本科组的判断。虽然我们可以如此推

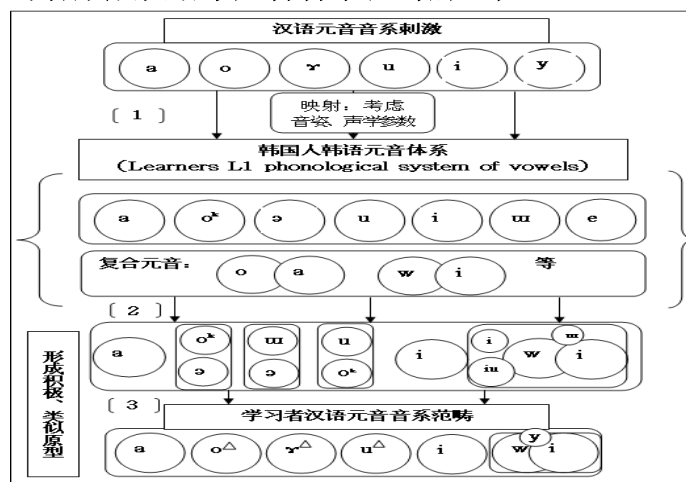
断, 但仅根据本研究的数据无法确定具体哪些特征使本科组给“朗读”更高的评价。

## 7. 结论

本研究对韩国学习者的汉语元音音位习得提出两个结论: 第一、韩国学习者所形成的汉语元音音位范畴与汉语母语者不一样。第二、学习者的语音偏误对学习者和目标语母语者具有的意义不同。

本稿的感知相似度调查结果显示韩国人对汉语/ɤ、o、u、y/做几个不一致的归类。虽然感知归类分好几个类型, 但声学分析结果显示韩国学习者的汉语/u/、/ɤ、o/并没有任何偏误; 而学习者对汉语/y/的发音有系统地产生偏误。我们继续作图揭示韩国学习者形成汉语元音音系范畴的程序。

图 12: 韩国学习者形成汉语单元音音系范畴的过程



从图12的[1]、[2]过程显示韩国人的大脑在听汉语元音音位并匹配类似的韩语元音时, 受到汉、韩语音位的声学、音姿参数的影响。本研究基于上述的感知过程以及韩国学习者发音的声学分析导出韩国学习者汉语音系范畴的原型: /a、i、u、o、ɤ、y[wi]/。为了解释学习者的目标语原型不同于母语者的现象, 本研究提出“同等原型 (identical prototype) 和类似原型 (analogical prototype)”。我们对“同等原型和类似原型”的定义如下:

一、在“同等原型 (identical prototype)”表示韩国学习者对该音位与汉语母语者使用了同样的原型。它可以发挥与汉语母语者一样程度的磁极效应, 从而使得学习者正确地听取那些语音并稳定地发该语音。可以说, 该原型的形态和效应与母语者一样。例如, 韩国学习者对汉语元音音系范畴的同等原型有 /a、i、u、o、ɤ/。

二、在“类似原型 (analogical prototype)”表示韩国学习者对该音位使用

的原型与汉语母语者相似，但却具有一定的差异。它发挥的磁极效应没有与汉语母语者的一样，虽然能够使学习者稳定地发音，但其发音有偏误。我们认为该原型的形态虽类似于汉语母语者，但其磁极效应所带来的结果却与母语者不一样。例如，韩国学习者对汉语元音音系范畴的类似原型有/[wi]/。

双音节非词实验结果表明类似原型的磁极效应也有积极的效果，即使学习者稳定地维持80%以上的听觉准确度和5分左右的发音准确度。从此可以推导学习者使用类似原型/wi/的情况有助于稳定地形成汉语音系/y/的范畴。即便如此，在韩国学习者的认知系统里类似原型发挥磁极效应，仍然会在/y/重叠构式环境里引起听觉错误。

此外，通过分析双音节非词的语图结果发现，学习者认知里类似原型/wi/影响他们的发音。引人注目的是根据母语评分者的专业背景不同，对学习者的发音准确度的评价结果明显出现差异。语音学专业组正确地察觉学习者将/y/发为二合元音/wi/的现象，并把它反应在评分里，但一般的母语者对学习者的使用二合元音反映/y/的情况并不敏感，反而给学习者的发音比较高的评分。这一结果显示虽然学习者犯发音偏误或者在对某个汉语音位进行听辨时感到困难，汉语母语者有可能不能发现学习者的偏误或者困难。

## 8. 余论

我们在本研究提出学习者目标语音系的类似原型，通过这个过程我们觉得各国的汉语教师在语音教学当中不仅要努力教汉语本身的语音格局，还要教师本人正确地熟知自己母语格局和汉语格局的特点。为了解决目标母语者困难发现的隐形的学习者语音偏误，一方面在中国的语音教师更正确地观察学习者的发音偏误，另一方面在各国熟知学习者母语语音格局的汉语教师分析这些发音偏误是否意味着隐形的听觉偏误，这样才能帮助对语音敏感的专业教师们更加努力的寻找语音教学方案。

## 9. 参考文献

- Best, Catherine.1995. *A direct realist view of cross-language speech perception*. Issues in cross language research.171-204
- .1994. *The emergence of native-language phonological influences in infants, A perceptual assimilation model*. In the development of speech perception, The transition from speech sounds to spoken words. Cambridge, MIT press
- Crain, Sthephen.2009. *The Logic of Human Languages*. Invited presentation given at the Beijing Language and Culture University
- Flege, J.E.1995. *Second language speech learning: Theory,findings, and problems, perception and linguistic experience*, York Press

- .1987. *The production of "new" and "similar" phones in a foreign language: Evidence for the effect of equivalence classification.* Journal of Phonetics. vol.15, 47-65
- Kuhl, P. and Iverson, P. 2003. *A perceptual interference account of acquisition difficulties for non-native phonemes.* Cognition. vol. 87, 47-57
- Kuhl, P. and Iverson, P. 1995. *Linguistic experience and the "perceptual magnet effect".* Speech perception and linguistic experience: Issues in cross-linguistic research. 121-154
- Kuhl, P. K.1991. *Human adults and human infants show a "perceptual magnet effect" for the prototypes of speech categories, monkeys do not.* Perception & Psychophysics. vol.50, 93-107
- Lee, Mikiyoung.2006. *Korean Chinese learner's Chinese mono vowels.* PHD dissertation of Seoul National University
- Shin, Jiyong. 2001. *Understanding of speech sound.* Hankuk munhuasa, 1<sup>st</sup> edition
- Strange, W., Jenkins, J.J. and Johnson, T.1983. *Dynamic specification of coarticulated vowels.* Journal of the Acoustical Society of America. vol.74, 695-704
- 李英浩, 张京花. 2009. *跨语言元音的声学感知分析.* 第七届中国语音学学术会议暨语音学前沿问题国际论坛
- 梁春基. 2008. *韩中学生的汉语和汉语习得.* 南开大学博士论文
- 毛世桢. 2008. *对外汉语语音教学.* 华东师范大学出版社. 第一版
- 王韞佳、邓丹. 2009. *日本学习者对普通话“相似元音”和“陌生元音”“得习得.”* 世界汉语教学. 第1期



## Disjunction and Conditional in Child Mandarin

Yi (Esther) Su and Stephen Crain  
*Macquarie University*

This study investigates 3-5-year-old Mandarin-speaking children's interpretation of disjunction word *huozhe* 'or' in *ruguo*-conditional sentences. Specifically, we assessed children's knowledge of a semantic principle conforming to first order logic, namely that disjunction licenses a conjunctive entailment when it appears in the antecedent clause of a conditional, but not in the consequent clause. The results reveal young children's mastery of this semantic principle in Mandarin Chinese. In particular, children demonstrated adult-like knowledge of the different truth conditions of disjunction in the two clauses of conditional sentences. Together with previous psycholinguistic findings (Crain 2008), the data suggest that the interpretation of logical words in child language sometimes conforms to classical logic. This, in turn, provides further evidence for logical nativism (Crain & Khlentzos 2008, 2010), according to which children draw upon an innate knowledge of logical expressions such as disjunction and conditional at the initial stage of language acquisition.

### 1. Introduction

Logical connectives such as *and*, *or*, *so*, *because*, and *if* can be used to express logical relationships, upon which formal principles of reasoning and logical systems are based. Over the past four decades, children's knowledge of these connectives has attracted considerable attention from scholars interested in the logical competence and development of the human mind (see e.g. Piaget 1969, Johnson-Laird & Byrne 2002, Braine & Romain 1983 among others). It is widely believed, however, young children's initial interpretations of these expressions are not based on their logical counterparts (see e.g. Beilin & Lust 1975, Emerson 1980, French & Nelson 1985, Johansson & Sjölin 1975, Johnson-Laird & Byrne 2002, Morris 2008, Neimark & Slotnick 1970, Paris 1973, Piaget 1969, Taplin et al., 1974 among others). The classic Piagetian framework claims that logical competence requires a formal-operational structure that is not available until early adolescence (Inhelder & Piaget 1958). Some psychologists propose that children at different developmental stages adopt different mental models for individual connectives, where formal logical mechanisms play no role (Johnson-Laird 2001). Several psycholinguists advocate an input-based account of connective acquisition, which claims that children's initial uses of a connective, primarily reflecting the parental input, are limited to non-logical functions (Morris 2008, Quine 1992). Meanwhile, these arguments,

all supposing a disconnect between formal logic and reasoning in child language, have been bolstered by empirical findings from the developmental literature, much of which reports children's limited and late competence of the logical connectives (Beilin & Lust 1975, Braine & Romain 1983, Emerson 1980, Johansson & Sjölin 1975, Neimark & Slotnick 1970, Paris 1973). Even in a few studies in which children demonstrate logical competence, their knowledge of logical connectives is generally not considered to be related to the truth conditions of propositional calculus (Braine & Romain 1981, French & Nelson 1985).

Despite the widespread belief to the contrary, some recent research has resurrected the idea that humans are endowed with an innate logical faculty that is closely related to classical logic. On this account, logical notions structure thoughts and assist in the acquisition of language. This account can be called 'logical nativism' (Crain & Khlentzos 2008, 2010). According to logical nativism, at least some expressions in human languages, including sentential connectives by words like 'and' and 'or' and quantificational devices like 'every' and 'some', mirror the corresponding expressions in classical logic (Chierchia & McConnell-Ginet 2000, Crain 2008, Montague 1973). Moreover, logical nativists contend that the machinery for generating logical truths of these linguistic expressions is innately specified as part of the human biological blueprint (Chomsky 1988, Crain & Pietroski 2001, Fodor 1980, Macnamara 1986). Specifically, the semantic knowledge of these logical expressions is part of Universal Grammar (Crain et al. 2000). Given that Universal Grammar provides the truth conditions for these logical words, language learners are expected to know the truth conditions associated with these words as soon as they learn to map the linguistic expressions onto their corresponding logical operators. For example, in classical logic, the conjunction operator '&' is associated with the truth conditions, according to which a statement of the form 'p & q' is true if only p and q are both true. It follows that the task of the child exposed to English is to figure out that the English word *and* maps onto the corresponding conjunction operator '&' in the logical form; the task of a child exposed to Mandarin is to figure out that the Mandarin word *he* maps onto '&', and the task for Japanese-speaking children is to figure out that the Japanese word *mo* maps onto '&'. Therefore, the view of logical nativism leads to the expectations that (a) all languages will access the same semantic representations of logical expressions and (b) young children learning any human language will 'know' the truth conditions of its logical words as soon as these words enter their speech (Crain & Khlentzos 2008, 2010).

The present study was designed to obtain empirical data that would be relevant to the unabated debate of the logical versus non-logical nature of linguistic connectives in child language. In particular, we evaluate whether the meanings of disjunction and conditional in child language conform to the meanings of corresponding expressions in classical logic, by assessing children's interpretation of disjunction in conditional sentences. Although arguably simpler structures have been investigated in previous developmental literature, which mainly focus on individual connectives (e.g. see Braine

& Rumain 1983 for a review), few studies have evaluated children's knowledge of the interaction of both disjunction and conditional. We selected these complex linguistic structures because the truth conditions of disjunction in conditional statements are guided by a semantic principle conforming to first order logic, which has never been investigated in previous research. So, a careful exploration of children's interpretation of these two logical operators, whether or not adhering to the logical concepts, promises to deepen our understanding about the role classical logic plays in child language. Another innovation of the present study is to investigate children speaking Mandarin Chinese. The majority of the prior child studies on logical connectives have been focusing on just a few languages, mainly with English-speaking children. In the present study, we propose to broaden the empirical basis in the acquisition of logical words by assessing 3-5-year-old children speaking Mandarin Chinese. The research questions we address are two-fold. Firstly, we ask whether Mandarin-speaking young children interpret disjunction in conditional statements in ways that follow classical logic. If so, our second question concerns how children come to the knowledge of these connectives from the perspective of language acquisition.

## 2. Theoretical Background: Disjunction in Conditional Statements

One way to evaluate the role classical logic plays in the acquisition process of logical words, as adopted in this study, is to test whether some logical principles involving these connectives are presupposed in human languages, and belong as such to the linguistic competence of every human being, including children. In this section, we will firstly introduce the interpretation of disjunction in logic and in human languages. On this basis, we will propose a semantic principle conforming to classical logic, which guides the interpretation of disjunction in conditional sentences.

In first order logic, disjunction has the truth conditions associated with inclusive-*or*, such that a statement of the form  $A \vee B$  is true (i) if A is true but not B, (ii) if B is true but not A, and (iii) if both A and B are true. A statement of the form  $A \vee B$  is false, therefore, only if both A and B are false. It follows that the negated form  $\neg(A \vee B)$  logically entails  $(\neg A \wedge \neg B)$ , as captured by one of de Morgan's laws of propositional logic in schema (1) (see e.g. Partee et al. 1990). According to this one of de Morgan's laws, disjunction generates a 'conjunctive entailment' when it appears in the scope of negation.

$$(1) \neg(A \vee B) \Rightarrow \neg A \wedge \neg B$$

This instantiation of de Morgan's laws is validated in many human languages, including English. As illustrated in the English sentence *Mary didn't see that John bought cake or ice-cream*, when disjunction word *or* appears in the scope of negation, it entails both (a) Mary didn't see that John bought cake and (b) Mary didn't see that John bought

ice-cream. Therefore, the conjunction of these statements is entailed by the original statement with *or*.

The parallels between formal logic and human languages run much deeper in that the conjunctive entailment of disjunction extends well beyond the case of negation, to a host of natural language expressions which are referred to as ‘downward entailing’ expressions (see e.g. Horn 1989, Ladusaw 1979). By definition, downward entailing contexts license inferences from general terms to more specific terms (i.e. from sets to their subsets). Example (2) shows that the antecedent of a conditional statement is downward entailing, validating inferences from set-referring term ‘cake’ to subset-referring term ‘chocolate cake’<sup>1</sup>. By contrast, as illustrated in example (3), the consequent clause is not downward entailing and does not validate such inferences. So, the two clauses of conditional statements form a minimal pair, with respect to the semantic property of downward entailment.

(2) If a boy bought cake, then he got a plate.  
 $\Rightarrow$  If a boy bought chocolate cake, then he got a plate.

(3) If a boy got a plate, then he bought cake.  
 $*\Rightarrow$  If a boy got a plate, then he bought chocolate cake.

As one of the diagnostic properties of downward entailing context, disjunction generates a conjunctive entailment, when it appears in the scope of a downward entailing expression (see e.g. Crain 2008). The general schema for the conjunctive entailment of disjunction in the scope of a downward entailing operator  $\Delta$  is illustrated in (4).

(4)  $\Delta (A \text{ or } B) \Rightarrow \Delta A \text{ and } \Delta B$

---

<sup>1</sup> We will restrict the discussion of conditionals, in the present paper, to those that keep the contexts constant for the inferences because this type of conditionals are the ones that are generally acknowledged as downward entailing and these are also the ones we investigate in the experimental studies. However, as noted by Heim (1984), several cases of conditional inferences with inconsistent contexts might have ‘limited’ downward monotonicity, especially in the inference pattern known as ‘strengthening the antecedent’. For example, it is problematic to infer from (i) *If you go to Spain you will have a good time* to (ii) *If you go to Spain and have a car accident you will have a good time*, although the situations where *one goes to Spain and has a car accident* is a subset of situations where *one goes to Spain*. To avoid such invalid inferences, it is important to observe a pragmatic principle, i.e. when language users consider an inference, they do not switch implicit components of the context at random in the middle of the argument, but rather keep the context constant (e.g. the implicit contexts of (i) would be restricted to cases where you go to Spain without any accidents). It is generally agreed, therefore, so long as one keeps the contexts of the inferences constant, the downward entailingness of the antecedent can be maintained (Heim 1984, Kadmon & Landmon 1993, cf. von Stechow 1999).

If we apply the general schema in (4) to a conditional statement, the expectation is that disjunction will license a conjunctive entailment when it appears in the antecedent clause, which is downward entailing. This is confirmed in the English example (5).

- (5) If a boy bought cake *or* ice-cream, then he got a plate.  
 $\Rightarrow$  if a boy bought cake, then he got a plate **and**  
 if a boy bought ice-cream, then he got a plate

Disjunction does not generate the conjunctive entailments, however, outside the scope of a downward entailing expression. For example, when disjunction appears in the consequent clause, a non-downward entailing context, it no longer generates a conjunctive entailment, as indicated by the ‘\*’ in (6). Instead, sentence (6) means if a boy got a plate, then he ordered (i) cake but not ice-cream, or (ii) ice-cream but not cake, or (iii) both cake and ice-cream. Since these are the truth conditions associated with disjunction in classical logic (i.e. inclusive-*or*), we call these the disjunctive truth conditions of disjunction in non-downward entailing linguistic contexts<sup>2</sup>.

- (6) If a boy got a plate, then he ordered cake *or* ice-cream.  
 $*\Rightarrow$  if a boy got a plate, then he ordered cake and  
 if a boy got a plate, then he ordered ice-cream

It is not just a fact about English that the two clauses of conditional sentences yield different truth conditions of disjunction. Other languages observe the same linguistic phenomenon. Take Mandarin for example, as with English *if*-conditional statements, the antecedent clause of the corresponding Mandarin *ruguo*-conditional statement is downward entailing. By contrast, the consequent clause is not downward entailing. Evidence for this conclusion is presented in examples (7) and (8), respectively.

- (7) Ruguo xiaonanhai mai-le dangao, ta jiu na-le diezi.  
 if boy buy-ASP cake he then get-ASP plate  
 ‘If a boy bought a cake, then he got a plate.’

---

<sup>2</sup> However, a pragmatic implicature of exclusivity often reduces this range of truth conditions, by excluding circumstances in which both disjuncts are true (Horn 1972). The implicature arises because the expression *or* forms a scale with the expression *and* and based on information strength, with *and* being more informative than *or* in non-downward entailing contexts. Language users are compelled by the Principle of Cooperation (Grice 1975) to use the strongest linguistic expression that is consistent with their state of knowledge, so if a speaker uses the weaker statement *or*, hearers infer that the speaker was not in a position to use the stronger statement *and*, so the hearer infers the negation of the stronger statement, i.e. *not (A and B)*.

⇒ Ruguo xiaonanhai mai-le qiaokeli dangao, ta jiu na-le diezi.  
 if boy buy-ASP chocolate cake he then get-ASP plate  
 ‘If a boy bought a chocolate cake, then he got a plate.’

(8) Ruguo xiaonanhai na-le diezi, ta jiu mai-le dangao.  
 if boy get-ASP plate he then buy-ASP cake  
 ‘If a boy got a plate, then he bought a cake.’

\*⇒ Ruguo xiaonanhai na-le diezi, ta jiu mai-le qiaokeli dangao.  
 if boy get-ASP plate he then buy-ASP chocolate cake  
 ‘If a boy got a plate, then he bought a chocolate cake.’

Likewise, the same pattern of different truth conditions of disjunction is manifested in the antecedent versus the consequent in Mandarin *ruguo*-conditionals. Example (9) shows that the Mandarin disjunction word *huozhe* generates a conjunctive entailment in the antecedent clause of a *ruguo*-conditional. In contrast, disjunction licenses the full range of truth conditions associated with inclusive-*or* in the consequent clause, as illustrated in (10).

(9) Ruguo xiaonanhai mai-le dangao huozhe bingjiling, ta jiu na-le diezi.  
 if boy buy-ASP cake or ice-cream he then get-ASP plate  
 ‘If a boy bought cake or ice-cream, then he got a plate.’=conjunctive

(10) Ruguo xiaonanhai na-le diezi, ta jiu mai-le dangao huozhe bingjiling.  
 if boy get-ASP plate he then buy-ASP cake or ice-cream  
 ‘If a boy got a plate, then he bought cake or ice-cream.’=disjunctive

The different truth conditions of disjunction in the antecedent versus the consequent of conditional statements in English and in Mandarin are summarized in schema (11):

(11) If/Ruguo ANT[...or/huozhe...], then/jiu CONS[.....]= Conjunctive  
 If/Ruguo ANT[.....], then/jiu CONS[...or/huozhe...]= Disjunctive  
 (ANT: antecedent; CONS: consequent)

From the perspective of first order logic, it is no accident that natural language disjunction should generate a conjunctive entailment in the antecedent of a conditional, but not in the consequent clause. This is because in first order logic, the truth condition of a conditional  $p \rightarrow q$  ‘if p, then q’ is logically equivalent to the truth condition of the form  $\neg p \vee q$  ‘either not p, or q (or both)’. It follows that when disjunction appears in the antecedent versus the consequent of a conditional, it would be expected to demonstrate different truth conditions. To be specific, when disjunction appears in the antecedent  $p$ , it

resides within the scope of a negation operator  $\neg$ . Consequently, the appearance of disjunction in the antecedent is subject to one of the de Morgan's laws in (1), which generates the conjunctive entailment of disjunction. By contrast, when disjunction appears in the consequent  $q$ , it is not in the scope of negation and the de Morgan's law doesn't apply under this situation. As a consequence, the conjunctive entailment of disjunction is not generated in the consequent. So, the different behaviors of disjunction in the antecedent versus the consequent of conditionals are accounted for, in classical logic, by whether this one of de Morgan's laws applies in these two contexts.

To recap, in view of this cross-linguistic generalization in the interpretation of disjunction in conditional sentences, which conforms to first order logic, we derive the following semantic principle, as in (12):

(12) Disjunction licenses a conjunctive entailment when it appears in the antecedent clause of a conditional, but not in the consequent clause.

The present study was designed to assess whether young Mandarin-speaking children observe this semantic principle governing the interpretation of disjunction in conditional statements. To our knowledge, there have been no studies directly evaluating children's knowledge of the different truth conditions of disjunction in the two clauses of conditional sentences, in any language. Our experimental investigation therefore attempts to explore this uncharted territory in the acquisition studies on logical words.

### 3. The Experiment

This section presents a detailed description of our experiment on Mandarin-speaking children's interpretation of the disjunction word *huozhe* in the two clauses of *ruguo*-conditionals. More precisely, we ask the following questions: Do children generate the conjunctive entailment, when *huozhe* appears in the antecedent? Do they access the disjunctive truth conditions of *huozhe*, when it appears in the consequent?

#### 3.1. Subjects

The subjects consisted of forty-one 3-5-year-old monolingual Mandarin-speaking children. The children ranged in age from 3; 11-5; 05, with a mean age of 4; 11. The children were recruited from Blue Sky Kindergarten of the Kaifu District in Changsha, China. In addition, 15 adult native Mandarin speakers served as a control group. These subjects are all Chinese students at Macquarie University in Sydney, Australia.

#### 3.2. Method and Procedures

The experiment adopted the prediction mode of the Truth Value Judgment task (Chierchia et al. 1998). Specifically, the test sentences are presented to the subjects as predictions about what will happen in the remainder of the story, rather than as descriptions of events that have already taken place. The Truth Value Judgment task is conducted by two

experimenters. The first experimenter acts out stories in front of the child subject using props and toys. The second experimenter plays the role of a puppet (here ‘Rabbit in hat’) who watches the stories alongside the child. In the middle of the story, the puppet produces a sentence which purports to predict what will happen next. Then, the story continues and the puppet repeats her prediction after the outcome is revealed. The child’s task is to judge whether or not the puppet’s prediction is ‘right or wrong’ (i.e. true or false), based on the final outcome. When a child indicates that the puppet’s prediction was wrong, the child is requested to explain to the puppet what really happened in the story. The explanation children produce is used in the subsequent data analysis, to ensure that the child understood the story and produced a legitimate reason for rejecting the puppet’s statement.

Child subjects were first introduced to the task as a group. Then they were tested individually in a quiet room, away from the classroom. Each child was introduced to the task with one story including four warm-up sentences. Two of these warm-ups were designed to elicit ‘Yes’ answers and the other two were designed to elicit ‘No’ answers. If children answered all these warm-up sentences correctly, and produced appropriate justifications for their ‘No’ responses, they were invited to participate in the main test sessions. Otherwise, children were eliminated from further testing. Two children said ‘Yes’ to false warm-up sentences and did not participate further. The other 39 children participated in the two main sessions of the experiment.

The 15 adults in the control group were tested only by the main experimenter, who told the stories and played the role of the puppet. Unlike the child subjects, adults only participated in one combined session with the target sentences (i.e. the filler sentences, control sentences and ‘warm-up’ trials were deleted). These adult subjects were also instructed to indicate whether the puppet was right or wrong, following each of the target assertions by writing down their answers. As with child subjects, whenever the adult subjects judged the puppet to be wrong, they were required to give justifications.

### 3.3. Materials

The experiment adopted a within-subject design in which each child subject was tested using similar non-linguistic contexts for test sentences with both downward entailing contexts (i.e. *huozhe* in the antecedent clause) and non-downward entailing contexts (i.e. *huozhe* in the consequent clause). For both testing sessions, the child subjects were each presented with four test trials. The first two test sentences contained *huozhe* in the antecedent clause, and the remaining two contained *huozhe* in the consequent clause. The stories were designed to make the test sentences false if *huozhe* appeared in the antecedent, but true if it appeared in the consequent. This was accomplished by satisfying one of the disjunctive truth conditions associated with disjunction, but not the truth conditions corresponding to the conjunctive entailment of disjunction. To illustrate, here is one of the two stories in which *huozhe* appeared in the antecedent.



This story is about five ponies that helped a duck to move food to his new house. The duck said to the ponies, ‘I need to move these sausages, corns and cake to my new house. Could you please help me?’ The ponies agreed to help. The youngest pony with least strength moved the small cake. Two older ponies moved two sausages. Two biggest and strongest ponies moved two heavy corns. The duck says, ‘Well done! I should reward you for your generous help.’ He brought out a lot of prizes, which included four gold coins, four shells, a pink star and a flower ball. Now, how would the duck reward the ponies?

At this point, the puppet first predicted with a filler sentence *ruguo xiaoma yunzou dangao, ta jiu hui dedao zhuzi* (English: *If a pony moves a cake, then he will get a marble*). Then the story continued and the pony that moved the cake received a pink star, rather than a marble. After the child made a judgment about the filler sentence (which is false in this trial but true in the other antecedent trial), the puppet predicted about the prizes the other ponies would get, by using the test sentence in (13):

- (13) *Ruguo xiaoma yunzou yumi huozhe huotuichang, ta jiu hui dedao jingbi.*  
 if pony move corn or sausage he then will get gold coin  
 ‘If a pony moves a corn or a sausage, then he will get a gold coin.’

What really happened next was that the two ponies that moved corns got gold coins and the two ponies that moved sausages got shells, instead of gold coins. Figure 1 illustrates the final outcome.



Figure 1: The Pony Story

This test sentence receives a different truth value depending on whether or not children assign the conjunctive entailment to *huozhe*. If children know that the antecedent of a conditional is downward entailing, they would be expected to generate the conjunctive entailment of disjunction and, consequently, they should reject the test

sentence on the grounds that the two ponies that moved sausages got a shell. On the contrary, if children fail to generate a conjunctive entailment, then they should accept (13), since the sentence would mean that if a pony moves a corn, then he will get a gold coin or if a pony moves a sausage, then he will get a gold coin. This reading makes the test sentence true in the context because the ponies that moved corns got gold coins. Another possibility is that they would also say ‘Yes’ out of uncertainty, if they don’t understand these complicated test sentences. So, if children do not generate the conjunctive entailment, they are expected to accept the test sentence.<sup>3</sup>

The remaining two test stories assessed whether or not children allowed the disjunctive truth conditions of disjunction when it appears in the consequent of conditional statements. To illustrate, here is a typical story.

This story is about one dog, one peacock and four rabbits, who went to Minney’s home to play a game called ‘finding jewels’. The dog was the first to try because he had a sensitive nose. However, this game was pretty hard and he couldn’t find any jewels. Minney, in order to encourage her friends to carry on, prepared different kinds of prizes to reward those jewel-finders, which include six balls, six butterflies and six stars. The game continued and finally Minney’s friends all found jewels. Minney said, ‘Good job! Now I will reward you with some prizes.’

At this point, the puppet first predicted the prize that the dog could get by using the filler sentence *ruguo xiaogou zhaodao baoshi, ta jiu hui dedao xiaoqiu* (English: If the dog finds a jewel, then he will get a ball), which was true because Minney later gave a ball to the dog. Then the puppet predicted what the peacock could get by using another filler sentence *ruguo kongque zhaodao baoshi, ta jiu hui dedao hudie* (English: If the peacock finds a jewel, then she will get a butterfly), which was false because Minney later gave a star to the peacock. So, these two filler sentences were expected to evoke a ‘YES’ and a ‘NO’ response respectively from children. After the child subjects judged the truth or falsity of the filler sentences, the puppet made a prediction about what the other four rabbits could get by uttering the test sentence in (14).

(14) *Ruguo xiaotuzi zhaodao baoshi, ta jiu hui dedao xiaoqiu huozhe xingxing*  
 if rabbit find jewel she then will get ball or star  
 ‘If a rabbit finds a jewel, then she will get a ball or a star.’

What happened later was that Minney rewarded two rabbits with balls and she rewarded the other two rabbits with stars. The puppet repeated her prediction after the

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<sup>3</sup> An additional precaution was taken to remove a possible order effect. For half of the test sentences, the sentences were false in virtue of the first disjunct and, for the other half, the test sentences were false because of the second disjunct.

final outcome was revealed, as in Figure 2. Notice that the story ended with every rabbit possessing one of the two objects mentioned in the test sentence, but no rabbit possessed both objects.



Figure 2: The Rabbit Story

The test sentence (14) is true if children assign disjunctive truth conditions to *huozhe*, i.e. *if a rabbit finds a jewel, then she will get either a ball or a star*. However, if children are not aware that the consequent is non-downward entailing, they could reject sentence (14). This could happen, for example, if children analyzed both the antecedent and the consequent of a conditional statement to be downward-entailing, thereby licensing a conjunctive entailment of disjunction in both positions. If so, children's interpretation of (14) would require every rabbit who found a jewel to have received both a ball and a star, contrary to fact.

In addition to the four test sentences, there were two control sentences (one true and one false) in each session. In a typical 'False' control trial, four frogs picked flowers and one frog picked a feather for Tiger. The puppet predicted about the prizes those frogs would receive by using the control sentence *Ruguo xiaoqingwa zhaidao xiaohua, ta jiu hui dedao zibeike* (English: *If a frog picks a flower, then she will get a purple shell*). Finally, two of the four frogs that had picked flowers received purple shells and the other two got butterflies. So the control sentences, though structured similarly as the filler sentences, were presented with multiple characters in scenarios similar to the test trials. These control trials were included to ensure that children could process conditional sentences without disjunction in complicated testing scenarios.

Children who failed to respond correctly to the control sentences or to the filler sentences were excluded from further analysis. All subjects answered correctly to the filler sentences. But nine subjects who wrongly accepted false control sentences were excluded from further data analysis. This left 30 children between the ages of 3; 11 and 5; 11, with a mean age of 4; 11.

### 3.4. Results

In this experiment, we asked whether children master the different truth conditions of disjunction in the two clauses of the Mandarin *ruguo*-conditionals. If so, children would reject the test sentences when disjunction appeared in the antecedent clause. Moreover, they would accept test sentences when disjunction appeared in the consequent clause. The results confirmed this hypothesis. When disjunction was in the antecedent, the children only said ‘Yes’ to the test sentences 3% of the time (4/120). By contrast, when *huozhe* was in the consequent of conditionals, children replied with ‘Yes’ 90% of the time (108/120). Moreover, children justified their negative judgments of the test sentences for the right reasons. For example, 20 children consistently justified their replies with ‘no’ to (13) by pointing out that the two ponies the moved sausages got shells, not gold coins. The other 10 children typically commented that it was right that the two ponies that moved corns did receive gold coins, but it was wrong that the two ponies that moved sausages got shells. The control group of 15 Mandarin-speaking adults correctly rejected the test sentences with disjunction in the antecedent 93% of the time (56/60), and they all accepted the test sentences with disjunction in the consequent (60/60).

### 4. Discussion

The purpose of this study was to assess the role formal logic plays in child language, in particular whether children interpret natural language connectives in adherence to their logical concepts. We begin our discussion by summarizing the findings. This study investigates 3-5-year-old Mandarin-speaking children’s knowledge of a semantic principle conforming to first order logic: disjunction licenses a conjunctive entailment in the antecedent of a conditional statement, but not in the consequent. The experimental findings clearly demonstrate that Mandarin-speaking children observe this semantic principle at the early stage of language development. Specifically, the 3-5-year-old Mandarin-speaking children we tested demonstrated understanding that *huozhe* generates a conjunctive entailment when it appears in the antecedent of conditionals, but they refrain from doing so in the consequent clause, by assigning the disjunctive truth conditions to *huozhe*.

Therefore, contrary to several prior developmental studies that address children’s illogical interpretation of connectives (see e.g. Beilin & Lust 1975, Emerson 1980, French & Nelson 1985, Johansson & Sjölin 1975, Johnson-Laird & Byrne 2002, Morris 2008, Neimark & Slotnick 1970, Paris 1973, Piaget 1969, Taplin et al. 1974 among others), our findings are consistent with the hypothesis of logical nativism, according to which classical logic and human language, including child language, are built on a common foundation. First of all, young Mandarin-speaking children in our study adhere to the semantic principle governing the interpretation of disjunction in conditional statements, by assigning correct truth conditions to these logical words. Secondly, the data seem to suggest that the meanings of several linguistic expressions in human languages, including logical connectives like disjunction and conditional, conform to the

meanings of the corresponding expressions in classical logic. To be specific, together with previous psycholinguistic studies (Boster & Crain 1993, Crain et al. 2002, Goro & Akiba 2004, Gualmini & Crain 2002, Gualmini et al. 2003, Jing et al. 2005, Notley et al. 2010, Su & Crain 2009), our data provide further evidence that young children have implicit knowledge of the fact that disjunction is inclusive-*or*, as in classical logic. This conclusion is based on the observation that young children across languages license the conjunctive entailments of disjunction, when it appears in the scope of a variety of downward entailing expression (Crain 2008). Meanwhile, children's knowledge of the semantics of disjunction, in turn, sheds insights into their knowledge of the conditional statements. In particular, children's competence of the different truth conditions of disjunction in the two clauses of conditionals suggests, indirectly, that children decompose a conditional into an antecedent clause and a consequent clause, as in first order logic. Moreover, children understand the different properties of these two clauses, such that only the antecedent, a downward entailing context, generates the conjunctive entailment of disjunction, but not the non-downward entailing consequent clause.

The critical issue is how children obtain the knowledge that these linguistic expressions correspond to their logical counterparts at the early stage of language development. In view of the complexity of these logical structures, it is unlikely that young children learn the meanings of these logical words from relevant evidence in the input. Exacerbating the problem of learnability is the fact that in learning the interpretation of disjunction in conditional statements, what children learn is not the distribution of disjunction, but its interpretive properties. More precisely, what children learn is that disjunction is assigned different truth conditions, when the same word appears in different places of conditionals. So, even given most optimistic assumptions of children's capacity to draw on generalizations based on distributional cues, they would easily fail in capture the different truth conditions of disjunction in the two clauses of conditionals. By contrast, these problems of learnability seem to be solved on the account of logical nativism. According to logical nativism, children across languages are endowed with innate logical concepts about the meanings of logical expressions (Crain & Khlentzos 2008, 2010). Therefore, despite the lack of evidence in their experience, children can effortlessly 'cognize' these seemingly complicated structures, by simply drawing upon innate principles guiding the interpretations of these logical words.

The study reported in the present paper demonstrates, for the first time, that Mandarin-speaking children adhere to the semantic principle governing the interpretation of disjunction in conditional statements. Further studies need to be conducted to investigate whether children speaking other languages understand the same complicated logical structures. The fact that different languages adhere to the same logical principles is circumstantial evidence that human language users draw upon an innate set of logical primitives that are used in speaking and in reasoning. Therefore, if it is discovered that young children, across languages, observe the same logical principles and adopt a semantics for logical expressions in human languages which parallels the semantics of

the corresponding expressions in first order logic, then this would add further evidence for the argument of logical nativism.

### References

- Beilin, Harry, and Lust, Barbara. 1975. A study of the development of logical and linguistics connectives: linguistics data. In *Studies in the Cognitive Basis of Language Development*, ed. by Harry Beilin, 217-284. New York: Academic Press.
- Boster, Carole T., and Crain, Stephen. 1993. On children's understanding of *every* and *or*. In *Proceedings of Early Cognition and the Transition to Language*, ed. by Carlota Smith, 1-23. Austin: University of Texas.
- Braine, Martin D. S., and Romain, Barbara. 1981. Development of comprehension of 'or': Evidence for a sequence of competencies. *Journal of Experimental Child Psychology* 31. 46-70.
- Braine, Martin D. S., and Romain, Barbara. 1983. Logical reasoning. In *Handbook of Child Psychology: vol. 3. Cognitive Development*, ed. by J. Flavell & E. Markman. New York: Academic Press.
- Chierchia, Gennaro, Crain, Stephen, Gausti, Maria Teresa, and Thornton, Rosalind. 1998. 'Some' and 'or': A study on the emergence of logical form. In *Proceedings of the 22nd Boston University Conference on Language Development*, eds. by Annabel Greenhill, Mary Hughes, Heather Littlefield and Hugh Walsh, 97-108. Somerville, MA: Cascadilla Press.
- Chierchia, Gennaro, and McConnell-Ginet, Sally. 2000. *Meaning and Grammar: An Introduction to Semantics*. Cambridge, MA: MIT Press.
- Chomsky, Norm. 1988. *Language and the Problems of Knowledge: The Managua lectures*. Cambridge, MA: MIT Press.
- Crain, Stephen, Gualmini, Andrea, and Meroni, Luisa. 2000. The acquisition of logical words. *Logos and Language: Journal of General Linguistics and Language Theory* 1. 49-59.
- Crain, Stephen, and Pietroski, Paul. 2001. Nature, nurture and Universal Grammar. *Linguistics and Philosophy* 24.139-185.
- Crain, Stephen, Gardner, Amanda, Gualmini, Andrea, and Rabbin, Beth. 2002. Children's command of negation. In *Proceedings of the 3rd Tokyo Conference on Psycholinguistics*, ed. by Yukio Otsu, 71-95. Tokyo: Hituzi Publishing Company.
- Crain, Stephen. 2008. The interpretation of disjunction in Universal Grammar. *Language and Speech* 51.1-19.
- Crain, Stephen, and Khlentzos, Drew. 2008. Is logic innate? *Biolinguistics* 2. 24-56.
- Crain, Stephen, and Khlentzos, Drew. 2010. The logic instinct. *Mind and Language* 25. 30-65.
- Emerson, Harriet F. 1980. Children's judgments of correct and reversed sentences with 'if'. *Journal of Child Language* 7.137-155.

- von Fintel, Kai. 1999. NPI-licensing, Strawson-entailment, and context-dependency. *Journal of Semantics* 16. 97-148.
- Fodor, Jerry A. 1980. Fixation of belief and concept acquisition. In *Language and learning: The debate between Jean Piaget and Noam Chomsky*, ed. by M. Piattelli-Palmarini. Cambridge, MA: Harvard University Press.
- French, Lucia A., and Nelson, Katherine. 1985. Young children's knowledge of relational terms: Some *ifs*, *ors*, and *buts*. New York: Springer-Verlag.
- Goro, Takuya, and Akiba, Sachie. 2004. The acquisition of disjunction and positive polarity in Japanese. In *Proceedings of the 23rd West Coast Conference on Formal Linguistics*, 251-264. Summerville, MA: Cascadilla Press.
- Gualmini, Andrea, and Crain, Stephen. 2002. Why no child or adult must learn de Morgan's laws. In *Proceedings of the 26th Annual Boston University Conference on Language Development*, eds. by Barbora Skarabela, Sarah Fish and Anna H.-J. Do, 243-254. Somerville MA: Cascadilla Press.
- Gualmini, Andrea, Meroni, Luisa, and Crain, Stephen. 2003. An asymmetric universal in child language. In *Proceedings of Sinn und Bedeutung VI*, ed. by Matthias Weisgerber, 136-148. Konstanz, Germany: Fachbereich Sprachwissenschaft der Universität Konstanz.
- Grice, H. Paul (1975). Logic and conversation. In Cole, P. & J. L. Morgan (eds.) *Syntax and Semantics, Volume 3: Speech Acts*. New York: Academic Press. 41-58.
- Heim, Irene. 1984. A note on negative polarity and downward entailingness. *NELS* 14: 98-107.
- Horn, Laurence. 1972. On the semantic properties of logical operators in English, University of California at Los Angeles: Doctoral dissertation.
- Horn, Laurence. 1989. *A natural history of negation*. Stanford, CA: CSLI Publications.
- Inhelder, Barbel, and Piaget, Jean. 1958. *The growth of logical thinking from childhood to adolescence*. New York: Basic Books.
- Jing, Chunyuan, Crain, Stephen, and Hsu, Ching-Fen. 2005. The interpretation of focus in Chinese: Child vs. adult language. In *Proceedings of the 6th Tokyo Conference on Psycholinguistics*, ed. by Yukio Otsu, 165-190. Tokyo: Hituzi Publishing Company.
- Johansson, B. S., and Sjölin, Barbro. 1975. Preschool children's understanding of the coordinates 'and' and 'or'. *Journal of Experimental Child Psychology* 19. 233-240.
- Johnson-Laird, Philip N. 2001. Mental models and deduction. *Trends in Cognitive Science* 5. 434-442.
- Johnson-Laird, Philip N., and Byrne, Ruth M. J. 2002. Conditionals: A theory of meaning, pragmatics, and inference. *Psychological Review* 109. 646-678.
- Kadmon, Nirit and Landman, Fred. 1993. Any. *Linguistics and Philosophy* 16. 353-422.
- Ladusaw, William. 1979. *Negative polarity as inherent scope relations*, University of Texas: Doctoral dissertation.

- Macnamara, John. 1986. *A Border Dispute: The Place of Logic in Psychology*. Cambridge, MA: MIT Press.
- Montague, Richard. 1973. The proper treatment of quantification in ordinary English. In *Approaches to Natural Language*, eds. by K. J. J. Hintikka, J. M. E. Moravcsik and P. Suppes. Dordrecht, the Netherlands: Reidel.
- Morris, Bradley J. 2008. Logically speaking: evidence for item-based acquisition of the connectives AND & OR. *Journal of Cognition and Development* 9. 67-88.
- Neimark, E. D., and Slotnick, N. S. 1970. Development of the understanding of logical connectives. *Journal of Experimental Child Psychology* 61. 451-460.
- Notley, Anna, Zhou, Peng, Jensen, Britta, and Crain, Stephen. 2010. Children's interpretation of *before* and *or* in English and Mandarin Chinese. In *Proceedings of GLOW in ASIA VII*, eds. by Rajat Mohanty and Mythili Menon, 97-116. Hyderabad, India: EFL University Press.
- Paris, Scott G. 1973. Comprehension of language connectives and propositional logical relationships. *Journal of Experimental Child Psychology* 16. 278-291.
- Partee, Barbara H., Meulen, Alice ter, and Wall, Robert E. 1990. *Mathematical methods in linguistics*. Dordrecht, Boston: Kluwer Academic Publishers.
- Piaget, Jean. 1969. *The mechanisms of perception*. London: Rutledge & Kegan Paul.
- Quine, Willard Van Orman. 1992. *Pursuit of Truth*. Cambridge, MA: Harvard University Press.
- Su, Yi (Esther), and Crain, Stephen. 2009. Disjunction and universal quantification in child Mandarin. In *Proceedings of the 10th Tokyo Conference on Psycholinguistics*, ed. by Yukio Otsu, 265-289. Tokyo: Hituzi Syobo Publishing.
- Taplin, John E., Staudenmayer, Herman, and Taddonio, Judith L. 1974. Developmental changes in conditional reasoning: Linguistic or logical? *Journal of Experimental Child Psychology* 17. 360-373.



## Force Dynamics and Social Interaction Verbs in Mandarin

O gkej wp'Nkw.'V| wKEj kpi . 'cpf 'KHcp'Nck  
National Chiao Tung University

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### 1. Introduction

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svgukqpu0 **First, do those schematized force-dynamic patterns proposed by Talmy (2000) exist in Mandarin as well? In what way and to what extent are they lexicalized in Mandarin? Next, how does Mandarin exhibit the relative strengths between the two force exerting entities? Finally, if FD, as Talmy suggested, is a unique semantic category and is capable of being extended to interpersonal domain, are there other possible social interactive relations left for further research?**

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cpf "rgzlecrk' gf "kp"O cpf ctkp"cu"y gm'cu"vj g xctkqwu'eqpegr wcn'uej go cu'qh'gcej "hqteg

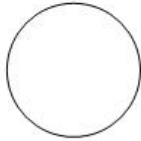
tgrvqpp"kp"O cpf ctkp0 D{" qhgtkpi "c"eqi pkkxg"ugo cpvle"ceeqvpx."vj ku"uwf {" r tguvpu"c  
 wplkfg "cpf "eqtr wu/dcugf<sup>3</sup>encuuklecwqp"vq"vj g"uwf {"qh"UKXu"kp"O cpf ctkp"cpf "wko cvgn  
 r tqxkf gu"gxkf gpegu"vq" f ghpg"hteg" f {pco leu"cu"c"pcwtcd"cpf "wpls wg"ugo cpvle"ecvgi qt {"kp  
 c"etquw/rkpi wkuke"igxgr0

**2. Theatrical Frameworks**

Vcm {"\*4222+"cti wgf "vj cv"Hqteg" F {pco leu"ku"c" wpls wg"ugo cpvle"ecvgi qt {"vj cv  
 f guetkdg"j qy "gpvklgu"kpvtcev"y kj "tgur gev"vq"hteg0Vq"uej go cvk g"gxgt {"r quukdr"hteg  
 r cvgtpu."Vcm {"\*4222<636+"wugu"c" f kci tco o kpi "u{uvgo "vq"tgr tguvpu"vj g"dcule"grgo gpv  
 kpxqrkfg "cu"uj qy p"kp" f kci tco "3+dgrqy <

(1) Force Entities

Agonist (Ago):



Antagonist (Ant):



(a)

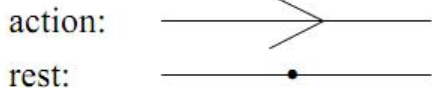
Intrinsic force tendency

toward action: >

toward rest: •

(b)

Resultant of the force interaction



(d)

Balance of strengths

stronger entity: +

weaker entity: -

(c)

Diagram (1): the basic elements of force dynamic relations

Cu"uj qy p"kp"\*3c+ "vj g" Ci qpkv" \*Ci q+ "ku" kpf lecvf "d {"c" ekeng" cpf "vj g" Cpvc i qpkv  
 \*Cpv+ "d {"c" eqpecxg" hki wtg0Vj g" kvtkpule" vgpf gpe {"qh" Ci qpkv" cu" uggp" kp" \*3d+ "ku" gky gt  
 vqy ctf "o qvqp" \*tgr tguvpxgf "d {"cp" cttqy j gcf + "qt" vqy ctf "tguv" \*tgr tguvpxgf "d {"c" drcemf qv0  
 K' y kn' dg" r rcegf "y kj kp" vj g" Ci qpkv" ekeng0 \*3e+ " kpf lecvu" vj g" drcpeg" qh' utgpi vj u  
 dgy ggp" Cpvc pf "vj g" Ci q0F vt kpi "hteg" kpvgtcevqpp. "vj g" utqpi gt "gpvkl" "i gvu" c" r nu0Ncu.  
 vj g" tguw" qh' vj g" hteg" kpvgtcevqpp" cu" uggp" kp" \*3f + "ku" c" rkp" wpf gtpgcj "vj g" Ci qpkv0K' ku

<sup>3</sup> Vj g" r tguvpxcpcn {uku"ku"o clpn {dcugf "qp" vj g" eqtr wu" f cwc" htqo "Ukplec Eqtr wu0K' j quw" o qtg" vj cp  
 hkg" o knkqp" y qtf u" qh' dqj "y tkwgp" cpf "ur qngp" eqpygo r qtct {"O cpf ctkp" cpf "ku" f gxgnr gf "d {"vj g  
 EMR" i tqw" kp" Cef go k' Ukplec. "Vcky cp0



the intrinsic tendency, and this is the conceptual schema of verbs of letting.

Apart from the relations of ‘causing’ and ‘letting,’ Talmy (2000) further claims that force dynamics is a generalization over causation, which not only divides “causing” into finer primitives but also includes concepts like “letting,” “hindering,” and “helping” schematized as shown in diagram (3)<sup>3</sup> below:

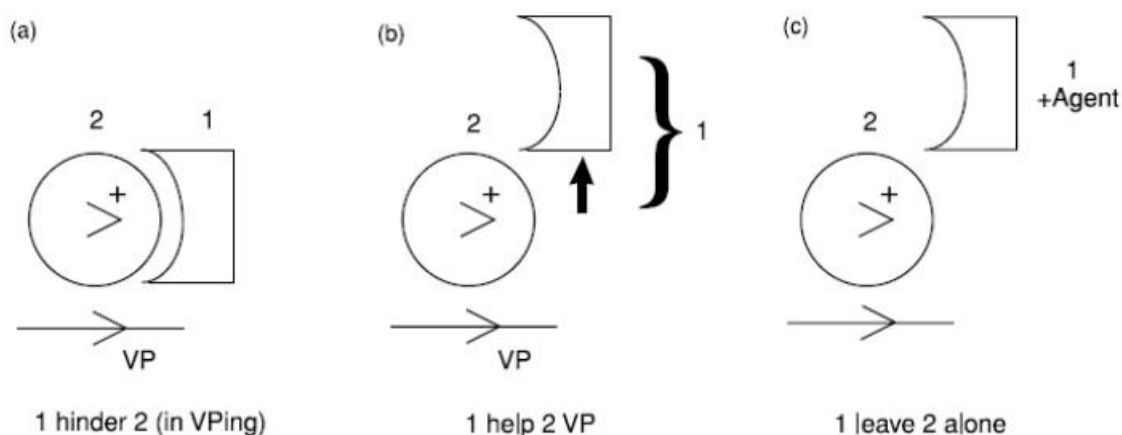


Diagram (3): FD patterns with a weaker Antagonist

(3a,b,c) are representative schemas for force interactions with a weaker Antagonist because they are lexicalized force patterns in English.<sup>4</sup> The Antagonist is engaged in (3a), disengaging in (3b) or remaining disengaged in (3c). They represent the conceptual schema of “hinder,” “help” and “leave alone” in English respectively.

The nine major corresponding FD schemas<sup>5</sup> (six in diagram (2) and three in diagram (3)) presented above arouse an interesting issue. If FD is a fundamental category that represents cognitive operation in terms of force interactions, FD as a semantic concept should be cross-linguistic and universal. However, a complexity is found by comparing the Mandarin data with the English ones.

<sup>3</sup> This diagram is quoted from diagram (14) in Talmy (2000: 426).

<sup>4</sup> Talmy (2000: 425) suggested that there are a set of eight patterns with weaker Antagonist in terms of force patterns, but these patterns seem to play a less important role than the set with a stronger Antagonist. Moreover, most of them are “nevertheless well presented” in English. Only three FD patterns as shown in (3) are lexicalized in English.

<sup>5</sup> In Talmy’s work (2000), there are ten FD patterns (six of them with a stronger Antagonist as shown in (2) and four of them with a weaker Antagonist as partially shown in (3) ) presented and discussed as evidences of generalization over causation in English. However, certain patterns among them especially those with a weaker Antagonist are not lexicalized nor well presented in English, only nine FD patterns are focused and exemplified by Talmy. Please refer to Talmy (2000) p.424, and p.426 for original diagrams.

### 3. A Comparison: The Corresponding FD schemas in Mandarin

In this section, we apply the force relations and the schematized FD patterns proposed by Talmy (2000) to Mandarin causation in social interaction domain with further investigation on Mandarin SIVs. 3.1 proposes a comparison between FD patterns in English and those in Mandarin. 3.2 elaborates the FD patterns of Mandarin SIVs with the example of verbs of helping.

#### 3.1 A Comparison between English and Mandarin Social Interaction Verbs

The FD patterns lexicalized in English strong causation are graphically shown in diagram (2) in section 2 and are now exhibited lexically in Table (1) below:

	Causing		Letting
	Resultant_named	Tendency_named	Result / Tendency
<b>Onset</b>	1 <span style="border: 1px solid pink; padding: 2px;">make</span> 2 VP get to VP	1 stop 2 from VPing <span style="border: 1px solid pink; padding: 2px;">prevent</span>	1 <span style="border: 1px solid pink; padding: 2px;">let</span> 2 VP
<b>Extended</b>	1 <span style="border: 1px solid pink; padding: 2px;">make</span> 2 VP <span style="border: 1px solid blue; padding: 2px;">keep</span> VPing _____	1 <span style="border: 1px solid blue; padding: 2px;">keep</span> 2 from VPing <span style="border: 1px solid pink; padding: 2px;">prevent</span> _____	1 <span style="border: 1px solid pink; padding: 2px;">let</span> 2 VP

Table (1): the English lexicalization of the FD patterns with a stronger Antagonist subject

Table (1) displays two interesting ambiguities in English lexicalization patterns. Firstly, it is possible in English to distinguish onset causation from extended causation by using different verbs. For example, the verb *keep* denotes extended causation whereas the verb *get* and *stop* represent different onset causations. Verbs in pink squares such as *make*, *prevent*, and *let* are used to lexicalize both onset and extended causations. Secondly, distinctive extended causations in English can be expressed by the same verb *keep* as marked in blue squares in table (1). The verb *keep* takes either a resultant VP (ex. *I keep him moving.*) or a tendency-named VP (ex. *I keep him from moving.*).

While applying these FD patterns to Mandarin, two observations are found. Table (2) is used to demonstrate the lexicalization of the FD patterns in Mandarin:

	Causing		Letting			
	Resultant_named		Tendency_named		Result / Tendency	
Onset	1 令/使 迫使/強使/逼使	2 VP	1 阻止/阻擋 阻撓/阻礙 中止/終止	2 VP	1 讓 /允讓 允許/同意 任憑/放任	2 VP
Extended	1 令/使 迫使 強使 逼使	2 一直 VP 不斷 繼續	1 阻止/阻擋 阻撓/阻礙 中止/終止	2 VP	1 讓 /允讓 允許/同意 任憑/放任	2 VP

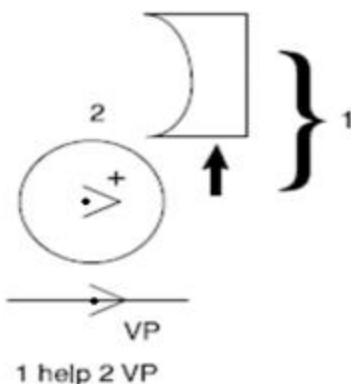
Table (2): the corresponding lexicalization of the FD patterns in Mandarin

Firstly, the distinction of onset and extended causation is seemingly unnecessary in Mandarin. Verbs in table (2) denote both onset and extended patterns. Verbs in pink squares such as 迫使 *pòshǐ* ‘to make,’ 阻止 *zǔzhǐ* ‘to stop~from,’ and so on are representative examples.

Secondly, Mandarin does not have verbs exclusively for the pattern of extended strong causation. It is expressed by the onset causative verbs with an adverb *yìzhí/jìxù/búduàn* 一直/繼續/不斷 ‘continuously’ adding before the complement VP. (ex. 我讓她一直為我工作。)

### 3.2 The Elaboration on Mandarin SIVs: The FD Patterns of Verbs of Helping

With the examination of Mandarin causation verbs in social interaction domain, it is found that the Antagonist in Talmy’s FD patterns is viewed as the opposite party exerting an effect on the Agonist. Along this pattern, The FD schema of English verb *help* is only illustrated with two examples by Talmy (2000) as in diagram (3)



*Smoothing the earth helped the logs roll down the slope.*

*Removing the benches helped the marchers cross the plaza.*

below:

Diagram (3): the FD schema of 'help' in English

The force interaction encoded here is the Antagonist impinges against the Agonist and the former is weaker. With the Antagonist as subject, the sentences above show the pattern with the Antagonist disengaging from the event. That is, the concept of *1 help 2 VP* in English is incorporated into the movement where the Antagonist leaves impingement so that the Agonist can move toward the action. Semantically, the Antagonist helps the Agonist by removing a potential obstacle.

The concept of *help* in Mandarin, however, is an engaging one rather than disengaging. It is lexicalized into different but synonymous lexical items such as *bāng* 幫, *bāngmáng* 幫忙, and *xiézhù* 協助.

Verbs of helping in Mandarin display force interactions in which an Antagonist rather than disengaging, exerts a force to an Agonist toward a particular action. More specifically, the force direction exerted by the Antagonist is the same as the Agonist's intrinsic force tendency. That is to say, the tendency of the Agonist is shared by the Antagonist. Since the FD schemas proposed by Talmy (2000) are not completely adequate in representing force relation in Mandarin, a modified FD schemas for verbs of helping in Mandarin are proposed here as diagram (4) and example (1)-(2) below are used as illustration:



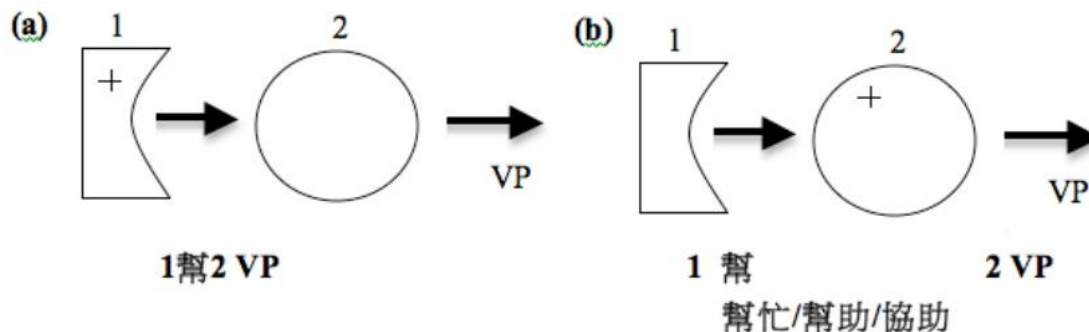


Diagram (4): the FD schema of ‘verbs of helping’ in Mandarin

- (1) 父母親 幫/幫助/幫忙/協助 孩子選朋友，  
*fùmǔqīn bāng/bāngmáng/bāngzhù/xiézhù háizi xuǎn péngyǒu*  
 parents BANG/BANGMANG/BANGZHU/XIEZHU children choose friend  
 ‘Parents help their children choose their friends.’
- (2) 多次複習可以 幫/幫忙/幫助/協助 學生記憶一些困難及不容易理解的課題。  
*Duōcì fùxí kěyǐ bāng/bāngmáng/bāngzhù/xiézhù xuéshēng jìyì yìxiē kùnnán jí*  
*bùróngyì lǐjiě de kètí.*  
 many times review can BANG/BANGMANG/BANGZHU/XIEZHU students  
 memorize some difficult and not easy comprehend DE issues  
 ‘Reviewing many times helps students memorize some difficult and  
 incomprehensible issues.’

The force-dynamic exhibited in verbs of helping is that the Agonist has an intrinsic force tendency toward a certain action, and the Antagonist, sharing with this tendency, exerts a same directional and assisting force to the Agonist. In other words, the Agonist plays the primary role to execute the action, and the Antagonist acts as an assistant. The force of the Antagonist is weaker than that of the Agonist, but the action is done by both force-exerting parties because of the shared tendency as illustrated in diagram (4b). The semantic role of Antagonist is a collective actor with less effort and that of Agonist is a collective actor with more effort. Semantically, (4b) implies the Antagonist helps the Agonist in the sense of assisting the Agonist.

Yet, among verbs of helping in Mandarin, *bāng* is indeed a unique one. It may lead to ambiguous readings as in (3):



(3) 我到廚房幫媽媽做一點事。

*Wǒ dào chúfáng bāng māma zuò yìdiǎn shì.*

I to kitchen BANG mother do a little thing

a. 'I went to kitchen to help mother do something.'

b. 'I went to kitchen to do something for mother.'

The interpretation of (3a) implies that the action is done by both the Antagonist *I* and the Agonist *mother*, whereas the interpretation of (3b) implies that the action is done entirely by the Antagonist *I* alone. That is, in addition to lexicalizing the same meaning as *bāngmáng/bāngzhù/xiézhù* do, *bāng* may also saturate the meaning that the Antagonist him or herself did the action for the Agonist. The Antagonist may take charge of the whole action regardless of the presence of the Agonist. It further implies that the force of Antagonist is stronger than that of Agonist, which matches to diagram (4a). The semantic role of Antagonist is more like an Agent, and that of Agonist is more like a Beneficiary. Semantically, (4a) implies that the Antagonist helps the Agonist in the sense of doing the Agonist a favor by performing the target act. This semantic difference draws a line that separates *bāng* from other verbs of helping in Mandarin.

In some cases, *bāng* may even only get the interpretation that the Antagonist itself did the action for the Agonist, illustrated as below.

(4) 不久胡適的朋友幫他繳了罰款，把他保出來。

*Bù jiǔ Húshì de péngyǒu bāng tā jiǎo-le fákuǎn, bǎ tā bǎo chūlái.*

not long Hushi DE friend BANG he pay-ASP fine, BA he guarantee out

'Soon Hushi's friend paid the fine for him and served as a guarantor for him.'

(5) \*這場雨幫那些樹苗復生。

*\*Zhè-chǎng yǔ bāng nàxiē shùmiáo fùshēng.*

This-CL rain BANG those saplings revive

'\*The rain revived for those saplings.'

In (4), the interpretation of the person who paid the fine must be Hushi's friend rather than Hushi himself. Compared with (4), (5) is unacceptable since we can never get the interpretation that the rain revived for those saplings. The action of reviving must be executed by the Agonist itself because this action obligatorily requires the Agonist's self-engagement.

In the sense of doing a favor, the verb *bāng* may shift the role of Agent from Agonist to Antagonist, i.e., the actor is transferred from the Agonist to the Antagonist, and the action is transferred from object-control to subject-control. However, this interpretation is in conflict with some certain actions with obligatory self-requirement (e.g., *fùshēng* 復生, *kū* 哭, *shēngqì* 生氣, *jiéhūn* 結婚). Consequently, the interpretation of *bāng* is limited in such cases.

In addition to the cases of verbs of helping mentioned above, there is another

possible schema dealt with the Antagonist remaining out of the impingement. The Agonist still has a tendency toward a particular action, and the Antagonist holds a force which has the same direction as the Agonist's. However, compared with the schema of *bāng*, *bāngmáng*, *bāngzhù*, and *xiézhù*, the Antagonist here is steadily disengaged from the impingement. Such concept may be lexicalized as *zhīchí* 支持 in Mandarin:

(6) 輿論支持這項判決。

*Yúlùn zhīchí zhè-xiàng pànjué.*

public opinion ZHICHI this-CL judgment

'Public opinions support this judgment.'

(7) 亞洲的國際奧會委員支持北京主辦奧運。

*Yǎzhōu DE guójì àohuì wěiyuán zhīchí běijīng zhǔbàn àoyùn.*

Asian International Olympic Committee committee member ZHICHI Beijing host the Olympic Games

'Asian committee members of the International Olympic Committee support Beijing to host the Olympic Games.'

The force interaction within *zhīchí* can be characterized in terms of non-impingement: there exists an Antagonist with force but it remains out of the impingement. If the Antagonist were involved in the impingement, it would become the force interaction that *bāng*, *bāngmáng*, *bāngzhù*, and *xiézhù* encode.

These examples above also show that the Antagonist may be either stronger or weaker than the Agonist. Hence, the force patterns that *zhīchí* correspond to may be either with a stronger Antagonist or with a weaker Antagonist. Namely, the concept whether the Antagonist is stronger or weaker is not lexicalized in the verb *zhīchí*. Yet semantically, (5a) implies the Antagonist supports the Agonist by active agreement and (5b) implies the Antagonist supports the Agonist by passive permission.

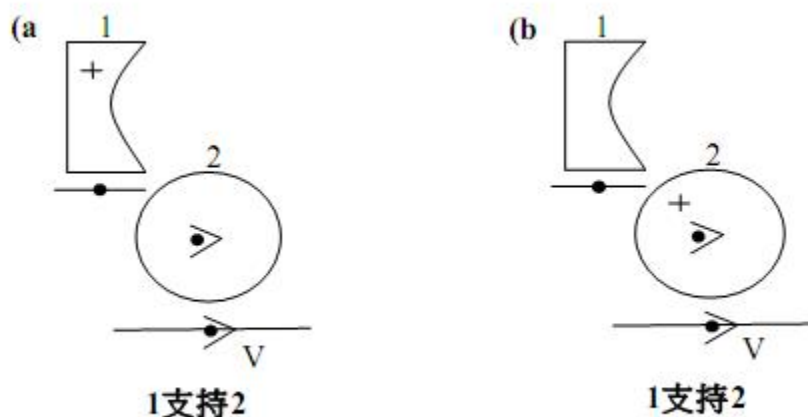


Diagram (5): the FD schema of 'verbs of helping' in Mandarin-2

With the distinction in hand, we may conclude that there are two main schemas for verbs of helping in Mandarin, and each has two subtypes in terms of strength difference between the Antagonist and the Agonist, thus forming four schemas in total.

In the cases of *bāng*, *bāngmáng*, *bāngzhù*, and *xiézhù*, both schemas represent a force interaction that the Antagonist exerts an additional force on to the Agonist toward a particular action, and the additional force direction is the same as the Agonist's intrinsic force tendency. One schema is impingement with stronger Antagonist, lexicalized as *bāng*. The other is impingement with weaker Antagonist, lexicalized as *bāng*, *bāngmáng*, *bāngzhù*, and *xiézhù*.

In the case of *zhīchí*, both schemas represent a force interaction that the Agonist has a tendency toward a certain motion and the Antagonist holds a force which has the same direction as the Agonist's. But the Antagonist remains out of the impingement. Both schemas are lexicalized as *zhīchí*. The only difference is that one with stronger Antagonist, and the other with weaker Antagonist.

#### 4. Further Applications: The Reciprocal or Collateral Interaction Verbs in Mandarin

Apart from the force interactions where one force-exerting entity is focused as illustrated in Section 3, there are some Mandarin SIVs encoding a reciprocal or collateral force interaction in which the Agonist and Antagonist exert reciprocal forces to each other for a common goal. Both force-exerting parties obtain the focal attention, i.e., no focal difference is made. Two of the representative Mandarin SIVs encoding this concept are *hézuò* 合作 and *jìngzhēng* 競爭, illustrated in the following examples.

- (8) 台灣企業界 和/跟/與 學術界互相合作。

*Táiwān qìyèjiè hàn/gēn/yǔ xuéshùjiè hùxiāng hézuò.*

Taiwan industry and academy mutually HEZUO

‘The industry circles and academy circles in Taiwan cooperate with each other.’

- (9) 他們一定會合作。

*Tāmēn yídìng huì hézuò.*

they certainly will HEZUO

‘They certainly will cooperate with each other.’

- (10) 我們可憑品質跟售價 和/跟/與 他們競爭。

*Wǒmēn kě píng pǐnzhì gēn shòujià hàn/gēn/yǔ tāmen jìngzhēng.*

we can by quality and price with they JINGZHENG

‘We can compete with them by our quality and price.’

- (11) 許多企業在全球化的市場中競爭。

*Xǔduō qìyè zài quánqiúhuà DE shìchǎng zhōng jìngzhēng.*

many enterprise in global market JINGZHENG

‘Many enterprises compete in the global market.’

The Agonist and Antagonist from (8) to (11) exert reciprocal forces to each other for achieving a common goal. Moreover, the reciprocal forces in these interactions are collateral rather than unilaterally focused.

The entities involved in collateral force relation may be two or more. Each entity is a Co-actor of this action. On one hand, in the case of *hézuò* subtype, Co-actor 1 and Co-actor 2, both having an intrinsic force tendency toward the same goal, form a coordinating party and move toward the action together. The force interaction between Co-actors is attractive. On the other hand, the *jìngzhēng* subtype encodes the repulsive force interaction between Co-actors. In such case, although Co-actor 1 and Co-actor 2 also have an intrinsic force tendency toward the same goal, they exclude each other and only one of the Co-actors will have the chance to reach the goal in the long run. The force interactions depicted here are illustrated as diagram (6).

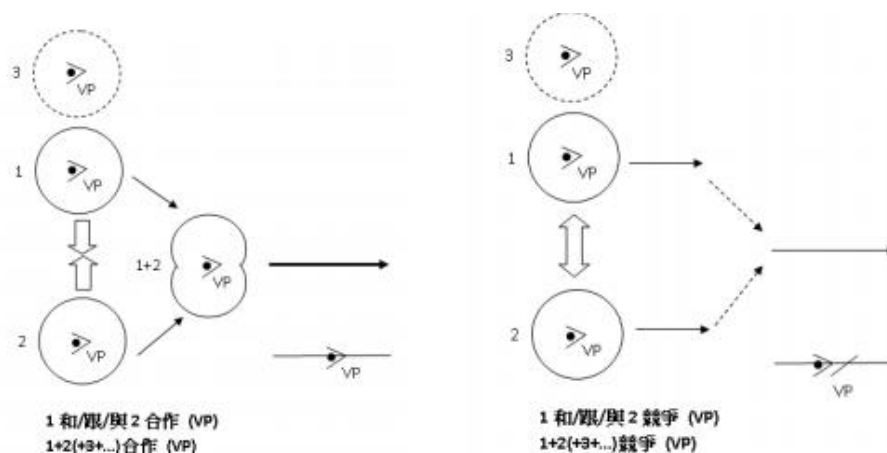


Diagram (6): the FD schema of collateral interactions in Mandarin

The collateral force interaction between Co-actors may be either attractive or repulsive. Here, the concept which *hézuò* and *jìngzhēng* encode further suggests the existence of a common goal. Nonetheless, there may be other SIVs that encode the same collateral force interaction but lack of a common goal.

## 5. Conclusion

Based on Talmy's (2000) force dynamics, this paper explores the force relations and the conceptual basis of social interaction verbs (SIVs) in Mandarin.

By comparing Talmy's FD schemas in English with our observations in Mandarin SIVs, several notable differences are distinguished. Although all Mandarin SIVs require at least two (or more) entities get involved in the event, there are two distinctive force relations: unilateral and collateral. When a focal attention is singled out, the Antagonist or the Agonist, the force relation is unilateral. When no focal divergence is made, i.e., equal status of the Antagonist and the Agonist, the force relation is collateral (e.g., 合作, 競爭). Furthermore, the unilateral force relation can be divided into three force patterns: forces of Ant and Ago from opposite directions (e.g., 阻止, 阻擋), forces of Ant and Ago from the same direction (e.g., 幫, 幫助), or Ant disengaging/remaining out of impingement (e.g. 讓).

To better accommodate Mandarin SIVs in the frameworks of force dynamics, the FD schemas are revised to show the possible force interactions distinguished and lexicalized in Mandarin as well as the constructional variations associated with each distinct lexicalization patterns. Most examples display a tendency that Mandarin SIVs don't lexicalize the difference of onset/extended causation as well as stronger/weaker Antagonist (the result of the interaction). This indeed take a further research in identifying the characteristics of Mandarin SIVs through more data of detailed syntactic patterns for more delicate analysis.

According to Talmy, force dynamics is a semantic category that plays a structuring role across a range of language levels. This study, starting from a cognitive semantic point of view, illustrates a unified classification of Mandarin SIVs, and ultimately provides preliminary evidences to support force dynamics to be a natural and unique semantic category in a cross-linguistic level.

### References

- Achard, Michel. 2001. Causation, Constructions, and language ecology: An Example from French. In Masayoshi Shibatani ed., *The Grammar of Causation and Interpersonal Manipulation*. John Benjamin Publishing Company, PA.
- Chang, Pi Chun. 2007. Mandarin Chinese Causative Continuum. Taipei: National Chengchi University MA Thesis.
- Chiang, Shu-mei. 2003. Force-dynamic manifestation of verbs of hitting, refraining, and urging in Hakka. Taipei: National Chengchi University MA Thesis.
- Fiedler, Klaus, and Gün R. Semin. 1988. On the causal information conveyed by different interpersonal verbs: The role of implicit sentence context. *Social Cognition* 6: 21-39.
- Fillmore, Charles J. 1971. Toward a theory of Deixis. *The PCCLLU papers*, Department of Linguistics, University of Hawaii. 3:4, 219-41.
- Fillmore, Charles J., and Atkins, Beryl T. 1992. Toward a Frame-based Lexicon: The Semantics of RISK and Its Neighbors. *Frames, Fields, and Contrasts*, ed. by Adrienne Lehrer and Eva Feder Kittay. p75-102. Hillsdale. New Jersey: Lawrence.
- Givón, T. 1993. *English Grammar: a function-based introduction*. Vol. I and II. Philadelphia: John Benjamins
- Goldberg, Adele E. 2005. Verbs, constructions and semantic frames. Draft for *Syntax, Lexical Semantics and Event Structure*, ed. by M. Rappaport Hovav, E. Doron, and I. Sichel. Oxford: Oxford University Press.
- Lafrance, Marianne, Hiram Brownell and Eugene Hahn. 1997. Interpersonal Verbs, Gender, and Implicit Causality. *Social Psychology Quarterly*, Vol. 60, No. 2, pp. 138-152
- Lai, Huei-ling, and Shu-mei Chiang. 2003. Intrapyschological force-dynamic interaction: Verbs of refraining in Hakka. *Taiwan Journal of Linguistics* 1:2. 35-64.
- Liu, Mei-chun and Ting-yi Chiang. 2008. The Construction of Mandarin VerbNet: A frame-based approach to the classification of statement verbs. *Language and Linguistics* 9.2: 239-270.
- Shibatani, Masayoshi, and Prashant Pardeshi. 2001. The causative continuum. *The grammar of causation and interpersonal manipulation*, ed. by M. Shibatani, 85-126. Amsterdam: John Benjamins.
- Tamly, Leonard. 1985. Lexicalization patterns: Semantic structure in lexical forms. *Language Typology and Syntactic Description*, vol. 3, ed. by Timothy Shoper, 36-149. Cambridge: Cambridge University Press.

- Talmy, Leonard. 1988. Force dynamics in language and cognition. *Cognitive Science* 10, 2:117-149.
- Talmy, Leonard. 2003. Force Dynamics in Language and Cognition, *Toward A Cognition Semantics*. MIT Press, Cambridge, MA.
- Wolff, Phillip, Grace Song and David Driscoll. 2002. Models of causation and causal verbs. *Papers from the 37th Meeting of the ChicagoLinguistics Society, Main Session, Vol. 1*. (pp. 607-622) Chicago: ChicagoLinguistics Society.
- Wolff, P., Klettke, B., Ventura, T., & Song, G. (2005). Categories of causation across cultures. In W. Ahn, R. L. Goldstone, B. C. Love, A. B. Markman, & P. Wolff (Eds.), *Categorization inside and outside of the lab: Festschrift in honor of Douglas L. Medin* (pp. 2948). Washington, DC: American Psychological Association.

## 现代汉语词类体系效度研究<sup>①</sup> 以《现代汉语词典》（第5版）词类体系为例

王仁强  
四川外语学院

2005年出版的《现代汉语词典》（第5版）在区分词与非词的基础上实现了全面的词类标注，此举在《现汉》编纂历史上具有重要的里程碑意义，在现代汉语规范化历程中也同样具有重要意义。文章以《现汉》（第5版）词类体系为例，采用认知语言学、语言类型学、认知心理学、基于使用的语言学理论以及词典学相关理论，从四个维度对现代汉语词类体系的效度进行了深入研究。研究表明，《现汉》（第5版）所采用的词类体系在数量和结构上基本合理，多数词类定义准确，能够确保各个词类范畴的典型成员实现比较准确的词类标注，也能够确保个体词条典型词类归属得到较为准确的判断。但是，该词类体系也存在一定瑕疵，折射出汉语语法本体研究的缺陷。文章建议，现代汉语词类范畴在设置上必须坚持其作为语法范畴的基本定义，名词、动词、形容词等词类的定义至少应该包括其无标记语法功能的说明，以确保词类判断程序规范、结果可靠，同时也有助于用户正确认识现代汉语词类体系。现代汉语语法研究不仅应该克服所谓的“印欧语眼光”，更应该克服“汉语本位观”。

### 一、引言

2005年出版的《现代汉语词典》（第5版）在区分词与非词的基础上实现了全面的词类标注，此举在《现汉》编纂历史上具有重要的里程碑意义，在现代汉语规范化历程中也同样具有重要意义。然而，词类标注并非一件只需在现有词条上添加词类标签即可完成的小事，而是一件牵一发而动全身的大事：词类标注影响着词典的宏观结构和微观结构，尤其影响微观结构中的义项设置、释义和配例（王仁强，2006）。

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<sup>①</sup> 本文得到中国国家社会科学基金项目“对外汉语学习词典词类标注实证研究”（项目编号：08XYY009）和重庆市首批高等学校优秀人才支持计划的资助。特此致谢！



现代汉语词典标注词类的基础是现代汉语词类体系，该体系中所包括的各种词类及其定义构成词类判断的标准，它们影响制约着词类判断的程序及其最终结果。20世纪以来，不少学者对现代汉语词类体系进行过孜孜不倦的探索，取得了可喜的成绩，从而为现代汉语词典的词类标注工作提供了有利条件。正如实践是检验真理的唯一标准，现代汉语词类体系研究成果在现代汉语词典的词类标注工作中可以得到检验和完善。本文将根据《现汉》（第5版）“凡例”中关于词类标注的说明、词典中对各种词类的定义、词典编者对词类体系的说明以及词典中的词类标注实践，对该词典所采用的词类体系及其应用效果进行深入探讨，以期深化现代汉语词类体系研究，同时为进一步完善现代汉语词典词类标注工作提出建设性意见。

## 二、《现汉》（第5版）词类体系效度分析

### 2.1 词类数量效度分析

现代汉语词类体系中究竟应该设置多少词类为宜，这似乎是一个不易回答的问题。学界普遍认可的词类数量在9~20种之间，各家体系都认同名词、动词、形容词、副词、代词、连词、介词、助词和叹词等9大类，其分歧在于要不要细分名词、形容词和助词，要不要独立设置拟声词和指示词。而徐艳华（2007）以汉语语料库为信息源，依据“句法功能完全相同即为一类”的原则，对3514个高频实词（包括名词、动词、形容词和副词）的语法功能进行了穷尽性考察，并提出676类的新实词词类体系<sup>②</sup>。不过，正如Hunston & Francis（2000: 197）所言，词类数量要适度，太多和太少都不好。

那么《现汉》（第5版）所采用的词类体系在数量上是否合适呢？徐枢和谭景春（2006: 75）指出，为了使各类用户容易接受，《现汉》（第5版）采用了中学语文课本中通行的教学词类系统，并注意吸收近年来汉语语法研究成果，把词分为12大类，其中名词、动词、形容词各有两个附类，代词分为三个小类。王仁强（2006: 40）认为，根据认知心理学相关原理，现代汉语词典选用的词类标注体系应与词典用户的认知水平和短时记忆的先天容量相适应。关于一个人的短时记忆广度，美国心理学家George Miller经过七年的反复测验，于1956年在《心理学评论》（*Psychological Review*）上发表了一篇题为《奇妙的数字：7±2》的论文。论文指出，在信息加工阶段，人的短时记忆容量为5~9个信息单位或组块。短时记忆这种先天的容量限制会影响学习。词典的词类标注实际上是一种高度精简的注释，其精简的

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<sup>②</sup> 徐艳华（2007）指出，她的研究是为计算机处理自然语言所需要的汉语词类体系服务的。在她提出的676类实词体系中，一词一类的有364类，两词一类的有107类，两词以上同类的有205类。不过，这种为了做到所谓“词有定类”所做的穷尽性考察似与区分词类的根本目的相违背的。

前提是假定词典用户具备一定语法知识，而学习者词典往往会在正文前的“使用说明”中对其所采用的词类体系进行交代。为了让用户查询词典时不至于为过多的词类及其内涵所干扰，一种语言的词类大类最好不要远远超出9个（诚然，大类还可根据需要区分小类）。因此，从词类数量上看，《现汉》（2005）选用包括12个大类的通行词类体系与词典用户的认知水平和短时记忆的先天容量是大致适应的。

## 2.2 “词类”定义的效度分析

《现汉》（第5版）中“词类”条目的定义既是用户了解词类性质的指针，又是编者判断各种词类的总纲。研究发现，不论是词典本身还是编者有关词类标注的说明都认为，“词类”是“词在语法上的分类”。不过，这里存在所谓语法功能和语法意义的区分。那么，《现汉》（第5版）编者是如何看待这个问题的呢？徐枢和谭景春（2006：75）认为：

语法意义是划分词类的内在基础，语法功能则是词类性质的外在表现，二者是密切联系的。我们在划分词类时综合考虑词的语法意义和词的语法功能，但在具体操作上主要依据词的语法功能。语法功能包括两个方面：（一）做句法成分的能力以及这种能力的大小，如能否做主语、谓语、定语、补语等；（二）词和词的组合能力，如能否受“很”修饰、能否受数量词修饰、能否带“了、着、过”，等。语法意义是指词的类别意义<sup>③</sup>。划分词类时，单纯依靠语法功能有时会遇到困难。比如，林立、扑鼻、斑斓、苍翠，做谓语时一般只能构成“四字格”（高楼林立、香气扑鼻、五色斑斓、林木苍翠），也可以带“的”字做定语（林立的厂房、扑鼻的芳香、斑斓的玛瑙、苍翠的山峦），单纯根据语法功能很难看出它们的区别。我们考虑到它们所表示的语法意义，把“林立、扑鼻”归入动词，把“斑斓、苍翠”归入形容词，这样跟多数人的语感就比较接近。此外，《现汉》对某些词的释义方式，尤其是对名词、动词、形容词不同的释义方式也可以在一定程度上作为标注词类的参考。

换言之，《现汉》（第5版）编者有关词类判断标准的观点可以概括为“语法功能为主，语法意义为辅”。其实，朱德熙（1985）、邢福义（2003）、Beck（2002）、Lakoff（1987）、Schachter & Shopen（2007）、Taylor（2003）等也大致认可这种观点，即在承认语法功能标准的前提下还承认抽象的（语法）意义在词类范畴化中的作用。正如Lakoff（1987：189）所指出的，“一个既定[语法]类别中的全体成员在根本的语义属性上是相同的。”显然，Lakoff指的也是抽象的语法意义。不过，语法意义标准虽然容易判断个体词项的典型词类归属，但却容易遗漏个体词项的词类转化，而语法功能标准才是最为可靠的标准（王仁强，2006）。郭锐（2002：118）指出，鉴于词类在本质上是表述功能，即Croft（1991，2007）所说的语用功能或曰命题言语

<sup>③</sup> 徐枢和谭景春（2006：85）在注释中指出，“语法意义的范围比较大，各家的理解也不尽相同。我们这里所说的语法意义是指词的类别意义，主要包括事物、动作、性质、数目、单位等类型。”

行为，而语法功能反映词的表述功能，也可观察，具有全面性，因而是词类判断的唯一可靠标准。刘涛等（2008）运用 ERP 技术对汉语名词和动词加工的脑神经机制所进行的实验表明，汉语名词和动词的语法功能在名动分离中扮演重要作用。尽管认知语言学常常被认为是根据语义内容来定义主要词类范畴，但这种看法其实是片面的。根据 Langacker（2009：240-241），个体词项的语法类别是根据其所参与的语法构式所决定的。不过，个体词项在语言层面的词类归属绝非仅仅通过观察其参与的单个语法构式就可以轻易判断的，因为单个语法构式中的用法也许并不是该词的固化用法或规约化用法，而是临时的去范畴化用法。根据基于使用的语言学理论（Usage-Based Theory）<sup>④</sup>，语言知识就是语言使用的知识，因为语言结构是在使用中浮现出来的，使用频率对语言结构的认知表征和规约化程度有着重要影响，使用频率对语言演变和语言习得能够作出合理解释（Bybee 2007, 2010; Bybee & Hopper 2001; Croft 2000; Langacker 2000）。有鉴于此，通过分析词项的使用模式或曰无标记句法功能将有助于准确判断个体词项在语言层面的词类归属。

因此，理想的词类定义正如语言类型学与语言共性研究所指出的那样，应兼顾句法标记性和语义原型两项标准（Beck 2002：71-74）。其中，前者是根本的、主要的标准。显然，该词典中的“词类”定义以及有关说明尚待进一步明确。

### 2.3 各种词类定义的效度分析

那么，《现汉》（第5版）在其词类体系中是如何设置和定义各种词类的呢？如表1所示，即便是编者所主张的“语法功能标准为主，语法意义标准为辅”的词类判断标准也并未在词典中各种词类（尤其是名词、动词和形容词三大词类）的设置及其定义中得到完全体现。在词典设置的12大类及其附类条目的定义中，三分之一以上的条目却只是从语法意义角度进行定义的<sup>⑤</sup>，如“名词”及其“时间词”和“方位词”2个附类、“动词”及其“趋向动词”附类、“形容词”及其“状态词”附类、“拟声词”等。“属性词”虽然既从语法意义又从语法功能角度进行了定义，但其语法功能上的定义混淆了“形容词”与“副词”的区分，定义中认为作为形容词附类的少数“属性词”还可以作状语，而作状语显然是“副词”的无标记语法功能。类似“属性词”的这种定义方式容易误导编者先从语义上把某些词“定于一类”，然后再考虑其语法功能，从而颠倒词类判断的程序。而“拟声词”在其他语言中是从造词角度进行的分类，而非语法上的分类，“拟声词”在语法上通常归入动词、名词等，如英语“chirp”。尽管丁声树等在《现代汉语语法讲话》（1952-1953）中提及象声词（其中包括叹词），但汉语语法本体研究承认拟声词在汉语语法系统中的词类地位主要始于《中学教学语法系统提要》（1984）。受此影响，此后出版的标注词类的汉语

<sup>④</sup> Bybee（2010：195）指出，基于使用的语言学理论直接源于美国功能主义语言学，并在一定意义上代表了当代美国功能主义语言学的研究现状。

<sup>⑤</sup> 尽管罗列了部分例词，但除“属性词”之外基本未举例显示其语法功能。

词典和汉外词典多数承认拟声词具有独立的词类地位（王仁强 2006：67-68）。徐枢和谭景春（2006）对各种词类的语法功能进行了补充说明，在一定程度上弥补了词典本身相关词类条目在定义方面的不足。

**表 1 《现汉》（第 5 版）中 12 种词类及其附类的定义**

序号	词类名称	释 义
1	名词	表示人或事物名称的词，如“人、牛、水、友谊、团体、今天、中间、北京、孔子”。
1.1	时间词	表示时间的名词，如：过去、现在、将来、早晨、今天、去年等。
1.2	方位词	名词的附类，是表示方向或位置的词，分单纯的和合成的两类。单纯的方位词是“上、下、前、后、左、右、东、西、南、北、里、外、中、内、间、旁。”合成的方位词由单纯的方位词用下面的方式构成。a) 前边加“以”或“之”，如“以上、之下”。b) 后边加“边、面、头”，如“前边、右面、里头”。c) 其他，如“底下、头里、当中”。
2	动词	表示人或事物的动作、存在、变化的词，如“走、笑、有、在、看、写、飞、落、保护、开始、起来、上去”。
2.1	助动词	动词的附类，表示可能、应该、必须、愿望等意思，如“能、会、可以、可能、该、应该、得(děi)、要、肯、敢、愿意”。助动词通常用在动词或形容词前面。“我要糖”、“他会英文”里的“要、会”是一般动词。
2.2	趋向动词	动词的附类，表示从近到远、从远到近、从低到高、从高到低、从里到外、从外到里等趋向或其他虚化的意义，分单纯的和合成的两种。单纯的趋向动词是“来、去、进、出、上、下、回、过、起、开”等。合成的趋向动词由单纯的趋向动词组成，如“进来、进去、出来、出去、上来、上去、下来、下去、回来、回去、过来、过去、起来”等。
3	形容词	表示人或事物的性质或状态的词，如“高、细、软、白、暖和、活泼”。
3.1	属性词	形容词的附类，只表示人、事物的属性或特征，具有区别或分类的作用。属性词一般只能做定语，如“男学生、大型歌剧、野生动物、首要的任务”中的“男、大型、野生、首要”，少数还能够做状语，如“自动控制、定期检查”中的“自动、定期”。
3.2	状态词	形容词的附类，表示人或事物的状态，带有生动的描绘色彩，如雪白、滚烫、冰凉、白花花、毛茸茸、笑呵呵、纷纷扬扬、婆婆妈妈、黑咕隆咚等。
4	数词	表示数目的词。数词连用或者加上别的词，可以表示序数、分数、倍数、概数，如“第一、八成、百分之五、一千倍、十六七、二三十、四十上下”。
5	量词	表示人、事物或动作的单位词，如“尺、寸、斗、升、斤、两、个、只、支、匹、件、条、跟、快、种、双、对、副、打、对、群、次、回、遍、趟、阵、顿”等。量词常跟数词一起用。
6	代词	代替名词、动词、形容词、数量词、副词的词，包括：a) 人称代词，如：“我、你、他、我们、咱们、自己、人家”；b) 疑问代词，如：“谁、什么、哪儿、多会儿、怎么、怎样、几、多少、多么”；c) 指示代词，如：“这、这里、这么、这样、这么些、那、那

		里、那么、那样、那么些”。
7	副词	修饰或限制动词和形容词，表示范围、程度等，而不能修饰或限制名词的词，如“都、只、再三、屡次、很、更、越、也、还、不、竟然、居然”等。
8	介词	用在名词、代词或名词性词组前面，合起来表示方向、对象等的词，如“从、自、往、朝、在、当（方向、处所或时间），把、对、同、为（对象或目的），以、按照（方式），比、跟、同（比较），被、叫、让（被动）”。
9	连词	连接词、词组或句子的词，如：“和、与、而且、但是、因为、如果”。
10	助词	独立性最差、意义最不实在的一种特殊的虚词，包括：a) 结构助词，如“的、地、得、所”；b) 时态助词，如“了、着、过”；c) 语气助词，如“呢、吗、吧、啊”。
11	叹词	表示强烈感情以及招呼、应答的词，如“啊、哎、哟、哼、喂”。
12	拟声词	模拟事物的声音的词，如“哗、轰、乒乒、叮咚、扑哧”。也叫象声词。

## 2.4 词类的定义和说明对词类判断程序及其结果的影响

研究发现，编者关于词类定义所涉及的词类判断程序的说明存在自相矛盾之处。一方面，编者强调“具体操作上主要依据词的语法功能”判断词类归属，而另一方面又强调词类标注过程中语法意义的重要性（甚至有压倒语法功能的趋势）：编者不仅认为那些不易根据语法功能判断词类归属的条目就根据其语法意义进行判断之外，而且还认为“《现汉》对某些词的释义方式，尤其是对名词、动词、形容词不同的释义方式也可以在一定程度上作为标注词类的参考”（徐枢和谭景春 2006: 75）。显然，编者根据语法意义判断词类的条目范围无形中被扩大了：不仅那些难以根据其语法功能判断词类的条目如此，那些在已有释义中体现了名词、动词和形容词语法意义的词条亦如此。这就让人不得不怀疑：至少对于部分词条而言，《现汉》（第5版）编者很可能根据词条现有释义标注词类，而不是在全面考察其语法功能之后再标注词类，从而颠倒了词类判断的程序。如果确实存在这种情况，这势必会影响其词类标注结果的准确性。

基于《现汉》（第5版）词类标注数据库的研究发现，全部标注词类的“Ⅰ类条目”中，兼类条目只有2778条（占5.40%），单类条目则有48691条（占94.60%）；单类条目中，名词、动词和形容词条目有47067条（占96.66%）；“Ⅰ类条目”的兼类条目中，以兼两类为主（占95.36%），而在兼两类的条目中，名词、动词和形容词之间兼类的条目有2181条（占82.33%）（王仁强 2010）。鉴于常用词（尤其是名词、动词和形容词）最容易衍生兼类（Coughlin 1996；安华林 2005；郭锐 2002；王仁强 2006；俞士汶 2003），尽管词典中存在名词、动词和形容词之间兼类的条目，但是考虑到词典中的“名词”、“动词”和“形容词”三个条目是从意义上定义的，编者也强调可以根据现有释义标注词类，那么总共5.40%的兼类条目比例似未全面反映词典中所收词条的用法全貌。统计表明，在《美国传统词典》（1994）中，共有18500个兼类词条，约占词条总数的12%，并且都是高频常用词（Coughlin 1996）。

现代英语是一种少有曲折变化的语言，其词序变化是语法的基础，因而更像汉语这样的孤立语（Crystal 1997: 295）。现代英语尚且有 12% 的兼类词，而现代汉语是一种缺乏形式标记和形态变化的语言，其兼类词比例理应不会逊色于英语。该词典中标注为名、动、形的单类条目很可能存在根据现有释义判断词类而人为减少兼类条目数量的嫌疑。

根据江蓝生（2000）和张博（2004），具有反义、同义或类义关系的词项通常在词义演变方面发生类同引申的情况，王仁强（2005）进而指出，尽管词义在对称发展变化中也会体现出一定的不对称性，但是通过检查有着一定对称关系的词条在编纂处理上是否体现出对称性不失为衡量词典编纂质量的一条重要原则，而至于一组词在多大程度上是对称的以及应该采取何种编纂方法，则最终取决于基于语料库的使用模式调查。《现汉》（第 5 版）编者显然也意识到词典编纂的对称性原则，并希望在词类标注上“尽量做到同类的词同样处理”（徐枢和谭景春 2006: 85）。对《现汉》（第 5 版）同类词条的词类标注情况进行一番考察之后，我们发现，词类标注不对称的问题确实存在。比如，表 2 中的“公费”和“自费”作为一对反义词条，其用法很可能具有对称性，继而其词类标注和释义处理也应具有一定的对称性，但是前者标注为名词，后者标注为动词，尽管基于现代汉语语料库的使用模式调查发现，两者用法相近<sup>⑥</sup>。对比两个版本中的释义就不难发现，《现汉》第 5 版编者很可能就是根据第 4 版的释义把前者标注为名词，而把后者标注为动词。如果根据现代汉语语料库用法调查所发现规律性的语法功能来标注词类的话，建议设立副词和形容词两个义项为宜。当然，鉴于副词和形容词用法是由动词用法引申而来，尽管目前用作谓语的典型动词用法比较少见，但毕竟还是存在，因而也可以考虑再设置动词义项。

<sup>⑥</sup> 基于国家语委现代汉语语料库和北京大学汉语语言学研究现代汉语语料库的调查发现，“自费”和“公费”的语法功能基本一致，按照使用频率排序依次是：（1）作状语，意思分别是“以私人负担费用的方式”和“以国家或团体负担费用的方式”，如“~留学美国”、“~订阅报刊”；（2）作定语，意思分别是“私人负担费用的”和“国家或团体负担费用的”，如“~医疗”、“~留学生”等（3）作谓语，意思分别是“私人负担费用”和“国家或团体负担费用”，如“必须自费”、“不能公费”等；（4）作主宾语，意思分别是“私人负担的费用”和“国家或团体负担的费用”，如“用自费出版”、“禁用公费研究人体无性繁殖”等。其中，两者真正用作谓语的情况比较少见，且通常是因为其他谓语动词在语境中临时省略导致的，而用作主宾语的情况更是凤毛麟角，并且可作主宾语的“公费”基本上已经让位于“公款”。换言之，如果根据无标记的语法功能标注词类的话，首先应该考虑设立副词和形容词两个义项为宜。此外，鉴于“自费生”和“公费生”已经词汇化（其中的“生”只作构词语素），因而不宜作为形容词用法的例证，建议单独设立条目。

表2 《现汉》第5版和第4版中“自费”和“公费”条目编纂处理对比

词条	《现汉》(第5版)	《现汉》(第4版)
公费	囿由国家或团体供给的费用：~医疗 ~留学。	由国家或团体供给的费用：~医疗 ~留学。
自费	囿自己负担费用：~生 ~留学 ~旅行 按规定有些药品要~。	自己负担费用：~生 ~留学 ~旅行 孩子看病是~。

再以“男”、“女”、“男性”和“女性”4个条目为例。如表3所示，这4个条目在词类标注上存在三点不对称：(1)“男”<sup>①</sup>和“男性”词类标注不对称：前者标注为形容词(属性词)，但例证中却包含“一男一女”这个明显的名词用法例证<sup>⑦</sup>，而后者则标注为名词；(2)“女”<sup>①</sup>和“女性”词类标注不对称：前者标注为形容词(属性词)，但例证中却包含“男女平等”这个明显的名词用法例证，而后者标注为名词；(3)“男性”和“女性”作为一对反义词条但词类标注也不对称：尽管都标注为名词，但前者只设立了一个义项，而后者则设立了两个义项。然而，基于语料库的使用模式调查发现，词典中的不对称现象并非词条本身用法上的差异<sup>⑧</sup>。只要对比《现汉》(第5版)和《现汉》(第4版)就知道了：义项划分和释义几乎没有区别，词类标注不过是在现有释义上贴标签而已。

表3 “男”、“女”、“男性”和“女性”4个条目编纂处理对比

词条	《现汉》(第5版)	《现汉》(第4版)
男	①囿属性词。男性(跟“女”相对)：~学生 一~一女。②儿子：长~。③囿(Nán)姓。	①男性(跟“女”相对)：~学生 一~一女。②儿子：长~。
男性	囿人类两性之一，能在体内产生精子。	人类两性之一，能在体内产生精细胞。

<sup>⑦</sup> 也许有学者会认为，因为“汉语的动词、形容词可以做主宾语”，所以“一男一女”中的“男”仍然是形容词。但是，这种前提条件是不存在的，因为这种说法在词类判断程序上犯了两个逻辑错误。首先是循环论证问题：鉴于个体词项在语言层面的词类是根据其无标记语法功能(即基于大型平衡语料库所发现的使用模式)所决定的，我们不能先验地(即从意义上)把一个词项定于一类(如把“男”定为形容词)，然后来谈论它具有多功能性(即可以充当多种语法功能，包括可以做主宾语)。其次是以偏概全问题：以先验“定于一类”的个体词项的多功能性来探讨某个词类的多功能性。(王仁强 2009: 106)

<sup>⑧</sup> 基于国家语委现代汉语语料库和北京大学现代汉语语料库的使用模式调查发现，“男/女”“男性/女性”的语法功能基本一致：(1)作主宾语，如“现在是女追男”、“一男一女”、“女性多于男性”、“一位中年男性/女性”；(2)作定语，如“(男/女)学生/同志/同学/主人公/主角/作家”“(男性/女性)公民/患者/同事/同学”。调查还表明，两对词条尽管语法功能相近，但在使用语体上存在一定差异，“男性/女性”多用于正式语体。

女	① 囹属性词。女性（跟“男”相对）：～工 ～学生 男～平等。② 女儿：长～ 生儿育～。③ 二十八宿之一。〈古〉又同“汝” rǔ。	① 女性（跟“男”相对）：～工 ～学生 少～ 男～平等。② 女儿：长～ 生儿育～。③ 二十八宿之一。〈古〉又同“汝” rǔ。
女性	囹① 人类两性之一，能在体内产生卵子。② 妇女：新～。	① 人类两性之一，能在体内产生卵细胞。② 妇女：新～。

显然，根据词类判断的意义标准是难以全面准确判断个体词项在语言层面的词类归属的，而根据已有释义来判断词类则更不可取，更何况现有词典由于没有系统使用汉语语料库还存在漏收义项、释义不准等情况。

### 三、现代汉语词类体系研究：困境与出路

其实，不仅《现汉》（第5版）在词类体系上存在上述问题，在现代汉语语法本体研究中，类似问题同样存在。

沈家煊（2009）指出，现代汉语词类研究面临两个困境：困境一，做到“词有定类”就“类无定职”，做到“类有定职”就“词无定类”；困境二，满足“简约原则”就违背“扩展规约”，满足“扩展规约”就违背“简约原则”。为了摆脱第一个困境，他提出汉语跟其他语言一样，词类和句法成分之间符合普遍的“关联标记模式”，因此“词类和句法成分之间缺乏一一对应的关系”并不是汉语的特点，汉语的词类也能跟句法功能挂上钩。我们赞成这种源于语言类型学视角的词类观，因为名词、动词、形容词在本质上对应于指称、陈述、修饰（体饰）等命题言语行为（亦称语用功能或表述功能），因而具有跨语言的共性（Croft 1991, 2007；郭锐 2002）。但是，沈先生关于摆脱第二个困境的解释就显得非常牵强。为了解释某些具有动作意义或者具有性质意义的词项做主宾语时的自指现象（如“这本书的出版”中的“出版”和“这种谦虚”中的“谦虚”），沈先生认为，汉语的词类系统完全不同于印欧语的词类系统<sup>⑨</sup>：汉语词类系统中的实词类不同于印欧语的“分离模式”，而是“包含模式”，即形容词作为一个次类包含在动词类之中，动词作为一个次类包含在名词类中；汉语的名词、动词等范畴还都属于语用范畴，而不是印欧语那样的语法范畴，汉语的动词做主宾语并没有一个“名词化”过程。我们认为，这种观点实质上颠覆了词类的基本定义，在词类判断过程中采用双重标准（判断一个词项是否属于名词、动词和形容词主要采用语法意义标准，是否属于其他词类则主要采用语法功能标准），没有注意区分（语法）“词”和（词汇）“词”，部分颠倒了词类判断程序<sup>⑩</sup>，未能彻底贯彻自己坚信的词类和句法成分之间的“关联标记模式”

<sup>⑨</sup> 朱德熙（1985）曾多次反对“用印欧语眼光来看待汉语”。不过，正如伍铁平（2008：380）所正确指出的那样，“印欧语并非铁板一块，并不存在统一的印欧语眼光”。

<sup>⑩</sup> 即先验地从语法意义上认定有动作意义的词是动词，如“出版”有动作意义，因而是动



<sup>11</sup>，对印欧语（如英语）的认识存在误区，未能充分意识到个体词项经过千百年的发展后可能拓展的多义性，对自指现象的解释不能自圆其说。

语言类型学与语言共性研究表明，语言形式和意义的匹配受制于语言使用的经济性和象似性两条原则，其中经济性原则占主导地位（Croft 2002: 106）。语言多义现象（含功能多义性）是普遍存在的，多义现象主要源于人的隐喻和转喻思维（Taylor 2003: 124）。产生功能多义性的机制包括语法隐喻、语法转喻和语法化，而名词、动词、形容词和副词条目最容易通过语法隐喻、语法转喻或语法化机制衍生功能多义性，从而出现个体词项的去范畴化（即活用）和再范畴化（王仁强 2006）。沈先生在比较汉语和其他语言的异同时却选择了汉语的“出版”与英语的 *publish* (v. 出版) 及其表达自指的派生词 *publication* (n. 出版) 进行对比。而事实上，词的语法兼类现象在现代英语中是广泛存在：上文提及的《美国传统词典》中就占 12%。兼类现象不仅限于现代英语，在印欧语系日耳曼语族中的现代匈牙利语、德语、荷兰语中也比较常见，并且成为计算语言学和形态学研究的难点和热点问题（Coughlin 1996; Bauer & Valera 2005）。鉴于个体词项在语言层面的词类所揭示的是其“潜在的语法功能范围”（Halliday 2004: 51），因此兼类指一个词在共时语言层面兼属两个以上词类范畴的现象，而在言语层面（即在单个使用事件中）是不可能存在兼类现象的，否则就违背了逻辑同一律。基于语料库的使用模式调查可以发现个体词项规律性的使用模式（即充当无标记语法功能的范围），凡是定型的/规约化的功能多义性就应该设立功能义项，承认其衍生词类的独立地位（自指用法也不例外），从而在定量的基础上做出准确的定性判断，才能最终确保语言层面词类判断的准确性。

汉语中诸如“这本书的出版”和“这种谦虚”之类的自指现象采用语法隐喻理论可以得到更加全面彻底的解释（王仁强 2009）。根据语法隐喻理论，一个意义在词汇语法层的实现，可以通过一般情况下的“土式”（英语 *Doric*，亦称“一致式”），也可以通过语法隐喻转化之后的“雅式”（英语 *Attic*，亦称“隐喻式”）。产生概念语法隐喻的一项最重要的来源就是名化<sup>12</sup>。通过名化，在“土式”小句中发挥功能的由动词表达的过程或者由形容词表达的属性，在“雅式”小句中转化成由名词来表达，这时名词在词组中发挥功能。语法隐喻导致语义上的“事体化”和语法上的

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词，即使可以经常出现在主宾语位置上也是永远是动词。

<sup>11</sup> 充当无标记主宾语是名词的典型语法功能，充当无标记定语是形容词的典型语法功能，而充当无标记谓语则是动词的典型语法功能。即使在个别难词的词类判断过程中要考虑其语法意义，那也只能放在考察其语法功能之后再通盘考虑，这样做才不会颠倒词类判断的程序。而且，是否兼类不在于其词义是否变化，而在于其使用模式是否体现了多类词的无标记语法功能。

<sup>12</sup> 英语“*nominalization*”在汉语中有“名物化”、“名词化”以及“名化”等译法。鉴于“名词化”和“名物化”两种译法的内涵都趋于狭窄（前者趋于语法，后者趋于语义），而英语“*nominalization*”实际上兼指两者，故本文在正文中除引文外采用“名化”的说法，以兼顾其语法和语义双重内涵。

“名词化”。上述构式中的“出版”和“谦虚”分别是“过程事物”（或者“作为虚拟实体的过程”）和“属性事物”（“作为虚拟实体的属性”），它们属于“两种语义成分的融合或结合”（Halliday & Matthiessen 1999: 243），相当于一种“概念整合”。而且，英语中动词、形容词转化而成的名词在形态上并非一定就更为复杂，它还包括零派生形式。之所以可以把一种识解形式理解为“土式”，是因为这种形式出现更早：在语法建构现实的过程中，过程向动词的映射和实体向名词的映射早于过程向名词的映射（Halliday, 1999: 89）。英语中除了有 publication（出版）这样的添加后缀的语法隐喻“雅式”用法，也有大量类似“collapse”（n.晕倒）、“sneer”（n.嘲笑）、“smile”（n.微笑）、“shudder”（n.发抖）、“titter”（n.傻笑）、“tremble”（n.颤抖）、“sigh”（n.叹息）、“attempt”（n.企图）、“sleep”（n.睡觉）等无标记的“雅式”用法。根据 Online Etymology Dictionary (<http://www.etymonline.com/index.php>)，这些词的语法隐喻名词用法均晚于其动词用法。语法隐喻是一切语言所共有的语言使用现象，甚至是人类语言的本质特征之一（Halliday & Matthiessen, 1999: 242）。王仁强（2009: 108）指出，汉语动词、形容词名化后的自指用法属于一种语法隐喻，涉及个体词项初始词类的去范畴化（“临时活用”）及再范畴化（定型的/规约化的“转类或兼类”），但鉴于不论是去范畴化还是语法隐喻都存在一个程度问题，名化不等于名词化，至于是否已经完成再范畴化不能仅凭直觉判断，而应该依据语料库的使用模式调查。基于北京大学现代汉语语料库的使用模式调查发现，类似“这本书的出版”和“这种谦虚”中的“出版”和“谦虚”用法已经是定型的/规约化的名词用法，而非临时的去范畴化用法，因而现代汉语中的“出版”在语言层面上应该处理为动词兼名词。

有学者担心，这种观点势必导致所有词汇动词都同时兼名词，如果那样也就失去了词类区分的作用，其实这种担心是完全没有必要的，因为兼类与词频成正比（安华林 2005；Coughlin 1996；郭锐 2002；王仁强，2006；俞士汶 2003）。兼类与词频的相关性完全可以从基于使用的语言学理论得到合理的解释（详见上文 2.2 的相关论述）。“出版”和“谦虚”之所以兼类可能性大，是因为其使用频率高，而且前者还属于 1000 以内的高频词：根据国家语委 2008 年公布的《现代汉语常用词表》（草案），“出版”和“谦虚”的词频排序分别是 825 和 10583。为了证明低频词汇动词不大可能衍生（自指）名词用法，我们从《词表》中抽取了以下 6 个词频较低的词汇动词：“撇开”（频序：19059）、“听信”（频序：20251）、“蹒”（频序：20901）、“搭理”（频序：23165）、“干掉”（频序：29740）和“拆穿”（频序：40312）。然后，通过北京大学现代汉语语料库检索分析其使用模式。结果发现：这些动词尚未衍生出固化的或规约化的自指用法，因而不可能在语言层面处理为动词兼（自指）名词。而且，这项调查还顺带证明，《现汉》（第 5 版）把这些低频词条处理为单类动词是正确的。换言之，《现汉》（第 5 版）在兼类处理上的主要问题不在低频词，而在高频词。

综上所述，只有把高频词“出版”在语言层面（而非言语层面）处理为动词兼名词才能同时满足“简约原则”和“扩展规约”，而且只有这样才能简洁真实地反映

汉语词项真实的定型用法，也才能真正弥合理论与实践的矛盾。

#### 四、结语

综上所述，《现汉》（第5版）所采用的现代汉语词类体系在数量和结构上基本合理，词类体系中的多数词类条目定义准确，能够确保各个词类范畴的典型成员实现比较准确的词类标注，也能够确保个体词条典型词类属性得到比较准确的判断。但是，该词典在词类标注体系上也存在一定瑕疵：（1）个别词类范畴（如拟声词、时间词和属性词等）在设置上违背了“词类”是“词在语法上的分类”的基本定义（诚然，现代汉语究竟应该设置哪些词类为好还有待深入研究）；（2）词典中部分词类的定义及其有关说明有欠妥当，容易误导用户和编者：既然“词类”主要是根据词的语法功能差异所进行的分类，如果仅从（语法）意义上对各种词类（尤其是名词、动词和形容词三大词类）进行定义，将对用户深入理解各种词类的本质区别帮助不大，且容易误导编者根据已有释义（而不是基于现代汉语语料库的使用模式调查）进行词类判断，从而偏离词类判断的标准，颠倒词类判断的程序，最终导致部分条目功能义项缺失、漏标或错标词类、词类标注与释义和配例不协调等问题。《现汉》（第5版）在词类标注上存在的瑕疵部分反映了现代汉语词类研究的缺陷。瑕不掩瑜，我们衷心希望，《现汉》（第6版）能够克服现有瑕疵，在词类标注上取得更大进步。

#### 参考文献

- Bauer, Laurie & Salvador Valera (eds). 2005. *Approaches to conversion/zero-derivation*. Waxmann: Münster.
- Beck, David. 2002. *The typology of parts of speech systems: The markedness of adjectives*. New York: Routledge.
- Bybee, Joan. 2007. *Frequency of use and the organization of language*. Oxford: Oxford University Press.
- Bybee, Joan. 2010. *Language, usage, and cognition*. Cambridge: Cambridge University Press.
- Bybee, Joan and Paul Hopper (eds.). 2001. *Frequency and the emergence of linguistic structure*. Amsterdam: John Benjamins.
- Coughlin, Deborah A. 1996. Deriving part of speech probabilities from a machine-readable dictionary. In *Proceedings of the second international conference on new methods in natural processing*, 37-44. Ankara, Turkey.
- Croft, William. 1991. *Syntactic categories and grammatical relations: The cognitive organization of information*. Chicago and London: The University of London Press.

- Croft, William. 2000. *Explaining language change*. Harlow: Longman Linguistic Library.
- Croft, William. 2002. *Typology and universals*, 2<sup>nd</sup> edn. Cambridge: Cambridge University Press.
- Croft, William. 2007. The origins of grammar in the verbalization of experience. *Cognitive Linguistics* 18. 339-382.
- Crystal, David. 1997. *The Cambridge encyclopedia of language*, 2<sup>nd</sup> edn. Cambridge: Cambridge University Press.
- Halliday, M. A. K. & Christian M. I. M. Matthiessen. 1999. *Construing experience through meaning: A language-based approach to cognition*. London & New York: Continuum.
- Halliday, M. A. K. 2004. *An introduction to functional grammar*, 3rd edn. London & New York: Oxford University Press.
- Hunston, Susan & Gill Francis. 2000. *Pattern grammar: A corpus-driven approach to the lexical grammar of English*. Amsterdam: John Benjamins.
- Lakoff, George. 1987. *Women, fire, and dangerous things: What categories reveal about the mind*. Chicago: University of Chicago Press.
- Langacker, Ronald W. 2000. A dynamic usage-based model. In Michael Barlow and Suzanne Kemmer (eds.), *Usage-based models of language*, 1-63. Stanford, CA: CSLI.
- Langacker, Ronald W. 2009. Constructions and constructional meaning. In Vyvyan Evans and Stéphanie Pourcel (eds.), *New directions in cognitive linguistics*, 225-267. Amsterdam: John Benjamins..
- Schachter, Paul and Timothy Shopen. 2007. Parts-of-speech systems. In Timothy Shopen (ed), *Language typology and syntactic description*, 2nd edn, vol.1, 1-60. Cambridge: Cambridge University Press.
- Taylor, John. 2003. *Linguistic categorization: Prototypes in linguistic theory* (3<sup>rd</sup> ed.). Oxford: Oxford University Press.
- 安华林, 2005, 从两种词表看名、动、形兼类的处理, 《语言教学与研究》(4):31-39。
- 陈国华, 2009, 从“的”看中心语构造与中心语的词类, 《外语教学与研究》(2):92-98。
- 郭 锐, 2002, 《现代汉语词类研究》。北京:商务印书馆。
- 江蓝生, 2000, 《近代汉语探源》。北京:商务印书馆。
- 刘 涛、杨亦鸣、张 辉、张珊珊、梁丹丹、顾介鑫、胡 伟, 2008, 语法语境下汉语名动分离的 ERP 研究, 《心理学报》(6): 671-680。
- 陆俭明, 2003, 《现代汉语语法研究教程》。北京:北京大学出版社。
- 沈家煊, 2009, 我看汉语的词类, 《语言科学》(1):1-12。
- 王仁强, 2005, 汉英词典词类标注与译义的对称性研究——兼评《ABC 汉英大词典》

- 的词类标注与译义,《广东外语外贸大学学报》(中国辞书学会双语词典专业委员会第6届年会暨学术研讨会论文专辑):92-96。
- 王仁强,2006,《认知视角的汉英词典词类标注实证研究》。上海:上海译文出版社。
- 王仁强,2009,语法隐喻与汉语词典自指义项的设立——一项基于语料库的研究,《外国语文》(1):100-108。
- 王仁强,2010,现代汉语兼类研究的多维视角——以《现代汉语词典》(第5版)为例,第十六次现代汉语语法学术研讨会(香港城市大学)交流论文。
- 伍铁平,2008,与普通语言学有关的问题,《外语教学与研究》(5):380-384。
- 邢福义,2003,《词类辨难(修订本)》。北京:商务印书馆。
- 徐枢、谭景春,2006,关于《现代汉语词典(第5版)》词类标注的说明,《中国语文》(1):74-86。
- 徐艳华,2007,《汉语实词语法功能考察及词类体系构建》。北京:中国社会科学出版社。
- 俞士汶,2003,《计算语言学概论》。北京:商务印书馆。
- 张博,2004,现代汉语同形同音词与多义词的区分原则和方法,《语言教学与研究》(4):36-45。
- 朱德熙,1985,《语法答问》。北京:商务印书馆。

# The Head of the Chinese Adjectives and ABB Reduplication

Zhijun Wang

*University of Massachusetts Amherst*

This study investigates whether the head of the Chinese adjective compounds is on the left or right or on both sides. Sproat (1998), Starosta et al (1998), and Ceccagno, et al (2006, 2007) argue that the adjectives are right-headed, and Huang (1998) claims that Chinese adjectives are headless. Using the ABB type of adjectives as evidence, I argued that the head of the Chinese adjectives is more like on the left than on the right. This study supports the Headedness Principle and also calls into questions whether a suffix is the head of a word as traditionally assumed in morphology. On the other hand, it also provides evidence that reduplication is a compounding process as Haugen (2008) has claimed since most of the reduplicated constituents of ABB have a specific lexical meaning and many of them can be used as independent words.

## 1. Introduction

Compounding is a major and productive means of word formation in Chinese (Ceccagno and Basciano, 2007; Sproat (1999). Although there is a significant difference between Chinese and English in terms of what is a compound (in English, compounds should be composed of two or more words), Chinese linguists basically consider any polysyllabic units as compounds if each constituent has its lexical meaning with certain word properties, and these constituents may be a morpheme, not a word, and cannot be used independently (Li and Thompson, 1981; Starosta et al, 1998). This study will take the same approach in defining compounding in Chinese. However, it is a debate on where the head is located in a Chinese compound.

William (1981) and Lieber (1981; 1992) claim that all the compounds have their heads on the right in English no matter they are nouns, verbs and adjectives. Chinese is very different from English in this regard. Huang (1998) claim that verbs have their heads on the left and adjective are headless; thus Chinese is basically a headless language. Starosta et al (1998) and Ceccagno and Basciano (2006, 2007) argue that generally Chinese compound words are right-headed including adjective compounds. Sproat (1998) also argues that in traditional sense, the adjectives are right-headed and verbs are left-headed. In addition, Packard (2000) proposes a Headedness Principle for Chinese compounds. According to the Headedness Principle, noun words have nominal constituents on the right and verb words have verbal constituents on the left; other word types are left relatively free to vary.

This paper would argue that if Chinese adjectives are type of verbs as many have claimed (Chao, 1968; McCawley, 1992), and they share syntactic properties, and they might also share the morphological properties. We would expect that they should at least share some major morphological properties; particularly, they should have their heads on the left side of adjectives. The ABB type of Chinese adjectives such as 白茫茫 *baimangmang* (a vast expanse of whiteness) and 直挺挺 *zhitingting* (straight and stiff) and word reduplication suggest that adjectives are consistently on the left of the words, thus the head of an adjective compound is on the left. This paper also proposes that the ABB type of adjectives should be treated as compounds because most of the BB constituents in the compounds are not suffixes.

## 2. The ‘Head’ debate

The Headedness Principle posits that noun words have nominal constituents on the right and verb words have verbal constituents on the left. Other word types are left relatively free to vary. This principle is based on the statistical results of the Chinese adjective formation. According to Packard (2000), 90 % of all Chinese nouns have a noun on the left and 85% of all verbs have a verb on the left. For example,

进 攻	走 路	石 油	石 窟
V V	V N	N N	N V
to attack	to walk	petroleum	stone-cave

As shown in the above examples, the first two words are verb compounds; they both have verbs on the left; while the noun compounds have nouns on the right in the latter cases.

However, Packard (2000) does not give any specific statistic numbers about adjectives, and indicates that the head of adjectives (counted as other types of words) are free to vary. Ceccagno and Basciano (2006) criticized Packard’s Headedness Principle and argue that the Headedness Principle will not adequately describe some of the adjective compounds such as coordinate compounds, attributive verbal compounds and attributive adjectival compounds because these compounds either have their heads on the right or on both sides, but not on the left as posited by the Headedness Principle. The following examples in Table 1 are from Ceccagno and Basciano (2006).

Table 1. Compounds exceptions to the Headedness Principle

店铺	<i>dianpu</i>	N	[N+N]	CRD	B	shop + shop = shop
爱恋	<i>ailian</i>	V	[V+V]	CRD	B	(to) love + (to) love = (to) love
美丽	<i>meili</i>	A	[A+A]	CRD	B	beautiful + beautiful = beautiful
口算	<i>kousuan</i>	V	[N+V]	ATT	R	mouth + (to) calculate = (to) do a sum of orally
云集	<i>yunji</i>	V	[N+V]	ATT	R	cloud + (to) gather = (to) come together in crowds
笔直	<i>bizhi</i>	A	[N+A]	ATT	R	tool for writing and drawing + straight = straight as ramrod
冰凉	<i>bingliang</i>	A	[N+A]	ATT	R	ice + cold = ice-cold

(Legend: N = Noun, V = Verb, A = Adjective, R = Right, B = Both, CRD = Coordinate, ATT = Attributive)

These examples clearly are not covered by the Headedness Principle; however, the Headedness Principle is based on the statistical results of all types of nouns and verbs, so we would assume that these types of exceptions would have been counted in the statistics by Packard; in other words, these types of compounds are not so many in Chinese and does not influence the statistical results.

Huang (1998) argues that Chinese is a headless language in morphology because the category type of a compound cannot be determined by the rightmost member or leftmost member of a compound. He claims that noun compounds are more right-headed; verb compounds are more left-headed and adjective compounds have no particular tendency toward either the rightmost or the leftmost member of a compound. As a result, Chinese compounds in general are headless. He examined the entire dictionary of *Guoyu Ribao Cidian (Mandarin Daily Dictionary)* and found 24,000 disyllabic compounds (include all adjectives). His survey shows that "neither the rightmost member nor the leftmost of a compound can claim to monopolize the privileged status of determining the category of a compound." (Huang 1998, P 261)

I disagree with Huang in that no matter whether it is left-headed or right-headed or on both sides, Chinese words indeed have heads. We cannot say Chinese is headless language just because the head does not have a unitary position in the word.

Modeling Chao's adjective classification, I use the following criteria to determine the form class of adjectives (a) adjectives can be negated by 不 *bu* 'not' (b) can function as predicate; (c) can take 着 *zhe*, 了 *le* and 过 *guo* (d) can have "X" 不 "X" form such as 好不好 *haobuhao* 'good or not'. I examined all the disyllabic adjective compounds in *现代汉语词典 xiandai hanyu cidian (Modern Chinese Dictionary)* and find that 2165 out of 2875 adjectives have adjectives on the left side; this counts for 75% of disyllabic



adjective compounds. Interestingly, I also find that 2070 of 2875 disyllabic adjective words have adjectives on the right. It counts for 72% of total adjective compounds. There are 62.3% of adjective compounds (total 1792) having adjective constituents on both sides. The reason is that most adjectives of this type are composed of two synonyms or antonyms.

Table 2 is a comparison between my statistics numbers of disyllabic adjective compounds in < Modern Chinese Dictionary > (MCD, 1996, Commerce Press, Beijing) and Huang's number in *Guoyu Ribao Cidian* (GRC).

Table 2. Comparison between the numbers of disyllabic compounds in GRC and MCD

	AA	AV	AN	AX*	VA	NA	VV	NN	N	VN	XX	TOTAL
GRC	1609	173	198		?	209	103	90	72	378	66	2898
MCD	1792	171	128	74	90	188	78	86	52	185	31	2875

Note: X in [AX] indicates suffixes; [X X] type includes [Adverb N], [Adv V], [Adv A] and [Numeral N]

Huang's claim might be true as far as adjective is concerned. The total disyllabic adjectives are 2898, and 1609 of them are [A+ A] type, which accounts for 55.5% of all adjective compounds. Using his numbers, I give further computation, and find that there are 1818 adjectives having adjectives on the right side, accounting for 62.7 % of total adjective compounds; 1980 adjectives have an adjective on the left side of a compound and account for 68.3 % of all adjective compounds. This result is basically consistent with my statistics: neither leftmost member nor rightmost member of a compound can dominate the other. The differences between my numbers and his might be caused by different criteria, intuition and judgment on the form class identity of adjectives, verb, noun, etc. Huang does not give his criteria on which the adjectives were identified. In addition, I have counted all the adjectives marked by <书> ("written language") in the Modern Chinese Dictionary. These adjectives are rarely used and closer to classical Chinese, and most of them are [A+A] type adjectives. These additions increase the number of [A+A] type significantly. Huang's dictionary is more a spoken Chinese dictionary than a written Chinese dictionary.

No matter how different between the two statistics might be, the same finding is made: there is no fixed head position in adjectives. The reason is that there is a large proportion of adjectives having adjective constituents on both sides and most of them are synonyms and antonyms; in other words, they are all coordinate adjectives. My statistics is 62.3% and Huang's is 55.5%. We simply cannot tell which side is preferred as the position of the head for adjective compounds. However, it is still an overstatement that Chinese compounds have no heads. Clearly, Chinese nouns have their heads on the right and Chinese verbs have their heads on the left. The only question is whether Chinese adjectives are left-headed or right-headed

### 3. The ABB reduplication and the head of the adjectives

Although we cannot determine whether the heads of adjectives are on the left side or right side of the words in compounding, in the ABB adjective reduplication process, there is evidence that supports that the heads of Chinese adjectives are on the left hand sides of Chinese adjective words, we call this proposal as Left Headed Hypothesis.

According to Cao (1995), there are 338 ABB adjectives in Chinese. Similarly, I find 336 ABB adjectives in *现代汉语词典 xiandaihanyucidian* (Modern Chinese Dictionary) and *现代汉语八百词 xiandaihanyubabaici* (Modern Chinese 800 Words, Lu, 1996), 293 out of 336 adjectives have adjectives on the left, and it is 87% of total ABB adjectives. Does this suggest that the ABB adjectives have their heads on the left? Before we answer this question, let's first look at Table 3, which illustrates the typical ABB adjective reduplication.

Table 3. ABB reduplication

A+BB	N+BB	V+BB
矮墩墩 ( <i>aidundun</i> short)	水灵灵 ( <i>shuilingling</i> , charming)	笑眯眯 ( <i>xiaomimi</i> , smiley)
辣酥酥 ( <i>lasusu</i> spicy)	气鼓鼓 ( <i>qigugu</i> , angry)	颤巍巍 ( <i>chanweiwei</i> , shaky)
懒洋洋 ( <i>lanyangyang</i> lazy)	泪汪汪 ( <i>leiwangwang</i> , teary)	喘吁吁 ( <i>chuanxuxu</i> , breathless)
空荡荡 ( <i>kongdangdan</i> , empty)	汗津津 ( <i>hanjinjin</i> , sweaty)	醉醺醺 ( <i>zui xunxun</i> , drunk)

As shown in Table 3, there are three types of lexical categories on the left for ABB adjectives. The word stems can be an adjective, a noun or a verb, but the reduplicated part is always an adjective, so does this mean that BB is the head since it determines the category of the whole word? The problem is that it is very hard to determine the word class of BB. Some of them are adjectives because they are used freely as an adjective, and others cannot be used freely and its original word is not an adjective. For example, *茫茫 mangmang* 'vast expanse' in *白茫茫 baimangmang* 'a vast expanse of whiteness' can be used in *茫茫的大海 mangmang de dahai* 'the vast ocean', but we cannot say \**醺醺的爸爸 xunxun de baba* 'drunk father' or "*醺醺地醉 xunxun de zui* 'drunk', thus we cannot determine the form class of *醺醺 xunxun* 'drunk'. One approach to this question is to treat BB as a suffix, and the suffix functions as a head and determines the category of the whole word. This will suggest that the head of ABB adjectives is on the right. However, if we further examine the ABB adjectives, we will find the ABB reduplication includes two types of morphological processes: one is compounding and the other is suffixation. I will argue that most ABB adjectives are

compounds and only a minority of ABB adjectives is derivational and has suffixation. The reasons are as follows,

1. Most BBs still have concrete lexical meanings and only a few BBs such as 乎乎 *huhu* and 巴巴 *baba* can be considered as suffixes since they have lost their lexical meanings. Some others may be in the process of losing their lexical meanings and are becoming suffixes. According to my calculation, 91% of ABB adjectives are compounds and only 9% of ABB adjectives are derivational words with suffixes such as 乎乎 *huhu* and 巴巴 *baba*, which will change a word into an adjective.
2. Most BBs can only attach to a very limited number of words or bound roots while a suffix should be very productive and can be attached to a variety of different words, thus we can conclude that most BBs are not suffixes and they should be treated as compounds because BBs still contribute to the meanings of the whole words. Zhang (2005) argues that some BBs can only attach to one adjective such as 漆漆 *qiqi* ‘paint’ only combines with 黑 *hei* ‘dark, black’, 皑皑 *aiai* ‘pure white’ can only combine with 白 *bai* ‘white’
3. Many BBs can be used freely as a words such as (白) 茫茫 (*bai*)*mangmang* in 茫茫的大海 *mangmang de dahai* ‘vast expanse of the ocean’, (静) 悄悄 (*jing*)*qiaoqiao* in 春天悄悄地来了 *chuntian qiaoqiao de lai le* ‘Spring has come quietly’ and (亮) 闪闪 (*liang*)*shanshan* ‘flashing/shining’ in 闪闪的红星 *shanshan de hongxing* ‘flashing/shining red star’.
4. If the head is the suffix on the right of the adjective, we cannot explain the suffixation in which the reduplicated morpheme does not have its original form. For example,

甜丝丝	凉丝丝	蓝盈盈	乱糟糟	兴冲冲
<i>Tian sisi</i>	<i>liang sisi,</i>	<i>lan yingying,</i>	<i>luan zaozao,</i>	<i>xing chongchong</i>
sweet	cold	blue	messy	happy

There are no such words as “甜丝 *tiansi*” “凉丝 *liangsi*”, “蓝盈 *lanying*” “乱糟 *luan zao*”, “兴冲 *xingchong*”, etc, and the right constituents cannot be a head; thus it is impossible to reduplicate the head if the suffixation is an head operation as traditionally assumed; in other words, the reduplication here is not a head operation on the right. We can only assume that the reduplicated morpheme BB here is a single morpheme or a disyllabic morpheme that are attached to the left constituent of the adjective. If the BB

part has a lexical meaning, then the ABB reduplication is more likely a compounding process than a suffixation. Sometimes, it just reduplicates the second constituent of the word; other times, it just reduplicates a non-constituent and attaches it to the head. In short, the reduplication itself is a kind of compounding construction (Haugen, 2008). Table 4 shows the compounding process.

Table 4. ABB reduplication in Chinese

	Type	Adj.	Pinyin	Structure	Gloss
Type 1	A+BB	矮墩墩	<i>aidundun</i>	矮 + 墩墩	short
Type 2	AB+B	赤裸裸	<i>chiluoluo</i>	赤+裸 + 裸	naked; undisguised
Type 3	BA+B	香喷喷	<i>xiangpenpen</i>	香+喷喷	delicious

In Type 1, BB as a whole is attached to the left constituent and in Type 2, the right constituent B is reduplicated first and then attached to the left side. Type 3 is actually a two-step reduplication.

1. First step, it is the reduplication on the left morpheme--BBA
2. Second step, BBA switches positions, A goes to the left side and BB goes to the right.

Table 5. BAB reduplication process

	Step 1	Step 2	
喷香 →	*喷喷香 →	香喷喷	<i>xiangpenpen</i> , delicious
通红 →	*通通红 →	红通通	<i>hongtongtong</i> , red
油绿 →	*油油绿 →	绿油油	<i>luyouyou</i> , green
煞白 →	*煞煞白 →	白煞煞	<i>baishasha</i> , pale
冰冷 →	*冰冰冷 →	冷冰冰	<i>lingbingbing</i> , cold
绵软 →	*绵绵软 →	软绵绵	<i>ruanmianmian</i> , soft
纷乱 →	*纷纷乱 →	乱纷纷	<i>luanfenfen</i> , chaotic
幽静 →	*幽幽静 →	静幽幽	<i>jingyouyou</i> , quiet

Note that AB is not likely to switch positions before the reduplication takes place as there is no motivation to do that. For example, it is not possible to have this type of process in ABB reduplication such as in ” 通红 → \*红通 → 红通通 *hongtongtong*, ‘red’. The fact that Shanghai dialect has Step 2 form of the reduplication suggests that our proposal is correct. In Shanghai dialect, the reduplication is not ABB, it is BBA such as 喷喷香 *penpenxiang* ‘delicious’, 通通红 *tongtonghong* ‘red’, 冰冰冷 *bingbingleng* ‘ice-

cold', etc. This shows that the reduplication rules are different among Chinese dialects, thus the head positions are different from those of Mandarin Chinese too.

As seen above, the head of ABB adjectives is always on the left. If it is originally on the right, it should go back to the left after the reduplication operation. This is a strong evidence supporting the Left Headed Hypothesis.

As for the ABB suffixation such as 干巴巴 *ganbaba* 'dry', 湿乎乎 *shihuhu*, 'wet', 巴巴 *baba* and 乎乎 *huhu* have lost their lexical meanings and do not contribute to the meanings of the whole words, so they should be treated as suffixes. However, it is very important to note that an adjective constituent in adjective gestalt word is always the virtual head if the adjective constituent is present and suffixation is not necessarily a head operation if the reduplicative suffix does not change category of the word form class (Lieber, 1992; Marantz, 1982; McCarthy and Prince, 1986). If we look at the ABB adjectives with 巴巴 *baba* and 乎乎 *huhu* as suffixes, there is only one case in 血乎乎 *xuehuhu* 'bloody' that 乎乎 *huhu* changes the form class of the word: 血 *xue* 'blood' is a noun. This clearly indicates that the suffixes such as 巴巴 *baba* and 乎乎 *huhu* do not change the form class of the whole word, thus it should not be treated as the head. As we define the head as:

1. Head percolates its morphosyntactic features onto the rest of the compound.
2. Head determines the properties and the grammatical category of the whole compound.
3. Head is the only obligatory element of a constituent.

According to this definition, 巴巴 *baba* and 乎乎 *huhu* mostly do not percolate its morphosyntactic features onto the rest of the compound and do not determine the form class of the whole word and are not the only obligatory element of a word, thus they are not the heads of ABB adjectives. A suffix is head only if it can change the lexical category of the word base, or if it does not change the lexical category but it changes the syntactic feature of the base (Scalise, 1988). This is exactly the case.

#### 4. Other evidence supporting Left Headed Hypothesis

##### (1). Reanalysis

Packard (2000) proposes that the identity of morphemic constituents is mainly word-driven and the form class identities of its constituents are generally determined by the form class identity of the word. In other words, the word identity determines the identity of the word head. This morphological process is called re-analysis or percolation. Let's look at the two reanalysis examples: 石雕 *shidiao* 'stone-carving' and 大便 *dabian* 'to move the bowels'

石雕 *shidiao* 'stone-carving' is a noun, but it has a verb 雕 *diao* 'carve' on the right, and there are also other words with 雕 *diao* on their right sides such as 牙雕 *yadiao*

‘ivory carving’, 漆雕 *qidiao* ‘carved lapuer-ware’, 浮雕 *fudiao* ‘relief sculpture’, 贝雕 *beidiao* ‘shell carving’, Packard argues that the productive use of 雕 *diao* ‘carve’ as a noun suggests that 雕 *diao* has undergone a reanalysis process that change its form class from verb into noun. The gestalt word dominates over its internal constituents and the word identity determines the identity of the head. 雕 *diao* ‘carve’ is a verb, but it is on the right side of the noun word, thus it is reanalyzed as a noun.

This reanalysis is also applied to verbs such as 大便 *dabian* ‘to move the bowels’, 小便 *xiaobian* ‘to urinate’. Clearly, both 大 *da* ‘big’ and 小 *xiao* ‘small’ are adjectives, but because they occupy the left-hand side of gestalt [A+ N]v verbs, and left side is the head position for verbs, therefore, they are reanalyzed as verbs, as shown in the following examples:

1. 我 大 完 便 就 去 打球。  
*wo da wan bian jiu qu daqiu*  
 I big finish convenience then go play ball  
 I will go to play ball after ‘moving the bowels’.
  
2. 他 小 了 三十 分钟 的 便。  
*ta xiao le sanshi fenzhong de bian*  
 he small LE 30 minute DE convenience  
 He peed for 30 minutes.

This kind of use for compound words is a reflection of native speakers’ intuitive morphological knowledge about Chinese compounds. Packard's observation is based on verb and noun disyllabic compounds, and these compounds clearly have heads within the gestalt words, in which verb has its head on its left side and noun has its head on its right side. Because native Chinese speakers know that verb tends to have its head on the left and noun tends to have its head on the right, they will construe the left constituent of any verb as the head of the verb and right constituent of any noun as the head of the noun. So Chinese speakers can accept the fact that 大 *da* ‘big’, 小 *xiao* ‘small’ and 雕 *diao* ‘carve’ in 石雕 *shidiao* ‘stone carving’, 大便 *dabian* ‘to move the bowels’ 小便 *xiaobian* ‘to pee’ have changed their form classes due to the percolation of form class of the gestalt word (Packard 2000). Interestingly, this reanalysis process is also applied to adjectives, especially the ABB adjectives. Table 6 shows the ABB adjectives reanalysis process.

Table 6. Adjective reanalysis examples

N + BB	Reanalysis examples	Pinyin and meaning of the adjectives	Gloss of the sentences
肉墩墩 →	这个人真肉。	<i>roudundun</i> , fat	The person is very fat.
牛哄哄 →	这位老板很牛。	<i>niuhonghong</i> ,	The boss is excellent.
油汪汪 →	这张桌子太油了。	<i>youwangwang</i> , oily	The table is too greasy.
气鼓鼓 →	她对这件事很气。	<i>qigugu</i> , angry	She is very angry with this.
水淋淋 →	今天买的猪肉太水了。	<i>shuilinlin</i> , watery	There is too much water in the pork
	这篇文章太水了。		This paper is too weak.
毒花花 →	今天的太阳太毒了。	<i>duhuahua</i> , scorching	The Sun is scorching.
火辣辣 →	这位演员终于火了。	<i>huolala</i> , hot	The actor is popular finally
木呆呆 →	她的男朋友很木。	<i>mudaidai</i> ,	Her boyfriend is very slow (stonily)
文绉绉 →	姚明很文，但那没有用。	<i>wenzhouzhou</i> ,	Yao Ming is very gracious, but it is useless
贼溜溜 →	车上的小偷太贼了。	<i>zeiliuliu</i> ,sneaky	The thief on the car is very sneaky
面乎乎 →	有的男人做事很面。	<i>mianhuhu</i> ,weak	Some men are very weak in doing things

As we can see in Table 6, the heads on the left-hand sides in the ABB adjectives are all nouns; however, they can be used as adjectives through reanalysis. The reason can be that they occupy the left hand side of the adjective compounds, and the left hand side is the head position for Chinese adjectives; therefore, they are changed into adjectives. Again this supports my Left Headed Hypothesis for Chinese adjectives.

In addition, this form class percolation can be applied to other Chinese adjectives such as attributive adjectival compounds and adjectives with infixes. This is shown in Table 7.

Table 7. Reanalysis in other adjectives

N +A	Examples	Pinyin and meaning f the adjectives	Gloss of the sentences
冰凉 →	他的手很冰。	<i>bingliang</i> , ice-cold	His hand is ice-cold.
N +里/不+NA			
土里土气 →	这位教授太土了。	<i>tulituqi</i> , corny	The professor is too corny

Table 7 further shows us that the reanalysis and percolation is a wide spread phenomenon in Chinese morphology, especially in Chinese adjectives.

## (2). Adjective infixes

The Chinese adjectives with infixes also show the same tendency in adjective formation. I find 58 of them in *现代汉语词典 Modern Chinese Dictionary*, and 54 out of 58 adjectives have the adjective on the left, that counts 91% of the adjectives; only 4 of them have a noun on the left. We cannot say that the infix is the head of this type of adjectives. The head is clearly on the left said of the word. Table 8 shows some of the examples.

Table 8. Adjectives with infixes

A + B + (C+D)	Pinyin	Gloss
白不毗咧	<i>baibucilei</i>	white
黑不溜秋	<i>heibuliuiqi</i>	dark, black
花不棱登	<i>huabulengdeng</i>	multicolored
滑不唧溜	<i>huabuliuji</i>	slippery
酸不溜丢	<i>suanbuliudiu</i>	sour
老实巴交	<i>laoshibajiao</i>	honest
胖不伦墩	<i>pangbulundun</i>	fat
黑咕隆咚	<i>heigulongdong</i>	dark
曲里拐弯	<i>quliguaiwan</i>	bent, crooked
笨了呱叽	<i>benleguaji</i>	silly. Stupid
糊里糊涂	<i>hulihutu</i>	confused
怪里怪气	<i>guailiguaiqi</i>	weird, strange
冷不丁	<i>lengbuding</i>	sudden
软古囊	<i>ruangunang</i>	soft



Zhu (1994) treated B such as 不 *bu* ‘not’ and 里 *li* ‘inside’ in these adjectives as infixes because they are comparatively free and can form quite a few adjectives. He argued that B+ (C+D) is not a suffix because B is independently used. I think it is a better treatment than suffix.

### (3). A-not-A question operation on adjective compounds

As many have claimed (Chao, 1968; Tang, 1978; Li and Thompson, 1981; McCawley, 1992), Chinese adjectives are type of verbs because they share syntactic properties with verbs. The most important similarity between Chinese verbs and adjectives is that they both can function as predicate directly and independently; in other words, they can fill in the same syntactic slot in a sentence. We would assume that if they belong to the same form class, then they might also share the morphological properties; in other word, adjectives should have the same or similar morphological operations as verbs do. One of the same operations for verbs and adjectives is A-not-A question operation, as illustrated in Table 9.

Table 9. A-not-A operation in Chinese verbs and Adjectives

Type	Original form	A-not-A	Pinyin	Gloss
V+O	睡觉 →	睡不睡觉	<i>huijiao</i>	To sleep or not
O+V	步行 →	步不步行	<i>buxing</i>	To walk or not
A+A	美丽 →	美不美丽	<i>meili</i>	To be beautiful or not
A+V	好看 →	好不好看	<i>haokan</i>	To be good-looking or not
V+A	开阔 →	开不开阔	<i>kaikuo</i>	To be wide or not wide
N+A	笔直 →	笔不笔直	<i>bizhi</i>	To be straight like pen or not
V+N	超群 →	超不超群	<i>chaoqun</i>	To be outstanding or not
A+X(suffix)	粘乎 →	粘不粘乎	<i>nianhu</i>	To be sticky or not

Packard (2000) argues that this operation applies to the left constituents of verbs because native speakers construe the heads of the verb are on the left side. This operation indeed apply to adjectives as shown in Table 9. In [N+A], [V+N] and [V+ A] type of adjectives, the A-not-A question operation can still apply. This suggests that Chinese speakers take the first left element of the whole adjective word as a head even though it is not an adjective. This is the same as the verb compound 步行 *buxing*, ‘walk or not’. It can have an A-not-A operation on its head 步 *bu* ‘step’, although it is a noun, not a verb. The reason is that the head of Chinese verbs is on the left. Through percolation, the form class of gestalt word determines the form classes of constituents of gestalt words.

Therefore, Chinese speakers construe the left elements of the gestalt adjective words as adjectives.

However, it can also be argued that an adjective can be applied to A-not-A question operation is not because its head is on the left but because the rule of A-not-A questioning requires the first left constituent must be repeated no matter it is head or not. This issue will not be discussed in this paper.

## 5. Conclusion

This study investigates the headedness of Chinese adjectives and argues that the head of Chinese adjectives is more likely on the left than on the right. Statistically, Chinese adjectives may be two headed or the head are 'free to vary', but the ABB type of adjectives seems to suggest that the head should be on the left. This conclusion supports the Headedness Principle in Chinese. In addition, I also argue that the ABB type of adjective reduplication is more likely to be a compounding process than a suffixation due to the fact that most BB parts of the adjectives still have concrete lexical meanings and many of them can be used freely as independent words. They may be in the process of grammaticalization, and are becoming more and more a suffix. However, even if they are suffixes, they do not change the form classes of the adjective words and thus they are not heads; thus the head of Chinese adjectives is still on the left hand of the adjective words.

## Reference:

- Cao, Ruifang, 1995, 普通话ABB式形容词的定量分析, 语文研究, Volume 3: 22-25
- Ceccagno, A. and B. Basciano, 2006, Classification, Structure and Headedness of Chinese Compounds, *Lingue E Linguaggio* V. 2: 233-260
- Ceccagno, A. and B. Basciano, 2007, *Compound Headedness in Chinese: An Analysis of Neologisms*, «Morphology», 2, 207-231.
- Chao, Yuanren, 1968. *A Grammar of Spoken Chinese*, Berkeley: University of California Press.
- Commercial Press, 1996, *现代汉语词典 xiandaihanyucidian* (Modern Chinese Dictionary), 商务印书馆 Commercial Press.
- Haugen, Jason D. 2008, Reduplication in compounding contexts: Morphological doubling vs. Correspondence. Paper presented at NELS 39. Cornell University; Ithaca, NY.
- Huang, Shuanfan. 1998. Chinese as a Headless Language in Compounding Morphology, *New Approaches to Chinese Word Formation*, edited by Packard, J.L. P 261.
- Li, C. N., and Thompson, S. A (1981). *Mandarin Chinese: a functional reference grammar*. Berkeley: University of California Press.
- Lieber, Rochelle, 1981, On the organization of the lexicon, Bloomington, Indiana: Indiana University Linguistics Club.
- Lieber, Rochelle, 1992, *Deconstructing Morphology: word formation in syntactic theory*, The University of Chicago

- Lü, Shuxiang. 1996. 现代汉语八百词 *Xiandai Hanyu Babaici* (Eight hundred words in Modern Chinese), pp. 314-321. 商务印书馆 *Shangwu yinshuguan* (The Commercial Press)
- Marantz, A. 1982. "ReReduplication." *Linguistic Inquiry* 13: 435-482
- McCawley, James .D. 1992. Justifying Part-of-Speech Assignments in Mandarin Chinese, *Journal of Chinese Linguistics*, V 20, # 2 P211-245.
- McCarthy, J., and A. Prince. 1986. Prosodic Morphology. MS, University of Massachusetts, Amherst, and Brandeis University, Waltham, MA.
- Packard, J. L. 2000. The Morphology of Chinese: A Linguistic and Cognitive Approach. Cambridge University Press, Page 65.
- Scalise, Sergio, 1988, "the notion of 'head' in morphology", In G. Booij and J. van Marle (eds.), *Yearbook of Morphology 1988*. Dordrecht: Kluwer, 229-245.
- Sproat, Richard, 1999, Review of Packard (1998): New approaches to Chinese word formation, In Geert Booij and Jaap van Marle (eds.) *Yearbook of Morphology 1998*, 289-309. Kluwer Academic Publishers.
- Starosta, S., Kuiper, K., Ng, S. and Wu, Z., 1998. On defining the Chinese Compound word: headedness in Chinese compounding and Chinese V-R compounds, In *New Approaches to Chinese Word Formation: Morphology, Phonology and Lexicon in Modern and Ancient Chinese*. Trends in Linguistics Studies and Monographs 105. Berlin and New York: Mouton e Gruyter.
- Tang, Tingchi, 1978. *Collections of Mandarin Grammar Study*, P161-167, Taiwan.
- Williams, Edwin, 1981, On the notions lexically related and head of a word, *Linguistic Inquiry* 12:245-274
- Zhang, Dan, 2005, 汉语中 ABB 型状态形容词的构成分析, *沈阳农业大学学报 (社会科学版)*, 2005-03, 7(1): 124-126

## 也谈“句法韵律最小自由单位”<sup>①</sup>

夏军

北京大学中文系

王洪君（1999，2001）等文献中提出“句法韵律最小自由单位”的观点，但是本文通过分析指出，该概念内涵不清，命名不当。本文在王文研究基础上建立并区分了“句法韵律最小自由单位”和“句法韵律的最小接口单位”两个概念。然后在这两个概念共同构建的框架下，阐述了现代汉语音步语段的韵律句法地位、对上古汉语韵律结构的新认识、汉语句法韵律结构从上古到现代的演变历程、汉语和英语以及上古汉语和现代汉语在句法韵律接口上的对应关系和差异等问题。

### 一 “句法韵律最小自由单位” vs “句法韵律最小接口单位”

#### 1.1 王洪君提出的“句法韵律最小自由单位”

王洪君（1999：256-281）提出，语言中存在着具有枢纽作用的句法韵律层级——“句法韵律的最小自由单位”。“从语法层面看，在具有特有韵律标记的诸级语法单位中，它是最小的一级；同时，从韵律层面看，在与语法单位大致重合的、载有意义的韵律单元中，它也是最小的一级。”英语“句法韵律的最小自由单位”是音系词。汉语“句法韵律的最小自由单位”是音系字（单字音）。<sup>②</sup>

王洪君（2001）作了进一步阐述，认为“枢纽性单位落在哪一级韵律单位上虽然各语言不同，但从更高的层次上看，这一差异性又有其共性：不同音系中具有枢纽地位的那一级单位，都是各自语言中语音单位和语法单位的最低交汇点”，并将这一共性抽象为一个共同类型参数“句法韵律最小自由单位”。（徐杰，2005：292）

王洪君先生提出“句法韵律最小自由单位”的观点，旨在原则与参数理论的指导下，寻找蕴含于英语和汉语的差异之中的更为普遍的句法韵律层级模式。这一跨语言的比较，拓展了汉语生成音系学的研究视野，对于普通音系学的研究也很有启

<sup>①</sup>本文脱稿于笔者2005年秋季学期“生成音系学”的课程论文，得到授课老师指导，谨致谢忱。

<sup>②</sup>王洪君（2008）对其（1999）相关章节进行了修改，部分地方改“句法韵律最小自由单位”为“句法韵律枢纽”，其他内容也有若干调整，但仍有一些地方可见作者基本保留其原先的看法，如“可以看出，句法韵律最小自由单位——句法韵律枢纽，在汉语中也是十分重要的语言学范畴”（王洪君，2008：322）。

发。但是对于王文中关于“句法韵律最小自由单位”这一概念的运用和具体阐述，我们有点商榷。

第一点，王先生研究汉语的句法韵律规律，没有区分汉语的不同阶段。上古汉语的“句法韵律最小自由单位”与现代汉语相同吗？或许王先生认为汉语在这一点的研究中不必区分古今，但我们的研究表明，这个区分是必要的。<sup>③</sup>

第二点，王先生的部分解释对于语言现象作了过于主观化的处理。句法和韵律是两个不同的平面，我们不能预设一个句法单位层级和一个韵律单位层级恰好重合，或者如王先生（1999）所说的“大致重合”。充其量只能设想在句法某级单位和韵律某级单位的接口处存在一个交集，这个交集可能是首先满足句法条件的，也可能是首先满足韵律条件的。（从王先生的文章看来，她的观点是后者。）这个交集可能基本上同时与某个句法以及韵律层级重合，也可能与其中一个没有那么高的重合度。重合与否、重合多少、有何趋向，都可以根据语言事实来探求其规律，不宜对语言现象做过度的假设。<sup>④</sup>

第三点，王先生所谓“句法韵律最小自由单位”的内涵不清楚，或者说概念的命名不准确。从字面看，这个概念似乎是跨句法和韵律的，既是“句法自由单位”，又是“韵律自由单位”，是两个集合的“最低交汇点”。她的文中也似乎表示了这样的观点：“与音系单位交汇的语法单位才能获得韵律上的自由，与语法单位交汇的音系单位才可能有语法上的自由”（王洪君，2008：319）。但就其全文来看，似乎其所谓“句法韵律最小自由单位”只是句法语义和语音韵律接口处的最小单位，可以称为“句法韵律的最小接口单位”。至于“自由”，就谈不上了。因为，根据王（1999），汉语“句法韵律最小自由单位”是音系字，而音系字在现代汉语中大都不是词，往往不能表示相对明确的意义，不是可以自由运用的语法单位；单字音也因为不符合现代汉语的标准音步——双音节而在使用时受到很大的限制，也不是能够自由运用的韵律单位。所以无论就句法而言还是就韵律而言，音系字在现代汉语中都不能叫“自由”单位。<sup>⑤</sup>——除非修改“自由”的内涵，但是这么做是否必要、是否合适呢？既然王先生的本旨在于“句法韵律枢纽”，那么“句法韵律最小接口单位”这个名称完全胜任，加上“自由”有些画蛇添足。而“句法韵律最小自由单位”这一概念则另有其内涵，二者应该区分。

## 1.2 “句法韵律最小自由单位”和“句法韵律最小接口单位”的区分

我们认为，在关于句法和韵律接口的研究中，有两个单位值得关注。一个就是王先生所谓的“句法韵律最小自由单位”，根据上面的分析，我们称之为“句法韵律

<sup>③</sup>事实上王先生也确是如此认为的，参见后文 3.2 节论述。王先生这样认为与她“句法韵律最小自由单位”概念的理解是一致的，所以这一问题实际上可以归并到我们的第三点质疑中。

<sup>④</sup> 王（2008）删改了相关语句，可视为认同本文观点。

<sup>⑤</sup> 王（2008）坚持音系字是句法韵律最小自由单位的观点，因为她认为的“自由”与本文不同。不过本文的主旨不在于评价他人，而是由此引出并阐发我们对“句法韵律最小自由单位”的理解。

最小接口单位”。从王文的研究可以看出，这一单位是研究音系学、韵律学的枢纽性单位。另一个就是本文要定义的“句法韵律最小自由单位”，这一概念有更多的句法学意义。对这二者的区分和研究是有理论意义的。

我们认为，“句法韵律最小自由单位”首先是“句法韵律自由单位”。而“句法韵律的自由单位”应该是可以自由运用的句法单位和可以自由运用的韵律单位的接口，所谓“最小自由单位”也就是这些接口中层级最低的那个集合。

由于我们不能确定一个语言句法和韵律的自由单位是否会随时间而改变，所以下面首先讨论现代汉语“句法韵律最小自由单位”。古汉语情况另外单独考察。

现代汉语句法上可以自由运用的单位有词，短语，句子，句群等。韵律上可以自由运用的单位有音步，缩附组，音系短语，语调短语等。其中，最小的能够自由运用的句法单位是词(这是有公论的了)，最小的能够自由运用的韵律单位是音步(冯胜利，1997：1)。句法和韵律的自由单位结合起来，交汇的单位有音步和词，音步和短语，音系短语和短语，句子和语调短语等等。其中，层级最低的是音步和词的交集。也就是说现代汉语“句法韵律最小自由单位”是音步和词的交集——这一点上所有的语言都是相同的。所不同的就是音步和词的形式以及相交汇的具体方式。

现在说说现代汉语的音步。根据冯胜利(1997)，现代汉语的音步有单音步，双音步，三音步。其中又以双音节为最基本的“标准音步”。单音步是“蜕化音步”，三音节是“超音步”，二者在理论上是不能和双音节音步放在一个平面上的。双音节音步符合“二分支(Binary Branching)”的原则，反映了韵律节奏中的“轻重抑扬”，是“标准音步”，“有绝对优先的实现权”。所以我们用双音节音步和词的交集作为现代汉语“句法韵律最小自由单位”。它在句法和韵律接口中诸级单位中的地位可从下表看出。

表一：

句法单位 \ 韵律单位	语素	词	短语	……
音节	<b>a</b>	<i>b</i>		
音步(双音节)	<b>c</b>	<i><b>d</b></i>	<b>e</b>	
音系短语		<i>f</i>	<b>g</b>	
……				

在表中，我们用英文字母标出了自小到大的部分句法和韵律接口的交集（没有标的或者是没有交集，或者是数量很少，此处不予标记）。图中**b**、**d**、**f**所在的“词”一列是最小的能够自由运用的句法单位（标记为斜体），**c**、**d**、**e**所在的一行是最小的可以自由运用的韵律单位（标记为粗体）。从图中可以看出，只有**d**才是句法和韵律接口中的最小自由单位（同时是斜体和粗体）。**a**（即王先生所谓的“句法韵律最小自由单位”）只是句法和韵律最小的接口单位。而且我们可以看出，**a**既不能涵盖

语素层的 a、c，也不能涵盖音节层的 a、b，所以不能说是一个层级。

我们看到，d 既不能包括所有韵律形式的词，也不能包括所有句法形式的音步，也不能算是一个层级，也只是一个集合。那么这个集合中都包括什么呢？这一“句法韵律最小自由单位”在现代汉语中又有怎样的句法韵律地位呢？下面我们来看看。

## 二 现代汉语“句法韵律最小自由单位”的构成及其句法韵律地位

### 2.1 现代汉语“句法韵律最小自由单位”的构成

现代汉语的“句法韵律最小自由单位”这个集合，简而言之就是双音节词（词汇音步）。具体说来其中又分为单纯双音词和合成双音词。

单纯双音词包括：

- 一，连绵词（都是双音节的），如缠绵、犹豫、从容、逶迤；
- 二，大部分音译词（双音节的），如沙发、干部、菩萨、舍宾。

合成双音词包括：

一，复合式。是由两个自由语素组合而成的“词根 + 词根”型的合成词。具体又分为：

(1) 陈述式（主谓式）：前一语素表示事物，后一语素表示性质、状态或动作。

名词：地震、水流、兵变、霜降  
动词：自卫、目击、沟通、肩负  
形容词：胆怯、眼红

(2) 动宾式（支配式）：前一个语素表示动作行为，后一个表示动作对象。

名词：司机、理事、围脖、领队  
动词：提议、起草、出版  
形容词：开心、得意、耐烦  
副词：照常、顺便、到底

(3) 偏正式（限定式）：前一个语素修饰后一个语素，后一个语素的意义是整个词义的中心。

名词：钢板、绿茶、刺刀、信箱  
动词：回忆、清算、优待、血战  
形容词：闷热、浮浅、雪白、笔直  
副词：刚巧、不必、恰好、果真

(4) 并列式：几个构词语素的意义相近、相关或相反

近义并列：人民、语言、书写、居住、广阔、勇猛  
偏义并列：动静、国家、睡觉、忘记  
反义并列：买卖、出纳、呼吸、起伏、好歹、始终  
相关并列：江山、骨肉、桃李、领袖

(5) 补充式：前一个语素是词义中心，后一个语素作补充说明。

## 夏：句法韵律最小自由单位

动词： 推翻、刷新、提高、证明 （动作+动作的结果）

名词： 船只、车辆、花朵 （事物+事物的单位）

二，附加式。是“词根 + 词缀”型的合成词（我们所谓的附加式的词缀是完全没有实在意义的词缀）。有前附式和后附式。

（1）前附式。如：（老，小）

阿——阿哥、阿姨、阿伯、阿爸

老——老虎、老鼠、老师、老乡

（2）后附式。如：

子——孩子、帽子、帘子、拍子

儿——月儿、盖儿、花儿、草儿

头——石头、木头、竹头、苦头

后附式还有一类感叹语，像“天哪！”、“妈呀！”之类，只是不算通常意义的词罢了。

三，重叠式。是用一个自由语素的重叠形式构成新词。如：

慢慢、仅仅、偏偏、哥哥、妹妹、恰恰

### 2.2 “句法韵律最小自由单位”在现代汉语句法韵律中的地位

根据周荐（1999）的统计，双字组占《现代汉语词典》（1996年修订本）收录条目总数的67.625%。可见，双音词在现代汉语的词这一句法层级中占有显著的数量优势。而双音节音步又在现代汉语的音步层级上占有理论上的绝对优势，这两个现象的同时并存绝非偶然。我们认为“句法韵律最小自由单位”的理论可以解释这个现象。

双音节词（词汇音步）是现代汉语中句法上和韵律上都自由的最小单位，也就是在语义的表达和语音的语感上都自由的最小单位。根据语言经济性原则，人们倾向于能用尽可能少量的语言进行表达尽可能多的意思。“句法韵律最小自由单位”自然就成了最优先的选择，从而在现代汉语中获得很高的使用频率。使用频率又反过来巩固加强它的地位和影响力，以至它在词一级的句法自由单位和音步一级的韵律自由单位中具有形式上的中心地位，能够吸引这些单位以各种方式向之趋同。简单图示如下（单箭头表示趋向关系，空心箭头表示组成关系）：



## 夏：句法韵律最小自由单位

表二：

	句 法	语 素	词	短 语	.....
单位 韵律单位					
音节		a	b		
音步（双音节）		c	d	e	
音系短语			f	g	
.....					

说明：

c（满足音步的双音节语素）通常都可以直接实现为词（如连绵词和双音节外来语词）；

b（单音节词）常常以附加、重叠、近义并列复合以及偏义并列复合等许多形式变成双音词（如附加式合成词、重叠式合成词、近义并列复合词、偏义并列复合词），从而获得更广阔自由的使用可能——许多历史悠久的单音节基本词汇也都有相应的双音节形式，用以表达更精确的语义内容或满足更和谐的韵律需要。例如：

发 → 头发      唇 → 嘴唇      鹊 → 喜鹊  
 指 → 手指      鲤 → 鲤鱼      韭 → 韭菜  
 皮、肤 → 皮肤    牙、齿 → 牙齿    窗、户 → 窗户

f（多音节词）常常有双音节的压缩形式，除了比较正式的场合或一些其他的特殊场合外，这些数量众多，能产性强的缩略形式往往是更经济、更上口的表达形式（如政协、文革、人大、超女、非典、四化等）；

e（双音节短语）是和词的界限最难划分的一类短语，就是因为无论从语义表达上还是语音韵律的语感上二者都差不太多，而且这种形式短语的固化也是双音词形成的重要途径之一，在语言的共时平面上也总是存在着大量正在进程中的固化现象（如理发、打架、抢人、天亮等）——正是从这一点出发，我们也可以把现代汉语“句法韵律最小自由单位”的外延适当扩大为双音词语，这样就涵盖了双音词、直接实现为词的双音节语素、双音节短语这些所有属于标准音步的语音片段，从而可以进一步把现代汉语“句法韵律最小自由单位”概括为（标准）音步语段。

把“句法韵律最小自由单位”的范围扩大到包括双音节短语，还有另外一个好处，那就是可以解释单音节词大量组成双音节短语出现的现象。在“句法韵律最小自由单位”的吸引和约束下，一部分单音节词扩展为双音节词了，而还有一部分则组成双音节短语出现。

我们还进一步发现，双音节词不仅是最小自由句法单位层级和最小自由韵律层级的中心单位，还是下一级句法韵律单位——语素音节层级实现为自由形式时的主要实现形式和上一级句法韵律单位的主要构件。

a（语素音节，也就是王洪君的“音系字”）实现为词的形式其实就是现代汉语复合式合成词的构成方式，见上文；

g 以至更高级的句法和韵律单位其组成部件以双音词语为主也就是顺理成章的事情了。

总结一下，现代汉语双音词语（词语音步）的形成方式可以总结为两种：

一，语义组合类。这类是因为实在语义表达的需要，把两个单音节语素组合成一个词的。这类的形成原因相当一部分是词组的固化成词。具体说来，语义组合类包括几乎所有的复合式合成词，也包括单音词组成的双音节短语（稍宽泛一点）。

二，韵律制约类。这类是由于韵律语感的需要形成的，又可以分为如下几类：

（1）韵律扩展类。包括连绵词、附加式合成词、重叠式合成词、近义并列复合词、偏义并列复合词等。其中重叠式合成词往往有一些附加的意义，从起因上说，是首先由韵律决定了重叠而后相关意义逐渐附加上去，还是先有语义要求而后采取重叠形式，此处暂不予深究。

（2）韵律节缩类。指由超音步词和音步以上韵律单位词节缩得到的缩略词。

（3）韵律套合类。指音译词。因为外来词语通常是依据本族语的韵律语音模式，对外来语语音模拟创造的，是一种双重限制下的创造。其实广义地说，韵律拉伸或韵律节缩也算是韵律套合，由于音译词现象的特殊性，为了说明和研究便利，把它们分开来说。

按照上述方式形成的现代汉语双音词语（词语音步），在数量上具有显著的优势。作为现代汉语“句法韵律最小自由单位”，双音词语（词语音步）其实大体上就是从韵律角度分出的最小自由单位，可以概括为音步语段。它对于同一句法层级的单位具有吸引使其韵律层级趋同的影响力，对于同一韵律层级的单位具有吸引使其句法层级趋同的影响力，是其中心单位；对于句法上低一级的语素音节层而言，具有模式套合的限制作用，是其主要的上一级单位表现形式；对于句法和韵律上高一级的单位而言，是其最主要的构成部件。

可以说，音步语段（双音词语、词语音步）在句法韵律层级中承上启下，领袖同僚，是现代汉语句法韵律中的枢纽单位。“句法韵律最小自由单位”是现代汉语中句法韵律研究中不容忽视的重要概念。

本文的附例部分给出了一个具体的例子，可以管窥音步语段在现代汉语中的影响力。

### 三 汉语“句法韵律最小自由单位”的嬗变

#### 3.1 上古汉语“句法韵律最小自由单位”

上文我们已经说明了现代汉语中双音词语（词语音步）的重要地位。那么是不

是汉语“句法韵律最小自由单位”由来如此呢？要回答这个问题，我们需要首先分析古代汉语（主要指上古汉语）的词和音步。

根据目前的研究，一般认为上古汉语以单音词为主，周荐（1999）统计了赵诚（1988）的《甲骨文简明词典——卜辞分类读本》，发现其中单音词占 77.51%。可见上古汉语的词与语素基本重合，都是单音节。这与现代汉语大不相同。可以说汉语经历了从单音词为主到双音词为主的演变过程。

关于古代汉语的音步，根据冯胜利（2000，2005），汉语音步经历了从韵素音步到音节音步的演变过程。

先引入韵律学中的几个概念和定律：

- a. 韵律结构必须以“轻重”为一个单位，亦即一个音步，因此，
- b. 音步必须至少有两个成分；
- c. 最小的韵律成分是韵素（ $\mu$ ），如“dao”里的“a”和“o”；
- d. 人类语言中的音步有两种类型：韵素音步和音节（ $\sigma$ ）音步：



冯根据丁邦新（1979）、余乃永（1985）等人对上古以来汉语音节结构的研究，认为中期上古汉语之前的音节内部有两个以上韵素的对立，因此可以满足音步作为一个包含轻重对比的韵律结构的基本要求，可以成为音步。所以上古汉语的音步和现代汉语的音步是不同的。

早期上古汉语的音节可以成为一个音步，从而成为最小的可以自由运用的韵律单位。而其时汉语词的主体也是单音词。这样，早期上古汉语“句法韵律最小自由单位”就是单音节词。其时的标准音步就是单音节多韵素音步，而词的主体则是单音节语素。

单音节词（词汇音节）作为早期上古汉语“句法韵律最小自由单位”，也同样具有句法和韵律上的影响力，主要表现有：

一，新词语的产生形式基本以单音节词（语素）为主。

这一点不难从语言事实中看出。尤为显著的表现之一就是，上古时代对马、牛、树等事物的命名基本上是一事物一语素一词，同时也是一个音节一个音步一个汉字；而在后来双音词语成为“句法韵律最小自由单位”的时代，则一般采用多义复合、属加种差等分析式做法，基本上是一个概念两个语素一个词，同时是两个音节一个音步。

二，多音节（主要是双音节）语素和词的单音节化现象。

这和现代汉语中分别把把单音节和多音节扩展压缩为双音节一样。周及徐（2000）指出了《离骚》中大量上古双音词单音节化的现象。大致有如下类型：

（1）单音节化为第二字：

荒忽 相羊 逍遥 歔歔 太息 猖披 闾阖 委蛇

## 夏：句法韵律最小自由单位

狐疑 犹豫 浩荡 溷浊 侘傺 彘邑 未央

(2) 单音节化为第一字：

遭回 耿介 纬繡 偃蹇 败绩 赫戏

(3) 两个音节分别成为单音节同义词：

缤纷 零落 天网 茕独 晦荡 蜷局

姑且不论是否周指出的单音节化现象是否确实是双音词向单音词演化，至少上面指出的这些双音词都有其单音化使用形式（如果周的假设确能成立，那对本文的支持作用更强）。上面 27 例占作者在《离骚》中发现的 31 例双音节单纯词（名物词除外）总量的 87%，可见单音节词（词汇音节）作为中心单位的吸引使趋同的影响力是很大的。在现代汉语中，一般不会出现这类现象（指连绵词单音化使用）。即使有少数类似的截取复合词部分的情况，也是为了和另外的单音节词组成双音词语，如“非典”。

周的研究还表明，双音节词的单音节化形式大量存在于先秦时代，到两汉时期就很少了。这也正好是汉语“句法韵律最小自由单位”从单音节词（词汇音节）到双音词语（词语音步）的演化历程的表现之一。

三，单音节词是构成更大句法单位和韵律单位的主要构件。

这一点和现代汉语中的双音词语情况相仿，就不多说了。

把上述说明仿照上面现代汉语的情况图示如下：

表三：

	句 法	语 素 (≈ 词)	短 语	……
单位 韵律单位				
韵素				
音节 (≈ 音步)		<i>a</i>		
音系短语		<i>b</i>	<i>c</i>	
……				

把这个图和上面现代汉语句法韵律的说明图放在一起看，可以看出如下几点规律：

一，早期上古汉语句法和韵律的最小接口单位是语素音节，这点和现代汉语一样。也就是说汉语自古至今“句法韵律的最小接口单位”是没有变的，这可能正是王（1999）没有区分“句法韵律最小自由单位”和“句法韵律的最小单位”的原因，

她理解的“句法韵律最小自由单位”也就是“句法韵律的最小接口单位”。这一点可以作为汉语在句法韵律上的一个基本性质。关于这一基本性质在汉语句法韵律上的作用和地位，王（1999）有较好的阐述。

二，作为早期上古汉语“句法韵律最小自由单位”的单音节词（词汇音节）也可以概括为音步语段，这样我们就可以总结得出一个结论：音步语段是汉语“句法韵律最小自由单位”。它在早期上古汉语中的表现形式是单音节词，在近现代汉语中则是双音词语。这是汉语在句法韵律上的又一基本性质。这一基本性质可能是汉语和其他语言在类型差异上的重要参数之一。<sup>⑥</sup>

三，早期上古汉语“句法韵律最小自由单位”和“句法韵律的最小接口单位”是重合的。这一点和现代汉语不同，这可能是上古汉语在语言类型上和近现代汉语有重大差别的主要因素之一。

四，至少就汉语看来，一个语言中句法上的最小自由单位的主体和韵律上最小自由单位的主体总是（至少是趋向）重合的，无论是上古汉语还是近现代汉语。这应该是二者互相影响的结果，可能也是语言自身进化中的一个自身配置优化的性质，因为这样更便于该单位在语言系统中的自由高效的运作。

### 3.2 汉语“句法韵律最小自由单位”的发展演变

接下来很自然的问题就是，汉语“句法韵律最小自由单位”是怎样从单音节词（词汇音节）发展演化到双音词语（词语音步）的呢？

汉语“句法韵律最小自由单位”的这一转变可以分两部分来看：句法上词汇主体从单语素独立表示向双语素组合表示的转变，和韵律上标准音步从多韵素单音节向单韵素双音节的转变。

根据对这二者的发展是否相关以及如何相关，可以有两种观点：一，独立动因论。即认为二者各自有各自的独立起因，之后二者或者仍旧各自发展，或者二者互相促进，互相制约着发展——目前没有看到有人持这种观点，不过根据现有的资料我们尚不能否定这种可能；二，关联促动论。即认为二者之中有一个是最原始的转变，而后它推动促进了另外一个的转变。

持关联促动论看法的又分两派：一派是韵律促动句法观，认为韵律上的转变是更原初的，它决定了或自然导致了句法上的转变，如冯胜利（1997，2000，2005）；另一派是句法促动韵律观，认为句法语义上的转变是原初的，语音上的转变是导源于句法语义方面的转变的，如胡以鲁（1923）程湘清（1992a）、黄志强、杨剑桥（1991）、李恕豪（1993）等。

先介绍韵律促动句法的观点。冯胜利根据丁邦新（1979）、余乃永（1985）等人的研究，认为从早期上古到现代汉语之间汉语音节结构大致经历了如下演变过程

<sup>⑥</sup> 之所以说音步语段，不说词汇音段，是因为汉语中满足音步的，一般都是词；而是词未必都符合音步。也就是说，韵律是更具决定性的因素。

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(C=声母；M=介音；V=元音；E=入声)：

早期上古音：谐声时代	(C) C (C) (M) (M) (V) VC (C)
中期上古音：周秦	C (C) (M) (M) (V) V (C)
魏晋音及中古音	C (M) (M) V (E)
近代音及现代音	(C) (M) V (n, ng)
当代北京话	(C) (M) V <sup>⑦</sup>

冯认为汉语音节从早期上古到中期上古经历了一个“短化”的过程，伴随着“丢失尾辅音”和声调的产生，汉语音节内韵素不断丢失，产生了大量的单韵素音节。由于单韵素不足以满足音步必须分枝的要求，声调的独立性又使得汉语音节的连读不能“跨界”，不能发生音节重构 (resyllabification)，进一步剥夺了汉语双韵素音步的可能性，而且随着声调的产生，汉语音节的长短区别被抹杀，即不论一个音节的韵素是否多于其他类型的音节，都一律被该音节所负载的声调重新分类，趋于平均，这使得双韵素音步的存在地位逐渐消失殆尽。双音节音步就成为了历史的必然。冯还列出汉语历史上声调与双音化的同步发展作为辅证。图示如下 (冯胜利，2005：81)：

	商周	春秋战国	秦汉	东汉
声调的建立	起始阶段	形成过程	初具规模	四声俱全
复合(韵律)词		起始阶段	翻倍增长	突飞猛进

冯对汉语标准音步转变历程的解释大致如此。至于句法上的单语素词向双语素词的转变，他认为是由韵律上的“结构扩散”造成的。

结构扩散：那些在结构中才得以实现的语言形式的出现 (如这里的“音步”)，必然首先在与之最相适应的结构中得到发展和巩固，而后才能波及该形式所涉及和要求的其他领域。结构扩散不仅影响，而且创新该语言的有关结构，最终可能改变该语言的整体面貌。

“如果汉语随着音节短化、声调出现逐渐变成音节音步的话，那么，这种语音上的改变与要求，必将涉及和影响该语言的所有 (表达) 形式：语音形式、构词形式和短语 (造句) 形式” (冯胜利，2005：82)。然后他逐一列举了语音上“一生二”造成的连绵词，句法上双音节短语固化成的双音词等现象。冯胜利 (2000：7) 还特别指出，“音步的实现 (一个音节加一个音节) 则不可避免地导致复合词的出现 (着重号为本文作者所加)。”

与冯胜利韵律促动句法的观点相反，更多的学者持句法促动韵律的观点。胡以鲁 (1923) 从功能角度解释了汉语复音化的原因，认为单音词的语义负荷太重，从而造成表义的含糊，因而有必要靠变单音为双音来分化语义，限定单音词的语义范围，减少同音词出现的概率。程湘清 (1992a) 认为由于社会的发展和人的认识的发

⑦注：今天的北京话音节均可分析为开音节，参 Wang (1993)。

展，“单音节这种词的物质结构（交际手段）就不再有效地承担新的交集任务了”，因而汉语从以单音节的语音造词法为主变为以双音节的语法造词法为主。黄志强、杨剑桥（1991）认为，汉语的“复音节化”（即双音化——本文作者注）的外部原因是语音的简化，但是内部原因是社会发展导致的词汇系统的膨胀，表现为词汇量的迅猛增长和词义的引申发展，再加上语言表达精确性的要求等等。李恕豪（1993）从信息传递的角度出发，也认为汉语词汇系统由单音节向双音节转化的主要原因在于社会进步所引起的大量词汇需求，而在原有词汇模式下，增加同音词和多义词的做法都会降低词汇的信息量，双音词是最佳的解决方案。但双音词增加了音位的组合长度，造成信息的过度冗余。为了达到新的平衡，汉语起初是缩减二个音节内部音位组合的长度，后来则采用减少音位的方法。最终造成了语音上的简化。

本文总体上说支持句法促动韵律的观点，但认为在最初的句法促动之后，韵律又反作用于句法，表现出相互作用的特点。首先，我们认为汉语双音词的产生是有其语义以至句法上的独立原因的。上古汉语以单个汉字记载的单音节单语素的词作为其最小句法韵律单位，随着语言的发展，知识的积累，势必造成语素数量的膨胀，音节结构的过分复杂和同音词词汇量的膨胀，还有汉字字符数量的膨胀。这必然给人们的知识记忆和语言使用造成困难。这种情况下，对以往积累知识的分类、重组，以及相应的语言单位和结构的调整就成了必然。这可以看成是汉语词汇系统的自组织现象。

一语素一词一概念的配置不能满足人们对语言的需要了，利用已有的语素组合构成新词是很自然的有效率的选择。本来事物之间都是有联系的，用一定数量的基本概念组合成新概念、新词不仅充分利用了人们已经掌握的语素，而且把人们头脑中的概念更紧密地关联起来了。经过组合，汉语语素造词的能力成指数增长，人们对事物的认识也在复合词语的创造中进行了整理和重构（一个明显的例子就是，先秦用许多单语素的单音节词表示一类概念中各有个性的每个或每类个体，而之后更多地采用了“种差+属”的双语素构词方式，例如对马、鱼等事物的命名）。可以说汉族人对事物认识的重构和汉语词汇语素数量的调整是同时进行，相伴相随的。

这里有一个问题，为什么采用双语素词为主体而不是更多语素？我们的回答是，首先，双语素是语素组合的最早可能，也是最简可能。因为是最早可能，所以在此期间韵律的因素就可能插进来发生影响，起到反限制作用<sup>⑧</sup>；因为是最简可能，当语素组合超越了一语素一词的基础单位数量限制，并不可避免地增加了句法单位的复杂度时，这种最简可能就成为最优的选择了。而且单音节语素成双的组合，理论上讲可能的组合数量已经相当可观，基本可以满足人们交际表达和语言系统运作的需要了。

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<sup>⑧</sup> 具体点说就是，最初的双语素组合影响了词的语音格局，形成双音节词，进而改变了汉语的音步结构，再反过来限制新词构成的语素数量。详见下文。

所以说，汉语词汇从单语素向双语素组合的转变是有其语义句法上的原初动力的。由于汉语一个语素通常就对应着一个音节，汉语词汇从单语素向双语素组合转变也就是从单音节向双音节转变。

上文我们根据对上古汉语和现代汉语的观察，发现汉语中句法上的最小自由单位的主体和韵律上最小自由单位的主体总是趋向重合的。当由于语义句法上必然的原因，汉语的词汇主体（最小的自由句法单位）逐步变为双音节的双语素词时，它也牵引了语言的标准音步向它靠拢，也就是变为双音节音步。在这种情况下，本来结构复杂可以承担音步的汉语音节就没有保持其复杂度的必要了，于是逐步简化，尾辅音脱落，期间还孳生了声调。声调的产生首先是功能性的需要。在早期上古时代，由于音节结构本身复杂，对声调的需要不明显。而随着双音节音步的形成，为了使音步及其组件——音节变得均匀一致，必然要求音节的长度趋于均等。音节长度的平均化和音节结构复杂度的简化同时进行，势必造成大量的同音语素。这种情况下，为了保证音节的别义性，声调就应运而生了。声调的产生又进一步推动了音节长度的平均化。冯胜利（2005：71—81）对汉语声调和双音化同时发展的观察可以作为我们的旁证。整个过程体现了语言系统（包括韵律系统）在词汇系统发生变化后作出相应调整的强大自组织能力。

以上是我们对汉语“句法韵律最小自由单位”转变过程最初句法语义因素和语音韵律因素关系的假设。从语言实践需要的角度来分析，我们的“句法语义先促动韵律，然后形成互动格局”的看法，与单纯的韵律促动句法观和句法促动韵律观相比，对句法和韵律的演化动因阐释得要更清楚一些。

现在回头分析一下上文 2.2 节总结的现代汉语双音词语的类别，其中的韵律制约类就全是在韵律对句法的反作用下形成的。而其中的语义组合类则根本上是由语素组合的动因促动，又同时在组合本身所促生的韵律结构的限制下产生的。

其实还要补充一点，现代汉语的双音词语产生还可能有另一层原因，那就是原初形成的双语素词的内部结构的“结构扩散”。比如“种差+属”的构词方式就很有影响。正是因为我们已经有了“牛车”、“马车”，后来才有“汽车”、“火车”的说法。这种动因不能说完全不牵涉韵律因素，但理论上讲是有其独立性的。其实，如果说韵律限制的“韵律结构扩散”是人们语音认知模式在起作用的话，这种词汇结构限制的“词汇结构扩散”就是人们的事物认识的语义认知模式在支配。

简单总结一下，语言实践要求语素组合，语素组合导致词汇音节结构变化，词汇音节结构变化又推动标准音步演变，新的标准音步又和语素组合过程中形成的规律同时对后来的词语产生起到影响限制作用。不断产生的新词语又反作用于汉语音步的韵律结构。如是反复，相互作用，语言一直不停地向前发展。

以上就是我们对汉语“句法韵律最小自由单位”演变的初步认识。

#### 四 汉语与英语“句法韵律最小自由单位”的对比

王洪君（1999）在提出“句法韵律最小自由单位”概念的时候，是作为普遍语



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言的一项参数提出来的。我们的“句法韵律最小自由单位”虽然和她的概念内涵不同，但也并非为汉语特设，所以语言间的比较仍然是可以而且应该进行的。我们也用英语来作对比。

用我们对“句法韵律最小自由单位”的理解去看英语，情况如何呢？

我们知道，任何语言中最小的自由句法单位都是词，最小的自由韵律单位都是音步，英语也不例外。但差异就在词汇和音步的交汇情况。上文关于汉语的研究报告告诉我们，汉语“句法韵律最小自由单位”可以概括为音步语段，因为汉语中满足音步的，一般都是词（稍宽泛一点——词语）；而词却未必都符合音步。也就是说汉语“句法韵律最小自由单位”基本上是用音步截取出词汇中的部分（并影响其余向之趋近）。

英语则情况相反，是词汇的一般都满足音步或更大的韵律自由单位，而音步基本上和词汇没有成规律的对应关系。词可以是音节，可以是音步，甚至是音段。所以说英语“句法韵律最小自由单位”应该是拿词来截取音步中的一部分。仿照前面表格图示如下：

表四：

单位 韵律单位	句 法	语素	词	短语	……
音节			<i>a</i>		
音步			↓ <i>b</i>	← <i>c</i>	
音系短语			↑ <i>d</i>	<i>e</i>	
……					

英语“句法韵律最小自由单位”与汉语中相应单位相比，影响力要小得多，但还是有的。比如一个音节如果成词，通常就会拉伸成音步，或和别的单词连读组合成音步；词组（短语）如果是音步，就有固化为词的可能。例如：

going to → gonna      want to → wanna

音系短语如果是词，就会有类似音步结构的发音模式。——虽然这些的影响力是相对较弱的。

如果对英语“句法韵律最小自由单位”放宽一些来看的话，可以称之为词汇音段。也就是以句法上是否为词来取决定的，凡词一般都是自由韵律单位，而自由韵律单位就未必是句法上自由的了。这样，从“句法韵律最小自由单位”的角度，我们就可以更容易地找出汉语和英语在语言类型上更具有普遍意义的参数差异：汉语是音步语段，而英语是词汇音段。

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从句法和韵律接口的角度寻找这一差异的原因，可以看到：英语“句法韵律的最小接口单位”是音节和词的交集，也就是音节词。而汉语“句法韵律的最小接口单位”是音节和语素的交集，也即音节语素。推演一步说，英语句法韵律接口的最小句法单位是词，而汉语是语素。英语的词没有固定的对应韵律单位，而汉语的语素却有固定的对应韵律单位——音节。也就是说有无固定节律的最小句法接口单位是英语和汉语的一大差别。

事实上正是这一差别造成了英语和汉语“句法韵律最小自由单位”类型的区别。在决定语言“句法韵律最小自由单位”的因素中，韵律因素是首先被考虑的，因为韵律和人们的日常语感直接对应，格局比较整齐，易于操作；主要依靠句法因素是不得已的选择，因为句法单位的伸缩性很大，不易操作。汉语有固定节律的最小句法接口单位（语素），意味着汉语的句法和韵律系统协调运作的时候，一般不必担心音段的表意问题。所以汉语就采用了韵律优先的方案，以韵律统领句法（事实上二者重合也很多），以音步语段作为“句法韵律最小自由单位”。英语就不同了，因为英语的最小句法接口单位——词没有固定节律，所以句法和韵律系统协调运作时不能只从韵律自身考虑，而是首先照顾句法语义上的需要，以句法统领韵律，所以就采用了词汇音段作为“句法韵律最小自由单位”。

由此可见，“句法韵律最小自由单位”和“句法韵律最小接口单位”都是一个语言的句法和韵律体系中重要的参数，是研究句法韵律时需要关注的。

除了在“句法韵律最小自由单位”类型上总的差异之外，英语和汉语还有更多的可比之处。这里要把现代汉语和上古汉语分开来比。<sup>⑨</sup>

现代汉语“句法韵律最小自由单位”和“句法韵律的最小接口单位”是不同的两级单位；英语中二者则相对接近：句法上同级，韵律上不同；上古汉语中这二者则是基本重合的。就这一点而言，英语和上古汉语更接近。英语和上古汉语还有一点相似：英语“句法韵律接口的最小句法单位”是词，上古汉语“句法韵律接口的最小句法单位”虽然是语素，但因为和词基本重合，所以基本上也可以说是词。这些很可能是上古汉语和英语在句法上存在着一系列相似性的重要原因之一。可以简单图示如下：

表五：

	句法韵律最小接口单位	句法韵律最小自由单位
现代汉语	语素-单音节	词语-双音节
上古汉语	语素(≈词)-单音节	词-单音节
英语	词-音节	词-音步

另有研究（姜望琪，2005）表明，汉语的“句子”不等于英语的 *sentence*，而更像英语中的 *utterance*。跟 *sentence* 相当的汉语单位是“词组”。本文的研究表明，英语的“句法韵律最小接口单位”（词）在句法层级上比汉语（语素）要高一个等级，

<sup>⑨</sup>至于英语，我们就默认拿现代英语作对比，不涉及古代英语。

是不是也有关系呢？这是个值得思考的问题。

当然，在总的语言类型上英语和上古汉语还是存在着根本的差异。无论上古汉语还是现代汉语，其“句法韵律接口的最小句法单位”都是有着固定节律的句法单位，不同于英语没有固定节律的词。不过从新的角度发现不同时间、不同空间里不同语言的相似之处，很可能对相关研究有所启发。限于篇幅本文对此不作深究。

## 五 结语

本文分析了王洪君（1999，2001）关于“句法韵律最小自由单位”的观点，提出几点质疑，并在此基础上区分了“句法韵律最小自由单位”和“句法韵律最小接口单位”两个概念，将王的“句法韵律最小自由单位”纳入“句法韵律的最小接口单位”范畴，并重新定义了“句法韵律最小自由单位”。在这两个概念共同构建的框架下，我们对现代汉语、上古汉语以及英语的句法和韵律接口现象进行了分析，有一系列的重要发现：现代汉语音步语段的深广影响力、对上古汉语句法韵律结构的新认识、汉语句法韵律结构从上古到现代演变的更为合理的解释、汉语（区分上古汉语和现代汉语）和英语在句法韵律接口上成规律的对应和差异，等等。

和“句法韵律的最小接口单位”（王的“句法韵律最小自由单位”）相比，我们的“句法韵律最小自由单位”关注的重点不同。前者主要关心以“最小接口单位”集合为枢纽的音系问题，而后者则更关心句法和韵律相互制约影响的问题。前者的研究可以不怎么管后者，但后者的研究却必然要以前者为重要组成部分。

新的理论，一开始必能解释成批的现象。我们对“句法韵律最小自由单位”的发现及相关研究虽然还不成熟，就已经有不少有意思的发现。希望这一研究能够继续深入，为相关研究提供更多有益的启示。

**附例：**一个说明现代汉语中音步语段影响力的例子——以“如”系词语为例

现代汉语中，“如”系词语（包括其变体“例如”、“比如”等）单独使用，可表示示例、罗列。例如：

具体教学中，运用了体现愉快教学的操作模式，如，数学课提出“基数储备、快速视算、适时精讲、多变练习、及时反馈……”

大部队在运动的过程中，漏洞肯定很多，比如，大兵急于前进，各部运动速度不同，给养可能造成困难，协调可能不灵，战线拉得越长，可乘之机一定更多。

我们调查了其中后面紧接一个用逗号停顿的这种“如”的使用情况。依据的是北京大学汉语语言学研究网站<sup>⑩</sup>的现代汉语语料库。大致结果见表六、七<sup>⑩</sup>：

从表六中可以看出，在表示相同语义的情况下，单音节词使用数量只占该类语例的 3%，而双音节词（词语音步）则占了 97% 的绝对优势数量。即使不考虑较为

<sup>⑩</sup> 检索时间为 2006 年 2 月 19 日。

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文言口气的“譬如”、“诸如”，仅仅“例如”或“比如”的数量也是远远超过单音节词数总量的。标准音步和单音步的势力对比一目了然。

从表七中可以看出，三音节形式的短语与语义完全相同的相应的双音节短语（词语音步）相比，数量上也明显处于劣势。还不算一些只有双音节形式的用例“正如”、“另如”。音步语段对现代汉语短语的制约作用由此可见一斑。

表六<sup>11</sup>：

	单音词用例		双音词用例	
	语例	出现次数	语例	出现次数
	如，	106	例如，	1859
			比如，	1170
			譬如，	175
			诸如，	16
总计		106		3220
比例		3%		97%

表七：

	三音节短语用例		双音节短语用例	
	语例	出现次数	语例	出现次数
	再比如，	37	再如，	71
	再例如，	5		
比例		37%		63%
	又比如，	17	又如，	105
比例		14%		86%

其实不惟现代汉语，近代汉语中也基本上是这个情况，双音节音步语段的约束力甚至更强。我们根据语料调查发现，从北宋的《朱子语类》到明清小说如《万历野获编》、《东度记》等等之中，“如”若单独放在逗号前表示罗列示例用法，全部用的是双音节形式，像“比如”、“譬如”之类。再有就是和其他词组成的双音节短语“又如”、“即如”。语料中的例子不多，不过规律还是很明显的。下附几个例子（来自北京大学汉语语言学研究中心网站古代汉语语料库）：

比如，见一胎卵湿化众生，或陷于水火、刀砧，性命危亡；人心发一慈悲不忍，救度了他，便合了上天好生至德。——清\小说\东度记（上）

比如，衣不赠贫汉以准官租，已为刀下鬼，安有今日？

11 几点说明。第一，“例如”的用例统计中不包括5例“再例如”三音节短语的情况，“比如”的用例中不包括54例“再比如”、“又比如”三音节短语的情况。第二，像“又如”、“再如”、“正如”、“另如”等另有特殊语义的例子此处没有统计，本表统计的都是基本上可以与“如”替换不影响语义的“如”的变体。第三，像“正如”、“另如”之类没有三音节对应形式的短语没有列入表内。

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——清\小说\东度记（下）

譬如，罗将军战十合，急急退下；李将军便去接战，约战十合，罗将军再去相换。

——清\小说\七剑十三侠（下）

即如，两人论起支派，当初本是一家，此时叙起，原当联宗，无如现在一贫一富，或一贵一贱，那富贵人恐其玷辱，躲之尚恐不及，岂肯与之联宗？

——清\小说\镜花缘（上）

又如，于“师，吾哭诸寝；朋友，哭诸寝门之外；所知，哭于野”，恩义自有许多节。

——北宋\语录\朱子语类

又如，今上丙戌年，王太仓在揆地时，海盐举人王文禄者，以公车至，太仓坐之上席，文禄亦不逊，踞客位如平日，此故友穷达之不拘套者。

——明\小说\万历野获编

### 参考文献：

- 程湘清 1992 先秦双音词研究，《先秦汉语研究》，程湘清主编，山东教育出版社。
- 丁邦新 1979 上古汉语的音节结构，《历史语言研究所集刊》50，717-739.台北。
- 董秀芳 2002 词汇化：汉语双音词的衍生和发展，四川民族出版社。
- 冯胜利 1997 汉语的韵律、词法与句法，北京大学出版社。
- 冯胜利 2000 汉语韵律句法学，上海教育出版社。
- 冯胜利 2005 汉语韵律语法研究，北京大学出版社。
- 胡以鲁 1923 国语学草创，商务印书馆。
- 黄志强、杨剑桥 1991 论汉语词汇双音节化的原因，复旦学报，第1期。
- 姜望琪 2005 汉语的“句子”与英语的 sentence，解放军外国语学院学报，第1期。
- 李恕豪 1993 论语言信息和汉语词汇系统双音节化的关系，四川师范大学学报，第3期。
- 王洪君 1999 汉语非线性音系学，北京大学出版社。
- 王洪君 2001 韵律层级模型中的最小自由单位及其类型学意义，第一届肯特岗国际认知语言学圆桌会议，新加坡。收入徐杰主编《汉语研究的类型学视角》(p286-298)，北京语言大学出版社，2005。
- 王洪君 2008 汉语非线性音系学（增订版），北京大学出版社。
- 余乃永 1985 上古音系研究，香港中文大学。
- 赵 诚 1988 《甲骨文简明词典——卜辞分类读本》，中华书局。
- 周及徐 2000 上古汉语双音节词单音节化现象初探，四川大学学报，第4期。
- 周 荐 1999 双字组合与词典收条，中国语文，第4期。
- Nespor M. & I.Vogel 1986 *Prosodic Phonology*. Dordrecht: Foris.
- Wang, Jenny Zhijie (王志洁) 1993 *The Geometry of Segmental Features in Beijing Mandarin*. PhD dissertation, University of Delaware.

## 书面语中韵律词重组分析

阎玲

哥伦比亚大学

Chinese written language is different from its colloquial language in several aspects such as the choice of words and structures. It has been observed (Feng 2003) that prosody plays a much more important role in the written form than in the colloquial one. In this paper, the phenomenon that a four syllable verb compound in the written Chinese which is usually reorganized as a dissyllabic verb compound is analyzed from a prosodic point of view. This paper argues that it is the conformation to the Nuclear Stress Rule that causes this reorganization of the Chinese verb compounds.

### 一、引言

书面语是一个有别于口语的汉语语体，其无论是在用词还是在结构上都自成体系，受韵律的制约明显大于口语体。书面语中，双音节动词的宾语不能为单音节，修饰双音节的状语亦不单挂（冯 2003；冯、阎 2003；2005）。譬如：

- 1) 进行→研究、调查、总结、改革  
加强→研究、整顿、联系、讨论
- 2) 进行→\*玩、\*说、\*学、论  
进行→\*学、\*爱、\*管、\*论

又如，一些口语中的单音节谓语动词，在书面语中只能与其他词项合并组合成双音节才能使用，下面我们以“有”为例来看一下书面语与口语的异同之处。

- |       |      |
|-------|------|
| 3) 口语 | 书面语  |
| 有钱    | 拥有钱财 |
| 有气魄   | 具有气魄 |
| 有名气   | 享有名声 |

正是书面语所拥有的这套独立的“双求双”韵律规则使得口语中常用的单音节谓语需与另外一个单音词重组才不拗口。由此可见，所谓书面语实际上是受韵律制约的遣词造句。

如果这种口语中的单音节变双方可是在书面语中“双求双”韵律所致，那么，如何理解标准韵律词（双音节）拆单重组现象呢？

#### 4) 曾经获得过表彰→曾获表彰

这里，“曾经”、“获得”都是标准韵律词，然而当他们进入书面语体系时，则需拆开重新组合构成新的韵律词。“曾获”无论如何不是一个新词，但它却是书面语中使用频率极高的一组“搭配”。此外，我们又怎么理解“推广介绍”缩合成“推介”呢

(5) ?

#### 5) 每到周日书店都会举办沙龙**推介**(? 推广介绍)新书。

与“曾获”一样，“推介”还没有固化为一个词汇词。但它们都满足了汉语词汇结构的基本标准韵律词，也就是双音节。本文所要探讨的是：这种双音加双音的拆组究竟是出于什么原因？是韵律？是句法？还是韵律句法的共同作用？在分析探讨这个问题之前，我们不妨先介绍一下汉语的韵律体系。

## 二、汉语构词的韵律体系

冯（1997）提出汉语韵律句法词法这一理论。他指出“韵律词”是从韵律学角度来规定“词”的概念。他主张人类语言中“最小的能够自由运用的韵律单位是音步 (foot)。”韵律学中的单位是韵律单位，因而韵律词的定义通过韵律构词学中的单位音步来确定，而音步则通过其最小音节 (syllable) 来确定。

### 1. 韵律构词结构

韵律构词学的理论以韵律基层为基础，如下所示：

#### 6) 韵律基层(Prosodic Hierarchy)

韵律词(PrWd) → 音步 (foot) → 音节 (syllable) → 韵素(mora)

由(6)我们可以看出，韵律层级的最低单位为韵素，韵素 ( $\mu$ ) 与韵素合并组成音节。音节与音节组合成音步，音步则是汉语韵律词的基本结构。换言之，汉语中韵律词必须由一个标准音步组成。此外，冯强调音步必须遵循“二分枝”(binary branching)原则 (McCarthy & Prince 1993:43)。二分枝音步是韵律节奏“轻重抑扬”的载体。

#### 7) 韵律词 = 标准音步[ $\sigma\sigma$ ] (冯 1997; 2009)

既然标准音步是由两个音节组成，那么汉语的韵律词则应该是双音节。

## 2. 双音节复合词

实际上，现代汉语的双音节占了绝大多数。在书面语双音节谓语动词取样调查中（Feng, Yan 2003; 2005），我们发现双音节动词占 54%，而单音节动词仅占 25%。在这百分之二十五的单音节动词中，有百分之三十三为动宾复合词。史存直曾指出：双音词在西周时开始出现，其中有复合词，也有双音单纯词（连绵词）。两汉以后，复合词、填缀词逐渐成了主要的造词方法。但究竟是什么因素导致这一构词结构的巨变，人们没有给出合理的解释。

冯（1997；2009）指出这一变化源于上古汉语语音演变的变化：由于声调的出现，导致汉语辅音韵尾的脱落，进而导致音节简化，使得韵素音步转化为音节音步。音节音步是双音节，因而韵律词在汉语里实现的主要手段是“复合”，也就是说通过将有意义语素（词）的合并而生成了大量的双音节复合词。这从理论上解释了为何汉代以后，汉语从原先以单音节词汇为主转变为双音节词汇的根本原因。正是基于这种语音上的改变，汉语的复合词成分之间才出现了各种复杂的句法关系，如（8）所示：

8) 偏正	动宾	并列	主谓
迟到	丢脸	退休	眼红

这些复合双音词，大多经过词化(lexicalize)后，被储存到的词库(lexicon)。然而，正是基于韵律的制约，被词化的复合词在实际运用中会有被拆开的可能，也就是所谓的离合现象，如（9）所示：

- 9) a. 他决定延迟退休。  
 b. 他退了休，就再也没有回到原单位了。  
 c. 他很幽默。  
 d. 他昨天又幽了一把默。

## 3. 词库(lexicon)

词库(lexicon), 原本用来指一个人、一种语言或一个知识领域所拥有的全部词汇。词库这一概念最早由布龙菲尔德(1933)提出。乔姆斯基将词库与语法联系起来, 并把词库视为语言能力。尽管人类语言不同, 所收录词汇各异, 但词库具有以下共性: 其一为开放性, 随着语言环境的变化而不断有新的词汇出现; 其二



根据词库现有词项的语素,按照词法生成新的复合词,固定词语,习语等。正是基于此特点,我们可以推论那些已进入词库的现存词,也会在词法的作用下发生变化。就现代汉语而言,这词法就是受韵律制约构词法:标准音步。汉语缩略语基本上符合了这一词法规律。

- 10) 妇女联合会→妇联  
加利福尼亚→加州  
中央电视台→央视  
哥伦比亚大学→哥大

从(10)我们可以看出,大部分缩略语不管原来的音节数目,其缩略形式为双音节。这正好符合汉语韵律构词结构。“妇女联合会”作为一个固定机构的名称其内部结构较为复杂(2+(2+1)),看起来与现代汉语主流双音词汇相差甚远,但其缩略形式仍难逃韵律的制约。

#### 4.汉语的缩略语

词库的词可以分成现存词(real word)和潜在词(potential word)。现存词是指已经产生、并已经在词汇系统中的词,是存在于词库当中的单位,是需要记忆的单位。潜在词是指按照构词规律可以存在于语言中,却没有出现的词。潜在的词是由词法的规律产生的,不必记忆。比如:

- 11) 推广介绍→推介

“推介”是基于现有词汇“推广”和“介绍”加上韵律的制约重新组合成为一个新的韵律词汇。我们之所以称之为韵律词是因为它符合最小韵律词标准:双音节。但这跟句词法所生成的新的词项一样不会被人视为真正意义上的词汇。充其量这种缩略形式是潜在的词,是由词法提供的,而不是词库的词。词法可以用来解释词的创新性,能够产生新词。“推介”作为一种新的表述形式,在没有词化之前是不会转换为现有词的。但实际上很多使用频率极高的缩略语已经进入了现有词汇之列。比如“语文”实际上就是“语言文字”的缩略形式。由于其高频出现率,人们已经将之视为现有词汇而并非缩略用语。这样的缩略词汇无处不在:

- 12) 双音缩略语表格

动词+动词	动词+宾语	状语+动词	形容词+形容词	合并名词
-------	-------	-------	---------	------

探讨=探索研讨 修正=修改订正 调研=调查研究 追求=追寻探求 清理=清扫整理 筹划=运筹计划 运输=搬运输送 开采=开发采掘 探究=探索研究 调研=调查研究 维修=维护修理 修理=修改整理 休整=休息整理 调理=调节整理 养育=抚养教育 革新=改革创新 吸取=吸收获取 商讨=商量讨论 出访=外出访问 查询=检查询问 审批=审阅批准 领导=引领指导 推介=推广介绍 评介=评论介绍 检索=检查搜索 审核=审查核实	失踪=失去踪影 泄愤=发泄愤怒 反贫=反对贪污 达标=达到目标 减负=减轻负担 施压=施加压力 维权=维护权利 便民=方便人民 补给=补充供给 销赃=销毁赃物 提价=提高物价 获奖=获得奖励 夺冠=夺取冠军 清场=清理现场 免职=免去职务 触法=触犯法律 免费=免除费用 超额=超出额定 筹款=筹集款项 集资=筹集资金 侵权=侵犯权益	自夸=自我夸耀 跃升=跳跃上升 重组=重新组合 力荐=大力推荐 专营=专门经营 突袭=突然袭击 复播=重复播映 私营=私人经营 慢行=缓慢行走 快递=快速递送 疾驰=迅疾奔驰 飞奔=飞速奔跑 主导=主要领导 互动=交互动联 苦思=痛苦思考 直达=直接到达 晚归=晚间归来 迟到=延迟到达 早退=提早退出 围观=围绕观看 相思=相互思念	轻缓=轻盈舒缓 细碎=细小零碎 低俗=低级庸俗 孤寂=孤独寂寞 欣悦=欣喜欢悦 阴冷=阴沉冷漠 诡异=诡怪异常 凄寒=凄凉寒冷 清冷=清静阴冷 清幽=清静幽深 贫苦=贫穷困苦 怪异=奇怪惊异 清贫=清寒贫苦 繁琐=繁杂琐碎 繁忙=繁琐忙碌 劳碌=辛劳忙碌 喧闹=喧哗吵闹 富足=富裕满足 愤慨=愤恨感慨 英武=英俊勇武 富贵=富裕显贵 繁重=繁多沉重	城建=城市建设 科研=科学研究 竞选=竞争选举 教辅=教学辅助 报摘=报纸摘要 理念=理性概念 环保=环境保护 邮编=邮政编码 化肥=化学肥料 酒肉=酒水肉食 蔬果=蔬菜水果 禽兽=飞禽走兽 妖魔=妖精魔鬼 城乡=城市乡村 车马=车辆马匹 枪炮=枪支炮弹 官僚=官员僚属 干群=干部群众 哲理=哲学道理 经贸=经济贸易 政经=政治经济 政法=政治法律 文史=文化历史 工农=工人农民 路桥=公路桥梁 粮草=粮秣草料
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在上表中，我们可以发现很多缩略词已经词化而为大家所熟知：领导、修理、禽兽、免费、喧闹、怪异、邮编、互动等。但亦不乏比较少使用的双音节缩合成分：评介、推介、蔬果、欣悦、跃升、教辅等。由上表我们可以推断出新生词项是基于词库现有词的基础，也就是说在标准韵律复合词的基础上进行缩合。如果这种缩合是合法的，也就说明汉语复合词在特定情况下是可以被拆散重组的。我们想知道的下面，我们将就双音动词缩略现象进行分析，以探究起因。

### 三、汉语书面语中动词的重组分析

如果书面语中的双求双的韵律要求使得原有韵律词拆散组合成新的双音韵律词的话，那么我们想知道其动因为何？下面我们来看看几个例子：

- 13) a. 他们正在推介新书。  
 b. ? 他们正在推广介绍新书。
- 14) a. 他们常常一起探讨社会问题。  
 b. ? 他们常常一起探索研讨社会问题。
- 15) a. 这个提案，总统下个月将审阅批准。  
 b. 总统下个月将审批这个提案。  
 c. ? 总统下个月将审阅批准这个提案。

(13a)、(14a)及(15b)之所以合法是因为他们都是双音节动词。(14a)谓语部分虽有四个字，但它没有用作及物动词。(13b)、(14b)及(15c)均不合法。如果从表面上看，他们都是四个字。这似乎告诉我们四个字的谓语动词后不能带宾语。问题是为什么？

### 1. 普通句重音

普通重音 (the default stress; nuclear stress or normal stress) 是指一个句子在无特殊语境情况下所表现出来的重音结构 (参冯 1996; 2009: P78-P85)。在这种情况下，一般是后重。也就是说根据普通重音规则 (16)，

#### 16) 普通重音规则 (Lieberman 1977)

在下面的语串中：

.....[A B]p

如果“P”是一个短语，那么“B”重于“A”。

一个句子中的最后一个短语中的最后一个成分重于其他成分。

根据汉语的特点，冯 (1997; 2009) 指出汉语普通重音的指派者为主要动词 (X)，动词的论元成分为 (Y)。他提出了汉语普通重音规则如下：

#### 17) 汉语普通重音规则：

[.....X Y]s

如果 S 是一个句子，则 Y 重

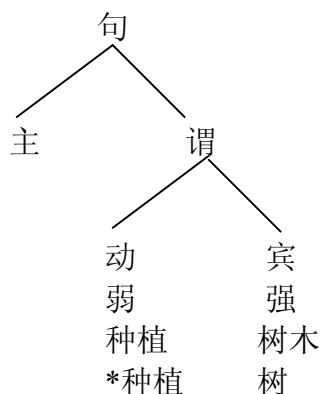
根据汉语这一重音分配规律，我们得知汉语双音节动词的宾语成分若为单音节的话正是有悖于这一规则。

#### 18) a. 种植树木

b. \*种植树

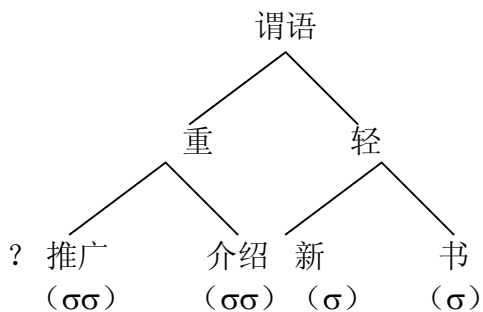
(18b) 之所以不合法是因为谓语动词“种植”为双音节，而其论元成分“树”为单音节，打破了动词弱，宾语强的普通重音分配的规律。如(19)所示：

19)



同理，(13b)、(14b)及(15c)之所以很难被接受，也正是违背了普通重音分配规则。如下图所示：

20) ? 他们正在推广介绍新书。



从(20)我们可以看到谓语部分总共有四个音节，即两个音步，这远远重于其宾语“新书”，使得句普通重音无法指派，占据句核心重音位置的“新书”无法获得句核心重音，因而令人觉得别扭拗口。但韵律和句法的关系究竟为何？韵律到底是如何制约句法的？这是我们不得不考虑的问题。

2. 韵律因子

Liberman (1977) 冯 (1997) 曾指出, 重音的实现一定是有一个平台的, 也就是在一定的结构中实现的。可以这么说, 没有结构也就没有什么重音指派与接受, 更谈不上轻重之别了。这是因为轻重是相对的, 是唇齿相依的关系。冯在 2005 年提出, 汉语由于其音节音步结构的特殊性, 更加明显受制于韵律。冯 (参冯 P137-P232) 就韵律如何制约语法时谈到:

21) 韵律语法 (冯 2005):

如果该语言的计算系统(Computational System)必须在韵律规定的条件下才能合法运作的话, 那么这种语言的语法就是韵律语法, 亦即: 韵律制约下的构词造句法。

(a) \* [σ] → [σσ]<sub>韵律词</sub>

单音节不足构成一个音步因此不成韵律词, 故古语必双而后独立。

(b) [σσ]<sub>韵律词</sub> → [σσ]<sub>韵律词</sub> → [σσ]<sub>韵律词</sub>

韵律词必选韵律词与之搭配, 故书面语“双必合双”而后上口。(如“进行”);

(c) 文章的内容越庄雅, 韵律词的要求就越严格。

(22c) 告诉我们书面语对韵律的要求就愈加严格。比如:

- 22) a. 他们曾经获得过表彰。  
 b. 他们曾获得过表彰。  
 c. ?他们曾获得表彰。  
 d. 他们曾获表彰。

如果说(22a)中“曾经”、“获得”都是双音节韵律词, 动词后还有“过”, 不影响动词向其宾语指派普通重音的话, 那我们想知道为何(22c)没有“过”却还拗口? 如果(22c)中, “曾”增加了谓语动词的重量影像重音指派的话, 那么它为何没有给(22b)中的动词增加分量? 原因其实很简单, 就是(22b)相对来说没有(22d)庄雅, 庄雅度没有达到一定度的话, 那么句子受韵律的制约相对就小些。(22d)最为庄雅, 动词“获得”被拆开重组, 由于“双配双”韵律所致, 前面修饰语“曾经”也同样被拆, 与动词临时重组为一个韵律单位“曾获”来满足“双求双”之原则。这就是说, 在书面语中, 庄雅度的高低决定了受韵律制约的程度。(22c)之所以拗口不仅仅是因为其违背了“双求双”之韵律要求, 而且也违背了音节归属原则(PARSE-SYLL)。

(23) 音节归属原则(McCarthy & Prince 1998):

每一音节必归属于一个音步 (Every syllable belongs to a foot.)

也就是说，“曾”无法与“获”组成韵律上的临时双音词。如果将之与“获”划为一个音步的话，那么“得”势必又被搁置一旁，见(22b)。

- 24) a. 曾获得过表彰。  
       [曾获][得过][表彰]。→ [σσ] [σσ] [σσ]  
       [曾-][获得.过][表彰]。→ [σ-] [σσ.σ] [σσ]
- b. ? 曾[获得][表彰]。→ ? [σ] [σσ] [σσ]  
       ? [曾获]得[表彰]。→ ? [σσ] [σ] [σσ]
- c. [曾经][获得过][表彰]。→ [σσ] [σσ.σ] [σσ]
- d. [曾获][表彰]。→ [σσ] [σσ]

(24c) 虽然动词后边有“过”，但因其庄雅度没有那么多高，可以弱读，与双音动词“获得”构成一个残音步，故不影响核心重音的指派。最为重要的是，每个音节都归属于一个音步，因而强于(24b)。鉴于此，我们可以得出这样一个结论，在庄雅度高的书面语中，被拆音节必须与邻近音节组成一个新的音步。相对而言，庄雅度较低的则不受此限制。

### 3. 韵律词重组

如果书面语中“双求双”是庄雅度的衡量标杆，那么，为了满足这一韵律要求，许多双音节韵律词拆双重组，出现了一韵律“造词”这一现象。

- 25) 拆双重组：在庄雅度高的书面语中“双求双”导致双音节韵律词拆单重组，而所拆韵律词的音节必与邻近音节组成一个新的音步。

根据“双求双”这一原则，加上普通重音指派导致了大量谓语动词的重组。下面我们以(15a-c)为例，来分析一下这一现象。为了方便起见，将(15)例句重现于(26)。

- 26) a. 这个提案，总统上个月已审阅批准。  
       b. 总统上个月已审批这个提案。  
       c. ? ? 总统上个月已审阅批准这个提案。

(26a)动词没有拆合重组之所以合法，是因为其宾语成分在句首动词不用指派核心重音。。而(26b)告诉我们，如果宾语不前置的话，那么双韵律词组合是有

悖于句重音指派的。为了减轻谓语动词的分量，必须将原有韵律词拆散重组。但“双求双”的要求又使得两个双音词各取一半，组合成新的韵律词“审批”。(26c)之所以拗口正是有悖于重音指派原则(17)。

#### 四、结束语

本文通过书面语中动词双音节韵律词重组现象分析，认为标准韵律词在计算系统中(Computational System)受到句法中韵律因子的制约，在句核心重音的干预下，减轻谓语动词部分的重量，从而为宾语获得核心重音扫除障碍。在庄雅度高的书面语中，这种“双求双”(冯 2005)原则导致双音节韵律词拆单重组，所拆韵律词的音节必与邻近音节组成一个新的音步。总之，双音节词汇拆散重组现象进一步证明了冯(1997, 2005)所提出的韵律制约句法及词法的理论。

#### 参考书籍:

- |               |      |  |
|---------------|------|--|
| 冯胜利           | 2005 | 《论汉语书面语的形成与模式》   |
| 冯胜利、阎玲        | 2005 | 《从统计数字看书面语动词短语的韵律要求》   |
| Feng, Shengli | 2005 | Studies on Chinese Prosodic Grammar Peking University Press  |
| Feng, Shengli | 2006 | “Facts and Mechanisms of Prosodic Syntax in Chinese” Chinese Linguistics Workshop, Chicago University        |
| 夏丹 陈瑞琴 肖绍喜    | 2009 | 《多元态势下复合词构词法的语义研究》语言应用研究 现代语文(语言研究版)   |
| 庞勇            | 2008 | 《谈汉语复合词的变构拆分》现代语文(语言研究版 10期)   |
| 张美霞           | 2009 | 《现代汉语缩合构词研究的回顾和展望》和田师范专科学校学报 05 期  |
| 占 勇           | 2009 | 《“词库”与“词法”浅论》广西大学学报(哲学社会科学版) 第31 卷 第3 期 Vol131 Journal of Guangxi University( Philosophy and Social Science) |

## 普通话双音节词的重音模式与词频的关系

杨璐

北京大学

摘要：关于普通话双音节词的重音模式，学术界普遍认为存在“左重”和“右重”两种不同格式。基于这点认识，本文通过实验考察了口语中的出现频率对双音节词的重音模式的影响。证明了口语中出现越频繁的词，其重音模式越倾向于左重。

### 1. 引言

#### 1.1 普通话双音节词重音模式研究综述

普通话的词重音问题，历来是学术界关注的焦点。有些学者认为汉语普通话是不存在词重音的。如高明凯、石安石（1963）。而端木三（1999）虽然认为普通话存在词重音，但由于根据 Fry（1958），辨别重音所依赖的声学特征首先是音调。而汉语中的音高已经用来区分声调了，因此普通话的词重音虽然存在，却无法通过语音实验的方法加以验证。

除此之外，大部分学者的观点还是比较一致的，认为除轻声词外，普通话存在词重音。具体到双音节词，则意味着除轻声词外，双音节词中前后两字存在重度上的差异。

就双音节词重音的位置而言，林茂灿等（1984）通过实验证明，在正常重音条件下，北京话双音节词重音固定在后字上。认为“后字比前字读得重一些，听起来后字比前字突出清晰，这是北京话正常重音的主要现象”。

然而，同时期的大部分学者还是倾向于认为普通话双音节词的重音模式存在“左重”和“右重”之分。厉为民（1981）、殷作炎（1982）都从理论上阐述了这一观点。此后，陆致极（1984）曹剑芬（1995，2008）王韞佳、初敏等（2003，2008）还通过实验证明，无论是从母语者的心理感知还是从声学数据测量上来说，将普通话双音节词的重音模式作“左”、“右”两分是较为合理的。其中陆（1984）的实验结果显示，无论是在单说的情况下，还是在句子中，“重中”的双音节词和“中重”的双音节词都展现出明显的声学数据上的差异。曹（1995，2008）通过合成听辨实验和



声学特性分析，证明了在连续话语中存在“左重”和“右重”两种模式的双音节词，并且“左重”为多数。王等（2003，2008）还从理论上阐述了区分“左重”和“右重”的必要性：即“轻声词不是突然诞生的，而是从右重发展到左重再发展到后音节失去声调的结果，从右重式到轻声词，必然存在中间状态，即左重式”。

王志洁和冯胜利（2006）通过调查询问地道北京人的方法，验证了北京话双音节词中确实存在着重音模式为左重的类型。并且创新地使用了“声调对比法”来寻找左重和右重的最小对立对（即声调搭配一样，但重音模式分别为左重和右重的双音节词对），使调查不受时间、地点的限制，大大扩大了接受考察的双音节词的范围。根据他们的调查结果，在实际语言中除了左重式和右重式以外，还有等重的情况存在的，只是他们将等重式看作是右重式的一个变体而存在。

值得一提的是，王彩豫，王群生（2007）从普通话教学与测试的角度，指出在实际语流中，相当一部分被认定为“右重”的普通话双音节词（包括韵律词），后字有“轻化”的倾向。这样一来，他们从实践出发，通过实验证明了“左重”词的存在及其重要性。

通过以上综述可以看出，将普通话双音节词的重音模式分为“左重”和“右重”两种是为大多数学者普遍接受的。本文的研究正是建立在这一基础之上，考察影响双音节词重音模式的因素之一：词频。

## 1.2 词重音影响因素研究综述

在前人的文献中，共提到或证明了以下几个因素和双音节词重音模式有关：词的内部结构、声调组合、词性、词所处的韵律边界，以及词频。

早在1956年，徐世荣就详细地讨论了词的内部结构对词重音的影响，并且给出了一些规律，如“绝大多数的动宾结构、名词重叠式如‘天天’、重叠式的形容词和副词、带词头的词如‘第一’，都属于‘中重’（左重）格式。”而王彩豫，王群生（2007）的实验结果显示，116个有“轻化”现象的双音节词中，93%是联合关系的复合词。

王韞佳等（2003）和沈倍蕾（2006）先后通过实验发现，前后音节的声调组合对重音感知有显著影响。她们的实验结果也有一定的相似之处，都认为在普通话的四个声调中，高调比低调更容易承载重音。

在词性方面，王彩豫，王群生（2007）的研究结果显示，实词比虚词更容易在语流中变得左重。

王韞佳、初敏等（2003）以连续话语中的双音节词为研究对象，“在没有停顿的韵律边界前，双音节语音词前重的比率远远高于后重的比率；而在停顿前，前重的比率略低于后重的比率”。这就意味着双音节词在句子中所处的韵律边界也会对重音模式产生影响。

相较于以上四种影响词重音的因素，词频对词重音模式的影响是研究得最少也

最不具体的。

厉为民(1981)曾对词重音的影响因素进行理论上的猜测,其中一条就是口语中的常用程度。他指出从左重式双音节词到轻声词,是一个动态的演变过程:当重音在前字时,后字就具备了失去声调变成轻声的条件:“所谓轻声词,就是历史上较早地失去重音的词”、“如果重音大体固定在第一音节,在群众口语中比较常用,有可能演变成新的轻声词”。然而,迄今为止,这一猜测并没有得到实验数据上的支持。也因此,本文立足于承认普通话双音节词有着“左重”和“右重”两种重音模式,希望通过实验考查词频,尤其是词在口语中的出现频率,对双音节词重音模式的影响。

## 2. 实验设计

既然要考察普通话双音节词的重音问题,那么就不得不提轻声。根据魏刚强(2000),普通话中传统意义上的轻声字可以分为调值的轻声和调类的轻声两类。由于调类的轻声字底层无调,永远轻读,因此后字为调类的轻声字的双音节词,其重音模式不受上文所归纳的因素影响,永远读为左重。因此本文认为,影响双音节词重音模式的因素,只是针对前字后字均为底层有调的字的情况而言。这样一来,在选择实验材料时,本文只剔除了那些后字底层无调的双音节词,而将全部后字底层有调的双音节词都纳入我们对重音模式的考察之中。

重音模式作为一种语音现象,是在口语交际中形成的,因此本文从《现代汉语频率词典》中“生活口语中常用的4000个词”中摘录出前100个双音节词,组成高频组。再从“使用频率较低的词”中随机抽取100个双音节词,组成低频组(均不含后字底层无调的双音节词)。

本文的实验原理为,逐一判断这200个双音节词的左重程度,分高频组和低频组进行比较,如果高频组的双音节词的左重程度显著高于低频组的,则说明口语中的出现频率确实会影响双音节词的重音模式。

为了避免词所处的韵律边界会对重音模式产生影响,本文没有采用让发音人将这些双音节词单念出来的方法,而是将每一个双音节词嵌入到句子中,使发音人将整个句子念出。这些句子均为口语中可能发生的,并且不同双音节词在句子中所处的位置是随机的。

发音人为北京人,满人,年龄为23岁,北京大学中文系研究生。对每一个双音节词,使发音人以正常语音念出句子,然后分别以强调该词左重和强调该词右重的方式将该句子再念两遍。

听音人均均为北方方言区人,普通话标准,无方言口音,其中大部分为北京人。对每一个具体的双音节词而言,将发音人所发的强调左重和强调右重的两个句子顺序放给听音人听,然后要求其判断哪一个听起来更自然。前句自然则记左重为1,后句自然则记左重为0。最后统计每一个词的左重得分,分数越高,则该词越倾向

于越左重，或者说左重程度越高。

在以往的研究中，判断重音的方法多为使专业播音人来发音，然后使语音学工作者判断发音人所念的重音模式，但是这样一来，有两个风险。

其一是，即使我们假设语音工作者对重音的判断是准确无误的，但是根据作者自己的体验，普通话的大部分词重音是不那么清晰、不那么容易判断的，即使对于语音专业的学生来说依然如此，尤其是当实验材料数量巨大时，听音人很容易产生听觉疲劳，以至于到最后根本听不出重音模式了，那么这时的判断往往会加入主观判断，而对于知悉该实验的实验目的的语音工作者来说，加入主观判断会导致最终的结果是有偏的。例如，知悉普通话双音节词的基本重音模式是右重的听音人，在分辨不出一个词是左重还是右重的时候，为了保险起见，更加倾向于选择右重。

其二是，这样做实验，最终得到的重音模式是该发音人的个体的重音模式，所以势必还有一个假设就是该发音人的发音可以代表全体北京人的发音。即使该发音人为专业播音员，这条假设也依然是有风险的。我认为，与其得到一个所谓的“标准”发音人所发的重音模式，倒不如得到多个普通北京人认为的重音模式。

因此本实验采用一个有语言学背景的发音人（北京人）来发音，分别以左重和右重的方式将含有该双音节词的负载句念出来，有语言学背景保证了其可以理解左重右重的含义，并可以控制自己所发句子中双音节词的重音模式，这样发音人所说的重音模式不带个人主观色彩，使听音人判断自然度，得到的结果是该听音人认为的重音模式，而非发音人的；是北京人则保证了其所念句子除该双音节词以外部分的自然度，以保证听音人在判断句子自然度时，其实判断的就是该双音节词的重音模式，而不是句子其它部分的自然度。这样一来，我们虽然也只找了一个发音人，但是其所说的重音模式并不带有个人主观色彩，我们使听音人判断以哪种方式念出来的句子听起来更自然，得到的结果是该听音人认为的重音模式，这样，只要增加听音人的数目，得到的结果就会是大样本下无偏的。

本次实验由于规模所限，听音人只有 9 人。但是，以比较自然度的方法来判断重音，就无需听音人是语音专业的学生。这一方面使扩大样本数量成为可能，另一方面也避免了语音知识对其判断的影响。

分别统计“口语中出现频率最高的 100 个词”和“使用频率较低的词”的左重程度总数值。比较两者，若“口语中出现频率最高的 100 个词”中，该数值明显大于“使用频率较低的词”，则表示词频对词的左重程度有正影响。

### 3. 实验数据分析

口语中出现频率最高的 100 个词中，去掉底层无调式的轻声词以及儿化词，实际得到 77 个双音节词。使用频率较低的 100 个词中，去掉底层无调的轻声词及口语中几乎不使用的词（如“塔崩”），实际得到 87 个双音节词。

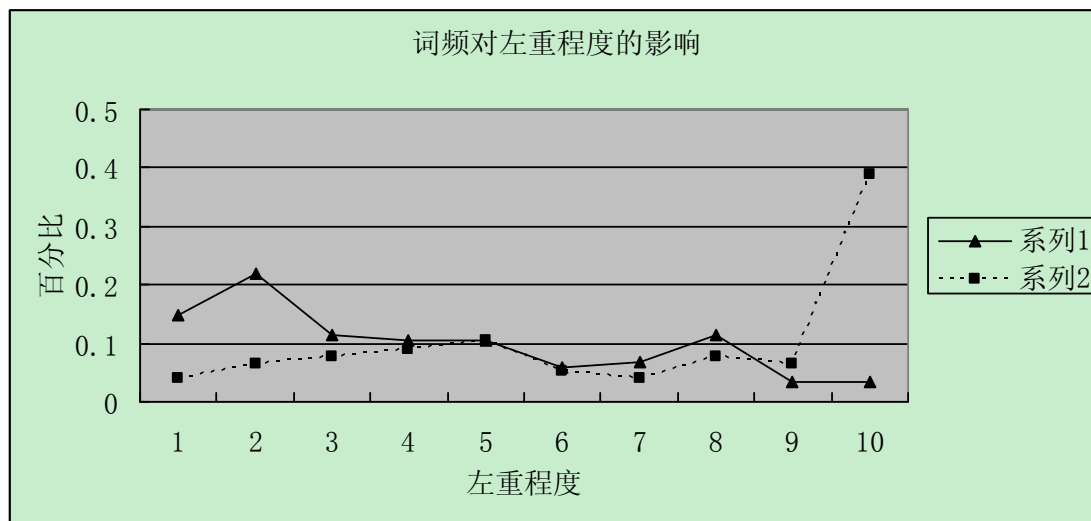
听音人共 9 人，使其从两种念法的句子（目标双音节词分别为左重和右重，句

子中其它成分的重音不做改变)中选择听上去更自然的。统计时,有一人选择左重自然则给该双音节词加一分,最后统计 77+87 共 164 个双音节词的得分,得到下表:  
表 1: 左重程度与词频的关系

左重程度		0	1	2	3	4	5	6	7	8	9
高频组	个数	3	5	6	7	8	4	3	6	5	30
	百分比 (%)	3.9	6.5	7.8	9.1	10.4	5.2	3.9	7.8	6.5	39.0
低频组	个数	13	19	10	9	9	5	6	10	3	2
	百分比 (%)	14.9	21.8	11.5	10.3	10.3	5.7	6.9	11.5	3.4	3.4

将上表中的内容绘制成图如下:

图 1: 词频对左重程度的影响



其中方块虚线为口语中最常用的 77 个双音节词在每个左重程度上的分布;三角实线为出现频率较低的 87 个双音节词在每个左重程度上的分布。

从表、图中可以看出,普通话双音节词的左重程度确实是连续分布的。对于相当数量的词来说,普通话母语者并不存在对其左重还是右重的一致判断。这些词在表和图中表现为左重程度为 3、4、5、6 的这些,3、4、5、6 这些左重程度的存在说明,即使同时普通话母语者,在面临同一个句子时,有人认为特定句中(固定韵律边界)特定双音节词念为左重更舒服,有人则偏好右重。这些词无论在高频词还是低频词中,都有大约 30%。

同时，我们可以观察到，高频词中左重程度大于 6 的双音节词所占的百分比远远高于低频词中的情况。更有接近 40% 的词左重程度为 9，即全部听音人都认为该词在特定句子中念为左重更舒服。说明更多的人倾向于将更多的高频双音节词念为左重。同时，低频词中左重程度小于 3 的双音节词所占的百分比高于高频词中的情况。说明更多的人倾向于将更多的低频双音节词念为右重。

由此我们可以描述图中两条曲线的走向，在左重程度较低（0、1、2）时，低频词的数量多于高频词，表现为三角实线的曲线高于方块虚线的曲线；在左重程度适中（3、4、5、6）时，低频词和高频词的数量是相等的，表现为两条曲线的重叠；在左重程度较高（7、8、9）时，高频词的数量渐渐多于低频词的数量，同时在左重程度从 8 升到 9 时，高频词的数量有一个骤然增加，表现为方块虚线的曲线高于三角实线的曲线。

由此我们可以得出结论，口语中出现频率高的双音节词更倾向于左重。口语中出现频率低的双音节词倾向于右重。

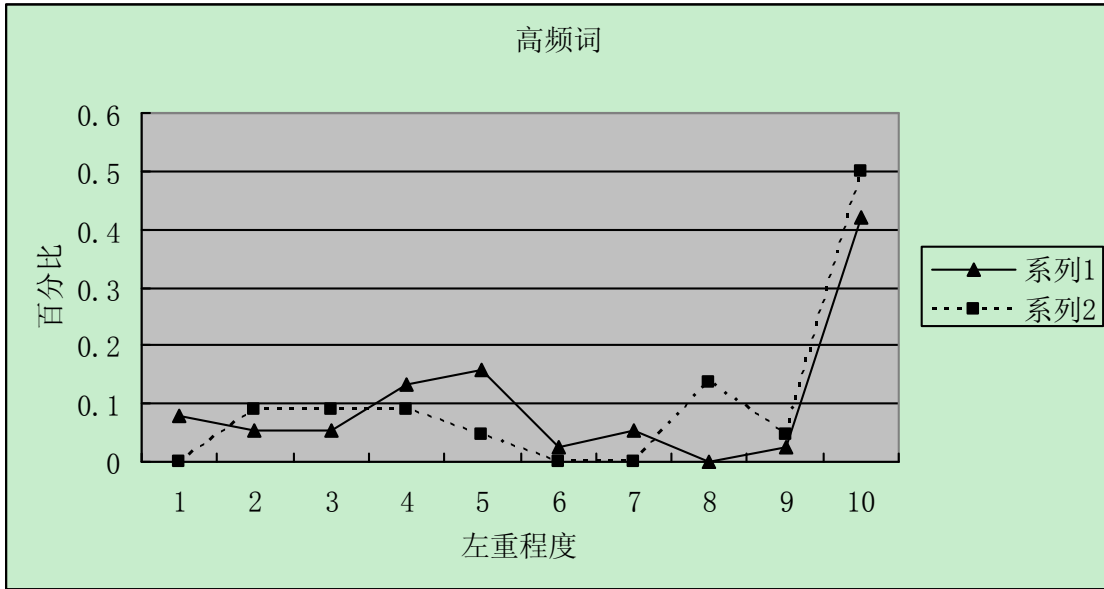
但是，这种重音倾向是否受词性的影响？根据王彩豫，王群生（2007）的研究，词性也是影响一个双音节词的重音模式的有效因素，那么在本实验中是否有所体现呢？为此我们统计了这 164 个双音节词的词性，得到下表：

表 2：词性

	名词	动词	形容词	副词	连词	代词
高频词 (%)	38(49.4)	22(28.6)	2 (2.6)	5 (6.5)	4 (5.2)	6 (7.8)
低频词 (%)	50(57.5)	26(29.9)	10 (11.5)	1 (1.1)	0 (0)	0 (0)

从上表中可以看出，词频和词性是有一定相关性的。高频词中形容词所占的比例较小，副词、连词、代词所占的比例较大。由于副词、连词、代词数量较少，不具有统计学上的意义，因此只比较名词、动词和形容词。下图为高频词中名词内部和动词内部（形容词个数太少，没有进行统计）各个左重程度上的词所占的百分比。

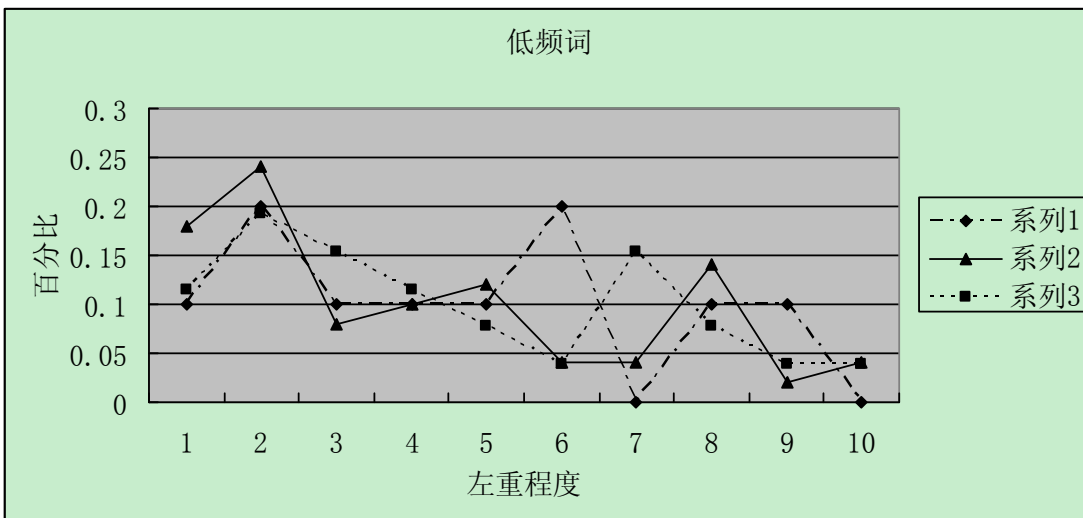
图 2：高频词



其中三角实线为名词，方块虚线为动词。图中两条曲线在走势上没有太大分别。且和高频词整体曲线的走势也没有太大区别。

下图为低频词中名词内部、动词内部和形容词内部各个左重程度上的词所占的百分比：

图 3：低频词



其中菱形虚实线为形容词，三角实线为名词，方块虚线为动词。图中曲线虽然多处有波动，但是整体走势依然接近，并且和前面图中低频词整体曲线保持一致。

由此可以看出，就本实验而言，没有发现词性对双音节词左重程度的影响。但由于本实验所考察的词性仅限于实词，因此本文的结论实质上支持了王彩豫，王群生（2007）的研究结果：尽管实词比虚词更容易左重，但是在实词内部，词性上的差别对重音模式影响不大。

#### 4. 结论

本文分别对普通话口语中常用的双音节词和使用频率较低的双音节词进行了重音模式的实验。实验结果显示，高频词中左重程度较高的词所占的比例要明显高于低频词中，同时低频词中左重程度较低的词所占的比例亦明显高于高频词中。因此我们可以得出结论，词的使用频率对双音节词的左重程度有正向影响。在其它条件相同时，词的使用频率越高，越倾向于左重。

同时，本文的实验结果并不支持词性对双音节词的左重程度有影响这一假设。

#### 5. 参考文献

- Fry, D. B. 1958. Experiments in the Perception of Stress, Language and Speech, 1:126-152
- 曹剑芬, 1995, 连读变调与轻重对立, 《中国语文》第4期
- 曹剑芬, 2008, 汉语普通话词重音问题再探, 《南大语言学(第三编)》, 北京: 商务印书馆
- 端木三, 1999, 重音理论和汉语的词长选择, 《中国语文》第4期
- 高名凯, 石安石, 1963, 《语言学概论》, 北京: 中华书局
- 厉为民, 1981, 试论轻声和重音, 《中国语文》第1期
- 林茂灿, 颜景助, 孙国华, 1984, 北京话两字组正常重音的初步试验, 《方言》, 第1期
- 陆致极, 1984, 普通话双音词“重中”式和“中重”式声学性质初探, 《汉语学习》, 第6期
- 沈倍蕾, 2006, 普通话双音节非轻声词的轻重格式研究, 华东师范大学硕士毕业论文
- 王彩豫, 王群生, 2007, 论普通话双音节词语的“轻化”现象, 《汉语学报》, 第3期
- 王韞佳、初敏、贺琳、冯勇强, 2003, 连续话语中双音节韵律词的重音感知, 《声学学报》第28卷第6期
- 王韞佳, 2008, 关于普通话词重音的若干问题, 《中国语音学报(第1辑)》, 商务印书馆

杨：普通话双音节词

王志洁，冯胜利，2006，声调对比法与北京话双音组的重音类型，《语言科学》第1期

魏刚强，2000，调值的轻声和调类的轻声，《方言》第1期

现代汉语频率词典，1985，北京：北京语言大学

徐世荣，1956，双音缀词的重音规律，《中国语文》第2期

殷作炎，1982，关于普通话双音常用词轻重音的初步考察，《中国语文》第3期



## Testing the Allomorph Selection Hypothesis in Taiwanese Tone Sandhi

Szu-wei Chen, James Myers and Jane Tsay  
*National Chung Cheng University*

This study examines Taiwanese tone sandhi, which is hypothesized here as a process of choosing between two allomorphs that are both listed in the lexicon. A production experiment was designed to test this hypothesis. Effects of age group, allomorph frequency, and positions of the morpheme were examined in the experiment. The results showed that (1) older speakers had significantly higher accuracy rate than younger ones, (2) Taiwanese TTS production was significantly influenced by allomorph frequency even with morpheme frequency factored out, (3) for young speakers, the allomorph frequency effect was modulated by the position of the target item, (4) a majority of the tone production errors were allomorph selection errors, (5) there was no consistent pattern in productivity across the five tone categories.

### 1. Introduction

Taiwanese Tone Sandhi (TTS) has been a challenging issue in both rule-based analyses (Wang 1967, Yip 1980, Tsay 1994, Chen 2000) and constraint-ranking analyses (Moreton, 2004). Such grammar-based analyses have been strongly criticized by several researchers as lacking psychological evidence (Hsieh 1970, 1975, 1976, Wang 1995). In this paper, a short review on Taiwanese Tone Sandhi is first introduced, followed by some crucial previous research on this issue. Then, a production experiment is described to test an alternative lexicon-based hypothesis for Taiwanese Tone Sandhi.

#### 1.1 Taiwanese Tone Sandhi

Taiwanese is a branch of Southern Min Chinese spoken in Taiwan, also known as Minnan, closely related to the Xiamen (Amoy) dialect. Over seventy percent of people in Taiwan speak Taiwanese as their first or second language (Huang 1993). It has seven lexical tones, including five long tones and two short ones, as shown in **Table 1**. Tone 4 and Tone 8 are short tones ending with unreleased voiceless stops and thus called checked tones. It should be noted that almost all morphemes in Taiwanese are monosyllabic and carrying a lexical tone. TTS is a tone alternation between the syntactically-defined phrase-final (juncture) and non-final (context) forms of a morpheme, where juncture tones occur at the right edge of an XP (Chen 1987, Lin

1994). For example, when two Tone 2 morphemes *cui*<sup>53</sup> “water” and *ko*<sup>53</sup> “fruit” are combined to form a word *cui*<sup>55</sup> *ko*<sup>53</sup> “fruit”, the morpheme *cui*<sup>53</sup> “water” will have a context tone *cui*<sup>55</sup>. Similarly, when *cui*<sup>55</sup> *ko*<sup>53</sup> “fruit” is followed by another morpheme *tiam*<sup>21</sup> “store” to form *cui*<sup>55</sup> *ko*<sup>55</sup> *tiam*<sup>21</sup> “fruit store”, *ko*<sup>53</sup> will have a context tone *ko*<sup>55</sup>.

### Table 1. Taiwanese Tone Inventories<sup>1</sup>

Underlined tones (T4 and T8) are checked tones.

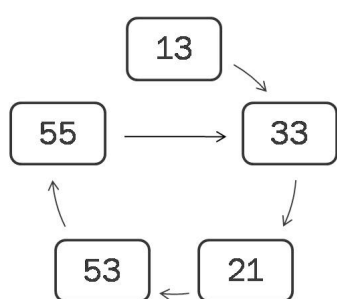
The tonal values on juncture and context positions are based on a 5-point scale.

Tone	Morpheme	Juncture	Context
1. <u>Ying Ping</u>	/si/ ‘poem’ 詩	55 讀詩	33 詩文
2. <u>Ying Shang</u>	/si/ ‘death’ 死	53 驚死	55 死人
3. <u>Yin Qu</u>	/si/ ‘four’ 匹	21 第四	53 四本
4. <u>Yin Ru</u>	/sik/ ‘color’ 色	3 白色	53 色彩
5. <u>Yang Ping</u>	/si/ ‘time’ 時	13 當時	33 時間
6. <u>Yang Shang</u>	Neutralized with Tone 7		
7. <u>Yang Qu</u>	/si/ ‘temple’ 寺		21 寺鐘

1 熟識

The five non-checked tones participate in a set of five alternations. TTS does not create new tones and the alternations form a tone circle (Bodman 1955, Wang 1967), as shown in **Figure 1**. In rule-based analyses, juncture tones become context tones. In this study, only the five non-checked tones were included, because we attempted to control other nuisance variables as much as possible. First, checked tones have much lower morpheme frequency than the long tones, and there are some dialectal variations (Hsieh, 1970). Second, since checked tones are not in the tone circle, their tone sandhi patterns are different. Nonetheless, this is not intended to imply that the hypothesis we will test would not also apply to checked tones.

<sup>1</sup> The tonal system is based on the Taiwan Southern Min Pinyin System announced by Ministry of Education (2008), Taiwan.



## Tone sandhi rules

- a. 55 → 33
- b. 13 → 33
- c. 53 → 55
- d. 21 → 53
- e. 33 → 21

Figure 1. Taiwanese tone circle

## 1.2 Previous research on TTS

Hsieh (1970) first questioned the psychological reality of the sandhi rules. He conducted an experiment to test Taiwanese speakers' ability of producing tone sandhi in disyllabic accidental gaps. His results showed that only actually occurring morphemes received 100% correct tone productions whereas other types of nonce forms showed only 10% to 30% accuracy rates. He claimed that this difference was due to the fact that there were no sandhi forms of the accidental gaps stored in speakers' lexicon. He therefore proposed that the two morphophonemic alternants of each single morpheme were both listed in the lexicon and hence were part of the speakers' knowledge.

Hsieh (1975) further confirmed the role of lexically stored tonal allomorphs in TTS production by both children and adults. His first experiment examined three children's tone sandhi production on the stimuli of trisyllabic real and artificial compounds (#XY+Z#). For example, the child was given the name of the fruit #kin<sup>33</sup>cio<sup>55</sup># "banana", and then he or she was asked to offer the name of the store, that is, #kin<sup>33</sup>cio<sup>33</sup>+tiam<sup>21</sup># "banana store", or given the name of the store, the child had to offer the name of the fruit. The result showed that the accuracy rates were very different across speakers whether compared across all four tests (real word/nonce word × forward/backward operation), in a particular test, or even within a tone category. His second experiment on five adults Taiwanese speakers also presented similar results. Different items governed by the same rule may receive different treatments from the same speaker. Even though two items may receive the same types of responses, the rate of rule application for them may differ greatly. Moreover, for the same test item or the same category, various speakers may react with different degrees of accuracy. However, regardless of this great variability

across speakers and different items, one important finding in his study was that for almost every speaker, their rates of applying rules a (55→33) and b (13→33) in **Figure 1** were higher than others rules such as c (53→55), d (21→55) and e (33→21). Based on a computerized Chinese dialectological database, Hsieh (1975) found that the high level tone (55) and the rising tone (35) are the most frequent ones in the distribution of Xiamen syllables among the five long tones. Therefore, he argued that a speaker who had different degrees of lexical familiarity with those tone categories might have different performance. The power of association or analogical power provided a better explanation than variable rules. Since speakers relied on actual words in their lexicon for the association, the higher the frequency of a tone category, the easier an artificial member of this category can be associated with the actual items. In Experiment 3, a native speaker of Taiwanese who moved to the U.S. when she was eleven was tested with the same stimuli in the Experiment 1. The only difference was she went through three trials, which took place at different times. Her scores in all tests improved progressively through trial 1 to trial 3. Hsieh (1975) thus concluded that in the process of learning, both children and adults treated each allomorph of a new morpheme in natural acquisition as an independent item rather than a token of a category.

Wang (1995) also agreed that tone sandhi rules had a certain degree of productivity, but might apply only to familiar lexical items. Therefore, he included lexical familiarity as one of the independent variables. A longitudinal experiment was conducted to investigate tone sandhi behaviors of Taiwanese native speakers. He used mostly nonwords composed of accidental phonotactic gaps, not tonotactic gaps, which when substituted with another tone, could become a real word. Those words and their pretended meanings were taught to the participants in random order in the first meeting. In the following five meetings, the targets were reviewed and carrier sentences were used to elicit speakers' production in both context form and juncture form. His results showed that the speakers' rule-application rates were higher at the end of the experiment than they were at the beginning. The overall productivity was over 50%, though the range of correct responses was rather large. He questioned if those tone sandhi rules really defined competence as the generative linguists assume, since the native speakers' performance demonstrated such a great variability and individual differences were also great across tones. He argued that a simple lexicon was built at the expense of complex psychological operation, by which he meant people's ability of analogy. Speakers were not easily able to allocate a new item in the phonological system, but after a while it was analogized to one of the patterns in the system and found its relations with other items. Thus, TTS may be an analogical chain, rather than a system of rule applications.

Building on Hsieh (1970, 1975) and Wang (1995), Tsay & Myers (1996) argued that Taiwanese Tone Sandhi is a case of Lexical Phrasal Phonology, based on its sensitivity to syntactic structure and its lexical properties. First, following Chen (1987) and Lin (1994), the tone group is syntactically defined, rather than prosodically defined. Secondly, TTS has three lexical properties: lexical idiosyncrasies, semi-productivity, and categoricity, the third point being supported by phonetic studies (Tsay, Charles-Luce & Guo 1999, Tsay & Myers 2001, Myers & Tsay 2008). Moreover, since the explanatory power of previously proposed TTS rules is very limited, they proposed that the only lexical process in TTS is the choosing between two allomorphs that are both listed in the lexicon.

Zhang, Lai & Turnbull-Sailor (2006) proposed a somewhat different view of the TTS productions, arguing that the productivity of TTS rules was affected by phonetics. Following Hsieh (1970)'s experimental design, they constructed five types of disyllabic words. First, they predicted tone sandhis within the tone circle were unproductive whereas phonotactically driven 13 → 33, the one outside the circle, was productive. Secondly, they predicted that productivity within the tone circle was subject to a phonetic effect, so that productivity should be the highest when the sandhi changes a longer tone into a shorter tone, since syllables in context position are phonetically shorter than in juncture position. Thus, the shorter tones 21 and 51 should be the preferred sandhi tones. Their results supported their predictions, except that the phonotactically driven rule (13→33) was not as productive as expected. Zhang et al. (2010) replicated and extended these basic findings, and proposed a formal model that had not only a phonetic component for what they see as the universally motivated aspects of TTS, but also allomorph-specific constraints to capture the well-established lexical idiosyncrasy and lack of full productivity of TTS.

Although these studies had somewhat different aims, all explicitly tested and confirmed the role of lexical familiarity in TTS production, and they also agreed that great variability existed across speakers and across different tonal categories. In general, Taiwanese tone sandhi rules seem largely unproductive when tested on nonce words. This makes the lexical nature of TTS a better explanation than rule application. Another piece of evidence is that the speakers in TTS production studies only seem to have two options when producing nonce forms, juncture or context tones; non-sandhi errors are very rare. According to Hsieh (1970, 1975) and Wang (1995), most of the incorrect responses were due to the non-application of rules; that is, speakers produced the juncture tone instead of its context counterpart. Similarly, Zhang et al. (2006) reported only 11.5% of nonce words in the tone circle had the correct sandhi; 82.9% had non-applications. This showed that only 5.6% were other tonal error types. The observation that speakers only have these two choices when producing tones is consistent with the allomorph selection hypothesis.

This hypothesis also predicts that TTS production should be affected by allomorph frequency. The lexical frequency reflects the amount of prior experience that a native speaker has had with a lexical element, and it is well established that this factor affects

the retrieval of lexical items from memory (Phillips 1984, Losiewicz 1992, Jescheniak & Levelt 1994, Myers & Guy 1997, Bybee 2001). Although this concept is usually discussed with relation to words or morphemes, the unit relevant to the allomorph selection hypothesis is the allomorph. Given that there are two tonal allomorphs for each morpheme in Taiwanese, morpheme frequency is the sum of juncture allomorph frequency and context allomorph frequency. We thus predict that accuracy in TTS production will be higher for allomorphs of higher frequency. For example, if morpheme X has higher context allomorph frequency than morpheme Y, we predict that TTS production will be more accurate in the nonce compound XZ than in YZ. In our experiment, allomorph and morpheme frequency estimates were based on the Taiwanese Spoken Corpus (Myers & Tsay 2010) of National Chung Cheng University, which is the largest available corpus of spontaneous conversations in Taiwanese, transcribed from radio talk shows in Southern Taiwan. As of May 2010, it contained about 607,000 word tokens.

Finally, based on Taiwanese tone sandhi's lexical nature and the effects of lexical experience on TTS observed by Hsieh (1975) and Wang (1995), we expect that older speakers, who have processed TTS more often, will have higher accuracy rate in tone sandhi production compared with younger speakers, though many other factors may also affect cross-age differences besides lexical experience.

Summarizing the above discussion, our predictions for Taiwanese native speakers' tone production are as follows:

1. Subjects will tend to produce more errors for lower allomorph frequency items and vice versa.
2. Older speakers should have significantly better performance than younger speakers in TTS production.
3. Most of the tone production errors should be allomorph selection errors if all the other phonetic environments are controlled. Other errors may be lexical retrieval errors or errors at the phonetic implementation level.

## **2. Method**

### **2.1 Participants**

Two groups of 12 Taiwanese speakers each were recruited and paid for their participation. One group of speakers (1 male, 11 females) were younger, with an average age of 21 (range: 19-28). The other group of speakers (6 males, 6 females) were older, with an average age of 51 (range: 43-58). None of them reported having any speech or hearing disorders. All of them had to pass a proficiency pretest, in which they had to listen to auditory instructions in Taiwanese, read Chinese characters, and produce sentences in Taiwanese. If the experimenter thought the participant could not produce Taiwanese sentences fluently and correctly, then he or she would be removed from the production task. The purpose of this proficiency pretest was to make sure that the speakers had reached a certain level of proficiency.

## 2.2 Stimuli

Our wordlist was based on Taiwanese Spoken Corpus at National Chung Cheng University (Myers & Tsay 2010). The pseudowords in our wordlists were composed of two actually occurring morphemes in Taiwanese. The first morpheme was always /ti<sup>55</sup>/ “pig” followed by our target morphemes. To get both context and juncture positions in a sentence, we used the carrier sentence [gua<sup>55</sup> be<sup>55</sup> khi<sup>53</sup> XY + Z # be<sup>55</sup> XY] “I am going to the XY shop to buy XY”. **Table 2** displays two sets of the target morphemes. These two types of stimuli were based on token allomorph frequency in the corpus: (i) juncture-preferring morpheme set, in which each morpheme had higher juncture allomorph frequency than its context counterpart, as shown in **Table 2a**, and (ii) context-preferring morpheme set, in which each morpheme had lower juncture allomorph frequency than its context counterpart, as shown in **Table 2b**. For instance, since the Tone 1 morpheme *chia* “car” occurs more often in juncture position (e.g. *hue<sup>55</sup> chia<sup>55</sup>* “train (fire-car)”, *sai<sup>55</sup> chia<sup>55</sup>* “driving a car”) than in context position in the corpus, it belongs to the juncture-preferring morpheme group. The confounding between morpheme and allomorph frequency seen in the table is inherent to the Taiwanese lexicon, but can be teased apart statistically, as explained below.

**Table 2** Two sets of target morphemes and the carrier sentence

### a. Juncture-preferring morpheme targets

Tone category	Juncture preferring	Gloss	Juncture Frequency	Context frequency	Morpheme Frequency
1	chia (車)	“car”	299	53	352
2	chiu (手)	“hand”	187	76	263
3	chiunn (唱)	“sing”	359	144	503
5	cinn (錢)	“money”	402	11	413
7	hun (份)	“one share”	209	18	227

### b. Context-preferring morpheme targets

Tone category	Context preferring	Gloss	Juncture frequency	Context frequency	Morpheme Frequency
1	chiu (秋)	“autumn”	18	22	40
2	hue (火)	“fire”	53	86	139
3	siu (秀)	“elegant”	5	14	19
5	hue (回)	“return”	43	49	92
7	chiu (樹)	“tree”	2	42	44

X= ti<sup>55</sup> “pig”

Y= target morpheme in our wordlists

Z= tiam<sup>21</sup> “store, shop”

Carrier sentence	[ gua <sup>55</sup> be <sup>55</sup> khi <sup>53</sup> <u>XY</u> +Z # be <sup>55</sup> <u>XY</u> ]
Gloss	I am going to the <u>XY shop</u> to buy <u>XY</u> .

Our stimuli were presented in written form; thus, a pre-test was run to test the transparency of Chinese characters. Although Taiwanese native speakers may have little experience reading Chinese characters as their orthography, auditory forms of stimuli involve homophones and thus may not trigger the right lexical entry. In total, our stimuli included ten target morphemes with five different tones in each group and ten fillers of the same tones. There were three main nuisance variables we intended to control when selecting the target morphemes: (1) their Chinese character transparency, (2) their phonetic context, and (3) their morpheme frequency. The first two seem reasonably well controlled in our materials, and we show below how we factored out the third in our statistical analysis.

### 2.3 Elicitation procedure

Participants sat in front of a computer with 17-in. monitor in a sound-treated phonetics lab of the Institute of Linguistics at National Chung Cheng University. After they passed the proficiency test, they moved on to do the production experiment. The whole process (proficiency test + production experiment) took about 25 minutes. There were three sessions in the production experiment: one practice trial, the main production task, and a post-test, each with a short break in between. The practice trial was used to familiarize participants with the procedure that would appear later in the production task; the wordlist used was different from that in the production task. During the break, the experimenter would check if they had problems with the procedure. In the production task, a disyllabic word consisting of two actually occurring morphemes was visually presented and subjects had to put it into the carrier sentence and read out the whole sentence. For example, when a disyllabic word tua<sup>21</sup> cun<sup>13</sup> “big ship” was presented, subjects had to read out loud [gua<sup>55</sup> be<sup>55</sup> khi<sup>53</sup> tua<sup>21</sup> cun<sup>33</sup> tiam<sup>21</sup> be<sup>55</sup> tua<sup>21</sup> cun<sup>13</sup>]. Finally, a post-test was conducted to compare the F<sub>0</sub> of the actual occurring morpheme when in the real and the pseudo word and to check if the speaker knew how to pronounce the actually occurring morpheme. These twenty pseudo words (10 target words + 10 fillers) were randomized and presented on the screen to elicit the speakers’ production. There were four repetitions divided into two blocks with a short break in between. The stimuli were shown on the computer screen one by one after an affixation cross with about 5000 ms interval.

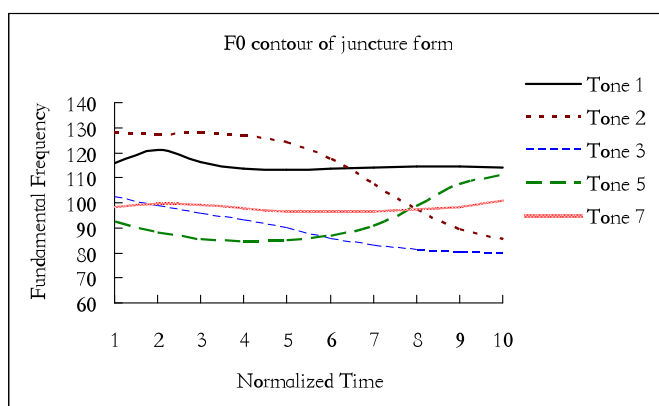
### 2.4 Recording and F0 extraction



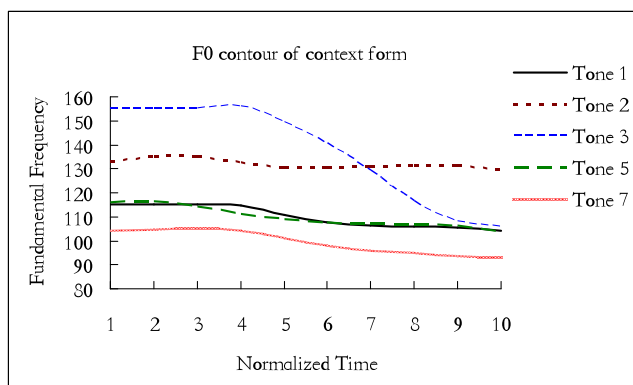
E-prime (Schneider, Eschman & Zuccolotto 2002) was used to present the stimuli and record productions, which were directly digitized into the computer. A microphone (MUD-326) was placed about 5-10 inches in front of the speaker's lip. 90 sentences were recorded for each speaker, including 40 target pseudo word sentences, 40 filler sentences and 10 sentences with real words in the post-test. In each target sentence, two tokens (one context and one juncture form) were included in our analysis. In total, 1920 target tokens (24 participants  $\times$  10 target morphemes  $\times$  4 repetitions  $\times$  2 positions) were included in our analyses. The extraction of  $F_0$  contours was done using a script (Xu, 2009) in Praat (Boersma & Weenink, 2009), which generated a time-normalized mean  $F_0$  contour, mean  $F_0$ , maximum and minimum  $F_0$  and duration of each syllable.

### 3. Data Analysis and Results

The only dependent variable in this study was tone production accuracy, that is, whether subjects produced the correct tone or not. Productions were transcribed by a native speaker using the time-normalized  $F_0$  contours and mean  $F_0$  of all the target items as references. Whenever the transcriber was not entirely sure about which tone category the target item belonged to, she referred to the mean  $F_0$  or  $F_0$  contours of the same subject's production in real words. **Figure 2** and **Figure 3** display the time-normalized  $F_0$  contours of five juncture and context tones by one of the older speakers. As **Figure 3** shows, both Tone 1 and Tone 5 were produced as a mid-level tone, since there is no rising tone in the context position. In our data, each age group had 960 tokens (12 subjects  $\times$  10 target morphemes  $\times$  4 repetitions  $\times$  2 positions). The older speakers had 4 recording errors, while the younger speakers had 12 recording errors, which were excluded from the valid tokens. The recording errors were mainly caused by the delay of speakers' production, since there were only 5000 ms to record their production.



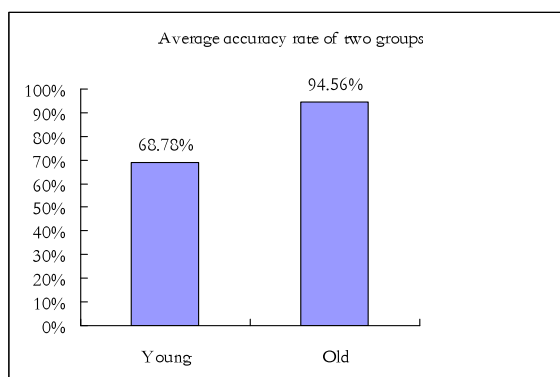
**Figure 2.** Time-normalized mean  $F_0$  contour of five juncture tones produced by one of the speakers in the old generation group. Each curve is an average of 4 repetitions.



**Figure 3.** Time-normalized mean  $F_0$  contour of five context tones produced by one of the speakers in the old generation group. Each curve is an average of 4 repetitions.

### 3.1 Accuracy rate and error type

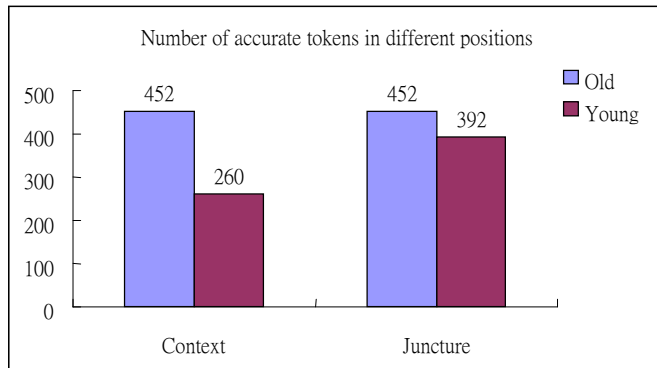
**Figure 4** shows the average accuracy rates of two different generations. The old generation has an overall accuracy rate of 94.56%, ranging from 87.34% to 100% across speakers, while the young generation has only 68.78%, ranging from 48.75% to 87.75%. The denominators are the valid tokens, which are total tokens minus recording errors.



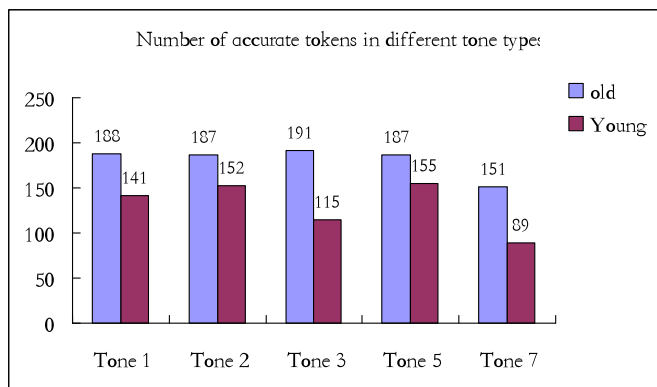
**Figure 4.** Average accuracy rates of tone sandhi production by old and young generation

**Figure 5** displays the number of accurate tokens in both context and juncture positions produced by old and young speakers. Older speakers did well in both positions, with 452 accurate tokens in each position, but younger speakers had worse performance, with 260 accurate tokens in the context position and 392 ones in the juncture position.

**Figure 6** illustrates the number of accurate tokens in five non-checked tones by the old and young speakers. The order on the number of accurate tokens from high to low for older speakers is  $T3 > T1 > T2 = T5 > T7$ , while it is  $T5 > T2 > T1 > T3 > T7$  for younger speakers. There is no consistent pattern across two groups except that T7 had the lowest accuracy rate.

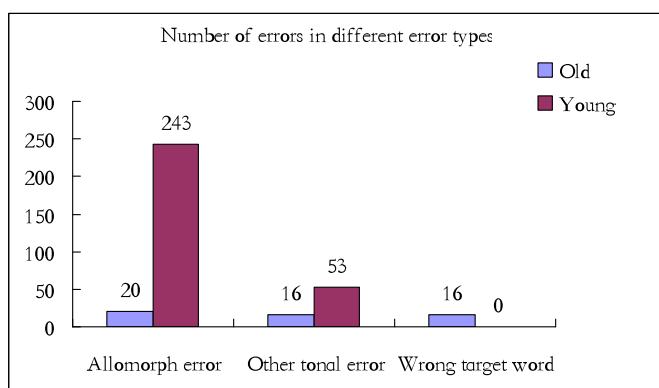


**Figure 5.** Number of accurate tokens in different positions by older and younger speakers



**Figure 6.** Number of accurate tokens in five non-checked tones by older and younger speakers

Most of the speakers' errors were allomorph errors, that is, substituting context tones with juncture ones or vice versa. As shown in **Figure 7**, younger speakers made 243 allomorph errors and 53 other tonal errors out of 948 valid tokens, whereas older speakers had only 20 allomorph errors and 16 other tonal errors out of 956 valid tokens. 16 error tokens produced by older speakers belonged to the wrong target word type, which means speakers did produce both context and juncture forms, but of words different from the target ones. For example, the target Tone 7 morpheme was pronounced as Tone 1 morpheme, but speakers changed the context and juncture form consistently. This may be an effect of orthography; our target morpheme *hun*<sup>33</sup> “份” should be pronounced as Tone 7 while another similar character *hun*<sup>55</sup> “分” should be pronounced as Tone 1. Other tonal errors were those where the target tone was pronounced as a tone other than its allomorph. For example, the context position of Tone 1 should be mid level tone. When it was pronounced as a falling, rising, or low tone, then it was regarded as other tonal error. When it was pronounced as a high level tone, then it was an allomorph error.



**Figure 7.** Number of tonal errors produced by 24 speakers. There are 348 error tokens out of 1904 valid tokens in total.

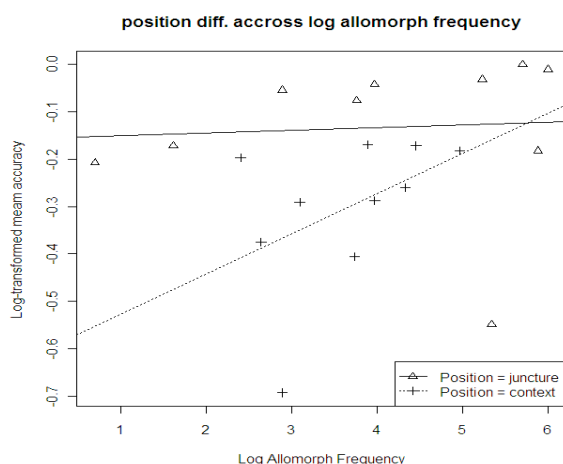
### 3.2 Statistical analyses

The two key factors in the experimental design were allomorph frequency and age group. Since frequency distributions are skewed, we took the logarithm to make them more normally distributed. Our data were analyzed by mixed effects logistic regression, a statistical technique that can handle both categorical data (accuracy as a binary measure) and repeated measures at the same time (Agresti, Booth, Hobert & Caffo 2000). The free statistical software R (R Development Core Team 2006) and its additional package lme4 (Bates & Sarkar 2007) were used to run the test. Our models analyzed the effect on accuracy of age group, allomorph frequency, morpheme frequency, position, and the interactions among them. As noted earlier, allomorph and morpheme frequency are correlated in the Taiwanese lexicon. To make sure these two values could still be statistically distinguished, we computed the condition number  $k$  (Baayen 2008), where values of 30 or higher indicate serious confounding. In our data, the condition number of allomorph and morpheme frequency was merely  $k=13.9$ , which implies that these two factors were not seriously confounded. Since mixed effects regression has the advantage of being able to deal with more than one random variable, separate by-speaker and by-speaker-and-item analyses were run. A likelihood ratio test showed that the by-speaker-and-item was significant better than the simpler model ( $\chi^2(1)=109.49$ ,  $p<.001$ ).

The result of the by-speaker-and-item analysis showed significant main effects of age group ( $b=-3.02$ ,  $z=-2.00$ ,  $p<.05$ ) and allomorph frequency ( $b=0.75$ ,  $z=2.00$ ,  $p<.05$ ), but no significant main effects of position ( $b=-1.56$ ,  $z=-0.58$ ,  $p>.05$ ) or morpheme frequency ( $b=-0.11$ ,  $z=-0.33$ ,  $p>.05$ ). There was also a significant two-way interaction between position and allomorph frequency ( $b=-2.19$ ,  $z=-2.22$ ,  $p<.05$ ), and a significant three-way interaction among age group, position, and allomorph frequency ( $b=2.17$ ,  $z=2.36$ ,  $p<.05$ ), but no interactions with morpheme frequency ( $p > .05$ ). The logic of the

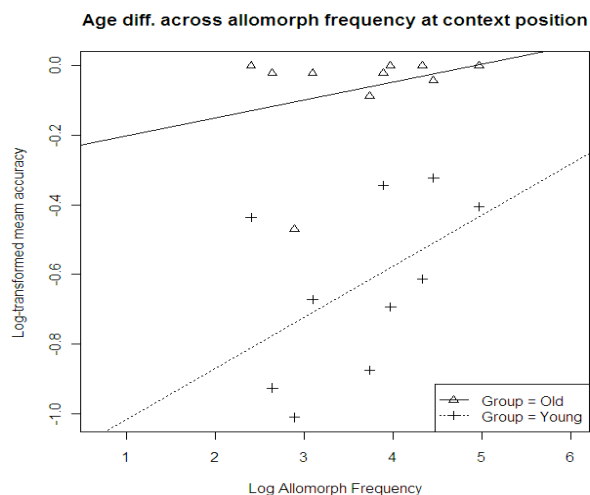
statistical analysis thus suggests that it is indeed allomorph frequency that affected accuracy, not morpheme frequency.

As **Figure 8** shows, in context position, the higher the allomorph frequency, the higher the accuracy rate, whereas accuracy rate was less influenced by allomorph frequency in the juncture position.

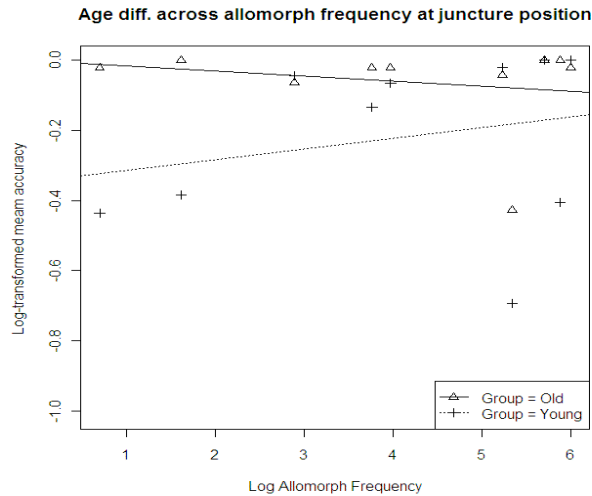


**Figure 8.** Interaction plot of position vs. allomorph frequency

**Figure 9** and **Figure 10** illustrate the three-way interaction among age group, position, and allomorph frequency. Younger speakers had a consistent general pattern of lower accuracy rate in lower allomorph frequency items in both context and juncture positions, but the frequency effect was larger in context position than juncture position. Older speakers showed a similar pattern with younger speakers in the context position. However, in the juncture position, older speakers had essentially identical accuracy rates for higher allomorph frequency items.



**Figure 9.** Different age group across allomorph frequency at context position  
The solid line represents older speakers and the dotted line represents younger speakers.



**Figure 10.** Different age group across allomorph frequency at context position  
The solid line represents older speakers and the dotted line represents younger speakers.

#### 4. Discussion

The present study was designed to test the Allomorph Selection Hypothesis, which claims that TTS does not involve rule applications in the tone circle, but rather involves the process of choosing between two allomorphs that are both listed in the lexicon. Going beyond previous studies that only indirectly showed the lexical effect, we directly examined allomorph frequency to investigate how this lexical effect influences native speakers' production, with morpheme frequency factored out statistically.

We found that the older speakers did significantly better (94.56% accuracy rate) than the younger speakers (68.78%) in TTS production. Older speakers also showed greater consistency in TTS production ( $SD=0.04$ ), while younger speakers showed more fluctuations in their performance ( $SD=0.15$ ). This is consistent with our claim that lexical familiarity does play a role in TTS production, though of course the two speaker groups probably also differed in their overall Taiwanese competence, not just in their lexicons. Moreover, as **Figure 5** shows, older speakers did equally well in both context and juncture positions, while younger speakers' performance in the context position was significantly worse than that in the juncture position ( $b=3.30$ ,  $z=2.86$ ,  $p<.01$ ). Crucially, this performance discrepancy was modulated by allomorph frequency. As illustrated in **Figure 8**, higher allomorph frequency items had an overall higher accuracy rate. However, in the case of older speakers, since their overall accuracy rate is already very high, there may be a ceiling effect. Although this result confirms that both allomorphs are

stored in the mental lexicon, there may be some asymmetry in the storage and/or retrieval of the two forms.

As for the tone categories, similar to the results of previous studies, performances varied across different speakers in both groups. Since different speakers may have different degree of exposure to different lexical items, it is natural to have this kind of individual variances. This poses a problem to Zhang et al. (2006, 2010)'s claim that different tone categories have consistently higher or lower productivity rates. As illustrated in **Figure 6**, though the productivity rates are different in the two speaker groups, there is no consistent pattern across the five tone categories. Young speakers made the most errors in Tone 3 and Tone 7, which is the opposite of Zhang et al. (2006)'s prediction that speakers should favor sandhi rules that shorten tones. Different degrees of lexical familiarity seem to offer a better explanation for the variability across speakers and across tone categories.

Although not all the tonal errors were allomorph errors, 77.01% of the tone production errors were allomorph selection errors. Other tonal errors and wrong target errors account respectively for 19.83% and 5.6% of the total errors. Since allomorph errors were the majority, this pattern seems to provide further evidence to support the Allomorph Selection Hypothesis. However, as mentioned earlier, TTS production may involve asymmetries in lexical retrieval or storage. Further experiments are required to explore such issues, in particular, the time course of lexical retrieval relative to the phonetic implementation of tone production.

## 5. Conclusion

The results of the TTS production experiment show that: (1) Older speakers had significantly higher accuracy rates than younger ones in tone sandhi production, which might be caused by different degree of lexical familiarity to Taiwanese. (2) Taiwanese TTS production was significantly influenced by allomorph frequency even with morpheme frequency factored out, which supports the claim that both forms are listed in the mental lexicon. (3) The allomorph frequency effect for young speakers was modulated by the position of the target item. (4) A majority of the tone production errors were allomorph selection errors. (5) There was no consistent pattern in productivity across five tone categories.

Thus, our results support the argument that grammar-governed tone alternation is not the nature of TTS. It is therefore better to maintain that TTS involves the process of choosing between two allomorphs that are both listed in the lexicon. Our results of a significant positive main effect of allomorph frequency may provide some new evidence to this claim. Nevertheless, how exactly these two allomorphs are listed in the mental representation begs for more careful research in both TTS perception and production studies.

**References**

- Agresti, Alan, James G. Booth, James P. Hobert & Brian Caffo. 2000. Random-effects modeling of categorical response data. *Sociological Methodology*, 30, 27-80.
- Baayen, R. Harald. 2008. *Analyzing Linguistic Data: A Practical Introduction to Statistics Using R*, Cambridge & New York: Cambridge University Press.
- Bates, Douglas & Deepayan Sarkar. 2007. lme4: Linear mixed-effects models using S4 classes. R package version 0.9975-12.
- Bodman, N. C. 1955. *Spoken Amoy Hokkien*. Kuala Lumpur.
- Boersma, Paul & David Weenink. 2009. Praat: A system for doing phonetics by computer [Computer program]. <http://www.praat.org/>
- Bybee, J. L. 2001. *Phonology and Language use*. Cambridge: Cambridge University Press.
- Chen, M. Y. 1987. The syntax of Xiamen tone sandhi. *Phonology Yearbook* 4. 109-149.
- Chen, M. Y. 2000. *Tone sandhi: Patterns across Chinese dialects*. Cambridge University Press, Cambridge, UK.
- Huang, Shuanfan. 1993. *Language, Society, and Ethnic Identity*. Taipei: Crane.
- Hsieh, Hsin-I. 1970. The psychological reality of tone sandhi rules in Taiwanese. In *Papers from the 6th Meeting of the Chicago Linguistics Society*. Chicago. 489-503.
- Hsieh, Hsin-I. 1975. How generative is phonology. In E. F. Koerner (ed.) *The transformational generative paradigm and modern linguistic theory*. John Benjamins, Amsterdam. The Netherlands. 190-144.
- Hsieh, Hsin-I. 1976. On the unreality of some phonological rules. *Lingua*. 38:1-19.
- Huang, Shuanfan. 1993. *Language, Society, and Ethnic Identity*. Taipei: Crane.
- Jescheniak, J. D. & Levelt, W. J. M. 1994. Word frequency effects in speech production: Retrieval of syntactic information and of phonological form. *Journal of Experimental Psychology: Learning, Memory, and Cognition* 20(4). 824-843.
- Lin, J.-W. 1994. Lexical government and tone group formation in Xiamen Chinese. *Phonology* 11. 237-275.
- Losiewicz, B. L. 1992. *The effect of frequency on linguistic morphology*. University of Texas Dissertation.
- Ministry of Education. 2008. *Taiwan Minnanyu Luomazi Pinyin Fangan Shiyong Shouce*. [Guidebook of the Romanization of Taiwan Southern Min.]



<http://www.edu.tw/files/bulletin/M0001/tshiutsheh.pdf>

- Moreton, Elliot. 2004. Non-computable functions in Optimality Theory. In John J. McCarthy (ed.). *Optimality Theory in Phonology*. Blackwell Publishing, Malden, MA. 141-164.
- Myers, J. & Guy, G. R. 1997. Frequency effects in variable lexical phonology. *University of Pennsylvania Working Papers in Linguistics*, 4 (1). 215- 228.
- Myers, J. & Tsay, J. 2008. Neutralization in Taiwan Southern Min Tone Sandhi. In Y. E. Hsiao, H.-C. Hsu, L.-H. Wee, and D.-A. Ho (Eds.) *Interfaces in Chinese phonology: Festschrift in honor of Matthew Y. Chen on his 70th birthday* (pp. 47-78). *Language and Linguistics Monograph Series Number W-8*. Taipei, Taiwan: Academia Sinica.
- Myers, J. & Tsay, J. 2010. *Parallel Experimental and Corpus-based Analyses of Southern Min Phonology (2/3)*. NSC Project Progress Report. NSC 97-2410-H-194-067-MY3.
- Phillips, B. 1984. Word frequency and the actuation of sound change. *Language* 45. 9-25.
- R development Core Team. 2006. *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. Vienna, Austria. ISBN: 3-900051-07-0, URL <http://www.R-project.org>.
- Schneider, W., Eschman, A. & Zuccolotto, A. 2002. *E-Prime reference guide*. Pittsburgh: Psychology Software Tools Inc..
- Tsay, Suhchuan Jane. 1994. *Phonological Pitch*. PhD dissertation. University of Arizona.
- Tsay, J., Charles-Luce, J. & Guo, Y-S. 1999. The Syntax-Phonology Interface in Taiwanese: Acoustic Evidence. *Proceedings of the XIVth International Congress of Phonetic Sciences*. 2407-2410. Berkeley: University of California.
- Tsay, J. & Myers, J. 1996. Taiwanese tone sandhi as allomorph selection. *Berkeley Linguistic Society* 22. 394-405.
- Tsay, J. & Myers, J. 2001. Processes in the Production of Taiwanese Tone Sandhi: An Acoustic Phonetic Study. *The Proceeding of 5th National Conference On Modern Phonetics*. 233-237. Peking: Tsinghua University.
- Wang, Samuel H. 1995. The tone sandhi phenomenon. *Experimental Studies in Taiwanese Phonology*. Taipei: Crane.
- Wang, William S.-Y. 1967. Phonological features of tone. *International Journal of American Linguistics* 33 (2). 93-105.

- Xu, Yi. 2009. “\_TomeNormalizedF0.praat. On-line:  
<http://www.phon.ucl.ac.uk/home/yi/tools.html>
- Yip, Moira. 1980. The Tonal Phonology of Chinese. Cambridge, MA: MIT Dissertation.
- Zhang, Jie, Yuwen Lai & Craig Turnbull-Sailor. 2006. Wug-testing the "tone circle" in Taiwanese. In Donald Baumer, David Montero, and Michael Scanlon (eds.), Proceedings of the 25th West Coast Conference on Formal Linguistics. Cascadilla Proceedings Project, Somerville, MA. 453-461.
- Zhang, Jie, Yuwen Lai & Craig Turnbull-Sailor. 2010. Modeling Taiwanese speakers' knowledge of tone sandhi in reduplication. *Lingua* 121 (2). 181-206.

# 台灣海陸客語的[<sup>21</sup>to]與[<sup>35</sup>to]\*

遠藤雅裕  
日本・中央大學

This paper focuses on two issues: (1) three kinds of manner complement construction in Taiwanese Hoiliuk (Hailù) Hakka (i) V+to<sup>21</sup>(到)+C, (ii) V+to<sup>35</sup>(倒)+C, (iii) V+Ø+C; (2) the grammaticalization of two markers (‘to<sup>21</sup>’ and ‘to<sup>35</sup>’) in a manner complement construction. This construction corresponds to the ‘V+de(得)+C’ construction in Standard Mandarin Chinese. In the discussion of (1), by using the classification of ‘V+de(得)+C’ construction presented by Lamarre (2001a, 2001c) ([1] potential (看得完。／看不完。): [2] manner a (assertive) (飛得高。)/ manner b (descriptive) (飛得很高。): [3] extent (吵得人家睡不著。), I conclude that Type (i) can be assigned to [2b] and [3], Type (ii) to [2a/b], and Type (iii) only to [2b]. In the discussion of (2), I reach the conclusion that the manner complement marker ‘to<sup>21</sup>’ is derived from the verb directly, and that ‘to<sup>35</sup>’ is directly derived from the directional complement marker ‘to<sup>21</sup>’. Thus, the grammaticalization sequence follows two routes rather than a single route.

‘to<sup>21</sup>’ verb ‘attain’ > directional complement > **complement marker** ([2]b./ [3])  
> phase complement > (aspectual marker)  
> **complement marker** ([2])

## 1. 前言

標準華語（普通話）的 VXC 型 述補結構有可能補語、狀態補語以及程度補語等，如：「寫得完」（可能補語）：「寫得很好」（狀態補語）：「好得很」（程度補語）<sup>2</sup>。台灣海陸客語<sup>3</sup>也有相當於標準華語狀態補語述補結構的格式，而它有如下三

\* 本文是獲得日本學術振興會科學研究費補助金（平成21年度基盤研究C一般、課題番號：21520449）資助而進行的研究之一。本文承蒙李惠琦教授提出寶貴意見並據此稍加修改。在此謹表謝意。因筆者力不從心，文中恐猶有不足之處。責任當由筆者自負。

<sup>1</sup> X是任意的標記，標準華語的X為「得」。C為補語。

<sup>2</sup> 本文採用朱德熙(1982)的補語分類。

<sup>3</sup> 海陸客語是分佈在台灣客語之一，主要分布在北部的新竹、桃園等地。該語言的使用人口僅次於四縣客語，大約佔台灣客家人口的七分之一左右（潘家懿 2000）。本文的材料來自筆者的田野調查。這項調查是自 2005 年 5 月至今在新竹縣竹北市進行的。合作人是退休國小老師詹智川先生。詹老師是新竹縣新埔人，1939 年出生。此次多承詹老師的熱心

種，即：(i) 「V+to<sup>21</sup>(到)+C」(例句 01a)：(ii) 「V+to<sup>35</sup>(倒<sup>4</sup>)+C」(例句 01b)：(iii) 「V+Ø+C」<sup>5</sup> (沒有任何補語標記，例句 01c)。比如，「他唱歌唱得很好」這句話可有如下三種說法。

- (01a) ki<sup>55</sup> tʃ<sup>h</sup>oŋ<sup>21</sup> ko<sup>53</sup> ə<sup>55</sup> tʃ<sup>h</sup>oŋ<sup>21</sup> to<sup>21</sup> tʃ<sup>h</sup>in<sup>33</sup> ho<sup>35</sup>  
 佢 唱 歌仔 唱 到 盡 好。  
 (01b) ki<sup>55</sup> tʃ<sup>h</sup>oŋ<sup>21</sup> ko<sup>53</sup> ə<sup>55</sup> tʃ<sup>h</sup>oŋ<sup>21</sup> to<sup>35/35-33</sup> tʃ<sup>h</sup>in<sup>33</sup> ho<sup>35</sup>  
 佢 唱 歌仔 唱 倒 盡 好。  
 (01c) ki<sup>55</sup> tʃ<sup>h</sup>oŋ<sup>21</sup> ko<sup>53</sup> ə<sup>55</sup> tʃ<sup>h</sup>oŋ<sup>21</sup> tʃ<sup>h</sup>in<sup>33</sup> ho<sup>35</sup>  
 佢 唱 歌仔 唱 盡 好。

在這三種格式之間有何區別？尤其是「到」與「倒」，雖然其詞形接近，但仍有不同點。那麼這些標記如何不同？本文以狀態補語標記「到」與「倒」為主要考察對象，通過整理在台灣海陸客語中所見到的相當於標準華語 VXC 型的述補結構，試圖對於如下兩個問題分別從共時層面和歷時層面做出闡釋。

- [1] 三種狀態補語述補結構的不同點。  
 [2] 兩種補語標記的語法化途徑。

## 2. 分析框架

Lamarre (柯理思) (2001a, 2001c)對於漢語系語言(漢語方言)的 VXC 型述補結構做了類型學研究。她根據 Yue-Hashimoto (1993)的補語類型和朱德熙(1982)對狀態補語的分析設定了如下的補語框架(參看 02)。

- (02)  
 1. 可能(potential) 看得完。／看不完。  
 2. 狀態(manner)  
     a. 斷言(assertive) 飛得高。  
     b. 描寫(descriptive) 飛得很高。  
 3. 達到的程度(extent) 吵得人家睡不著。

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協助，在此謹致謝忱。

<sup>4</sup> 根據前人的研究(林英津 1993、Lamarre 2002、吳福祥 2002等)，上聲的[to<sup>35</sup>]源自去聲的[to<sup>21</sup>](到)。爲了區別實詞「到」和虛詞「到」產生了上聲「到」(虛詞)。但這個來源尚未得到證實(Lamarre 2002:192)。爲了方便起見，本文暫時以「倒」字來表示上聲[to<sup>35</sup>]。台灣的一些出版物(如，詹益雲編 2008.『海陸客語短篇故事第三集』)或網站(如，「教育部臺灣客家語常用詞辭典」)以「著」字來表示此語素。「倒」是同音字，「著」是訓讀字。

<sup>5</sup> Ø 表示無標記。

她根據這個框架將漢語系語言的可能、狀態補語等標記或結構分析為如下四種（本文把如上各三種述補結構的類型簡稱為 P(<potential：可能)、M(<manner：狀態)、E(<extent：達到的程度)）。

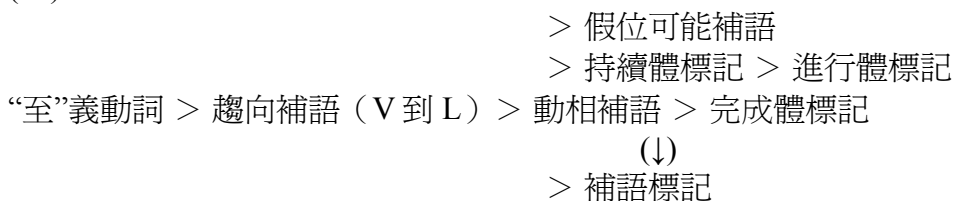
(03)

Type I	P=M=E	標準華語、南方官話、西南官話、江淮官話、贛語、吳語
Type II	P≠M=E	
IIa	P：了 M,E：得	晉語、山西北部、山東、西北官話
IIb	P：得 M,E：其他	吳語、西南官話、湘語、客語、粵語、贛語
Type III	P=M≠E	粵語、吳語、贛語
Type IV	P≠M≠E	閩語

吳福祥(2001, 2002a,b)對南方漢語的狀態補語標記從共時層面以及歷時層面加以分析，做出了補語標記形成之前經過完成體標記（動相補語{或/及}完成體助詞）階段的結論。他把「到(倒)」的語法化途徑總結如下（吳福祥 2002b:42）（參看 04）。

在這個語法化途徑中，趨向補語是「V 到 L」格式中的「到」，L 是處所、時間、對象、程度等。動相補語(phase complement)表示動作已實現或有結果（如「看見」的「見」）。假位可能補語(dummy potential complement)<sup>6</sup>是形成「V 得了/V 不了」等的述補結構。補語標記是引進狀態、程度等補語的成份（吳福祥 2002b:28-29）。

(04)



本文分析「V 到(倒)C」格式時借用了 Lamarre (2001a, 2001c)的框架(02)。為了方便起見，把 manner 類型的狀態補語叫做「狀態補語 M」（簡稱「狀態 M」），把 extent（達到的程度）類型的狀態補語叫做「狀態補語 E」（包括程度補語在內，簡稱「狀態 E」）。而探討海陸客語的補語標記類型時，參考了 Lamarre (2001c)做出的結論(03)，分析「到(倒)」的用法時則參考了上述吳福祥(2002b:28-29)的用法分類。

<sup>6</sup> dummy potential complement 亦可翻譯成「傀儡可能補語」或「虛補語」（Lamarre 2001a）。

### 3. 海陸客語的「到」、「倒」以及無標記的狀態補語述補結構

首先介紹一下結論。參考 Lamarre (2001a) 的類型 (02) 來整理海陸客語的標記, 其結果如下 (參看 05)。補語標記「到」引進的是狀態 E 以及狀態 M(描寫), 「倒」引進的是狀態 M(斷言/描寫), 無標記只限於狀態 M(描寫) (參看 05)。

#### (05) 海陸客語「VXC」格式中 X 的分布

可能	狀態 M(斷言)	狀態 M(描寫)	狀態 E
得	倒		
		到	
		無標記*	

\*只限於帶狀語的形容詞短語。

下面根據遠藤(2011)仔細探討一下個別情況。

#### 3.1. 「to<sup>21</sup>到」

「到」有動詞、趨向補語 (V 到 L)、補語標記等用法。

##### 3.1.1. [到達/存在]義動詞

「to<sup>21</sup>到」可單獨當作謂語動詞使用。其詞義有兩種, 一種是[到達]義 (例句 06), 另一種是[存在]義 (例句 07)。

(06) ŋai<sup>55</sup> he<sup>21</sup> t<sup>h</sup>ien<sup>55</sup> ŋien<sup>55</sup> to<sup>21</sup> t<sup>h</sup>oi<sup>55</sup> pet<sup>5</sup> kai<sup>21</sup>

我係 前年 到 台北 個。

我是前年到台北。

(07) ʃ<sup>h</sup>a<sup>53</sup> t<sup>h</sup>eu<sup>55</sup> to<sup>21</sup> lai<sup>33</sup> vui<sup>33</sup>

車頭 到 口位?

車站在哪裡?

##### 3.1.2. 趨向補語

置於謂語動詞之後, 形成「V 到 NP」格式 (=「V 到 L」), 引進表終點(goal) 的體詞性賓語(NP)。NP 包括空間 (例句 08、09)、時間 (例句 10)、抽象事物 (例句 11) 等。

(08) ŋiu<sup>55</sup> piau<sup>53</sup> to<sup>21</sup> t<sup>h</sup>oi<sup>21</sup> ʒan<sup>55</sup>

牛 口 到 菜園。

牛跑到菜園。

- (09) ŋi<sup>55</sup> lau<sup>53</sup> ki<sup>55</sup> suŋ<sup>21</sup> to<sup>21</sup> ʒi<sup>53</sup> ʒan<sup>21</sup>  
 你 □ 佢 送 到 醫院。  
 你把他送到醫院去。
- (10) t<sup>h</sup>ai<sup>33</sup> fui<sup>35</sup> lok<sup>32</sup> to<sup>21</sup> pan<sup>21</sup> ʒa<sup>33</sup> fəŋ<sup>21</sup> t<sup>h</sup>in<sup>55</sup>  
 大水 落 到 半夜 正 停。  
 大雨下到半夜才止。
- (11) si<sup>33</sup> t<sup>h</sup>in<sup>55</sup> ʒi<sup>55</sup> kin<sup>53</sup> fat<sup>5-32</sup> fəŋ<sup>35</sup> to<sup>21</sup> fui<sup>53</sup> ʃoŋ<sup>55</sup> ŋiam<sup>55</sup> t<sup>h</sup>uŋ<sup>33</sup> kai<sup>21</sup> t<sup>h</sup>i<sup>33</sup> p<sup>h</sup>u<sup>33</sup>  
 事情 已經 發展 到 非常 嚴重 個 地步。  
 事情已經發展到十分嚴重的地步。

### 3.1.3. 補語標記

「V 到 NP」格式中的 NP 換成謂詞性成份(VP)，就形成「V 到 VP」格式。這樣會被解釋為「V 到 C」的狀態補語述補結構，「到」就成為補語標記。補語標記的「到」引進狀態 M(描寫) 以及狀態 E。補語部分表示謂語動詞所表示的動作行為達到的結果狀態，如，帶程度副詞的形容詞（例句 01a、12）、形容詞的重疊（狀態形容詞）（例句 13）、比較句（例句 14）、動詞謂語句（例句 15、16）。

- (12) ki<sup>55</sup> kai<sup>21</sup> ʃiu<sup>35</sup> t<sup>h</sup>in<sup>33</sup> k<sup>h</sup>iau<sup>35</sup>, fa<sup>33</sup> to<sup>21</sup> toŋ<sup>53</sup> ho<sup>35-33</sup> k<sup>h</sup>on<sup>21</sup>  
 佢 個 手 盡 巧, 畫 到 當 好看。  
 他手巧，畫得很好看。
- (13) ʒit<sup>5-32</sup> sioŋ<sup>53</sup> kai<sup>53</sup> lon<sup>35</sup> tsak<sup>5-32</sup> to<sup>21</sup> lan<sup>33</sup> lan<sup>33</sup>  
 一 箱 雞 卵 □ 到 爛 爛。  
 一筐雞蛋被壓得稀爛。
- (14) ki<sup>55</sup> koŋ<sup>35-33</sup> hak<sup>5</sup> voi<sup>53</sup> koŋ<sup>35-33</sup> to<sup>21</sup> pi<sup>35-33</sup> ŋai<sup>55</sup> ha<sup>21</sup> liu<sup>55</sup> liak<sup>32</sup>  
 佢 講 客 話 講 到 比 我 □ 流 □。  
 他說客語說得比我流利。
- (15) ki<sup>55</sup> sia<sup>35-33</sup> si<sup>33</sup> sia<sup>35-33</sup> to<sup>21</sup> ʒan<sup>55</sup> pit<sup>5-32</sup> sim<sup>53</sup> lui<sup>55</sup> t<sup>h</sup>et<sup>5</sup> le<sup>53</sup>  
 佢 寫 字 寫 到 鉛 筆 芯 搯 掉 了。  
 他寫字寫得鉛筆尖都禿了。
- (16) ki<sup>55</sup> mo<sup>55</sup> han<sup>55</sup> to<sup>21</sup> lien<sup>55</sup> ʃit<sup>32</sup> p<sup>h</sup>on<sup>33</sup> lə<sup>33</sup> mo<sup>55</sup> ʃi<sup>55</sup> kien<sup>53</sup>  
 佢 無 閒 到 連 食 飯 □ 無 時 間。  
 他忙得連吃飯的時間都沒有。

這種「V 到 C」格式的狀態補語結構還發展成程度補語（例句 17、18）。比如，例句(17)的「koŋ<sup>35-33</sup> m<sup>55</sup> tet<sup>5</sup> 講唔得」照字面講是「沒法說」之意。但是在這個句子裡它表示前項謂語「好」的程度極為高。充當 C 的成份，除此之外還有

「mo<sup>55</sup> kat<sup>32</sup> sat<sup>5</sup> 無□□」 「{ham<sup>21</sup> / hem<sup>53</sup>} m<sup>55</sup> kam<sup>35</sup> 喊唔敢」 「put<sup>5-32</sup> tet<sup>5-32</sup> liau<sup>35</sup> 不得了」等。

(17) ho<sup>35-33</sup> to<sup>21</sup> koŋ<sup>35-33</sup> m<sup>55</sup> tet<sup>5</sup>.

好 到 講 唔 得。

好得不得了。

(18) iau<sup>53</sup> to<sup>21</sup> voi<sup>33</sup> tʃun<sup>53</sup>

梛<sup>7</sup> 到 會 □(發抖)。

餓得發慌。

### 3.2. 「to<sup>35</sup>倒」

「倒」有動相補語、補語標記等兩種用法，而沒有謂語動詞的用法。

#### 3.2.1. 動相補語

「倒」表示動作已經實現或有結果（吳福祥 2002b:28），可以說是結果體(resultative)標記<sup>8</sup>。

「倒」可形成「V 倒 NP」格式。體詞性賓語(NP)為謂語動詞(V)的對象。例句(19)~(21)表示的事態涵蓋由空間到抽象的領域。例句(19)的「倒」也可以認為具有[到達]義，引進謂語動詞「打」的空間終點「靶」。例句(20)的謂語動詞「看」沒有空間的[移動]義，而「倒」引進「看」的目標「你」。例句(21)的賓語是抽象的。

(19) tak<sup>32</sup> tʃak<sup>5</sup> tʃhʉŋ<sup>21</sup> tsi<sup>35</sup> tʃhʉŋ<sup>53</sup> pʰaŋ<sup>55</sup> ta<sup>35-33</sup> to<sup>35-33</sup> pa<sup>21</sup> le<sup>53</sup>

逐 隻 銃子 通□ 打 倒 靶了。

每顆子彈都打著靶了。

(20) ŋai<sup>55</sup> kʰon<sup>21</sup> to<sup>35</sup> ŋi<sup>55</sup>, toŋ<sup>53</sup> fon<sup>53</sup> hi<sup>35</sup>

我 看 倒 你，當 歡喜。

我見到你很高興。

(21) ʃiu<sup>33</sup> to<sup>35-33</sup> toŋ<sup>53</sup> tʰai<sup>33</sup> kai<sup>21</sup> tʰiuk<sup>5-32</sup> kit<sup>5</sup>

受 倒 當 大 個 刺激。

受到很大的刺激。

<sup>7</sup> 「iau<sup>53</sup> 梛」是閩南語借詞（陳聖欣 2009:68）。

<sup>8</sup> Bybee, Perkins & Pagliuca(1994: 318)的結果體定義如下：action in the past produces a state that persist into the present.這種體貌定義能否套用在「to<sup>35</sup>倒」的詞義分析上，還需要探討。比如，「V 倒」的「倒」或許不一定有實現 V 或產生結果的含義，如：ŋai<sup>55</sup> tʃh<sup>55</sup> to<sup>35-33</sup> ki<sup>55</sup>, {mo<sup>55</sup> tʃh<sup>55</sup> si<sup>35</sup> / tʃh<sup>55</sup> mo<sup>55</sup> si<sup>35</sup>}。我弒倒佢，{無弒死/弒無死}（我殺了他，但是沒殺死）。



V 是不及物動詞時，「倒」的體貌（結果體）性質更為明顯。拿「倒」的語義指向(semantic orientation)來解釋，例句(22)「倒」的語義指向是謂語動詞。

- (22) ʃit<sup>32</sup> lat<sup>32</sup> tɕiau<sup>53</sup> ə<sup>55</sup> kaŋ<sup>35-33</sup> to<sup>35</sup>  
 食 辣椒仔 哽 倒。  
 吃辣椒噲著了。

「倒」可形成「V 得倒/V 唔倒」的可能補語述補結構（例句 23~25）。

- (23) t<sup>h</sup>on<sup>55</sup> tet<sup>5-32</sup> to<sup>35</sup> mo<sup>55</sup>  
 □ 得 倒 無？  
 猜得到嗎？  
 (24) ŋi<sup>55</sup> p<sup>h</sup>ien<sup>33</sup> ŋai<sup>55</sup> m<sup>55</sup> to<sup>35</sup>  
 你 騙 我 唔 倒。  
 你騙不了我。  
 (25) ʒan<sup>35-33</sup> ʃui<sup>35</sup> kiu<sup>21</sup> m<sup>55</sup> to<sup>35</sup> k<sup>h</sup>iun<sup>53</sup> fo<sup>35</sup>  
 遠水 救 唔 倒 近火。  
 遠水救不了近火。

就假位可能補語(dummy potential complement)而言，看起來，例句(24)、(25)的「V 唔倒」看上去與標準華語的「V 不了」相對應，似乎可以說「倒」相當於「了」。但是「倒」的使用領域沒有「了」那麼廣，還有不少競爭對手。換言之，可與其他幾個語素構成聚合(paradigmatic)關係。這些語素有「t<sup>h</sup>et<sup>5</sup>掉」<sup>9</sup>、「tet<sup>5</sup>得」、「loi<sup>55</sup>來」、「ha<sup>53</sup>下」等，如：tsai<sup>21</sup> m<sup>55</sup> t<sup>h</sup>et<sup>5</sup>載唔掉（裝不了）、loi<sup>55</sup> m<sup>55</sup> tet<sup>5</sup>來唔得（來不了）、p<sup>h</sup>an<sup>33</sup> m<sup>55</sup> loi<sup>55</sup>辦唔來（辦不了）、p<sup>h</sup>an<sup>33</sup> m<sup>55</sup> ha<sup>53</sup>辦唔下（辦不了）。

此外，在此要指出「到/倒」不能構成與標準華語可能補語形式「V 得了」相對應的「V 倒 Y」（Y 為任意的語素）格式。如例句(23)所示，可能補語的肯定形式的中置成份（助詞）不是「到/倒」，而是與標準華語同源的「tet<sup>5</sup>得」。

### 3.2.2. 補語標記

「V 倒 NP」格式中的 NP 換成謂詞性成份(VP)，可形成「V 倒 VP」格式。「V 倒 VP」會被解釋為「V 倒 C」的狀態補語述補結構，「倒」就成為補語標記。C 為狀態 M(斷言/描寫)。狀態補語部分是光桿形容詞（例句 26、27）、形容詞的重疊式（狀態形容詞）（例句 28）、帶程度副詞的形容詞短語（例句 01b、29）、比較句

<sup>9</sup> 「t<sup>h</sup>et<sup>5</sup>掉」是完結體(completive aspect)標記（遠藤 2010）。

(例句 30) 等。

(26) sia<sup>35-33</sup> to<sup>35-33</sup> ho<sup>35</sup>

寫 倒 好。

寫得好。

(27) ki<sup>55</sup> ta<sup>35-33</sup> to<sup>35-33/35</sup> ho<sup>35</sup>, ŋai<sup>55</sup> ta<sup>35-33</sup> to<sup>35</sup> m<sup>55</sup> ho<sup>35</sup>

佢 打 倒 好, 我 打 倒 唔 好。

他打得好, 我打得不好。

(28) k<sup>h</sup>on<sup>21</sup> to<sup>35/35-33</sup> t<sup>h</sup>in<sup>53</sup> t<sup>h</sup>in<sup>53</sup> t<sup>h</sup>u<sup>35-33</sup> t<sup>h</sup>u<sup>35</sup>

看 倒 清 清 楚 楚。

看得清清楚楚。

(29) ki<sup>55</sup> kai<sup>21</sup> jiu<sup>35</sup> t<sup>h</sup>in<sup>33</sup> k<sup>h</sup>iau<sup>35</sup>, fa<sup>33</sup> to<sup>35-33</sup> toŋ<sup>53</sup> ho<sup>35-33</sup> k<sup>h</sup>on<sup>21</sup>

佢 個 手 盡 巧, 畫 倒 當 好 看。

他手巧, 畫得很好看。

(30) ki<sup>55</sup> koŋ<sup>35-33</sup> hak<sup>5</sup> voi<sup>53</sup> koŋ<sup>35-33</sup> to<sup>35</sup> pi<sup>35-33</sup> ŋai<sup>55</sup> ha<sup>21</sup> liu<sup>55</sup> liak<sup>32</sup>

佢 講 客 話 講 倒 比 我 口 流 口。

他說客語說得比我流利。

「倒」的原調是 35 調 (上聲), 變調後成為 33 調 (陽去)。而在句中也可以不變調, 如, 例句(28)(30)。就是說, 「倒」之後可以有停頓。這說明補語標記和狀態補語的緊密程度不那麼高。也可以說「倒」是謂語動詞的後附成份。這種特色可以在動相補語的例子中看到, 如;

(31) ŋai<sup>55</sup> t<sup>h</sup>eu<sup>55</sup> sien<sup>53</sup> tu<sup>55</sup> to<sup>35/35-33</sup> voŋ<sup>55</sup> sin<sup>53</sup> saŋ<sup>53</sup>

我 頭 先 睹 倒 王 先 生。

我剛才碰上了王老師。

可以說「V 倒 C」的「倒」與「V 倒 NP」的「倒」在音韻特色上有共同之處。

### 3.3. 無標記的狀態補語述補結構<sup>10</sup>

無標記的格式是「VOC」。C 只限於狀態補語 M(描寫)。這些補語是帶程度副

<sup>10</sup> 無標記的狀態補語述補結構不是只有海陸客語才有的。閩南語和標準華語 (普通話) 也具有此種述補結構。參考湯廷池(1999)所提的例句, 可以看出台灣閩南語的無標記狀態補語述補結構的條件和海陸客語相同, 其條件是 C 為狀態 M(描寫)。標準華語的條件有三種: (1)C 為「太+形容詞」; (2)C 為「形容詞+一點兒」; (3)C 為某些熟語性的述賓結構 (朱德熙 1982:138-139)。在中國南方少數民族語言裡也能看到類似的情況, 比如苗語也有無標記的狀態補語述補結構 (郭必之 2009)。

詞的形容詞短語（例句 32~34）、否定句（例句 35）、比較句（例句 36）等。光桿形容詞、狀態形容詞都不能出現在無標記格式裡。

- (32) sia<sup>35-33</sup> t<sup>h</sup>in<sup>33</sup> ho<sup>35</sup>  
寫 盡 好。  
寫得很好。
- (33) se<sup>35-33</sup> toŋ<sup>53</sup> t<sup>h</sup>ian<sup>33</sup>  
洗 當 淨。  
洗得乾淨。
- (34) ki<sup>55</sup> ʃit<sup>32</sup> p<sup>h</sup>on<sup>33</sup> ʃit<sup>32</sup> ha<sup>21</sup> kiak<sup>5</sup>  
佢 食 飯 食 □ 遽。  
他吃飯吃得快。
- (35) se<sup>35-33</sup> m<sup>55</sup> t<sup>h</sup>ian<sup>33</sup>  
洗 唔 淨。  
洗得不乾淨。
- (36) ki<sup>55</sup> koŋ<sup>35-33</sup> hak<sup>5</sup> voi<sup>53</sup> koŋ<sup>35-33</sup> pi<sup>35-33</sup> ŋai<sup>55</sup> ha<sup>21</sup> liu<sup>55</sup> liak<sup>32</sup>  
佢 講 客話 講 比 我 □ 流□。  
他說客語說得比我流利。

是非問句（例句 37）、選擇問句（例句 38）亦可無標記。但是，合作人對於疑問句的判斷不太穩定，有時回答說無標記沒法成立（例句 39、40）。而特指問句則一定要有補語標記（例句 41）。

- (37) ki<sup>55</sup> koŋ<sup>35-33</sup> kiak<sup>5</sup> mo<sup>55</sup>  
佢 講 遽 無？  
他說得快嗎？
- (38) ki<sup>55</sup> koŋ<sup>35-33</sup> kiak<sup>5</sup> ʒa<sup>35-33</sup> m<sup>55</sup> kiak<sup>5</sup>  
佢 講 遽 也 唔 遽？  
他說得快不快？
- (39) ki<sup>55</sup> ʃ<sup>h</sup>oŋ<sup>21</sup> ko<sup>53</sup> ə<sup>55</sup> ʃ<sup>h</sup>oŋ<sup>21</sup> { to<sup>21</sup> / to<sup>35/35-33</sup> } ho<sup>35</sup> mo<sup>55</sup>  
佢 唱 歌仔 唱 { 到 / 倒 } 好無？  
他唱歌唱得好嗎？
- (40) sin<sup>53</sup> saŋ<sup>53</sup> kai<sup>21</sup> mun<sup>21</sup> t<sup>h</sup>i<sup>55</sup> ki<sup>55</sup> tap<sup>5-32</sup> { to<sup>21</sup> / to<sup>35/35-33</sup> } ʃ<sup>h</sup>ok<sup>32</sup> ʒa<sup>35-33</sup> m<sup>55</sup> ʃ<sup>h</sup>ok<sup>32</sup>  
先生 個 問題 佢 答 { 倒 / 到 } 著 也 唔 著？  
老師的問題他回答得對不對？
- (41) ki<sup>55</sup> ʃ<sup>h</sup>oŋ<sup>21</sup> ko<sup>53</sup> ə<sup>55</sup> ʃ<sup>h</sup>oŋ<sup>21</sup> { to<sup>21</sup> / to<sup>35/35-33</sup> } ŋioŋ<sup>33</sup> pan<sup>53</sup>

佢唱歌仔唱 {倒/到} 仰般?  
他唱歌唱得怎麼樣?

### 3.4. 「到」、「倒」以及無標記的差異

如上所示，三種狀態補語述補結構有時可互用（參看例句 01a, b, c），有時不可互用。下面整理一下這三種標記的不同點。

首先，凡是無標記的句子都可以插入「到」、「倒」等標記（例句 01a, b, c、42、43）。

(42) ki<sup>55</sup> sia<sup>35-33</sup> si<sup>33</sup> sia<sup>35-33</sup> {to<sup>21</sup> / to<sup>35</sup> / ∅} toŋ<sup>53</sup> ts<sup>h</sup>in<sup>53</sup> ts<sup>h</sup>u<sup>35</sup>  
佢寫字寫 {到/倒/∅} 當清楚。  
他寫字寫得很清楚。

(43) ki<sup>55</sup> koŋ<sup>35-33</sup> hak<sup>5</sup> voi<sup>53</sup> koŋ<sup>35-33</sup> {to<sup>21</sup> / to<sup>35</sup> / ∅} pi<sup>35-33</sup> ŋai<sup>55</sup> ha<sup>21</sup> liu<sup>55</sup> liak<sup>32</sup>  
佢講客話講 {到/倒/∅} 比我口流口。  
他說客語說得比我流利。 =例句 14、30、36

但是反過來從具有「到」或「倒」等標記的句子之中，把這些標記刪去就不一定成句，如，光桿形容詞、狀態形容詞（例句 28、44），特指問句（例句 41）等。是非問句、選擇問句等可能也包括在內。

(44) ki<sup>55</sup> e<sup>21</sup> muk<sup>32</sup> ʃu<sup>53</sup> pak<sup>32</sup> {to<sup>21</sup> / to<sup>35-33</sup> / \*∅} t<sup>h</sup>ai<sup>33</sup> t<sup>h</sup>ai<sup>33</sup>  
佢口目珠剝 {到/到/\*∅} 大大。  
他把眼睛睜得大大的。

那麼，補語標記「到」與「倒」有什麼不同點呢？先說結論，「到」偏向於引進終點(goal)的功能，「倒」則偏向於引進謂語動詞本身的狀態。

「到」的基本義是[到達]，引進動作行為的終點。這個詞義一貫到底，當作補語標記時應該仍保留此義，引進謂語動詞表示的動作行為所引起的事態或到達的程度（終點）。因此尤其是狀態 E 和程度補語的補語標記不能以「倒」代替（例句 45~47）<sup>11</sup>。

(45) ki<sup>55</sup> kip<sup>5-32</sup> {to<sup>21</sup> / \*to<sup>35</sup>} kiau<sup>21</sup> hi<sup>35</sup> loi<sup>55</sup>  
佢急 {到/\*倒} 叫起來。  
他急得哭了起來。

(46) ki<sup>55</sup> haŋ<sup>55</sup> lu<sup>33</sup> haŋ<sup>55</sup> {to<sup>21</sup> / \*to<sup>35</sup>} man<sup>53</sup> ʃin<sup>53</sup> t<sup>h</sup>ai<sup>33</sup> hon<sup>21</sup>

<sup>11</sup> 「倒」也不能構成程度補語述補結構。比如，不能說「iau<sup>53</sup> to<sup>35</sup> voi<sup>33</sup> ʃun<sup>53</sup> 柸倒會口」（參看例句 18）。

佢行路行 {到/\*倒} 滿身大汗。  
他走路走得滿身大汗。

(47) ki<sup>55</sup> sia<sup>35-33</sup> si<sup>33</sup> sia<sup>35-33</sup> {to<sup>21</sup> / \*to<sup>35</sup>} ʒan<sup>55</sup> pit<sup>5-32</sup> sim<sup>53</sup> lui<sup>55</sup> t<sup>h</sup>et<sup>5</sup> le<sup>53</sup>  
佢寫字寫 {到/\*倒} 鉛筆芯 搯掉了。  
他寫字寫得鉛筆尖都禿了。

「倒」引進的只限於狀態 M。如上所示，狀態 M 可以分爲「斷言」與「描寫」（朱德熙 1982）。目前根據手頭的材料分析，「到」不能用於狀態 M(斷言)（例句 48）。

(48) sia<sup>35-33</sup> { \*to<sup>21</sup> / to<sup>35-33</sup> } ho<sup>35</sup>  
寫 { \*到/倒 } 好。  
寫得好。

總而言之，如前所述，「到」用於狀態 E 和狀態 M(描寫)，「倒」用於狀態 M(斷言/描寫)，無標記則只限於狀態 M(描寫)（參看 05）。

對照 Lamarre (2001c) 的類型 (03) 來看，海陸客語的情況較爲接近 Type IIa (P≠M=E, P:得, M,E:其他標記)。但是，實際情況不是「M=E」。因爲「到」不能用於狀態 M(斷言)，「倒」不能用於狀態 E。因此，不能勉強把海陸客語的情況勉強套入這個類型裡。

#### 4. 語法化途徑

##### 4.1. 文獻回顧—語法化途徑的模式一

虛詞「到(倒)」在南方漢語裡是很普遍的語素。對於這種「到(倒)」的多義結構或語法化途徑，除了吳福祥(2001, 2002a,b, 參看 04)以外，已有不少學者做過研究。下面介紹一下有關客語虛詞「到(倒)」語法化的研究。

林英津(1993)主要根據歷時材料構擬了「到(倒)」的語法化途徑（參看 49）。她還推測，上聲「倒」是源自去聲「到」的，聲調產生變化是爲了便於區別實詞「到」和虛詞「到」。

(49)  
動詞 > 介詞 (V 到 L) > 補語 (結果/動相) > 體貌詞尾  
去聲 ←—————→ 上聲

Lai(2002)對北部四縣客語的「到」(DO)<sup>12</sup>根據共時層面的句法結構與詞義的

<sup>12</sup> Lai(2002)在註釋中提到「到」(DO)有兩種聲調，就是當作動詞補語的「到」與其他的「到」的聲調不同。遺憾的是她沒有把這個差異運用到分析中去。

衍生情況構擬了如下的語法化途徑（參看 50）。

(50)

動詞 > 副動詞（V 到 L） > 補語連詞（補語標記） > 動詞補語（動相補語）

江敏華(2007: 246-247) 依據歷時層面和方言類型學研究成果，指出(50)的語法化途徑模式中後兩者的順續顛倒了，應該是「動相補語 > 補語標記」才對，並對台灣東勢客語的補語標記「到」提出了如下的語法化過程模式（參看 51）。她還指出補語標記「到」在形式上也有語法化現象。動詞、介詞、結果補語的「到」是上聲(31 調)，補語標記的「到」是陰平(33 調)，可以說是一種弱化或輕讀現象。

(51)

動詞 > 介詞 > 結果補語 > （動相補語） > （完成體標記） > 狀態補語標記  
 └——上聲——┘ 陰平（輕聲？）

構擬某一個語素的語法化途徑應該根據歷時材料才可靠，光以共時層面的多義結構來構擬自然有局限。在如上所述的幾種語法化途徑之中，較有說服力的應該是經過結果補語或動相補語演變為補語標記的說法，如吳福祥(2002b)、江敏華(2007)等。

李小華(2007)根據福建永定客語的研究提出了另一種語法化途徑模式，就是「“達到”義動詞 > 補語標記」的途徑。他指出「“到”原本表示達到某一處所，但當“到”後跟隨的不是處所詞語，而是一些表情狀的詞語時，“到”的“達到”義就容易弱化，進而虛化為達到某一程度或狀態的標誌詞」（p.97）。本文認為這個論點很有意義。在南方漢語當中，「到(倒)」的語法化途徑不會只有一種。其實這種情況在海陸客語中也能看到。下面討論海陸客語補語標記語法化的問題。

#### 4.2. 海陸客語的「到」與「倒」的語法化途徑

根據林英津(1993)、吳福祥(2002b)等的歷時研究，「到(倒)」的主要句法功能與詞義是由「V 到 L」格式發展而來的。格式整體的意思是「通過 V 所表示的動作行為移到 L 所表示的處所」。這個處所詞(L)後來擴大到時間詞、指人名詞以及抽象名詞等。這個格式的「到」是終點標記，因此要有謂語動詞的終點（賓語）。恐怕沒有賓語就不能成句。換言之，「到」與賓語的關係相對緊密，可把它分析為「V[到 L]」<sup>13</sup>。自六朝至唐代，因詞序的變化，形成了「LV 到」等格式。在這個格式裡「到」字懸空，因此「到」和謂語動詞(V)的關係趨於緊密，補語化由此開始。某種動作行為到達終點時，動作到達終點和動作完成是平行的。具有終點與具有界限

<sup>13</sup> 有些學者把這種「到」分類為介詞（林英津 1993、Lai 2002、江敏華 2007）。

(endpoint)意義相近，有界限的動作行為會被理解為與完整(perfective)有關的體貌（遠藤 2010）。這樣便有了發展成體貌標記的基礎。「到」的聲調變化可能發生在此時。為了區別歧義，把原來的聲調變成上聲（「倒」）以區別去聲「到」。這種形式變化之後，形成「V 倒 O」格式時也會被分析為「[V 倒]O」了。

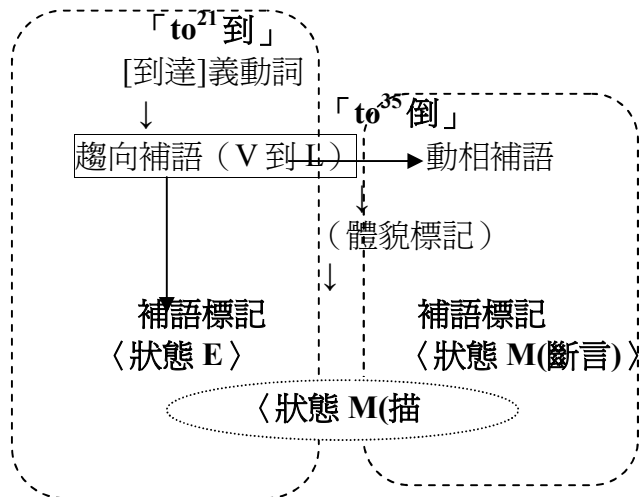
那麼海陸客語的兩種補語標記如何產生？本文支持「到」「倒」同源說。理由有二。第一，兩者字音詞義相近。第二，「到」的歷時演變可為佐證。先說結論，補語標記「到」和「倒」衍生出來的語法化階段不同。「到」是來自「V 到 L」格式的「到」（趨向補語），而「倒」來自動相補語（或體貌標記）（參看 52）。

「到」的歷時演變顯示，補語標記「到」是由[到達]義動詞經過趨向補語發展而來的。其實語「體詞性成份（處所詞>時間詞>其他抽象名詞）>謂詞性成分」的更替也促進了這種演變。但補語標記的「到」還保留著終點標記的功能，引進動作行為引發的事件或達到的程度，這些都可以看作一種終點。也可以這麼說，補語標記「到」的左邊（謂語動詞）表原因，其右邊（補語）表結果<sup>14</sup>。李小華(2007)分析福建永定客語的補語標記「到」也指出了這個標記直接來自動詞「到」。而動相補語的「倒」是表示動作實現，與終點標記的「到」相比，其引進終點的功能相對弱。因此「倒」引進的補語只表示已經實現的動作行為本身的狀態，而不是到達的狀態。「倒」在此階段應該成為結果體標記。結果體是完整系列體貌的一種

（Bybee, Perkins & Pagliuca 1994）。因此，如吳福祥(2002) (04)所指出的那樣，補語標記「倒」是經過動相補語或體貌標記發展而來的。

到此，兩種補語標記的語法化途徑可構擬如下。補語標記「到」和「倒」均由動詞「到」發展而來，而「倒」有可能是由趨向補語經過動相補語衍生出來的。

(52)



## 5. 結語

<sup>14</sup> 這樣的詞序與所指的事態之間有像似性(iconicity)。

本文主要針對海陸客語的兩種補語標記「到」和「倒」加以分析得到了兩種初步的認識。第一，「到」偏於達到的結果或程度、範圍，而「倒」只引進靜態的狀態。但是就狀態補語 M(描寫)而言，兩者可以互用。第二，「到」和「倒」同源，但衍生出來的語法化階段不同。「到」是直接來自趨向補語（介詞），而「倒」則來自動相補語或體貌標記。

今後需要更豐富的材料以鞏固此結論。此外，目前尚未解決的問題也有兩個。第一是形成補語標記「倒」的動因。由動相補語到補語標記的衍生環節有何條件，還沒得到線索。第二是無標記狀態補語 M 的產生機制。是由 VC 的述補結構衍生還是由刪去補語標記產生？

#### 參考書目

- Bybee, Joan, Revere Perkins & William Pagliuca. 1994. *The Evolution of Grammar. Tense, Aspect, and Modality in the Languages of the World*. Chicago: The University of Chicago Press.
- [Chen] 陳聖欣. 2009. 『臺灣客家話中的閩南語借詞』（國立中央大學客家語文研究所碩士論文）.
- [Chiang] 江敏華. 2007. 「東勢客語的動補結構初探」. *Journal of Chinese Linguistics*. 35-2. 225-266.
- [Endo] 遠藤雅裕. 2010. 「台湾海陸客家語のアスペクト体系」. 『現代中国文化の光芒』（中央大学人文科学研究所研究叢書 49）. 25-64.
- [Endo] 遠藤雅裕. 2011. 「台湾海陸客家語の補語」. 『文法記述の諸相』（中央大学人文科学研究所研究叢書 54）. 131-174.
- [Kwok] 郭必之. 2009. 「語言接觸誘發語法化的實例——論畚語三個補語標記的來源和分工」. *Language and Linguistics*. 10-1. 59-92.
- Lai, Huei-ling. 2002. The Grammaticalization of the Verb DO in Hakka. *Journal of Chinese Linguistics*. 30-2. 370-391.
- [Lamarre] 柯理思. 2001a. 「從普通話裡跟“得”有關的幾個格式去探討方言類型學」. 『語言研究』 2001-3. 7-18.
- [Lamarre] クリスティーン・ラマール. 2001b. 「中国語における文法化—方言文法のすすめ」. 『言語態の問い（シリーズ言語態(1)）』（中山圭一・石田英敬編）. 東京大学出版会. 155-174.
- Lamarre, Christine. 2001c. Verb-Complement Constructions in Chinese Dialects : Types and Markers. In *Sinitic Grammar: synchronic and diachronic perspectives*. ed. Hilary Chappell. Oxford University Press. 85-120.
- Lamarre, Christine. 2002. 「助詞への道—漢語の“了”、“得”、“倒”の諸機能をめぐって」. 『認知言語学Ⅱ カテゴリー化（シリーズ言語 3）』（大堀壽夫編）. 東京大学出版会. 185-215.
- [Li] 李小華. 2007. 「永定客家方言助詞“倒”及“倒”字溯源」. 『語言科學』 6-6. 92-99.



遠藤: [to<sup>21</sup>] 與[to<sup>35</sup>]

- [Lin] 林英津. 1993. 「客語上聲「到」的語法功能探源」. 『中央研究院歷史語言研究所集刊』 63-4. 831-866.
- [Pan] 潘家懿. 2000. 「海陸豐客家話與台灣“海陸客”」. 『汕頭大學學報（人文科學版）』 16-2. 86-93.
- [Tang] 湯廷池. 1999. 『閩南語語法研究試論』. 台北: 台灣學生書局.
- [Wu] 吳福祥. 2001. 「南方方言幾個狀態補語標記的來源（一）」. 『方言』 2001-4. 344-354.
- [Wu] 吳福祥. 2002a. 「南方方言幾個狀態補語標記的來源（二）」. 『方言』 2002-4: 24-34.
- [Wu] 吳福祥. 2002b. 「南方方言裡虛詞“到(倒)”的用法及其來源」. 『中國語文研究』 2002-2. 28-46.
- Yue-Hashimoto, Anne. 1993. *Comparative Chinese Dialectal Grammar: Handbook for Investigators*. Paris: Ecole des Hautes Etudes en Sciences Sociales.
- [Zhu] 朱德熙. 1982. 『語法講義』. 北京: 商務印書館.

## Rhyme phonotactics in Taiwanese: A dispersion-theoretic perspective\*

Feng-fan Hsieh  
*National Tsing Hua University*

This paper argues against a (standard) markedness-based approach to rhyme phonotactics in Taiwanese since analyses in this vein overgenerate by predicting unattested VC gaps. Instead, I explain VC gaps in the following terms. The key point is that the salient places cues of release to a coda stop are absent in Taiwanese (and many other (South) East Asian languages), leaving VC transitions as the only cues and consequently impeding an accurate and reliable identification of place distinctions in coda position. As such place contrasts may be neutralized (henceforth the gaps) because there are systematic asymmetries after particular vowels in terms of their ability to signal place in the upcoming stop. Otherwise, enhancement is invoked to maintain place contrasts, resulting in vowel quality change or emergence of an excrescent schwa (confirmed by an acoustic study reported in this work). I shall show that both “repair strategies” are attested in Taiwanese and Cantonese (and perhaps Hakka) and can be captured by Steriade’s (1999) Licensing-by-Cue hypothesis, in tandem with Flemming’s (2002) Dispersion Theory of contrast.

### 1. Introduction

In Sinitic languages, the gaps in the inventory of possible rimes (rhyme phonotactics) have been customarily attributed to some Morpheme Structure Constraint or OT markedness constraint. For example, no two [labial] segments are allowed within a rime, thus excluding ill-formed rimes such as *\*-um* or *\*-up* in certain Sinitic languages (e.g. Ang 1996, Chung 1996 for Taiwanese and Yip 1998 for Cantonese, among many others). This work challenges this now-conventional approach by pointing out that analyses along this line overgenerates by predicting unattested gaps. For example, why don’t we never see effects of, say, OCP([-bk]), eliminating rimes like *-in*? So it is fair to say that a satisfactory (standard) markedness-based account cannot be easily obtained (see section 4 for more discussion). I argue that Flemming’s (2002) Dispersion Theory of contrast (or

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\* I would like to thank Yueh-chin Chang, Michael Kenstowicz and the participants of NACCL-22 and IACL-18 for their comments and questions. Special thanks are due to Ching-ting Chuang for her assistance in the data collection and analysis phases of this effort. This work was supported by a National Science Council grant (NSC 97-2410-H-007-025). The usual disclaimers apply.

Padegtt's (2003) systemic faithfulness and markedness; cf. Liljencrants and Lindblom (1972)) offer a more viable solution to the issues in question. I shall show that the main "trigger" is that vowels may be in danger of perceptual confusion in phonetically shorter syllables (Flemming 2005, Lindblom's (1963) undershoot model) and then perceptual confusion may lead to contextual neutralization, given that sufficient contrasts cannot be maintained due to articulatory difficulties. Hence the gaps are motivated. Moreover, it is also confirmed in my acoustic data that Keyser and Stevens's (2006) enhancement effects may be invoked to avoid potential perceptual confusion. So our results are yet another example confirming the hypothesis that phonologies of languages are determined by phonetic principles (Hayes et al. 2004) because rhyme phonotactics, an unambiguously phonological phenomenon, is motivated by language-specific implementation of phonetic details in a non-trivial way. Finally, from a cross-linguistic perspective, the present analysis can also be extended to rhyme phonotactics in Cantonese and (Meixian and Taiwanese) Hakka.

This paper is organized as follows. In section 2, background and some preliminary data are presented, together with discussion of why the issues in question cannot be appropriately regarded as accidental gaps. Section 3 is an acoustic study of the vowels in Taiwanese under various contexts and then a Dispersion-theoretic analysis is provided, based on the obtained phonetic data. In section 4, I will demonstrate why a markedness-based analysis overgenerates by predicting unattested patterns. Finally, this paper is closed with discussion of VC gaps in Cantonese and Hakka.

## 2. The gaps

### 2.1. Statement of the problem

The core data of this study are illustrated in (1) below.

(1) The gaps in the inventory of possible rimes in (Mainstream) Taiwanese

	-p/-m	-t/-n	-k/-ŋ
i	√	√	√
u	×	√	×
ɔ	?	×	√
a	√	√	√

(where √ = attested, ? = rare, × = unattested)

Like many other Sinitic languages, the maximal Taiwanese syllable has four underlying elements CGVX (e.g. Duanmu 2000), where, modulo the issue of phonemicization, C={p, t, k, p<sup>h</sup>, t<sup>h</sup>, k<sup>h</sup>, b, g, s, ts, ts<sup>h</sup>, l, m, n, ŋ, ?}, G={j, w}, X={m, n, ŋ, p, t, k, ?}. In Mainstream Taiwanese, there are six (6) phonemic oral vowels, {i, e, a, u, o/ɤ (a slightly rounded mid back vowel, mostly found in Southern Taiwan), ɔ} and five (5) nasal vowels, {ĩ, ê, ã, (õ), (ĩũ)} (where /õ/ is extremely rare and /ũ/ cannot stand alone; also,

nasal vowels are not compatible with a coda). Notice further that vowel /o/ is neutralized with vowel /ɔ/ in closed syllables and vowel /e/ is not possible in closed syllables.<sup>1</sup>

Standard markedness constraints alone cannot account for the above gaps; however the constraints are formulated, e.g. the OCP (McCarthy 1986, Yip 1988 among others) or AGREE (Lombardi 1999, among others). Some discussion is in order. Firstly, labial dissimilation works only for *-up* and *-um* rimes, whereas rimes like *-ɔp* and *-ɔm* are not absolutely impossible. In some sub-varieties (mainly Changzhou-accented ones), ginseng is pronounced [sɔm<sup>1</sup>] and there are a handful of onomatopoeic expressions such as [hɔp<sup>8</sup>] ‘to snap’ or [tɔp<sup>8</sup>] ‘water dripping sound’. There is no denying that forms like these are very rare but they do exist, suggesting that these rimes are disfavored by some other independent reason, rather than featural co-occurrence restrictions. Secondly, and more importantly, it is quite questionable as to why there are neither coronal dissimilation nor velar dissimilation, if any. For instance, suppose that front vowels are coronal (Hume 1994; cf. Flemming 2003) and then it is puzzling why rimes like *-in* or *-it* *never* seem to be subject to dissimilation, to the best of my knowledge. I will argue extensively in section 4 that various rankings of standard markedness constraints are of no avail in this regard, because, as mentioned at the outset, overprediction is doomed given a standard markedness-based account. Finally, there are still other gaps that may have nothing to do with co-occurrence restrictions. For example, it is likely that *\*-uk* and *\*-uŋ* are ruled out by the constraint OCP-([+high]) (following Sagey’s (1990) model), but what about *-ik* or *-iŋ* (see also fn. 1)? Also, since *-un* and *-ut* are perfectly fine, there is no apparent reason why *\*-ɔt* and *\*-ɔn* are not attested because vowels /ɔ/ and /u/ differ mainly in F1 (and perhaps in tenseness and rounding, which are obviously not so relevant here). We have learned from (1) that vowel height is not subject to dissimilation in Taiwanese (e.g. *-ik/-iŋ*). In sum, as a first approximation, it is fair to say that featural co-occurrence restrictions seem to fail to provide a satisfactory, unified account for the VC gaps in Taiwanese.

## 2.2. The spotty data problem

Before we move on to the analysis, it is necessary to discuss a non-trivial issue firstly noted in Duanmu (2008), i.e. “there are often not enough data for making reliable generalizations, even if we examine the entire lexicon of language.” The gist of Duanmu’s concern, or the spotty data problem, is that we may never know if an unattested structure is ruled out (or not generated) by grammar or is simply an accidental gap. Indeed, this quandary is not a trivial one and is relevant to the issues in question. To see why this problem is not at issue here, a comparison table in (2) may be of help, while

<sup>1</sup> Vowel /e/ is, diachronically speaking, a “derived” vowel, resulting from the coalescence of /ai/ at some point. Also, in Church Romanization (or, POJ, which was firstly invented in Amoy/Xiamen, China), rimes like *-ik* or *-iŋ* are spelled *ek* and *eng*. Those spelling forms do not correspond to the actual pronunciation in Mainstream Taiwanese. Incidentally, vowel /i/ is lowered in the current context in some other varieties of Southern Min, for example, Chaozhou.

in the future it is definitely needed to test for the acceptability of the (non-)gaps by means of a series of psycholinguistic experiments. Recall from (1) that vowel /u/ does not co-occur with a velar coda in Taiwanese. Is it possible to posit that a high back vowel must be lowered in closed syllables in Taiwanese? The answer is negative because that is not true if we look at the second Taiwanese example in (2), whereby vowel /u/ is attested in a closed syllable as long as the coda is coronal, i.e. [sut<sup>8</sup>] ‘skill, art’. More importantly, as we can see in (2), the word ‘poison’ in Hakka and Cantonese is undoubtedly a cognate of Taiwanese but vowel /u/ is perfectly fine in closed syllables in these two closely related languages, suggesting that it may not be appropriate to treat *-uk* or other gaps as mere accidental gaps. Thus, I conclude that at least the VC gaps in (1) are grammatically conditioned, but not an accidental gap.

(2) A (over-simplified) cross-linguistic comparison

<u>Taiwanese</u>	<u>Hakka</u>	<u>Cantonese</u>	Gloss
tək (*-uk)	t <sup>h</sup> uk	tuk	‘poison’
sut (*-ɔt)	sut	sət	‘skill, art’

### 3. Towards a dispersion-theoretic account

We have assumed previously that VC gaps are not markedness-driven. The aims of this section are to pinpoint the motive force behind the observed patterns of rhyme phonotactics and then to provide a Dispersion-theoretic account for the phenomena in question. In light of Steriade’s (1999) Licensing-by-Cue hypothesis and the subsequent P-map hypothesis (Steriade 2009), we need to explore why stop codas in Taiwanese are so confusable that a “grammatical response” is inevitably invoked. Regarding perceptual confusability, the basic claim is that there are two possible “repairs” in grammar. Enhancement effects, on the one hand, refer to the mechanism that different allophones are assigned along some acoustic dimension in order to enhance a phonemic contrast (Keyzers and Stevens 2006). Contextual neutralization, on the other hand, may occur when a contrast cannot be reliably maintained. As we will see below, both are attested in the phonology of VC gaps in Taiwanese (but see Flemming 2006).

#### 3.1. Triggers

The contextual confusability in question is mainly due to the fact that stop codas are never released, even in extremely careful speech in Taiwanese (and in most (South) East Asian languages).<sup>2</sup> So this language-particular implementation of stop codas impedes proper identification of places of articulation (see Chu et al. 2008 for a proposal along this line). Importantly, it has been confirmed that release bursts are the most salient cue

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<sup>2</sup> Another distinct trait is that stop codas are normally reinforced by different degrees of “glottalization” (see Edmondson et al. 2010 for recent laryngoscopic studies of Taiwanese and Vietnamese and references cited therein).

for stop place (Stevens and Blumstein 1978, Blumstein and Stevens 1979, Stevens 1994, among others). Among other cues, formant transitions are not reliable, even in CV (Delattre et al. 1955), while F2 Loci (Stevens and Houses 1956, 1966) or Locus equations (LEs, Sussman et al. 1991, Sussman 1994, among others) are also not sufficient to serve as the specifier of places (e.g. Fowler 1994). Our claim is further supported by the fact that, as far as I know of, languages with released stop codas do not have (systematic) VC gaps. Furthermore, it is important to note that, in such languages, phonotactic restrictions occur exactly in environment where release bursts may be vulnerable or even absent, e.g. stop-stop clusters in English (see, for example, Wright (2001) for more discussion).

Closed syllable laxing, on the other hand, serves as the other motive force behind the phenomena in question. Lindblom (1963) proposes that vowel space contracts (i.e. centralization) as vowel duration is reduced, resulting in undershoot in short unstressed syllables, provided that effort minimization is at play. Vowel contrasts are subject to merger when it is difficult to maintain a distinction where vowel duration is shorter and insufficient contrasts emerge as a function of centralization (Flemming 2005). Taken together, in order for the present analysis to work, it is necessary to see if the above-mentioned phonetic properties are indeed attested in Taiwanese. So I present results of an acoustic study of the vowels in Taiwanese in different contexts, to which I shall return in the following section.

### 3.2. Phonetic underpinnings: An acoustic study

Ten male speakers participated in this study. They are all native speakers of Taiwanese. Seven speakers are in their 20s and three speakers in their 60s. All participants were born and raised in Taiwan (five from Northern Taiwan and five from Southern Taiwan) and never left Taiwan for more than half a year. They were paid for their participation in this experiment. In this paper, I reported the data from two younger male speakers from Southern Taiwan.

The test material used in this study consisted of 299 monosyllables. The target words are all controlled for the following syllable types: CV, CVN and CVS, where C={unaspirated voiceless stops: p, t, k; if not available, voiceless fricatives or affricates: s, h, ts}, V={ i, e, a, u,  $\text{ɤ}^3$ , ɔ for open syllables; i, a, u, ɔ for closed syllables}, N={m, n, ŋ}, and S={p, t, k}. CV and CVN syllables were produced with a high level tone (Tone 1/*Yinping*) and a high falling tone (Tone 2/*Yinshang*) was used, if Tone 1 is not available. CVS syllables are only compatible with checked tones, namely, Checked Mid (Tone 4/*Yinqu*) and Checked High (Tone 8/*Yangqu*). All target words were produced in this carrier phrase: “*tsit-e li si* \_\_. ‘this word is \_\_’”. Each sentence was repeated three times, yielding a total number of 897 tokens.

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<sup>3</sup> Note again that this slightly rounded mid back vowel / $\text{ɤ}^3$ / corresponds to vowel /o/ in the variety spoken in Northern Taiwan. In this paper, I reported the data from the variety spoken in Southern Taiwan, especially Tainan, Kaohsiung and Pingtung.

Recordings for acoustic analysis were taken in a soundproof room at the NTHU phonetics lab with a digital recorder (Roland Edirol R09) and a high-quality microphone (Beyerdynamic TGX480) with sampling rate of 44.1 kHz. All speakers were literate and accustomed to reading Chinese characters in Taiwanese. They were asked to read randomized sentences of Taiwanese from a computer screen.

The acoustic analysis procedure was similar to that used in Zee (2000), using Praat (Boersma and Weenink 2010). The formant values were extracted from the start, mid, and end points with the help of a Praat script developed at the NTHU Phonetics Lab. The obtained formant values were subsequently normalized by means of the Lobanovian method, using a web-based software package of vowel normalization, NORM (Thomas and Kendall 2007). Consider now the vowel plots below. Recall that vowels /e/ and /ɤ/ are not possible in closed syllables. The data are from two young male speakers from Southern Taiwan.

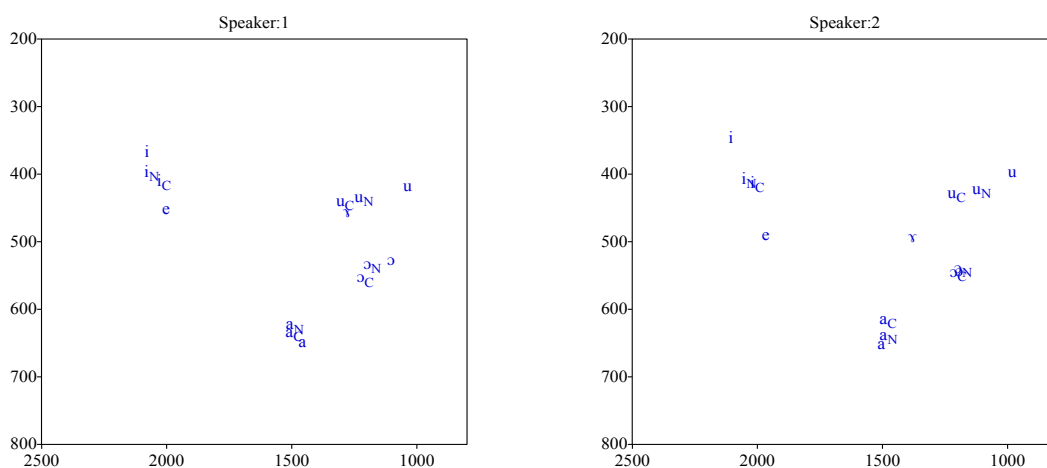


Figure 1. Lobanov normalized vowels of Taiwanese (mean values for midpoint; where  $N$ = vowels with a nasal coda;  $C$ = vowels with a stop coda)

From Figure 1, it is obvious that vowels are centralized in closed syllables, while vowels in checked syllables are most centralized. There was a significant difference in mean F1 and F2 values for the vowels in open syllables and for the vowels in closed syllables: all are significant at the 0.05 level, except Speaker 2's vowel /ɤ/. The results thus suggest that the space of Taiwanese vowels contracts significantly in checked syllables. Next, the data of vowel length in open syllables and closed syllables are reported in (3). As we can see, vowel duration is significantly reduced in checked syllables; vowels in open syllables are (at least) twice longer than vowels in checked syllables (i.e. in a ratio of 2:1).

## (3) Vowel duration (in ms; SD in parentheses)

	<u>CV</u>	<u>CVC</u>
Speaker 1	267.8 (66.8)	75.0 (18.8)
Speaker 2	219.9 (43.1)	104.7 (15.6)

In sum, the present results confirm that vowel centralization and length reduction are both attested in checked syllables in Taiwanese, even though the test words were embedded in sentence-final position, one of the prosodically prominent positions that is cross-linguistically most subject to lengthening effects (e.g. Hsieh 2005). All in all, it is safe to say that vowels are more confusable with one another in the above contexts, thus motivating grammatical responses to avoid the low perceptibility of (post-)vocalic place distinctions.

**3.3. The repairs: a view from formant movement**

There are two logically possible repairs for confusable contrasts, namely, contextual neutralization (i.e. loss of contrasts) or enhancement (i.e. to keep contrasts sufficiently distinct by “enlarging” acoustic differences). In the Taiwanese data, we see both are used to avoid the low perceptibility of (post-)vocalic place distinctions. Interestingly enough, nonlow, back vowels opt for neutralization, as vowels /u/ and /ɔ/ are in complementary distribution when in closed syllables (see (4)). One may wonder why we should care about non-existing rimes such as *\*-uk* below. As we have discussed in section 2.2, these non-occurring forms cannot be accidental gaps if cognates of related languages are taken into consideration (and perhaps given the Richness of the Base Hypothesis (ROTB, Prince and Smolensky (2004))). Consequently, these gaps are better regarded as an ill-formed structure.

## (4) Neutralization in nonlow, back vowels in closed syllables

Potential contrasts	Surviving forms
-uk vs. -ɔk	[ɔk]
-ut vs. -ɔt	[ut]
-up vs. -ɔp	[ɔp] (rare but attested)

By contrast, to avoid potential confusion, front and low vowels (/i/ and /a/) have recourse to vowel quality change or diphthongization (or, an excrescent schwa). It is important to note that these vowels do not have “neighbors” (e.g. /e/ or /æ/, respectively) in closed syllables (as a result of diachronic changes; fn. 1). Therefore, no contextual neutralization is expected. On the other hand, at first blush, one may wonder why a three-way contrast is possible in (5). The reason is straightforward: for front vowels, only vowel /i/ is attested in closed syllable and there is only one low vowel /a/ in Taiwanese. In other words, the present observation lends further support to this important generalization: neutralization does not occur in absence of contrasts (e.g. Flemming 2002). We do not



expect gaps under these circumstances simply because, again, there are no other contrasting forms, e.g. *\*-ek* or *\*-en* (see also fn. 1). Consequently, enhancement is motivated to avoid potentially confusable forms. As we can see in (5), an excrescent schwa shows up when high front vowel /i/ precedes a velar coda. The low vowel /a/ is (slightly) fronted or backed when followed by a coronal or velar coda, respectively. This is reminiscent of “rime harmony” in Mandarin Chinese, whereby a front vs. back low vowel is required to co-occur with a dental vs. velar nasal coda, respectively (Duanmu 2000, Hsieh et al. 2009; see Flemming 2003 for the phonetic basis of such a constraint).

(5) Enhancement in front and low vowels in closed syllables

Contrasts	Surviving forms	Remarks
-ik vs. -ip vs. -it	[i°k], [ip], [it]	Excrescent schwa
-at vs. -ak vs. -ap	[at̚], [ak̚], [ap̚]	Vowel quality change, “rime harmony”

Formant movement patterns of Taiwanese vowels in checked syllables are illustrated in Figure 2. Notice that, for typographic reasons, /oo/ stands for /ɔ/ below. The data are from the same two younger speakers from Southern Taiwan.

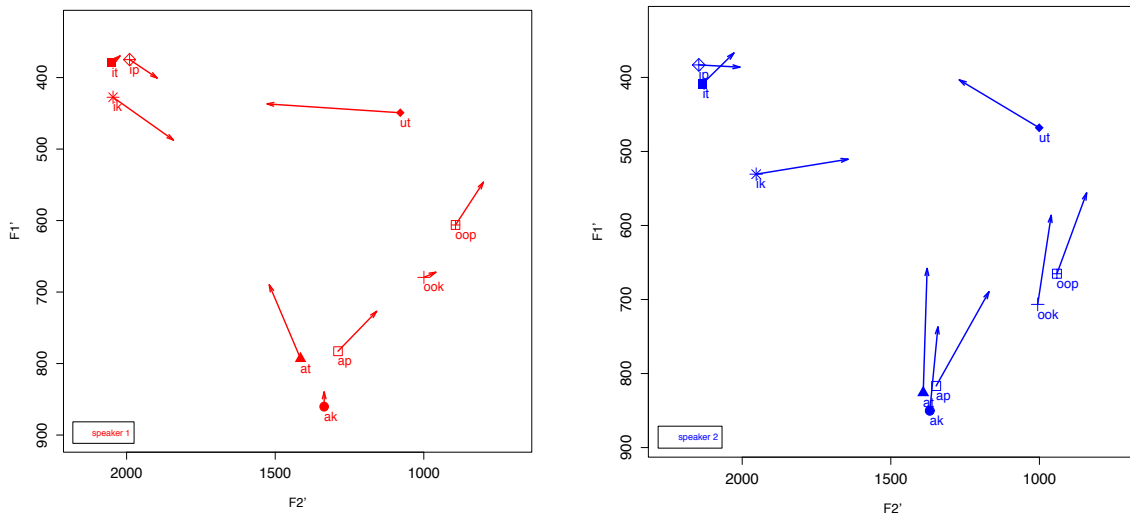


Figure 2. Formant movement patterns of Taiwanese vowels in checked syllables (from midpoint to offset, marked with an arrow. Note that /oo/ stand for /ɔ/.)

We observe from Figure 2 that, coda /-p/ compresses F2; coda /-t/ raises F2; coda /-k/ lowers F2, towards the endpoints. As we can see, the VC transition patterns of the two speakers are largely collaborative and also conform to the descriptions in (4) and (5). The present patterns to a great extent confirm the well-established acoustic loci for consonants, and, more importantly, indicate that faithfulness to the consonantal places is prioritized considerably high because there is good evidence that FAITH-(V) outranks

FAITH-(C) in Taiwanese, for example, palatalization: /tsi/ → [tei] (e.g. Ang 1996, Chung 1996).

It is important to note that nonlow, back vowels resist enhancement because one of the major articulators of back vowels is Tongue Dorsum (TD). Faster movements are not easily executable with less mobile TD, deterring vowel quality change as a possible solution to enhance a phonemic contrast. Furthermore, it is well-known that centralized vowels do not tend to be rounded, cross-linguistically speaking. On the other hand, front vowels involve TD to a less extent, thus facilitating a shift of horizontal tongue position. Also, low vowel /a/ is more prone to contextual variations along the F2 dimension in absence of contrasting forms. In sum, it may well be the case that the choices are determined by functional factors such as physiological limitations and avoidance of neutralization.

### 3.4. More on neutralization

More remarks must be made with regard to neutralization of nonlow, back vowels in closed syllables. The relevant data are illustrated again in (6) below.

(6) Neutralization in nonlow, back vowels in closed syllables *redux*

Potential contrasts	Surviving forms	Remarks
-ut vs. -ɔt	[-ut]	[-ut] is closer to the locus of [t]
-up vs. -ɔp	[-ɔp]	Both are equidistant to the locus of [k]; [-ɔp] is less deviant from the input /ɔ/
-uk vs. -ɔk	[-ɔk]	Both are equidistant to the locus of [k]; [-ɔk] is less deviant from the input /ɔ/

Along the F2 dimension, we expect that *-ut* is favored if faithfulness to vowel “is high enough”, because less formant movements are involved from the midpoint of /u/ to /t/. In other words, this preference comes from the assumption that phonetic realization of vowel /u/ will be less deviant when combined with /t/, if compared with the (hypothetical) vowel in *\*-ɔt* rimes, according to Steriade’s (2009) P-map hypothesis. On the other hand, although both /u/ and /ɔ/ are more or less equidistant to the loci of /p/ and /k/, vowel /ɔ/ fares better here in terms of the P-map Hypothesis, because, again, less formant transitions are needed, due to the fact that /ɔ/ are more centralized than /u/ (see Figures 1 and 2). In sum, the basic claim here is that the target of neutralization is determined by whether or not a potential phonetic realization is faithfully rendered and thus is more faithful to the input. Alternatively, the present patterns of neutralization can be interpreted as results of minimization of articulatory efforts. But I won’t go any further here because of the lack of kinematic data.

Due to space limits, it is not possible to provide a comprehensive analysis of the phenomena in question, but the above guiding ideas will be sufficient, if couched with

Flemming's (2002) Dispersion Theory of contrast as well as Flemming's (2001) weight constraint-based constraints.

#### 4. Is rhyme phonotactics markedness-driven?

I have mentioned at the outset that rhyme phonotactics cannot be solely attributed to standard markedness effects. Analyses along this line normally have the following characteristics. First, the ill-formedness of a given sequence is due to the OCP violation or something like AGREE. Second, the "application domain" for a proposed constraint is basically defined within a rime. I will focus on the first problem below, by pointing out that the existence of subsyllabic constituents has been questioned, e.g. in Yip (2003) and it was reported in a concept formation experiment that rime may not be a phonological unit in Taiwanese (or, Derwing's (2007) Minnan Chinese).

To see why a standard markedness account overpredicts attested patterns, let us first look at a factorial typology in (7). It has been noted that Prince and Smolensky's (2004) use of universally fixed rankings like \*Lab, \*Dor » \*Cor is empirically problematic (see, for example, de Lacy 2006 for an overview). So I assume free rankings of relevant constraints below. Notice further that OCP-(lab)<sub>Syllable</sub> may not be active anymore because the English loanwords like *pem* 'pump', an obvious violation of the well-established labial dissimilation constraint, do exist (e.g. Bauer and Benedict 1997).

(7) A factorial typology: Co-occurrence restrictions on syllable/morpheme

<u>Rankings</u>	<u>Remarks</u>
OCP-(lab) <sub>Syllable</sub> » <i>M</i>	Cantonese: * <i>pam</i> , * <i>pap</i> , etc.
OCP-(cor) <sub>Syllable</sub> » <i>M</i>	A language banning: * <i>tan</i> , * <i>tat</i> , etc.
OCP-(dor) <sub>Syllable</sub> » <i>M</i>	A language banning: * <i>kaŋ</i> , * <i>kak</i> , etc.

(where *M* = other co-occurrence constraints)

It appears that only effects of OCP-(lab)<sub>Syllable</sub> are attested above. To the best of my knowledge, co-occurring coronals or velar sounds (within a syllable) are never subject to the OCP violation, at least in Sinitic language (but note the ill-formedness of \**skak* or \**spap* in English, for example). Likewise, restricting the application domain to rime does not fare better, either, since similar patterns are again wrongly predicted, as in (8).

(8) A factorial typology: Co-occurrence restrictions on rime

<u>Rankings</u>	<u>Remarks</u>
OCP-(lab) <sub>Rime</sub> » <i>M</i>	Cantonese: * <i>um</i> , * <i>op</i> , etc.
OCP-(cor) <sub>Rime</sub> » <i>M</i>	A language banning: * <i>in</i> , * <i>it</i> , etc.
OCP-(dor) <sub>Rime</sub> » <i>M</i>	A language banning: * <i>aŋ</i> , * <i>ak</i>

(where *M* = other co-occurrence constraints)

Finally, markedness of place of articulation may be reversed (contra de Lacy 2006), as we can see in (9) below. For example, for a two-way contrast, all possible combinations are attested: {p, t}, {t, k} and {k, p}, and it turns out that {k} is the most “unmarked” place in coda position, when it comes to a one-way contrast (excluding the glottal stop for now), at least for checked syllables in Sinitic languages.

- (9) Free ranking: A factorial typology (based on Yuan et al. 1983 and references cited therein)

<u>Rankings</u>	<u>Remarks</u>	<u>Languages</u>
*lab » <i>M</i>	Codas -t, -k are allowed	Nanchang Chinese
*cor » <i>M</i>	Codas -p, -k are allowed	Chaozhou Chinese
*dor » <i>M</i>	Codas -p, -t are allowed	Linchuan Chinese <sup>4</sup>
*lab, *cor » <i>M</i>	Coda -k is allowed	Fuzhou (old speakers)
*lab, *dor » <i>M</i>	Coda -t is allowed	?
*cor, *dor » <i>M</i>	Coda -p is allowed	?
*lab, *cor, *dor » <i>F</i>	No (stop) coda is allowed	Mandarin Chinese
<i>F</i> » *lab, *cor, *dor	Three-way contrast	Cantonese, Hakka, Taiwanese

(where *F* = faithfulness constraints)

While a comprehensive examination of the present issues is beyond the scope of this work, it is safe to conclude that employing standard markedness constraints alone, either freely rankable with one another or standing in stringency relations, fail to account for the full array of the attested data.

## 5. Other Sinitic languages

Before we conclude this paper, it is beneficial to see if the proposed analysis is applicable to related languages. This is because, in Sinitic languages, checked syllables are implemented in an identical fashion, as far as I know of. For present purposes, we briefly discuss VC gaps in Cantonese and (Mexian) Hakka. Both have a typical three-way contrast of places of articulations in coda position.

### 5.1. Cantonese

Cantonese, unlike most Sinitic languages, has a three-way distinction of vowel length (Zee 2000 and references cited therein), i.e. long vowels in open syllables, half-long and short vowels in closed syllables. Consider now the results of Zee’s (2000) acoustic study, based on mean formant values at the midpoint and the data are from ten male speakers.

<sup>4</sup> According to Tsao and Yeh’s (2006) fieldwork, coda /k/ was generally lost/debuccalized in Zhao’an Hakka, keeping a three-way contrast, i.e. /-p/ vs. /-k/ vs. /ʔ/, although coda /k/ is sparsely attested.

(10) A three-way distinction of vowel length in Cantonese (Zee 2000)

Long vowels	{i, y, ε, œ, a, ɔ, u}	approx. 350 ms
Half-long vowels	{i, y, ε, œ, a, ɔ, u}	approx. 200 ms
Short vowels	{ɪ, e, ɐ, ʊ}	approx. 120 ms

Notices that the short vowel [ə] is possible only when flanking segments are coronal (i.e. additive effects in Flemming 2001). As such, it is remarkable that neutralization occurs only when in short syllables (cf. (3)). In other words, vowels may not be confusable enough in long and half-long syllables. It follows that no neutralization is expected in those (phonetically) long syllables. I thus conclude that the Cantonese data do not only support the proposed analysis but also provide a crucial piece of evidence for Lindblom's undershoot model.

**5.2. Loose ends: Hakka**

The VC gaps in Hakka seem to constitute a real challenge to a Dispersion-theoretic analysis. From a recent study of Meixian Hakka (Lee and Zee 2009), it is evident that nonlow, back vowels remain distinct when in closed syllables, and meanwhile no enhancement effects (e.g. vowel quality change) are reported, as shown in the shaded cells in (11) below. The varieties spoken in Taiwanese, Sixian or Hailu Hakka, also exhibit similar distribution of VC gaps, as far as I know. So far, I have no explanation for the Hakka data, awaiting a closer examination in the future.

(11) Meixian Hakka (based on Lee and Zee 2009)

	-p/-m	-t/-n	-k/-ŋ
i	√	√	×
e	√	√	×
a	√	√	√
ɔ	×	√	√
u	×	√	√
ə	√	√	×

**6. Conclusion**

With the reintroduction of the systemic view into phonology, we have witnessed a lot of successes in explaining phonological patternings. In addition, another emerging view is that phonologies of natural languages are shaped by phonetic principles. It is hoped in this attempt that one of the most old issues in Chinese phonology, rhyme phonotactics, does lend support to both of the current trends in phonology.

## REFERENCES

- Ang, Uijin. 1996. *Taiuan'ue Im'un Jipmng* [An Introduction to Taiwanese Phonology] Taipei: National Fuhsing Opera Experimental School.
- Bauer, Robert S. and Paul K. Benedict. 1997. *Modern Cantonese Phonology*. Berlin and New York: Mouton de Gruyter.
- Boersma, Paul and Weenink, David (2010). Praat: doing phonetics by computer [Computer program]. <http://www.praat.org/>
- Blumstein, Sheila E., and Kenneth N. Stevens. 1979. Acoustic invariance in speech production: Evidence from measurements of the spectral characteristics of stop consonants. *The Journal of the Acoustical Society of America* 66.1001-17.
- Chu, Man-ni, Carlos Gussenhoven, Roeland van Hout. 2008. The identification of the place of articulation in coda stops as a function of the preceding vowel: a cross-linguistic study. *Proceedings of the 2<sup>nd</sup> ISCA Workshop on Experimental Linguistics*, ed. by Antonis Botinis, 25-27. Athens, Greece: University of Athens.
- Chung, Raung-fu. 1996. *The Segmental Phonology of Southern Min in Taiwan*. Taipei: Crane Publishing House.
- Delattre, Pierre C., Liberman, Alvin M., Cooper, Franklin S. 1955. Acoustic Loci and Transitional Cues for Consonants. *The Journal of the Acoustical Society of America* 27.4.769-73.
- Derwing, Bruce. 2007. What is in CVC-like things? Ways and means to look at phonological units across languages. *Experimental Approaches to Phonology*, ed. by Maria-Josep Solé, Patrice Speeter Beddor and Manjari Ohala, 325-38. Oxford: Oxford University Press.
- Duanmu, San. 2000. *The Phonology of Standard Chinese*. Oxford: Oxford University Press.
- Duanmu, San. 2008. *Syllable Structure: The Limits of Variation*. Oxford: Oxford University Press.
- Edmondson, Jerold A., Yueh-chin Chang, Hui-chuan J. Huang, Feng-fan Hsieh and Yuren Peng. 2010. Voiceless applosive finals in Taiwanese and other E&SE Asian languages: laryngoscopic case studies. Paper presented at the 12<sup>th</sup> meeting of Laboratory Phonology, Albuquerque.
- Flemming, Edward. 2001. Scalar and categorical phenomena in a unified model of phonetics and phonology. *Phonology*.18.1.7-44.
- Flemming, Edward. 2002. *Auditory Representations in Phonology*. New York: Garland Publishing Inc.
- Flemming, Edward. 2003. The relationship between coronal place and vowel backness. *Phonology* 20.335-73.
- Flemming, Edward. 2005. A phonetically-based model of phonological vowel reduction. Cambridge: Massachusetts Institute of Technology, ms.

- Flemming, Edward. 2006. The role of distinctiveness constraints in phonology. Cambridge: Massachusetts Institute of Technology, ms.
- Fowler, Carol A. 1994. Invariants, specifiers, cues: An investigation of locus equations as information for place of articulation. *Perception and Psychophysics* 55.597-610.
- Hayes, Bruce, Rober Kirchner, and Donca Steriade. 2004. *Phonetically Based Phonology*. Cambridge: Cambridge University Press.
- Hsieh, Feng-fan, Michael Kenstowicz, and Xiaomin Mou. 2009. Mandarin adaptations of coda nasals in English loanwords. *Loan Phonology*, e.d. by Andrea Calabrese and W. Léo Wetzels, 131-54. Amsterdam: John Benjamins.
- Hsieh, Feng-fan. 2005. Tonal chain-shifts as anti-neutralization-induced tone sandhi. *Proceedings of the 28th Penn Linguistics Colloquium, Penn Working Papers in Linguistics* 11.1, e.d. by Sudha Arunachalam, Tatjana Scheffler, Sandhya Sundaresan, and Joshua Taubere, 99-122. Philadelphia: Department of Linguistics, University of Pennsylvania.
- Hume, Elizabeth V. 1994. *Front Vowels, Coronal Consonants and their Interactions in Nonlinear Phonology*. New York: Garland Publishing Inc.
- Keyser, Jay Samuel and Kenneth N. Stevens. 2006. Enhancement and overlap in the Speech Chain. *Language* 82.33-63.
- Lee, Wai-Sum and Eric Zee. 2009. Hakka Chinese. *Journal of the International Phonetic Association* 39.107-11.
- Liljencrants, Johan, and Björn Lindblom. 1972. Numerical simulation of vowel quality systems: The role of perceptual contrast. *Language* 48.839-62.
- Lindblom, Björn. 1963. Spectrographic study of vowel reduction. *The Journal of Acoustical Society of America*.35.1773-781.
- Lombardi, Linda. 1999. Positional faithfulness and voicing assimilation in Optimality Theory. *Natural Language and Linguistic Theory* 17.267-302.
- McCarthy, John. 1986. OCP effects: gemination and antigemination. *Linguistic Inquiry* 17.207-63.
- Padegtt, Jaye. 2003. Contrast and post-velar fronting in Russian. *Natural Language and Linguistic Theory* 21.1.39-87.
- Prince, Alan and Paul Smolensky. 2004. *Optimality Theory: Constraint Interaction in Generative Grammar*. Malden and Oxford: Blackwell Publishing.
- Sagey, Elizabeth. 1990. *The Representation of Features in Non-linear Phonology: The articulator node hierarchy*. New York: Garland Publishing Inc.
- Steriade, Donca. 1999. Phonetics in Phonology: The case of laryngeal neutralization. *UCLA Working Papers in Linguistics* 2, *Papers in Phonology* 3, ed. by Matthew Gordon, 25-146. Los Angeles, CA: Department of Linguistics, University of California, Los Angeles.
- Steriade, Donca. 2009. The Phonology of perceptibility effects: The P-Map and its consequences for constraint organization. *The Nature of the Word: Studies in*

- Honor of Paul Kiparsky, ed. by Kristin Hanson and Sharon Inkelas, 151-79. Cambridge: MIT Press.
- Stevens, Kenneth N. and Sheila E. Blumstein. 1978. Invariant cues for place of articulation in stop consonants. *The Journal of the Acoustical Society of America*.64.1358-68.
- Stevens, Kenneth N. 1994. *Acoustic Phonetics*. Cambridge: MIT Press.
- Sussman, Harvey M., Helen A. McCaffrey, Sandra A. Matthews. 1991. An investigation of locus equations as a source of relational invariance for stop place categorization. *The Journal of Acosutical Society of America* 90:1309-25.
- Sussman, Harvey M. 1994. The phonological reality of locus equations across manner class distinctions: preliminary observations. *Phonetica* 51.119-31.
- Thomas, Erik R. and Tyler Kendall. 2007. NORM: The vowel normalization and plotting suite. [Software package]. <http://ncslaap.lib.ncsu.edu/tools/norm/>
- Tsao, Feng-fu and Jui-chuan Yeh. 2006. Zhao'an Kejiahua -k wei de xiaoshi ji qi suo yingqide yinyun bianhua [The loss of -k in checked syllables and the phonological changes this induces in Zhao'an Hakka]. *Language and Linguistics* 7.2.435-54.
- Wright, Richard. 2001. Perceptual cues in contrast maintenance. *The Role of Speech Perception in Phonology*, ed. by Elizabeth Hume and Keith Johnson, 251-77. New York, NY: Academic Press.
- Yip, Moira. 1988. The Obligatory Contour Principle and phonological rules: a loss of identity. *Linguistic Inquiry*.19.65-100.
- Yip, Moira. 2003. Casting doubt on the Onset-Rime distinction. *Lingua* 113.779-816.
- Yuan, Jiahua, et al. 1983. *Hanyu Fangyan Gaiyao* [A General Survey of Chinese Dialects]. 2<sup>nd</sup> Edition. Beijing: Wenzhi Gaige Chubanshe.
- Zee, Eric. 2000. Frequency analysis of the vowels in Cantonese. *Proceedings of the International Symposium of Chinese Language Processing*, 27-30. Beijing: Tsing Hua University.



## ***Er*-suffixation in Chinese monophthongs: phonological analysis and phonetic data**

Tsan Huang 黄璨

*University at Buffalo (SUNY)*

Among the seven (not counting /er/) single vowels in standard Chinese [i, y, z, z̥, u, ɤ, a] (where [z, z̥] stand for the high vowels following dentalveolars and retroflexes), previous studies have analyzed the surface forms of *er*-suffixed /u, ɤ, a/ as the original vowel followed by either [ɪ] (Chao, 1968; Cheng, 1973; Pulleyblank, 1984; Lin, 1989; among others) or [ʌ] (i.e. [z̥], Li, 1986), while the *er*-suffixed non-back vowels are said to surface as a concatenation of the original vowel or its glide counterpart (if there is an underlying vowel) and [əɪ]. However, Duanmu (2007) offers a different analysis, where [ə] is the final component in the surface forms of all seven monophthongs.

To evaluate these accounts, the present study investigated the production of the plain and *er*-suffixed monophthongs by eight native speakers from Beijing. Our data show (1) that there is no evidence for a separate [ɪ] coda in the surface forms, (2) that in addition to lowering of F3, *er*-suffixation has a centralizing effect on all monophthongs, and (3) that there is significant interaction between *er*-suffixation and vowel quality. The analysis of the Chinese *er*-suffixed monophthongs is thus revised as: [jə, ʉə, ə, ə; u·, ɤ·, a·]. Our results also call for more careful phonetic study of similar processes cross-linguistically: while there is evidence for a coda /r/ in Scottish English (Wells, 1982), in other languages the underlying rhotic segment or syllable seems to be realized only as “*r*-coloring” on the preceding vowel (and perhaps an [ə] off-glide). If this is true, then for cases such as Yanggu (Lin, 2004) one may not have to posit surface syllables with both a complex onset (e.g. [tɪ]) and an /r/ coda.

### **1. Introduction**

Chinese being impoverished in morphology, the rare phenomenon of *er*-suffixation (or *erhuay* 儿化) observed across many dialects has attracted linguists’ attention from early on (e.g. Wang, 1963; Chao, 1968; Cheng, 1973; T. Lin, 1982; Wang & He, 1983; Li, 1986; Y. Lin, 1989, 2004, 2007; Duanmu, 2007). Historically, the retroflex suffix /-ə/<sup>1</sup>

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<sup>1</sup> Notational conventions: (1) I shall also use “/-ə/-suffixation” and “*er*-suffixation” interchangeably. (2) Where an exact phonetic transcription is not necessary, I shall use Pinyin with superscript tone description (e.g. /er<sup>35</sup>/ ‘son’). The numbers indicate pitch heights on a five-point scale (Chao, 1930), and Chao’s (1968) description of the tones (i.e. tone 1 = 55, tone 2 = 35, tone 3 = 214, and tone 4 = 51) is adopted here. (3) Where an exact phonetic transcription is not necessary and for ease of typesetting, I may use “V+r”/“Vr”/“V-r” to indicate an *er*-suffixed vowel (e.g. [cha<sup>35</sup>.jir<sup>55</sup>] ‘tea table’). (4) V may be used in short for ‘vowel’.

originated mainly from four morphemes (Chao, 1968; Li, 1986): (1) the diminutive /er/ 儿; (2) /ri/ 日 “day”; (3) the locative /li/ 里 “inside”; and (4) the perfective /le/ 了. (There are also a few isolated lexical items that employ rhoticity to convey specific meanings. See, e.g., T. Lin, 1982.) The diminutive /er/ 儿 is the most productive synchronically. Chao (1968) has a fairly detailed discussion on the types of morpheme or word to which it can attach and how it alters the original meanings of those morphemes or words in Beijing Mandarin. The /-ə/ suffix derived from /ri<sup>51</sup>/ 日 “day” occurs in a small set of frequently occurring colloquial words and appears to be fossilized: e.g. in /jin<sup>55</sup>-ri<sup>51</sup>/ ‘today’, /zuo<sup>35</sup>-ri<sup>51</sup>/ ‘yesterday’ and /ming<sup>35</sup>-ri<sup>51</sup>/ ‘tomorrow’, /ri/ is deleted and the words surface as monosyllables with rhotic vowels (where /n/ in /jin<sup>55</sup>/ is also lost, while the engma in /ming<sup>35</sup>/ is deleted with nasality preserved on the vowel). The same can be said of the locative /li/ 里: e.g. /zhe<sup>51</sup>-li<sup>214</sup>/ ‘here’, /na<sup>51</sup>-li<sup>214</sup>/ ‘there’, /na<sup>214</sup>-li<sup>214</sup>/ ‘where’, and /wu<sup>55</sup>-li<sup>214</sup>/ ‘inside the house’ (as in [jin<sup>51</sup>.wur<sup>55</sup>.zuo<sup>51</sup>.ba] ‘come in and sit down’). The perfective (/lə/ 了) surfaces as rhoticity in a few dialects (but not in Beijing Mandarin) (see Li, 1986).

The /-ə/ suffix can be combined with any rhyme in Beijing Mandarin other than the rhotic rhyme /er/, as in /er<sup>35</sup>/ ‘son’, /er<sup>214</sup>/ ‘ear’, etc. (see also Chao, 1968 and Li, 1986), producing many *r*-colored surface vowels (or *erhuayin* 儿化音). This paper focuses on how /-ə/-suffixation affects the seven monophthongs (i.e. single vowels; not counting the rhotic vowel /er/): [i, y, ɹ, ɹ̥, u, ɤ, a] (Cf. Chao, 1968). The fricative vowel [ɹ] only occurs after the dentalveolars /ts, ts<sup>h</sup>, s/, while the other fricative vowel [ɹ̥] is found only after the retroflex sibilants /tʂ, tʂ<sup>h</sup>, ʂ, ʐ/. These monophthongs do not have the same phonological status in the sound inventory (see Duanmu, 2007 for a phonological analysis of the vowels). However, since the /-ə/ suffix has different effects on these sounds, all seven of them will be examined and discussed separately.

## 2. Previous studies

Different surface forms of /ə/-suffixed single vowels in Beijing Mandarin have been proposed by various researchers. Some are cited in (1) below.

(1) Surface forms proposed by various researchers for [i, y, ɹ, ɹ̥, u, ɤ, a] + /ə/

- a. Pulleyblank (1984): [jəɹ, jwəɹ, əɹ, ɤɹ, uɹ, ɤɹ/əɹ, ɹɹ]
- b. Li (1986): [i<sup>ə</sup>ɹ, y<sup>ə</sup>ɹ, əɹ, ɤɹ, u<sup>l</sup>, əɹ, a<sup>l</sup>],  
(where [ɹ̥] is Karlgren’s symbol, equivalent to IPA [ɹ̥]; Cf. the analyses of Cheng (1973) and T. Lin (1982))
- c. Y. Lin (1989): [iəɹ, yəɹ, əɹ, ɤɹ, uɹ, ɤɹ, ɹɹ]
- d. Duanmu (2007): [jəə, ɥəə, əə, ɤə, uə, ɤə, ɹə]

Notational differences aside, these analyses differ most noticeably in the surface forms of *er*-suffixed /i, y/: Li (1986) and Lin (1989) treat them as mostly unchanged in quality (with a schwa off-glide), whereas Pulleyblank (1984) has a rule that allows /i, y/ to lax into glide+schwa before /r/ (1984:56). Although Duanmu (2007) also has the high front vowel laxing rule, his surface rhymes derived from /i, y/ consist of a non-rhotic schwa as the nucleus and a rhotic schwa off-glide. In addition, Li (1986) uses [ɹ] (IPA [ɹ̥]) in his analysis. or Li (1986) claims, perhaps in agreement with Pulleyblank (1984) and Lin (1989), that in *er*-suffixed /u, a/ rhoticity is fused with the original vowels rather than being realized as an off-glide, whereas Duanmu (2007) has a rhotic schwa off-glide after the [u, a] nuclei. One notes further that for Pulleyblank (1984) and Lin (1989) *er*-suffixed /ɻ/ seems to also be analyzed as unchanged in vowel quality, whereas Duanmu (2007) again has a rhotic schwa off-glide after the nucleus.

The goal of the present study is to examine the surface monophthong rhymes acoustically and to compare them with their plain counterparts (i.e. surface monophthongs without the *er*-suffix) to see how rhoticity affects each of them. It is hoped that the results from this study will help us to better understand the *er*-suffixation process and to achieve more accurate phonological analysis.<sup>2</sup>

### 3. Methodology

#### 3.1 Recording

Six (6) female and six (6) male speakers from the city of Beijing, average age 28, were recorded in a sound-attenuated booth, with a head-mounted Shure® SM-10A microphone and a Marantz® solid state recorder. The speakers read a semi-randomized list of 350×2 disyllabic words, balanced for rhyme and tone, with the second syllable containing the target plain rhyme or *er*-suffixed rhyme. The whole list consists of about 350 words and 38 sentences. Only the results for the single vowels from eight (four male and four female) speakers will be discussed here.

#### 3.2 Data tagging and taking measurements

After the recordings were transferred to a computer, they were segmented into words (and sentences), and saved as individual files using Praat (Boersma, 2001). The target vowels were then further segmented into the first 20-milisecond, last 20-milisecond and center portions and labeled with Praat (see Figure 1).

Measurements of the first four formants (i.e. F1, F2, F3 and F4) were taken from the center point of each of the three labeled segments in the target vowel (i.e. at 10ms from the vowel onset, mid point of vowel and 10ms from the vowel offset) with a Praat script (adapted from one originally written by Mietta Lennes). The LPC parameters were adjusted for each individual speaker. In general, five (5) formants under 5000Hz were

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<sup>2</sup> There were earlier acoustic studies (Wang & He, 1983; Lin, Zhou & Cai, 1998; Shi, 2003) on -r suffixation in Chinese, all of which used only one speaker.

specified for male speakers and five (5) formants under 5500Hz for female speakers. In an *er*-suffixed form, due to the presence of the rhoticity, formants may change drastically, with the frequency range for the first five formants lowered by 500 to 1000Hz. As can be seen in the right panel of Figure 1, the F3, normally around 3100Hz for this speaker, is lowered to below 1900Hz and an extra fifth formant is now visible under 5000Hz. Accordingly, the LPC parameters were set to look for five (5) formants under 4500Hz for male and under 5000Hz for female in the *er*-suffixed forms. In some cases, further finer-tuned adjustments were made to get the correct measurements. The formant measurement data were then read into a text file and plotted using PlotFormant, a computer program developed by the late Peter Ladefoged of UCLA.

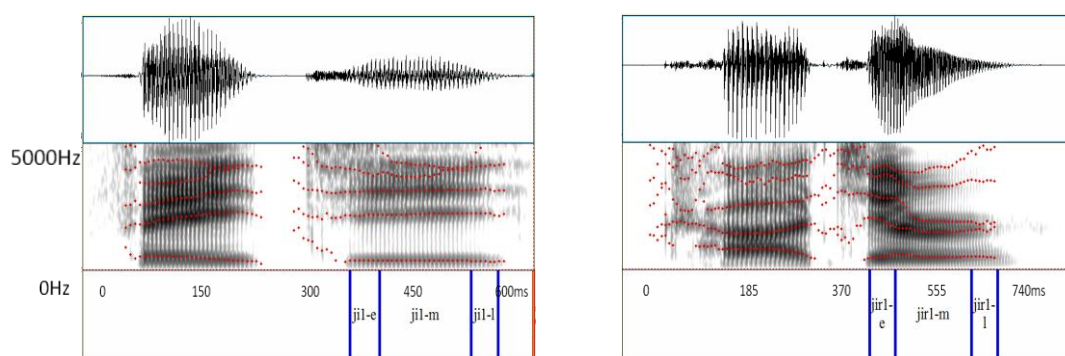


Figure 1. Sound files were segmented and labeled with Praat. Pinyin was used and tones indicated with numbers 1, 2, 3, and 4 (for T55, T35, T214 and T51, respectively). The letters ‘e’, ‘m’ and ‘l’ stand for ‘early’, ‘mid’ and ‘late’, respectively. The left panel shows the word /fei<sup>55</sup>.ji<sup>55</sup>/ ‘airplane’ containing a plain /i/, and the right panel the word /cha<sup>3</sup>.jir<sup>55</sup>/ ‘tea table’ containing a rhotic /i/. The vertical lines mark the vowel onset, 20ms from the onset, 20ms from the vowel offset, and the end of vowel.

## 4. Results and Discussion

### 4.1 Beijing plain monophthongs

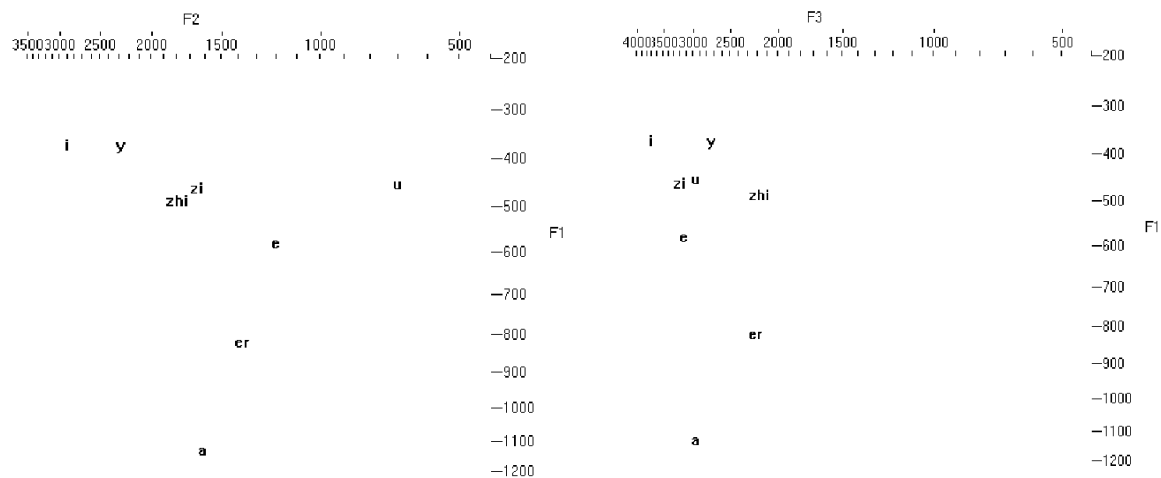


Figure 2. Beijing plain monophthongs (female speakers). Formants were taken at the mid-points in vowels. The left panel shows the F1 vs. F2 plot, and the right one F1 vs. F3.

Figure 2 shows the steady state values of the seven monophthong vowels in Beijing Mandarin (female speakers), with the rhotic vowel *er* also plotted for comparison. The left panel shows our familiar vowel space. The vowels are fairly well separated from each other, differing somewhat along either the F1 or F2 dimension or both, except for [ʒ] (labeled “zhi” in the chart) and [z] (labeled “zi”). (Note that “e” stands for the back mid vowel [ɤ].) But in the right panel, a large difference between [ʒ] and [z] is seen along the F3 dimension. Note also that F3 in /y/ is noticeably lower than /i/, obviously to help maintain a perceptual distance from /i/; or one may say that F3 in /i/ is particularly high for the same purpose. The F3s in “zhi” (i.e. [ʒ]) and “er” are considerably lower, due to the presence of rhoticity. The F3 values in other vowels are very similar and are around 3000Hz for the female Beijing Mandarin speakers.

### 4.2 Beijing rhotacized monophthongs

Recall that formant measurements were taken at three points in the target vowel. In the “early” measurement data taken at 10ms after V onset (left panel of Figure 3), the vowel space already starts to shrink (Cf. Figure 2). Thus, the effects of rhoticity kick in from early on. Only the front and back high Vs maintain a separation both in F1 and F2 from the rest of the Vs.

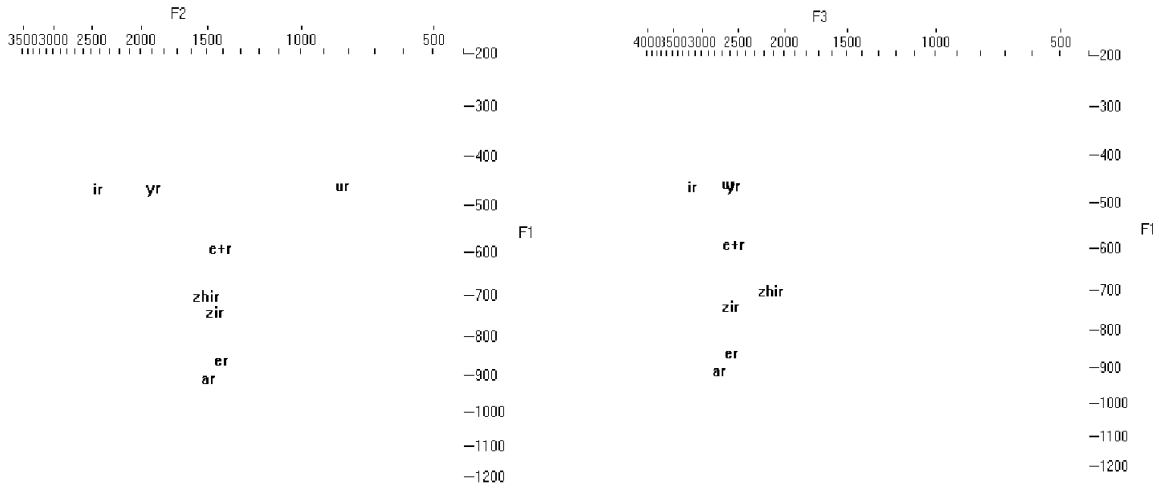


Figure 3. Plot of “early” formant measurements for Beijing rhotacized monophthongs (female speakers). (Note that “er” denotes the inherent rhotic vowel while “e+r” stands for /ɛr/.)

In the plot of measurements taken from the mid points of the Vs (Figure 4), all vowels huddle together, except for /u-r/, which still maintains its height. Along the F3 dimension, it is obvious that rhoticity is present in all Vs. At 10ms from the vowel offset (Figure 5), things crowd even closer together, except, again, for [ur]. Along the F3 dimension, heavy rhoticity is observable in all Vs.

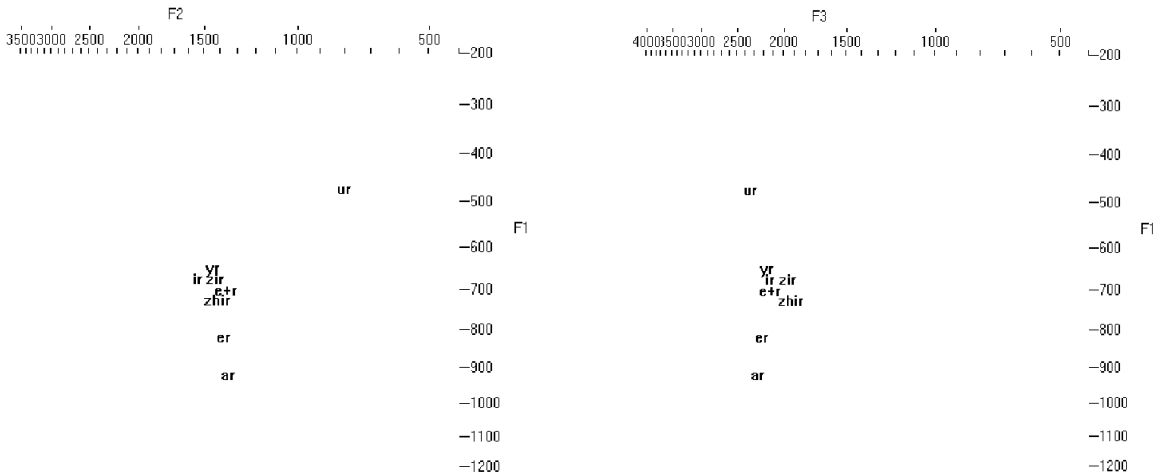


Figure 4. Plot of “mid” formant measurements for Beijing rhotacized monophthongs (female speakers).

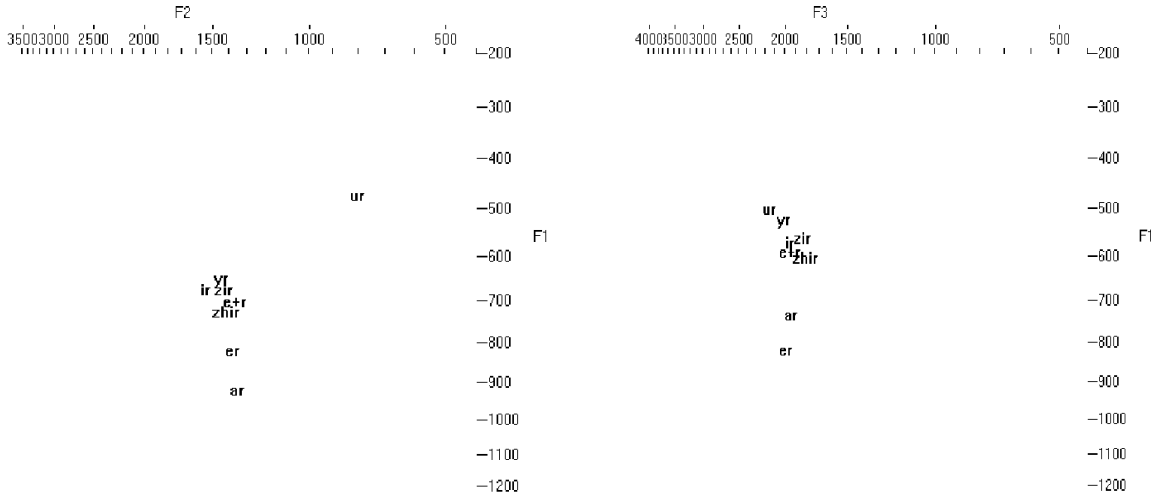


Figure 5. Plot of “late” formant measurements for Beijing rhotacized monophthongs (female speakers).

### 4.3 Comparison of plain vs. rhotacized monophthongs in Beijing Mandarin

An analysis of variance (ANOVA) was run on the measurement data with “gender of speaker” as the between-subjects variable, and “vowel quality”, “presence (or absence) of er-suffix” and “measurement point” as within-subject variables. ANOVA main effects were significant ( $p < .001$ ) for all variables. The four-way interaction of *gender \* vowel \* er-suffix \* measurement point* was not significant for any of F1, F2 and F3, indicating that the female and male speakers behave very similarly – with the normal difference in frequency range across genders noted. This is not surprising, given that speakers of either gender can produce *er*-suffixed forms and be correctly understood by all fellow speakers of the language, who can always tell whether an *er*-suffixed form or a plain V was intended by the speaker. Thus, data patterns for F1, F2 and F3 from the mid point of the vowel, aggregated across genders, are presented here. As can be seen in the left-most panel, changes induced by the *er*-suffix in F1 (except for [u] and [u-r]) and F3 (except for [ɜ] and [ɜ-r], labeled “zhi”) are significant across the board. For /ɜ/ (labeled “e”), the overlap of F2 measurements was only 5Hz. For [ɜ] and [ɜ-r] (labeled “/zi”), the overlap was 35Hz. So, these changes are marginal. Furthermore, as noted before, these changes under the effect of *er*-suffixation made the vowels less distinctive from each other. Indeed, F2 (except for /u/) and F3 values are very similar in all *er*-suffixed vowels.

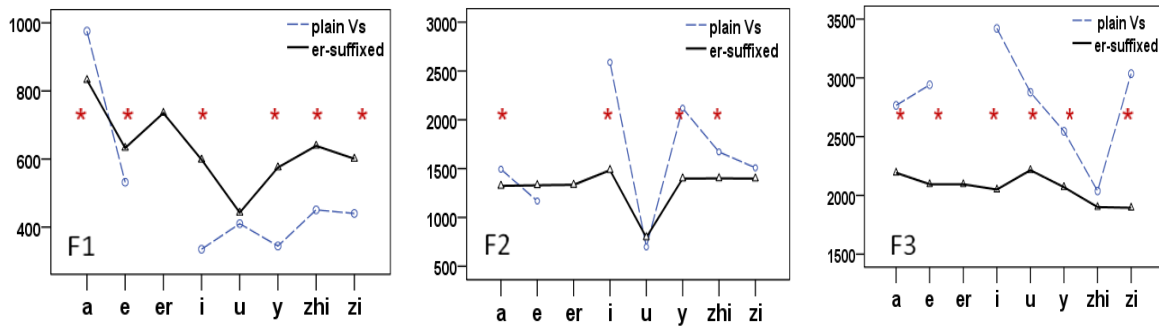


Figure 6. Comparison of formant values in Beijing Mandarin plain (circles with dashed lines) versus *er*-suffixed (triangles with solid lines) vowels. (Again, “e”, “zhi” and “zi” stand for [ɤ], [ʒ] and [ʒ], respectively.) An asterisk marks a significant change. Formant values of the inherent rhotic vowel /er/ are also plotted as a reference.

#### 4.4 Patterns of change observed in *er*-suffixed vowels

In sum then, one may make the following general observations about *er*-suffixed vowels from the data presented here:

- (i) F3 is lowered significantly ( $p < .05$ ) across the board, except for [ʒ].
- (ii) In the non-back high Vs [i, y, ʒ<sub>ɿ</sub>, ʒ<sub>ɿ</sub>], F1 is significantly ( $p < .05$ ) raised ↑, while F2 is significantly ( $p < .05$ ) lowered ↓.
- (iii) In the back mid vowel [ɤ], F1 and F2 are raised ↑ (marginally significant).
- (iv) In the low vowel [a]: F1 and F2 are lowered ↓.
- (v) In the high back vowel [u], no significant changes in F1 and F2 were observed.

Thus, for some vowels, esp. /i, y/, all three formants may be affected significantly by *er*-suffixation, while in others, e.g. /ɤ/ and the rhotic and the dental fricative vowels, only two of F1, F2, F3 may be affected. And then, there is /u/, whose F1 and F2 are unaffected by *er*-suffixation. (Recall that Pulleyblank (1984), Li (1986), Lin (1989) and Duanmu (2007) all posit a surface vowel with unchanged /u/ quality.) While some of the participants in this study reported that *er*-suffixed /u/ was hard to pronounce, they did produce some with heavy rhoticity. How is it then that its formant structure seems unaltered acoustically and perceived by native speakers and researchers as maintaining the quality of the original (i.e. plain) /u/? A closer look at the plain and *er*-suffixed /u/ samples (see Figure 7) revealed that its formant structure did change but that because there is plenty of space between its second and third formants, a rhotic formant appears to be super-imposed onto the original formant structure. Or alternatively, one may say that its original F3 is lowered under the effect of rhoticity but that its original F4 is lowered to where the F3 in a plain /u/ would normally be. Table 1 lists the formant values from these examples. Indeed, one notices that F5 in *er*-suffixed /u/ takes place of the plain /u/ F4.



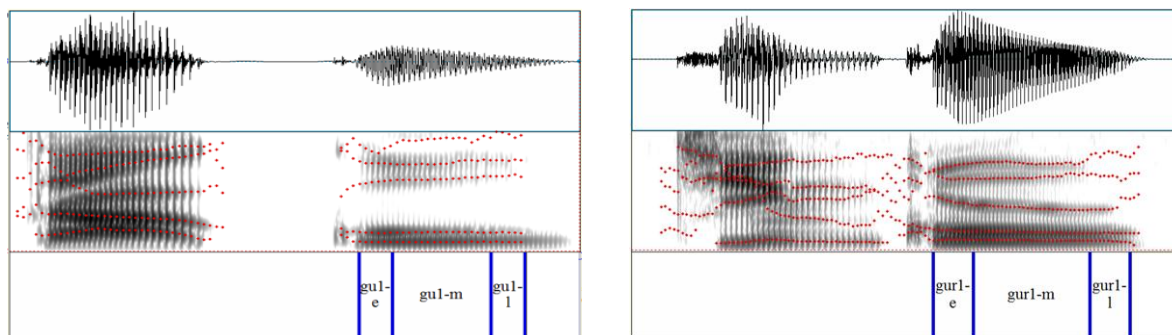


Figure 7. Examples of [u] (left panel) and [u-] (right panel). The formant structure of /u/ is mostly preserved, with the *r*-formant “super-imposed”.

Table 1. Formant values in plain /u/ and *er*-suffixed /u/. (Formant values were taken from mid vowel.)

	u	u + ə
F5		3630
F4	3635	3025
F3	2975	1760
F2	800	795
F1	390	445

As mentioned in §1, the researchers also posit mostly unchanged vowel quality for *er*-suffixed /ɤ, a/. Although changes in formant values have been observed, they may not be as great as changes found in other vowels (esp. in comparison with /i, y/). Figure 8 shows spectrograms of plain (left panel) vs. *er*-suffixed /ɤ/ (right panel). One notices that just as in for *er*-suffixed /u/, if one “took away” the F3 from the *er*-suffixed /ɤ/, its formant structure would be similar to that of the plain /ɤ/.

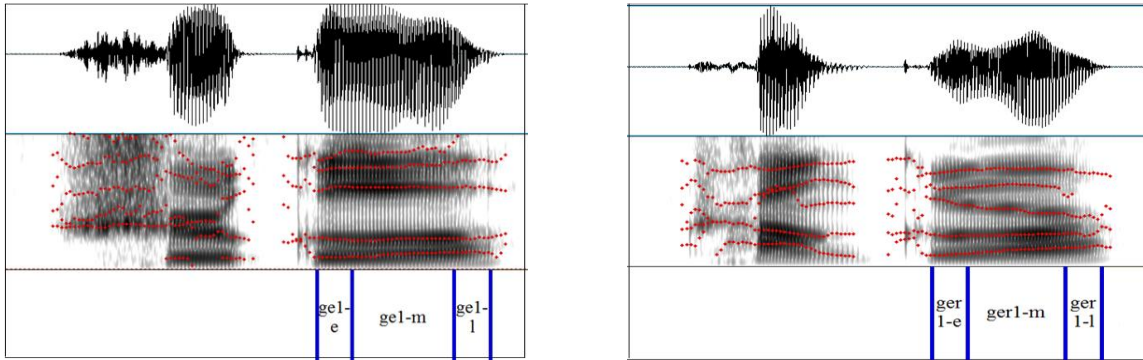


Figure 8. Examples of plain (left panel) vs. *er*-suffixed /ɤ/ (right panel).

The story with *er*-suffixed /a/ is different. Instead of having a super-imposed rhotic F3, all of the first three formants were affected. However, they seem to be affected proportionately so that the formant structure is still preserved but with “overlaid” *r*-coloring (see Figure A1 in the Appendix). It may also be true that rhoticity starts slightly later in *er*-suffixed /a/ in comparison to, for instance, the non-back high vowels.

The researchers cited in §1 all seem to be in agreement as to the phonetic realization of the retroflex and the dental fricative vowels, analyzing them as losing their original quality from vowel onset and surfacing as a rhotic schwa when *er*-suffixed. Drastic changes were observed in F1 and F2 in the rhotic fricative vowel, and in F1 and F3 in the dental fricative vowel. (See Figures 2, 3, 4 and 5 in §4 and Figures A2 and A3.)

But the analyses are inconsistent with regard to *er*-suffixed /i, y/. Some consider the original quality preserved with additional schwa off-glide (Li, 1986 and Lin, 1989), while others treat the surface nuclei as schwa (Pulleyblank, 1984 and Duanmu, 2007). As reported earlier (see Figures 2, 3, 4 and 5), changes – indeed the largest changes among all seven vowels discussed here – are observed in all of the first three formants in /i, y/. However, the formant structures are somewhat preserved for the first one-third or so of the vowel duration (see Figures 1 and A4).

## 5. Concluding remarks

The present study attempted to address the details and the inconsistency found in previous analyses of *er*-suffixed monophthong vowels in Beijing Mandarin. It has been found that F3 is lowered across the board in *er*-suffixed vowels (except for the rhotic fricative vowel, whose F3 is inherently low, as rhoticity is present in the vowel without the *er*-suffix). This is characteristic of *r*-colored vowels observed cross-linguistically (see, e.g., Aungst & Frick, 1964). Changes in F1 and F2 basically manifest a centralizing effect on the vowels, with F1 raised in high vowels and lowered in the low vowel /a/, and with F2 lowered in front vowels and raised in the back vowel /ɤ/. Since the dental fricative vowel can be considered mostly central, rhoticity incurred little change in its F2. Note that the inherent underlying rhotic vowel *er*, although a central vowel, is lower than

a schwar. Indeed, when produced in the high falling tone, as in /er<sup>51</sup>/ ‘two’, its phonetic properties are close to those of *er*-suffixed /a/. Cf. Figure 3, 4 and 5, where “er” and “ar” are close to each other. Therefore, although the *er*-suffixed vowels all appear to move toward a certain central and mid target point in the vowel space (see Figures 3, 4 and 5), they never actually coincide with the underlying rhotic vowel *er*. Although Li (1986) uses [ɹ] (IPA [ʒ]) in his analysis to denote the rhotic component in the *er*-suffixed vowels, there is no evidence that this rhotic component contributes to raise vowel height. One can only conjecture that perhaps he intended for it to be vocalic and different from the underlying rhotic vowel *er*.

Due to the strong effect of lip rounding in /u/, rhoticity has essentially no effect on its F1 or F2. But F4 and F5 in *er*-suffixed /u/ are greatly affected to the extent that they now assume the frequency ranges of the F3 and F4 in the plain /u/. Meanwhile, F3 in the *er*-suffixed /u/ is considerably lowered to the middle of the antiformant range between F2 and F3 in a plain /u/ to become a super-imposed extra rhotic formant, giving the perceptual impression of a vowel with simultaneous /u/ quality and *r*-coloring. A super-imposed F3 may also be offered to account for the seeming unaffected perception of the original vowel quality in the *er*-suffixed /ɤ/. Changes in *er*-suffixed /a/ are relatively small and proportionate, making it possible to maintain a fairly good /a/ quality.

Changes in F1 and F3 of the dental fricative vowel, and in the F1 and F2 of the rhotic fricative vowel set on early with *er*-suffixation, rendering them effectively rhotic schwars for most of their vocalic duration.

Although significant changes have been observed in *er*-suffixed /i, y/ from the onset of the vowels, their formant structures are somewhat preserved initially. Perhaps for some one-third of the vowel (with rhoticity already affecting the formants) is too brief to give the impression of an intact vowel /i/ or /y/. Yet, for others these initial, somewhat altered perceptions are still qualified to be labeled /i/ or /y/.

It is hard to take a position in the controversy found in the previous analyses: after all, phonological analysis and phonetic description are based on the listener’s perception of the sound in question. Given the acoustic data presented here, we would like to propose that the description of the Chinese *er*-suffixed monophthongs be revised as: [jɤ̃, ɥɤ̃, ə̃, ə̃; ũ; ɹ̃<sup>o</sup>, ã<sup>o</sup>]. This is mostly consistent with Duanmu’s (2007) analysis. Of course, it is understood that there is even rhoticity present in [j, ɥ]. The superscript schwar in [ɹ̃<sup>o</sup>, ã<sup>o</sup>] captures the native intuition that vowel quality is preserved with an [ɤ̃] off-glide. And [ũ] indicates that the *r*-coloring is “superimposed” on /u/ with no [ɤ̃] off-glide.

Our results also call for more careful phonetic study of similar processes cross-linguistically: while there is evidence for a rhotic consonantal coda in Scottish English (Wells, 1982), in other languages the underlying post-vocalic rhotic segment or syllable seems to be realized only as “*r*-coloring” on the preceding vowel and perhaps a schwar [ɤ̃] off-glide (see, e.g., Harris (1994) for analysis on American English). If this is true,

then for cases such as Yanggu (Lin, 2004) one may not have to posit surface syllables with both a complex onset (e.g. [tl]) and a rhotic coda.

#### ACKNOWLEDGEMENTS

I would like to thank my graduate research assistants Kuo-Chan Sun and Adam Sposato for collecting and tagging the data. Thanks go to all my speakers as well. I am also grateful to Professor Lin Yen-Hui for sending me her references and manuscripts, and to Professor CAO Wen 曹文 of Beijing Language Institute, who located some of the Chinese references for me. Part of this work was presented at MLS39. I thank the participants there for their feedback. Thanks are also due to the audience at IACL-18 and NACCL-22 for their input.

#### REFERENCES

- Aungst, L.F. & J.V. Frick, 1964. Auditory discrimination ability and consistency of articulation of /r/. *Journal of Speech and Hearing Research*, 29, 76-85.
- Boersma, P., 2001. Praat, a system for doing phonetics by computer. *Glott International* 5:9/10, 341-345.
- Chao, Y.-R., 1930. A System of Tone Letters. *La Maître phonétique* 45:24-27.
- Chao, Y.-R., 1968. *A grammar of spoken Chinese*. Berkeley: University of California Press.
- Cheng, C.-C., 1973. *A synchronic phonology of Mandarin Chinese*. The Hague: Mouton.
- Duanmu, S., 2007. *The Phonology of Standard Chinese (2nd Edition)*. Oxford University Press.
- Howie, J.M., 1976. *Acoustical studies of Mandarin vowels and tones*. Cambridge: Cambridge University Press.
- Harris, J., 1994. *English Sound Structure*. Oxford: Blackwell Publishers.
- Li, S., 1986 (in Chinese). *Hanyu "Er"yinshi Yanjiu* [A Study of the history of /ə/ in Chinese]. Beijing: Commercial Press.
- Lin, T., 1982 (in Chinese). Beijinghua er-huayun geren yindu chayi wenti [Individual production differences of the -er rhyme in Beijing]. *Linguistic Studies*, 1982, No.2.
- Lin, T., Y. Zhou & W. Cai, 1998 (in Chinese). Beijinghua Yindang [Recordings of Beijinghua]. In Hou, J. (ed.), *Xiandai Hanyu Fangyan Yinku* [Phonetic Database for Modern Chinese Dialects]. Shanghai: Education Press.
- Lin, Y.-H., 1989. Autosegmental Treatment of Segmental Processes in Chinese Phonology. Unpublished dissertation. The University of Texas at Austin.
- Lin, Y.-H., 2004. *Er* Affixation in Yanggu: An OT analysis and Theoretical Implications. IACL-12: 12th Annual Meeting of International Association on Chinese Linguistics, Nankai University, Tianjin, China.

- Lin, Y.-H., 2007. *The Sounds of Chinese*. Cambridge: Cambridge University Press.
- Pulleyblank, E., 1984. *Middle Chinese : A Study in Historical Phonology*. Vancouver: UBC Press.
- Shi, F., 2003 (in Chinese). Beijinghua erhuayun-de shengxue biaoqian [Acoustic correlates of Beijing Er-rhymes]. *Nankai Yuyanxue Kan*.
- Wang, F. 1963 (in Chinese). Beijinghua Yunmude jige wenti [Several issues in the rhymes in Beijing]. *Zhongguo Yuwen*, 1963, No. 2.
- Wang, L. & N. He, 1983 (in Chinese). Beijinghua erhuayunde tingbian shiyan he shengxue fenxi [A Listening Test and Acoustic Analysis of the -er rhyme in Beijing]. In the *Beijing Daxue Linguistic Studies Series*, Vol. 10.
- Wells, J. C. 1982. *Accents of English*. Cambridge: Cambridge University Press.

**APPENDIX**

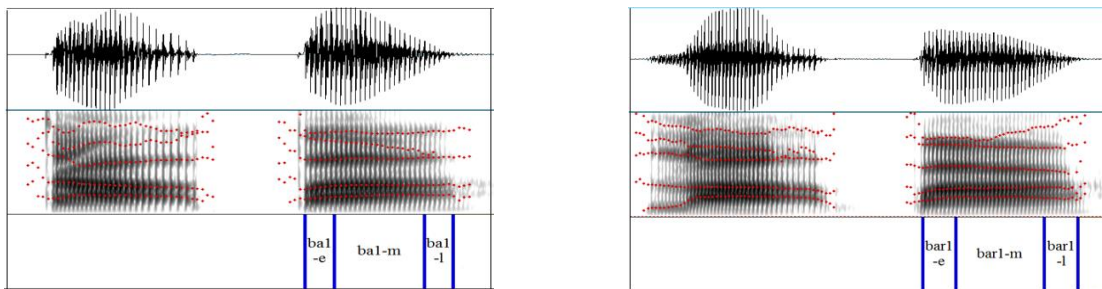


Figure 1A. Examples of plain (left panel) and *er*-suffixed (right panel) /a/. Changes are observed in F1, F2 and F3. But as changes are relatively small and gradual, the original vowel quality is preserved.

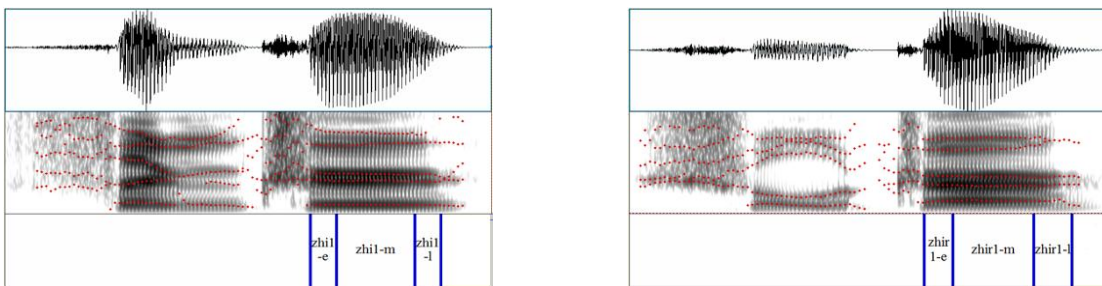


Figure A2. Examples of plain (left panel) and *er*-suffixed (right panel) rhotic fricative vowel [ʐ].

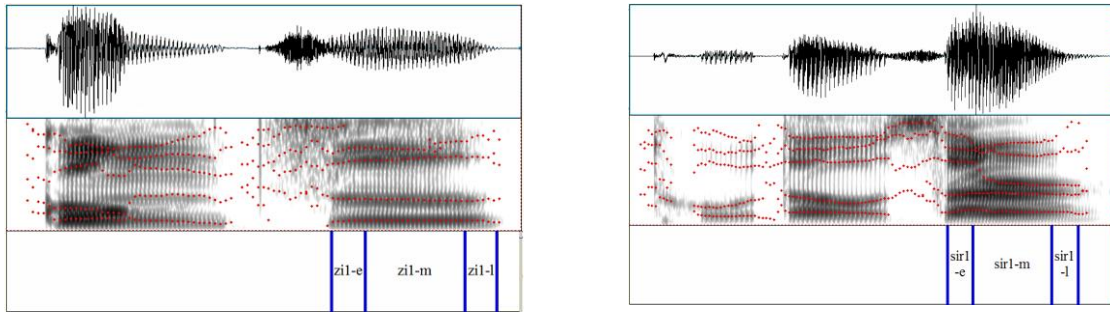


Figure A3. Examples of plain (left panel) and *er*-suffixed (right panel) dental fricative vowel [ʒ].

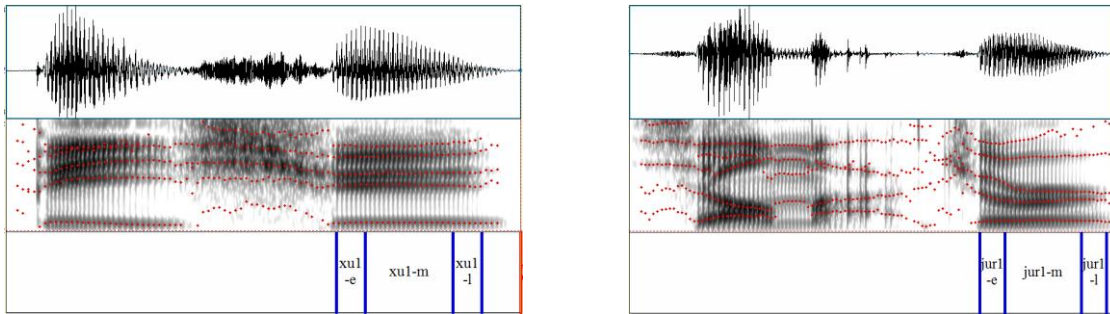


Figure A4. Examples of plain (left panel) and *er*-suffixed (right panel) /y/. Rhoticity induced formant changes are noticeable from onset of vowel, although the initial portion still somewhat maintains the vowel quality.

## The Tonal System of Singapore Mandarin

Leslie Lee

*University of California, San Diego*

This paper presents an acoustic study of the tonal system of Singapore Mandarin and compares the results with those of Beijing and Taiwan (e.g. Xu 1997, Shih 1988). The results show that Singapore Mandarin differs from the other varieties in a number of ways, particularly in the realisation of Tone 2, which is marked by a low level stretch not found in the other varieties. This system is also influenced by the sociolinguistic variables of gender and language background. Overall, the results support previous studies in showing that phonologically identical tonal systems can exhibit dialectal variation in realisation, while the intra-dialectal variation suggests that tonal realisation can be used for indexical purposes.

### 1. Introduction

Most acoustic studies of Mandarin tone have focussed on the varieties spoken in Beijing and Taiwan (e.g. Xu 1994, 1997, 1998; Shih 1988; Fon & Chiang 1999 among others), and little attention has been paid to the dialect spoken by the large Chinese population in Singapore. Most Chinese Singaporeans are bilingual in at least two of the four official languages: English and Mandarin. Among the ethnic Chinese (76.8% of the resident population), the predominant home language can either be Mandarin (45.1%), English (23.9%), or other Chinese languages (30.7%) (Leow 2001: viii-ix). Given the sociolinguistic situation of bilingualism, the potential influence of other tonal Chinese languages, and the sheer geographical distance from Taiwan and China, one would expect the realisations of Singapore Mandarin tones to differ from those of Beijing and Taiwan. As published studies of the tones in Singapore Mandarin are wanting in the literature, it is important to document this aspect of the language.<sup>1</sup>

The aim of this paper, then, is precisely to present an acoustic study of the four lexical tones in Singapore Mandarin, and compare the results with the other standard varieties of the language. In addition, this study also takes the sociolinguistic situation in Singapore into consideration by controlling the gender and language background of the speakers, so as to investigate any potential effects of these factors on tonal realisation in Singapore Mandarin (henceforth SM).

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<sup>1</sup> I would like to thank Amalia Arvaniti, Sharon Rose, Sarah Creel, Lucien Carroll, Dan Michel, Roger Levy, and members of the audience at IACL18/NACCL22 for useful discussion and feedback.



## 2. Background

### 2.1. Acoustic studies

Mandarin tones are typically transcribed using the ‘Chao tone letter system’ (Chao 1930/1980). Following Chao’s (1956, 1968) transcriptions of Peiping (Beijing) Mandarin the four tones are commonly transcribed as shown in (1):

(1) Tonal contrasts in Mandarin

Tone #	Pitch pattern	Chao tone letters	Example
1	high level	55	<i>ma1</i> ‘mother’
2	high rising	35	<i>ma2</i> ‘hemp’
3	low falling-rising	214	<i>ma3</i> ‘horse’
4	high falling	51	<i>ma4</i> ‘to scold’

Shih (1988) presents an acoustic study of Taiwan Mandarin (henceforth TM) tones produced by a female speaker. Using the set of minimal pairs in (1), she plots the tones produced in isolation, reproduced in Figure 1.

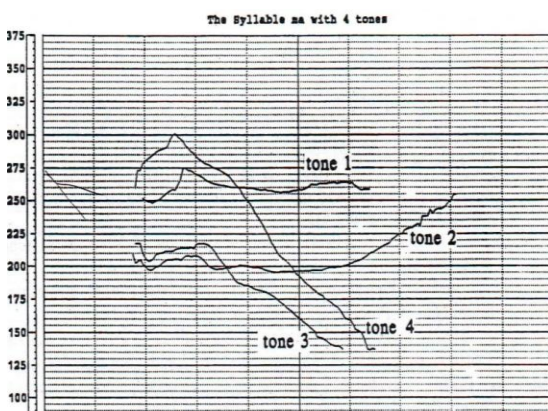


Figure 1: TM tones (Shih 1988: 98)

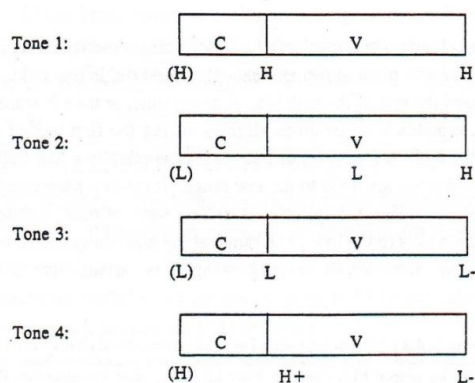


Figure 2: Tonal targets (Shih 1988: 84)

Shih notes that the start and end points of all tones fall on three distinct levels: Tones 1 and 4 both start high, close to where Tones 1 and 2 end; Tones 2 and 3 both begin in the mid range; while Tones 3 and 4 both fall to the low range. Based on these observations, she proposes the relative values and placement of tonal targets for each tone as shown in Figure 2, and suggests that tonal contours are the result of interpolation between targets (H+ represents a pitch level slightly higher than H; L- is lower than L).

Beijing Mandarin (henceforth BM) tones seem to behave differently. Xu (1997) examines BM tones produced by eight male speakers both in isolation and in different tonal contexts. The tones in isolation were elicited using the set of minimal pairs in (1). A program was used to record the F0 values at regular intervals within each segment, and the F0 curves obtained were smoothed using a function incorporated into the program. The mean F0 contours were plotted over normalised time, reproduced in Figure 3.



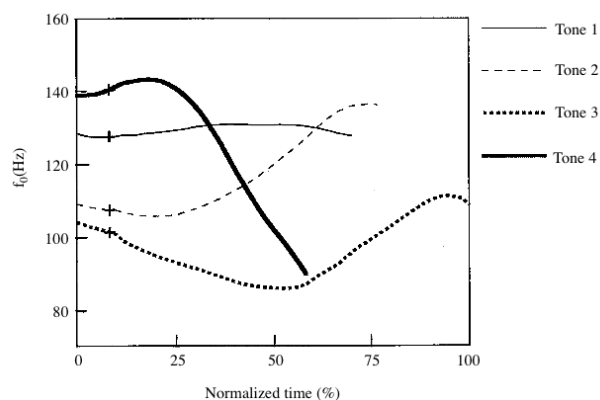


Figure 3: BM tones (Xu 1997: 67)

These data highlight differences between TM and BM. In terms of tonal contours, the final rise on Tone 2 appears to occur later in TM than in BM, while BM Tone 3 has a final rise not found in TM. In terms of duration, while relative durations of BM tones have a descending order of Tones 3>2>1>4, TM tones have the order 2>4>1>3.

In another study, Xu (1998) tested whether the F0 contours of the entire rhyme of a syllable or that of the vowel alone is more consistent across syllable types and speaking rates, and found that regardless of the internal structure of the syllable, the F0 contours for all four tones were consistently aligned with the syllables that carried them. He also investigated the alignment of F0 contours in Tone 2 – Tone 3 sequences, and found that regardless of the internal structure of the syllable, the F0 peak of Tone 2 always occurs close to the offset of the host syllable. He observes that the onset of the F0 rise on Tone 2 always occurs around the centre of the host syllable; that the peak velocity occurs closer to the syllable offset than onset; and that the maximum velocity of the F0 rise does not vary consistently with either syllable duration or structure. These results indicate that the F0 contour of Tone 2 is not spread out evenly over the host syllable, and the entire contour shifts towards the later portion of the syllable when the duration of the host syllable increases. Xu interprets this as evidence that the syllable is the domain of F0 contour alignment in Mandarin and that a contour tone should be treated as a single dynamic target instead of a sequence of static targets. Based on Xu's work on Mandarin tones, Xu & Wang (2001) outline a framework for accounting for surface F0 variations in speech in which there are two types of pitch targets – static and dynamic. “A static pitch target has a register specification, such as [high], [low] or [mid]. A dynamic pitch target has a linear movement specification, such as [rise] or [fall]” (p. 321). On this view, Mandarin has two static pitch targets [high] and [low] and two dynamic targets [rise] and [fall], associated with Tones 1, 3, 2, and 4 respectively. Thus, the contour tones, Tones 2 and 4, are treated as integral units of pitch movement and are not considered to be formed by the concatenation of two static targets, as Shih assumes.

In contrast with Xu and colleagues' assumptions that F0 falls and rises are represented by integral dynamic targets, work on tonal alignment within the autosegmental-metrical framework of intonational phonology (henceforth AM) (Ladd 2008) assumes that speech melodies consist of a series of tones at the phonological level which are phonetically realised as tonal targets and that F0 falls and rises are the result of the transitions between static targets aligned with the segmental string (see Arvaniti 2007 for the comparative evaluation of phonetic models of F0). Work within AM such as Arvaniti et. al. (2006) and Arvaniti & Ladd (2009) thus share with Shih the intuition that complex tonal contours are composed of smaller units aligned with segments.

### 2.3. Singapore Mandarin

There are few published reports on SM, and to the best of my knowledge, no controlled acoustic survey of tone in SM had been conducted prior to the present study.

Chua (2003) draws a sociolectal distinction between "Singapore Standard Mandarin" (SSM) and "Singaporean Mandarin" (SgM), and notes that speakers code-switch very easily between the two sub-varieties:

The whole range of the SgM speech continuum provides functional varieties for its speakers. The highest attainable sub-variety a speaker of SgM can use is coupled to his or her educational standard and socio-economic background – but he or she is able to drop quite easily and comfortably into 'lower' sociolects outside the context of his or her own sociolect for functional purposes. (p. 42-43)

He provides the transcriptions of the four tones in the two sub-varieties as shown in (2). Even though Chua makes the distinction between SSM and SgM, he does not provide any useful way of drawing the line between the two sub-varieties; given that both SSM and SgM are parts of a speaker's repertoire and that these varieties lie along a continuum, it is not clear how one can make a reliable distinction between the tones of SSM and SgM. Chua's pitch transcriptions of SgM correspond to Chen's (1983/1993)<sup>2</sup> observations that SM Tones 1, 2, and 4 often appear to be lower than in the other varieties: Tone 1 is often realised as [44], Tone 2 as [24], and Tone 4 as [41] or [42] (Chen 1993: 251). However, these researchers do not specify how the numbers on the tonal scale have been assigned to the tones, and these are likely to be impressionistic judgements.

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<sup>2</sup> Chen also reports a fifth tone in Singapore Mandarin, which occurs only in limited distributions. However, she also notes that both Tone 4 and this fifth tone share the same pitch values, and cannot be consistently distinguished. In a cross-generational study, Ho (2000) reports, based on her auditory perception, an inverse relationship between age and frequency of occurrence of the fifth tone. Given that discrimination between the fifth tone and Tone 4 is not reliable even for those speakers who have the distinction, and that the use of the fifth tone is in marked decline, this paper focuses on the four traditional tones of Mandarin.

(2) SSM vs. SgM (Chua 2003: 66)

	<b>SSM</b>	<b>SgM</b>
<b>Tone 1</b>	55	44
<b>Tone 2</b>	35	24
<b>Tone 3</b>	214/211	211
<b>Tone 4</b>	51	41/42

Unlike previous studies, here we recorded speakers who differed in gender and the role of Mandarin in their language repertoire, and subjected the data to acoustic analysis.

**3. Methods****3.1. Speakers**

16 speakers of SM, 8 male and 8 female, took part in the study. The speakers were ethnic Chinese who, like their parents, had been born and raised in Singapore. All speakers were in their twenties, and were either pursuing or had completed their university education. Within each gender group, the speakers were divided into two categories based on the language used most frequently at home: those whose dominant home language was Mandarin ( $M_D$ ) and those whose dominant home language was English ( $E_D$ ). All speakers,  $M_D$  and  $E_D$ , use some Mandarin on a daily basis and use English at least half the time in their daily lives. The speakers were naïve as to the purposes of the experiment, and none of the speakers had any speech or hearing impairment.

**3.2. Materials**

In order to establish the canonical form of each of the four SM tones, the four tones were elicited in isolation using the same test words as those used in Shih (1988) and Xu (1997), since using the same test words allows for direct comparison with the results from those studies. In order to elicit the natural reading of these words as one-word utterances, each of these words was preceded by a question that asks how the word is read, and each question-answer pair was printed on a card in Chinese characters as a dialogue. Speakers were only required to read the target word aloud. A sample dialogue is shown below:

(3) Sample dialogue

甲： 这个字怎么读？	(A: How is this character read?)
乙： 妈	(B: ma)

Each of the four dialogues was printed on five separate cards (4 conditions x 5 cards), and the order of their appearance as randomised.

**3.3. Procedure**

The recordings took place in quiet rooms either in the speakers' homes, offices, or university that they attended. Prior to the recording, the speakers were given a practice

session during which the procedure was explained to them: each of the four dialogues was presented to them on flash cards, and they were instructed to read each word as naturally as possible. During the actual recording, which was monitored, the speakers flipped the flash cards and read at their own pace.

The materials were recorded in Audacity with a sampling rate of 22050Hz and a 16-bit resolution. The recordings were done on a laptop computer using a Beyer dynamic TG-X58 microphone. Three of the five repetitions of each test word were used for measurement; the first and last repetitions were discarded. Measurements from the three tokens were then averaged for each speaker for the purposes of statistical analysis.

### 3.4. Measurements

The selected tokens were segmented in Praat (Boersma and Weenik 2003) by visual inspection of the spectrograms. The durations of the consonant, vowel, and syllable were then computed from the various time values.

As noted in Section 2, there is no consensus in the literature on how tones should be measured: some researchers measure specific points in the F0 track, while others obtain F0 measurements from regular intervals along the pitch track by automatic means. For this paper, both methods were employed. The first method follows that outlined in Xu (1997), whereby a program was used to record the F0 values at regular intervals within each segment. By plotting the mean F0 contours over normalised time, we then have a picture of the overall configuration of the pitch shapes of the four tones.

In the second method, pitch tracks were obtained for each token using the autocorrelation method in Praat that gives F0 values every 10ms (Boersma 1993), and specific points were measured. In selecting F0 points, care was taken to avoid obvious microprosodic perturbations. F0 measurements were converted from Hertz to Equivalent Rectangular Bandwidth (ERB) using the equation of Hermes and van Gestel (1991: 97):

$$\text{ERB} = 16.7 \log(1 + f/165.4), \text{ where } f \text{ is frequency in Hz}$$

This was done because data were collected from male and female speakers, and this scale is standardly used for comparing speech across genders (e.g. Daly and Warren 2001).

For Tone 1, a high level tone, three F0 points were measured: the first F0 point after the onset of /m/ (H1T1), the first F0 point after the vowel onset (H2T1), and the last F0 point before the vowel offset (H3T1) (see Figure 4, panel a)

All tokens for Tone 2 showed an initial fall followed by a low level stretch before the final rise. Four points were measured: the first F0 point after the onset of /m/ (H1T2), the first elbow at which the F0 slope gradually changed from steep to gentle (L1T2), the second elbow at which the F0 slope gradually changed from gentle to steep (L2T2), and the final F0 point before the vowel offset (H2T2) (see Figure 4, panel b).

Tones 3 and 4 were realised as falling tones, with Tone 4 starting at a higher initial F0 than Tone 3. In both cases, some tokens showed a small final rise, and tokens produced by the same speaker could either have the final rise or not. Since the final rise was not found in all tokens, this was not measured, but counts of the number of tokens that

exhibited the final rise were kept for both tones and are discussed below. Three F0 measurements were made for Tones 3 and 4: the first F0 point after the onset of /m/ (H1T3/H1T4), the first F0 point after the vowel onset (H2T3/H2T4), and the F0 minima (minT3/minT4) (see Figure 4, panels c & d).

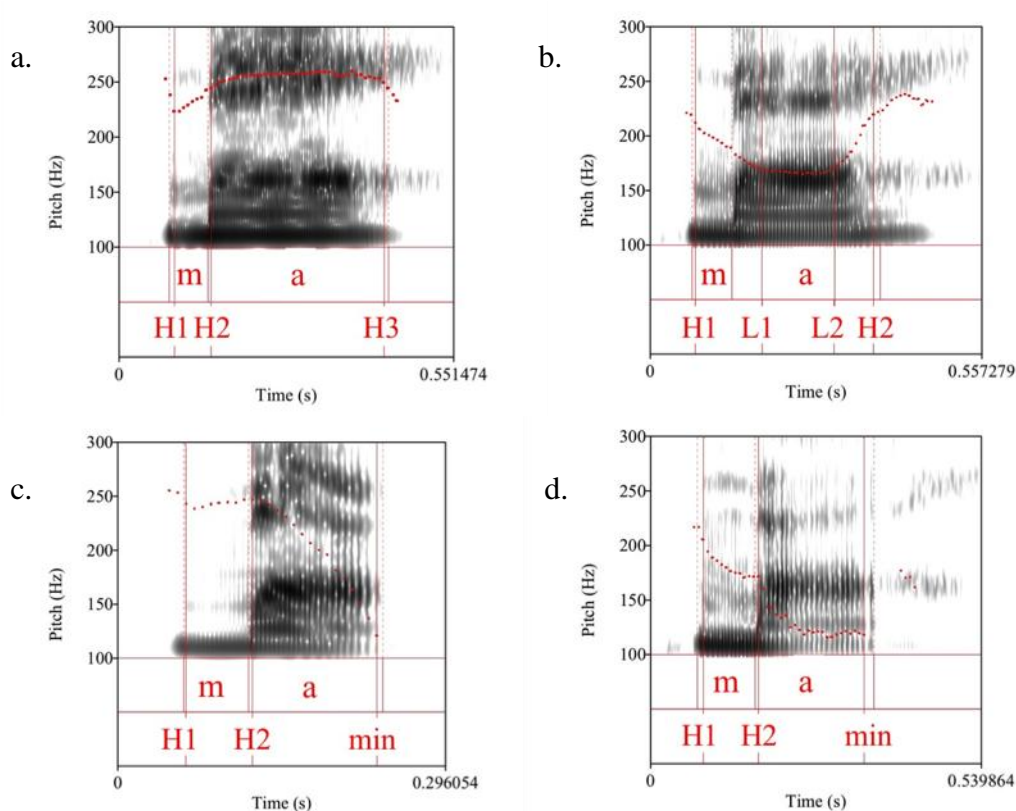


Figure 4: Sample analyses. Clockwise from top left: Tones 1, 2, 3, and 4.

For the purposes of statistical analyses, the speaker mean for each point measured was derived by averaging the measurements of that point across the three tokens produced by that speaker. The F0 range of each speaker was calculated by subtracting the highest mean F0 measure from the lowest mean F0 measure for that speaker.

### 3.5. Statistical analyses

The analysis of duration involved a repeated measures ANOVA with four levels (corresponding to the four tones), conducted with the duration of the syllable as the dependent variable, and gender and language background as categorical variables. In order to investigate the alignment of the pitch elbows in Tone 2 with respect to the

segmental material and to each other, several factorial ANOVAs were conducted with gender and language background as categorical variables and the following dependent variables, expressed as percentages of total syllable duration: (i) the duration between the syllable onset and L1T2 (initial fall); (ii) the duration between L1T2 and L2T2 (plateau); and (iii) the duration between L2T2 and the vowel offset (final rise).

For the analysis of F0 range, a factorial ANOVA was conducted with F0 range as the dependent variable, and gender and language background as the categorical variables. To analyse F0 scaling, a repeated measures ANOVA with 13 levels (corresponding to the 13 measured points) was also conducted with F0 as the dependent variable, and gender and language background as categorical variables.

For Tones 3 and 4, two chi-square tests were conducted based on the number of tokens that showed a final rise so as to investigate if there was a correlation between either gender or language background and the occurrence of a final rise on these tones.

#### 4. Results

The plots produced from the method following Xu (1997) are shown in Figures 5 and 6. Figure 5 shows the aggregate mean tone contours for all speakers, while each panel in Figure 6 illustrates the aggregate mean tone contours for each of the four speaker groups. All other results that follow were derived from the second method of measurement.

##### 4.1. Duration

The durations of each of the four tones are illustrated in Figure 7 (all error bars indicate standard deviation). Tone had a significant effect on the duration of the syllable [ $F(3,36) = 40.256, p < 0.001$ ]. A post-hoc Tukey HSD test indicated that the duration of the syllable bearing Tone 4 was significantly shorter than each of the other tones [ $p < 0.001$ ], but the other three tones were not significantly different from one another [ $p > 0.05$ ]. Both the effects of language background [ $F(1,12) = 3.964, p = 0.07$ ] and the interaction of language background and tone [ $F(3,36) = 2.622, p = 0.065$ ] on syllable duration approached significance. Given the relatively small sample of speakers it is likely that the effects of language background and its interaction with tone on syllable duration would be significant with data from more speakers. There was no significant effect of gender [ $F < 1$ ].

##### 4.2. Alignment in Tone 2

There was a significant effect of gender on the duration of the plateau [ $F(1,12) = 6.136, p < 0.030$ ], as illustrated in Figure 8: male speakers had a longer plateau than female speakers.

Language background had a significant effect on the duration of the final rise [ $F(1,12) = 9.192, p < 0.010$ ]: the final rise occupied a greater proportion of the Tone 2 syllable for  $M_D$  speakers than  $E_D$  speakers, as shown in Figure 9. No other main effects or interactions were found.

LEE: SINGAPORE MANDARIN TONE

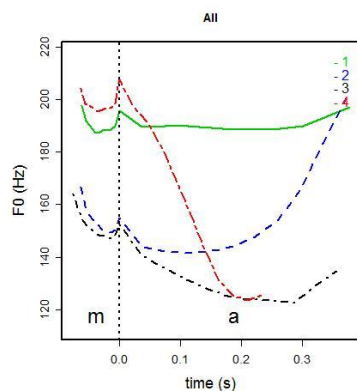
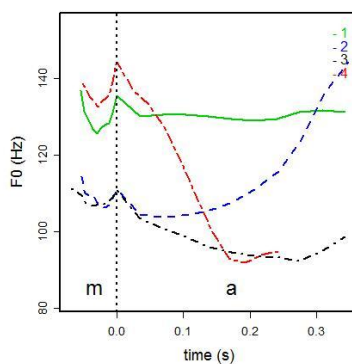
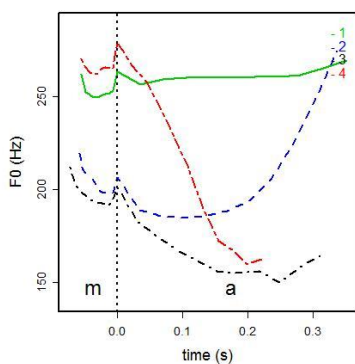


Figure 5: Aggregate mean tone contours for all speakers.

(a) M<sub>D</sub> Female

(b) M<sub>D</sub> Male



(c) E<sub>D</sub> Female

(d) E<sub>D</sub> Male

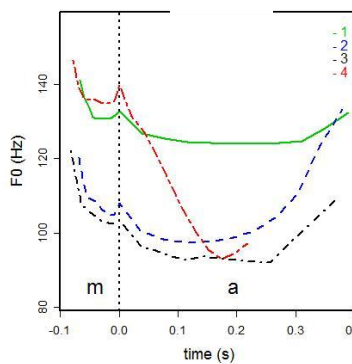
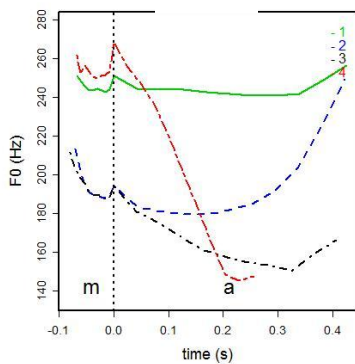


Figure 6: Aggregate mean tone contours for the four speaker groups.

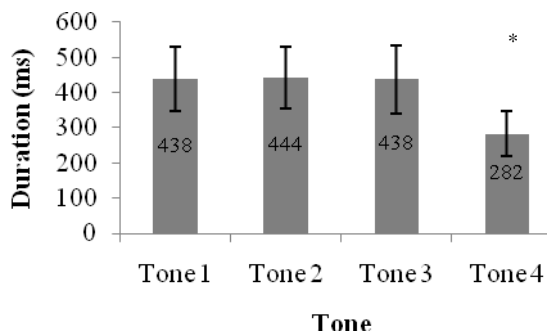


Figure 7: Syllable duration.

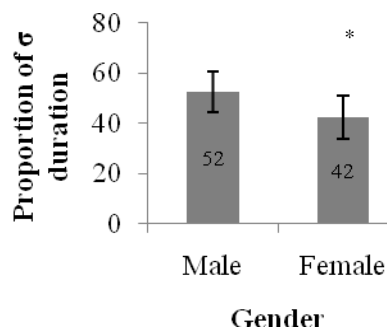


Figure 8: Tone 2 plateau

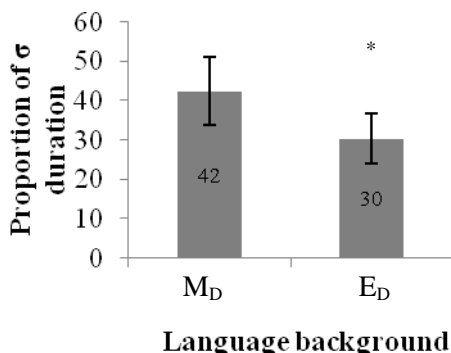


Figure 9: Tone 2 final rise

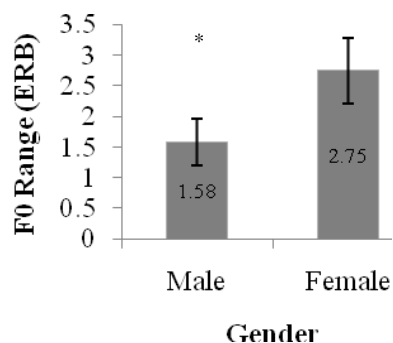


Figure 10: F0 range.

### 4.3. F0

Unsurprisingly, there was a significant effect of gender on F0 range [ $F(1,12) = 23.271$ ,  $p < 0.001$ ]: male speakers used a smaller range than female speakers, as shown in Figure 10. There were no other main effects or interactions on F0 range [ $F < 1$ ].

There was a significant effect of F0 points on the scaling of F0 [ $F(12,144) = 145.533$ ,  $p < 0.001$ ]. The 13 F0 points can be grouped into four pitch levels, based on statistical significance [Tukey HSD,  $p < 0.005$ ], as illustrated in Figure 11. Among the H points, only H1T2, H1T3, and H2T3 are significantly different from the others; H1T1, H2T1, H3T1, H2T2, H1T4, and H2T4 are not significantly different from one another, and as a group, they constitute the highest pitch level among the 13 points. Of the remaining three H points, H1T2 and H1T3 are not significantly different from each other, but both are significantly higher than H2T3 and the L and min points: H1T2 and H1T3 together form the second highest pitch level. H2T3 is not significantly different from L1T2 and L2T2, but these three points are significantly higher than minT3 and minT4, thus forming a third pitch level. At the lowest pitch level, minT3 and minT4 are not statistically different from each other, but are significantly lower than all the other points.



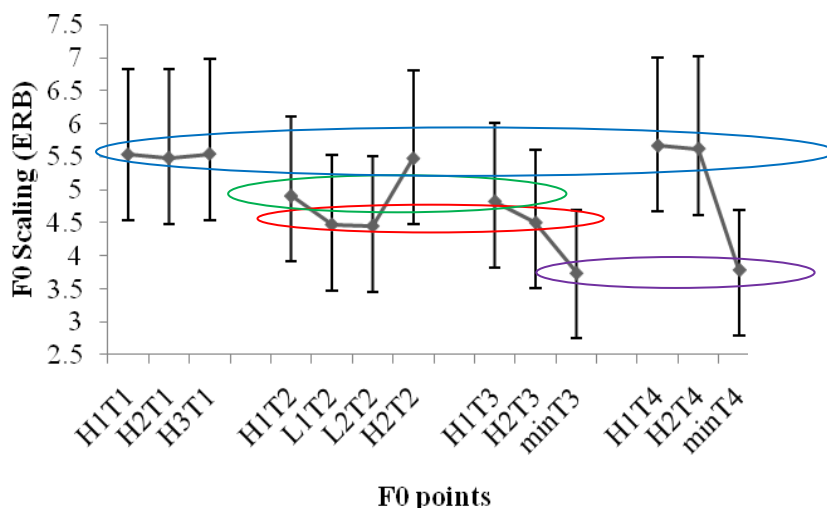


Figure 11: F0 scaling (all speakers).

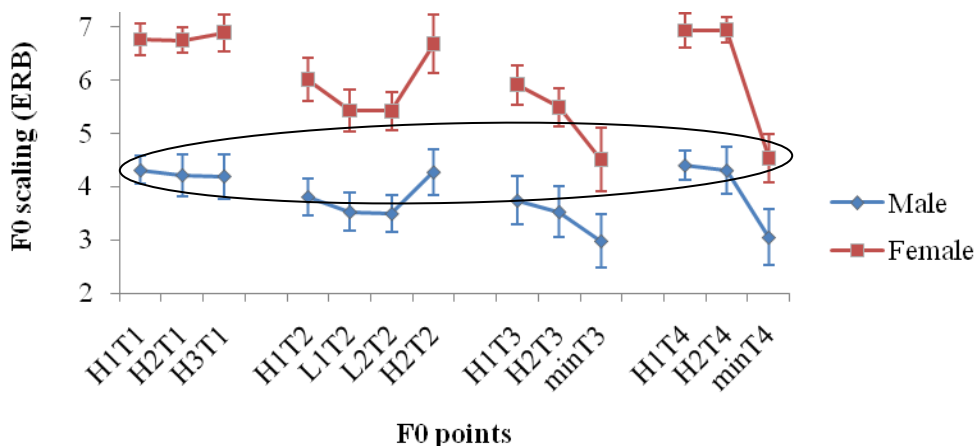


Figure 12: Gender differences in F0 scaling.

As expected, there was a significant effect of gender on the scaling of F0 [ $F(1,12) = 147.842, p < 0.001$ ]: each of the F0 points produced by male speakers was significantly lower than the corresponding point produced by female speakers [Tukey HSD,  $p < 0.05$ ], as illustrated in Figure 12. There was also a significant interaction of gender and the F0 points on the scaling of F0 [ $F(12,144) = 12.356, p < 0.001$ ]: minT3 and minT4 of female speakers are not significantly different from all the H points of male speakers, with the exception of H2T3 [Tukey HSD test,  $p < 0.05$ ].

Among the female speakers, the relative scaling of the 13 F0 points is similar to that of all the speakers combined, and the 13 points are organised along the four pitch levels

in the same way [Tukey HSD,  $p < 0.05$ ]. With male speakers however, the four pitch levels are less distinct, as shown in Figure 13. While four pitch levels can still be identified, there is some overlap in the organisation of the 13 points along the four pitch levels. Unlike the pooled data or the female data, H2T1 and H3T1 of male speakers are not significantly different from H1T2. Also, H1T2 and H1T3 do not form a pitch level on their own to the exclusion of the other F0 points: these two points are not significantly different from L1T2, L2T2, and H2T3 [Tukey HSD,  $p < 0.05$ ]. That is, those points which were organised into two separate pitch levels (mid-high and mid-low) for females and all the speakers combined are not distinct for male speakers. There were no significant effects of language background on F0 scaling, and there were no significant interactions.

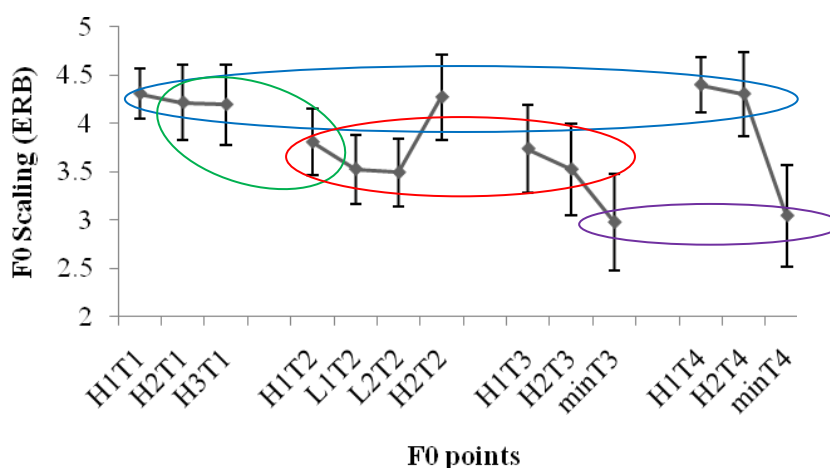


Figure 13: F0 scaling (male speakers).

#### 4.4. Final rise in Tones 3 and 4

Neither gender nor language background had a significant effect on the occurrence of the final rise in Tones 3 and 4 [ $p > 0.05$ ]. As both variants could be found in tokens produced by the same speakers, the two variants of these tones appear to be in free variation.

## 5. Discussion

### 5.1. Duration

The results show that tone has an effect on syllable duration in SM. The syllable bearing Tone 4 is significantly shorter than each of the other tones, which were not found to be significantly different from one another. Therefore, in terms of syllable duration, SM tones appear to be more similar to BM than TM: like in BM, SM Tone 4 is the shortest among the four tones. However, unlike BM, Tones 1, 2, and 3 of SM are not different in terms of duration. Internally to the variety,  $E_D$  speakers showed a trend of producing longer syllables than  $M_D$  speakers, i.e.  $E_D$  speakers tended to be slower, and perhaps

more careful, in their speech. Although not strictly significant, this effect approached levels of significance, and might be detected with data from more speakers.

The lack of temporal difference among the syllables bearing Tones 1, 2, and 3 raises an interesting question: can syllables bearing these tones be reliably distinguished from one another in the absence of F0 cues, such as in whispered speech? In an experiment involving speakers from Northern China, Liu & Samuel (2004) report a correlation between syllable duration and tone perception when F0 information is neutralised. The SM data, however, suggest that syllable duration alone cannot provide the basis for distinguishing Tones 1, 2, and 3. Kong & Zeng (2006) and Chang & Yao (2007) suggest that intensity provides another secondary cue to tone identification in the absence of F0 information. SM seems to provide an ideal testing ground for this hypothesis: since temporal information does not seem to play a role in distinguishing some of the tones, what is the role of intensity in the perception of tones when F0 is neutralised? In addition, although not addressed in the present study, voice quality might also play a role in contributing towards the tonal distinctions.

## 5.2. F0

As expected, there were gender effects on F0: the F0 range employed by female speakers is both wider and higher than that of male speakers, though in terms of the four levels presented in Table 1 below, the low pitch level of female speakers overlaps with the high and mid-high levels of male speakers. Such gender differences in F0 range are unsurprising, given the physiological differences between males and females that determine their average absolute pitch values (Cruttenden 1997: 3), and the findings here are in line with the results from other languages such as English and Dutch (Daly and Warren 2001; Haan and van Heuven 1999 respectively).

Table 1: Four pitch levels in Singapore Mandarin.

	Pitch level	F0 points
$\alpha$	Low	minT3, minT4
$\beta$	Mid-low	L1T2, L2T2, H2T3
$\gamma$	Mid-high	H1T2, H1T3
$\delta$	High	H1T1, H2T1, H3T1, H2T2, H1T4, H2T4

The analysis of the relative scaling of the 13 F0 points reveals that these points can be grouped in four pitch levels, based on statistical difference, as summarised in Table 1. Although the four pitch levels are less distinct for male speakers, this is also accompanied by a narrower F0 range, which compresses the differences between levels. As we saw in Figure 10, male speakers have a compressed F0 range compared to female speakers. This could provide an explanation for the blurred distinctions among the four pitch levels for male speakers: since the F0 range employed by male speakers is narrow, the differences

between the levels are smaller, and more data from a larger pool of male speakers would be needed to detect these differences reliably.

Given the organisation of the 13 F0 points into four distinct pitch levels, the contours of Singapore Mandarin tones can be represented in terms of the relative scaling of salient points along the four pitch levels. In these terms, the four tonal contours of SM can be characterised as follows: Tone 1 starts at a high pitch level and remains at this level throughout the syllable; Tone 2 begins at a mid-high level, falls to a mid-low level stretch, before rising to a high pitch level at the end of the syllable; Tone 3 starts at a mid-high level and falls steadily to the low level; Tone 4 starts and remains high through the onset, and then falls to the low level. Tones 3 and 4 also had variants that exhibited a small final rise, and the two variants appear to be in free variation.

Compared with the other varieties, the contours of Tones 1 and 4 show cross-dialectal consistency. The contour of SM Tone 2 is distinct from that in both BM and TM, and appears to uniquely characterise this variety. Unlike BM Tone 2, which falls slightly before showing an early rise, or TM Tone 2, which remains level or drops slightly during the first half of the vowel before rising towards the end, the contour of SM Tone 2 shows a mid-low level stretch not found in the other varieties. SM Tone 3 is more similar to that of TM than BM, where Tone 3 is realised as a dipping tone instead of ending low.

There are two possible onset pitch levels for the four tones in SM: Tones 1 and 4 start at the high level, while Tones 2 and 3 have mid-high level onsets. Likewise, there are two possible offset pitch levels: while Tones 1 and 2 have high offsets, Tones 3 and 4 have low offsets. The organisation of onset and offset pitch levels into three distinct levels closely reflects Shih's description of the tonal contours in TM (Figure 1). Taken together, such cross-dialectal consistency in F0 scaling at the syllable onsets and offsets points towards the representation of the four Mandarin tones in terms of the concatenation of static tonal targets scaled with respect to one another, whereby the contour of each tone is the result of the interpolation between these static targets. As Chao notes, tones are never distinguished by the exact shape of the F0 contour:

[P]ractically any tone occurring in any of the Chinese dialects can be represented unambiguously by noting the beginning and ending points, and in the case of a circumflex tone, also the turning point; in other words, the exact shape of the time-pitch curve, so far as I have observed, has never been a necessary distinctive feature, given the starting and ending points, or the turning point, if any, on the five-point scale. (Chao 1968: 25)

This observation is corroborated by evidence from a series of experiments on the perception of lexical tone in Thai (Zsiga and Nitisaroj 2007) testing the hypothesis that the presence and alignment of pitch targets provide more consistent cues to tone identification than the overall shape of the tonal contour. To test the effect of the scaling of pitch targets on tone identification, they manipulated the pitch at the mid and end

points of the target syllables, and to test of the effect of the alignment of pitch targets on tone identification, they varied the alignment on F0 peaks on the target syllable, while keeping the overall contour shape constant. Speakers were asked to identify the word that they heard by choosing one of five options that differed only in tone. The results of the F0 scaling experiments showed that the mid and end point values of a pitch contour provide more consistent cues to Thai tone identification than the overall F0 slope. Similarly, the results of the peak alignment experiment indicated that the shape and slope of a tonal contour are not salient in the perception of Thai tones: tonal identification changed when the peak alignment was varied, even if the overall shape and slope remained constant. These results support the hypothesis that contour tones are composed of pitch targets aligned with the segmental material, and provide little evidence in favour of a non-compositional analysis of contour tones.

Furthermore, it is not clear how the variation in the plateau duration or the duration of the final rise in Tone 2 can be modelled in a framework that treats contour tones as integral units of pitch movement. Thus, the SM data appear to be more compatible with the target and interpolation view than the treatment of tonal contours as holistic movements. This is consistent with the findings of Zsiga and Nitisaroj (2007) and there is little reason to treat Tones 2 and 4 as integral units of pitch movement that cannot be accounted for by the concatenation of static targets, as advocated by Xu and colleagues. For further confirmation of this, we await perceptual data of the sort that has been presented for Thai.

### 5.3. Alignment in Tone 2

As noted earlier, the contour of SM Tone 2 is unlike that of both BM and TM. In particular, it exhibits a low plateau that is flanked by two pitch elbows. Notice that while Tone 2 of Singapore Mandarin is realised as a dipping tone, it is Tone 3 of Beijing Mandarin that has a dipping contour. It would be interesting to investigate if speakers of these varieties would confuse the two tones, and if alignment or pitch level or an interaction between the two would play any role in disambiguating these tones.

The analysis revealed systematic patterns of alignment that relate to gender and language background. Proportionally speaking, male speakers align the two elbows further away from each other than female speakers, while the final rise starts earlier for  $M_D$  speakers than  $E_D$  speakers. Thus, in addition to the obvious F0 differences between male and female speakers that might be expected on physiological grounds, the proportional distance between the two pitch elbows in Tone 2 could also signal gender identity. Likewise, a proportionally earlier rise on Tone 2 could be indexical of  $M_D$  speech, in contrast to the later rise in  $E_D$  speech. Given the trend for  $M_D$  speakers to have shorter syllables than  $E_D$  speakers, the overall perceptual difference of the final rise might be quite large.

#### 5.4. Tonal change

The cross-dialectal differences in the realisation of Tone 2 seem to paint a picture of tonal change in action. In BM, there is an early rise. For TM, there is a mid level stretch before the rise. In SM, we see an initial fall, followed by a low plateau, before the final rise. It appears that the further away from the 'source', the later the rise on Tone 2. The language background distinction in Singapore seems to be moving in the same direction, with the final rise occurring later for E<sub>D</sub> speakers than M<sub>D</sub> speakers.

Similar observations have been reported for Tone 2 in TM. In a recent study, Sanders (2008) found that older speakers tended to produce a rising tone on Tone 2, while younger speakers tended to use a dipping tone. So we see a cross-dialectal trend for Tone 2 moving away from being a rising tone to becoming a dipping tone.

Perhaps what happened in SM is not unlike the great vowel shift in English: When Tone 4 became shorter and distinguishable by duration alone, Tone 3 could lose its final rise and become a falling tone without the risk of creating ambiguity. Since Tone 3 was no longer a dipping tone, speakers then decided to fill that gap by imposing 2 mid-low targets between the start and the end of Tone 2, resulting in a dipping tone. The alignment of these two targets are then manipulated for indexical purposes: the distance between the two pitch elbows indicates gender identity, while the distance between the second pitch elbow and the syllable offset signals the role of Mandarin in a speaker's repertoire. Or could it be the other way around, such as the tonal push chain suggested by Sanders, where a tone changes when another tone encroaches upon its territory? In order to answer this question, we need cross-generational data from SM.

#### 6. Summary and conclusion

In conclusion, the acoustic study of Singapore Mandarin tone presented here shows some non-trivial differences between the tonal realisations in this variety and those spoken in Beijing and Taiwan. In terms of duration, Singapore Mandarin shows a one-way split between Tone 4 and the other tones not found in the other varieties. With respect to tonal contours, the contour of Tone 3 in Singapore Mandarin is more similar to that of Taiwan Mandarin than Beijing Mandarin, while the contour of Tone 2 is unique to Singapore Mandarin in displaying a low level stretch not found in the other varieties. Internally to the Singapore Mandarin system, there are clear gender-related differences in the scaling and alignment of pitch targets, as well as alignment differences that relate to the speakers' language backgrounds, suggesting that tonal realisation can be used for indexical purposes. In turn, these types of differences strongly suggest that taking social variation into account, especially in a multilingual context like Singapore, is essential for the adequate description and understanding of grammatical systems, including tone.

**References**

- Arvaniti, Amalia. 2007. On the relationship between phonology and phonetics (or why phonetics is not phonology). *Proceedings of the XVI<sup>th</sup> International Congress of Phonetic Sciences*: 19-24.
- Arvaniti, Amalia and D. Robert Ladd. 2009. Greek wh-questions and the phonology of intonation. *Phonology* 26: 43-74.
- Arvaniti, Amalia, D. Robert Ladd, and Ineke Mennen. 2006. Phonetic effects of focus and “tonal crowding” in intonation: Evidence from Greek polar questions. *Speech Communication*, 48: 667-696.
- Boersma, Paul. 1993. Accurate short-term analysis of the fundamental frequency and the harmonics-to-noise ratio of a sampled sound. *Proceedings of the Institute of Phonetic Sciences of the University of Amsterdam*, 17: 97-110.
- Boersma, Paul and David Weenik. 2003. Praat 4.19: Doing phonetics by computer. (<<http://www.praat.org>>).
- Chang, Charles and Yao Yao. 2007. Tone production in whispered Mandarin. *Proceedings of the XVI<sup>th</sup> International Congress of Phonetic Sciences*: 1085-1088.
- Chao, Yuen-Ren. 1930. A system of tone letters. *Le Maître Phonétique*, 30: 24-27. [Reprinted in *Fangyan* (1980), 2: 81-83.]
- Chao, Yuen-Ren. 1956. Tone, intonation, singsong, chanting, recitative, tonal composition, and atonal composition in Chinese. In Morris Halle (ed.), *For Roman Jakobson*, Mouton: The Hague: 53-59.
- Chao, Yuen-Ren. 1968. *A Grammar of Spoken Chinese*. Berkeley and Los Angeles: University of California Press.
- Chen, Chung Yu. 1983. A fifth tone in the Mandarin spoken in Singapore. *Journal of Chinese Linguistics*, 11.1: 92-119. [Reprinted in Chung Yu Chen (ed.). 1993. *Aspects of Mandarin Chinese*, Singapore: The Commercial Press Ltd.: 249-272.]
- Chua, Chee Lay. 2003. The emergence of Singapore Mandarin: A case study of language contact. PhD dissertation, University of Wisconsin-Madison.
- Cruttenden, Alan. 1997. *Intonation* (Second edition). Cambridge: Cambridge University Press.
- Daly, Nicola and Paul Warren. 2001. Pitching it differently in New Zealand English: Speaker sex and intonation patterns. *Journal of Sociolinguistics*, 5: 85-96.
- Del Giudice, Alex, Ryan Shosted, Katherine Davidson, Mohammad Salihie and Amalia Arvaniti. 2007. Comparing methods for locating pitch “elbows”. *Proceedings of the XVI<sup>th</sup> International Congress of Phonetic Sciences*: 1117-1120.
- Fon, Janice and Wen-Yu Chiang. 1999. What does Chao have to say about tones? – a case study of Taiwan Mandarin. *Journal of Chinese Linguistics*, 27: 15-37.
- Haan, Judith and Vincent J. van Heuven. 1999. Male vs. female pitch range in Dutch questions. *Proceedings of the XIII<sup>th</sup> International Congress of Phonetic Sciences*: 1581-1584.

- Hermes, Dik and Joost van Gestel. 1991. The frequency scale of speech intonation. *Journal of the Acoustical Society of America*, 90: 97-102.
- Ho, Lui Choon. 2000. 声调的不稳定性在新加坡华语里不同年龄层的表现 [A survey of tonal instability in Singapore Mandarin over a spectrum of ages]. ms. National University of Singapore.
- Kong, Ying-Yee and Fan-Gang Zeng. 2006. Temporal and spectral cues in Mandarin tone recognition. *Journal of the Acoustical Society of America*, 120: 2830-2840.
- Ladd, D. Robert. 2008. *Intonational Phonology*. (Second edition). Cambridge: Cambridge University Press.
- Leow, Bee Geok. 2001. *Census population 2000 statistical: release 2: education, language, and religion*. Singapore: Department of Statistics, Ministry of Trade and Industry.
- Liu, Siyun and Arthur G. Samuel. 2004. Perception of Mandarin Lexical Tones when F0 information is Neutralized. *Language and Speech*, 47: 109-138.
- Peng, Shu-hui, Marjorie K. M. Chan, Chiu-yu Tseng, Tsan Huang, Ok Joo Lee, and Mary E. Beckman. 2005. Towards a Pan-Mandarin System for Prosodic Transcription. In Sun-Ah Jun (ed.), *Prosodic Typology: The Phonology of Intonation and Phrasing*, New York: Oxford University Press: 230-270.
- Sanders, Robert. 2008. Tonetic Sound Change in Taiwan Mandarin: The Case of Tone 2 and Tone 3 Citation Contours. *Proceedings of the 20th North American Conference on Chinese Linguistics*: 87-107.
- Shih, Chilin. 1988. Tone and Intonation in Mandarin. In Nick Clements (ed.), *Working Papers of the Cornell Phonetics Laboratory*, 3, CLC Publications: 83-109.
- Shih, Chilin, Greg Kochanski and Su-Youn Yoon. 2007. The missing link between articulatory gestures and sentence planning. *Proceedings of the XVI<sup>th</sup> International Congress of Phonetic Sciences*: 35-38.
- Xu, Yi. 1994. Production and perception of coarticulated tones. *Journal of the Acoustical Society of America*, 95: 2240-2253.
- Xu, Yi. 1997. Contextual tonal variations in Mandarin. *Journal of Phonetics*, 25: 61-83.
- Xu, Yi. 1998. Consistency of Tone-Syllable Alignment across Different Syllable Structures and Speaking Rates. *Phonetica*, 55: 179-203.
- Xu, Yi and Q. Emily Wang. 2001. Pitch targets and their realization: Evidence from Mandarin Chinese. *Speech Communication*, 33: 319-337.
- Xu, Yi and Ching X. Xu. 2005. Phonetic realization of focus in English declarative intonation. *Journal of Phonetics*, 33: 159-197.
- Zsiga, Elizabeth and Rattima Nitisaroj. 2007. Tone Features, Tone Perception, and Peak Alignment in Thai. *Language and Speech*, 50: 343-383.



## Unexpected Morphophonological Outputs\*

Yen-Hwei Lin

*Michigan State University*

This paper examines unexpected morphophonological outputs under diminutive rime change in Huojia, Jiyuan and Hongan, and explores a systemic contrast-based approach to show how preservation of phonological/phonetic contrasts serves to preserve morphophonological contrasts within the root-diminutive paradigm. The proposed analysis (i) shows that contrast-based constraints can provide a unified account of certain types of unexpected but systematic linguistic forms, (ii) adds to the growing body of research supporting a systemic approach to contrast preservation in phonology and morphology, and (iii) demonstrates that the notion of *systemic contrast preservation* can account for otherwise unexplained morphophonological outputs and why contrast-based constraints should be extended to morphophonology and morphological paradigms.

### 1. Introduction

In this paper, I discuss the issue of analyzing unexpected outputs in Chinese affixal phonology by examining three cases of unexpected morphophonological outputs under diminutive rime change and exploring a systemic contrast-based approach to show how preservation of phonological/phonetic contrasts serves to preserve morphophonological contrasts within the root-diminutive paradigm.

A well-known example of unexpected outputs comes from Beijing Mandarin *-er* suffixation, in which the syllable coda of the root is replaced by the suffix. If the coda is a velar nasal, the replacement also leads to nasalization of the nuclear vowel, as the example in (1a) shows, which seems to indicate a general process of vowel nasalization when a nasal coda is lost to the suffix, as in (1b). However, contrary to the expectation of a generalized rule, when the coda of the root is an alveolar nasal, no vowel nasalization applies, as illustrated by (1c). There have been many different analyses in the literature, e.g. Cheng 1973, Lin 1989, 2005bc, 2007a, Duanmu 2000/2007, Wang 1993, Wu 1994, Li 1999, Zhang 2000, to name just a few.

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\* I thank Professors James Huang and Shengli Feng for inviting me to give a keynote speech at IACL-18/NACCL-21 and the conference participants for their comments and questions.

- (1) An example of unexpected outputs under Beijing *-er* suffixation
- a. Nasal deletion and vowel nasalization:  
 $p^h a \eta + \text{r} \rightarrow p^h \tilde{a} \text{r}$  'side'
  - b. Expected general rule:  
 $VN + \text{r} \rightarrow [V, +\text{nasal}] \text{r}$
  - c. Nasal deletion but no vowel nasalization:  
 $p^h a n + \text{r} \rightarrow p^h a \text{r}$  'plate'

For example, Zhang (2000) offers a phonetically-based account, in which the asymmetry in (1a) and (1c) is explained by phonetic differences in the degree of nasal flow: vowel nasalization induced by /ŋ/ is stronger than that induced by /n/, hence the lack of nasalization resulting from the loss of /n/. In a contrast-based account (Lin 2005bc), the choice for an oral versus a nasal vowel (instead of two oral or two nasal vowels) in the *er*-suffixed forms has the advantage of preserving the morphological contrast: the *er*-suffixed forms ( $p^h \tilde{a} \text{r}$  vs.  $p^h a \text{r}$ ) of the two distinct roots ( $p^h a \eta$  vs.  $p^h a n$ ) remain distinct. Other less-studied cases, especially those under the rime change process, are more difficult to account for, and I will examine three cases from Huojia, Jiyuan and Hongan and offer potential analyses.

When unexpected or seemingly exceptional morphophonological outputs occur, there can be three approaches. The first is the do-nothing approach, in which the aberrant data are exceptions that are arbitrary (probably due to diachronic changes) and memorized by the speakers/learners, so no analysis is necessary. The second is the diachronic/socio-dialectal approach, in which the problematic data are explained by tracing sequences of diachronic changes, sociolinguistic variation and/or language contact. In the third synchronic theoretical approach, specific rules and/or constraints are proposed to derive the unexpected outputs. These approaches are not necessarily mutually exclusive since one set of data may be better explained by one approach than another or by some combinations of more than one approach. My discussion will focus on the third approach.

Diminutive rime change (*bianyun* 变韵) is a process that alters the root rime with featural or prosodic changes to produce various diminutive and/or hypocoristic forms, as the examples in (2) from Huojia illustrate.

- (2) *zi* and D rime change in Huojia (Henan Province) (He 1981, 1989)
- | <u>root</u>       | <u>zi-word</u>   |         | <u>root</u> | <u>D-word</u> |       |
|-------------------|------------------|---------|-------------|---------------|-------|
| fa                | fɔ               | ‘raft’  | li          | liə → liɛ     | ‘Li’  |
| p <sup>h</sup> an | p <sup>h</sup> ã | ‘plate’ | mau         | mɔ            | ‘Mao’ |

Earlier analyses (Lin 1989, 1993) posit subsegmental affixes such as featural or prosodic affixes (e.g. [+back, +round] or a mora/default vowel) and templatic output restrictions

(e.g. an open syllable). In some cases of rime change, however, there are puzzling unexpected alternations that are difficult to explain and analyze.

In this paper, the rime change cases I examine are those in which unexpected morphophonological outputs cannot be attributed to lexical idiosyncrasies. My attempt to account for these seeming exceptions is based on the notion of *contrast*, similar to those proposals for phonology in Flemming (2004) and Lubowicz's (2003), and for morphophonology and morphological paradigms in Itô & Mester (2004) and Kenstowicz (2005). In what follows, I introduce relevant contrast-based constraints in Optimality Theory (OT) in §2 before discussing the unexpected outputs under Huojia D rime change (§3), Huojia and Jiyuan zi rime change (§4), and Hongan diminutive rime change (§5). The final section (§6) summarizes the proposal and offers concluding remarks.

## 2. Contrast Preservation

The notion of *contrast* has been formalized in recent studies to account for phonological, morphophonological and morphological alternations, and there is a growing body of research supporting a systemic approach to contrast preservation in OT, e.g. Flemming 2002, 2004, Padgett 1997, 2003, Sanders 2002, Itô and Mester 2004, 2007, Kenstowicz 2005, to name just a few. Examples of systemic contrast-based constraints include those in (3).

- (3) Systemic contrast-based constraints
  - a. MINDIST constraints (Flemming 2002, 2004) and SPACE constraints (Padgett 2003) maximize/preserve the distinctiveness of contrasts.
  - b. Minimize articulatory efforts and maximize the number of contrasts (Flemming 2002, 2004).
  - c. NOMERGE penalizes neutralization of contrasts (Padgett 2003).
  - d. CONTRAST<sub>>i/e</sub> (Itô and Mester 2007) or  $\mu$ -CONTRAST (Itô and Mester 2004) declares the contrast between two mora-sized items as insufficient if they are identical at their left edges and contrast only in their vowel quality [i] vs. [e].
  - e. PRESERVECONTRAST constraints require that each pair of inputs that are distinct in some property P need to remain distinct in the outputs or avoid output ambiguity in P property (Lubowicz 2003, Tessier 2004).

In addition to phonological contrasts in sound inventories and phonological input-output mappings for pairs or sets of words, contrast-based constraints are also applicable to morphological paradigms, examples of which are given in (4). Whereas *paradigm uniformity* requires members or related words within a morphological paradigm to be phonologically/phonetically uniform in their shared base/stem (e.g. Kenstowicz 1996,

2005, Benua 1997, Steriade 2000, McCarthy 2005, Trón and Rebrus 2005), *paradigm contrast* demands paradigm members to be phonologically/phonetically distinct.

- (4) Paradigmatic/morphological contrast preservation
- a. PARADIGMCONTRAST (PARCONTRAST) (Itô and Mester 2004; cf. Kenstowicz 2005): The cells of a paradigm are pair-wise phonologically distinct. Assign one mark for each pair of paradigm members that are not phonologically distinct.
  - b. DISTINCTSTEM: The unaffixed stem must be distinct from the affixed stem; i.e., zero affixation is prohibited (Rose 1997, Urbanczyk 1998).
  - c. Transderivational anti-faithfulness constraints (Alderete 1999, 2001, cf. Hayes 1999).
  - d. CON(D): A form realizing some value of a morphosyntactic dimension D of paradigm x must be phonetically distinct from forms realizing other values of D (Rebrus & Törkenczy 2005) or PRINCIPLE OF CONTRAST (Trón & Rebrus 2005).

Under such a contrast-based analysis, the output candidates consist of sets of forms, such as a sound inventory (Flemming 2002, 2004), an idealized set of words (Padgett 2003, Lubowicz 2003), or a morphological paradigm (Itô & Mester 2004; cf. McCarthy 2005, Kentowicz 2005, Rebrus & Törkenczy 2005). In my analysis, I adopt constraints similar to those in (3) and (4) with some modifications.

### 3. Huojia D rime change

Under Huojia D rime change for adjectives and familiar local names (He 1989), the affix is either /ə/ (Lin 2001) or an empty mora (Lin 1993), as the examples in (5a) show, and due to an output templatic constraint that bans complex rimes for D words, coalescence applies to a complex rime (Lin 1993), examples of which are given in (5b).

- (5) Huojia D rime change for adjectives and local names (He 1989)
- |    |                  |                       |                  |                       |
|----|------------------|-----------------------|------------------|-----------------------|
| a. | <u>root rime</u> | <u>D changed rime</u> | <u>root rime</u> | <u>D changed rime</u> |
|    | u                | wə → wɤ               | i                | jə → jɛ               |
| b. | <u>root rime</u> | <u>D changed rime</u> | <u>root rime</u> | <u>D changed rime</u> |
|    | ai               | ɛ                     | au               | ɔ                     |

The examples in (6) show that vowel-nasal root rimes become nasal vowels through coalescence under D rime change, but the resulting nasal vowels are not always as expected based on faithful parsing of the features of the root segments. A nasal schwa is not a licit D changed rime for (6bd), and if [n] contributes to the fronting for [ən] (→ [ɛ̃]) in (6b), the same fronting effect does not apply to [an] (→ [ã] but not \*[ɛ̃]) in (6a). The

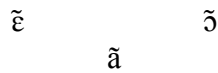
low vowel in (6c) does not remain a low vowel in the changed rime, and for root rimes ending in a velar nasal (6cd), a rounding feature is mysteriously added in the changed rimes to yield [ɔ̃].

(6) Nasal vowels created by coalescence under Huojia D rime change

	<u>root rime</u>	<u>D changed rime</u>		<u>root rime</u>	<u>D changed rime</u>	
a.	an	ã	*ẽ	c. aŋ	õ	*ũ *ã
b.	ən	ẽ	*õ	d. əŋ	õ	*õ *ỹ

Note that the resulting three nasal vowels are maximally dispersed within the non-high vowel perceptual space (given that the root rimes all have non-high vowels), as illustrated in (7). I propose that contrast maximization (Flemming 2002, Sanders 2002, Padgett 2003, Itô & Mester 2004, 2007), together with rounding enhancement for back vowels (Stevens et al. 1986), motivates the selection of these three nasal vowels.

(7) Vowel dispersion for perceptual distinctiveness within the non-high vowel space



The contrasts in the three pairs of rimes in (8) and (9) are maximized in the front-back and/or mid-low dimensions, and hence the resulting nasal vowels are maximally dispersed within the non-high perceptual space. With rounding enhancement for back nasal vowels, the perceptual contrasts in the two pairs in (8) are maximized. Through fronting a central vowel, the perceptual contrast in the pair in (9) is also maximized. However, contrast neutralization of [ɔ̃]-[ã] → [ɔ̃]-[ɔ̃] in (10) then becomes inevitable since there is no way to maximize contrasts for all four pairs of rimes to have maximally dispersed nasal vowels.

(8) Maximize the front-back contrast with rounding enhancement.

a.	an	↔	aŋ	contrast in root rimes
	ã		ã	no contrast in changed rimes
	ã		ũ	better contrast in changed rimes
	ã		õ	best contrast in changed rimes
b.	ən	↔	əŋ	contrast in root rimes
	õ		õ	no contrast in changed rimes
	ẽ		ỹ	better contrast in changed rimes
	ẽ		õ	best contrast in changed rimes

- (9) Maximize the mid-low contrast for the [əŋ] - [aŋ] pair.

əŋ	↔	aŋ	contrast in root rimes
ẽ		ẽ	no contrast in changed rimes
õ		ã	better contrast in changed rimes
ẽ		ã	best contrast in changed rimes

- (10) The mid-low contrast for the [əŋ] - [aŋ] pair is neutralized.

əŋ	↔	aŋ	contrast in root rimes
õ		õ	no contrast in changed rimes

Assuming that the various nasal vowels have roughly the perceptual distance as shown in (11), where the numbers indicate the hypothesized spacing/distance, I present in (12) and (13) an analysis making use of Flemming's (2002, 2004) contrast maximization constraints and output-output correspondence (Benua 1997) between the root rimes and the D changed rimes.

- (11) Perceptual space for nasal vowels (cf. Flemming 2002, 2004, Padgett 1997, Sanders 2002, Wright 1986)

	ĩ			ũ	1
	ẽ	õ	ỹ	õ	2
		ã	ã		3
	1	2	2.5	3	

- (12) Contrast-based analysis: constraints (cf. Lin 2005abc, Lin 2008b)

- a. Contrast maximization constraints (Flemming 2002, 2004)
  - MAXIMIZE CONTRASTS: Maximize the number of contrasts.
  - MINDIST: Maximize the perceptual distinctiveness of contrasts.
- b. Output-output correspondence (Benua 1997)
  - IDENT OO-HI: The base/root vowels and the vowels in the derived words have the same height specification.

The candidate set (13a) is best in maximizing perceptual contrasts but it is not faithful to the root rimes in vowel height. The other candidate sets in (13c-f) fail to maintain minimal perceptual contrasts, so (13b) emerges as the optimal set of changed rimes with nasal vowels.

(13) Contrast-based analysis: tableau

bases:	ən əŋ an aŋ	IDENT OO-HI	MINDIST ≥ 2	MAXIMIZE CONTRASTS
a.	ĩ      ũ ã	*!*		✓✓✓
→ b.	ẽ      ǔ ã			✓✓✓
c.	ẽ      ǔ ã ǎ		*!*	✓✓✓✓
d.	ẽ ỹ ã ǎ		*!***	✓✓✓✓
e.	ẽ      ỹ ã		*!*	✓✓✓
f.	ǔ ã		*!	✓✓

In sum, The unexpected nasal vowels derived by Huojia D rime change can be accounted for in terms of maximization of perceptual distinctiveness of the nasal vowels within the limit of an output-output (root-D words) correspondence requirement. The data from Huojia D rime change then illustrate how contrast maximization simultaneously enhances contrast preservation and produces contrast neutralization in a morphological context, and how phonetic/perceptual factors influence morphophonological alternations.

**4. Huojia and Jiyuan *zi* rime change**

Under Huojia and Jiyuan *zi* rime change, the *zi* changed rimes are derived by associating the featural affix [+back, +round] to the root and by segmental merger of some vowel-nasal rimes (Lin 1989, 1993). The evidence for the [+back, +round] featural affix comes from examples like (14a-d): High front vowels in (14ab) are suffixed with a back rounded glide and the non-high vowels in (14cd) are both backed and rounded in the changed rimes.<sup>1</sup> However, in (14e-h), where the alveolar nasal coda is changed to a back velar nasal in (14ef) and the nasal coda is merged with the preceding non-high vowel in (14gh)<sup>2</sup>, the [+round] part of the affix is not always manifested, as shown in (14e) and (14g).

<sup>1</sup> For a complete set of data, see He (1981, 1989), and for the details of data interpretation and analysis, see Lin (1993, 2001).

<sup>2</sup> Lin (1993) attributes the vowel lengthening in (14ef) to a requirement of transition from a front vowel to a back nasal (cf. schwa insertion between a high front vowel and a velar nasal in Standard Mandarin in Lin (2007a:177)). It is also stipulated that only low vowels undergo segmental merger to become nasalized vowels, as in (14gh).

(14) Huojia and Jiyuan *zi* rime change (data from He 1981,1989)

	<u>root rime</u>	<u>zi changed rime</u>	
a.	i	iu	
b.	y	yu	
c.	a	ɔ	
d.	ə	o	
e.	in	i:ŋ	*y:ŋ *i:ŋ <sup>w</sup>
f.	yn	y:ŋ	
g.	an	ã	*õ
h.	aŋ	õ	

Given that a labialized nasal such as [ŋ<sup>w</sup>] (derived from [ŋ] + [+back, +round]) is illicit in modern Chinese in general (Lin 1993:664), if the affix is faithfully and fully parsed, we expect both [in] and [yn] in (14ef) to become [y:ŋ] and both [an] and [aŋ] in (14gh) to become [õ], i.e. with both [+round] and [+back] features in the changed rimes. Although the unexpected outcomes could technically be analyzed as in Lin (1993) with specific rule orderings and feature configuration/cooccurrence constraints, the real explanation remains illusive.

One interesting observation to make, however, is that when the rounding feature of the affix fails to be manifested in the changed rimes in (14e) and (14g), the contrast between each pair of root rimes (i.e. the (14ef) pair and the (14gh) pair) is preserved in the changed rimes. As illustrated in (15a), if the [+round] feature of the affix were faithfully parsed, the changed rimes for both [in] and [yn] root rimes would be identical; on the other hand, the defective parsing of the affix, as in (15b), preserves the morphophonological contrast within the root-diminutive paradigm.

(15) a. When [+round] of the *zi* affix is manifested:

<u>root rime</u>	<u>zi affix</u>	→	<u>zi changed rime</u>
in	[+back, +round]	→	y:ŋ
yn	[+back, +round]	→	y:ŋ
in ↔ yn			y:ŋ ↔ y:ŋ
contrast			no contrast

b. When [+round] of the *zi* affix is not manifested in the changed rime for [in]:

<u>root rime</u>	<u>zi affix</u>	→	<u>zi changed rime</u>
in	[+back, +round]	→	i:ŋ *y:ŋ
yn	[+back, +round]	→	y:ŋ
in ↔ yn			i:ŋ ↔ y:ŋ
contrast			contrast



The same observation also applies to the (14gh) pair, as illustrated in (16ab). The intuition then is that the conflicting demands between faithful parsing of the root/affix and phonological contrast preservation between pairs of root rimes and their corresponding changed rimes are resolved at the expense of faithful parsing when necessary.

- (16) a. When [+round] of the *zi* affix is manifested:

<u>root rime</u>	<u>zi affix</u>	→	<u>zi changed rime</u>
an	[+back, +round]	→	ã
aŋ	[+back, +round]	→	õ
an ↔ aŋ			ã ↔ õ
contrast			no contrast

- b. When [+round] of the *zi* affix is not manifested in the changed rime for [an]:

<u>root rime</u>	<u>zi affix</u>	→	<u>zi changed rime</u>
an	[+back, +round]	→	ã *õ
aŋ	[+back, +round]	→	õ
an ↔ aŋ			ã ↔ õ
contrast			contrast

The usual paradigmatic contrast preservation constraints, such as those given in (4) above, evaluate members of a morphological paradigm sharing the same base/stem, but here we are evaluating how contrastive root rimes remain contrastive in their corresponding changed rimes. This mode of evaluation bears resemblance to Lubowicz's (2003) contrast preservation theory for phonological input-output mappings (cf. (3e)), but what we have here is morphophonological in nature and thus requires output-output mappings in which a distinctive pair of root forms need to remain distinct in the affixed forms. Such a contrast preservation constraint is formulated in (17a). Together with the faithfulness constraint in (17b), the two exceptional cases in Huojia and Jiyuan *zi* rime change, where [+round] of the affix is not parsed, are analyzed as in (17cd). The winning candidates are those that satisfy the contrast preservation constraint but violate faithful parsing of the affix.

- (17) Contrast-based analysis (cf. Lin 2008b)

- a. PRESERVECONTRASTROOT-DERIVED (PC(R-D)): Each pair of root forms X and Y that are distinct must remain distinct in their corresponding derived forms.
- b. MAX: no deletion of input elements.

c.

	<i>root zi</i> in in + [+bk, +rnd] yn yn + [+bk, +rnd]	PC(R-D)	MAX
→	in i:ŋ yn y:ŋ		*+rnd
	in y:ŋ yn y:ŋ	*!	

d.

	<i>root zi</i> an an + [+bk, +rnd] aŋ aŋ + [+bk, +rnd]	PC(R-D)	MAX
→	an ā aŋ ǎ		*+rnd
	an ǎ aŋ ǎ	*!	

To summarize, I have suggested that the seemingly mysterious non-parsing of the [+round] feature of the *zi* affix in Huojia and Jiyuan can be explained if we take into account pair-wise contrasts between roots and their derived forms.

### 5. Hongan diminutive rime change

The general patterns of Hongan diminutive rime change are shown in (18). In general, there is a back and front contrast between the root rime and the changed rime, with the exception of (18ag) where the changed rimes do not have a front feature. In addition, many root rimes do not have corresponding changed rimes, as given in (19).<sup>3</sup>

There are three major problems that challenge a unified analysis of Hongan rime change. The first concerns the issue of allomorph selection. There appear to be two allomorphs for the diminutive affix, [əɪ] (18ag) and a featural affix [-back] (18b-f). Allomorph selection is based on the phonological make-ups of the roots, so an adequate explanation is needed regarding how and why an allomorph is selected over the other for a particular root type. The second issue involves exceptions/unexpected outputs. A high

<sup>3</sup> Surveys of Chinese dialects do not always make clear how to form a diminutive form for a root rime lacking a corresponding changed rime. Normally the diminutive form of such a root rime may employ alternative morphological processes such as reduplication or affixation of a morpheme meaning “small”. This is what I assume here for Hongan (cf. Huojia analyzed by Lin (2007b)). However, in some dialects, a root rime that does not undergo rime change may have identical base and derived forms, e.g. perfective rime change in Junxian Mandarin analyzed by Jiang (2008).

front nasal vowel [ɪ] in (18e) is supposedly derived from the combination of the [an] or [ən] root rime and the [-back] affix; however, this result is unexpected because the root vowel is non-high and the derived nasal vowel is also expected to be non-high (e.g. like those in (18fg)). The third is the issue of paradigm gaps: there are many gaps in the root-diminutive paradigm since quite a few root rimes, as listed in (19), do not have any changed rime counterparts.

- (18) Diminutive rime change in Hongan (Hubei Province)  
 (data from Chen & Li 1996: 1728-1748)

	<u>root rime</u>	<u>changed rime</u>		<u>root rime</u>	<u>changed rime</u>
a.	o, au	əɪ	e.	an, ən	ĩ
b.	a	æ	f.	aŋ	ǣ
c.	ai	e	g.	oŋ	ǝɪ
d.	əu	əʊ			

- (19) Root rimes without corresponding changed rimes  
 a. i, y, æ, ʊæ, e, ie, ʉe, ei, uei, ʉei  
 b. u, əɪ

The general ideas for the proposal are that (i) the allomorph [-back] is the default form of the affix (cf. the analysis of Jiyuan in Lin (1989, 1993)), (ii) the notion of systemic contrast preservation for output-output mappings accounts for cases where the affixal [-back] fails to be manifested and where unexpected outputs occur, and (iii) the paradigm gaps are attributed to paradigm contrast preservation.

Consider first the allomorph selection issue: why is that some root rimes undergo [-back] affixation but some do not? The examples in (20) are those that undergo [-back] affixation, and those in (21) are root rimes that take the alternative allomorph.

- (20) Rimes affixed with [-back] for (18bcd)

a.	a	+	[-back]	→	æ
b.	ai	+	[-back]	→	e
c.	əu	+	[-back]	→	əʊ
d.	aŋ	+	[-back]	→	ǣ

- (21) Rimes with [o]/[au] in (18ag)

a.	o/au	+	[-back]	→	*e
b.	oŋ	+	[-back]	→	*ǣ
c.	o/au	+	əɪ	→	əɪ
d.	oŋ	+	əɪ	→	ǝɪ

Note that the potential changed rimes derived by [-back] affixation for [o]/[au], as in (21ab), are either identical or very similar to the changed rime for [ai] in (20b). When the alternative allomorph is chosen as in (21cd), the changed rimes for [o]/[au] become more distinct from the changed rime for [ai]. The contrast-based explanation is schematized in (22). Since the root rimes [ai] versus [o]/[au] and [ai] versus [oŋ] are distinct from one another or in contrast, sufficient distinctiveness of contrasts is also maintained for their corresponding changed rimes.<sup>4</sup> Under this view, the alternative allomorph is selected for the purpose of contrast preservation in the root-diminutive paradigm (cf. Löfstedt 2008).

(22) Contrast preservation

- a. Avoid identical changed rimes for different root rimes.

<u>root rimes</u>	<u>changed rimes</u>
ai ↔ o/au	e ↔ əɪ
contrast	contrast
ai ↔ o/au	e ↔ e
contrast	no contrast

- b. Maintain sufficient distinctiveness of contrasts in the changed rimes for different root rimes.

<u>root rimes</u>	<u>changed rimes</u>
ai ↔ oŋ	e ↔ əɪ
contrast	contrast
ai ↔ oŋ	e ↔ ě
contrast	insufficient contrast

Similar contrast-based explanation can also account for the second issue under Hongan rime change, i.e. the exceptions/unexpected outputs. Consider the two rimes in (23). Although default [-back] affixation applies, the changed rimes unexpectedly fail to maintain the [-high] property of the root vowels. In comparison, the vowels of other changed rimes all maintain the same height of the root vowels.

(23) Rimes with [an]/[ən] in (18e)

a.	an	+	[-back]	→	*ǣ
b.	ən	+	[-back]	→	*ĕ
c.	an	+	[-back]	→	ĩ
d.	ən	+	[-back]	→	ĩ

<sup>4</sup> See Flemming (2002, 2004) and Padgett (2003) on how sufficient perceptual contrasts are determined phonetically and phonologically and how languages may differ in the degree of sufficient perceptual distance for contrastive purposes. Specifically how Hongan determines sufficient distinctiveness of contrasts awaits detailed phonetic and phonological studies.

If the vowels of these two changed rimes remain [-high], as in (24ab), they would be either identical to the changed rime of [aŋ] (20d) or similar to the changed rime of [ai] (20b).<sup>5</sup> The contrast-based analysis is schematized in (24). Since the root rimes [an] and [aŋ] are in contrast, the corresponding changed rimes maintain a contrast, as shown in (24a). Similarly, since the root rimes [ai] and [ən] are in contrast, the corresponding changed rimes maintain sufficient distinctiveness of contrasts, as shown in (24b). Therefore, vowel raising in these two changed rimes serves the purpose of contrast preservation.

(24) Contrast preservation

- a. Avoid identical changed rimes for different root rimes.

<u>root rimes</u>	<u>changed rimes</u>
aŋ ↔ an	ã ↔ î
contrast	contrast
aŋ ↔ an	ã ↔ ã
contrast	no contrast

- b. Maintain sufficient distinctiveness of contrasts in the changed rimes for different root rimes.

<u>root rimes</u>	<u>changed rimes</u>
ai ↔ ən	e ↔ î
contrast	contrast
ai ↔ ən	e ↔ ë
contrast	insufficient contrast

To capture the explanation formally, two contrast-based constraints are given in (25ab). The first performs pair-wise evaluations of root forms and corresponding affixed forms, which requires evaluations of output-output mappings, as we have seen earlier in (17a). The second constraint is modeled after a constraint proposed by Itô and Mester (2004, 2007), given in (3d) earlier, and requires the contrast for two rimes to be sufficient. Specifically, (25b) declares that the contrast between [e] and [ë] is not sufficient.

(25) Contrast-based analysis (cf. Lin 2009)

- a. PRESERVECONTRASTROOT-DERIVED (PC(R-D)): Each pair of root forms X and Y that are distinct must remain distinct in their corresponding derived forms.

<sup>5</sup> Selecting the alternative allomorph would not help either: the changed rime for [an]/[ən] would then be [ã̃], which is identical to the changed rime for [oŋ] (21d).

- b. CONTRAST $>$ e/ẽ: The contrast of two rimes differing only in [e] versus [ẽ] is insufficient.  
 c. Analysis of allomorph selection

	<i>root</i>	<i>diminutive</i>	CONTRAST $>$ e/ẽ	PC(R-D)
	ai	ai + [-bk]/əɪ		
	o	o + [-bk]/əɪ		
→	ai	e		
	o	əɪ		
	ai	e		*!
	o	e		

- d. Analysis of exceptions/unexpected outputs

	<i>root</i>	<i>diminutive</i>	CONTRAST $>$ e/ẽ	PC(R-D)
	ai	ai + [-bk]/əɪ		
	ən	ən + [-bk]/əɪ		
→	ai	e		
	ən	ĩ		
	ai	e	*!	
	ən	ẽ		

The two tableaux in (25cd) show how the two constraints select the correct candidate sets to resolve the issues of allomorph selection and exceptions/unexpected outputs. In (25c), the alternative allomorph is selected for the changed rime for the [o] root rime because the second candidate set contains identical changed rimes for two distinct root rimes, violating the constraint PRESERVECONTRASTROOT-DERIVED in (25a). In (25d), the oral and nasal mid front vowels in the changed rimes of the second candidate set are not sufficiently contrastive, and hence vowel raising applies.

There are a couple of potential problems with this analysis. First, the root rimes [a] and [aŋ] have the changed rimes [æ] and [æ̃] respectively (18bf). The question then is this: if the contrast between the oral and nasal vowels [e] and [ẽ] is insufficient, why is the contrast between the oral [æ] and the nasal [æ̃] considered sufficient and tolerated? For the analysis to work, a constraint like CONTRAST $>$ æ/æ̃ must be lower ranked, indicating that for purposes of contrast maintenance, the perceptual distance between [æ] and [æ̃] is more adequate than that between [e] and [ẽ]. Since a high or low vowel as opposed to a mid vowel is peripheral, the oral-nasal contrast is likely to be maintained better (Jie Zhang, personal communication). In addition, since a nasal low vowel is perceived higher than its oral counterpart (Beddor 1993; cf. Wright 1986, Padgett 1997, Sanders 2002), the contrast between [æ] and [æ̃] could be considered more adequate and sufficient.

The second problem is that the existence of other pairs of identical and similar changed rimes seems to constitute counterexamples to the main idea of the proposed

analysis. For example, the root rimes [o] and [au] have the same changed rime [əɪ] (18a), and [an] and [ən] have the same changed rime [ɪ] (18e), violating PRESERVECONTRASTROOT-DERIVED. In addition, [o]/[au] and [oŋ] have changed rimes [əɪ] and [ɛɪ] respectively, whose degree of contrast does not seem to be sufficient. What is important to point out is that it is often impossible to contrast all pairs in the changed rimes or in a derived paradigm, so some neutralization is inevitable (see, for example, contrast preservation and neutralization of nasal vowels under Huojia D rime change in §3). It seems that when a pair of root rimes are more similar, contrast neutralization in the changed rimes is more likely to occur. A more comprehensive study examining how contrast preservation and contrast neutralization interact in a principled way is left for future research (cf. Lin 2005abc, Lin 2008ab).

Consider now the last issue on the paradigm gaps. I suggest that the presence of these gaps can be attributed to the requirement of contrast or distinctiveness between the root rimes and their potential changed rimes. Those root rimes without corresponding changed rimes listed in (19a) already contain a front vowel, and the fronting process of rime change would have failed to distinguish the root rimes from their potential changed rime counterparts, as the examples in (26a) demonstrate. Choosing the alternative allomorph, on the other hand, would create massive violations of PRESERVECONTRASTROOT-DERIVED with many identical changed rimes, as the examples in (26b) show.

(26) a.	e	+ [-back]	→	*e
	i	+ [-back]	→	*i
b.	e	+ əɪ	→	*əɪ
	i	+ əɪ	→	*əɪ
	o	+ əɪ	→	*əɪ

The constraint that avoids identity or similarity between a base/stem and its derived form is given in (27a), which follows the formulation in Itô and Mester (2004) but is similar in nature to constraints proposed in other studies (e.g. Kentowicz 2005, Rebrus & Törkenczy 2005, Lin 2008ab). As shown in (27b), the first candidate set violates PARADIGMCONTRAST twice since two root rimes are identical with their derived changed rimes, and the second candidate set violates PRESERVECONTRASTROOT-DERIVED since the changed rimes of three distinctive root rimes are identical. Therefore, PARADIGMCONTRAST, together with PRESERVECONTRASTROOT-DERIVED, helps select the third candidate set in which [i] and [e] have no corresponding changed rimes.<sup>6</sup>

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<sup>6</sup> For various approaches to analyzing paradigm gaps or absolute ungrammaticality in OT, see Prince and Smolensky (1993, 2004), Orgun & Sprouse (1999), Klein (2005), Rice (2007, 2009), Lin (2007b).

(27) Contrast-based analysis (cf. Lin 2009)

- a. PARADIGMCONTRAST (PARCONTRAST): The members of a morphological paradigm sharing the same base/root are pair-wise phonologically distinct.
- b. Analysis of paradigm gaps

	<i>root</i>	<i>diminutive</i>	PARADIGM CONTRAST	PC(R-D)
	i	i + [-bk]/əɪ		
	e	e + [-bk]/əɪ		
	o	o + [-bk]/əɪ		
	i	i	*!*	
	e	e		
	o	əɪ		
	i	əɪ		*!***
	e	əɪ		
	o	əɪ		
→	i			
	e			
	o	əɪ		

Consider now the lack of changed rimes for the two root rimes with central/back vowels, i.e. [u] and [əɪ] in (19b). The potential changed rimes for [u] and [əɪ] with default fronting could be [y] and [e]/[əɥ] respectively. However, the potential changed rimes [e] and [əɥ] for [əɪ] are identical to the changed rimes for root rimes [ai] and [əu] respectively (18cd) and would violate PRESERVECONTRASTROOT-DERIVED. Selecting the alternative allomorph would make the root rime and the changed rime identical, violating PARADIGMCONTRAST. Therefore, the root rime [əɪ] lacks a changed rime counterpart. A changed rime like [y] for [u] should be fine with PRESERVECONTRASTROOT-DERIVED and [y] is a possible vowel in Hongan, so it is unclear why there is no changed rime for [u]. A proper analysis of this example is left for future research.

To summarize, the puzzling and unexpected outputs under Hongan diminutive rime change can be accounted for by systemic contrast preservation within the root-diminutive paradigm.

**6. Concluding remarks**

I have examined specific cases in which unexpected outputs and/or unfaithful parsing of some root/affix features occur under Huojia, Jiyuan and Hongan diminutive rime change processes, and suggested that these seemingly exceptional cases can be explained by contrast preservation within the root-diminutive morphological paradigm. A new constraint that assesses output-output mappings in which a distinctive pair of root forms must remain distinct in the affixed/derived forms, i.e. PRESERVECONTRASTROOT-



DERIVED, is thus proposed to be added to the list of systemic contrast-based constraints (cf. (3-4)). Under Huojia D rime change, the unexpected nasal vowels can be accounted for in terms of maximization of perceptual distinctiveness. Under Huojia and Jiyuan *zi* rime change, the unexpected non-parsing of the [+round] feature is attributed to maintaining pair-wise output-output contrasts. In Hongan, the alternative allomorph [əɿ] is selected so as to maintain sufficient contrasts in the changed rimes for different root rimes, and the feature [-high] is replaced with [+high] in the changed rimes for [an]/[ən] so as to maintain sufficient contrasts in the changed rimes for different root rimes. The PARADIGMCONTRAST constraint, together with PRESERVECONTRASTROOT-DERIVED, is proposed to account for the paradigm gaps in Hongan. This study (i) suggests that contrast-based constraints can provide a unified account of certain types of unexpected but systematic linguistic forms, and (ii) adds to the growing body of research supporting a systemic approach to contrast preservation in phonology and morphology.

If this approach is on the right track, there are a couple of theoretical implications. First, The “do-nothing approach” may not be the best approach to unexpected but systematic morphophonological alternations that have remained unexplained or unanalyzed, especially when the data cannot be attributed to lexical idiosyncrasies. Second, the data and the analysis illustrate how the notion of *contrast* plays a crucial role in morphophonological alternations, suggesting that at least some unexpected and otherwise unexplained morphophonological outputs may be accounted for by appeal to phonetic/phonological and morphological contrast preservation.

Some of the questions for future research include: (i) How many and what types of morphophonological unexpected outputs can be explained by contrast preservation? (ii) Other than idiosyncratic lexical markings, paradigm uniformity and paradigm contrast, and now output-output contrast preservation, what additional formal devices are needed to account for unexpected outputs in morphophonological alternations? (iii) How should we deal with unexpected outputs or exceptions in general in phonological and morphophonological analysis? (iv) What phonetic and psycholinguistic experiments can be conducted to verify proposed formal analyses and to help understand how unexpected outputs are processed? It is hoped that this study can lead to more research on why unexpected outputs occur, how they are processed, and how linguistic theory can approach this difficult issue.

## References

- Alderete, John 1999. *Morphologically governed accent in optimality theory*. Amherst, MA: University of Massachusetts dissertation.
- Alderete, John D. 2001. Dominance effects as transderivational anti-faithfulness. *Phonology* 18.210-253.
- Beddor, Patrice Speeter 1993. The perception of nasal vowels. In *Phonetics and phonology 5: Nasals, nasalization, and the velum*, ed. by Marie K. Huffman and Rena A. Krakow, 171-196, New York: Academic Press.

- Benua, Laura. 1997. Transderivational identity: phonological relations between words, Amherst, MA: University of Massachusetts dissertation.
- Chen, Zhanqai 陈章太, and Xingjian Li 李行健 1996. 普通话基础方言基本词汇集 [*Basic vocabulary of Mandarin dialects*]. Beijing: 语文出版社 [Yuwen Chubanshe].
- Cheng, Chin-chuan. 1973. *A synchronic phonology of Mandarin Chinese*. The Hague: Mouton.
- Duanmu, San. 2000/2007. *The phonology of standard Chinese*. 1st edition/2nd edition. Oxford: Oxford University Press.
- Flemming, Edward. 2002. *Auditory representations in phonology*. New York: Routledge.
- Flemming, Edward. 2004. Contrast and perceptual distinctiveness. In *Phonetically based phonology*, ed. by Bruce Hayes, Robert Kirchner and Donca Steriade, 232-276. Cambridge: Cambridge University Press.
- Hayes, Bruce 1999. Phonological restructuring in Yidiny and its theoretical consequences. In *The derivational residue in phonological optimality theory*, ed. by Ben Hermans and Marc van Oostendorp, 175-205, Amsterdam: John Benjamins.
- He, Wei 贺巍 1981. 济源方言记略 [A sketch of the Jiyuan dialect]. 方言 [*Fangyan*] 1981.5-26.
- He, Wei 贺巍 1989. 获嘉方言研究 [*Studies in the Huojia dialect*]. Beijing: 商务印书馆 [Shangwu Yingshuguan].
- Itô, Junko, and R. Armin Mester. 2004. Morphological contrast and merger: *ranuki* in Japanese. *Journal of Japanese Linguistics* 20.1-18.
- Itô, Junko, and R. Armin Mester. 2007. Systemic markedness and faithfulness. *Chicago Linguistic Society* 39.665-689.
- Jiang, Ping. 2008. Optimality account of the rime change in Junxian Chinese. Paper presented at *IACL-16: the 16th Annual Meeting of the International Association on Chinese Linguistics*, Beijing, China.
- Kenstowicz, Michael. 1996. Base-identity and uniform exponence: Alternative to cyclicity. In *Current trends in phonology: Models and methods*, ed. by Jacques Durand and Bernard Laks, 363-394, European Studies Research Institute (ESRI), University of Salford.
- Kenstowicz, Michael. 2005. Paradigmatic uniformity and contrast. In *Paradigms in phonological theory*, ed. by Laura J. Downing, T.A. Hall and Renate Raffelsiefen, 145-169. Oxford: Oxford University Press.
- Klein, Thomas B. 2005. Infixation and segmental constraint effects: UM and IN in Tagalog, Chamorro, and Toba Batak. *Lingua* 115.959-995.
- Li, Wen-Chao. 1999. *A diachronically-motivated segmental phonology of Mandarin Chinese*. New York: Peter Lang.
- Lin, Yen-Hwei. 1989. *Autosegmental treatment of segmental processes in Chinese phonology*. Austin, TX: The University of Texas dissertation.
- Lin, Yen-Hwei. 1993. Degenerate affixes and templatic constraints: Rime change in

- Chinese. *Language* 69.649-682.
- Lin, Yen-Hwei. 2001. Toward a unified account of three classes of Huojia affixed words. In *Chinese phonology in generative grammar*, ed. by De Bao Xu, 223-240. San Diego: Academic Press.
- Lin, Yen-Hwei. 2005a. Contrast maximization and nasalized vowels in Huojia Chinese. Paper presented at the *Annual Meeting of Linguistic Society of America*, Oakland, CA.
- Lin, Yen-Hwei. 2005b. Contrast and merger in morphophonology. Keynote speech given at *IACL-13: The 13th Annual Meeting of International Association on Chinese Linguistics*, Leiden University, The Netherlands.
- Lin, Yen-Hwei. 2005c. Contrast preservation and neutralization: Nasal vowels in Chinese diminutive words. Paper presented at *MCWOP-11: Mid-Continental Workshop on Phonology 11*. The University of Michigan, Ann Arbor.
- Lin, Yen-Hwei. 2007a. *The sounds of Chinese*. Cambridge: Cambridge University Press.
- Lin, Yen-Hwei. 2007b. Ungrammatical affixed words in the Huojia dialect. *Taiwan Journal of Linguistics* 5.1-18.
- Lin, Yen-Hwei. 2008a. Parsing roots and affixes in Chinese affixal phonology: The conflicts of faithfulness and contrast preservation. Paper presented at the *Annual Meeting of Linguistic Society of America*, Chicago.
- Lin, Yen-Hwei. 2008b. A systemic approach to morphophonological alternations: Diminutive rime change in Huojia and Jiyuan. Paper presented at *IsCLL-11: The 11th International Symposium of Chinese Languages and Linguistics*. National Chiao Tung University, Hsinchu, Taiwan.
- Lin, Yen-Hwei. 2009. Contrast preservation in morphophonology: Diminutive rime change in Hong'an Chinese. *Proceedings of the 2nd International Conference on East Asian Linguistics, Simon Fraser University Working Papers in Linguistics 2*. [http://www.sfu.ca/gradlings/wp\\_2.html](http://www.sfu.ca/gradlings/wp_2.html)
- Löfstedt, Ingvar. 2008. Perceptually driven allomorphy: The Swedish non-neuter singular definite article. UCLA ms.
- Lubowicz, Anna. 2003. *Contrast preservation in phonological mappings*, Amherst, MA: University of Massachusetts dissertation.
- McCarthy, John J. 2005. Optimal paradigms. In *Paradigms in phonological theory* ed. by Laura. J. Downing, T. A. Hall and Renate Raffelsiefen, 170-210. Oxford: Oxford University Press.
- Orgun, Cemil Orhan, and Ronald L. Sprouse. 1999. From MParse to Control: deriving ungrammaticality. *Phonology* 16.191-224.
- Padgett, Jaye. 1997. Perceptual distance of contrast: Vowel height and nasality. *Phonology at Santa Cruz* 5.63-78.
- Padgett, Jaye. 2003. Contrast and post-velar fronting in Russian. *Natural Language and Linguistic Theory* 21.39-87.
- Prince, Alan S., and Paul Smolensky. 2004. *Optimality Theory : Constraint interaction in*

- generative grammar* Malden, MA: Blackwell Publishing.
- Rebrus, Péter, and Miklós Törkenczy. 2005. Uniformity and contrast in the Hungarian Verbal Paradigm. In *Paradigms in phonological theory*, ed. by Laura J. Downing, T.A. Hall and Renate Raffelsiefen, 263-295. Oxford: Oxford University Press.
- Rice, Curt. (ed.) 2009. *Modeling ungrammaticality in optimality theory*. London: Equinox.
- Rice, Curt. 2007. Gaps and repairs at the phonology-morphology interface. *Journal of Linguistics* 43.197-221.
- Rose, Sharon 1997. *Theoretical issues in comparative Ethio-Semitic phonology and morphology*. Montreal: McGill University dissertation.
- Sanders, Nathan. 2002. Dispersion in OT: Color contrast in Middle Polish nasal vowels. *WCCFL* 21.415-428.
- Steriade, Donca. 2000. Paradigm uniformity and the phonetics-phonology boundary. In *Papers in laboratory phonology V: Acquisition and the lexicon*, ed. by Michael B. Broe and Janet B. Pierrehumbert, 313-334. Cambridge: Cambridge University Press.
- Stevens, Kenneth N., S. Jay Keyser, and Haruko Kawasaki. 1986. Toward a phonetic and phonological theory of redundant features. In *Invariance and variability in speech processes*, ed. by Joseph S. Perkell and Dennis H. Klatt, 426-449. Hillsdale: Lawrence Erlbaum.
- Tessier, Anne-Michelle 2004. Input "clusters" and contrast preservation in OT. *WCCFL* 23.101-114.
- Trón, Viktor & Rebrus, Péter 2005. Re-presenting the past: Contrast and uniformity in Hungarian past tense suffixation. In *Papers from the Düsseldorf Conference, Approaches to Hungarian 9*. ed. by Christopher Piñón and Péter Siptár, 305-327. Budapest: Akadémiai Kiadó.
- Urbanczyk, Suzanne 1998. Avoidance of the marked. University of British Columbia and University of Victoria ms. [Rutgers Optimality Archive ROA-286, <http://roa.rutgers.edu>.]
- Wang, Jenny Zhijie. 1993. The geometry of segmental features in Beijing Mandarin, Newark, DE: University of Delaware dissertation.
- Wright, James T. 1986. The behavior of nasalized vowels in the perceptual vowel space. In *Experimental Phonology*, ed. by John. J. Ohala and Jeri J. Jaeger, 45-67. Orlando, Florida: Academic Press.
- Wu, Yuwen. 1994. Mandarin segmental phonology. University of Toronto dissertation.
- Zhang, Jie. 2000. Non-contrastive features and categorical patterning in Chinese diminutive suffixation -- Max[F] or Ident[F]. *Phonology* 17.427-478.

# Incomplete Tone Merger as Evidence for Lexical Diffusion in Dalian<sup>1</sup>

Te-hsin Liu

*National Taiwan Normal University*

The presence of near mergers has long been a puzzle for linguists due to the notions such as contrast, categorization as well as the postulated symmetry between production and perception (Labov 1994). The present research aims to provide a case study of tonal near merger in Dalian, a less well-known Mandarin dialect spoken in Northeast China. Using a case study of tonal near merger as a jumping off point, this paper draws on insights from the hypothesis of lexical diffusion (Wang 1969) to illustrate that sound change could indeed take a long period of time to complete its course.

## 1. Introduction

The present research aims to provide a case study of tonal near merger in Dalian. According to Song (1963), four lexical tones are observed in citation form, i.e. 312, 34, 213 and 53 (henceforth Old Dalian)<sup>2</sup>. Our first-hand data obtained from a young female speaker of Dalian (henceforth Modern Dalian) suggests an inventory of three lexical tones, i.e. 51, 35 and 213. The lexical tone 312 in Old Dalian, derived from Ia (*Yinping*), is merging with 51, derived from III (*Qu*), in the modern system.

However, the tone merger in Modern Dalian is incomplete. A slight phonetic difference can be observed between these two falling contours: both of them have similar F0 values, but the falling contour derived from Ia (*Yinping*) has a longer duration compared with the falling contour derived from III (*Qu*). Nevertheless,

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<sup>1</sup> This is a revised version of a longer paper to appear in *Journal of Chinese Linguistics*. Comments from Larry Hyman, Chen Zhongming, Keith Johnson, Richard Wright, Sam Tilsen, the audience of Berkeley Phonetics and Phonology Phorum, and the audience of 18th Annual Meeting of the International Association of Chinese Linguistics at Harvard (May 20-22, 2010) are highly appreciated. All errors are of course my own responsibility.

<sup>2</sup> Tones are marked with Chao tone numbers (Chao 1948) here. “5” indicates the highest pitch used in lexical tones while “1” indicates the lowest pitch. Contour tones are marked with two juxtaposed numbers. For example, 51 indicates a falling tone from the highest pitch to the lowest pitch.

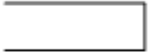



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the speaker judges the contours to be the same.

A question arises as a consequence of the tone merger in progress in tone sandhi. How will the merged tone behave during phonological processes? The tone patterns in disyllabic sequences in Modern Dalian suggest that the falling contour, derived from Ia and merging into III, should be analyzed as underlyingly /312/, i.e. the lexical tone in the sixties. However, the current citation form of Ia, /51/, competes with /312/, such that an exception can be found in tone sandhi. The above facts attest that sound change is not *lexically* abrupt, and could take a long period of time to complete its course (Wang 1969).

### 2. The thesis of tone merger (Wang 1982)

Wang (1982) first proposes a thesis of tone merger to account for the mechanism of tonal impoverishment in northern Chinese dialects, taking the 8-tone system, obtained after bipartition from four tone categories, as the starting point:

(1)	MC tone categories	MC initials	Tone split	Tone merger
	I ( <i>Ping</i> )	↗ p ↘ b	..... p <sup>a</sup> ..... p <sup>b</sup>	
	II ( <i>Shang</i> )	↗ p ↘ b	..... p <sup>a</sup> ..... p <sup>b</sup>	
	III ( <i>Qu</i> )	↗ p ↘ b	..... p <sup>a</sup> ..... p <sup>b</sup>	
	IV ( <i>Ru</i> )	↗ p ↘ b	..... p <sup>a</sup> ..... p <sup>b</sup>	

We shall follow one convention in the Chinese linguistics tradition in using I, II, III, and IV to stand for the four Middle Chinese tone categories, and a and b for the *Yin* (upper) and *Yang* (lower) registers respectively.

Conducting a survey of 480 northern Chinese dialects, Lien (1986) observes that Tone III is a merging category while Tones I, II and IV are merged categories. With respect to tone values of Tone III, his quantitative analysis reveals that high falling contour tone is by far the greatest in number in terms of tone tokens for Tone III, followed by high level tone. Lien attributes that underlying force that pulls the rest of the tones into III to perceptual reasons, high falling contour tone being the most favored tone feature in speech perception. Moreover, from a production point of view, falling contour is also favored in languages: there is a universal intonation tendency to begin a declarative sentence with a high tone and finish it by a low

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tone. Liberman & Pierrehumbert (1984) observe as well a final lowering in declarative sentences in English. Pierrehumbert & Beckman (1988) underline that this phenomenon occurs, in Japanese, in declarative sentences but not in interrogative sentences. Likewise, a final lowering is observed in Lomongo (Hulstaert 1961) and Vietnamese (Nguyên & Boulakia 1999).

Lien's survey, written in 1986, mostly cites data reported in the 1960s and 1970s. As suggested in his paper, northern Chinese dialects of that time still keep the distinction between Ia and Ib. However, in a recent report on the dialects spoken in east Shandong province, a merger of Ib into III is observed (Qian *et al.* 2001). The same tendency is found in our data, where a reduced tonal inventory of three tones is observed, as we shall see in the next section.

### 3. Dalian - tone merger in progress

#### 3.1 Tone system of Modern Dalian

Dalian is a city located at the south of Liaodong Peninsula, in Liaoning Province in Northeast China (see Figure 1). As a city located along the coast and facing Shandong Peninsula, most speakers of Dalian and other cities of Liaodong Peninsula were originally from Shandong. Dialects spoken in these two peninsulas are generally called Jiao-Liao Mandarin.



Figure 1: the location of Dalian city

On a basis of an elicitation list of 204 words, three lexical tones are classified in citation form, i.e. 51, 35, 213<sup>3</sup>. The informant is then asked if the words in one tone category all carry the same tone.

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<sup>3</sup> For the full list of elicitation, please refer to Liu (2009).

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(2) a. 51 [ta] “big” b. 35 [ta] “to reply” c. 213 [ta] “to hit”

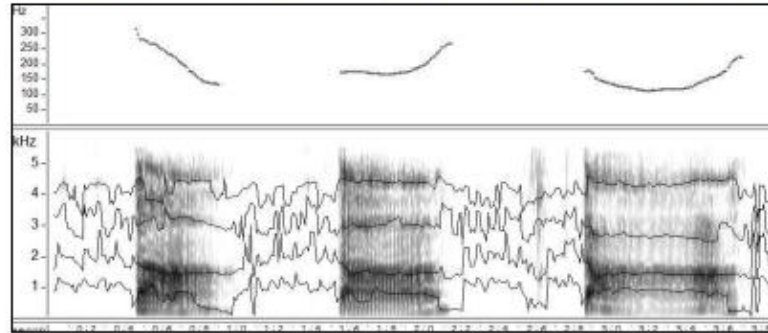


Figure 2: Pitch contour and spectrogram for [ta] “big”, [ta] “to reply” and [ta] “to hit”.

A comparison between Mandarin, Old Dalian and Modern Dalian is illustrated in (3). It can be observed that the falling contour tone has three historical sources apart from some words from the entering tone: Ia III and IIb. Recall that the merger of IIb with III took place in the ninth century (§2); the migration of Ia into III is a relatively recent process.

(3)	MC category	Mandarin	Old Dalian	Modern Dalian	
	Ia	55	312	51	
	Ib	35	34	35	
	IIa	213	213	213	
	IIb	51	53	51	
	IIIa	51	53	51	
	IIIb	51	53	51	

In order to know if there exists a phonetic difference between the falling contour tone derived from Ia and the one derived from III, we had the informant read nine pairs with five repetitions. We measured then their respective pitch duration. It can be seen in (4) that the contours derived from III have consistently a shorter duration compared with their counterparts derived from Ia:



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(4)

	Duration of /HL/ derived from Ia		Duration of /HL/ derived from III
[hwa] flower	473	[hwa] to paint	363
[t <sup>h</sup> aŋ] soup	346	[t <sup>h</sup> aŋ] hot to touch	328
[toŋ] winter	522	[toŋ] to freeze	375
[faŋ] perfume	443	[faŋ] to set free	306
[fɛj] to fly	473	[fɛj] to abolish	218
[ʃi] to lose	431	[ʃi] soldier	342
[san] three	365	[san] to come loose	293
[u] house	516	[u] fog	456
[faŋ] square	328	[faŋ] to set free	250
Average duration	433	Average duration	326
Standard deviation	67.77ms	Standard deviation	61.24ms

This result is not surprising given that the falling contour derived from Ia was pronounced as 312 in the 1960s, and a complex contour tone generally has a longer duration compared with a falling contour tone. It is interesting that the *quantity* of the pitch duration derived from Ia is preserved, even it is merging with the falling tone derived from III.

Recall that, after classifying the words into three tonal categories, the informant was asked if words belonging to one category carry the same tone. The falling contour category includes words derived from Ia and those derived from III, mixed in a random way. The informant replied that words derived from Ia and those derived from III bear the same tone. The fact that speakers consistently report that two classes of sounds are ‘the same,’ yet consistently differentiate them in production at better than chance level, is largely reported in the literature. Labov, Yaeger and Steiner (1972), for instance, find that speakers differentiate words like *source* and *sauce* in production, but report no distinction between them in perception. Similar near mergers have been

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reported in other varieties of English (e.g., *fool* and *full* in Albuquerque (Di Paolo 1988); *too* vs. *toe* and *beer* vs. *bear* in Norwich (Trudgill 1974); *line* vs. *loin* in Essex (Labov 1971, Nunberg 1980); *meat* vs. *mate* in Belfast (Harris 1985, Milroy and Harris 1980).

Given that our data is drawn from one informant, a natural question arises as to whether the tone merger in progress in Modern Dalian is due to individual variation. A close look at other Jiao-Liao Mandarin dialects is necessary in order to shed light on what is happening in Modern Dalian.

### 3.2 Tone merger in other Jiao-Liao Mandarin dialects

In Lien's 1986 survey, the majority of the northern variety still keep the distinction of Tone Ia and Tone Ib. A tendency of tone merger from four tones to three tones is observed in the last two decades in Jiao-Liao Mandarin. Working on the dialects spoken in Shandong province, Qian *et al.* (2001) notice that, in several dialects spoken in east Shandong Peninsula, a migration of Tone Ib into Tone III is observed, especially among young speakers:

(5) MC category	Weihai	Yantai	Fushan	Haiyang	Zhauyuan	Laixie
Ia	53	31	31	53	214	214
Ib	(33)	(55)	(55)	(43)	(42)	(42)
IIa	214	214	214	213	55	55
IIb	33	55	55	43	42	42
IIIa	33	55	55	43	42	42
IIIb	33	55	55	43	42	42

A comparison with the tendency of tone merger in dialects spoken in Shangdong province suggests that Modern Dalian is experiencing a similar process, with Ia migrating into III. The tendency found in Shangdong province gives thus indirect support to the tone merger in progress found in our data.

The next section will focus on the consequence of the near merger in tone sandhi in Modern Dalian.

### 4. Tone sandhi in Modern Dalian

As noted in the previous section, Ia is migrating into III in the modern dialect. Nevertheless, their underlying contrasts are preserved in tone sandhi contexts. Note that the left-most column indicates the tone on the first syllable, whereas the top row refers to the tone on the second syllable.

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(6)

	Ia 51	Ib 35	II 213	III 51
Ia 51	35.213			
Ib 35	35.213			
II 213	35.213	21.35	35.213	21.51
III 51	55.213		55.213	

Of sixteen possible combinations, nine sequences are subject to change. In cases where tone sandhi does occur, the second syllable retains its underlying tone. However, when 51 derived from Ia is on the second syllable, it systematically surfaces as 213 whatever the tone of the preceding syllable is. Examples of tone sandhi rules are given in (7):

- (7)
- |    |                     |   |        |  |                 |
|----|---------------------|---|--------|--|-----------------|
| a. | 51 (Ia) + 51 (Ia)   | → | 35.213 | [ts <sup>h</sup> wɤn t <sup>h</sup> jɛn] | “Spring”        |
| b. | 35 (Ib) + 51 (Ia)   | → | 35.213 | [zɤn tɕi <sup>h</sup> ]                  | “one’s wife”    |
| c. | 213 (II) + 51 (Ia)  | → | 35.213 | [ku ʂu]                                  | “old books”     |
| d. | 51 (III) + 51 (Ia)  | → | 55.213 | [toŋ t <sup>h</sup> jɛn]                 | “freezing day”  |
| e. | 213 (II) + 35 (Ib)  | → | 21.35  | [mi tʂoŋ]                                | “parasite”      |
| f. | 213 (II) + 213 (II) | → | 35.213 | [jan ʂi]                                 | “gum (of eyes)” |
| g. | 213 (II) + 51 (III) | → | 21.51  | [tswɔ ʂaŋ]                               | “upper left”    |
| h. | 51 (III) + 213 (II) | → | 55.213 | [taj ʂu]                                 | “kangaroo”      |
| i. | 51 (Ia) + 213 (II)  | → | 51.213 | [tɕ <sup>h</sup> io v]                   | “autumn rain”   |

Disregarding the falling contour derived from Ia for the moment, when tone sandhi occurs, it is the first tone that undergoes change. This fact is consistent with Northern Mandarin dialects, all right-dominant, in which the tone of the first syllable, in weak position, is subject to tone change under certain circumstances.

If Dalian is also a right-dominant language, why does /51/ derived from Ia surface as [213] on the second syllable? In other words, why are the falling contour derived from Ia and the one derived from III realized differently in disyllabic sequences while they are pronounced as a falling contour in citation form?

The falling tone derived from Ia systematically surfaces as [213] on the second syllable. Recall that in Song’s 1963 data, the lexical tone derived from Ia was /312/, a falling-rising contour tone. It seems reasonable to hypothesize that, in Modern Dalian, the surface tone [213] of Ia on the second syllable is actually the lexical tone /312/ in Old Dalian, and that it has merged with the falling contour in the modern dialect. The rationale of this conjecture is that, in a right-dominant language, when a

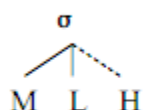
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disyllabic sequence undergoes tone sandhi, it is the tone of the first syllable that is subject to change, and the lexical tone of the second syllable remains the same. Putting aside the slight transcription difference, both 312 and 213 are falling-rising contour tones.<sup>4</sup>

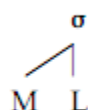
We posit that the underlying form of Ia is 21(3), with a final floating high tone. The difference between Ia and III resides in that the former has a final floating high tone whereas the latter has a fixed final high tone:

(8) a. 51 derived from Ia

Underlying form

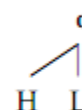


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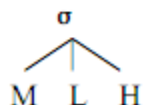


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Citation form



b. 213 derived from III



At a later stage, the floating high tone of Ia is delinked in citation form, and the remaining part is fused with the falling contour derived from III after a rule of register adjustment. However, the underlying difference between Ia and III is still preserved in tone sandhi<sup>5</sup>. Assuming this analysis, we can say that Dalian is a right-

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<sup>4</sup> It is well known that different informants pronounce tones with a slight phonetic difference, and not all descriptors transcribe tones in the same way: a same falling-rising contour tone might be transcribed as 413, 313 or 312 by different persons. This transcription difference does not change the fact that they all represent one single phonological object, i.e. a dipping tone.

<sup>5</sup> Tone sandhi preserves an earlier stage of a language is a frequent phenomenon in Sinitic

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dominant language, and that the second syllable retains its lexical tone just as other northern Mandarin dialects. This hypothesis is also advanced by Chomsky & Halle (1968) in support of their analysis of English: the underlying representation of the phonological system is also the surface representation of an earlier stage.

One puzzle remains: 51 (Ia) + 213 (II) yields [51.213] with four pitch changes on two syllables, rather than \*[55.213] as predicted by our constraint ranking:

(9)

	51 (Ia)	213 (II)
51 (Ia)	35.213	<b>51.213 (*55.213)</b>
213 (II)	35.213	35.213

The input 51 (Ia) + 213 (II) should have undergone tone sandhi but didn't: if the underlying form of Ia on the first syllable was 21(3), then the output should have been \*[35.213] as in other cases. If the underlying form of Ia was 51, then the output should have been \*[55.213]. Note that this is the only instance where Ia surfaces as 51 in tone sandhi.

Maybe a broader question is involved in the present case: what is the consequence of an incomplete merger on the phonological processes of a language?

Recall that 51 (Ia), which can be represented as underlyingly 21(3), is merging with 51 (III) in Modern Dalian, and 21(3) only surfaces on the second syllable in a disyllabic

languages. In Jinjing (Min dialect) for example, there are seven lexical tones but eight sandhi tones. The tone category III (*Qu*) has two sandhi tones:

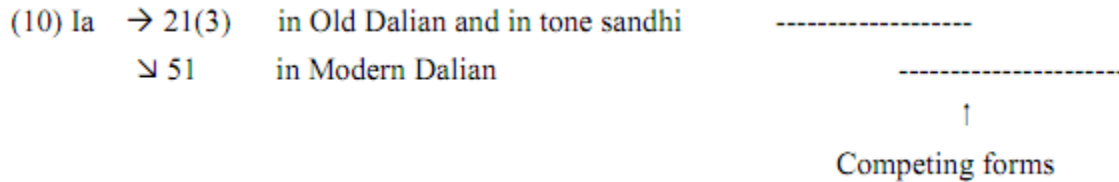
- (a) puã31 → puã55 lɔ31      « halfway »
- (b) pŋ31 → pŋ11 si24      « spoon »

Ting (1984) remarks that, from a diachronic point of view, (a) had a high register and (b) had a low register; these two registers have merged into one lexical tone in the modern dialect. On the basis of sandhi tones, we can conclude that there are seven lexical tones but eight base tones in this dialect. Another example comes from two dialects of Lingao on the Hainan Island (Ting 1982): there are six lexical tones in these two dialects, five of which are the same. The remaining tone is 11 in the A dialect, and 35 in the B dialect. There is no sandhi tones in the A dialect, and the sandhi tone in the B dialect is just 11. A comparative analysis implies that the base tone in B is 11.

This hypothesis is reminiscent of the liaison in French, a phenomenon of segmental sandhi, whose conservative character is largely admitted: take the word *grand* for example, it was written as *grant* and was pronounced [grât] both in masculin and in feminin in the twelfth century. The final consonant, in weak position, dropped, but is preserved if the following word begins with a vowel. The change in spelling (*grant* → *grand*) can be explained by the influence of latin etymology *grandis*, and allows to illustrate the regular alternation between *grand* and *grande* (an alternation such as *gran* ~ *grande* or *grant* ~ *grande* would be weird and irregular) as well as the lexical relation with *grandeur*, *grandir*, *grandiloquent*, etc.

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sequence. However, this tone merger in progress cannot have no effect on tone sandhi. It is possible that the tone merger in progress results in competing forms in tone sandhi and a reorganization of the grammar:



There are two competing forms in Dalian: Ia is realized as a falling-rising contour in Old Dalian and in tone sandhi in the modern dialect. Meanwhile, Ia is realized as a falling contour in citation form in Modern Dalian. 51 (Ia) + 213 (II) being the only case where Ia surfaces as the current citation form, we would like to suggest that this sequence is actually an innovation and a variation during the tone merger in progress.

The phenomenon in Dalian buttresses Dauzat and Wang's position according to which sound change is more complicated than the regularity hypothesis claimed by Neogrammarians :

*The phonetic law does not affect all items at the same time: some are designed to develop quickly, others remain behind, some offer strong resistance and succeed in turning back any effort at transformation.*(Gauchat, cited in Dauzat 1922)

*It is generally believed that splits can only result from a conditioned change, and that contrasts are possible only after something happens to the condition of the change. But if we accept the fact that a sound change (conditioned or unconditioned) may not complete its course due to other competing changes, then clearly we may also need to recognize incomplete sound changes as a cause of splits.* (Wang 1969:21)

### 5. Conclusion

The present work has dealt with the current state of tone merger in northern Chinese, with a special focus on Dalian. It has been suggested that Modern Dalian is experiencing a tone merger, Ia (Yinping) being integrated into III (Qu). However, the tone merger in Modern Dalian is incomplete on two grounds. On one hand, a slight phonetic difference is observed between the falling contour derived from Ia (Yinping) and the one derived from III (Qu). Both of them have similar F0 values, but the falling contour derived from Ia has a longer duration compared with the falling contour derived from III. Meanwhile, the underlying contrasts of these two contours surface in tone sandhi contexts. The above phenomena attest, as claimed by Wang (1969), that sound change is not lexically abrupt, and could take a long period of time to complete its course.

It has been suggested in the literature that the underlying category difference in a

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near merger situation may be supported by contact with another dialect that maintains the distinction (Labov 1994) or by orthographic differences (Faber and Di Paolo 1995). Yu (2007), who works on the near tone merger between the lexical rising tone and the morphologically derived rising tone in Cantonese, mentions that underlying category difference in a near merger situation can be sustained by grammar-internal factors as well. The present study illustrates another instance of preservation of underlying category difference in a near merger situation: the underlying difference between Ia and III is preserved in tone sandhi contexts.

### 6. References

- Chao, Yuen-ren (1928) *Xiandai Wuyu de Yanjiu (Study of Modern Wu Dialects)*. Beijing : Tsinghua Research Institute. Monographie 4.
- Chao, Yuen Ren (1948). *Mandarin primer: An intensive course in spoken Chinese*. Cambridge, MA: Harvard University Press.
- Cheng, Chin-chuan (1973) A quantitative study of Chinese tones. *Journal of Chinese Linguistics* 1: 93-110.
- Chomsky, Noam & Morris Halle (1968) *The sound pattern of English*. New York: Harper and Row. 470 p. Reprinted 1991, Boston: MIT Press.
- Di Paolo, Marianna (1988) Pronunciation and categorization in sound change. In K. Ferrara et al. (eds.) *Linguistic Change and Contact: NWAV-XVI*, Austin: Department of Linguistics, University of Texas, 84-92.
- Dauzat, Albert (1922) *La géographie linguistique*. Paris : Bibiothèque Fammariion.Bibiothèque Culture Générale.
- Harris, John (1985) *Phonological Variation and Change: Studies in Hiberno-Irish*. Cambridge: Cambridge University Press.
- Haudricourt, André (1954) De l'origine des tons en Vietnamien. *Journal Asiatique* 242.69-82.
- Haudricourt, André (1961) Bipartition et tripartition des systèmes de tons dans quelques langues d'Extrême-Orient. *Bulletin de la Société Linguistique de Paris*, 56:163-180.
- Haudricourt, André & Hagège, Claude (1978) *La phonologie panchronique*, Paris: Presses Universitaires de France.
- Herold, Ruth (1990) *Mechanisms of merger : The implementation and distribution of the low back merger in Eastern Pennsylvania*. Doctoral dissertation, University of Pennsylvania.
- Labov William (1994) *Principles of Linguistic Change*. Vol 1: Internal Factors. Vol. 2: Social Factors. Blackwell, Oxford.
- Liberman, Mark & Pierrehumbert, Janet (1984) Intonational invariance under changes in pitch range and length. In Aronoff & Oehrle (eds.) *Language Sound Structure*, MIT Press, Cambridge, 157-233.

## LIU: INCOMPLETE TONE MERGER

- Lien, Chinfa (1986) Tone merger in the dialects of northern Chinese. *Journal of Chinese Linguistics*, 14.3: 243-291.
- Liu, Te-hsin (2009) The Phonology of Incomplete Tone Merger in Dalian. In *UC Berkeley Phonology Lab Annual Report*, p. 435-461. To appear in *Journal of Chinese Linguistics*.
- Maspéro, Henri (1912) Etudes sur la phonétique historique de la language annamite: les initiales. *Bulletin de l'Ecole Francaise d'Extreme Orient* 12.114-16.
- Matisoff, James (1973) Tonogenesis in Southeast Asia. In Hyman (ed.) *Southern California occasional papers in linguistics*, 1. Los Angeles: USC. 71-96.
- Milroy, James & Harris, John (1980) When is a merger not a merger? The MEAT/MATE problem in a present-day English vernacular. *English Worldwide* 1:199-210.
- Nunberg, Geoffrey (1980) A falsely reported merger in eighteenth century English: A study in diachronic variation. In *Locating language in time and space*, Labov (ed.), New York: Academic Press.
- Ohala, John (1978) Production of tone. In Victoria A. Fromkin (ed.), *Tone: A linguistic survey*: 5-39. New York : Academic Press.
- Pierrehumbert, Janet & Beckman, Mary (1988) *Japanese Tone Structure*. Cambridge: MIT Press.
- Prince, Alan & Paul Smolensky (1993) *Optimality Theory: Constraint Interaction in Generative Grammar*. Rutgers University Center for Cognitive Science Technical Report 2.
- Qian, Zengyi, Zhang, Shuzheng & Luo, Futeng (2001) *Shandong fang yan yan jiu* (Studies of Dialects in Shandong), Jinan: QiLu Press.
- Ting, Pang-hsin (1984) Wuyu shengdiao zhi yanjiu (A study of Wu dialects). *Bulletin of the Institute of History and Philology, Academia Sinica* 55: 605-638.
- Song, Xue (1963) Liaoning Yuyin Shuolue (A sketch of Liaoning Phonology). In *Zhongguo Yuwen* 104-114.
- Song, Xue (1969) Liaoning (Jiuge Diqu) Yu Beijing Shengdiao Duiying Guanxi (Tonal correspondences between Liaoning (9 areas) and Peking). *Fangyan Yu Putonghua Jikan* 7: 14-18.
- Trudgill, Peter (1974) *The social differentiation of English in Norwich*. Cambridge: Cambridge University Press.
- Vogt, Hans (1954) Contact of languages. *Word* 10:365-74.
- Wang, William S.Y. (1969) Competing change as a cause of residue. *Language* 45:9-25.
- Wang, William S.Y. (1982) A note on Tone Development. In *Papers for Wang Li*.



## Individuation and Quantification: Do bare nouns in Mandarin Chinese individuate?

Pierina Cheung<sup>1</sup>, Peggy Li<sup>2</sup>, David Barner<sup>3</sup>

<sup>1</sup>University of Waterloo, <sup>2</sup>Harvard University, <sup>3</sup>University of California-San Diego

Some have proposed that speakers of classifier languages such as Mandarin or Japanese, which lack count-mass syntax, have to rely on classifiers for acquiring individuated meanings of nouns (e.g., Borer 2005; Lucy 1992). This paper examines this view by looking at how Mandarin adults interpret bare nouns and use classifier knowledge to guide quantification in three experiments. Experiment 1 found that Mandarin-speaking adults quantify nouns that are equivalent to English count, mass, and mass-count flexible nouns just like English speakers from a previous study. Experiment 2 showed that adults quantified over broken objects using the noun criteria but not classifier knowledge. Our last experiment found that Mandarin adults would attend to classifier syntax when the units of quantification are vague, as in the case of mass-count flexible nouns such as apple or rock. Taken together, we argue that individuation can be specified lexically, and does not come from classifier syntax.

### 1. Introduction

Research on the meanings of words and on the concepts they express have focused mainly on categorization (Smith & Medin, 1981; Murphy, 2002). In philosophy and linguistics, some words and concepts provide criteria of individuation, which allows us to determine what constitute an individual (where one individual starts and another begins, and whether  $x$  is the same one as  $y$ ), and to discriminate distinct individuals of the same category. For example, we cannot count the *red* in the room, but we can count the *dogs*. Concepts that provide criteria of individuation and numerical identity are thus called “sortals.” Sortal concepts guide quantification as well as classification, and quantification is among one of the important organizing systems of natural language semantics and syntax.

Languages differ markedly from one another in their quantificational resources, including how they express sortal concepts. The cross-linguistic differences in syntactic and semantic structures of quantification, as described below, have been posited to underlie differences in non-linguistic representations. These differences have also led researchers to wonder whether nouns and noun phrases in all languages really express the same conceptual content. For example, when an English speaker hears the word “table”, he or she knows that it refers to a kind of object (a kind of furniture whose members have

a flat surface to support objects) rather than arbitrary portions thereof (e.g., piles of rods and planks). But what mental representation would the Mandarin equivalent – “zhuozi” – generate in the mind of Mandarin speakers? This paper investigates this question by looking at the interpretation of bare nouns and the role of classifiers in Mandarin Chinese.

In English and other Indo-European languages, there exists a syntactic distinction (i.e., the mass-count distinction) that has been said to correspond to a conceptual distinction between individuals and non-individuals. Syntactically, nouns in count syntax can occur directly with numerals (e.g., one dog), singular-plural morphology (a dog, some dogs), and quasi-cardinal determiners (these dogs). In contrast, nouns in mass syntax cannot do any of the above. They cannot occur directly with numerals (e.g., \*one sand), singular-plural morphology (\*a sand, \*some sands), or quasi-cardinal determiners (e.g., \*these sands). The syntax-semantic correspondence, as suggested by researchers, is that count nouns refer to sortals, i.e., things that have “atomic structure” or atoms/individuals that can be counted. Mass nouns (e.g., water, wood, fun), on the other hand, refer to homogenous things (Quine 1960; Bloom 1994; Gordon 1988; Link 1983; Wisniewski, Imai and Casey 1996).

Classifier languages such as Mandarin Chinese and Japanese, however, lack such a mass-count distinction, and many have thus argued that all nouns are mass nouns (Allan 1980; Chierchia 1998). First, like English mass nouns, nouns in classifier languages such as Mandarin cannot co-occur directly with numerals (\**san bi* ‘three pen’), and require classifiers (CLs) for counting (*san CL-zhi bi* ‘three pens’, is literally translated to ‘three CL-stick pen’). Classifiers are thus akin to English measure words (e.g., “piece” in “three pieces of toast”) that is added to nouns to provide information such as shape, animacy, functionality, and the unit of measure for the noun’s referent. Second, pluralization is often non-obligatory or non-existent in classifier languages. Third, whereas English has different sets of quantifiers for count and mass nouns (e.g., many pens/much water), classifier languages often do not (e.g., *henduo bi* ‘many pens’, *henduo shui* ‘much water’). These observations have led researchers to argue that nouns in classifier languages are syntactically mass, and that noun meanings differ between classifier and mass-count languages (e.g., Lucy 1992).

In particular, researchers reasoned that nouns in classifier languages, as mass nouns, do not provide criteria for individuation, and refer to unindividuated essence. As Lucy (1992) put it, in classifier languages such as Yucatec Mayan, all lexical nouns “are unspecified as to unit since they all require supplementary marking (i.e., numeral classifiers) in the context of numeral modification.” (p. 73). Under this account, classifiers do not merely reflect the meaning provided by the noun, but actually supply units of individuation and quantification, just as English mass nouns require unitizers like “piece” to specify the unit.

The view that only count nouns in mass-count languages specify a unit of individuation has received some experimental support. In particular, Lucy hypothesized that the difference between nouns in classifier and mass-count languages should cause its

speakers to classify entities differently as objects (individuals) or substances (unindividuated stuff). Because English count nouns are prevalent and the unit of individuation and quantification encoded by the noun is typically determined by shape, English speakers should pay more attention to shape information than Yucatec speakers. In contrast, because Yucatec nouns do not specify information about the unit of individuation, its speakers should pay more attention to the material composition than the shape relative to English speakers. In support, when participants were presented with an object (e.g., a cardboard box), and then asked to judge which of two alternatives was more similar, one matching the original in shape (a plastic box) and one matching in material (a piece of cardboard), English speakers preferred the shape-matched choice. Yucatec Mayans divided their choices between the two alternatives (see also Lucy & Gaskins, 2001; 2003). Similarly, Imai and Gentner (1997) found that relative to Japanese speakers, English speakers were more likely to extend novel words for novel referents on the basis of shape than material.

In addition to categorization studies from Lucy and others, recent studies from Huang and colleagues (Huang & Lee, 2009; Huang, 2009) have attempted to resolve the debate on noun semantics by directly exploring what the noun means to speakers. Using a picture verification task, they asked what range of things Mandarin nouns, whose English equivalents are count nouns, can reference. They found that, when shown pictures of whole objects or parts of an object (e.g., a whole chair or half of a chair), Mandarin-speaking adults would judge sentences containing a bare noun (*yizi* ‘chair’) as acceptable for describing pictures depicting either the whole object or just a piece of the object (*yizi* ‘chair’ was acceptable for a whole chair or half of a chair). However, when a classifier was added to the noun (*zhang yizi* ‘a chair’), adults rejected pictures depicting parts of an object, while children continued to accept them. Based on this finding, the researchers drew two conclusions. First, learning classifiers “initiates children into learning how individuals and non-individuals are encoded in the language” (Huang 2009: 150). Second, they argued that nouns do not have individuated meaning independent of the classifiers (see also Borer, 2005). The combination of the classifier and noun provides the criteria for individuation.

Unfortunately, at least half of the nouns Huang and Lee considered “count nouns” in English and that were included in their study were “flexible” nouns – i.e., nouns that could flexibly be count or mass in English (e.g., apple in “some apples” vs. “some apple”). For example, although it is true that “apple” denotes a kind of fruit for which it is clear what counts as an individual, English speakers use the same word to refer to the food stuff that one eat (“apple” also can refer to pieces of apple). Thus, the word “apple” in English can refer to both individual or nonindividuated stuff, depending on syntax. If we assume that noun meanings are the same cross-linguistically, Mandarin speakers might also be willing to accept whole and parts/pieces for the flexible nouns in a bare noun phrase, just as English speakers might be willing to accept either whole or parts/pieces depending on the syntax affixed to the flexible noun.

Moreover, there were also experimental concerns with the other nouns as well. Sometimes the part of an object depicted could still potentially function as a good individual of that kind. Huang (2009) mentioned anecdotes in which participants' explained that their judgments were mediated by potential functionality of the depicted object part – for example, they accepted a torn pair of pants as *kuzi* ('pants') because the torn half could still function as a pair of pants. This functionality factor played into participants' willingness to extend the noun to pieces and parts. Thus, had Huang and Lee chosen only count nouns and depictions of afunctional parts of the objects, participants might not have accepted parts of objects for the bare nouns. The current experiments will revisit the issue of noun choice and object parts to see if Huang and Lee's data hold.

In contrast to the position above, there are several recent studies that have argued that mass nouns and nouns in classifier languages can encode criteria of individuation. First, several researchers have argued that English mass nouns are not limited to denoting non-individuals (Barner & Snedeker, 2005; Chierchia, 1998; Gillon, 1999). Take, for example, the English mass noun "furniture." "A piece of furniture" cannot refer to just a leg of a chair, but must denote a whole individual (e.g., a chair, a table, a bookshelves, etc.). Only "a piece of a piece of furniture" can refer to the leg of a chair. This suggests that mass nouns like "furniture" do provide natural atomic units for counting, namely anything that counts as a "piece" (Doetjes, 2007). This intuition has been supported by experimental studies that probe how mass-count syntax affects quantity judgments. When asked to decide which of two sets contains "more furniture" or "more mail" participants based quantity judgments on number (e.g., judging that six tiny pieces of mail are more mail than two large pieces), despite basing judgments on volume for other mass nouns that denote substances (Barner & Snedeker, 2005, 2006). These findings show that mass nouns permit individuated denotations and that lexical concepts alone can determine individuation.

Second, given that mass nouns in languages like English can denote individuals, one might question the related proposal that all nouns in classifier languages denote unindividuated entities. Crucially, using Barner and Snedeker's quantity judgment task, recent studies have found evidence that many nouns in classifier languages also supply criteria for individuation (Barner, Inagaki & Li, 2009; Inagaki & Barner, 2009). In the absence of classifiers, Japanese speakers base quantity judgments on number to the same extent as English speakers for Japanese equivalents of English count nouns like "cup" and "plate" and for object-mass nouns like "furniture" and "mail", but based quantity judgment on volume for substance-mass terms like "ketchup" and "peanut butter". Barner and colleagues also tested flexible nouns that can be used as either mass or count nouns in English, such as "string" and "chocolate".<sup>1</sup> In this case, English speakers quantified by number when the nouns were presented in count syntax (more chocolates) and by volume

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<sup>1</sup> An independent group of English speakers who did not participate in these quantity judgment tasks determined whether these nouns were count, mass, or flexible nouns (Barner et al 2009).

when in mass syntax (more chocolate). Because Japanese lacks mass-count syntax, their judgments for the flexible nouns were sometimes by number and sometimes by volume, in-between the count and mass groups of English speakers' judgments. This pattern of behavior is consistent with the hypothesis that both count and mass readings are available to Japanese and English speakers for flexible nouns, and that syntax selects from universally available lexical meanings. This finding is extremely relevant to Huang and Lee's study, because it suggests that the choice of nouns could indeed factor in how flexibly classifier language speakers are willing to accept amount of stuff or parts of objects as units of quantification for bare nouns.

Third, language differences on the classification of entities by shape (as objects) or by material (as substances) have not gone unchallenged. Contrary to Lucy (1992), these differences are much smaller than previously reported, present only when entities are ambiguous as to whether they have shape-based function, and can be made to disappear depending on testing context (see Li, Chen, Barner, & Carey, under review, for an English-Mayan replication). Importantly, these differences have been attributed to syntactic differences rather than to lexical semantics of nouns (Imai & Mazuka, 2003; Colunga & Smith, 2006; Li, Dunham, & Carey, 2009; Barner et al 2009; see Barner, Li, & Snedeker 2010 for a review). That is, the obligatory nature of having to assign count or mass status to noun phrases and the relatively high presence of high count syntax led English speakers to classify novel nouns as count nouns, and hence categorize on the basis of shape (i.e., object-kind match) rather than material (substance-kind match).

Lastly, although classifier languages lack a morpho-syntactic distinction between mass and count nouns, some have argued that the distinction is reflected at the classifier level (e.g., Cheng & Sybesma, 1998, 1998; Cheng, Doetjes & Sybesma 2008; Doetjes 1997), noting that there are two classes of classifiers (sortal and mensural classifiers) that appear in different syntactic contexts and that are associated with different types of nouns. Sortal classifiers belong to a closed class and are usually associated with particular nouns via rote memorization. In contrast, mensural classifiers can be used with any noun and belong to an open class. Practically any word that denote measures can be used productively as a mensural classifier (e.g., *wan* 'bowl' in *yi wan tang* 'one bowl soup'). Analogous to English mass-count syntax, the syntax-semantic correspondence is that sortal classifiers 'classify nouns that are cognitively singularizable, i.e., count nouns, such as pens, dogs, etc', but mensural classifiers are associated with nouns that are 'cognitively masses, such as water and sand, (plural) pens and dogs' (Cheng & Sybesma, 1998; p. 403). A growing body of experimental evidence has offered support for this analogy (e.g., Li, Barner, & Huang 2008).

In summary, our review indicates that there is a body of literature debating whether classifiers are necessary for individuation, with researchers providing evidence on each side. We believe, however, that the current state of affairs more strongly supports the position that noun semantics are not different cross-linguistically, and that some

nouns in classifier languages do provide criteria for individuation just like nouns in mass-count languages. The current study provides even stronger evidence for this position.

Experiment 1 replicated and extended Barner and colleagues' Japanese-English findings with speakers of another classifier language, Mandarin. Whereas prior studies tested count nouns, mass nouns, and flexible nouns, Experiment 1 further divided the flexible nouns into two kinds of flexible nouns on the basis of a conceptual distinction as judged by English speakers – nouns that name things for which it is clear what constitutes a whole object or “atom” of that kind (apple, pear) vs. nouns that do not (rock, string) have clear “atoms”. More specifically, an apple cut in half does not make two apples, while a rock cut in half makes two rocks. The flexible nouns Huang and Lee studied and labeled as count nouns were of the “apple” and “pear” kind, and the flexible nouns Barner and colleagues studied (Barner & Snedeker 2006; Inagaki & Barner 2009) were of the “rock” and “string” kind. Experiment 1 included both sets of nouns within one study as comparison. We reasoned that if Mandarin speakers are sensitive to the same conceptual distinction as English speakers, then their likelihood of quantifying by individuals and by volume should differ for these two classes of flexible nouns. We predicted that volume should be selected more often for “rock” type nouns than “apple” type nouns, since by picking the side with more volume one can potentially cut up individuals of the “rock” kind to make more of such individuals (i.e., more rocks), satisfying both volume and number.

Experiment 2, following Huang and Lee (2009), we explored Mandarin speakers' acceptance of parts and whole objects for nouns whose equivalents are English count nouns. If nouns in Mandarin do not provide criteria of individuation, then participants might accept broken parts as valid units of quantification for bare nouns. Experiments 2 and 3 also explored the role of classifiers in individuation by asking whether Mandarin speakers' quantification behavior would change with the addition of a sortal classifier to the noun.

## **2. Experiment 1: Quantity judgments involving Count, Mass, and Flexible Nouns**

Following previous studies (e.g., Barner & Snedeker 2005, 2006; Gathercole 1985), we reasoned that quantification based on number is evidence for individuation. Thus, using the quantity judgment task, we tested the hypothesis that bare nouns in Mandarin do not individuate unless classifiers are present. All questions were presented without classifiers in Experiment 1. We predicted that, if bare nouns do not individuate because of a lack of classifier syntax, Mandarin speakers should quantify over volume rather than by number, or quantify randomly across different types of noun. On the other hand, if nouns can lexically specify individuation, even in absence of classifiers, Mandarin speakers should quantify by number for nouns denoting object kinds (e.g., chair), and by volume for nouns denoting substance kinds (e.g., mustard), and that quantificational behavior should fall in-between these two types of nouns for nouns that

can be used flexibly in either mass or count syntax in English (mass-count flexible nouns; e.g., chocolate, pear).

### 2.1. Participants

Fifty-six native Mandarin-speaking adults were recruited from six universities in Taiwan, and participated in a quantity judgment task with one of the following four noun types: count nouns, mass nouns, “apple” type flexible nouns, and “rock” type flexible nouns. Fourteen participants were assigned to each of the four noun groups.

### 2.2. Materials & Procedure

For each noun type, participants were shown photographs of two characters (Farmer Tom and Captain Peter) and asked to choose which of the two had more. The instructions were written in Chinese above the photographs: “Farmer Tom has some [NOUN]. Captain Peter has some [NOUN]. Who has more [NOUN]?” In each photograph, one character always had either two large objects or two large portions of a non-solid substance, while the other character had four small objects or four small portions of substances (e.g., two large forks vs. four small forks; two large portions of mustard vs. four small portions of mustard). The combined volume of the four small objects or portions was always less than the two large objects or portions. The dependent measure was whether participants chose the character with the greater number.

Four noun lists were created, one for each noun type. One list consisted of 16 nouns whose translations are equivalent to English count nouns (count noun condition). Eight of these 16 nouns are associated with the default “ge” classifier (bowl, bag, bottle, plate, clock, ball, cup, balloon), and eight with other sortal classifiers (car, table, shoe, sock, chair, key, shirt, fork). Another list consisted of eight nouns whose translations are equivalent to English mass nouns (mass noun condition; black pepper, mustard, ketchup, peanut butter, toothpaste, soy sauce, cream, sugar). The other two lists, consisting of eight nouns each, had nouns that can be used flexibly as mass or count noun in English. The two flexible noun lists differed in whether the nouns named things for which it was clear what constituted an atom of that kind (apple, egg, donut, pear, banana, fish, carrot, cucumber) or not (chocolate, diamond, hair, paper, rock, soap, sponge, string). We will henceforth refer to the first flexible list as “flexible A” and the second list as “flexible B.”

The nouns used in the current study were mostly chosen from MacArthur Communicative Development Inventory (Fenson 1994). A different group of 13 English-speaking adults provided ratings that corroborated our categorization of whether the noun was a count noun, mass noun, or mass-count flexible noun. Another group of 12 English-speaking adults verified the distinction between flexible A and flexible B nouns. They were asked to judge for each flexible noun whether number changes to two as a result of cutting (“Imagine one [noun]. Imagine that it is cut in half. Are there now two [noun]s?”).

### 2.3. Results

The percentages of trials on which participants quantified by number for each noun type are shown in Figure 1. Participants based their judgment on number for count nouns (99.1% of the trials by number, or 0.9% by volume), even in absence of classifiers. In contrast, participants in the mass noun condition never quantified by number (0%) and always by volume (100%). Replicating Barner et al. (2009)'s results with Japanese speakers, quantity judgments by number for mass-count flexible nouns were in-between count nouns and mass nouns (flexible A: 75.0%; flexible B: 62.5%)

With percentage of judgments by number as a dependent variable, an ANOVA comparing noun types (count, flexible A, flexible B, vs. mass) confirmed that the choice by number differed across noun types ( $F(3, 56) = 24.88, p < .001, \eta_p^2 = 0.59$ ;  $F(3, 40) = 1349.64, p < .001, \eta_p^2 = 0.99$ ). Pair-wise t-tests by subjects-analysis revealed count > flexible A = flexible B > mass (count noun vs. flexible A:  $t(26) = 2.15, p < .05$ ; flexible A vs. flexible B:  $t(26) = .74, n.s.$ ; flexible B vs. mass:  $t(26) = 4.92, p < .001$ ) and t-tests by items-analysis revealed count > flexible A > flexible B > mass (count noun vs. flexible A:  $t(22) = 13.13, p < .001$ ; flexible A vs. flexible B:  $t(14) = 5.58, p < .001$ ; flexible B vs. mass:  $t(14) = 53.46, p < .001$ ).<sup>2</sup>

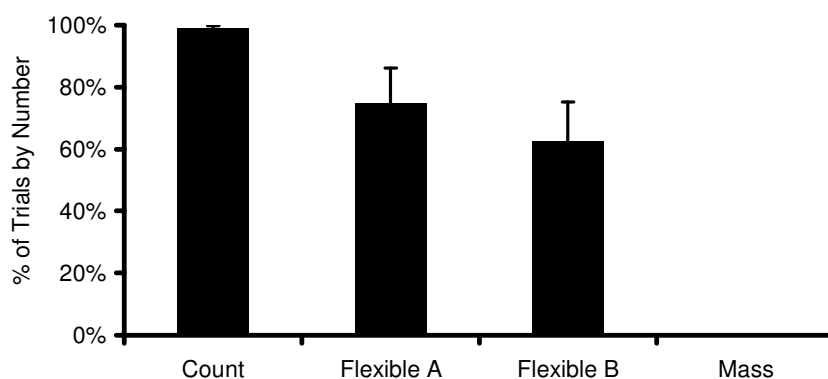


Figure 1. Percentage of quantity judgments based on number for Mandarin nouns that are equivalent to English count nouns, mass nouns, and mass-count flexible nouns. The error bars plot the standard error from subject-analysis.

### 2.4 Discussion

Mandarin speakers' quantity judgments differed significantly according to the type of nouns presented. They quantified on the basis of number for nouns whose equivalents in English are count nouns, and they quantified by volume for nouns whose

<sup>2</sup> Because participants were more likely to stick to one way of responding throughout the experiment, either always choosing by number or always choosing by volume, variance was high by subject-analysis. Item-analysis was therefore more sensitive at picking up the differences across noun type.



English equivalents are mass nouns. This finding argues against the claim that all nouns in classifier refer to “unindividuated essence” and do not provide criteria for individuation. For mass-count flexible nouns in English (e.g., apple, rock), judgments by number were in-between judgments for English count and mass nouns. This finding is parsimonious with the assumption that nouns in Mandarin have the same meanings as nouns in English. The referents of these flexible nouns can be easily conceived of as an object or as the stuff that make up the object. As such, English speakers could flexibly interpret the intended meaning when the quantity judgment question was asked in count or mass syntax. For Mandarin speakers, both construals were also available. However, because count or mass status was not explicitly marked, participants had to decide which construal was intended. As a result, some participants chose by number while others chose by volume. These findings on Mandarin nouns replicated Barner et al (2009)’s findings on Japanese nouns. Finally, we also found that the type of flexible noun mattered. Mandarin speakers were slightly more likely to quantify by number for flexible A (“apple”) nouns than flexible B (“rock”) nouns. Overall, this set of data suggests that noun meanings are the same cross-linguistically.

### **3. Experiment 2: Quantification of Broken Objects vs. Whole Objects**

The fact that participants in Experiment 1 exclusively quantified by number for count nouns was taken to suggest that classifier syntax is unnecessary to give nouns individuated meanings. However, quantifying by number and not volume does not provide the strongest evidence that nouns do encode what constitutes an individual of that kind. Huang and Lee (2009) were on the right track in offering a more stringent test when they set out to see if Mandarin speakers were willing to accept bare nouns as referencing parts and pieces of objects (e.g., *yizi* ‘chair’ for half of a chair). Studies have shown that, prior to figuring out how units are identified by nouns, English-speaking preschoolers, unlike English-speaking adults, often accept parts of objects as valid units for quantification. They count a fork broken into three pieces as “three forks” and choose the three pieces as being “more forks” than two whole forks (Brooks, Pogue, & Barner 2010; Shipley & Shepperson, 1990). We may therefore wonder how Mandarin speakers would treat broken parts of objects - would they quantify by individual pieces or whole objects?

In Huang and Lee (2009)’s study, Mandarin-speaking adults were often willing to accept bare nouns as referencing pieces or parts of an object. For example, participants would often accept the expression “Zhuo-shang you pingguo” (Table-top have apple) as a valid description for a picture depicting half of an apple sitting on the table. In contrast, when a sortal classifier was added to the expression (i.e., “Zhuo-shang you (yi) ge pingguo” Table-top have (one) CL apple), participants rejected the expression as a valid description of the same picture. Thus, Huang and Lee interpreted their data as showing that all Mandarin nouns do not provide criteria for individuation and must rely on classifiers. However, as mentioned before, they did not restrict their test items to just

count nouns. They included flexible nouns, whose referents English speakers also sometimes construe as unindividuated.

Experiment 2 therefore tested Mandarin speakers to see if they would accept parts of objects as units of quantification when the nouns were restricted to those classified by English speakers as count nouns. The experiment also varied the syntactic context in which nouns appear to clarify the effects of classifiers on individuation. To do so, some participants were tested in the bare noun condition and some with classifiers added to the noun. For these tests, we again asked for quantity judgment, but contrasting an array of whole objects (e.g., two forks) with an array of an object broken into pieces (e.g., three pieces of one fork) where the side with pieces was greater by number than that of the side with whole objects. Brooks et al (2010; see also Shipley & Shepperson 1990) used this paradigm to test English-speaking adults and children. Importantly, they found English speaking adults, but not children, quantified by whole objects, choosing two whole forks as “more forks” than one fork cut into three pieces. If nouns in Mandarin do provide criteria of individuation, Mandarin speaking adults should quantify by whole objects regardless of whether a classifier is present. However, if nouns do not provide criteria of individuation, Mandarin speakers should only reliably choose the side with whole objects when the sortal classifier is present.

### 3.1. Participants

Thirty-one native Mandarin-speaking adults who had not participated in Experiment 1 were recruited from universities in Taiwan, and assigned randomly to one of three conditions.

### 3.2. Materials and Procedure

Two tasks were administered to each participant to assess their treatment of broken object parts in quantification. In the quantity judgment task, one of the two characters always had two whole objects while the other character had one object cut into three pieces. The objects tested were named by count nouns in English (shoe, fork, shirt, ball, cup, sock, plate), which were a subset of nouns from Experiment 1. In the counting task, participants saw either three or four objects, one of which was cut into three pieces. They were asked to count and to give a numerical response. The quantity judgment task was always run first, followed by the counting task.

Participants heard instructions containing either a bare noun phrase (bare noun condition) or a sortal classifier-noun phrase (classifier condition). Ten participants took part in the bare noun condition, and eleven took part in the classifier condition. In the quantity judgment task, participants were asked, “*Shui you bijiao duo* (CL) [noun]? (Who have more (CL) [noun]?). In the counting task, participants were asked, “*Zheli you duoshuo* (CL) [noun]? (Here have how-many (CL) [noun]?).

As in Brooke et al. (2010)’s quantity judgment task, all objects (whole or broken ones) were identical in size. The side with two whole objects was therefore twice as

voluminous as the side with one object broken into three pieces. Picking the side with two whole objects was hence confounded with picking the side with greater volume. Given the results of Experiment 1, where participants picked number over volume for the count nouns, a preference in the present experiment for the side with whole objects and greater volume would therefore unlikely be a preference for volume. Nonetheless, a control condition unconfounded volume and whole objects – i.e., the side with two whole objects had a smaller total volume than the side with one object broken into three pieces. Ten adults participated in this control condition and the instruction was administered in the bare noun phrase to again test whether participants would reliably choose the side with two whole objects over the side with one object broken into three. The counting task for this condition involved counting objects of different sizes that were either whole or broken into pieces.

### 3.3. Results

Figure 2 displays the results for the two tasks by plotting the average percentage of trials in which participants responded by kinds, i.e., by whole objects. In the quantity judgment task, a response by kind means that the participant chose two objects (e.g., two forks) as being ‘more’ than one object cut into three (e.g., three pieces of one fork). In the counting task, a kind-response means counting by whole objects. For example, for a display of two whole forks and one fork cut into three pieces, “two” or “three” were accepted as kind-responses – two for the intact forks and three for including the broken fork. An alternative to kind-responses might be counting by spatio-temporally discrete units as English-speaking children would typically do, by responding “five” as the total count of two whole forks plus three pieces of one fork.

As figure 2 indicates, participants overwhelmingly gave kind-responses for both tasks, regardless of whether the sortal classifier was present. For all conditions, their responses were near or at 100% ceiling for the quantity judgment task and at 100% for the counting task. Non-parametric Mann-Whitney U-test compared the three conditions of the quantity judgment task and found no significant difference (Bare Noun vs. Classifier,  $U = 50$ ,  $p = .34$ ,  $r = .21$ ; Bare Noun vs. Control,  $U = 40$ ,  $p = .52$ ,  $r = .32$ ; Classifier vs. Control,  $U = 49.5$ ,  $p = .52$ ,  $r = .14$ ).

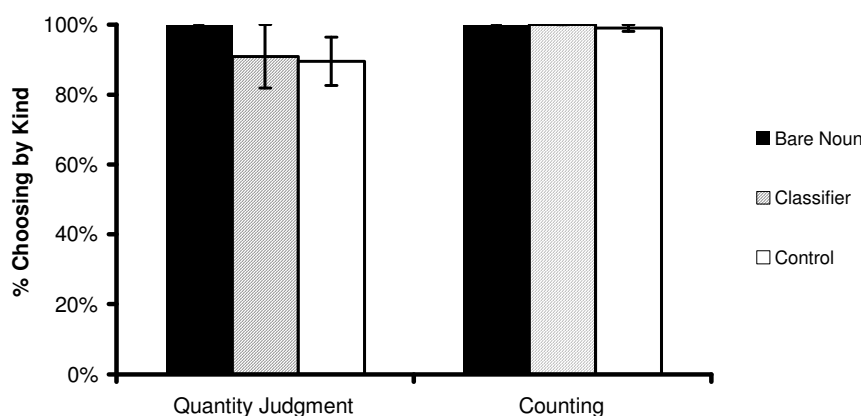


Figure 2. Percentage of kind-based responses for the quantity judgment and counting tasks, comparing the bare noun, classifier, and size control conditions. The error bars plot the standard error from subject-analysis.

### 3.4. Discussion

Experiment 2 provided further evidence that nouns in Mandarin do provide criteria of individuation, given that quantity judgments for broken objects did not differ between the bare noun and the classifier conditions. The finding that adults gave kind responses in the bare noun condition suggests that they were guided by the knowledge of how nouns pick out units of quantification. Sortal classifiers were therefore unnecessary to drive quantification by kind. If individuation can be specified lexically rather than through classifiers, the question then becomes: what is the role of sortal classifiers? In Experiment 3, we again manipulated the presence and absence of a classifier to see its effects on participants' interpretation of noun phrases.

### 4. Experiment 3A: Contribution of Classifiers

Our findings from the two previous experiments showed that classifiers were not necessary for providing criteria of individuation for nouns that reference clear individuals. However, just like the fact that English count syntax can disambiguate meanings for flexible nouns, we expect that sortal classifiers can do the same in Mandarin. Thus, Experiment 3 reran the flexible noun conditions in Experiment 1 and included a condition in which classifiers were added to the noun when querying who has more (*Zheli you duoshuo* (CL) [noun]? 'Here have how-many (CL) [noun]?'). With the addition of the sortal classifier, Mandarin speakers should now unambiguously quantify by number. Furthermore, if the effect of noun type is robust for the two different flexible noun types, participants should quantify by number more often for flexible A ("apple") nouns than for flexible B ("rock") nouns.

#### 4.1. Participants

Sixty-four native Mandarin-speaking participants from Taiwan were recruited in the same manner as Experiment 1, and completed a quantity judgment task.

#### 4.2. Materials and Procedure

Half of the participants were tested on the flexible A noun list, and half on flexible B; half of each group was assigned to the bare noun condition and half to the classifier condition. The two conditions differed in whether a sortal classifier was used in querying who had more (*Zheli you duoshuo* (CL) [noun]?; “Here have how-many(CL) [noun]?”). The rest of the experimental procedure was identical to Experiment 1.

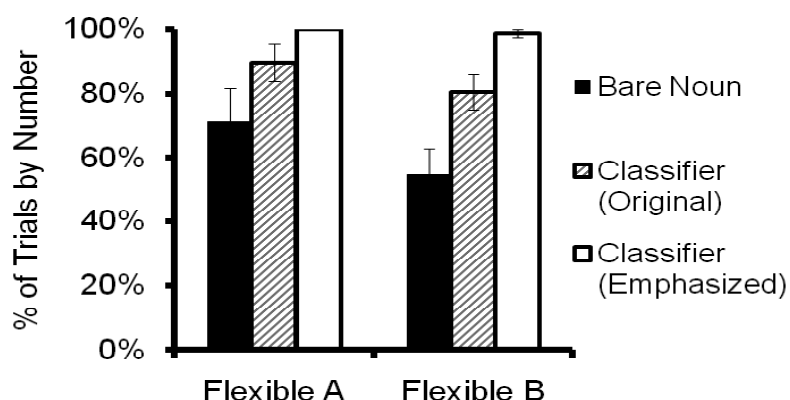


Figure 3. Percentage of quantity judgments by number for flexible A and flexible B nouns across the three conditions - the bare noun and original classifier conditions (from Experiment 3A), and the classifier emphasized condition (from Experiment 3B). The error bars plot the standard error from subject-analysis.

#### 4.3. Results

Figure 3 plots the results of the bare noun and classifier conditions by noun type (the black bars and shaded bars, respectively). Noun Type (Flexible A vs. Flexible B) by Syntactic Frame (Bare vs. Classifier) ANOVA with percentage of trials by number found an effect of Syntactic Frame ( $F(1,60) = 8.19, p < 0.01, \eta_p^2 = .120$ ;  $F(1, 14) = 47.15, p < 0.001, \eta_p^2 = .771$ ). Participants quantified more by number in the classifier condition (85.2%) than in the bare noun condition (62.9%). For items-analysis, but not subjects-analysis, there was also a main effect of Noun Type,  $F(1,14) = 12.62, p < 0.01, \eta_p^2 = 0.47$ , indicating the percentage quantifying by number was slightly greater for Flexible A than Flexible B nouns (80.8% vs. 67.3%). However, rather surprisingly, the presence of a classifier did not entirely lead participants to choose by number 100% of the time, as one would expect if the classifier were the whole force for determining the unit of quantification.

#### 4.4. Experiment 3B: Effects of Classifier Presentation

Given that participants were not at-ceiling in the classifier condition, we ran twenty additional participants in which we emphasized the classifier, to verify that the outcome would be as initially anticipated - i.e., participants heavily weigh the sortal classifier and quantify by number. The twenty participants were evenly assigned to the two flexible noun lists. To emphasize the sortal classifier, the word was underscored in the written instructions. All else was identical to Experiment 3A.

With the classifier emphasized, participants now quantified by number 100% of the time for both Noun Types (Flexible A: 100%; Flexible B: 99%; see Figure 3). A Noun Type (Flexible A vs. Flexible B) x Classifier Presentation (Original, Emphasized) ANOVA revealed a significant effect of Classifier Presentation ( $F(1,48) = 7.70, p < 0.01, \eta_p^2 = .138$ ;  $F(1,14) = 65.92, p < 0.001, \eta_p^2 = .825$ ). Participants quantified by number significantly more often when the sortal classifier was underscored (99.4%) than when it was not (85.2%). No other effects were found by subjects-analysis. Items-analysis again revealed an effect of Noun Type ( $F(1, 14) = 12.62, p < .01, \eta_p^2 = .474$ ). Additionally, Noun Type x Classifier Presentation was significant ( $F(1, 14) = 5.23, p < .05, \eta_p^2 = .272$ ), and was driven by the fact that Noun Type only mattered for the original presentation (Experiment 3A) but did not matter for the new presentation (Experiment 3B), since participants were already at-ceiling in quantifying by number.

#### 4.5. Discussion

For both flexible A and B nouns, Mandarin-speaking adults showed more quantification by number in the two classifier conditions (original and emphasized) than in the bare noun condition. This shows that, just like count syntax, sortal classifiers may be useful for disambiguating between two competing interpretations for mass-count flexible nouns – i.e., individuated vs. non-individuated meanings. However, interestingly, judgments by number for both flexible A and B only reached 100% when we increased the saliency of classifiers by underscoring the classifier for emphasis. This finding is inconsistent with the account that it is the addition of the classifier to the noun that allows individuated meaning. If so, one would expect that whenever the classifier is present, it would be weighted heavily and would dictate quantificational decisions. Instead, our current finding is consistent with the account that sortal classifiers are present mainly for syntactic purposes. With the exception of flexible nouns, sortal classifiers often do not add much semantically in determining the unit of individuation. If so, we might expect people to pay relatively less attention to the presence of a sortal classifier in signaling individuation. Incidentally, consistent with the idea that sortal classifiers are often overlooked, a recent online sentence comprehension study showed that participants process and make use of mensural classifiers to resolve and determine the upcoming noun from referential context more so than sortal classifiers (Klein, Carlson, Li, & Tenenhaus, under review).

## 5. General Discussion

Three experiments investigated the view that bare nouns in Mandarin Chinese do not specify criteria of individuation, and that individuation is introduced by sortal classifiers. Using a quantity judgment task with nouns that are equivalent to English count nouns (e.g., car, shoe), mass nouns (e.g., peanut butter, sugar), and mass-count flexible nouns (e.g., rock, chocolate, paper), Experiment 1 found that Mandarin-speaking adults did not provide substance-like interpretations for bare nouns denoting object kinds. Even for mass-count flexible nouns such as apple or rock, Mandarin speakers used lexical semantics to determine the units for counting, as suggested by the percentages of their number judgments. Overall, the pattern of their judgments was highly similar to those of English and Japanese speakers reported in Barner et al. (2009).

Data from Experiment 2 further strengthened the position that nouns provide criteria of individuation. Previous studies (Brooke et al., 2010; Shipley & Shepperson, 1990) showed that, unlike adults, English-speaking preschoolers incorrectly identify units of quantification of count nouns, counting one fork cut into three as “three forks.” This behavior may be explained by a prelinguistic tendency to treat discrete physical objects as units prior to learning how units are identified by nouns. We asked whether Mandarin speakers, just like English-speaking preschoolers, would count and quantify over pieces of broken objects as individuals when tested on equivalents of English count nouns. Against this prediction, Mandarin-speaking adults behaved like English-speaking adults, choosing to count and quantify over whole objects regardless of whether the sortal classifier was present in the noun phrase.

Together, the findings in Experiments 1 and 2 suggest that Mandarin noun meanings are no different than English noun meanings - Mandarin nouns like *yizi* “chair” or *pingguo* “apple” denote individuals, just like English. If individuation needs not come from classifier syntax, what is the role of classifiers in noun phrases, given that a classifier and a noun are one tightly bound unit? Findings from Experiment 3 shed some light on the role of sortal classifiers by testing mass-count flexible nouns. Here, we found an effect of classifier syntax on quantity judgments; participants were more likely to provide number judgments when classifiers were added to flexible nouns. We argue that one important role of classifiers is therefore to provide information about how to quantify in cases where the noun is ambiguous between multiple meanings.

Moreover, one of the interesting findings from Experiment 3 was that adding the sortal classifier did not lead participants to always quantify by number (Experiment 3A). This finding is inconsistent with the account that the sortal classifier unequivocally functions to determine criteria of individuation. Given that judgments by number did not reach 100%, this suggests the presence of the sortal classifier was ignored or treated as irrelevant by some participants. Only when classifiers were emphasized did participants always reliably provide number judgments (Experiment 3B).

Why are sortal classifiers not so effective in indicating individuation? We speculate that sortal classifiers may be less relied upon as a cue to individuation because

nouns often already provide the criteria. Furthermore, children figure out the relation between classifiers and units of quantification relatively late, and certainly after four years of age (Li, Barner, & Huang, 2008; Li, Huang, & Hsiao, 2010). Therefore, there is a long period in which children could not and do not rely on classifiers as a cue. Possibly, as a result, they never subsequently develop a great reliance on sortal classifiers in processing whether a certain noun has individuated meaning (Klein et al., under review; Cheung, Barner, & Li, 2010).

In the current paper we do not address developmental issues, but a large debate in this literature pertains to the role of language learning in conceptual development. One position is that learning mass-count syntax or classifier systems lead children to learn about sortal concepts, which they would otherwise not have (e.g., Quine, 1960). Such a position would argue that adult participants quantified the way they did because they learned the classifier system and were perhaps implicitly adding the classifier they have come to associate with the noun when making quantity judgments. Although we cannot completely rule out this possibility, our finding that adults did not quantify by number 100% of the time even when classifiers were added (Experiment 3A) seem to speak against this idea. Importantly, the position that language learning gives rise to sortal concepts cannot easily account for the regularities that show up in both languages. According to this position, count nouns in English receive individuated denotations because of count syntax, but how does count syntax select count nouns in the first place? In other words, why do some nouns take count syntax, while some other nouns take mass syntax? Similarly, why do nouns denoting object kinds in Mandarin take sortal classifiers, but not those denoting substance kinds? Thus this position leaves unexplained the regularities we see across the two languages. Rather, we argue for the more parsimonious position, which is that speakers of classifier languages such as Mandarin and Japanese share a universal ontology with speakers of mass-count languages such as English.

In line with previous studies, our current data provide another piece of evidence that strongly suggests nouns have the same meanings cross-linguistically by virtue of a universal conceptual structure, which is closely related to the way the world is structured.

## References

- Allan, Keith. (1980). Nouns and Countability. *Language* 56.541–67.
- Barner, David, Shunji Inagaki, and Peggy Li. 2009. Language, thought, and real nouns. *Cognition* 111.329-44.
- Barner, David, and Jesse Snedeker. 2005. Quantity judgments and individuation: Evidence that mass nouns count. *Cognition* 97.41–6.
- Barner, David, and Jesse Snedeker. 2006. Children’s early understanding of mass–count syntax: Individuation, lexical content, and the number asymmetry hypothesis. *Language Learning and Development* 2.163–94.
- Barner, David, Peggy Li, and Jesse Snedeker. 2010. Words as windows to thought: The case of object representation. *Current Directions in Psychological Science* 19.195-200.
- Borer, Hagit. 2005. *In name only*. Oxford: Oxford University Press.



- Brooks, Neon, Amanda Pogue, and David Barner. 2010. Piecing together numerical language: children's use of default units of quantification. *Developmental Science* 14.44-57.
- Bloom, Paul. 1994. Semantic competence as an explanation for some transitions in language development. *Other children, other languages: Theoretical issues in language development*, ed. by Y. Levy. Hillsdale, NJ: Erlbaum.
- Cheng, Lisa L.S., and Rint Sybesma. 1998. Classifiers and massifiers. *Tsing-Hua Journal of Chinese Studies, New Series XXVIII* 3.395-412.
- Cheng, Lisa L.S., and Rint Sybesma. 1999. Bare and not-so-bare nouns and the structure of NP. *Linguistic Inquiry* 30.509-542.
- Cheng, Lisa L.S., Jenny Doetjes, and Rint Sybesma. 2008. How universal is the Universal Grinder? *Linguistics in the Netherlands*, ed. by Koppen, Marjo van and Bert Botma, 50–62.
- Cheung, Pierina, David Barner, & Peggy Li. 2010. Syntactic cues to individuation in Mandarin Chinese. *Journal of Cognitive Science* 10.135-147.
- Chierchia, Gennaro. 1998. Plurality of mass nouns and the notion of 'semantic parameter'. *Events and Grammar* 70.53–103.
- Colunga, Eilana, and Linda B. Smith. 2003. The emergence of abstract ideas: Evidence from networks and babies. *Philosophical Transactions by the Royal Society B. Theme Issue: 'The abstraction paths: fro experience to concept'*, ed. by L. Saitta, 1205-14.
- Doetjes, Jenny. 1997. Quantifiers and selection: On the distribution of quantifying expressions in French, Dutch and English. Ph. D. thesis, Leiden University, HAG, The Hague.
- Fenson, Larry, Dale, Philip S., Reznick, J. Steven., Bates, Elizabeth, Thal, Donna, & Pethick, Stephen. (1994). Variability in early communicative development. *Monographs of the Society for Research in Child Development* 59.
- Gathercole, Virginia C. 1985. 'He has too much hard questions': The acquisition of the linguistic mass-count distinction in much and many. *Journal of child Language* 12. 395-415.
- Gordon, Peter. 1988. Mass/count category acquisition: Distributional distinctions in children's speech. *Journal of Child Language* 15.109–128.
- Huang, Aijun. 2009. Count-mass distinction and the acquisition of classifiers in Mandarin-speaking children. Masters thesis, Chinese University of Hong Kong.
- Huang, Aijun, and Thomas H.-T. Lee. 2009. Quantification and Individuation in the Acquisition of Chinese Classifiers. In Otsu, Y. (Ed.), *Proceedings of the 10th Tokyo Conference on Psycholinguistics* (pp. 117-141). Japan: Keio University.
- Imai, Mutsumi, and Dedre. Gentner. 1997. A cross-linguistic study on early word meaning. *Universal ontology and linguistic influence. Cognition* 62.169–200.
- Imai, Mutsumi, and Reiko Mazuka. 2007. Revisiting language universals and linguistic relativity: language-relative construal of individuation constrained by universal ontology. *Cognitive Science* 31.385-414
- Inagaki, Shunji, and David Barner. 2009. Countability in absence of count syntax:

- Evidence from Japanese quantity judgments. *Studies in Language Sciences* (8): Papers from the Eighth Annual Conference of the Japanese Society for Language Sciences, ed. by M. Hirakawa, S. Inagaki, Y. Hirakawa, H. Sirai, S. Arita, H. Morikawa, M. Nakayama and J. Tsubakita, 111-125. Tokyo: Kurosio.
- Klein, Natalie, Greg N. Carlson, Renjie Li, T. Florian Jaeger, Michael K. Tanenhaus (under review). Classifying and massifying incrementally in Chinese language processing.
- Li, Peggy, David Barner, and Becky Huang. 2008. Classifiers as count syntax: Individuation and measurement in the acquisition of Mandarin Chinese. *Language Learning and Development* 4.249-290.
- Li, Peggy, Yarrow Dunham, and Susan Carey. 2009. Of substance: The nature of language effects on entity construal. *Cognitive Psychology* 58.487-524.
- Li, Peggy, Becky Huang, and Yaling Hsiao. 2010. Learning classifiers count: Mandarin-speaking children's acquisition of sortal and mensural classifiers. *Journal of East Asian Linguistics*, 19(3), 207-230.
- Li, Peggy, Frankie Chen, David Barner, and Susan Carey. under review. Concepts of object and substance kinds: A comparison of speakers of English and of Tsotsil Mayan.
- Link, Godehard. (1983). The logical analysis of plurals and mass terms: A lattice-theoretical approach. *Meaning, use, and interpretation of language*, ed. by R. Bauerle, C. Schwarze, & A. Stechow, Berlin: de Gruyter.
- Lucy, John. 1992. *Grammatical Categories and Cognition*. Glasgow, Scotland: Cambridge University Press.
- Lucy, John and Suzanne Gaskins. 2001. Grammatical categories and the development of classification preferences: a comparative approach. *Language Acquisition and Conceptual Development*, ed. by S.C Levinson and M. Bowerman, 257-83. Cambridge: Cambridge University Press.
- Lucy, John and Suzanne Gaskins. 2003. Interaction of language type and referent type in the development of nonverbal classification preferences. *Language in Mind*, ed. by D. Gentner & S. Goldin-Meadow, 465-92. Cambridge, MA: MIT
- Gregory L. Murphy. 2002. *The big book of concepts*. Cambridge, MA: MIT Press.
- Quine, W. V. O. 1960. *Word and object*. Cambridge, MA: MIT Press.
- Edward E. Smith and Douglas Medin. (1981) *Categories and Concepts*, Harvard University Press.
- Shipley, Elizabeth, and Barbara Shepperson. 1990. Countable entities: Developmental changes. *Cognition* 34.109 - 136.
- Wisniewski, Edward J., Mustumi Imai, and Casey, Lyman. (1996). On the equivalence of superordinate concepts. *Cognition* 60.269–298.

## Comprehending Chinese Relative Clauses in Context: Thematic Patterns and Grammatical Functions

Chien-Jer Charles Lin  
*Indiana University*

Processing asymmetries between subject- and object-extracted relative clauses (RCs) have been reported in various languages. This paper examines whether locality or one's experience of canonical thematic patterns better predicts the processing of head-final RCs by manipulating thematic patterns in the contexts. Two self-paced reading experiments of relative clauses preceded by contexts were conducted. In Experiment 1, two factors were manipulated: the *context* prior to the RCs consisted of either *canonical* (Agent-Verb-Patient) or *scrambled* thematic patterns with BA (Agent-BA-Patient-Verb), and the RCs involved *subject or object extractions*. It was found that only when preceded by the canonical Agent-Verb-Patient patterns was an ORC advantage obtained. In Experiment 2, we further used passives in the context, forming thematic patterns of Patient-BEI-Agent-Verb. The processing advantage for ORCs was altogether eliminated. We conclude that the processing advantage for Chinese ORCs previously reported was due to thematic priming, not locality. This paper thus shows that in comprehending Chinese relative clauses, the thematic experience in the preceding context is important in determining how easily the relative clause can be comprehended.

### 1. Introduction

The structure and function of relative clauses is a well-investigated research topic owing to how relative clauses demonstrate the intricate recursive property of the human language. Across languages, relative clauses have been identified as clauses that are embedded inside noun phrases, whereby one nominal argument in the clause is co-referenced with the head of the higher noun phrase. Crucially also, across languages, this embedded nominal argument is usually left empty (or deleted). The empty nominal argument can be the subject, the object, or the adjunct of the clause, resulting in subject-extracted, object-extracted, and adverbial relative clauses (see examples of Chinese relative clauses in 1-3).

Decades of psycholinguistic research focused mainly on the processing of English relative clauses such as (4-6), namely the subject relatives, object relatives, and reduced relatives. Various studies have repeatedly demonstrated that subject and object relative clauses such as (4-5) induce different processing costs. For instance, self-paced reading

tasks showed that subject relative clauses are read faster and comprehended with better accuracies than object relatives (King & Just 1991, Gibson, Desmet, Grodner, Watson, & Ko 2005). By tracking the eye movements during reading relative clauses, it was found that subject relatives involved fewer regressions and shorter fixation times on the relative-clause regions than object relatives (Traxler, Morris, & Seely 2002). Studies that investigated individual differences in terms of working memory capacities also found that while people with greater memory capacities process subject relatives and object relatives equally well, those with limited working memory capacities process object relatives not as well as subject relatives (Caplan & Waters 1999). These studies suggest that the comprehension of subject and object relatives consumes different amounts of working memory and that different capacities of working memory would affect the processing of subject and object relatives differently.

- (1) Subject-extracted relative clause:  
 作曲家 愛慕 音樂家 的 作曲家  
~~zuoqujia~~ aimu yinyuejia de zuoqujia  
~~composer~~ adore musician DE composer  
 “the composer who ~~the composer~~ adored the musician”
- (2) Object-extracted relative clause:  
 作曲家 愛慕 音樂家 的 音樂家  
 zuoqujia aimu ~~yinyuejia~~ de yinyuejia  
 composer adore ~~musician~~ rel musician  
 “the musician who the composer adored ~~the musician~~”
- (3) Adverbial relative clause:  
 作曲家 爲什麼 愛慕 音樂家 的 原因  
 zuoqujia ~~wiesheme~~ aimu yinyuejia de yuanyin  
 composer ~~why~~ adore musician rel reason  
 “the reason why the composer adored the musician”
- (4) Subject-extracted relative clause:  
 the composer who ~~the composer~~ adored the musician
- (5) Object-extracted relative clause:  
 the musician who the composer adored ~~the musician~~
- (6) Reduced relative clause:  
 the musician adored by the composer

Prior to turning their attention to the differences between processing subject and object relatives in English, researchers have been focusing on the comprehension of reduced relatives such as (6). These reduced relatives lead to mis-analyses (i.e., garden paths). Bever’s (1970) famous garden-path sentence *the horse raced past the barn fell* illustrated how the human language parser can fail to process linear sequences of words that are misleading. Bever’s example shows that top-down heuristics (such as the strategy

of parsing NVN sequences in English as the logical sequences of AGENT-verb-PATIENT) can dominate the comprehension of sentences. A particularly crucial challenge posed by English reduced relatives is that there is no linguistic clue that indicates the existence of a relative clause until the main verb has appeared.

Recent years witnessed surging research on the processing of relative clauses that are typologically different from head-initial relatives such as those in English, French, German, and Spanish: the head-final relative clauses, particularly research on the comprehension of relative clauses in Chinese (Hsiao & Gibson 2003; Hsu et al. 2006; Hsu & Chen 2007; Lin & Bever 2006, 2007), Japanese (Miyamoto & Nakamura 2003; Ishizuka et al. 2006; Ueno & Garnsey 2008), and Korean (Kwon et al. 2010). A crucial difference between head-initial and head-final relative clauses is the inverse positions of the filler (i.e., the head noun) and the gap (i.e., the extracted argument position). While the filler precedes the gap in a head-initial relative clause, it follows the gap in a head-final relative.

Head-final relative clauses are particularly challenging to the parser as they pose parsing difficulties similar to those of reduced relatives in English. Two properties of a head-final relative clause make it difficult to parse: the gap precedes the filler, and no grammatical marker indicates the existence of a relative clause (or that of a relativized gap) prior to the appearance of the filler. The fact that these are also languages in which pronouns tend to be dropped makes relativized gaps confusable with the dropped pronouns. This also makes head-final relative clauses confusable with main clauses with missing pronouns. Therefore, *when* and *how* the parser adopts a relative-clause parse in a head-final structure is an important issue in itself.

In studying the processing of Chinese relative clauses, research has so far been concerned with the subject-object asymmetry as well. Previous literature shows mixed results. Some have found faster and better comprehension of subject relatives (Lin & Bever 2006, 2007), while others have found object relatives to be easier (Wu & Gibson 2008). The issue of subject-object asymmetry is thus still very much in debate. In this paper, we aim at exploring the following questions regarding the processing of Chinese relative clauses:

- Is there processing asymmetry on relative clauses in Chinese? Is subject or object relative clause in Chinese easier?
- What accounts for the processing asymmetry between subject and object relatives in Chinese?
- Can this account work crosslinguistically as a universal processing strategy?

The current study extended from the comprehension of relative clauses in isolation to studying relative-clause comprehension in contexts. We tested various processing effects on subject and object relatives by manipulating the preceding contexts. In the following sections, we evaluate the current controversy regarding the processing of Chinese relative clauses in 1.1. In 1.2, we cast the issue of Chinese relative clause processing in a theoretical perspective by considering various sentence processing factors

that may play a role. Section 1.3 discusses the role of context and motivates the experiments conducted in this study. After the introduction, two experiments are presented in Sections 2 and 3, in which the thematic patterning in the contexts were manipulated. The goal of this paper is to show that the thematic patterns in the contexts cause the processing asymmetry of Chinese relative clauses in contexts. At the general discussion, we further consider the implications of this processing study on our understanding of sentence processing in general and on the processing asymmetries of relative clauses across languages.

### **1.1. Controversy of head-final relative-clause processing**

Contrary to the consistent findings that subject relatives are easier than object relatives in head-initial languages, studies on head-final relatives showed mixed results. Research on head-initial languages has adopted various methodologies (including Rapid Serial Visual Presentation—RSVP, self-paced reading tasks, eye-movement monitoring tasks, and event-related potentials).

Several factors need to be considered to understand the significance of these results. First, as discussed in the introduction, head-final relative clauses, like reduced relatives in English, are challenging to the parser because they are not overtly marked as relative clauses at the left edge. Therefore, garden-pathed readings are likely to occur when the relative clauses are read in isolation.

When a relative clause is presented in a single sentence, such garden path is likely to occur. It has been argued that in head-final relatives, an object relative is more likely to be mis-parsed than a subject relative because object relatives present an initial NV sequence that is likely to be mistaken as a main clause. If this is the case, then it is likely that when head-final relative clauses are read in isolation in a word-by-word fashion, subject relatives would be easier than object relatives because people tend to misread object relatives but not subject relatives. While this conjecture is subject to empirical evaluation, it is reasonable that when studying extraction effects of relative clauses, one would try to avoid the potential contamination from these garden path effects.

To avoid the unwanted garden path, therefore, some studies have adopted extra steps in their experimental methodology. For instance, Lin and Bever (2007) instructed to their participants specifically that they were reading sentences containing relative clauses. They found better comprehension of subject relatives than object relatives in doubly embedded conditions. Hsu and Chen (2007) and Wu and Gibson (2008) both adopted contexts to motivate the appearance of relative clauses. Both studies found faster reading times for object relatives than subject relatives. In the current study, we investigated the processing of relative clauses in context by adopting the same methodology as Hsu and Chen, and Wu and Gibson. Different from those two studies, we manipulated the thematic patterns inside the contexts. We hypothesize that the advantage for object relatives in these studies may have been due to the specific properties of the contexts. Our

goal is to understand what made the object relative clauses easier than the subject relative clauses when relative clauses are presented in contexts.

## 1.2. Theoretical considerations

Even though the processing asymmetry between subject and object relatives in head-initial languages like English is robust, there remains theoretical debates about the cause of this asymmetry. In the following, I provide an overview of the important theoretical accounts for this asymmetry.

Theories accounting for the effect of relative-clause processing can be distinguished into those that focus on the filler-gap relation inside the sentence itself and those that focus on the extra-sentential factors such as dominant word orders in the language, the information status of a relative clause in discourse, animacy, and pragmatics. Theories that focus on the internal filler-gap relations debate on what factors are more important in the construction of this dependency on-line. According to the Active Filler Strategy (Frazier 1987), as soon as a filler is recognized, the parser creates a minimal chain between the filler and a potential position for the gap. In languages like English, the potential gap that minimizes the filler-gap distance (thus creating a minimal chain) in relative clauses is at the subject position. Therefore, the parser prefers subject relatives to object relatives.

The prediction of a structure-based theory is consistent with the typological generalization of Keenan and Comrie (1977 1979), usually referred to as the Keenan-Comrie Accessibility Hierarchy:

- (7) Accessibility Hierarchy: Subject > Object > Indirect Object / Oblique Case > Genitive (revised version, cited from Hawkins 2004: 177)

Their original proposal was that across languages, NPs of different syntactic functions show a universal pattern regarding how easily it can be relativized/extracted. NPs at the subject positions are generally easier to extract in all languages. NPs that are lower in the hierarchy are harder to relativize. Structure-based theories such as O'Grady (1997) and Hawkins (2004) provide structural substance for such universal tendencies. The accessibility hierarchy actually reflects the syntactic positions of the NPs. Those that are higher in the hierarchy are also higher in the syntactic structure and are therefore easier to access than those at lower syntactic positions.<sup>1</sup>

In addition to the structure-based theories, some theories focus on the role of working memory and the cost of processing induced by filler-gap distances. Gibson's

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<sup>1</sup> Hawkins (1999, 2004) offers a structural account for the Keenan-Comrie Hierarchy by measuring the "Filler-Gap Domain" involved in processing. A Filler-Gap Domain is defined as "the smallest set of terminal and nonterminal nodes dominated by the mother of a filler and on a connected path that must be accessed for gap identification and processing (Hawkins, 1999: 248)."

(1998) Syntactic Prediction Locality Theory (SPLT), for example, takes into consideration the computational resources that are required for processing. The two major components of computational resources are the structure integration cost and the structure storage cost. Gibson’s SPLT can be taken as a memory/resource-based theory. The human processor is assumed to possess limited computational resources at each temporal point of processing. Locality is a central theme in SPLT. The constructed syntactic units that are “held in memory over longer distances are more expensive, ..., and longer-distance head-dependent integrations are more expensive (Gibson 1998: 8).” SPLT takes the subject/object asymmetry as one important piece of evidence for the distance-based integration cost. The theory predicts that object relatives in English should be more difficult because of the longer distance between the filler and the gap.

The structure-based theory and the locality-based theory produce similar predictions on head-initial relative clauses but opposite predictions on head-final relative clauses. This is summarized in (8).

(8) Theories and predictions (“>” is read as “processed with greater ease than”)

Theory	Predictions on head initial relatives	Predictions on head final relatives
Structure (parser) based theory (Frazier 1987, Keenan & Comrie 1977, O’Grady 1997)	src > orc	src > orc
Locality theory (Gibson 1998)	src > orc	src < orc
Experience-based theory (MacDonald & Christiansen 2002); Top-down heuristics (Bever 1970)	src > orc	src < orc

Relative clauses in Chinese, Japanese, and Korean thus became interesting target languages to verify the validity of these two theories. Previous studies such as Hsiao and Gibson (2003), Hsu and Chen (2007), and Wu and Gibson (2008) found processing advantage for object relatives, thus providing support for the locality account, while Lin and Bever (2006, 2007), Kwon et al. (2010), and Ueno and Garnsey (2008) found processing advantage for subject relatives, providing support for the syntax-based account.

In addition to the factors internal to sentences, theories based on extrasentential, top-down processing heuristics such as canonical thematic patterns (Bever 1970) and structural frequencies and experiences (MacDonald & Christainsen, 2002) also produce predictions of processing asymmetries for subject and object relatives. According to these theories, syntactic processing involves expectations to parse the sentential materials based on language users’ experience with the language. In English (as well as in Chinese), the NVN sequences are predominantly parsed as AGENT-verb-PATIENT. The thematic patterns associated with subject relatives in English follow this dominant pattern but the object relatives do not (illustrated in 9-10). Therefore, subject relatives are easier in



English. The prediction for Chinese relative clauses would be the opposite of those of English, since Chinese object relatives follow the dominant thematic pattern but the subject relatives do not.

- (9) Subject-extracted relative clause:  
the composer who ~~the composer~~ adored the musician  
AGENT verb PATIENT
- (10) Object-extracted relative clause:  
the musician who the composer adored ~~the musician~~  
PATIENT AGENT verb
- (11) Subject-extracted relative clause in Chinese:  
作曲家 愛慕 音樂家 的 作曲家  
~~zuoqujia~~ aimu yinyuejia de zuoqujia  
~~composer~~ adore musician rel composer  
verb PATIENT AGENT  
“the composer who ~~the composer~~ adored the musician”
- (12) Object-extracted relative clause:  
作曲家 愛慕 音樂家 的 音樂家  
zuoqujia aimu ~~yinyuejia~~ de yinyuejia  
composer adore ~~musician~~ rel musician  
AGENT verb PATIENT  
“the musician who the composer adored ~~the musician~~”

### 1.3. Thematic priming and the role of context in processing relative clauses

The referential context preceding a relative clause helps motivate relative clauses. Crain and Steedman (1985: 342) showed that an appropriate referential context facilitated a relative-clause analysis in the target sentence. When they presented a context that was designed to induce a complement clause (e.g., 13a inducing 13c), a complement clause is preferred to a reduced relative clause. When the context was designed to induce a relative clause (e.g., a context with two competing referents as in 13b), a reduced relative clause became the preferred parse. Their study suggested that when there was a need to select among potential candidates in the context, a relative clause was motivated.

- (13) a. Context that induces a complement clause  
*A psychologist was counseling a married couple. One member of the pair was fighting with him but the other one was nice to him.*
- b. Context that induces a relative clause  
*A psychologist was counseling two married couples. One of the couples was fighting with him but the other one was nice to him.*
- c. Complement target sentence  
*The psychologist told the wife that he was having trouble with her husband.*

d. Relative target sentence

*The psychologist told the wife that he was having trouble with to leave her husband.*

Based on Crain and Steedman (1985), a natural way to induce a relative clause is thus to provide a context that is felicitous for relative clauses. Since a relative clause can help select a referent from a set of referents previously mentioned, an appropriate context constructs a situation in which a small set of referents compete to be selected. Then a sentence with a relative clause selects a referent out of the candidates and provides new information about this candidate.

Gibson and colleagues have recently conducted experiments with context that are meant to induce relative clauses. For example, Ishizuka et al. (2006) and Wu and Gibson (2008) adopted referential contexts prior to their target relative clauses (as in 14) to induce an upcoming relative clause in Japanese and Chinese respectively.

- (14) Context used by Ishizuka et al. (2006) and Wu and Gibson (2008) translated into English:

A reporter interviewed a writer on a TV program. Then the writer interviewed another reporter for his new novel.

Taro: “Which reporter stands as a candidate for the election?”

Hanako: “It seems to be the reporter who {the writer interviewed / interviewed the writer}.”

In both studies, it was found that object relatives were easier. Several crucial aspects about Gibson’s experiments need to be considered to evaluate the significance of these results. While a context potentially motivates the occurrence of a relative clause, it also brings additional irrelevant effects. As discussed earlier, Chinese object relatives follow the dominant thematic pattern--AGENT-verb-PATIENT--in the language. By providing a context prior to the relative clauses, we speculate that the effect of this dominant thematic pattern has been strengthened so as to lead to the processing advantage for object relatives in their study.

In the following, we examine the thematic patterns in the contexts adopted by Wu and Gibson (2008), which are schematically represented in (26-27).

- (15) Context of Ishizuka et al. (2006) and Wu and Gibson (2008):
- a. A verbed B, and AGENT-verb-PATIENT
  - b. B verbed another A. AGENT-verb-PATIENT

- (16) Target sentence of Wu and Gibson (2008):
- a. Subject relative clause:  
 [\_\_ verbed B] relativizer A (meaning ‘the A that verbed B’)  
 verb-PATIENT-AGENT

- b. Object relative clause:  
 [B verbed \_\_] relativizer A (meaning ‘the A that B verbed’)  
 AGENT-verb-PATIENT

The context itself profiled the canonical orders of syntactic categories and thematic patterns in the language (NVN mapping onto AGENT-verb-PATIENT in Chinese). The fact that (16b) maps directly onto the context (15b), while (16a) does not, potentially makes (16b) easier than (16a). To test this possibility, we conducted two experiments manipulating the thematic patterns in the contexts.

## 2. Experiment 1

Experiment 1 attempted to examine if thematic patterning was the main cause for the processing advantage of object relatives in Wu and Gibson (2008). To test this possibility, we manipulated the thematic patterns in the contexts. If the thematic mapping between (16b) and (15b) was the actual reason for the object-relative advantage, then we predict that when the thematic pattern in (15b) is altered (so that it does not map directly onto 16b), the object advantage would disappear.

We used two kinds of syntactic patterns in the context: the canonical NVN sentences (identical to those used in the Gibson studies) and sentences using the BA structure, where the NVN sequence is scrambled into *N ba N V*:

- (17) Context of Experiment 1:
- |    |  |  |
|----|--|--|
| a. | A verbed B, and<br>B verbed another A.       | AGENT-verb-PATIENT<br>AGENT-verb-PATIENT |
| b. | A BA B verbed, and<br>B BA another A verbed. | AGENT-PATIENT-verb<br>AGENT-PATIENT-verb |

The target sentences in Experiment 1 are subject and object relative clauses in Chinese, identical to those of Wu and Gibson (2008). Sample materials are provided in (30).

- (18) Target sentences of Experiment 1:
- a. Subject relative clause:  
 [\_\_ verbed B] relativizer A (meaning ‘the A that verbed B’)  
 verb-PATIENT-AGENT
- b. Object relative clause:  
 [B verbed \_\_] relativizer A (meaning ‘the A that B verbed’)  
 AGENT-verb-PATIENT

- (19) Sample materials in Experiment 1:

**Context:**

兩個小女孩和一個小男孩在公園裡玩耍時吵了起來。  
 Two girls and a little boy were playing in the park.

- A) 其中一個女孩先打了小男孩一巴掌，然後那個男孩就接著打了另一個女孩一巴掌。  
 B) 其中一個女孩先**把**小男孩打了一巴掌，然後那男孩就接著**把**另一個女孩打了一巴掌  
 One of the girls slapped the boy. The boy then slapped the other girl.

小明說:我想幼稚園園長在三點的時候看到了其中一個女孩，在三點半的時候看到了另外一個。園長三點的時候是看到哪個女孩?

Xiaoming: I think the principal saw one of the girls at 3 and the other girl at 3:30. Who's the girl seen at 3?

**Target:**

- A) 小美說: 男孩打的女孩是園長在三點看到的女孩。  
 Xiaomei: The girl that the little boy slapped was the girl the principal saw.  
 B) 小美說: 打男孩的女孩是園長在三點看到的女孩。  
 Xiaomei: The girl that slapped the little boy was the girl the principal saw.

Twenty-four Taiwanese college students, who are native speakers of Mandarin Chinese, participated in Experiment 1. The participants had normal vision, and were naïve to the purpose of the experiment. This self-paced reading experiment, with a moving-window presentation, was conducted using Linger 2.94 developed by Doug Rohde at MIT. No spaces were inserted between words or phrases since the standard writing of Chinese does not contain spaces. All materials were presented randomly, with consecutive occurrences of the target items avoided. In each trial, participants took their own pace to hit the space bar to read regions of a sentence. After the last word of each sentence, the whole sentence disappeared. A comprehension question on the content of that sentence appeared. The comprehension question was either a true/false question or a multiple-choice question. No feedback was given if the participant response was correct. Participants were instructed to read the sentences at a natural rate, and to understand the sentences in order to answer the comprehension questions correctly. The reading time for each region, the time taken to answer the comprehension questions, and the responses to the comprehension questions were recorded. The whole experiment took an average of 30 minutes to complete.

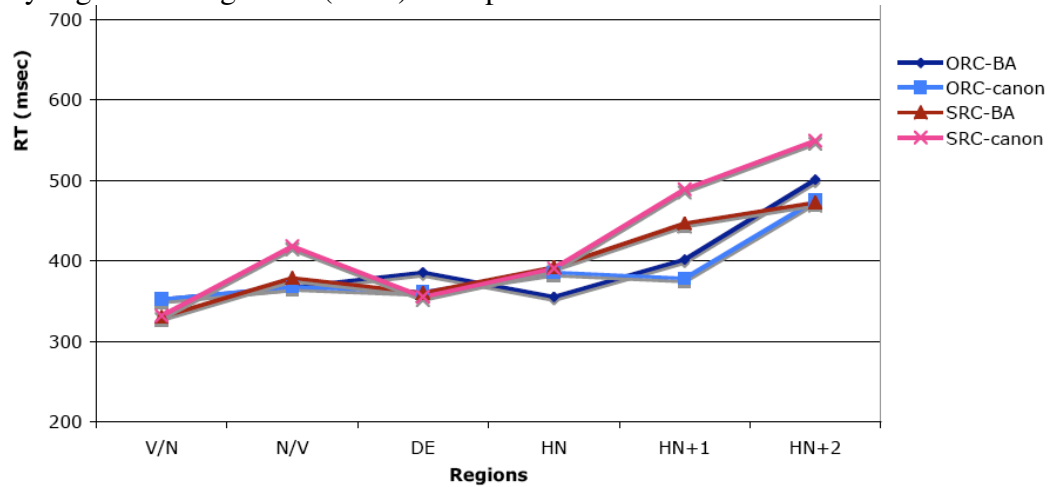
The reading times on each region of the target sentences are presented in (20). No significant difference was found on the critical regions (the relativizer *de* and the head nouns). Significant interactions were found on the two regions after the head noun ( $p < .05$ ), showing that only when the thematic patterns in the context followed the canonical AGENT-verb-PATIENT pattern was there a significant difference between subject and object relatives. When BA structures were used in the context, the difference no longer existed. The bar charts in (21) summarize these interactions.

These results suggested that Chinese subject and object relatives were only processed differently (with the object relatives being read faster at the post head-noun regions) when they were preceded by a context, in which the thematic patterns followed the canonical patterns (AGENT-verb-PATIENT) in Chinese. When the thematic patterns in the context were altered, as was manipulated in Experiment 1 by using BA structures, we

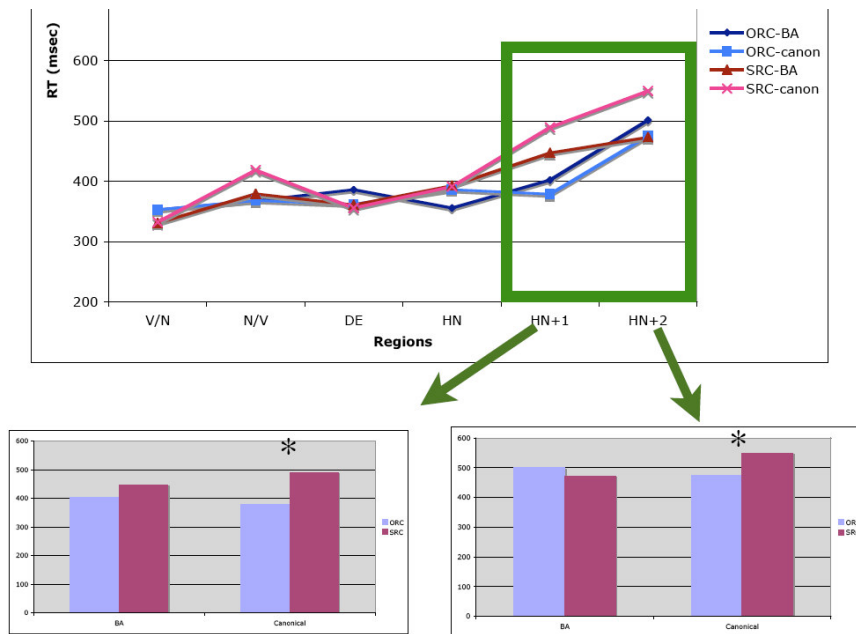
## LIN: RELATIVE CLAUSES IN CONTEXT

no longer obtained the processing advantage for object relatives. It is thus reasonable to conclude that the processing advantage for object relatives found by Wu and Gibson (2008) was not due to the local filler-gap relation, but owing to the object relatives having thematic patterns that match those provided by the context.

(20) By-region reading times (msec) in Experiment 1:



(21) Reading times and significant interactions on the two regions after the head noun:



In Experiment 2, we modified the thematic pattern in the context that was relevant to the priming of thematic patterns in object relatives by adopting the passive construction to test our hypothesis.

### 3. Experiment 2

Experiment 2 further investigated if modifying the context minimally by removing the thematic priming for the object relatives would remove the processing advantage for object relatives completely. Again, if thematic patterning was the main cause for the processing advantage of object relatives in Wu and Gibson (2008), then the processing advantage would disappear if we remove the source of the priming effect in the context. To test this possibility, we used passive constructions in Chinese in Experiment 2.

The contexts used in Experiment 2 contained both the canonical NVN pattern (identical to those used in the Gibson studies) and passive sentences using the BEI structure, where the NVN sequence is changed to *N bei N V*:

- (22) Context of Experiment 2:
- |                         |                    |
|-------------------------|--------------------|
| A verbed B, and         | AGENT-verb-PATIENT |
| Another A BEI B verbed. | PATIENT-AGENT-verb |

The target sentences in Experiment 2 are subject and object relatives clauses in Chinese, identical to Experiment 1. Sample materials are provided in (23).

- (23) Sample materials in Experiment 2:

**Context:**

兩個小女孩和一個小男孩在公園裡玩耍時吵了起來。

Two girls and a little boy were playing in the park.

其中一個女孩被小男孩先打了一巴掌，然後另一個女孩就接著打了那男孩一巴掌。

**One of the girls was slapped by the little boy. The other girl then slapped the little boy.**

小明說:我想幼稚園園長在三點的時候看到了其中一個女孩，在三點半的時候看到了另外一個。園長三點的時候是看到哪個女孩?

Xiaoming: I think the principal saw one of the girls at 3 and the other girl at 3:30. Who's the girl seen at 3?

**Target:**

A) 小美說: 男孩打的女孩是園長在三點看到的女孩。

Xiaomei: The girl that the little boy slapped was the girl the principal saw.

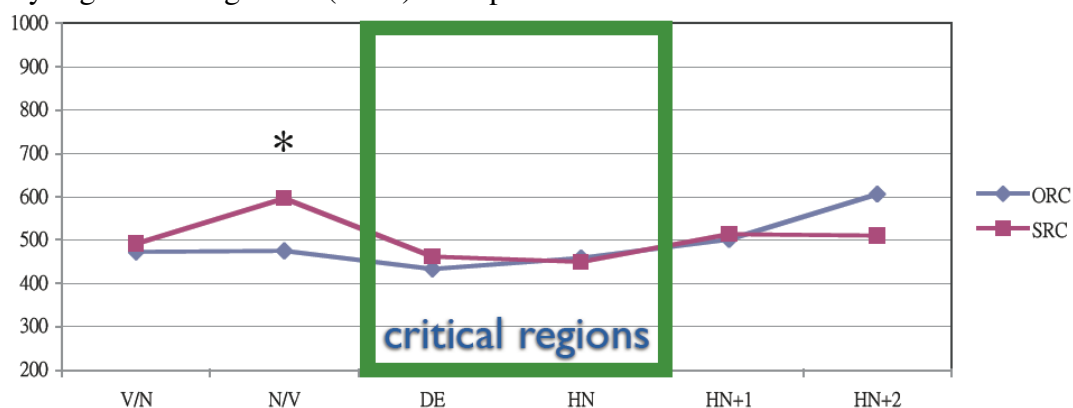
B) 小美說: 打男孩的女孩是園長在三點看到的女孩。

Xiaomei: The girl that slapped the little boy was the girl the principal saw.

A different group of sixteen Taiwanese college students, who are native speakers of Mandarin Chinese, participated in Experiment 2. The experimental procedures were identical to those of Experiment 1.

The reading times on each region of the target sentences are presented in (24). No significant difference was found on the critical regions (the relativizer *de* and the head nouns), nor on any regions after the head noun. The only region with significant difference on reading time was the second region inside the relative clause. This difference, which was also observed by Wu and Gibson (2008), was mainly an effect of processing a clause with missing arguments, not having to do with integration effects associated with relative clauses.

(24) By-region reading times (msec) in Experiment 2:



These results, together with the results of Experiment 1, suggested that when Chinese subject and object relatives were processed in contexts, the processing differences between subject and object relatives mainly have to do with the thematic patterns in the context. When the context provides thematic patterns consistent with the relative clause, then the relative clause became easier to understand. When the context does not provide a consistent thematic pattern, the observed processing advantage no longer exists.

## 4. General Discussion

### 4.1. Summary of the findings

In this paper, we examined the processing advantage for object relatives found by Wu and Gibson (2008) (and also by Ishizuka et al. 2006 in Japanese). The previous argument was that this processing advantage supported a locality theory because in both Chinese and Japanese, the filler-gap distance was closer in object relatives than in subject relatives. Our study proposes a competing theory that focuses on how language users' linguistic experiences with thematic patterns affect their sentence processing behaviors. We hypothesized that the thematic patterns in the contexts adopted in previous studies actually facilitated the processing of object relative clauses, but not subject relatives)

because in these languages, the thematic patterns in object relatives are more consistent with the thematic patterns in the context.

To test this hypothesis, two experiments were conducted. Experiment 1 found that object relatives in Chinese were only facilitated when they followed a context in which the thematic pattern of Agent-Verb-Patient was presented. When this thematic pattern in the context was altered in a BA sentence (Agent-BA-Patient-Verb), while the thematic relations were kept constant, the object relatives were no longer read faster than the subject relatives. Furthermore, in Experiment 2, we minimally changed the Agent-Verb-Patient pattern, which facilitated the object relatives, into a passive (Patient-Bei-Agent-Verb). The processing advantage for object relatives was again not found. These two experiments suggested that locality was not a correct predictor for the processing asymmetry between subject and object relatives presented in contexts. Thematic patterning was.

#### 4.2. Processing of relative clauses across languages

Let us now return to the three questions proposed in the introduction:

- Is there processing asymmetry on relative clauses in Chinese? Is subject or object relative clause in Chinese easier?
- What accounts for the processing asymmetry between subject and object relatives in Chinese?
- Can this account work crosslinguistically as a universal processing strategy?

This study found that the processing asymmetry in Chinese relative clauses is dependent on the thematic pattern that is cognitively dominant at the time when the language users process these relative clauses. The language processor actively maps the structural information onto a thematic template that is dominant in the language. The dominant pattern in Chinese is Agent-Verb-Patient, which serves as a prominent logical template for semantic interpretation. Sentences that provide a linear order that is consistent with this semantic template are less difficult to process. When processing complex structures such as relative clauses, this thematic pattern is especially useful. Chinese object relative clauses can, therefore, be easier than subject relatives when the context provides a thematic pattern that maps consistently onto the thematic sequences in the object relatives.

Previous debates on what causes the processing asymmetry between subject and object relatives should, therefore, reconsider the underestimated effect—namely, the top-down processing heuristics. After all, language processing usually occurs in contexts. Language users' experiences can, therefore, be a powerful blueprint for sentence processing. Through this study, we show that locality (and working memory) may not be the ultimate reason for the processing asymmetry since it does not produce effects when the thematic patterns in the context are altered. The implication of this study is that the same top-down processing heuristics can be the reason why subject relatives are easier



than why object relatives in English and object relatives are easier than subject relatives in Chinese.

### References

- Bever, Thomas G. 1970. Cognitive basis for linguistic structures. *Cognition and the Development of Language*, ed. by J.R. Hayes, 279-362. New York: Wiley.
- Caplan, David, and Gloria S. Waters. 1999. Verbal working memory and sentence comprehension. *Behavioral and Brain Sciences* 22.77-94.
- Crain, Stephen and Mark Steedman. 1985. On Not Being Led up the Garden Path: The Use of Context by the Psychological Parser. *Natural Language Parsing: Psychological, Computational, and Theoretical Perspectives*, ed. by D.R. Dowty, L. Karttunen & A.M. Zwicky, 320-58. New York: Cambridge University Press.
- Ford, M. 1983. A Method for Obtaining Measures of Local Parsing Complexity throughout Sentences. *Journal of Verbal Learning and Verbal Behavior* 22.203-218.
- Frazier, Lyn. 1987. Sentence Processing: A Tutorial Review. *Attention and Performance: Vol. 12 The Psychology of Reading*, ed. by M. Coltheart, 559-86. Hove, England: Erlbaum.
- Gennari, Silvia P. and Maryellan C. MacDonald. 2008. Semantic indeterminacy and relative clause comprehension. *Journal of Memory and Language* 58.161-87.
- Gibson, Edward. 1998. Linguistic complexity: Locality of syntactic dependencies. *Cognition* 68.1-76.
- Gibson, Edward; T. Desmet; D. Grodner; Watson, D., & Ko, K. 2005. Reading relative clauses in English. *Cognitive Linguistics* 16.313-353.
- Hawkins, John A. 1999. Processing complexity and filler-Gap dependencies across grammars. *Language* 75.244-285.
- Hsiao, Franny.; and Edward Gibson. 2003. Processing relative clauses in Chinese. *Cognition* 90.3-27.
- Hsu, Chun-chieh Natalie; and Jenn-Yeu Chen. 2007. A new look at the subject-object asymmetry: The effects of linear distance and structural distance on the processing of head-final relative clauses in Chinese. Paper presented at the Interdisciplinary Approaches to Relative Clauses (REL07), Cambridge University, Cambridge, UK.
- Ishizuka, Tomoko; Kentaro Nakatani; and Edward Gibson. 2006. Processing Japanese relative clauses in context. Paper presented at the The 19th Annual CUNY Conference on Human Sentence Processing, CUNY Graduate Center, NY.
- Keenan, Edward L.; and Bernard Comrie. 1977. Noun phrase accessibility and universal grammar. *Linguistic Inquiry* 8.63-99.
- Keenan, Edward L.; and Bernard Comrie. 1979. Data on the noun phrase accessibility hierarchy. *Language* 55.333-351.

- King, Jonathan; and Marcel Adam Just. 1991. Individual differences in syntactic processing: The role of working memory. *Journal of Memory and Language* 30.580-602.
- Kwon, Nayoung; Peter C. Gordon; Yoonhyoung; Robert Kluender; and Maria Polinsky. 2010. Cognitive and linguistic factors affecting subject/object asymmetry: An eye-tracking study of prenominal relative clauses in Korean. *Language* 86.546-582.
- Lin, Chien-Jer Charles; Thomas G. Bever. 2006. Chinese is no exception: Universal subject preference of relative clause processing. Paper presented at the the 19th Annual CUNY Conference on Human Sentence Processing.
- Lin, Chien-Jer Charles; Thomas G. Bever. 2007. *Processing head-final relative clauses without garden paths*. Paper presented at the The International Conference on Processing Head-Final Structures.
- MacDonald, Maryellen C.; and Morton Christiansen. 2002. Reassessing working memory: comment on Just and Carpenter (1992) and Waters and Caplan (1996). *Psychological Review* 102.35-54.
- Miyamoto, Edson T.; and Michiko Nakamura. 2003. Subject/object asymmetries in the processing of relative clauses in Japanese. *WCCFL 22 Proceedings* 22.342-355.
- O'Grady, William. 1997. *Syntactic Development*. Chicago: The University of Chicago Press.
- Traxler, Matthew J.; Robin K. Morris; and Rachel E. Seely. 2002. Processing subject and object relative clauses: Evidence from eye movements. *Journal of Memory and Language* 47.69-90.
- Ueno, Mieko; and Susan M. Garnsey. 2008. An ERP study of the processing of subject and object relative clauses in Japanese. *Language and Cognitive Processes* 23.646-688.
- Wells, Justine B.; Morten H. Christiansen; David S. Race; Daniel J. Acheson; and Maryellen C. MacDonald. 2009. Experience and sentence processing: Statistical learning and relative clause comprehension. *Cognitive Psychology* 58.250-71.
- Wu, H. Iris; and Edward Gibson. 2008. *Processing Chinese relative clauses in context*. Paper presented at the 21th Annual CUNY Conference on Human Sentence Processing.

## Perceiving Vowels and Tones in Mandarin: The Effect of Literary Phonetic Systems on Phonological Awareness

Hsin-Ni Lin<sup>1</sup>, Chien-Jer Charles Lin<sup>2</sup>

<sup>1</sup>National Taiwan Normal University, <sup>2</sup>Indiana University

A tone-vowel monitoring task similar to Ye and Connine's (1999) experiment was conducted in Taiwan to examine how literary phonetic systems affect people's perception of vowels, and then the relative temporal availability of vowel and tonal information. The results demonstrated that although participants were sensitive to the acoustic nature of monosyllabic stimuli, they mainly resorted to the literary systems they learned during the perception. Therefore, the impact of literary systems on the perception was taken into consideration when the relation of vowels and tones was investigated in this study. With the consideration, it was found that vowel information was available relatively earlier than the tonal information.

### 1. Introduction

A syllable in Mandarin is composed of segments and a tone. Not only segments but also the tone contributes to distinguishing meanings of words. For instance, in Mandarin, there are four distinct tones; when they are respectively combined with the syllable *ma*, each combination has a different meaning: *ma* means 'mother'; *ma2* means 'hemp'; *ma3* means 'horse'; *ma4* means 'scold.' Therefore, to understand how the auditory information of a Mandarin syllable is processed, the perception of segments and tones is a fundamental issue.

In recent studies concerning the perception of Chinese segments and tones, there has been growing interest in the relationship of vowels and tones (i.e. which information among the two is processed first and which information is more important during perception) (Ye & Connine, 1999; Lee, 2007; Liu & Samuel, 2007; Tong, Francis & Gandour, 2007; Malins & Joanisse, 2010). Although considerable research has been devoted to the relationship of vowels and tones, rather little attention has been paid to the possibility that the literary education about Chinese phonetics may influence the relationship. According to Cheung and Chen (1997), and Shu et al. (2008), learned phonetic systems affect people's phonological awareness.<sup>1</sup> For example, Cantonese

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<sup>1</sup> Phonological awareness refers to a person's ability to segment and manipulate sound units.

Depending on the smallest unit a person can segment and manipulate, phonological awareness includes three hierarchical levels: (1) syllable awareness, (2) demi-syllable awareness (i.e. onset and rime awareness), and (3) phoneme awareness (Treiman, 1987). In the hierarchy,

speakers who have learned Pinyin<sup>2</sup> can recognize and manipulate phonemes while those who did not are able to manipulate only syllables. With this regard, it is highly possible that a phonetics system would impact the perception of segments, and then further influence the relationship between vowels and tones. The primary objective of this paper is to verify this possibility.

Our research is built on previous research by Ye and Connine (1999), who conducted a tone-vowel monitoring task. In the task, Mainland Chinese participants were administered to respond whether Mandarin monosyllabic stimuli contained both the vowel /a/ and Tone 2 (e.g. *ba*<sub>2</sub>, *lai*<sub>2</sub>, *yan*<sub>2</sub>). By manipulating the types of mismatches in the syllables (including tonal mismatches such as *ba*<sub>4</sub>, and vowel mismatches such as *bi*<sub>2</sub>), they found the mean reaction time for vowel mismatches was significantly shorter than that for tonal mismatches. Based on the result, Ye and Connine concluded that vowel information has “perceptual advantage” over tonal information.

Given the discrepancies between the phonetic systems taught in schools in China and Taiwan (relevant examples summarized in Table 1), it is likely that Mainlanders and Taiwanese would perform differently in Ye and Connine’s perceptual task.

Table 1. Phonetic representations of syllables with /a/ in Mainland China and Taiwan

	a. /ba/	b. /ban/	c. /baŋ/	d. /bai/	e. /bau/
Mainland Pinyin	ba	ban	bang	bai	bao
Taiwan Zhuyin <sup>3</sup>	ㄅㄚ	ㄅㄢ	ㄅㄤ	ㄅㄞ	ㄅㄠ

(note: ㄅ = /b/, ㄚ = /a/, ㄢ = /an/, ㄤ = /aŋ/, ㄞ = /ai/, ㄠ = /au/)

Hence, this study aims to find the answers to three research questions:

- Do the literary phonetic transcription systems affect the perception of vowels? (i.e. phonological awareness)
- If the answer to the previous question is yes, does the acoustic nature of sounds still play a role during the perception?

phoneme awareness is the most difficult level to achieve; once one is capable of it, he is surely able to achieve the other two levels.

<sup>2</sup> Pinyin is a phonetic system used to transcribe segments in Cantonese or Mandarin in Mainland China. In the Pinyin system, onsets and rimes of Cantonese or Mandarin are represented by 25 Roman alphabets or the combinations of some of them, such as “b”, “p”, “a”, “ai”, and “an”.

<sup>3</sup> Unlike Pinyin, Zhuyin includes 37 symbols to represent each of the onsets and rimes in Mandarin. For example, “b”, “p”, “a”, “ai”, and “an” in Pinyin are respectively represented as “ㄅ”, “ㄆ”, “ㄚ”, “ㄞ” and “ㄢ” in Zhuyin. The biggest difference between the Pinyin system and then Zhuyin system is in the part of rimes (Wang, 1997). In the Zhuyin system, a rime is represented by only a single symbol; in Pinyin system, every phoneme in a rime is explicitly presented.

- When literary phonetic differences are taken into account, what is the relationship between vowel and tonal information during the perception?

An experiment similar to Ye and Coninne's was conducted in Taiwan. Participants were also asked to decide whether a syllable contained the combination of tone 2 and the vowel /a/. The method of the experiment is presented in Section 2. Section 3 provides results and discussion on the collected data. Finally, Section 4 concludes the current study.

## **2. Method**

### **2.1. Participants**

Twenty-one undergraduate students (3 males and 18 females) were recruited as participants from departments other than Department of English and Department of Chinese<sup>4</sup> in National Taiwan Normal University. However, only the data collected from 18 of them (3 males and 15 females) were analyzed since the data-recording software ran into some problem when the other three participated in the experiment.

All of the participants were native Mandarin speakers in Taiwan. They were all right-handed and had no history of brain lesions. In addition, none of them had learned Pinyin phonetic system.

### **2.2. Materials**

Since this study is built on the research of Ye and Connine (1999), the materials in our experiment were similar to those in their study. In this experiment, seven types of stimuli were included. 6 types of them were critical items, and the stimuli in the other type were filler items. The types of critical items are displayed in the following.

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<sup>4</sup> Students in Department of English and Department of Chinese were not included because they had learned Mandarin Phonetics, which may render them to possess general knowledge about how Mandarin sounds are represented in the Pinyin phonetic system.

Table 2. Types of critical stimuli in the experiment

Syllable Type		Rime and Tone within the Syllable		Example	Expected response
		rime	tone		
<b>Type 1</b>	Base Syllable	a (ㄚ)	Tone 2	<i>ba2</i> (ㄅㄚˊ)	Yes
<b>Type 2</b>	Rime-mismatched Syllable <i>	i or u (- or ㄨ)	Tone 2	<i>bi2</i> (ㄅㄨˊ)	No
<b>Type 3</b>	Tone-mismatched Syllable	a (ㄚ)	Tone 4	<i>ba4</i> (ㄅㄚˋ)	No
<b>Type 4</b>	Double-mismatched Syllable <i>	i or u (- or ㄨ)	Tone 4	<i>bi4</i> (ㄅㄨˋ)	No
<b>Type 5</b>	Rime-mismatched Syllable <ii>	an, ang, ai, or ao (ㄢ, ㄤ, ㄞ, or ㄠ)	Tone 2	<i>bai2</i> (ㄅㄞˊ)	No
<b>Type 6</b>	Double-mismatched Syllable <ii>	an, ang, ai, or ao (ㄢ, ㄤ, ㄞ, or ㄠ)	Tone 4	<i>bai4</i> (ㄅㄞˋ)	No

Type 1 stimuli were the target-bearing stimuli which contained the combination of the vowel /a/ and Tone 2. This type was named “Base Syllable” because stimuli in Type 2 (Rime-mismatched Syllable <i>), Type 3 (Tone-mismatched Syllable), and Type 4 (Double-mismatched Syllable <i>), which were non-target-bearing stimuli, were all created based on stimuli in Type 1. There were twelve stimuli in each of Type 1-4.

Type 5 (Rime-mismatched Syllable <ii>), like Type 2, also consisted of rime-mismatched syllables; Type 6 (Double-mismatched Syllable <ii>), like Type 4, included double-mismatched syllables. However, unlike the rimes in Types 2 and 4, the rimes in Types 5 and 6 were an (ㄢ), ang (ㄤ), ai (ㄞ), and ao (ㄠ), all of which contained an /a/ vowel that is not explicitly presented in Zhuyin. We chose these rimes in order to examine whether Taiwanese Mandarin speakers were able to detect the assimilated vowel /a/ in these four rimes. In addition, unlike Types 2 and 4, Types 5 and 6 were not created based on Type 1 because the rimes in Types 5 and 6, an (ㄢ), ang (ㄤ), ai (ㄞ), and ao (ㄠ), could not be combined with some of the onsets in Type 1 stimuli due to accidental

syllabic gaps in Mandarin. Therefore, we created Type 5 (Rime-mismatched Syllable <ii>), by choosing 4 syllables for each of the four rimes, an (ㄢ), ang (ㄤ), ai (ㄞ), and ao (ㄠ). As for Type 6, it was the counterpart of Type 5 by altering Tone 2 in Type 5 stimuli into Tone 4. Consequently, there were 16 items in each of Types 5 and 6. All stimuli in the six types introduced above are given in Appendix. The mean word frequency<sup>5</sup> of each type was controlled to be around 310 (ranging from 290-323), except for Type 4.

In addition to the aforementioned six types, the fillers made of a (ㄩ) and Tone 2 were added to make the proportion of “Yes stimuli” to “No stimuli” 1 to 1. Most of the fillers were non-existent syllables in Mandarin so as to avoid the experimental design having the tendency to guide participants to monitor the sound stimuli by relating those sounds to the Zhuyin phonetic representations, thus obtaining artificially biased results.

Each stimulus in the seven types was recorded five times in a sequence by a female native Mandarin speaker in a quiet recording studio. Later, we cut one sound from the five tokens through visual and auditory scrutiny. To enable the volumes of the sounds to be similar, some of the sounds were amplified through SoundEdit Pro 2.1.

### 2.3. Design

Each participant heard all of the stimuli in random orders (presented by E-prime 2.0). Following Ye and Connine’s design, a participant was allowed as much time as they needed to press a response button; in other words, only after a participant pressed the “Yes” or “No” response button did the next trial appear. Also, between a participant’s response and the next trial, there was a pause of 250ms.

### 2.4. Procedure

Participants were tested individually in a quiet experimental studio. They were instructed to judge whether a combination of a (ㄩ) and Tone 2 were contained in each Mandarin monosyllable presented. If yes, they should press the “Yes” button; if no, they had to press the “No” button.<sup>6</sup> The instructions were auditorily presented instead of visually; therefore, the instruction can be avoided misleading participants to perceive a (ㄩ) sound in the instruction by retrieving the Zhuyin phonetic representations.

In addition, participants were told to press a response button as soon as possible since their accuracy and reaction time would be recorded. Furthermore, they were also informed about the inclusion of non-existent syllables in Mandarin in the experiment stimuli.

Prior to the experiment, there was a practice session. The session included 10 trials which were distinct from stimuli included the experiment. Participants were asked to judge whether a stimulus contained a combination of e (ㄝ) and Tone 2.

<sup>5</sup> Word frequency was calculated from Academic Sinica’s website “Sou Ci Xun Zi”.

<sup>6</sup> For half of the participants, “Yes” button was on the right in the response box; for the other half, “Yes” button was on the left.

### 3. Result & Discussion

Mean accuracy and reaction time for Type 1-6 are provided in Table 3. The accuracy is based on the expected responses of each type (see Table 2). Reaction time (RT, henceforth) was calculated both from the onset and the offset of a stimulus, and those less than 200 ms and greater than 2000 ms from the onset were removed from the analysis (1%). In addition, in the calculation of the mean reaction time to each Type, only those of correct responses (96%) were included.

Table 3. Accuracy and Mean RTs of Type 1-Type 6

Syllable Type		Examples	Accuracy (percentage)	RT measured from Onset (ms)	RT measured from Offset (ms)
<b>Type 1</b>	Base Syllable	<i>ba2</i> (ㄅㄚˊ)	95.33%	850	291
<b>Type 2</b>	Rime-mismatched Syllable <i>	<i>bi2</i> (ㄅㄣˊ)	96.74%	903	300
<b>Type 3</b>	Tone-mismatched Syllable	<i>ba4</i> (ㄅㄚˋ)	94.37%	880	403
<b>Type 4</b>	Double-mismatched Syllable <i>	<i>bi4</i> (ㄅㄣˋ)	100.00%	781	273
<b>Type 5</b>	Rime-mismatched Syllable <ii>	<i>bai2</i> (ㄅㄞˊ)	91.52%	966	364
<b>Type 6</b>	Double-mismatched Syllable <ii>	<i>bai4</i> (ㄅㄞˋ)	99.65%	844	351

A striking difference between Ye and Connine's results and ours is shown in the responses to Type 5 here. As predicted, Taiwanese participants (91.52%) responded "no" to those monosyllables containing Tone 2 and rimes *an*, *ang*, *ai*, or *ao*. The Mainlanders in Ye and Connine (1999), however, responded "yes" to the kind of auditory inputs. The



contrast revealed that the literary phonetic transcription systems affect the perception of vowels. Mainland participants responded by resorting to Pinyin whereas Taiwanese participants resorted to Zhuyin.

Besides, within Type 5, syllables containing *an2* was easier to reject than syllables containing *ang2*. The accuracy of *an2* (95.56%) was significantly higher than that of *ang2* (80.00%) [ $t(137) = 2.89, p < .01$ ]. Also, the average RT for *an2* was 116ms shorter than that of *ang2* [ $t(120) = -2.43, p < .05$ ].<sup>7</sup> This inconsistency between the *an2-ang2* pair might be because the greater phonetic alternation from [a] was involved in *an2*, in which the back vowel /a/ preceded an alveolar consonant /n/, than in *ang2*, in which the vowel was followed by a back consonant /ŋ/. This suggests that participants were still sensitive to the phonetic quality of the vowels, even though their perception of vowels was influenced by the literary phonetic systems.

Finally, we probed into the relationship of vowel and tonal information while considering the influence of phonological awareness on the perception of vowels. The result showed that Type 2 (Rime-mismatched Syllable <i>) was rejected 103ms earlier than Type 3 (Tone-mismatched Syllable) [ $t_1(34) = -1.96, p = .059$ ;  $t_2(22) = -2.92, p < .01$ ].<sup>8</sup> This revealed that vowel information was available earlier than tonal information during the processing, which is congruent with Ye and Connine's findings. In other words, the perceptual advantage for vowels still exists when the literary differences are taken into account.

#### 4. Conclusion

Results of the current study provide answers to the three research questions listed in the introduction section. During the perception of vowels, Mandarin native speakers mainly resort to their literary phonetic transcription systems while their perception the acoustically vowel information still plays a role. Additionally, when the impact of phonetic systems on vowel perception is taken into consideration, tonal information is still available subsequent to vowel information.

#### REFERENCES

- Cheung, Him. and Chen, Hsuan-Chih. 2004. Early orthographic experience modifies both phonological awareness and on-line speech processing. *Language and Cognitive Processes* 19(1). 1-28.
- Lee, Chao-Yang. 2007. Does horse activate mother? Processing lexical tone in Form

<sup>7</sup> Only statistics of data measured from the offset is reported here. The onset data also showed significant differences.

<sup>8</sup> The statistical results were based on data measured from the offset. The onset data showed no significance, which might be due to the differences in sound length of Type 2 and Type 3 stimuli.

- Priming. *Language and Speech* 50 (1). 101-123.
- Liu, Siyun. and Samuel, Arthur, G. 2007. The role of Mandarin lexical tones in lexical access under different contextual conditions. *Language and Cognitive Processes* 22(4). 566-594.
- Malins, Jeffery, G. and Joanisse, Marc, F. 2010. The roles of tonal and segmental information in Mandarin spoken word recognition: An eyetracking study. *Journal of Memory and Language* 62(4). 407-420.
- Shu, Hua. Peng, Hong. and McBride-Chang, Catherine. 2008. Phonological awareness in young Chinese children. *Developmental Science* 11(1). 171-181.
- Tong, Yunxia. Francis, Alexander L. and Gandour, Jackson T. 2007. Processing dependencies between segmental and suprasegmental features in Mandarin Chinese. *Language and Cognitive Processes* 22(8). 1-20.
- Treiman, Rebecca. 1987. On the relationship between phonological awareness and literacy. *Cahiers de Psychologie Cognitive* 7(5). 524-529.
- Wang, H. Samuel. 1997. Cong yu yin qie fen fang shi kan han yu yin biao de zheng yi. *Hua Wen Shi Jie* 86. 62-66.
- Ye, Yun. and Connine, Cynthia. M. 1999. Processing spoken Chinese: The role of tone information. *Language and Cognitive Processes* 14(5). 609-630.

APPENDIX<sup>9</sup>

Type 1 Base syllable	Type 2 Rime- mismatched syllable <i>	Type 3 Tone- mismatched syllable	Type 4 Double- mismatched syllable <i>	Type 5 Rime- mismatched syllable <ii>	Type 6 Double- mismatched syllable <ii>
(12)	(12)	(12)	(12)	(16)	(16)
ba2	bi2	ba4	bi4	bai2	bai4
pa2	pu2	pa4	pu4	lai2	lai4
ma2	mi2	ma4	mi4	hai2	hai4
fa2	fu2	fa4	fu4	zhai2	zhai4
da2	du2	da4	du4	pan2	pan4
na2	ni2	na4	ni4	man2	man4
la2	li2	la4	li4	nan2	nan4
ga2	gu2	ga4	gu4	chan2	chan4
ha2	hu2	ha4	hu4	fang2	fang4
zha2	zhu2	zha4	zhu4	lang2	lang4
cha2	chu2	cha4	chu4	hang2	hang4
sha2	shu2	sha4	shu4	nang2	nang4
				bao2	bao4
				mao2	mao4
				nao2	nao4
				shao2	shao4

<sup>9</sup> The number in the parenthesis indicates the number of stimuli in each type.

## 现代汉语词组结构句法性质的神经语言学探讨

沈兴安<sup>1</sup> 杨亦鸣<sup>2</sup> 封世文<sup>3</sup>

<sup>1</sup>徐州师范大学

<sup>2</sup>江苏省语言科学与神经认知工程重点实验室

<sup>3</sup>南加州大学

本文以思辨研究和实证研究相结合的方式，运用 fMRI 的实验手段，以名词（N），动词（V）和形容词（A）构成的 N+A、N+V、A+N、A+V、V+N、V+A 这 6 种不同的线性词语序列为实验刺激材料，探究各种词组结构的脑神经机制和相关的语言理论问题，从而揭示人类的语言能力。

### 1 选择现代汉语词组结构作为研究语言能力的着眼点的理论依据

现代汉语词组结构之所以被看作为研究语言能力的适当着眼点，是就以汉语为研究对象来探究语言能力而言的，如果就人类语言的普遍能力而言，那么各种语言的词组结构都是合适的研究对象。

现代汉语词组结构是由属于不同词类范畴的各种具体词语依据一定的句法和语义规则组合而成的一种语言单位，其所包含的词类范畴和具体词语正好是语言能力的词库系统所包含的内容，其所包含的句法和语义规则恰好是语言能力的演算系统所包含的原则和参数，因而现代汉语词组结构是研究语言能力的适当着眼点。关于词组结构应为研究语言能力的适当着眼点的看法，国内外的学者亦有相关论述，这些论述之中既包含依据结构主义理论对词组所作的论述，亦包括生成语理论从注

重结构和规则到注重原则和参数的理论导向转变进程中对词组所作的论述，由于所依据的语言理论背景不一样，学者们对现代汉语词组结构作为研究语言能力的适当着眼点的看法亦不尽相同。

传统的结构主义语言学观点认为，汉语句子的构造原则和词组的构造原则基本上是一致的并认为这是汉语的特点，这被称为“词组本位理论”，代表性文献有朱德熙先生（1985）<sup>1</sup>和陆俭明先生（2002）<sup>2</sup>。

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<sup>1</sup>朱德熙先生（1985）认为汉语句子的构造原则跟词组的构造原则基本上是一致的，特别表现在“主谓结构”上。因此，“我们就有可能在词组的基础上来描写句法，建立一种以词组为基点的语法体系。这就是说，我们可以把各类词组（主谓结构、述宾结构、述补

原则与参数理论产生之前和之后的生成语法学理论是由本质区别的, 此前的生成语法理论特别注重词组结构生成过程中是否存在核心结构, 是否应为左向合并等问题, 关注的依然是结构和规则, 代表性文献有邓思颖先生(2000)<sup>3</sup>、李亚非先生(2001)<sup>4</sup>、戴曼纯先生(2003)<sup>5</sup>等。此后的生成语法理论不再关注是否有核心结

结构、偏正结构、联合结构、连动结构以及介词结构、“的”字结构等虚词结构)作为抽象的句法格式来描写它们的内部结构以及每一类词组作为一个整体在更大的词组里的分布状况, 而不急于把它们跟具体的句子联系起来, 特别是不把它们钉死在句子的某个成分上。如果我们把各类词组的结构和功能都足够详细地描写清楚了, 那么句子的结构实际上也就描写清楚了, 因为句子不过是独立的词组而已。”

<sup>5</sup>陆俭明先生(2002)认为汉语句子里句法规则和语用规则是混杂在一起的。我们真要把把握汉语句法规则, 首先要研究词组的构造规则。汉语里的词组有各种各样, 基本上可以分为两大类。甲类是实义性词语和实义性词语组合而成的词组。乙类是实义性词语和标记性成分所组合而成的词组。在这些词组中, 最重要的或者说首先要抓的是以谓词为核心的一些词组, 如主谓、动宾这样一些词组。联合、偏正两种词组相对说比较简单; 至于述补、连谓、递系, 实际上应看作是由不同的谓词性结构整合的产物。

<sup>3</sup>邓思颖先生(2000)认为, 语言之间在句法上最明显的分歧是词序(word order)的差异, 汉语和英语属于“主—动—宾”类型的语言, 在正常的情况下动词永远位于宾语之前。无可否认词序差异的确是一个显而易见的语言现象, 可是如果只满足于表面的描述我们将无法进一步了解语言背后所反映的事实。在 Chomsky 的最简方案里, 词的线性次序与核心运算系统毫无关系。根据这个假设, 词序参数在最简方案的模式里已被否定。Kayne(1994)提出的“线性对应定理”和 Takano(1996)和 Fukui and Takano(1998)提出的“线性化理论”。这两个理论有不同的结论: 线性对应定理认为“指示语—中心语—补述语”为语言的普遍词序, 而线性化理论则认为“指示语—补述语—中心语”为语言的普遍词序。移位是一种得出不同词序的方法。以汉语为例, 虽然这两个理论都能够推导出汉语“主动宾”的基本词序, 但是, 该文指出, 根据线性对应定理而设计的短语结构理论能够解释一些与词序无关的问题, 例如汉语句末助词的句法问题。汉语似乎提供了一些支持线性对应定理的证据。

<sup>4</sup>李亚非先生(2001)认为, 新的词组结构理论可以保证主语位于宾语跟核心词的前面。核心后置是语言的基本结构, 核心词的移动造成表面上的核心前置。核心词移动的原因是包含一个以上的核心词内容。新理论与传统词组结构理论的最主要区别在于如何表达核心前置与核心后置的关系。传统理论把这两种语序当做两个独立存在的选择, 而新理论认为核心后置是一切语言的基本结构, 核心前置是核心词移动的结果。

<sup>5</sup>戴曼纯(2003)认为, 以 X 杠理论为基础的线性对应准则不能有效确定语类的顺序, 确定顺序的是最基本的句法关系是推导式成分统制关系(derivational c-command)。也就是说, 语序是在推导中确定的。进一步简化光杆短语结构, 每次合并/再合并(移位)操作投射的是中心语短语结构 HP, 包括 VP, CP, TP 等。广义推导的观点: 一切语类进入句法结构的方式都是推导式的, 推导的方式仅有合并与再合并(移位), 合并为基础操作, 再合并为特征核查操作。合并是移位的基础, 移位是合并的延伸, 是功能

构的问题, 亦不关注词组合并的方向问题, 只是关心如何从词库中挑选合适的词项以及依据怎样的句法原则和参数生成语言表达式的问题。Chomsky 有关词组结构的论述, 则反映了从生成语法诞生之日起直至提出原则与参数理论后, 生成语法学界研究词组结构的发展脉络。Chomsky 自 1957 年出版《句法结构》开始, 一直对词组结构投以足够的注意力, 先是提出了各种“词组结构规则”(phrase structure rules), 20 世纪 70 年代则提出了 X 标杠理论, 根据这一理论每一个词组都有一个中心语 (head), 词组是中心语的最大投射(maximal projection)。20 世纪 90 年代中期则提出了“光杆词组结构理论”(bare phrase structure theory), 根据这个理论当两个词项从词库提取到运算系统时它们会合并 (merge), 然后其中一个词项进行投射 (project)。基于核心运算系统没有线性次序的考虑, Chomsky (1995) 采用了一套新的方法来表示词组结构, 他认为经过合并后的两个词项 (如  $\alpha$  和  $\beta$ ) 形成一对没有线性次序的集 (set)  $\{\alpha \beta\}$ 。假设词项  $\alpha$  和词项  $\beta$  从词库里挑选出来后, 它们在推导过程中经过合并, 然后投射, 经过  $\alpha$  投射后, 这个新的句法成分可以表达为  $\{\alpha \{\alpha \beta\}\}$ , 第一个  $\alpha$  是最大投射 (maximal projection) 充当这个词组的标志, 而第二个  $\alpha$  是这个词组的最小投射 (minimal projection), 也就是这个词组的中心语 (head)。

综上所述, 关于词组结构问题, 存在 3 种截然不同的基本观点, 第 1 种观点以 Chomsky 为代表, 他认为词组结构只是从词库中选择合适的词项, 而后依造句法构造的普遍原则和设定的具体参数结构而成, 这种观点是 Chomsky 原则与参数理论的体现。第 2 种观点以邓思颖、李亚非为代表, 他们认为, 只有一种统一的基本词组结构, 其他的词组结构都是以此词组结构为基准, 通过参数选择来生成的, 其间的分歧在于, 邓思颖认为汉语的基本语序是“主动宾”, 李亚非认为汉语的基本语序是“主宾动”。这种观点表明生成语法理论前期注重结构和规则研究。第 3 种观点以朱德熙、陆俭明、马庆株为代表, 他们认为存在各种不同的基本词组结构类型, 把这些不同的基本词组结构的构造规则研究清楚了, 那么也就掌握了语言的句法规则, 也就是说, 每种词组结构类型都由不同的句法规则产生。

值得注意的是, 尽管存在着 3 种看待词组结构的不同观点, 但各位学者均把词

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语类合并的必然结果。因此, 无所谓合并与移位谁优先的问题。广义推导的必然结果是, 取消右向合并或右向附加操作, 一切操作都是向左的。我们提出一切合并向左的假设, 即广义左向合并原则 (Principle of Generalized Leftward Merger): 在句法推导从基础生成到推导结束的整个过程中, 一切新合并语类均以向左的方式在已形成的句子结构的相应左边位置进入该句子结构, 一切成分的移位/再合并由右向左进行。短语结构理论被光杆短语结构理论代替, 构建结构不是用短语结构表征, 而是用推导方式: 合并和移位。戴曼纯在此的论述, 认为语言操作原则可由 Chomsky 所提出的合并和移位两原则, 简化为一个合并原则, 移位只是一种再合并的方式。

组结构的研究作为探讨人类语言能力的着眼点，这是他们的共识，其中 Chomsky 更是提出应该结合神经科学、心理学等相关学科进行语言能力的研究，但并未在具体的研究进程中加以实践。

通过以上分析可知，本文选择现代汉语词组结构作为研究语言能力的着眼点，主要是基于原则和参数方法提出之后，生成语法理论对语言能力的探究，词库和演算系统成为生成语法学家以及所有关注语言能力研究的学者共同关注的焦点，词组结构的组合关系反映了演算系统的操作原则和具体参数，词组结构的聚合关系反映了词库系统的词类范畴和具体词语，因而现代汉语词组结构成为了研究语言能力的适当着眼点。

由于词组的组成成分比较多样，词和词可以组成词组，词和词组可以组成词组，词组和词组可以组成更为复杂的词组等，要想在一篇文章里，将各种各样的词组都进行研究，是难以实现的。为此，本文只对词和词组合而成的词组进行研究，由于汉语的重要语法手段包括语序和虚词，因而实词和实词组合而成的词组与实词和虚词组成的词组亦要区别对待，本文的研究范围进一步得到限定，只研究名词、动词和形容词组合而成的主谓结构、偏正结构、动宾结构和动补结构。遵循科学研究一般先选择典型事实而后选择全部事实进行研究的惯例，我们认为：1、本文研究的是词与词按照一定的句法和语义规则组合而成的结构体；不包括词和词组结合而成的词组，也不考虑词组和词组结合而成的词组，因而连谓结构、递系结构就不在我们的考察范围之内；2、由于本文是从词组的结构类型来研究词组结构的，不与词组的功能分类相杂糅，因而本文所研究的词组结构中不包括所谓的介词结构、助词结构（附加结构、的字结构）、名词结构、动词结构；形容词结构。3、由于虚词的作用相当繁多，比如，助词中的“着，了，过”一直都有学者认为这是与英语中的“-ing, -ed”有相同的作用，即它们是一种词尾，而不是一种词类，对这类有争议的问题，我们在本文并不进行讨论，而是留待以后的研究进行探索。因而本文只关注实词与实词的组合，不关注实词与虚词的组合。4、由于 N+N, V+V, A+A 这三种线性词语序列的句法和语义性质较为复杂，我们在本文亦暂不涉及，而是留待今后的研究加以探讨。

本文希望通过研究 N+V、V+N、N+A、A+N、V+A 和 A+V 这 6 种不同类型的词组结构得以生成的语言演算机制，为将来进一步研究其他各种实词与实词的词语组合，实词与虚词的词语组合，词与词组构成更大结构的词组组合，词组与词组的之间的区别与联系，奠定良好的基础，从而为真正认识自然语言的语言能力，作出坚实而有效的努力。

## 2 神经语言学界对词组结构的研究

国外神经语言学界对词组结构所作的研究，主要侧重于名词词组、动词词组和形容词词组等的研究，未见有如本文所作的对由名词、动词和形容词组合而成的 6

种不同词语序列进行神经语言学研究。Sara Mondini 等 (2002)<sup>6</sup>、Elena Nicoladis (2002)<sup>7</sup>都是关于词组和复合词之间的,前者指明了复合词和词组之间有不同的加工过程,后者只是提出被试对形容词词组的语序反应要好于复合词。由于两篇文章作者的研究背景问题,他们在得出相应的结论之后,并没有继续在语言学的层面予以阐释。

依据我们所查阅的各种纸本文献和网络研究数据库,我们没有发现有任何一篇文章以本文这样的研究思路来进行语言能力的探索,而且上述两篇研究词组结构的文献,所运用的研究方法是行为实验,并未采取 fMRI 或 ERP 的实验手段,更不用说结合 fMRI 和 ERP 实验手段进行研究了。因而本文所作的一切研究工作,在前人之处可借鉴之处就是实验过程中所应严格遵守的公认的规范程序,比如实验刺激材料的选择所应注意的熟悉度问题,被试对实验刺激材料的反应时和正确率的数值问题等。

词组结构是探究人类语言能力的合适着眼点,通过词组结构所蕴涵的聚合关系和组合关系,既可以探究词库,亦可以探究演算系统。选择以名词(N)、动词(V)、形容词(A)这三大类实词按一定的句法和语义关系组合而成的主谓结构、偏正结构、动宾结构、动补结构为探究人类语言能力的第一站。学者们要想分辨清楚词组结构

内部的分类问题,词组与词语的区别和联系,词组与句子的区别和联系,就应探测清楚这些语言单位赖以形成的原则和参数。

### 3 功能性磁共振成像(fMRI)实验

本实验通过记录被试在完成各种不同的实验材料时的脑部激活区域和激活强度,来确定各种不同的实验材料之间是否具有显著性差异,从而研究各种不同的实验材料的脑神经机制和语言学意义。

为保证实验的效度和信度,我们在实验方案设计之初,就严格按照科学实验的标准来实施,运用的事件相关的fMRI实验设计。我们选择由N+V、V+N、N+A、A+N、

<sup>6</sup> Sara Mondini 等 (2002) 指出,通过研究两例意大利语非流利性失语症患者针对复合词和名词词组的名词-形容词一致关系的行为。实施了填充任务,阅读任务和重复任务。结果表明两个病人都能够正确地运用复合词中形容词的屈折,但在名词词组中无法做到。此外,他们都对名词词组中的成分顺序敏感,但对复合词中的则较少敏感。实验结果表明复合词与名词词组有不同的加工过程:后者需要规范的形态句法操作,这一点病人恰恰容易受损,前者在词语层级可以作为整词得到提取。

<sup>7</sup> Elena Nicoladis (2002) 指出,本文的研究对象是法语与英语的形容词词组和复合名词,这两者在语义上有类似的结构。一种预测是儿童关注语义,因而他们对两种结构应表现出类似的顺序。另一种假设认为儿童主要关注结构,因而他们应分别了解这些结构。该文的研究结构表明,儿童对形容词词组的语序反应良好,但在复合词上则较差。这些结果没有证明上述两种猜测,因而还要继续探索。



V+A、A+V这6种线性词语序列构成的正确（语法和语义合法）和错误（语法合法，语义不合法）词组各32个，总计384个实验刺激材料。呈现的词组及注视点为白色，宋体48磅，背景为黑色。

刺激的持续时间。基于前面实验材料熟悉度和行为实验的数据结果，设定每个实验材料的刺激呈现时间是500毫秒。

刺激间隔。基于前面实验材料熟悉度和行为实验的数据结果，设定刺激材料的平均间隔时间（一个刺激开始呈现到下一个刺激开始呈现的时间）为3000毫秒，最短间隔2000毫秒，最长间隔28000毫秒，刺激反应时间为1500毫秒。

刺激序列的随机性。384个实验材料使用了Neuroscan公司开发的Stim2软件进行了随机化。

徐州师范大学全日制本科在读学生12人，男女生各6名，平均年龄20岁，均为右利手，无脑损伤病史。实验前签署知情同意书。实验后填写实验过程反馈书，主试付给被试一定的实验酬劳。

实验具体的扫描参数是：利用SIEMENS MAGNETOM Sonata 1.5T 磁共振成像仪进行图像采集。被试头部严格制动。功能像采集使用对血氧水平变化敏感的T2加权的梯度回波-回波平面成像脉冲序列(EPI)。参数设定如下：TR = 2 000 ms ,TE = 60 ms ,FOV = 220 mm×220 mm,Flip angle = 90° ,矩阵= 64 ×64 ,平面解析度 3.44 mm×3.44 mm,层厚= 5 mm,间距= 1.5 mm。20层连续轴位扫描以覆盖全脑。解剖像使用T1加权的快速旋转回波(fast spin echo pulse sequence) 脉冲序列 (TR = 447 ms ,TE =15 ms ,Flip angle = 90° ,FOV = 220 mm ×220 mm,矩阵= 256 ×256) ,扫描定位完全等同于功能像扫描序列。解剖像提供了全脑高分辨率的解剖定位依据。为了便于三维重建和空间标准化,我们使用快速低角度射频脉冲序列 (fast low angle shoot sequence , FLASH; TR = 25 ms , TE = 10.3 ms , Flip angle = 35° , FOV = 325 mm×325 mm,矩阵= 192 ×256) 进行全脑的三维扫描。

实验数据处理软件采用基于 LINUX 操作平台的 AFNI (Analysis of Functional NeuroImage) 软件。为了减少由于个体差异以及机器本身等原因造成的误差和进行进一步的统计分析,我们首先要对实验数据进行预处理,具体过程是:

(1) 头动校正和图像的配准。(2) 空间标准化。(3) 空间平滑和时间平滑。(4) 去线性漂移。

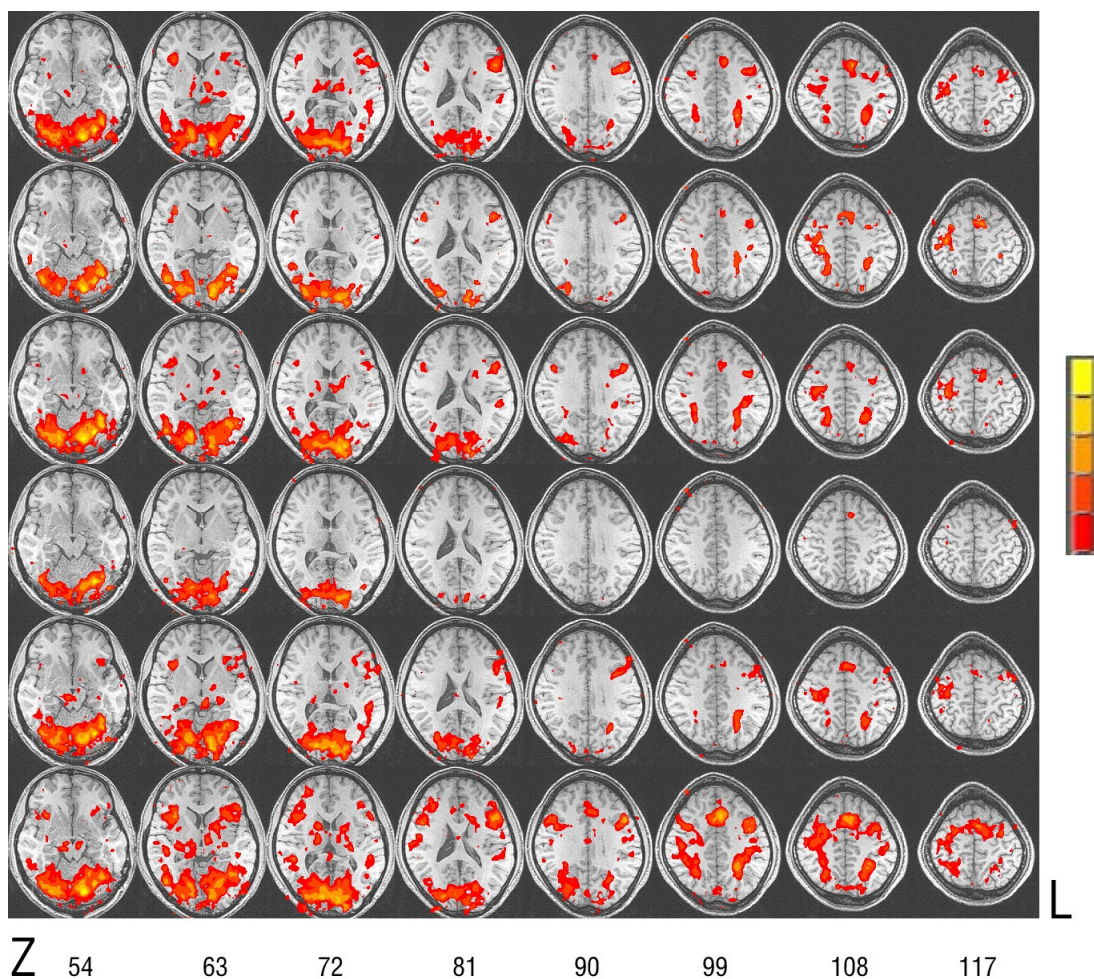


图 1 (设定 P 值为 0.0098) 从上往下, 依次列出的是 N+V; V+N; N+A; A+N; V+A; A+V 6 种线性词语序列的激活图。

#### 4 基于 fMRI 实验结果的讨论

语言理解功能的完成, 不仅需要语言区和非语言区的脑机制相互协调, 而且需要左脑和右脑相互协作

自 1861 年 Broca 发现左额叶为语言功能区, 这是人类历史上第一次明确提出的脑区与语言功能之间的对应关系, 1874 年 Wernicke 发现左颞叶为第二个语言功能区, 从此以后, 神经语言学的研究主题之一就是验证 Broca 和 Wernicke 两位学者的观点, 但学者们的研究方法只能是依靠失语症患者的语言缺失来推断某个脑区与语言功能之间的相关性, 随着神经科学的飞速进展, 出现了 fMRI 和 ERP 这样的新型无创性技术, 可以实现对大脑活动的动态实时记录。随着失语症测试、fMRI

实验和 ERP 实验的不断展开，越来越多的学者发现 Broca 和 Wernicke 当年所认定的语言区似乎过于绝对，因为一方面，学者们发现，有的患者左额叶或左颞叶受损但并不表现出语言障碍，另一方面，学者们发现，有的患者是左额叶和左颞叶之外的脑区受损，但却表现出语言障碍。尤为值得指出的是，通过 fMRI 实验，人们发现被试在完成一定的语言实验任务时，通常都伴有语言区和非语言区的脑区的激活，因而，Broca 和 Wernicke 的论断在当今神经语言学领域已经越来越受到质疑，这也反映了“定位说”和“整体说”之间的争论。

我们的实验结果表明 N+V、V+N、N+A、A+N、V+A、A+V 这 6 种不同的线性词语序列，不仅在众所周知的语言区，即左侧额上回，有共同的显著激活区域，而且在左侧后顶叶，右侧后顶叶均有共同的显著激活区域。这表明语言能力的体现，不仅有左脑的所谓的语言区的参与，亦有左脑和右脑的其他相关脑区的协作。

N+V、V+N、N+A、V+A、A+V 这 5 种不同的线性词语序列，共同的显著性激活区域包括：左侧额上回，左额叶内部，左侧中央前回，左侧后顶叶，右额下回内部，右侧后顶叶。其中，左侧额上回、左额叶内部和右额下回内部属于语言区，左侧中央前回、左侧后顶叶和右侧后顶叶属于非语言区。

通过这两者的对比可知，A+N 所缺乏的而其他词语序列具有的共同激活区域为左额叶内部、右额下回内部和左侧中央前回。

此外，6 种不同词语序列所激活的非共同激活区为：左侧额中回，左侧额下回，左颞上回后部，左侧丘脑，左岛叶，左侧丘脑，右侧额上回，右侧额下回，右颞上回后部，右颞下回后部，右侧中央前回，右侧中央后回，右侧丘脑。

我们认为，不考虑每个词语序列各自不同的激活区域，仅从这 6 种不同的词语序列的共同激活脑区来看，就包含了左侧额上回，左侧后顶叶和右侧后顶叶。本文的这一实验结果表明，语言理解功能的完成，不仅需要语言区和非语言区的脑机制相互协调，而且需要左脑和右脑相互协作。以往所认为的语言功能主要由语言区，比如，左额叶或左颞叶，完成的观点，在此得到了实验事实的修正，但语言区和非语言区，左脑和右脑究竟如何协作，则还有待于进一步研究。

Chomsky 所提出的语言能力的原则和参数观点的正确性，即语言的句法操作系统遵循人类普遍具有的原则，亦体现一定的参数差异。众所周知，原则与参数观点提出之前的生成语法认为，每种语言都有特殊的词组结构规则和转换规则，比如意大利语的动词词组结构规则和日语不同，英语的使役形成转换规则和法语不同。原则与参数观点提出之后，人们很快就清楚了，事实上，所有跨语言的句法变化都可从参数角度去探讨，这样语言特有的规则系统的概念就不再适用了，个别语法是普遍语法在一套特定的参数值下的直接体现。在原则与参数这种新方法中，普遍语法不仅是语法的元理论，而且也成为个别语法的整体要素。普遍语法为一套普遍原则系统，其中的一些原则包含参数，采用数量有限的方法能够确定参数。以某种方式确定参数后，普遍语法就可直接推导出个别语法，比如意大利语，法语，汉语等都是

普遍语法的直接表述, 它们都具有一套特殊的、不同的参数值。这样, 就不存在语言特有的规则系统了, 各种语言的结构式都是通过普遍语法的原则, 加上选择特殊的参数, 直接计算得出的, 特殊结构规则的概念也不存在了。

我们提到德国科学家 Mariacristina Musso 等人运用 fMRI 实验技术发现被试在面对意大利语或日语的真实语法规则时, Broca 区的激活明显增加, 从而证实 Chomsky 提出的人脑先天存在语言能力的观点。有鉴于此, 本文认为在 fMRI 的实验结果上, 这 6 种不同的词语序列就应既有一致的激活区域得到体现, 亦有相异的激活区域得到体现。一致的激活脑区是语言普遍原则的脑机制体现, 相异的激活脑区是具体参数的脑机制体现。应该说, 我们所陈述的 6 种不同词语序列的脑激活区域充分证明了 Chomsky 原则与参数观点的正确性。我们所研究的 N+V、V+N、N+A、A+N、V+A、A+V 这 6 种不同的线性词语序列, 既遵循普遍的语言原则, 亦体现一定的参数差异。我们知道, 关于词组结构问题, 存在 3 种截然不同的基本观点, 第 1 种观点以 Chomsky 为代表, 他认为词组结构只是从词库中选择合适的词项, 而后按照一定的句法构造原则和设定的具体参数组构而成, 这种观点是 Chomsky 原则与参数理论的体现。第 2 种观点以邓思颖、李亚非先生为代表, 他们认为, 只有一种统一的基本词组结构, 其他的词组结构都是以此词组结构为基准, 通过参数选择来生成的。其间的分歧在于, 邓思颖先生认为汉语的基本语序是“主动宾”, 李亚非先生认为汉语的基本语序是“主宾动”。第 3 种观点以朱德熙、陆俭明先生为代表, 他们认为存在各种不同的基本词组结构类型, 把这些不同的基本词组结构的构造规则研究清楚了, 那么也就掌握了语言的句法规则。也就是说, 每种词组结构类型都由不同的句法规则产生。

李亚非先生, 邓思颖先生认为 N+V 和 N+A 这两种主谓结构应是基本的词组结构, 按一般的逻辑推理, 这两种结构就应比其他类型的词组结构的激活区域少, 因为作为基本的词组结构一定应该比在此基本词组结构基础上生成的其他词组结构更为容易把握, 方才正确。但事实上, N+V 和 N+A 这两种主谓结构的激活区域并不比其他词组结构的少。由我们所作的实验结果统计分析可以清晰地看到这一点, 恰恰是 A+N 这种偏正结构的脑激活区域是最少的, 因而李亚非先生和邓思颖先生的观点在本文无法得到实验数据的支持。

朱德熙先生、陆俭明先生认为各种词组结构都是基本的词组结构, 应有各自得以形成的不同的结构规则, 在 fMRI 的实验结果上, 就应只有相异的激活区域得到体现, 而没有共同的激活区域得到体现, 但实验事实并非如此, 6 种不同的词语序列具有共同的脑激活区域, 因而朱德熙先生、陆俭明先生和马庆株先生的观点在本文亦得不到证实。

因而, 我们的实验结果, 充分证明了 Chomsky 所提出的语言能力的原则和参数观点的正确性, 即语言的句法操作系统遵循人类普遍具有的原则, 亦体现一定的参数差异。但形成各种词组结构的统一原则, 究竟是 Chomsky 所提出的演算系统中的

合并原则，还是移位原则，还是合并原则和移位原则共同起作用，则有待于我们结合 ERP 的实验结果作进一步的探讨。

李亚非先生和邓思颖先生的观点亦有其合理之处，即他们都强调语法的普遍原则，只是他们将着眼点放在了依据普遍原则和一定的具体参数所生成的某个特定的词组结构上，比如，“主宾动”和“主动宾”结构，认为这种结构是基本词组结构，而这恰恰与 Chomsky 2002 提出的新观点“语言研究不应注重结构和规则，而应注重原则和参数”相违背。

朱德熙先生，陆俭明先生，马庆株先生的观点亦有其合理之处，即他们都强调构成各种词组结构的具体参数的差异，而忽视了各种词组结构赖以形成的普遍句法原则，因而他们认为各种词组都是基本词组结构，把这些词组的构造规则弄清楚了，那么语言的句法特性就认识清楚了。如果在承认各种词组结构都遵循普遍的句法构造原则的基础上，强调探究各种词组结构得以生成的具体参数为何，那么就是十分正确的理论观点。

在此分析基础上，我们知道所得出的 6 种不同线性词语序列两两比较之后体现出的显著性差异，则是参数层面上的差异，亦即在演算原则的基础上，各种不同的线性词语序列得以形成的参数规则是存在具体差别的。

1、N+V 主谓结构和 A+N 偏正结构之间有显著性差异，主要激活差异脑区为：左额上回，左额中回，左额下回，左颞上回，左颞下回后部，左侧后顶叶，左侧岛叶，左侧中央沟附近，右侧额下回内部，右颞中回，右侧后顶叶，辅助运动区，左侧中央前回，左侧中央后回。其中左额中回，左额下回，右侧颞叶，左后顶叶，左侧中央后回最显著。这一实验结果说明 N+V 主谓结构和 A+N 偏正结构不在同一层次上，但 N+V 主谓结构究竟和 A+N 偏正结构属于不同的句法结构，还是两者根本就属于不同的语法范畴，则有待于进一步讨论。但在此有一点可以作出推断，即从功能上看，N+V 主谓结构属于动词性结构，A+N 偏正结构属于名词性结构，两者之间的脑激活区域的显著性差异，反映了两种不同词组结构类型在功能上的区别。

2、N+A 主谓结构和 A+N 偏正结构之间有显著性差异，主要激活差异脑区为：左额上回，左额中回，左额下回，左颞上回，左颞下回，左侧后顶叶，左侧岛叶，左侧中央沟附近，右额下回内部，右颞中回，右侧后顶叶，辅助运动区，左侧中央前回，左侧中央后回。其中左额中回，左额下回，右侧颞叶，左后顶叶，左侧中央后回最显著。这一实验结果说明 N+A 主谓结构和 A+N 偏正结构不在同一个层次上，但究竟 N+A 主谓结构和 A+N 偏正结构属于不同的句法结构，还是两者根本就属于不同的语法范畴，还有待于进一步探讨。但在此有一点可以作出推断，即从功能上看，N+A 主谓结构属于动词性结构，A+N 偏正结构属于名词性结构，两者之间的脑激活区域的显著性差异，反映了两种不同词组结构类型在功能上的区别。

3、V+N 动宾结构和 A+N 偏正结构之间有显著性差异，主要激活差异脑区为：左额上回，左额中回，左额下回内侧，左颞下回后部，左侧后顶叶，右额下回内

部，右颞中回，右颞上回后部，右侧后顶叶，辅助运动区，左侧中央前回，左侧中央后回。其中左额中回，左额下回内侧，右侧颞中回，左侧中央沟附近最显著。这一实验结果说明 V+N 动宾结构和 A+N 偏正结构不在同一个层次上，但究竟 V+N 动宾结构和 A+N 偏正结构是不同的句法结构，还是两者根本就属于不同的语法范畴，还有待于进一步探讨。但在此有一点可以作出推断，即从功能上看，V+N 动宾结构属于动词性结构，A+N 偏正结构属于名词性结构，两者之间的脑激活区域的显著性差异，反映了两种不同词组结构类型在功能上的区别。

4、V+A 动补结构和 A+N 偏正结构之间有显著性差异，主要激活差异脑区为：左额上回，左额中回，左额下回，左颞中回，右颞中回，左侧后顶叶，辅助运动区，中央前回，中央后回。其中左额中回，左额下回，左后顶叶最显著。这一实验结果说明 V+A 动补结构和 A+N 偏正结构不在同一个层次上，但究竟 V+A 动补结构和 A+N 偏正结构是不同的句法结构，还是两者根本就属于不同的语法范畴，还有待于进一步探讨。但在此有一点可以作出推断，即从功能上看，V+A 动补结构属于动词性结构，A+N 偏正结构属于名词性结构，两者之间的脑激活区域的显著性差异，反映了两种不同词组结构类型在功能上的区别。

将 6 种不同类型的词语序列归并为 4 种不同的词组结构，主谓结构、偏正结构、动宾结构和动补结构来看待，由 fMRI 的实验结果可知：

主谓结构与偏正结构之间具有显著性差异，具体表现在 N+V 主谓结构和 A+N 偏正结构，N+A 主谓结构和 A+N 偏正结构，而没有表现出差异的是 N+V 主谓结构和 A+V 偏正结构，N+A 主谓结构和 A+V 偏正结构。本着“说有易说无难”的原则，本文认为主谓结构和偏正结构之间具有显著性差异。

动宾结构与偏正结构之间具有显著性差异，具体表现在 V+N 动宾结构和 A+N 偏正结构，而没有表现出差异的是 V+N 动宾结构和 A+V 偏正结构。本着“说有易说无难”的原则，本文认为动宾结构和偏正结构之间具有显著性差异。

动补结构与偏正结构之间具有显著性差异，具体表现在 V+A 动补结构和 A+N 偏正结构，而没有表现出差异的是 V+A 动补结构和 A+V 偏正结构。本着“说有易说无难”的原则，本文认为动补结构和偏正结构之间具有显著性差异。

由上 fMRI 实验结果分析，我们发现，N+V 主谓结构、N+A 主谓结构、V+N 动宾结构、V+A 动补结构与 A+N 偏正结构相比，均具有显著性差异，这表明 A+N 偏正结构一定是某种特殊的结构。这里可以肯定的是，N+V 主谓结构、N+A 主谓结构、V+N 动宾结构和 V+A 动补结构都是动词性词组，只有 A+N 偏正结构是名词性结构，因而其他词组和 A+N 偏正结构相比，均具有显著性差异。

## 5 结语

1 本文的实验结果证明，语言理解功能的完成，不仅需要语言区和非语言区的脑机制相互协调，而且需要左脑和右脑相互协作。



2 N+V、V+N、N+A、A+N、V+A、A+V 这 6 种不同的线性词语序列，不仅在众所周知的语言区，即左侧额上回，有共同的显著激活区域，而且在左侧后顶叶，右侧后顶叶均有共同的显著激活区域。这充分证明了 Chomsky 所提出的语言能力的原则和参数观点的正确性，即语言的句法操作系统遵循人类普遍具有的原则，亦体现一定的参数差异。

3 主谓结构和偏正结构的关系是：共同遵循普遍的句法构造原则，但赖以形成的具体参数不一样。N+V 主谓结构和 A+N 偏正结构（最主要激活差异脑区为左额中回，左额下回，右侧颞叶，左侧中央后回，左后顶叶）之间存在显著性差异。N+A 主谓结构和 A+N 偏正结构（最主要激活差异脑区为左额中回，左额下回，右侧颞叶，左侧中央后回，左后顶叶）之间存在显著性差异。

4 偏正结构与主谓结构，动宾结构和动补结构之间的关系是：共同遵循普遍的句法构造原则，但赖以形成的具体参数不一样。A+N 偏正结构和 N+V 主谓结构（最主要激活差异脑区为左额中回，左额下回，右侧颞叶，左侧中央后回，左后顶叶）之间存在显著性差异。A+N 偏正结构和 N+A 主谓结构（最主要激活差异脑区为左额中回，左额下回，右侧颞叶，左侧中央后回，左后顶叶）之间存在显著性差异。A+N 偏正结构和 V+N 动宾结构（最主要激活差异脑区为左额中回，左额下回内侧，右侧颞中回，左侧中央沟）之间存在显著性差异。A+N 偏正结构和 V+A 动补结构（最主要激活差异脑区为左额中回，左额下回，左后顶叶）之间存在显著性差异。

### 附录 1 实验刺激材料

雪花飞舞	父亲休息	李四玩耍	孩子睡觉	
小张洗澡	母亲理发	红旗飘扬	案件侦破	
警察巡逻	冰雪纵横	大会开幕	质量检验	
夜幕降临	火焰熄灭	小王落选	药物失效	
工厂倒闭	信号中断	情绪波动	谜底揭晓	
毒品泛滥	态度端正	气温下降	老李上班	
罪行曝光	小李站岗	机场关闭	利率下调	
思潮起伏	高山缺氧	车辆维修	气氛缓和	N+V
行使主权	保卫祖国	邀请客人	打扫庭院	
抓住机遇	环顾全球	达到目的	充满信心	
陷入困境	举行典礼	分散力量	开除学籍	
招收学生	传播疾病	庆祝生日	返回北京	
打听消息	等待机会	帮助同学	收拾行李	
采集标本	遗失皮包	投入时间	改造房屋	
精通外语	尊敬老师	提拔干部	漫步湖畔	

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离开故乡	横穿海峡	通过边境	攀登山峰	V+N
天气晴朗 阳光灿烂 土地肥沃 心情苦闷 枝叶茂盛 功能强大 性格古怪 脾气暴躁	场面热闹 形势危急 内容丰富 矛盾尖锐 身手敏捷 声音响亮 价格便宜 立场鲜明	江山秀丽 手段卑鄙 情况复杂 腿脚灵便 视线模糊 病情严重 样子美观 精神抖擞	儿子聪明 市场繁荣 身材高大 体格健壮 脸色难看 队列整齐 头脑冷静 环境幽雅	N+A
新鲜蔬菜 伟大成就	漂亮宝贝 重要力量	光辉形象 美好时刻	友好关系 客观规律	
正式会议 神秘事物 豪华公寓 广大群众 紧急任务 普通家庭	袖珍电视 奇特场景 名贵药材 新兴行业 基本路线 美满婚姻	大型舞蹈 优良品质 精彩人生 时髦话题 迷人景色 杰出人物	特殊商品 秘密武器 贵重物品 公平竞赛 顶尖高手 薄弱环节	A+N
漂洗干净 提供方便 保持稳定 淘汰落后 排列整齐 管理完善 感到荣幸 配合熟练	合作愉快 运转良好 走向强盛 消化不良 经营混乱 对抗激烈 消除贫困 争取主动	恢复平静 分析深入 发扬民主 保存完好 交接成功 核查清楚 安排及时 支持独立	克服困难 批改认真 操作谨慎 供暖充足 减轻痛苦 指导细致 书写流利 调解失败	V+A
广泛拥护 仔细盘算 根本转变 显著提高 激昂奋进 直接浏览	出色完成 普遍采用 大胆尝试 切实加强 坚决制止 迅速增长	剧烈颤动 严格限定 平稳降落 正确对待 认真落实 团结起来	重大突破 自觉开展 明显改善 顺利进行 努力贯彻 深刻把握	



妥善保存	严厉批驳	适当调节	热诚相待	
完全统一	殷切期待	合理配置	热烈欢呼	A+V

**参考文献:**

- 程 工 《语言共性论》，上海外语教育出版社，2000，1-139。
- 邓思颖 自然语言的词序和短语结构理论，《当代语言学》2000，第2期：138-154。
- 丁声树等 《现代汉语语法讲话》，商务印书馆，1961，1-228。
- 范 晓 《汉语的短语》，商务印书馆，1991，60-194。
- 李亚非 多变的语序、统一的词组结构，《中国语文》2001，第1期：16-26。
- 刘宁生 汉语偏正结构的认知基础及其在语序类型学上的意义，《中国语文》1995，第2期：81-89。
- 陆俭明 对“NP+的+VP”结构的重新认识，《中国语文》2003，第5期：387-391。
- 吕叔湘 《汉语语法分析问题》，商务印书馆，1979，1-113。
- 吕叔湘 《中国文法要略》，商务印书馆，1982，1-463。
- 马庆株 1997 词组的研究，《语言教学与研究》第4期：105-118。
- 沈家煊 1999 《不对称和标记论》，江西教育出版社，1-36。
- 石定栩 2000 汉语句法的灵活性和句法理论，《当代语言学》，第1期：18-26。
- 石毓智 2001 现代汉语的动补结构：一个类型学的比较研究，北京语言文化大学出版社，5-45。
- 索绪尔 1980 《普通语言学教程》，商务印书馆，170-190。
- 王 力 1985 《中国现代语法》，商务印书馆，1-402。
- 文 炼 胡 附 1984 汉语语序研究中的一些问题，《中国语文》，第3期：161-165。
- 杨亦鸣 曹明 沈兴安 2000 国外大脑词库研究概观，《当代语言学》，第3期：90-108。
- 杨亦鸣 张强 2002 1994-1997 年中国神经语言学研究综述，《中国语言学年鉴（1995-1998）》语文出版社，393-407。
- 杨亦鸣 沈兴安 2002 介绍《神经语言学和语言失语症导论》，《外语教学与研究》，第2期：476-477。
- 杨亦鸣 沈兴安 方环海 翁旭初 2003 汉语量词及其分类的神经机制与相关问题探讨，《中国语言学报》，第11期：147-161。
- 杨亦鸣 沈兴安 2004 《论天性与语言》评介，《语言科学》，第5期：95-99。
- 詹卫东 2000 《面向中文信息处理的现代汉语短语结构规则研究》，清华大学出版社、广西科学技术出版社，1-174。
- 朱德熙 1982 《语法讲义》，商务印书馆，9-231。

- 朱德熙 1982 《现代汉语语法研究》，商务印书馆，3-224。
- Caplan,D. 1997 *Neurolinguistics and Linguistic Aphasiology*. Cambridge, Mass: Harvard University Press.
- Chomsky,N. 1995 *The Minimalist Program*, MIT Press, Cambridge, Mass.
- Chomsky,N. 1998 “Minimalist Inquiries: The Framework”, ms., MIT. In MIT Occasional Papers in Linguistics No. 15. Cambridge, Mass: MITWPL.
- Chomsky,N. 1999 “Derivation by Phase”, MIT Occasional Papers in Linguistics 18 Mass : MITWPL.
- Chomsky,N. 2000a. *Minimalist Inquiries: The Framework*. In R.Martin, D.Michaels, and J.Uriagereka,eds., *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*. Cambridge,Mass:MIT Press.
- Chomsky,N. 2000b. *New Horizons in the Study of Language and Mind*. Cambridge, Mass:U. of Cambridge press.
- Chomsky,N. 2001a. *Beyond explanatory adequacy*. Cambridge,Mass:MIT Press.
- Chomsky,N. 2001b. *Derivation by phase*. In Ken Hale: A life in Language, ed. Kenstowicz, ed. Cambridge,Mass:The MIT Press.
- Chomsky,N. 2002 *On Nature and Language*. Cambridge: U. of Cambridge press.
- Cohen M. S., Bookheimer S. Y. 1994 Localization brain function using magnetic resonance imaging. *Trends in NeuroScience*, , 17:268-277.
- Elena Nicoladis 2002. The Cues That Children Use in Acquiring Adjectival Phrases and Compound Nouns: Evidence from Bilingual Children. *Brain and Language*, Volume 81, Numbers 1/2/3.
- Hauser MD, Chomsky N, Fitch WT. 2002. The faculty of language: what is it, who has it, and how did it evolve. *Science*, 298:1569--1579
- Kathryn S. Brown 1999. Grammar's Secret Skeleton. *Science*, 5:774-775.
- Lai, C.S.L 2001. A novel forkhead-domain gene is mutated in a severe speech and language disorder. *Nature*, 413(6855): 465-466.
- Loraine K.Obler and Kris Gjerlow 1999 *Language and the Brain*. San Diego, CA: Academic Press.
- Mariacristina Musso 2003 Broca's area and the language instinct. *Nature Neuroscience*. 6:774 – 781