中央研究院歷史語言研究所會議論文集之二

中國境內語言暨語言學

第四輯　語言類型

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出版說明

中央研究院歷史語言研究所語言組自民國七十九（1990）年夏季起舉辦「第一屆中國境內語言暨語言學國際研討會」，得到國內外中國語言學界熱烈的支持，進而繼續於民國八十（1991）年舉辦第二屆。至民國八十一（1992）年時，承國立清華大學語言學研究所共襄盛舉，接辦第三屆，至此又開啓與國內其他相關單位接力合作的新局面，也希望自此都能維持這種中央研究院歷史語言研究所與國內其他單位交替舉辦的形式。當時亦決定改爲隔年舉辦的方式，一方面是有鑑於語言學學門在近二十年來生氣蓬勃，各種國際會議甚多，本會自始便採規模小、有重點之方式，似不需以年會方式舉辦；另一方面亦考慮到承辦是項會議在籌備過程中事務性作業的負擔，因此自第四屆會議開始便改爲每兩年舉辦一次，在民國八十三（1994）年夏季召開，並再度由中央研究院歷史語言研究所語言組主辦。

這項會議的特色，有下列數點：一、每屆會議皆有主題，如第一屆會議的主題是漢語方言，第二屆會議的主題是歷史語言學，第三屆會議的主題是詞法與詞彙，本屆（第四屆）的主題是語言類型。二、所有送交會議的摘要，都經過匿名審查的作業，每篇摘要送交二位專家審查，再經會議聘請的議程委員會議決錄取的論文。所有錄取在會議中發表的論文，都需要在會前由作者將論文全文提交大會，由主辦單位彙整，印製成會前論文集，在會議時提供與會人士。三、會後論文集都由中央研究院歷史語言研究所出版專輯，定名爲「中央研究院歷史語言研究所會議論文集之二」(Symposium Series of the Institute of History and Philology, Academia Sinica, Number 2)，採序號制，成爲一個系列。並自第三屆會議後開始，採責任編輯制。論文修訂稿於會後交予主辦單位所組成的編輯小組，每篇論文都比照有審查制度的學術刊物的審查程序，至少由二位審查人匿名審查。編輯小組於完成集稿與送審之程序後，送交中央研究院歷史語言研究所出版品編輯委員會審核，通過後出版。本論文集在完成上述手續後，正式定名爲：「中央研究院歷史語言研究所會議論文集之二，中國境內語言暨語言學第四輯：語言類型」(Symposium Series of the Institute of His-

tory and Philology, Academia Sinica, Number 2, Chinese Languages and Linguistics IV: Typological Studies of Languages in China)。

本屆（第四屆）會議共收到一一四篇摘要，經審查後錄取二十篇，錄取率爲百分之十七點五，爲歷屆之最低，足證本會在語言學同行間所受到之重視與肯定。在會前有一位作者因故撤回論文，因此大會論文自二十篇變爲十九篇。加上專題演講論文五篇，及原不需附論文之特約討論人熱心提供論文二篇，會前論文集共收入二十六篇論文。會後有一位作者撤回修訂稿，一位在會前未附文稿的特約討論人再加送論文一篇，因此編輯小組一共收到二十六篇修訂文稿送審，經審查後錄取二十二篇。這一輯內容的安排，循往例把專題演講及特約討論的文稿七篇按作者姓氏放在前面，以下再按作者姓氏排列會議論文，並在目錄中將每位作者的中文與英文姓名並列，以便讀者辨認及引用。

在這本論文集即將付梓之際，首先要感謝中央研究院歷史語言研究所及行政院國家科學委員會的贊助，給予我們經費上的支持。個人特別要感謝所有的作者和審查人，以及在不同階段參與編輯工作的同仁們。自開始籌備會議一直到這本論文集的編輯過程，都使個人深深感到語言學就一個獨立學門而言，眞是充滿活力，同行們不但熱心，也已有相當水準的學術倫理和學術紀律。我們這個學門的前景，應是充滿希望的。盼望有更多的同好，投入語言學的行列。個人在籌備會議以來，受到同行們的諸多鼓勵與肯定，除始料未及外，更要在此特別致上謝意。此外我也要感謝史語所語言組的同仁們對整項工作的投入，尤其是何大安先生在各方面的支持與協助。另外也要感謝李壬癸先生和龔煌城先生在編輯作業過程中的協助。最後要感謝先後參與工作的助理林佳如、余姮、曾麗玉、徐明玲及任淑華小姐，她們的配合和敬業，使得從會議的籌畫到這本集子出版的工作過程，像一首美好的交響樂章，爲大家留下團隊精神的範例。

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On Rule Effect and Dialect Classification

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Abstract

In the literature, language behavior is considered rule-governed. It is therefore appropriate to carry out linguistic analysis in terms of rules. However, in dialect comparisons, listing of shared rules simply reiterates dialect features and does not seem to produce a synthetic picture of similarity or difference. To achieve such an overall measurement of similarity, we need to study dialects in terms of "rule-effect". Some rules affect a large amount of linguistic entities such as words, while others worm their way through a very small portion of the lexicon. Quantitative information of this sort is the basis for measuring rule effects. Specifically, two effect-comparison models are presented. One is the measurement of dialect similarity, and the other is the calculation of mutual intelligibility. The similarity model mainly tabulates the ratio of shared items over all items of concern. The mutual intelligibility model incorporates a weighting hierarchy that takes into consideration communication signal enhancement and noise interference. The goal of this research is to provide a principled way to present rule effects. Language typology may be studied in terms of the numerical measurements these effect-theoretic models produce. Thus linguistics can provide description of language phenomena, explain them with rules, and give a synthetic account of rule effects.

1. Rules and Rule Effects

We conventionally analyze language change in terms of rules. For

example, 心 and 新 belonged respectively to -m ending and -n ending rimes in Middle Chinese but are now homophones in Beijing dialect. The phonological merger of this pair and of other words warrants the following rule with respect to the syllable ending:

(1) -m > -n

This rule can account for the change. And in the past we were satisfied with such a representation of language evolution. In fact, rules have been the main means for describing dialectal differences and for establishing dialect classification. For example, Ting (1982) lists 16 criteria for classification as variously discussed in Li (1937), Forrest (1948), Tung (1953), Yuan (1960), and Zhan (1981). As presented by Ting, most of the criteria relate to historical rules. These publications span half a century. They show the dominance and persistence of the concept of rules. Only a small number of the criteria concern dialect characteristics. We recast Ting's listing of those regarding initials as follows, adding "characteristics" to highlight the criteria that are not strictly derivation oriented:

(2) a. Change of Middle Chinese voiced stop initials
b. Change of Middle Chinese bilabial stops
c. Merger of f- and xu- -- characteristics
d. Change of Middle Chinese 知徹澄 initials
e. Merger of n- and l- -- characteristics
f. Change of Middle Chinese 照穿床審禪 initials
g. Palatalization of Middle Chinese velar initials
h. Loss of nasality of Middle Chinese nasal initials
i. Presence of voiced sibilants -- characteristics

Of these nine criteria, three pertain to dialect characteristics. Of course, these characteristics can be attributed to some historical rules. For example, in Wuhan and Chengdu the Middle Chinese n- and l- initials changed to an alveolar nasal that has a variant l-, hence the merger or

free variation of n- and l- (Beijing University 1962, 1989, henceforth the *Hanyu Fangyin Zihui*). Thus this characteristics criterion reflects the effects of the change of these initials. However, in the past our predominant interest in analytical mechanisms such as rule format, rule ordering, and rule interaction somehow blurred the picture of language as an integral living thing. Rule effects have not been the focus of linguistic inquiries. As we reviewed the historical rules implicit or explicit in the criteria above and in Chen (1976), Hashimoto (1979), and Tsai-fa Cheng (1985), we became more curious about what could be said regarding the consequences of those changes.

Let us return to the -m and -n merger. Historically that was what happened to Beijing and most other Northern Dialects. What effects can we describe? Naturally, the most obvious effect of this rule is that there are no more syllables ending in the bilabial nasal. That is one statement we can make to describe the dialect of Beijing. A more significant statement is to present the general phonological constraint that the bilabial nasal cannot occur in syllable-coda position. This constraint will then explain, for example, why the -m syllable-ending of loan words from another dialect or from transliteration of other languages has to be substituted by an alveolar or velar nasal.

Indeed, linguists have talked about constraints as language characteristics. Other characteristics such as word order, ergativity, case marking, and relative clauses have been the bases for making typological statements (Comrie 1989). In addition to those properties listed in (2), presence or absence of closed syllables, number of tones, etc. have been utilized to establish dialect classification. From the -m and -n merger we see that language characteristics may be introduced or changed by rules. However, characteristics are not the only type of effects we are interested in studying. As we look beyond the rules of a single language, cross-language comparisons in terms of rule effects can be discussed in several ways. Traditionally, typological studies investigate language differences and make statements on presence or absence of certain characteristics. Recently, we have ventured into the area of quantitative measurements,

hoping to answer some of the most frequently asked questions concerning Chinese: How different are Chinese dialects? Are they mutually intelligible? Our conventional answers to these questions usually reiterate the classification criteria. For example, we would say that in Northern Dialects the Middle Chinese -m ending has merged with -n while in the dialects in the south -m remains. That shows dialectal differences, indeed. But does that merger make northern dialects unintelligible to southern dialect speakers? Does that rule make northern and southern dialects very different? What is the degree of difference? Our quantitative studies of Chinese dialects have attempted to establish some methods for numerical measurements of dialect similarity and mutual intelligibility (Cheng 1982, 1992, 1994). We hope to be able to discuss rule effects quantitatively and therefore more definitively. We feel that the following are interesting and fertile areas to focus our attention and to raise new sets of linguistic questions.

(3) Rule effects on dialect

a. Characteristics -- qualitative-quantitative statements

b. Similarity -- quantitative measurements

c. Mutual intelligibility -- quantitative measurements

Typological studies of various languages in the past have provided abundant examples of how to compare language characteristics qualitatively. We have indicated above how rules change language constraints and other characteristics. Therefore we propose that both rules and rule effects be stated to give a fuller picture of a comparison. In (3) we label this comparison as a type of qualitative-quantitative investigation. In reality, quantitative information is often implicitly used. For example, to say that in Beijing the syllable coda cannot be -m means that all the syllables ending in -m earlier in history have been changed to end in -n. "All", "none", and "some" are quantifiers. Thus judgments on language characteristics often take quantity into consideration. This type of quantification, however, has been used inconsistently, with varying de-

grees of precision and verifiability. The discussion above has shown that rule effects should be an important part of a rule analysis. In the remainder of this paper we will examine the possibilities of quantifying rule effects on dialect similarity and mutual intelligibility.

2. Rule Effects on Dialect Similarity

We will examine the effects of the rule contained in criterion (2a) pertaining to the historical change of voiced stop initials. It is well known that the voiced stops have remained in Wu and some Xiang dialects as voiced but have become devoiced in other dialects. To see the effects of devoicing, we will specifically study Beijing, a Northern Dialect, and Suzhou, a Wu variety.

To see the extent the change of voiced stops affects the similarity between Beijing and Suzhou, we need to define the carriers of the change. A phonological change such as this one is carried by words. In Chinese a word is normally coterminous with a syllable. Thus we may use "word", "syllable", and "lexical item" interchangeably. We have tabulated the occurrences of the items derived from these Middle Chinese initials. In the following listing the first consonant in each line is for Middle Chinese. The modern reflexes are given after the colon. The number of items affected are given under Beijing and Suzhou separately. The database is the DOC (Dictionary on Computer) file that has been partially updated according to the second edition of the *Hanyu Fangyin Zihui*.

(4)

		Beijing	Suzhou
a.	b : b		82
b.	b : p	38	
c.	b : p^h	39	
d.	b : f	2	
e.	d : d		107
f.	d : t	56	1
g.	d : t^h	53	2

h.	g : g		6
i.	g : dʐ		55
j.	g : tɕ	27	2
k.	g : tɕ^h	29	
l.	g : k	3	
m.	g : k^h	2	
n.	Total	249	255

First, the two total numbers are different because alternative readings for individual words are included. The devoicing in Beijing actually involves two features. The voiced stops became voiceless aspirated in Even tone and voiceless unaspirated in Oblique tones. All the items involved are uniformly voiceless and thus the rule has created the phonotactic that there are no voiced stops in modern Beijing. The aspiration part of the change is not without exception, for example, 特 and 突, which were in an Oblique tone and are now pronounced with an aspirated alveolar stop. Furthermore, in both Beijing and Suzhou, palatalization of the velar initials has occurred. The Beijing f- initial occurrences are the two readings of the word 埠, in low tone and in high falling tone.

The five items pronounced with voiceless initials t-, t^h-, and tɕ - in Suzhou are shared by Beijing. However, they perhaps should be excluded from this table. In Suzhou the item 跌 pronounced with a voiceless unaspirated alveolar stop and 挺 艇 both with a voiceless aspirated alveolar stop might not have been derived from the voiced alveolar stop. The words 菌 and 窘 both with a voiceless palatal affricate appeared in the first edition of the *Hanyu Fangyin Zihui* but have been deleted in the second edition. If we omit these five items from consideration, then regarding the evolution of the Middle Chinese voiced stops, Beijing and Suzhou do not share any items. They are entirely dissimilar.

The total dissimilarity here is obvious by inspection of the disjunctive occurrence of the items. But when the items involved are numerous and the occurrence patterns are complex, we need to have a method to

calculate the degree of similarity. Similarity measurements are mostly based on the ratio of shared items to the total number of items considered. The tabulation of the "total number of items considered" is somewhat tricky. As we compare several dialects, say dialects A, B, C, and D at the same time, the items that occur in dialect C or D but do not occur in dialects A and B, might be counted in the total number of items considered when we compare dialects A and B. Ma (1989), Tu and Cheng (1991), Wang and Shen (1992), and Tu (1994) have reviewed various correlation methods and have pointed out such inflation of coefficient values in Cheng (1982). Now we have come to favor Jaccard's coefficient, which excludes the non-occurring items in the computation:

(5) $a/(a+b+c)$
where a: number of items shared by both dialects
b: number of items occurring in one dialect only
c: number of items occurring in the other dialect only.

The calculation of similarity based on the numbers given in (4) for the effects of the change of the Middle Chinese voiced stops is either (6a) if we exclude or (6b) if we include those five items:

(6) a. $0/(0+244+250)=0$
b. $5/(5+244+250)=0.010$

By definition, this similarity index ranges from 0 to 1.Thus the historical devoicing rule contributes no or extremely small value of similarity between Beijing and Suzhou. An overall similarity comparison will have to consider more cases. In Cheng (1991) 3,373 cases of initials, finals, and tones were used to calculate a phonological similarity matrix for 17 Chinese dialects. In the literature, presentation of the number of instances attesting to historical correspondences is quite common. For example, just to be critical of ourselves, Cheng and Wang (1971), Chen (1976), and Wang and Cheng(1987) have extensive lists of numbers variously show-

ing correspondences for initials, finals, and tones between Middle Chinese and modern dialects. But those numbers are simply numbers of instances; no principled ways of synthesis are given in those studies. Here in this paper we are using devoicing as an example to show how to quantify rule effects.

The use of the DOC database for quantification of similarity, affinity, and mutual intelligibility deserves some comments. The items in the database were collected from the first edition of the *Hanyu Fangyin Zihui* and partially updated on the basis of the second edition. The *Hanyu Fangyin Zihui* contains phonological information for over 2,700 common words. Those words were not selected according to some sampling principles. Consequently one could question the validity of the data as a fair sample for prediction of the nature of the dialects. Selection of linguistic data for quantification has always been a substantive as well as methodological issue. The "basic" lexicon in glottochronology limiting the size to a couple hundred items would not be a good representative for our purposes. We maintain that the larger lexicon of the *Hanyu Fangyin Zihui* would allow us to make various sorts of inquiries. Much as we wish to claim the predictive power of our quantification, a moderate view of taking this research as a population study of this particular collection of data would help us jump over the hurdle of statistical sampling and allow us to venture into different modes of linguistic inquiry.

Now we return to the effect of the devoicing rule as calculated in (6). The zero similarity means that the rule made Beijing and Suzhou entirely dissimilar in the voicing contrast of initials. This dissimilarity, however, does not make us feel that Beijing and Suzhou are two totally different languages. Other elements are similar or identical in these dialects and contribute positively to similarity as discussed in Cheng (1991). Another reason that we consider Beijing and Suzhou, and for that matter all other varieties, as dialects of the Chinese language is that they have fairly regular corresponding elements. This point brings up correspondence patterns and dialect mutual intelligibility for investigation of rule effects.

3. Rule Effects on Dialect Mutual Intelligibility

Since Middle Chinese, historical rules have changed linguistic entities and patterns of the speech in various regions. Deterioration and enhancement of dialect mutual intelligibility are the most obvious effects of rules such as those given earlier in (2). Mutual intelligibility, in spite of its vague definition in the past, has been used as a criterion for language subgrouping by linguists. Social scientists and non-professionals often demand a definitive answer from linguists to their questions about mutual intelligibility. We have poked around for years; it is time for us to try to answer this challenge. The motivation, weight assignments of characteristics, and procedural details for calculating mutual intelligibility have been presented in Cheng (1992, 1994). In essence, we take the view that human pattern cognition is based on observation of repeated phenomena. That is, repetition lends its weight of numbers to pattern formation. In dialect communication, the recurrence of corresponding elements on the basis of cognates, such as Beijing initial p- to Jinan p- and Beijing n- to Jinan l-, forms correspondence patterns. Some correspondence patterns involve many members such as words while others contain only a small number of entities. It is therefore useful to divide patterns into major and minor ones. Major patterns give a sense of regularity and therefore are considered as communication enhancing signal. On theother hand, minor patterns are exceptions and can act as interfering noise.

Intuitively we feel that between a pair of dialects, say A and B, the intelligibility of dialect B for dialect A may not be identical to that of dialect A for dialect B. Hence we use the term "source dialect" and "target dialect" to refer to the way corresponding patterns are established. First we set up the patterns according to the elements in dialect A. We then calculate the one-way unidirectional intelligibility value. Then we collect the correspondence patterns according to the elements in dialect B and calculate the intelligibility. This differentiation thus recognizes the needs to derive unidirectional intelligibility as the first step of the calcula-

tion of mutual intelligibility. We take the mean of the two unidirectional intelligibility degrees to be the mutual intelligibility of the two dialects. A crucial issue of the calculation is the determination of importance or weight of various correspondence patterns. We have established a weight scale in Cheng (1992, 1994). The scale using a unitary 1 as the full value takes into account the type of correspondence patterns (signal or noise) and the nature of the corresponding items (same or different). When the dialects have the same items in a major pattern, the intelligibility is the highest, for example, Beijing p- corresponding to Jinan p-. If the target-dialect element is different from that of the source dialect and that element occurs elsewhere in non-cognate items in the source dialect, then the confusability is the highest. For example, the correspondence of Jinan l- to Beijing n- involving a single item might allow Beijing to wrongly take that item as an item in Beijing l-. Other situations obtain more moderate values. The weight scale is as follows:

(7)	Signal	Noise
For each item in a pattern, the target-dialect		
a. element is the same as that of the source dialect:	1.00	-0.25
b. element is different from that of the source dialect		
i. and does not occur in the source dialect:	0.50	-0.50
ii. and occurs elsewhere in the source dialect:	0.25	-1.00

In (2) we list the dialect subgrouping criteria concerning initials. In order to discuss some of them to show rule effects, we need to give proper weight to initial consonants. Since we use cognate syllable-words to establish correspondence patterns, we may assign one-fifth of the unitary value 1 to each of the five traditional segments of initial, medial, nuclear vowel, ending, and tone. Thus the weight scale for each of the segments is as follows:

(8)	Signal	Noise
For each item in a pattern, the target-dialect's phonological		
a. element is the same as that of the source dialect:	0.20	-0.05

b. element is different from that of the source dialect

i.	and does not occur in the source dialect:	0.10	-0.10
ii.	and occurs elsewhere in the source dialect:	0.05	-0.20

Now let us examine how the devoicing rule affects the mutual intelligibility between Beijing and Suzhou as an example to show rule effects. First, patterns of sound correspondence on the basis of cognate words have to be established. We will use Beijing as the source dialect and Suzhou as the target dialect to inspect one-way intelligibility. Let us start with the bilabial. The Middle Chinese voiced bilabial stop has changed into voiceless unaspirated stops in Oblique tones. This is part of the generalization we made earlier concerning the devoicing rule in Beijing. However, the p- initial from Middle Chinese p- has remained unchanged in both Beijing and Suzhou. The Beijing p- therefore corresponds to Suzhou b- and p-. Thus, one effect of the devoicing is the merger of the earlier p-b distinction within Beijing and the creation of p:b and p:p correspondence patterns between Beijing and Suzhou. Following are the patterns showing the voiceless-voiced correspondence containing 41 items and the voiceless-voiceless correspondence having 93 items of cognate words in our DOC database.

(9)	a.	p	:	b	41
	b.	p	:	p	93

From the point of view of Beijing p-, the correspondence patterns have a mean of 67 ((41+93)/2). The p:b pattern with 41 items is less than the mean. Therefore this is a minor pattern and is considered noise, interfering with intelligibility. Since the initial b- does not appear in Beijing, the unit value is -0.10 according to the weight scale. The 41 items yield a value of -4.10. The p:p pattern with identical initials has a frequency greater than the mean, and therefore it is considered communication enhancing signal. Its unit weight is 0.20 and its value is 93*0.20=18.60. So regarding Beijing p-, one pattern contributes negatively and the other

positively to intelligibility. To show the cumulative effects, we add "noise" and "signal" columns below. The values in these two columns will accumulate as we proceed to show other patterns. At the end of the calculation, we will see the cumulative values as the numerical effects of the devoicing rule.

(10)		frequency	mean	weight	value	noise	signal
a.	p:b	41	67.0	-0.10	-4.10	-4.10	
b.	p:p	93	67.0	0.20	18.60		18.60

As said before, the devoicing for words in Even tone has produced voiceless aspirated stops. We need to inspect the Beijing-Suzhou correspondence patterns for Beijing p^h-. The frequency, mean, weight, value, and cumulative sums of noise and signal in that order are given below:

(11)		frequency	mean	weight	value	noise	signal
a.	p^h:b	44	30.6	0.10	4.40		23.00
b.	p^h:p	4	30.6	-0.20	-0.80	-4.90	
c.	p^h:p^h	44	30.6	0.20	8.80		31.80

This time the weight for the p^h:b pattern is 0. 10 because its occurrence is greater than the mean but the initials are different. The 4 items of the p^h:p correspondence are irregular in two respects. First the irregularity may be due to the informant's idiosyncratic speech. For example, 品, one of the 4 items, was given with p- in Suzhou in the first edition of the *Hanyu Fangyin Zihui* and with p^h- in the second edition. Another cause of this odd correspondence might be due to irregular change. For example the word 譜 somehow acquired aspiration in many dialects except Suzhou and Wenzhou. Fortunately the frequency is too small to skew the figure drastically. The assignment of weight and the derivation of the value for the p^h:p^h pattern are straightforward. The noise and signal values are cumulative from those given in (10).

Earlier we showed that 埠 had two readings with f- in Beijing. It has

a b- initial in Suzhou. In Suzhou the initial of the word 孵 somehow has changed from a Middle Chinese fricative to b-. Thus we found Beijing f- corresponds to Suzhou b- with 3 items. The correspondence patterns for Beijing f- and their numerical values are give below:

(12)		frequency	mean	weight	value	noise	signal
a.	f:b	3	32.6	-0.10	-0.30	-5.20	
b.	f:f	57	32.6	0.20	11.40		43.20
c.	f:v	38	32.6	0.10	3.80		47.00

The avid reader will question the inconsistency of the numbers given so far. In (4) we show that Suzhou has 82 items with b- initials derived from Middle Chinese b-. But (10), (11), and (12) show a total of 88 (41+44+3) items with b- in Suzhou. The difference is due to the fact that we are looking at slightly different matters here. In (4) we give the historical origin. In (10), (11), and (12) we show the modern b- initials irrespective of their history. The occurrence of 88, then, means that the initials of six words have changed from voiceless to voiced. As an example, one of these words is 爆, which had the voiceless unaspirated bilabial stop in Middle Chinese.

So far we have accumulated 47.00 positive and -5.20 negative points for the effects of the devoicing rule. The numbers have to be interpreted in the context of all the phonological correspondence patterns between Beijing and Suzhou. To anticipate the results, we should say that there were 2,916 syllable-words in the database in the Beijing-Suzhou case. Since in the weight scale we assign 1 unit value to each syllable, by definition the maximum sum of noise and signal is 2,916 in this case. We may call the sum value of signal enhancement and noise deduction the "signal-noise value". The signal-noise value will be less than the maximum, unless the two dialects are identical in every respect, in which case the value would be the same as the number of syllables. The normalized unidirectional intelligibility index is obtained by dividing the cumulative signal-noise value by the total number of elements involved, in this case

the elements being syllables.

Up to this point, the signal-noise value is 41.8 (47 - 5.20). To continue the investigation of the effects of the devoicing rule, we need to examine the signal-noise values of all the patterns that involve the modern initials as listed under Beijing in (4). Besides p, p^h and f, whose correspondence patterns have been tabulated above, we will quantify the signal-noise values of the patterns for Beijing initials t, t^h, k, k^h, tɕ, and $tɕ^h$ below without comments on exception or irregular items.

(13)		frequency	mean	weight	value	noise	signal
a.	t : d	58	46.6	0.10	5.80		52.80
b.	t : t	81	46.6	0.20	16.20		69.00
c.	t : t^h	1	46.6	-0.20	-0.20	-5.40	

(14)		frequency	mean	weight	value	noise	signal
a.	t^h : d	53	59.0	-0.10	-5.30	-10.70	
b.	t^h : t^h	65	59.0	0.20	13.00		82.00

(15)		frequency	mean	weight	value	noise	signal
a.	k : dʐ	2	34.5	-0.10	-0.20	-10.90	
b.	k : g	4	34.5	-0.10	-0.40	-11.30	
c.	k : k	129	34.5	0.20	25.80		107.80
d.	k : tɕ	3	34.5	-0.20	-0.60	-11.90	

(16)		frequency	mean	weight	value	noise	signal
a.	k^h : g	4	15.2	-0.10	-0.40	-12.30	
b.	k^h : h	1	15.2	-0.10	-0.10	-12.40	
c.	k^h : k	3	15.2	-0.20	-0.60	-13.00	
d.	k^h : k^h	67	15.2	0.20	13.40		121.20
e.	k^h : $tɕ^h$	1	15.2	-0.20	-0.20	-13.20	

(17)

		frequency	mean	weight	value	noise	signal
a.	tɕ : ɕ	1	33.3	-0.20	-0.20	-13.40	
b.	tɕ : dʑ	25	33.3	0.10	-2.50	-15.90	
c.	tɕ : h	1	33.3	-0.10	-0.10	-16.00	
d.	tɕ : k	42	33.3	0.05	2.10		123.30
e.	tɕ : tɕ	146	33.3	0.20	29.20		152.50
f.	tɕ : ts	37	33.3	0.05	1.85		154.35
g.	tɕ : ts^h	1	33.3	-0.20	-0.20	-16.20	
h.	tɕ : z	14	33.3	-0.10	-1.40	-17.60	

(18)

		frequency	mean	weight	value	noise	signal
a.	$tɕ^h$: dʑ	28	16.2	0.10	2.80		157.15
b.	$tɕ^h$: g	1	16.2	-0.10	-0.10	-17.70	
c.	$tɕ^h$: k^h	7	16.2	-0.20	-1.40	-19.10	
d.	$tɕ^h$: tɕ	3	16.2	-0.20	-0.60	-19.70	
e.	$tɕ^h$: $tɕ^h$	34	16.2	0.20	6.80		163.95
f.	$tɕ^h$: ts^h	28	16.2	0.05	1.40		165.35
g.	$tɕ^h$: z	13	16.2	-0.10	-1.30	-21.00	

At this point we have completed the tabulation of the correspondence patterns of the initials involved in the devoicing rule. Thus the positive contribution of the devoicing rule is 165.35 and its negative contribution is -21.00. The signal-noise value is therefore 144.35 (165.35-21.00). As said before, the numbers have to be interpreted in the context of all the phonological correspondence patterns between Beijing and Suzhou. There were 2,916 syllable-words in the database, and by definition the maximum sum of the signal-noise value is 2,916. We have tabulated all the phonological correspondence patterns including the ones given above. The sum of positive and negative values is 1486.35. The one-way intelligibility index for Beijing-Suzhou is 0.510 (1486.35/2916). Out of 1486.35 the devoicing rule contributes 144.35. This value is about 10% (144.35/1486.35 = 0.097) of the total.

4. Numerical Measurement as Synthesis of Rule Effect

By our similarity measurements, the devoicing rule makes no contribution to Beijing and Suzhou similarity. However, in terms of mutual intelligibility, the effects participate in contributing about 10% of the communication enhancing value. This seeming contradiction arises because when we talk about correspondence patterns we include those elements that were produced by the devoicing rule and others. Moreover, our mutual intelligibility measurement does not require identical corresponding elements to enhance communication. As long as a pattern has more than the mean number of elements, it becomes a regular correspondence. A regular correspondence pattern enhances communication. That is how we can understand other dialects and speech with a foreign accent. For example, the t:d pattern given above, in spite of its differing elements, is considered signal and contributes a positive value of 5.8. The same positive effect can be said of the p^h:b correspondence. On the other hand the p:b and t^h:d patterns contribute negatively as expected. The merger of initials has such complex consequences. We think numerical measurement is a way to represent the synthesis of various forces upon the dialects.

What does it mean to say that the Beijing-Suzhou unidirectional intelligibility is 0.510? Does it mean that half of the speech of Suzhou dialect can be understood by people from Beijing? As discussed in Cheng (1992, 1994), personal understanding of other dialects involves factors such as language background, experience in non-native environment, individual ability, etc. We call such mutual intelligibility "subjective mutual intelligibility". Here in this study we are looking at dialects as systems. The mutual intelligibility so calculated can be called "systemic mutual intelligibility". As speakers of a dialect, in spite of personal differences, are confined by or endowed with the dialect system, the calculation of subjective mutual intelligibility has to be based on systemic mutual in-

telligibility. However, we do not know exactly how to calculate subjective mutual intelligibility yet. To say that we have yet to crystallize measurement ideas would sound odd. But that is true at this initial stage of the quest for a quantitative synthesis of language similarity and mutual intelligibility.

Now, we will show in Figure 1 the dialect subgrouping based on the calculated mutual intelligibility indices for all the 17 dialects represented

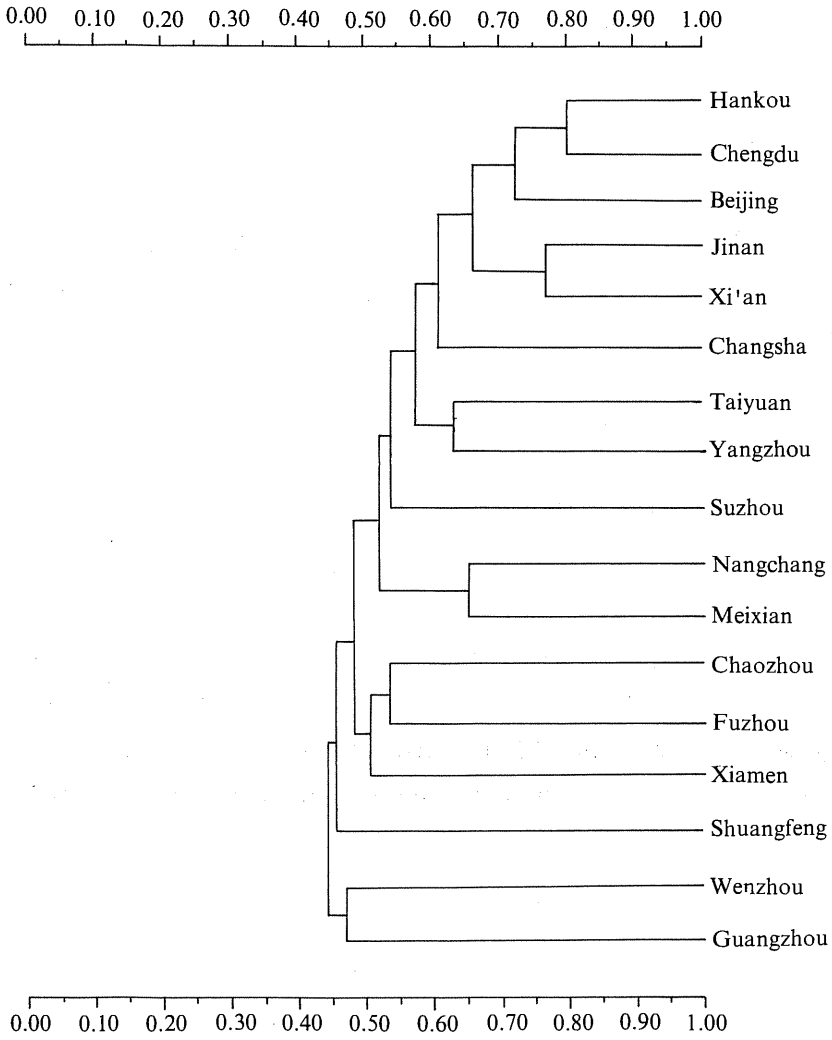

Figure 1. Chinese Dialect Subgrouping Based on Mutual Intelligibility

in the *Hanyu Fangyin Zihui* so that the Beijing-Suzhou values can be compared to the overall picture. The subgrouping corresponds quite well to what we know about the genetic relations of the dialects. But the main concern here is the effect of historical rules on dialect mutual intelligibility. Unlike Wang and Shen (1992), we make no attempt to use the length of the lines to indicate the rate of historical change. The joining point on the scale in the Figure shows the level of mutual intelligibility of the group of dialects in question. The details of the procedure for arriving at the subgrouping can be found in Cheng (1992, 1994). Some relevant information which is not shown in the Figure can be added here. The Beijing-Suzhou unidirectional intelligibility is 0.510 with Beijing as the source dialect and 0.489 with Suzhou as the source dialect. The mutual intelligibility is the mean value of 0.499. This value can be compared with the highest intelligibility pair of Hankou and Chengdu, having the mutual intelligibility of 0.795. The lowest intelligibility pair, Shuangfeng-Chaozhou, has a value of 0.353.

The numerical exercise above illustrates that historical rules change the characteristics of dialects. Some rules affect a large amount of linguistic entities such as words, while others worm their way through a very small portion of the lexicon. Some changes may result in new phonotactic constraints while others may be inconsequential with regard to syllable structure. To understand the working of rules and language in general we need to include rule effect in linguistic inquiries. I hope to have demonstrated that conventional rule format and analytical devices cannot deal with rule effect and that numerical measurements can provide a synthesis of complex interactions of rules on language similarity and mutual intelligibility.

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Cross-Linguistic Typological Variation, Grammatical Relations, and the Chinese Language

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Abstract

Linguists accustomed to languages of one type and who approach a language of another type might on the one hand be tempted to assume that the categories of the languages they are familiar with must also be instantiated in the new language, perhaps covertly; on the other hand, they might be tempted to assume that the new language has only those categories that are clearly overt. On the basis of a comparison of grammatical relations in Latin, English, and Chinese, I argue that both these extreme positions are misguided. Latin provides clear overt criteria for grammatical relations; English at first sight lacks some of these criteria, but further investigation shows that English does have clear criteria for the identification of grammatical relations, in particular subject. Chinese at first sight is completely lacking in overt criteria for grammatical relations, and indeed some linguists have argued that Chinese lacks grammatical relations; but consideration of the topic chain construction provides good evidence for a distinction between a direct grammatical relation (subsuming putative subjects and direct objects) and other noun phrases, with suggestive evidence for distinguishing between subjects and direct objects within the direct grammatical relation. The establishment of a category in the description of a particular language requires criteria internal to that language, which may or may not be obvious at first inspection.

1. Introduction. Probably most linguists would agree, in the abstract, that any approach to language analysis must pay due attention both to the similarities and to the differences among languages.[1] However, when it comes to implementing this policy, we find substantial differences between the practice of different linguists, corresponding not only to differences among different schools, but also to differences within the same school at different times, and even to differences among individual linguists within the same school at the same time. At the one extreme, one might believe that all languages are essentially the same, with differences among languages, while of course there, not being particularly significant. The linguist who follows this line of argument will typically assume that whatever categories have proved necessary or useful in describing language A must also be present in language B. If they are not immediately apparent in language B, then they must be present in some more covert form. If they do not prove necessary, or even useful, in the analysis of language B, then this is not taken as evidence that they do not exist in language B; rather, this state of affairs is interpreted as an indication that the categories are present in language B, but are simply not made use of by the grammar of language B. At the opposite extreme, one might assume that any category that is not immediately apparent in the structure of language B is necessarily absent from language B, following the slogan 'if it seems not to be there, then it isn't there'.

I believe that both of these extreme approaches are misguided. If we start out by assuming that the properties of language A are necessarily relevant for language B, and never ask ourselves what the justification for these properties might be internally to language B, then we can con-

1. I am grateful for comments on an earlier version of this paper from participants in the Fourth International Symposium on Chinese Languages and Linguistics, and from Randy LaPolla and Dingxu Shi. The comments of an anonymous referee have enabled me to tighten my argumentation in several places. The following abbreviations are used: ABL--ablative, ACC--accusative, ASP--aspect, CL--classifier, DAT--dative, DO--direct object, GEN--genitive, LOC--locative, M--masculine, NOM--nominative, PASS--passive, PL--plural, PRS--present, PTCL--particle, SG--singular, TOP--topic.

tinue indefinitely holding to this belief, irrespective of whether or not this is the best analysis of language B. Thus if someone believes, on the basis of morphological case distinctions in Latin, that English has a covert distinction between dative (roughly, 'to') and ablative (roughly, 'from') cases, then I doubt if the English language will ever present any evidence that this analysis is wrong-headed. But there is a rather obvious alternative analysis that does much better justice to the facts of English, namely that English makes use of different prepositions, rather than different cases, to make this distinction. This is an important methodological point. Unfortunately, with analyses that have no empirical consequences--like the alleged covert dative-ablative opposition in English--even a rather silly analysis will never be disproved. I have deliberately chosen a 'silly' analysis to make a clear point, although in what follows I will note some instances that are quite parallel although not so obviously wrong-headed.

Let me give a more subtle example that may illustrate the same phenomenon, and which involves a contrast between English and Chinese.[2] In English, there are good reasons for distinguishing syntactically between the two kinds of adnominal clauses found in (1) and (2):

(1) the opinion that I put forward
(2) the opinion that they should go to America to study medicine

Sentence (1) is a relative clause, while (2) is a complement clause with a nominal head. The syntactic differences between the two constructions can easily be demonstrated. In (1), *that* can be replacd by *which*, as part of the usual rule whereby a relative clause can be introduced by the relative pronoun *who* or *which*, depending on the animacy of the head noun, as in (3); this is not possible in (2), whence the ungrammaticality

2. This essentially parallels the analysis of similar Japanese data provided by Matsumoto (1988). Except where otherwise specified, I will use 'Chinese' as an abbreviation for 'Mandarin Chinese', or rather, even more specifically, 'Modern Standard (Mandarin) Chinese'.

of (4):

(3) the opinion which I put forward
(4) *the opinion which they should go to America to study medicine

If we compare the relative clause in (3) with the closest corresponding simple sentence, then we see that this simple sentence requires a noun phrase in the direct object position after the verb *put forward* (as in (5)); this is in keeping with the analysis of both traditional and more recent grammatical studies whereby, depending on details of the analysis, the relative pronoun in (3) is, in some sense, the direct object of the verb *put forward*, or the relative clause contains a gap corresponding to the direct object position.

(5) I put forward the opinion.

In (4), by contrast, there is no gap; the subordinate clause, minus the conjunction, is a perfectly well-formed sentence in isolation; there is no possibility of inserting a noun phrase into this clause that would correspond to the *that* of (2):

(6) They should go to America to study medicine.

What about the corresponding constructions in Chinese, as in (7)-(8)?

(7) wo tichulai-de yijian
I put. forward-PTCL opinion

(8) tamen qu Meiguo xue yi-de yijian
they go America study medicine-PTCL opinion

In Chinese, there is no obvious difference between the two sentence

types. In both cases, we have a head noun which is preceded by a clause, the two being linked by means of the particle *de*. Moreover, given that Chinese has the phenomenon of null-anaphora (zero-anaphora), it is at least harder to justify an analysis whereby there is a gap in (7), contrasting with the absence of a gap in (8). Finally, the construction with a nominal head as in (8) is not how clausal complementation with a verbal head is done in Chinese--the latter involves no particle, and the subordinate clause follows rather than precedes the main clause, as in (9); thus, Chinese lacks the parallelism between the nominal-head construction and the verbal-head construction that is found in English.

(9) Ta tiyi women dou qu chi jiaozi.
he suggest we all go eat dumpling
'He suggests that we all go and eat dumplings.'

Nonetheless, most recent discussions of such Chinese constructions with which I am familiar–and I can only lament the fact that, given my own limitations, this necessarily excludes discussions in Chinese–make the assumption that Chinese has distinct constructions of relative clause and complement clause with a nominal head.[3] However, an alternative analysis is at least plausible, namely that in both (7) and (8) one has the same syntactic construction, simply a head noun with a modifying clause; what the speaker of Chinese then does is to assign a plausible interpretation to this structure, which in the case of (7) leads to the 'relative-clause'

3. Many readers will no doubt recognize these Chinese sentences as taken from Li and Thompson (1981:586-587). Interestingly, although Li and Thompson in general do not adopt the view that the linguistic structure of Chinese has to be analyzed in the same way as that of English, in their discussion of these examples they do insist on the distinction between the two kinds of construction in Chinese. However, the criteria they give are semantic, so their analysis is still consistent with the view that there is no syntactic difference between the two sentence types. Let me emphasize that by introducing these examples in passing, it is my intention to urge linguists of Chinese to examine carefully and without bias whether or not a distinction between the two sentence types is justified. I do not, of course, exclude the possibility that such an examination might ultimately establish that they are indeed distinct.

interpretation, in the case of (8) to the 'complement clause' interpretation-thus there is no need to posit any syntactic difference between the two types. Of course, before adopting this analysis it would be necessary to test its consequences. But the point I want to make is not to argue that either the 'two-constructions' or the 'one-construction' analysis is the correct analysis for these examples in Chinese. Rather, I want to suggest that because a particular distinction is made in English, this distinction has been carried over into the analysis of Chinese, without stopping to ask whether this distinction is really justifiable, indeed without stopping to ask whether the distinction as applied to Chinese may not actually lose a significant generalization concerning the structure of that language.

On the other hand, assuming that we can only justifiably make use of categories that are clearly overt in a particular language can equally lead to missed insights. For instance, in many languages, in particular several older or more archaic European languages, one of the most obvious criteria for grammatical relations, such as the distinction between subject and non-subject,[4] is morphological case. English for the most part lacks morphological case. However, this does not mean that English lacks grammatical relations, since, as I will illustrate in section 2, English has a number of surprisingly robust criteria for identifying subjects; it just so happens that morphological case plays a minor role in this identification.

2. A Latin Grammarian Looks at English. In this section, I want to imagine the case of a Latin grammarian--a linguist who is both a native speaker of Latin and a scholar of the Latin language--who turns to examining modern English. This is, needless to say, a chronological impossibility, but is nonetheless insightful as a 'thought experiment', especially

4. In presenting arguments below, I will often use the terms 'subject' and 'direct object' not only in the strict sense, i.e. where their identification has been justified in the language or construction at issue, but also more informally where my interest is in arguing whether or not these grammatical relations are justifiable, and where a more strict terminology might use 'putative subject' and 'putative direct object'.

insofar as it contrasts the structures of two of the most thoroughly investigated of the world's languages. Let us suppose that our Latin grammarian is particularly interested in grammatical relations, more specifically in subjects.

In Latin, an obvious criterion for subjects, which works in the vast majority of instances (for the major exception, see below), is case marking: Subjects stand in the nominative case (while direct objects stand in the accusative case), as in (10):

(10) Marcus Titum ferit.
Marcus.NOM Titus.ACC hit-PRS.3SG
'Marcus hits Titus.'

Indeed, the identification of subjects by means of case is so strong in Latin that it overrides other considerations, such as word order, so that (11) has the same basic meaning as (10), while to express the idea of Titus hitting Marcus it is necessary to change the cases, again irrespective of word order:

(11) Titum Marcus ferit.
Titus.ACC Marcus.NOM hit.PRS.3SG
'Marcus hits Titus.'

(12) Titus Marcum ferit.
Titus.NOM Marcus.ACC hit.PRS.3SG
'Titus hits Marcus.'

One of the first things that strikes our Latin grammarian is that in the English translation equivalents of these sentences, there are no morphological case differences between the noun phrases *Marcus* and *Titus*, whether they stand as translation equivalents of a Latin nominative or of a Latin accusative. What conclusions might our grammarian draw from this typological difference between the two languages? There are at least two initial reactions that he might have. The first is to conclude that Eng-

lish 'really' does have the morphological distinction that is found in Latin, and therefore the distinct grammatical relation of subject, but that this distinction in English is 'covert'. The second is to conclude that English lacks the most salient distinction found in Latin between subject and non-subject, namely case marking, and therefore also lacks the distinction between subject and non-suject, if indeed it does not lack grammatical relations altogether. In section 1 I mentioned briefly an example, that of adnominal clauses, where the lack of an opposition found in one language (English) but not in other (Chinese) has arguably led linguists to misanalyze Chinese by transferring the English distinction to Chinese. In the Latin-English comparative example, I will be arguing almost the inverse, namely that English does have the distinction between subject and non-subject found in Latin, although its manifestation is somewhat different, and indeed some of the details of the assignment of grammatical relations are also different between the two languages. Thus, it is necessary to examine each individual language carefully before concluding that distinctions valid in some other language are or are not valid in the language now under investigation.

Let us therefore follow our Latin grammarian as he finds out more about English. The data are, of course, not new, but it is important for our own learning experience to imagine ourselves following in the footsteps of the Latin grammarian. The English data that follow are introduced not in order to establish new generalizations about English, but rather to illustrate a methodological point.[5]

The Latin grammarian will soon notice that most personal pronouns

5. The relevant sections of Postal (1974) constitute a useful checklist of subject properties in English, although some of the properties alluded to must necessarily be examined against the background of the author's theoretical commitment at the time and of the particular argument he was expounding. One of the main contributions of Relational Grammar, as illustrated for instance in Perlmutter (1983), Perlmutter and Rosen (1984), and Postal and Joseph (1990), especially methodologically, has been its emphasis on the importance of uncovering criteria for the establishment of grammatical relations. For further exemplification of my own work in this area, reference may be made to Comrie (1989), and references cited there.

in English, in contrast to nonpronominal noun phrases, do show a distinction in form between subject and non-subject, as in (13) and (14):

(13) I hit him.
(14) He hits me.

The distinction is very similar to the case distinction found in Latin with the majority of noun phrases, although there are some differences, for instance in that the Latin accusative *me* 'me' contrasts with other nonnominative cases, such as dative *mihi* 'to me', whereas English only has the binary distinction *I--me*. But at least the case distinction does allow us to identify pronominal subjects unequivocally in terms of their morphological form. Our Latin grammarian will notice that in English, as in Latin, the grammatical relation of subject does not correspond to any single semantic role, so that generalizations made about subjects cannot be readily replaced by statements about semantic roles; good evidence for this is provided by the nominative subject-patient in passive sentences like (15):

(15) I am hit by him.

The Latin grammarian, here even thinking on the basis of his own analysis of his native language, will recall that verb agreement is also a good criterion for subjects in Latin, at least in finite clauses, where verbs agree in person and number with their subject, and with no other noun phrase. (Latin nonfinite verb forms do not show any person-number agreement.) Indeed, verb agreement can be used as a test in the one kind of Latin clause that has nominative non-subjects, namely copular clauses, where both subject and predicate stand in the nominative, but the verb agrees only with the subject, as in *ego sum consul* 'I am a consul'. where both *ego* 'I' and *consul* 'consul' are nominative, but the verb *sum* '[I] am' is first person singular, agreeing with *ego* and not with *consul*. Although English verb morphology is much reduced in comparison with that of

Latin, where English does have distinct person-number forms of verbs they show agreement with the subject and only with the subject, including subjects expressing different semantic roles, including in particular subjects of passive sentences. Thus, in (14) the verb form *hits* unequivocally shows third person singular agreement, i.e. it agrees with the subject *he* and does not agree with the first person singular direct object. Likewise, in (15) the verb *am* clearly shows agreement with the subject-patient *I*.

As our Latin grammarian becomes more familiar with English and its structure, he will, at least with some degree of perseverance and insight, uncover other, much more surprising criteria that enable one to identify subjects in English. For instance, Quantifier Float is the name given to the construction illustrated by (17) in relation to (16). In (17), as in (16), the quantifier *both* must refer to the boys, and cannot refer to the bikes; in other words, in both versions there is necessarily reference to two and only two boys, whereas the number of bikes is unspecified (except that, the noun phrase being plural, reference must be to more than one bike).

(16) Both of the boys soon found the bikes.

(17) The boys soon both found the bikes.

The judgments of native speakers of English are quite unequivocal on such sentences, which thus provide a robust but nonetheless subtle, by no means obvious test for subjecthood--it is a test which, moreover, does not work for all languages, Chinese, for example, lacking this particular constraint with quantifiers such as *dou* 'all'. As with the criteria mentioned earlier, we also observe that the possibility of Quantifier Float applies to subjects whatever their semantic role, including patient-subjects of passive clauses: In (18), in contrast to (17), it is the bikes that must number exactly two, whereas the number of boys is unspecified beyond 'more than one', i.e. (18) has the same basic meaning as (19):

(18) The bikes were soon both found by the boys.
(19) Both of the bikes were soon found by the boys.

Another subtle example of this kind is provided by constructions like (20) in relation to (21), constructions that some linguists have called Subject-to-Object-Raising, and others Quirky Case Assignment:

(20) I believe him to have hit them.
(21) I believe that he has hit them.

The important point about the construction in (20) is that after certain main-clause verbs, including *believe*, it is possible to have a following noun phrase (in the nonnominative if pronominal) followed in turn by an infinitive, such that the nonnominative noun phrase corresponds to the subject of the equivalent *that* clause. Crucially, one cannot start from an example like (21) and create a sentence parallel to (20) in which a non-subject, say the direct object, shows up in this position, as is shown by the ungrammaticality of (22):

(22) *I believe them he/him to have hit.

Once again, the corresponding passive versions (of the subordinate clause) show that the relevant notion of subject is independent of semantic roles:

(23) I believe them to have been hit by him.
(24) I believe that they have been hit by him.

Have we therefore reached the conclusion that assignment of grammatical relations is identical in English and Latin? Not quite. Although it is in generally true that a Latin subject will correspond to the subject of its English translation equivalent and vice versa, there are nonetheless some exceptions, and our Latin grammarian will need to note

them. For instance, English allows all four of (25)-(27), with agent (in (25)) , patient (in (26)) , or recipient (in (27)) of the verb *give* as subject. Latin, by contrast, has translation equivalents with parallel subject assignments only for the first two.

(25a) The man gave the books to me.
(25b) The man gave me the books.
(26) The books were given to me by the man.
(27) I was given the books by the man.

(28) Vir mihi libros dedit.
man.NOM I.DAT book.PL.ACC give.PAST.3SG
'The man gave the books to me.'

(29) Libri mihi a viro dati sunt.[6]
book.PL.NOM I.DAT by man.ABL given.N.PL be.PRS.3PL
'The books were given to me by the man.'

(30) *Ego libros a viro datus sum.
I.NOM book.PL.ACC by man.ABL given.M.SG be.PRS.1SG

This last set of examples may raise a question in the reader's mind: If there is not exact correspondence between subjects in English and Latin translation equivalents, are we still justified in using the same term in referring to the relevant grammatical relations in these two languages? My view on this remains as expressed in Comrie (1989). In order to identify a particular grammatical relation in a particular language, we must have grammatical criteria that are valid internally to that language. In order to identify grammatical relations cross-linguistically, there must be substantial overlap between the occurrences of the same grammatical relation in translation equivalents across the two languages. As with other

6. In this Latin passive clause, in the past tense (more specifically, the so-called perfect tense-aspect), the verbal complex is composed of the past passive participle of the lexical verb, agreeing in gender-number with the subject, and the present tense of the auxiliary verb 'to be', agreeing in person-number with the subject.

aspects of grammatical structure, we are unlikely to find exact identity across all translation equivalents in a pair of languages, but we must find a substantial overlap, as indeed we do in comparing English and Latin. It is against this background that I will approach the question of grammatical relations in Chinese in section 3.

3. Some Thoughts on Grammatical Relations in Chinese. I now turn to a discussion of the relevance of these remarks to the analysis of Chinese, in particular Mandarin. I do so with some trepidation: I am not a specialist in Chinese, and am therefore dependent for the most part on secondary data, as indicated in the acknowledgments in the following text, in addition to which I have used Li and Thompson (1981) as a basic reference source. What follows should therefore not be taken as a definitive statement, or even as my definitive statement, about the relevant aspects of Chinese syntax. Rather, on the basis of observations that others have made concerning the syntactic structure of Chinesem, I will try to place Chinese within the methodological framework that has been outlined in the earlier part of this article.

At first sight, Chinese presents an even more daunting picture than English did to our Latin grammarian. In English, at least most personal pronouns have enough case marking to distinguish between subjects and non-subjects, but in Chinese this is not the case:

(31) Ta da wo.
he hit I
'He hits me.'

(32) Wo da ta.
I hit he
'I hit him.'

In English, word order provides a good test for subjects, despite the possible slight variation in word order of major constituents of the clause, but in Chinese again the situation is less clear. Thus, in addition to the SVO word order of (33), we also find the OSV word order of (34), and

even the SOV word order of (35), with the result that NP NP V sequences are potentially ambiguous in Chinese:

(33) Wo mai shu-le.
I buy book-ASP
'I bought the book.'

(34) Shu wo mai-le.
book I buy-ASP

(35) Wo shu mai-le.
I book buy-ASP

It is therefore not surprising that we find extreme discrepancies in the attitudes of different linguists towards the analysis of Chinese, ranging from those on the one hand who argue that the various syntactic distinctions that are overt in English or Latin are present in Chinese, only in covert form, to those who argue that the syntax of Chinese must be organized on completely different principles–or even that Chinese has no syntax, its apparent syntactic properties being in fact pragmatic. If we restrict ourselves more narrowly to the question of grammatical relations, Chinese provides a particularly interesting test case: it lacks the blatantly obvious criteria presented by Latin, and even to a large extent by English; therefore, within the framework outlined above, the linguist analyzing Chinese is in the position of having to justify carefully any claims made about grammatical relations, as against the counter-claim that grammatical relations are simply irrelevant to the structure of Chinese.

An apparently straightforward sentence type will serve to introduce the problems and the kind of argumentation that can be brought to bear, namely the so-called double-object construction, as in the following example:

(36) Ta gei wo yi-ben shu.
he give I one-CL book
'He gives me a book.'

In this sentence, the verb *gei* 'give' is followed by two bare noun phrases. The question that arises is the following: Do these noun phrases differ from one another syntactically, in a way that is not directly predictable from their semantic roles (recipient and patient, respectively)? There are clearly differences between the two noun phrases. For instance, their order relative to one another is fixed, so that the following variant is impossible:

(37) *Ta gei yi-ben shu wo.
he give one-CL book I

It would be hard to argue that this order is determined by pragmatic factors, especially in face of the fact that other varieties of Chinese require the order of (37), as in Hakka example (38) (cited from Hashimoto 1973: 522), which requires the order with the patient preceding the recipient.[7]

(38) Gi^{2} bun^{2} jit^{5}-bun^{3} su^{1} ngai^{2}.
he give one-CL book I
'He gives a book to me.'

In other words, the fact that Mandarin has the order recipient-patient, while Hakka has the order patient-recipient, seem to be relatively arbitrary facts about these two varieties of Chinese, of a kind that would seem prima facie candidates for treatment as syntactic. However, a further possibility remains, namely that the distinction could be stated in semantic terms, as was indeed done informally above: One would simply specify that Mandarin requires the order recipient-patient, that Hakka

7. In addition to (38), Hakka has another variant in which *bun*^{3} is repeated before the recipient; but what is crucial for present purposes is that the version given in (38) is possible.

requires the order patient-recipient, and that would be the end of the matter, with no need to refer to any independent notion of grammatical relation. I will leave the double-object construction for the moment, returning to it below in the context of grammatical relations and clause combining in Chinese.

In an important contribution to the debate on grammatical relations in Chinese, LaPolla (1983) argues forcefully against the concepts of 'subject' and 'direct object' in Chinese. The kinds of arguments that he adduces can be divided into two classes. First, there are some criteria whereby putative subjects and direct objects not only do not differ syntactically from each other, but also do not differ from other noun phrases or adpositional phrases; for instance, relative clause formation in Chinese allows relative clauses to be formed where the head noun functions as subject, as direct object, or as some other argument or adjunct within the relative clause. Thus, at least the possibilities of relative clause formation do not provide any basis for differentiating between subject and direct object, or between these two together and other putative grammatical relations. Secondly, there are some criteria which, as LaPolla shows, fail to distinguish between putative subjects and direct objects, but where he does not explicitly note whether they distinguish between subjects and direct objects taken together and other major constituents of the clause. It is examples of this second kind that I want to concentrate on, in particular cross-clause coreference in topic chains (in the sense of Tsao 1979).

A simple pair of examples illustrating the possibilities, and taken from LaPolla (1983), is given below:

(39) Nei-ge ren ba xigua$_i$ diao zai dishang,
that-CL man DO watermelon drop LOC ground
…$_i$ sui-le.
shatter-ASP
'That man dropped the watermelon$_i$ on the ground,
and it$_i$ burst.'

(40) Nei-ge ren$_i$ ba xigua diao zai dishang,
that-CL man DO watermelon drop LOC ground
…$_i$ huang-le.
be.flustered-ASP
'That man$_i$ dropped the watermelon on the ground,
and he$_i$ was flustered.'

In Chinese, either the subject of the first clause, as in (39), or the direct object of the first clause, as in (40), can be the overt controller for a null-anaphor in the second clause in this construction, where the clauses are joined asyndetically, i.e. without any overt linker, and this construction therefore fails to distinguish between subject and direct object. The interpretations assigned are, of course, those that are pragmatically most plausible, since normally people do not burst and watermelons do not get flustered. But the crucial point is that there is no syntactic restriction differentiating between subject and direct object. Examples like those just cited are particularly significant when one compares them with the English translations, involving conjunction reduction. English requires that both overt controller and covert target have the same grammatical relation, or even more specifically that both be subjects, so that while a null-anaphor is possible in (41) below, it is not possible in (42), or rather (42) can only be interpreted to mean, however counter-intuitively, that the man burst:

(41) That man$_i$ dropped the watermelon on the ground,
and--$_i$ was flustered.

(42) That man$_i$ dropped the watermelon$_j$ on the ground,
and--$_{i/*j}$ burst.

I have already introduced some notational conventions for representing certain aspects of cross-clause coreference, and it will be useful to make these explicit. For ease of presentation, each clause of a multiclause sentence will be presented on a separate line, in both the original sentences and the English translations. The null-anaphor, or rather the position

that would normally be filled in the second and subsequent clauses by the overt correspondent of the target noun phrase, will be represented by a long dash (--). Subscript letters will be used to indicate coreference (or, with an asterisk, the impossibility of coreference) between noun phrases and either other noun phrases or null-anaphor positions. These conventions are purely to illustrate more clearly the structure and meaning of the sentences in question, and no more significance than this should be attached to them. In Chinese sentences with asyndetically joined clauses, the clauses will be separated by a comma; in English translations, the comma will be retained, but where appropriate the conjunction *and* will be inserted, purely to produce more natural-sounding English sentences.

A detailed study of cross-clause coreference possibilities in asyndetically joined clauses is provided by Shi (1989); Shi refers to this construction as the 'topic chain', following Tsao (1979), although I will stick to the less specific term 'asyndetically joined clauses'. Like LaPolla, Shi notes that both subjects and direct objects of the initial clause can serve as controllers of null-anaphors, as in (43) (subject controller) and (44) (direct object controller):

(43) Zuotian wanshang ta_i mei huijia,
yesterday evening he not return.home
$--_i$ zhuzai pengyou nar,
stay friend there
$--_i$ jinzao cai huilai.
this.morning only return
'Yesterday evening he_i didn't return home,
he_i stayed at his friend's
and he_i only returned this morning.'

(44) Wo kanshang-le zhei-ge guniang$_i$,
I fall.in.love-ASP this-CL girl
ta ye kanshang-le --$_i$,
he also fall.in.love-ASP
--$_i$ zuihou bei ta qiangzou-le.
finally PASS he take.away-ASP
'I fell in love with this girl$_i$,
he also fell in love with her$_i$,
and finally she$_i$ was taken away by him.'

A further observation, not directly relevant to our current concerns but nonetheless of interest in this general connection, is that noun phrases that are topics--either shown by their being preposed or deducible from the broader context--can serve as controller irrespective of their grammatical or semantic relation.[8] The distinction between topicalized and nontopicalized constituents is not so easy to test in the case of subjects, which are normally sentence-initial anyway, but with nonsubjects the distinction is cleat-cut. Thus, alongside (44) we have (45), with topicalization of the direct object controller:

(45) Zhei-ge guniang$_i$ wo kanshang-le --$_i$,
this-CL girl I fall.in.love-ASP
ta ye kanshang-le --$_i$,
he also fall.in.love-ASP
--$_i$ zuihou bei ta qiangzou-le.
finally PASS he take.away-ASP

(Note that I have extended the use of subscripted long dashes and pronouns to include indicating the positions that noun phrases topicalized by preposing would have occupied, had they not been preposed.) The following example shows topicalization of the object of a preposition,

8. This means that ungrammatical topic chains, such as (49)-(51) must be interpreted such that the controller noun phrase is not a topic.

which then serves as controller for a null-anaphor:

(46) Zhangsan$_i$ a wo yizhi dui ta$_i$ hen zunjing,
Zhangsan TOP I always towards he very respectful
--$_i$ dui wo que zongshi bulibucai.
towards I yet always disregard
'As for Zhangsan$_i$, I am always very respectful towards him$_i$,
yet he$_i$ always disregards me.'

And finally, the controller can be a topicalized indirect object, as in:

(47) Lisi$_i$ ma wo gei-le ta$_i$ haoduo youyong-de jiaju,
Lisi TOP I give-ASP he much useful-PTCL furniture
--$_i$ ye bu shuo sheng xiexie.
also not say CL thanks
'As for Lisi$_i$, I gave him$_i$ lots of useful furniture,
and he$_i$ didn't even say thank you.'

There are at least two alternative analyses that one might suggest at this point, in response to the data presented so far. The first is that the best characterization of the controller is simply that it is topic, irrespective of its grammatical relation, or more generally of its role in the first clause of the sequence. One would then have to argue, perhaps not implausibly, that the controller noun phrases in (43) and (44), though not preposed, are nonetheless interpreted as topics. However, there is evidence against this analysis. It is possible to have a controller that is an indefinite, clearly nontopical direct object, as in the following example, which could indeed be used to introduce the cat into the discourse for the first time:

(48) Women mai-le yi-zhi mao$_i$,
we buy-ASP one-CL cat
--$_i$ hen hui zhuo laoshu,
very can catch mouse
dajia dou xihuan ta$_i$.
everyone all like it
'We bought a cat$_i$,
it$_i$ is very good at catching mice,
everyone likes it$_i$.'

As one would expect, it is not possible to topicalize this indefinite direct object, even if it functions as the controller of a sequence of asyndetically joined clauses:

(49) *Yi-zhi mao women mai-le,
one-CL cat we buy-ASP
--$_i$ hen hui zhuo laoshu,
very can catch mouse
dajia dou xihuan ta$_i$,
everyoneall like it

The second alternative would be to argue that any noun phrase can be controller of cross-clause coreference in a sequence of asyndetically joined clauses. Certainly, all that the above examples show is that the various positions mentioned are possible positions for a controller, and no examples have been given so far to show that any position is impossible for a controller. (The ungrammaticality of (49) has nothing to do with controller positions in this construction, rather it illustrates restrictions on topicalizing noun phrases.) And one thing we have learned from the last few decades of syntactic research is that in order to understand the precise characterization of a grammatical construction, it is necessary not only to examine grammatical examples, but also to examine ungrammatical examples, since only by trying to draw the boundary be-

tween the two will we come to an understanding of the precise limits of the construction under investigation. It is therefore crucial to consider the kinds of examples adduced by Shi (1989) to show that some positions are not possible positions for controllers in this construction. In particular, objects of prepositions, if not topics, are not possible controllers of null-anaphors in asyndetically joined clauses:

(50) *Wo yizhi dui Zhangsan hen zunjing,
I always towards Zhangsan very respectful
--$_i$ dui wo que zongshi bulibucai.
towards I yet always disregard
'I am always very respectful towards Zhangsan$_i$,
yet he$_i$ always disregards me.'

Nor is the indirect object in the double-object construction:

(51) *Wo gei-le Lisi haóduo youyong-de jiaju,
I give-ASP Lisi much useful-PTCL furniture
--$_i$ ye bu shuo sheng xiexie.
also not say CL thanks
'I gave Lisi$_i$ lots of useful furniture,
and he$_i$ didn't even say thank you.'

This last example is particularly telling, in relation to our earlier rather inconclusive discussion of the double-object construction, because here we have a distinction between the direct object (patient) and indirect object (recipient) of this construction, but one where we do not need to, and indeed arguably should not, refer specifically to the patient, but rather need to subsume this under a larger class that includes subjects and direct objects (henceforth: direct grammatical relations). Thus, the distinction between the two objects in the double-object construction turns out to coincide with a major dividing line between grammatical relations in Chinese.

The generalizations illustrated by the examples above can be sum-

marized by the following two-part statement:

(52) The controller of a null-anaphor in a sequence of asyndetically joined clauses can be
(i) a noun phrase that is topic of the initial clause;
(ii) a noun phrase that occupies a direct grammatical relation (subject or direct object) of the initial clause.

Notice that, in keeping with LaPolla's generalization concerning subjects and direct objects in Chinese, we have so far provided no evidence for drawing a dividing line between subjects and direct objects. Rather, the evidence presented so far suggests a single grammatical relation of 'direct'[9].

The next question to ask is whether there is any evidence for distinguishing between subject and direct object in their syntactic behavior. At this point, the data and their interpretation become less clear to me, so I will content myself with presenting some relevant data and commenting on their possible significance. Shi (1989) extends his characterization of the class of possible controllers by arguing that the controller can also be, in his terms, the specifier of the subject, i.e. roughly a possessor within the subject noun phrase, as in the following example:

(53) Ta_i-de tou youdianr teng,
he-GEN head a.little hurt
--$_i$ duzi you bu shufu,
stomach also not good
--$_i$ meiyou chi wanfan.
not-ASP eat dinner
'His$_i$ head is hurting a little,
his$_i$ stomach is also not good,
and he$_i$ hasn't eaten dinner.'

9. It should be emphasized that I am concerned here solely with the grammatical possibilities for forming topic chains, not with the frequencies of different kinds of linkages, such as investigated by Huang and Chui (1994); such considerations are, of course, important in analyzing Chinese discourse structure.

This example can, of course, also be presented with overt topicalization of the possessor noun phrase, though this is not necessary:

(54) Ta$_i$ tou youdianr teng,
he head a.little hurt
--$_i$ duzi you bu shufu,
stomach also not good
--$_i$ meiyou chi wanfan.
not-ASP eat dinner

Shi claims moreover that it is not possible for the controller to be the specifier of the direct object noun phrase. This suggests that there is indeed a difference between subjects and direct objects, but one shown in a remarkably subtle way: It is not shown directly by differential behavior of subjects and direct objects, but rather by the differential behavior of noun phrases internal to the subject and direct object noun phrases. But before accepting this conclusion, I think that it is necessary--and I pose this as a research task for specialists in the Chinese language--to investigate how general the construction type illustrated by (53) is in Chinese. The examples that are usually presented are from a quite narrow semantic range, so that one might try to argue that the relevant factor is not so much syntactic ('being specifier of the subject noun phrase') as semantic. At any rate, these are intriguing data that merit further detailed investigation.

Another set of data relevant to distinguishing between subject and direct object concerns sequences of clauses where there is an overt coordinating conjunction, such as *bingqie* 'and'. In a pair of asyndetically conjoined clauses like (55), there are two possible interpretations, since the controller can be either the subject or the direct object:

(55) Lisi$_i$ mai-le yi-zhi gou$_j$,
Lisi buy-ASP one-CL dog
--$_{i/j}$ taozou-le
flee-ASP
'Lisi$_i$ bought a dog$_j$,
and he$_i$/ it$_j$ fled.'

If, however, the two clauses are joined by means of an overt conjunction, the only possible interpretation is with the subject as controller of the null-anaphor in the second clause:

(56) Lisi$_i$ mai-le yi-zhi gou$_j$,
Lisi buy-ASP one-CL dog
bingqie--$_{i/*j}$ taozou-le.
and flee-ASP
'Lisi$_i$ bought a dog$_j$
and he$_i$/ *it$_j$ fled.'

Prima facie, such data seem to provide evidence for the subject-object distinction, and are cited as such by, for instance, Shi (1989: 243-244), who explicitly draws the contrast between clauses linked by a conjunction and those linked asyndetically.

4. Conclusion. A linguist who is familiar with the structure of language A and who approaches the analysis of a very different language B might adopt one of two extreme positions, in addition to a number of intermediate positions. One extreme would be to assume that language B is going to have essentially the same structure as language A, so that features of language A that are not apparent in language B will be held to be 'covert' features of the structure of language B. The opposite extreme is to assume that only 'overt' features of language B are relevant to its analysis, thus denying any relevance of properties of language A that are not immediately apparent in language B. I have tried to show that both approaches are likely to be misguided. There are deep-seated differences

between languages of different types, and simply carrying over the structure of one language to another language can lead us to misanalyze language B, to apply categories to it that are simply not relevant to its structure. On the other hand, insisting solely on cataloguing observables can equally lead to a loss of insight in the analysis of language B, since there may well be properties of language B that can only be demonstrated by more detailed analysis, but which can nonetheless be clearly demonstrated by such detailed analysis. The crucial point is that whatever analysis we propose for language B, we must be able to justify that particular analysis for language B. In some cases, phenomena that we find in language A will turn out to be relevant in describing language B, even though the precise criteria serving to delimit those phenomena may be different in the two languages. In yet other cases, language B will have nothing comparable to some phenomenon found in language A, and will simply have to be described without that category. And in yet other cases, perhaps the most interesting, language B will turn out to have some phenomenon that is similar but not identical to what we find in language A, so that careful detailed analysis will be needed to establish the precise similarities and differences between the two languages. I have used Chinese data to try and illustrate some of these possibilities. However, I should emphasize that my interest has not been in advocating a particular analysis of Chinese--it would have been rash indeed for me to have done so--but rather to encourage investigators of the Chinese language to consider possibilities in addition to those that are suggested on the one hand by European languages, on the other hand by the absence of 'obvious' grammatical criteria in Chinese. Finally, I should perhaps emphasize that the different approaches to language-universality and language-specificity that I have outlined can be found within linguistic schools that are otherwise quite different from one another. Thus, within generative grammar we have seen a move away from the view that all languages are essentially the same by the introduction of the radical distinction between configurational and nonconfigurational languages (e.g. Hale 1983)--with more recently a trend back towards the view that all

languages are more similar to one another. And much of the detailed work on grammatical relations from the typological perspective can be seen as a reaction to the rule of thumb (and perhaps no more!) adopted in one of the pioneering works of this approach, Greenberg (1966), that grammatical relations can be identified intuitively on the basis of translation equivalents. The possibilities for cross-linguistic variation are something that every linguist needs to know about.

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Is Chinese a Pragmatic Order Language? *

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Abstract

Chinese is shown to be a discourse accusative language in which there is a strong discourse pressure uniting A and preverbal S in that they both introduce given information into discourse. The pairing together of A and S motivates a nominative category, namely a category that marks topical information, while new information is introduced into the discourse in the O or postverbal S role. Moreover, data on anaphoric links across successive clauses show that S/A links far outnumber S=O links. Thus the topic continuity dimension also defines for Chinese a nominative/accusative {S, A} alignment.

A/S in Chinese is shown to have acquired some 'subject' properties, though perhaps not all of the subject properties characteristic of subject-prominent languages (e.g. subject-verb agreement or subject-creating constructions), and since initial position has not yet become divorced from its pragmatic origin (there being no dummy subject-creating constructions), it might be more advisably termed a category of 'grammaticalized topic' in the sense of Comrie (1988) distinct from topic and from subject.

Word order in Chinese is shown to be more sensitive to valency role than to discourse pragmatics, though both factors are highly predictive of word order. The present study suggests that Chinese is aligned with other type C language a la Faarlund (e.g. Norwegian and English) where the only device available for expressing semantic (e.g. that of the agent) and pragmatic functions (e.g. that of topic) is linear order. However, Chinese differs from these other type C languages in that when there is a conflict between semantic and pragmatic functions, type C languages typically resolve the conflict by availing themselves of a syntactic role changing process (e.g. passive), while Chinese typically relies on a complex interplay between semantics and pragmatics for its resolution.

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"knowledge of a thing engenders love of it; the more exact the knowledge, the more fervent the love."

Leonardo Da Vinci

1. Introduction

It is now widely agreed that discourse pragmatics provide much of the substance of grammar. A primary assumption that energizes functional linguistics is that grammar is discourse driven and that grammar is motivated in large part by functional considerations. Grammar is seen on this conception to be secondary and emergent from discourse. A natural consequence of this idea is that the central project of syntax is the study not of grammar, but of grammaticization--- the ways in which a form or a combination of forms available for the construction of discourse comes to be regarded by the speech community as the usual or unremarkable way of making a discourse point and is recognized as becoming to a greater or lesser degree 'grammatical' (Hopper and Thompson 1991).

In this paper we seek to shed light on the pragmatics of word order in Chinese. We will show that Chinese is a discourse accusative language where there is a strong pressure uniting S and A in that they both introduce given information into discourse. The pairing together of S and A motivates a nominative category, namely a category that marks topical information, while new information is introduced into the discourse in the O or oblique role. Moreover, data on anaphoric links across successive clauses show that S/A links far outnumber S/O links. Thus the topic continuity dimension also defines for Chinese a nominative/accusative {S, A} alignment.

Word order in Chinese is shown to be more sensitive to valency role than to discourse pragmatics, though both factors are highly predictive of word order. The present study suggests that Chinese is aligned with other type C languages in the sense of Faarlund (1992) (e.g. Norwegian and English) where the only device available for expressing primary semantic

(e.g. that of the agent) and primary pragmatic functions (e.g. that of topic) is linear order. However, Chinese differs from these other type C languages in that when there is a conflict between semantics and pragmatic functions, type C languages typically resolve the conflict by availing themselves of a syntactic role changing process (e.g. passive), while Chinese typically relies on a complex interplay between semantics and pragmatics for its resolution.

This paper focuses on a description of discourse properties of Chinese and on the relevance of these properties for word order. In this paper we challenge some prevailing assumptions. One main assumption we challenge is that Chinese is a topic-prominent language. Another related assumption we challenge is that word order in Chinese is primarily determined by pragmatic considerations. We prefer to believe that Chinese is not more of a topic-prominent language than English and that Chinese is a balanced word order language in the sense to be explicated in the following pages. Below we will first present structural facts of word order in Chinese and functional facts of the discourse-pragmatics of nominal arguments. We will then interpret the correlation between word order and discourse-pragmatic functions.

2. Data

Since there is some evidence that properties of information flow vary from genre to genre, we chose one ordinary conversation and two oral narratives in Mandarin Chinese as the corpus for this paper. The conversation, a spontaneous dinner-table chat among one female and three males, centered around the people and the events taking place in the office where the participants worked. The conversation ran to 40 minutes long and totaled 1049 clauses (clause fragments not counted), where clauses are defined as a predicate element together with its argument(s).

The two narratives were retellings of the stories about the Ghost film and the Pear film. The Pear narratives of different languages have been employed for information flow studies, such as Chamorro (Scan-

carelli, 1985), Japanese and English (Iwasaki, 1985), and Sacapultec (1987). The Chinese Pear narratives were produced in 1976 by eighteen female speakers who were undergraduate students at National Taiwan University. After they had viewed the 6 minute-long film, each was taken individually into a room where a female interviewer, not an acquaintance of the interviewees, explained that she had not seen the movie and asked the speaker to recount to her the story of the film. These data formed the basis of an earlier study on referential choice in Chinese (Chen 1986).

The Ghost narratives were obtained in an analogous fashion, though there were differences in detail. First, Ghost was a full-length film lasting 127 minutes. Secondly, four narrators, two females and two males, had already seen the film over one year before the taping sessions in the speech laboratory of their office, where they recounted the film to the interviewer. Since the narrators and the interviewer were office mates rather than strangers, their narrations were produced in a more 'relaxed' and 'natural' fashion.

Our database then consists of 116.6 minutes of text, transcribed into intonation units, of which there are 5297. An intonation unit (IU) is a spurt of talk produced under a coherent intonation contour, often bounded by a pause (Chafe 1987).

Table 1 summarizes the recording time and the number of clauses produced in each text. Only clauses with overt or covert but recoverable arguments are tabulated in the count; clause fragments are excluded from the tabulation.

	Recording time (min.)	IUs	Clauses	Main clause
conversation	38.8	2020	1049	1006 (95.9%)
Ghost	36.1	1289	621	580 (93.4%)
Pear	41.7	1988	1000	965 (96.5%)

Table 1. Summary of data.

It is of interest to note that of the clauses produced, main clauses predominated in each text, at something like 95%, and that there is no significant difference in percentage between any two types of texts,

though one might have expected the conversation text, with frequent topic changes and less dwelling on details of events, to have a much higher proportion of main clauses. By contrast, in Ghost and Pear there would be much more of the tellers' attempt to successfully reconstruct the stories of the films, which, in the case of Ghost, contain a significant amount of the portrayal of the inner world of the protagonists and therefore would seem to call for a wider-ranging use of mental and psychological predicates with accompanying sentential complements.

3. Methodology

For the present study, a basic unit of analysis is the clause, which consists of a predicate and its core argument NP's. It is important to observe that the clause and the intonation unit often coincide in languages like English, but non-clausal intonation units appear to be much more pervasive in Chinese spoken discourse. Analysis of our data indicates that on average it takes approximately two intonation units to make up a clause (5297/2670).

There were a total of 1592 main clause NPs in the texts, but since some of the NPs were predicate nominals, indirect objects or question words, only 1433 were analyzed for purposes of this study. These NPs were coded for their grammatical role, morphological type, activation state, identifiability, generality and semantic class.

4. Valency Role Orders

In the following discussion, surface core arguments A, S, and O will be termed valency roles in preference to the more usual syntactic roles (e.g. Payne 1987). Following Dixon (1979), A and O refer to the typical agent and patient of a transitive verb and S the single argument of an intransitive verb. The data consist of 1287 core arguments and 146 obliques (159 NPs were of other minor categories).

Two activation states of NPs were distinguished. 'Given' NPs are

those that have already been activated at the point in the speech act where the NP appears. 'New' referents refer to any referents that are not given. An 'identifiable' NP is one whose referents the speaker assumes the listener can identify close enough to satisfy the curiosity of the hearer. A referent may be identifiable by virtue of previous mention, situational setting, or the frames invoked etc. (Chafe 1987, 1994).

The text data show that a strongly preferred order of nominal arguments, relative to the verb, can be identified. Table 2 presents various valency role orders for clauses that have two, one, or zero overt arguments. An argument role within parentheses means that that nominal argument can be recovered from discourse, but is covert. O<ba> and O<lian> mean that the O role is marked by ba or lian. AOV refers to the ba construction. O_s means that the O is a sentential complement.

	C	G	P
AVO	110	102	125
AOV	3	7	27
OAV	6	1	1
VO	21	4	6
V(O)	3	0	0
(A)VO	65	52	101
AV(O)	6	1	2
OV	1	0	0
O(A)V	7	0	2
O<ba>V	1	0	0
(A)O<ba>V	8	16	49
(A)O<lian>V	1	0	0
A(O<ba>)V	4	1	14
OsA<bei>V	0	2	0
(A)V(O)	0	1	0
SV	227	121	188
VS	16	16	94
(S)V	109	37	122
V(S)	1	0	0
$VS_{postposed}$	0	1	0
Total	589	362	731

Table 2. Distribution of various valency role orders.

AVO	337
AOV	37
OAV	8
VO	249
OV	85
AV	30
SV	536
VS	127
V	273
total	1682

Table 3. Distribution of various valency role orders (distilled from Table 2).

As shown in Table 3, the most common clause types in the corpus are AVO for transitive clauses and SV for intransitives. Furthermore VO order outnumbers OV order by a 4.5:1 ratio (586:130).

Table 4 shows the distribution of clauses with zero, one, and two missing arguments in relation to transitivity.

number of missing arguments	Transitive	Intransitive	Total
0	382	662	1044
1	362	269	631
2	4	---	4
total	748	931	1679

Table 4. Distribution of clause types as a function of missing arguments.

As seen in Table 4, unlike other languages that have been worked on (e.g. Papago, Sacapultec), there is no marked tendency in Chinese for clauses to have one less overt core argument than the number allowed, suggesting that zero anaphora is a syntactically restricted phenomenon, a point we will come back to in the final section of the paper.

Table 5. presents cross-tabulations of valency roles (A, S, and O)

with pre- vs. postverbal position for clauses with one and two overt core arguments in the conversation text. Tables 6 and 7 present the same cross-tabulations for the Ghost and Pear texts.

	A		S		O		total
	N	%	N	%	N	%	N
Preverbal	119	100.0	227	93.4	9	7.6	355
Postverbal	0	0.0	16	6.6	110	92.4	126
total	119	100	243	100	119	100	481

(X^2=360.66, d.f.=2, p<.01; ϕ=.86)

Table 5. Syntactic role and pre- vs. postverbal order (conversation).

	A		S		O		total
	N	%	N	%	N	%	N
Preverbal	110	100.0	121	88.3	8	7.3	239
Postverbal	0	0.0%	16	11.7	102	92.7	118
total	110	100	137	100	110	100	357

(X^2=259.61, d.f.=2, p<.01; ϕ=.85)

Table 6. Syntactic role and pre-vs. postverbal order (Ghost).

	A		S		O		total
	N	%	N	%	N	%	N
preverbal	153	100.0	188	66.7	28	18.3	369
postverbal	0	0.0	94	33.3	125	81.7	219
total	153	100	282	100	153	100	588

(X^2=222.05, d.f.=2, p<.01; ϕ=.61)

Table 7. Syntactic role and pre- vs. postverbal order (Pear).

Tables 5~7 show that, unlike Papago, which is a flexible word order language, pre- versus postverbal order of nominal arguments are strongly associated with valency roles. Not only are the X^2 values highly significant, but the ϕ statistics also show a very strong association between form (pre- vs. postverbal order) and function (valency roles). The

significance of the association results primarily, especially in conversation and Ghost, from the strong placement in the preverbal position of A and S and the nearly equally strong placement in the postverbal position of O.

Tables 5~7 also show that as expected, there is a one-to-many correlation from form to function, since the preverbal position may be either A or S, though the postverbal position is nearly categorically O. The very same data in Tables 5~7 can be rearranged, as correlations from function to form. When this is done, it can be readily seen that there is a near-categorical tendency for A and S to appear in preverbal position, and O in postverbal position, since the mean prediction rate is a respectable 91.4%. This result of course is also deducible from the earlier observation that AVO is the dominant word order in the corpus.[1]

5. Word Order and Information Status of NPs

In the following discussion, two activation states are distinguished for NPs. A nominal is considered given if its referent has already been activated at the point in the speech act where the nominal appears. 'New' referents refer to any nominals that are not given. Accessible referents that have not been mentioned but are frame-based are treated as new information in this paper.

Table 8 presents the cross-tabulation of new/given information with valency roles. Pre-S in the table means preverbal S.

	Given		New		total
	N	%	N	%	N
A	1182	97.4	32	2.6	1214
Pre-S	812	92.5	66	7.5	878

Table 8. Distribution of new/given information with valency roles.

1. The Pear text, as can be seen from Table 7, as compared with the Ghost text, contains a significant percentage of post-verbal S's (33%). It is not completely clear to us why there should be such a disparity in the distribution of postverbal S's in the two narrative texts.

Tables 5-8 show that clause-initial position is used to encode primary semantic role (agent) and primary pragmatic role (topic, given information). When there is a conflict in the assignment of the two functions, Chinese rarely uses the syntactic-role changing process (passive) to resolve the conflict, but relies on a complex interplay between semantics and pragmatics for its resolution, since passives are hardly ever used, accounting for just 0.1% of the data (see Table 2).

But how does word order correlate with discourse pragmatics? Table 9 presents cross-tabulations of activation states of nominal arguments (given, new) with pre- vs. postverbal position in the conversation text. Tables 10～11 present the same cross-tabulations for the Ghost and Pear texts.

	Given		New		total
	N	%	N	%	N
Preverbal	314	88.5	41	11.5	355
Postverbal	74	58.7	52	41.3	126
total	388		93		481

(X^2=52.67, d.f.=1, p<.01; ϕ=.33)

Table 9. Information status and order (conversation).

	Given		New		total
	N	%	N	%	N
Preverbal	224	93.7	15	6.3	239
Postverbal	56	47.5	62	52.5	118
total	280		77		357

(X^2=99.96, d.f.=1, p<.01; ϕ=.53)

Table 10. Information status and order (Ghost).

	Given		New		total
	N	%	N	%	N
Preverbal	333	90.2	36	9.8	369
Postverbal	89	40.6	130	59.4	219
total	422		166		588

(X^2=166.91, d.f.=1, p<.01; ϕ=.53)

Table 11. Information status and order (Pear).

Tables 9~11 show that pre- versus postverbal order of nominal arguments is strongly associated with their information status. However, all three of the ϕ statistics show the association to be much weaker than that between word order and valency roles. They also show that, again as expected, there is a one-to-many correlation from form to function, since the postverbal position may equally be given or new in all of the three texts, though there is a near-categorical tendency for the preverbal position to be given.

The very same data in Tables 9~11 can be recomputed, as correlations from function to form. When this is done, it can be readily seen from Tables 12~14 that the function-form mapping is hardly ambiguous: both the 80:20 ratio vs. 19.5:80.5 ratio for the Ghost text and the 79:21 ratio vs. 26:74 ratio for the Pear text are in the same direction. However, it can be easily determined that the mean prediction rate (for predicting word order on the basis of given vs. new information) is just 75.7%, which is not only lower than the 91.4% prediction rate for valency roles cited earlier, but also lower than the normal value of 80%~90% for code fidelity (Givón 1995).

	Preverbal		Postverbal		total
	N	%	N	%	N
Given	314	80.9	74	19.1	388
New	41	44.1	52	55.9	93
total	355		126		481

Table 12. Information status and order (conversation).

	Preverbal		Postverbal		total
	N	%	N	%	N
Given	224	80	56	20	280
New	15	19.5	62	80.5	77
total	239		118		357

Table 13. Information status and order (Ghost).

	Preverbal		Postverbal		total
	N	%	N	%	N
Given	333	78.9	89	21.1	422
New	36	21.7	130	78.3	166
total	369		219		588

Table 14. Information status and order (Pear).

We have shown, then, that word order in Chinese is far more sensitive to valency roles than to activation states (given, new) of nominal arguments. This is an important finding, since linguistic literature has continued to perpetuate claims about the nature of Chinese word order that run counter to the above finding. To cite just two references. Li and Thompson (1978: 687) made the following observation: "---- Word order in Chinese serves primarily to signal semantic and pragmatic factors rather than grammatical relations such as subject, direct object and indirect object". Similarly, LaPolla (1990: 31) holds that "--- word order is to the largest extent controled by the nature of information flow and secondarily by semantics. Syntactic functions play no part in the determination of the order of constituents in a sentence". When confronted with the real discourse data, observations such as these can be seen as needing revision.

We have shown that word order in Chinese is more sensitive to valency roles than to activation states of nominal arguments, thought both factors are highly predictive of word order. What this means is that there are still subpatterns of word order which deviate from the preferred order of AVO or SV in response to certain discourse-pragmatic functions. Among the subpatterns two are the most frequent: existential VS and the marked AOV order. We assume that a language with a more rigid AVO order than Chinese would show the corresponding phi statistics for activation states to be much higher in values.

If word order in Chinese is more sensitive to valency roles than to activation states of nominal arguments, what remains to be demonstrated is whether word order is also sensitive to other dimensions of discourse

pragmatic information. This will be attempted in the following section.

6. Word Order, Identifiability and Generality

Identifiability is a discourse category used to characterize the speaker's assumption about whether a particular referent can be identified by the hearer. An NP is identifiable if the speaker intends and believes that the hearer can mentally tag the information as identifying a particular referent which will have continuous identity over time. A non-identifying expression is one which is either non-referential or for which the speaker believes the hearer cannot tag the information as identifying some particular entity. Generality as a discourse property concerns whether a referent refers to a particular entity (particular) or a class of entities (generic) (Du Bois and Thompson 1992).

Table 15 presents cross-tabulations of activation states, identifiability and generality of nominal arguments with pre- versus postverbal O. Table 16 presents the same cross-tabulations for pre- versus postverbal S.

	Preverbal O		Postverbal O		total
	N	%	N	%	N
Given	113	86.3	449	61.1	304
New	18	13.7	286	38.9	562
total	131	100	735	100	866
	$P(X^2=30.9$, d.f.$=1$, $p<.01$; $\phi=.19)$				
Identifiable	112	85.5	535	72.8	647
Non-identifiable	19	14.5	200	27.2	219
	$(X^2=9.35$, d.f.$=1$, $p<.01$; $\phi=.10)$				
Generic	13	9.9	244	33.2	257
Particular	118	90.1	491	66.8	609
	$(X^2=29.05$, d.f.$=1$, $p<.01$; $\phi=.18)$				
Human	27	20.6	225	30.6	252
Non-human	104	79.4	510	69.4	614
	$(X^2=5.27$, d.f.$=1$, $p<.01$; $\phi=.08)$				

Table 15. Pragmatic and semantic categories and the order of O.

	Preverbal S		Postverbal S		total
	N	%	N	%	N
Given	812	92.5	39	31	851
New	66	7.5	87	69	153
total	878	100	126	100	1004
	(X^2=327.3, d.f.=1, p<.01; ϕ=.57)				
Identifiable	819	93.3	30	23.8	849
Non-identifiable	59	6.7	96	76.2	155
	(X^2=419, d.f.=1, p<.01; ϕ=.65)				
Generic	83	9.5	27	21.4	110
Particular	795	90.5	99	78.6	894
	(X^2=15.46, d.f.=1, p<.01; ϕ=.12)				
Human	691	78.7	89	70.6	780
Non-human	187	21.3	37	29.4	224
	(X^2=4.24, d.f.=1, p<.05; ϕ=.06)				

Table 16. Pragmatic and semantic categories and the order of S.

A number of significant results emerge from Tables 15 and 16. First, the semantic category human/non-human has little predictive value for order as expected. Secondly, generality is also a poor predictor of word order. Thirdly, activation state and identifiability work in parallel in the predictive success with word order. In other words, word order can be equally well or equally poorly predicted on the basis of either activation state or identifiability. Thus they are equally strong predictors of pre- vs. postverbal S, but equally poor predictors of pre- vs. postverbal O. These results taken together suggest that morphological types of nominal arguments in Chinese are used essentially to encode just one of two types of information: either the more linguistic context-bound activation states or identifiability, which has a stronger mix of extra-linguistic components, since pathways to identifiability include not only previous mentions, but also situational settings and invoked frames.

Tables 15 and 16 further show that the structural split of S is strongly motivated by discourse pragmatics, but the structural split of O much

less so, since the phi statistics are much higher for the former. This is a significant finding, as it bears directly on the pragmatic status of the AOV sentences, a point to be taken up presently. In addition, it can be easily determined that the prediction rates from pragmatic categories to pre-/postverbal S order are respectively 80.8% for activation state (given/new), and 84.8% for identifiability. If we believe with Givón (1995) that the perceiving mind needs a code fidelity somewhere about or above the level of 80% prediction rate for it to begin to bet on a 100% categorical distribution and ignore the margins, then Chinese can be said to have nearly grammaticized the scalar distribution of various pragmatic properties of nominal arguments in preverbal and postverbal S positions as identifying respectively an existential construction for the latter and an intransitive sentence for the former.[2] But the same cannot be said of the structural split of O. The low phi statistics in Table 15 mean that there would be little predictive success from function to form. Thus the prediction rate from activation state to order is a mere 57.5%, and that from identifiability to order is 56.3%, both of which are at chance level. The prediction rate from particular to order is higher, at 61.5%, which is still nowhere near the threshold 80% of code fidelity required of categorical distribution. These results are worth stressing, since the discourse functions of preverbal vs. postverbal O have been a major bone of contention among Chinese linguists.

7. Topicality Hierarchy

The present data indicate that 98% of the time the clause-initial position is preempted by an NP which is either an A (and hence categorically topic of the clause) or a (preverbal) S (and hence also categorically

2. Payne (1992) points out that two factors often obfuscate a 100% relationship between a grammaticized function and a linguistic form. One factor has to do with the on-line nature of unplanned discourse. Another factor has to do with the fact that a given function can be encoded in more than one way, depending on interaction of factors.

topic of the clause). The clause-initial NP then represents a convergence of semantic ("role") properties of agent and the pragmatic ("reference") properties of clausal topic. A and S are much more topical than O not only in their greater propensity to preempt the clause-initial position but also in their stronger tendency to form continuous anaphoric links across successive clauses. To measure topic continuity across different valency roles, anaphoric links across adjacent clauses are tabulated according to the valency roles in which the co-referential referents occur in the two clauses. For example, if the pronominal ta 'she' in (1) appears in the A role in clause (a), but re-appears as S in the succeeding clause (b), then this particular link across A and S is tabulated as an instance in the linkage class of 'A-to-S'.

(1) a. →Y: ...yinwei **ta** yiqian,–
because 3.SG previously
'Because she previously,
conglai mei you zhe ge jingyan a.\
ever NEG have this CL experience PRT
did not ever have this kind of experience,
b. → ...suoyi% suoyi na ge **nude** jiu xiayitiao.\
so so that CL woman thus be frightened
so that woman was frightened.' (GHOST 4:207-10)

Tables 17~19 present the distribution of various types of anaphoric links for A, S, and O.

	N	%
A-to-A type	400	63.3
A-to-S type	201	31.8
A-to-O type	31	4.9
total	632	100

Table 17. Anaphoric linkage of A (After Chui 1994:64-65).

	Preverbal		Postverbal	
	N	%	N	%
S-to-S type	208	47.1	7	19.4
S-to-A type	210	47.5	25	69.4
S-to-O type	24	5.4	4	11.1
total	442	100	36	100

Table 18. Anaphoric linkage of S ($X^2=10.53$) (After Chui 1994:104-105).

	Preverbal		Postverbal	
	N	%	N	%
O-to-A type	5	17.2	40	25.5
O-to-S type	5	17.2	40	25.5
O-to-O type	19	65.5	77	49.0
total	29	100	157	100

Table 19. Anaphoric linkage of O ($X^2=2.56$) (After Chui 1994:84).

Since the total number of nominals in A, preverbal S, postverbal S, preverbal O and postverbal O in the corpus are respectively 1214, 878, 126, 131 and 735, we can easily determine that the percentages of various valency roles forming anaphoric links are as shown in Table 20.

	all texts		Ghost & Pear only	
A	52%	632/1214	59%	484/819
preverbal S	50.3%	442/878	57.2%	290/507
postverbal S	28.6%	36/126	31%	34/110
preverbal O	22.1%	29/131	22.6%	26/115
postverbal O	20%	147/735	21.4%	104/486

Table 20. Percentage of valency roles forming anaphoric links.

As shown in Table 20, A and preverbal S are, as expected, consistently the most predictable, continuous and topical valency roles, followed by postverbal S, pre- and postverbal O in the two separate distribution

tabulations (all texts considered together or just narrative texts only). X^2 tests show that there is no significant difference either between the first two roles or among the last three roles (though postverbal S exhibits stronger anaphoric links than the two O roles, the difference falling just short of statistical significance). One may thus suggest the following topicality hierarchy for valency roles defined in terms of their ability to form anaphoric links:

(2) $$\left\{\begin{array}{l}\text{A}\\ \\ \text{preverbal S}\end{array}\right\} > \left\{\begin{array}{l}\text{postverbal S}\\ \text{preverbal O}\\ \text{postverbal O}\end{array}\right\}$$

Since A and preverbal S are overwhelmingly given (97.4% for A; 92.5% for perverbal S), identifiable (94.8% for A; 93.3% for preverbal S) and human (94.6% for A; 78.7% for preverbal S), they are therefore the most continuous and predictable arguments. By contrast, all other valency roles should by implication rank lower on the topicality hierarchy in an asymmetric 'figure-ground' sort of distinction, since if preverbal valency roles are maximally topical, then one would expect postverbal valency roles to be maximally non-topical. It is easy to see why this should be the case. In a language with a preferred word order of AVO, the postverbal O position is where relatively incidental or unimportant information to the development of the narrative goes (the so-called "unimportant information last principle"). Nominal arguments that appear there tend to be new, non-identifiable and/or non-human. On the other hand, postverbal S is where the thematic development of the story line is discontinued, and new entities are introduced into discourse for the first time, often at points of higher thematic discontinuity (e.g. at paragraph or topic chain boundary points), reserving the preverbal S position for the more topical, identifiable and/or human referents. Most of the postverbal initial mentions on S have little thematic continuity (i.e. are not needed in subsequent discourse), just as most of the postverbal mentions on O do.

But why should preverbal O rank lower on the hierarchy just as postverbal O and postverbal S do? We have shown above that the structural split of O is hardly motivated by discourse pragmatics. On the one hand, the low ϕ statistics already tell half of the story. On the other, the 86.3:13.7 ratio versus 61.1: 38.9 ratio for given/new, or the 85.5:14.5 ratio versus 72.8:27.2 ratio for identifiablity, or 79.4:20.6 ratio versus 69. 4:30.6 ratio for humanness (see Table 14) are all in the same general undramatic direction. It should not be surprising therefore that both postverbal O and preverbal O should have turned out to rank equally low on the topicality hierarchy.

We have shown that the low ϕ statistics in Table 15 mean that there would be little predictive success from function to form. Still, it is true that there is a significant statistical difference in the distribution of discourse categories between preverbal and postverbal O (see Table 15), though apparently that difference has not translated into a difference in their ability to form topicality links. A question that naturally arises is what discourse function the marked AOV order serves.

Since languages do not in general code topic continuity, that statistical difference must mean that some other discourse-functional feature mediates that difference. The working assumption here is not that it is the topicality linkage that is being coded, but that both the topicality linkage and the observed statistical differences reflect some deeper discourse function. Now there are basically four primary discourse functions for NPs: that of introducing referents into discourse, that of establishing referent identity, that of predicating an argument, and that of attracting attention. In Chinese, the preferred word orders (AVO, SV) serve the second and third functions, and the VS construction serves the first function. What word order serves the fourth function? It could be either OAV or the more frequent AOV. Givón (1987) shows that the use of the structural device of preposing to signal discourse function of both low informational predictability and high thematic importance is widely attested in a number of typologically diverse languages. In other words, preposing a constituent is a cognitive device for attracting attention to it.

Sun and Givón (1985) suggest, based on measurements of referential distance (RD) and potential interference (PI), that the correlation between OV order and definite (which can be equated to identifiability in the present study) in Chinese is the direct effect of such a contrastive device.

However, there are several lines of evidence that suggest that Sun and Givón's suggestion can't be right. We have shown above that the structural split of O is not strongly motivated by discourse pragmatics. In addition, we have gone through the AOV sentences in the data and found that they have not entirely divorced from their semantic origin as 'disposal' constructions. All of the verbs in these sentences are high transitivity verbs that require an agent and take a resultative or directional complement (there are a total of 71 such verbals). (3) is an example.

(3) Z: ...ta de nage pengyou shi yinwei%,–
3.SG DE that friend COP because
'It is because his friend
...(H) yinwei yao%... yao=?/
because REPAIR REPAIR
→ ...you **yixie heiqian**.
have some black money
ranhou=ta yao% --
then 3.SG have to
'Then, he had to
→ ...ta **ba naxie heiqian**=,–
3.SG BA those black money
have that black money,

...(1.1) ^yung gezhong butongde%,–
use any kind different
using different kinds of
...butongde guandao.
different way
different ways,\
ranhou.\

then
then,
→ ..**ba zhexie..qian.**\
BA these money
had this money
...xi= xiqian.\
REPAIR launder money
laundered.'
ranhou?/
then
'Then,
...xiqian zhihou.\
launder money after
after laundering money,
...zh- yung zhuan% --
REPAIR use REPAIR
(he) used
..yinhang zhuanzhang de fangshi.\
bank transfer DE method
the method of bank transfer,
...(H)ranhou.\
then
then,
→ ...**ba zhexie qian.**\
BA these money
had this money
..you guihui dao..yuanlai ta de zhanghu.\
again return to original 3.SG DE account
returned to his original account again.' (GHOST 1:43-59)

This means that the marked AOV sentences take the form they do because of greater semantic transitivity involving an agent affecting a patient in a specific way. It has been shown that positive marking for O,

whether it be signalled by position or case marking is indicative of greater semantic transitivity (Hopper and Thompson 1980). Secondly, contrastivizing is often also a topicalizing device. (Indeed Givón (1992) calls the OV order a contrastive topicalizing device). However, we have shown that preverbal O and postverbal O behave similarly in their (in-) ability to form topicality links, suggesting that the OV order cannot be a topicalizing device. Furthermore, we have also surveyed our data but found little evidence of the AOV sentences as a contrastive device.

We have thus arrived at a paradoxical situation. On the one hand, AOV sentences are structurally marked in that they deviate from the more basic AVO order, and yet they are not pragmatically marked. However once we realize that the marked AOV sentences take the form they do because of the nature of verbal semantics, then the alleged paradox disappears. In any case it would be misleading to call AOV sentences pragmatically marked constructions, since they have been shown to mark no contrastive focus and have shown no evidence of marking a major topic change, at least in the present data[3].

8. "Subject"-Like Properties in Clause-Initial Position

If we disregard positional role differences in S or O, and if we sum all of the various types of anaphoric links (see Tables 17~19) regardless of directionality, we find that the most preferred links are either identical links with A, S (i.e. A/A, S/S), or non-identical S/A links, as Table 21. shows:

3. LaPolla (1992) argues that ba marks non-topical anti-ergative argument and functions to disambiguate two potential agents. But there is no evidence that this is what is at work in the data. Our data shows that 94.6% of the A's are humans, but 80% of the preverbal O's are non-humans, and can hardly qualify as potential agents.

Anaphoric types	N	%
A/A	400	32.5
S/S	208	16.9
O/O	77	6.3
S/A	411	33.4
S/O	64	5.2
A/O	71	5.8
total	1231	100

Table 21. Types of anaphoric links (After Chui 1994:140).

The results shown in Table 21. suggest that co-reference across adjacent clauses is fairly independent of valency roles, since any anaphoric link is possible[4]. However, since 82.8% of the links (A/A, S/S and S/A) are co-reference under identity of primary topic (A or S), the clause-initial NP position in Chinese, which represents a convergence of primary semantic ("role") property of agent and primary pragmatic property of clausal topic, has thus a reference-related 'subject' property characteristic of languages where subject is syntactically important. Furthermore, the fact that S/A anaphoric links are the most common preferred way of forming anaphoric links suggest that a S/A pragmatic pivot in the sense of

4. The following table shows that an argument shared by two conjoined adjacent clauses (with or without an explicit connective) can be represented by a zero in the second clause without observing the constraint characteristic of the accusative language that it be in the A or S role in both clauses. Figures in the denominators represent occurrences of anaphoric links and those in the numerators represent instances of anaphoric links where the coreferential argument in the second clause is a zero anaphor.

	C	G	P
A→A	46/94	57/108	112/174
A→S	26/55	23/47	53/80
A→O	2/9	0/11	1/7
O→O	19/32	2/10	5/22
O→A	6/9	4/14	4/12
O→S	3/9	0/12	1/8
S→S	49/96	25/34	58/76
S→A	22/47	35/63	72/85
S→O	0/8	0/6	3/7

Foley and Valin (1984:119) has begun to emerge, a pivot which neutralizes the valency role distinction between S and A, and which is determined by the demands of topicality and cross-clause linkage under coreference. Chinese is thus unlike Eastern Pomo, a strict active-stative language whose switch-reference system seems to monitor semantic roles of actor and undergoer directly, not the more abstract S/A semantic pivot, nor the most abstract S/A pragmatic pivot (Foley and Valin 1984: 121). However, the rarity of passive bei sentences in the data (there being only 2 out of 1682 clauses, or just o.1%, which is far fewer than the 3-4% range reported for spoken German, and perhaps for other subject-prominent languages as well) strongly suggests that changes in the pragmatic role of a nominal in Chinese do not depend on changes in "syntactic role", and that Chinese does not have the kind of pivot system found in either English or Dyirbal where the choice of pivot is strictly governed by the exigencies of topicality and interclausal linkage under coreference, hence necessitating the use of passive or antipassive construction to permit alternative choices of pivot when required by context. Chinese appears, then, to be opting for the "Philippine style" solution, whereby the overall order is highly sensitive to both valency roles and pragmatic information, and yet preverbal S/postverbal S order is strongly influenced by the pragmatic properties of the nominal arguments. A strictly reference-prominent (or subject-prominent) language would have opted for a more 'unified' syntactic treatment of S rather than a structural split of S motivated by semantic or discourse-pragmatic considerations.

9. Conclusion

To summarize, Chinese represents a language where semantic role and pragmatic reference have been more or less grammaticized (given syntactic encodings) and are expressed by the same means, linear order, but role-changing morphosyntactic processes are rare. Such a language tends to discourage a patient from being a topic or taking the clause-

initial position to avoid the conflict between an agentive topic and a non-agentive topic. This is indeed the case in Chinese. Table 2 shows that OAV, OV, and bei sentences together account for just 0.4% of all clause types.

A/S in Chinese has acquired some 'subject' properties, though perhaps not all of the subject properties characteristic of subject-prominent languages (e.g. subject-verb agreement or subject-creating constructions), and since initial position has not yet become completely divorced from its pragmatic origin (there being no dummy subject-creating constructions), it might be more advisedly termed a category of "grammaticalized topic" in the sense of Comrie (1988), distinct from topic and from subject[5].

To return to the question posed in the title of this paper: Is Chinese a pragmatic order language? A pragmatic order language is a language where pragmatic considerations are primary determinants of word order. Papago, Ute and Nez Perce are among the languages often cited as belonging to this type of language. But we have shown that word order in Chinese is far more sensitive to valency roles than to pragmatic considerations. Secondly, double-subject constructions, often cited as characteristic of 'topic-prominent' languages such as Chinese, actually occurred with such rarity (accounting for just 1.8% of the clauses in the corpus, or 50/2670) that they must be considered as an "unusual" way of making a discourse point. Thirdly, pervasive use of ZA (zero anaphora) is also taken as a defining characteristic of a topic prominent language such as Chinese. The folowing statement is typical of such line of thinking:

> ---noun phrases in Chinese that are understood from context do not need to be specified.--- It is sometimes difficult for speakers of Indo-European languages to grasp because the use of pronouns is so much more common in Indo-European, especially in English (Li and Thompson 1981: 657)

Use of ZA (zero anaphora) is certainly an index of the role pragmatics

5. Note that there is no subject agreement in Norwegian, an otherwise subject-prominent language. It is also noteworthy that the pragmatic origin of subject in English is still evidenced by the so-called indefinite subject constraint.

play in a given language, though not necessarily in its word order. Gundel (1987) has observed that the more topic-prominent a language is, the less restricted the distribution of zero anaphora in that language.[6] Li and Thompson (1981) would have been much more on target had they chosen Japanese as an example of a language marked by an extensive use of ZA, since recent research fails to show that Chinese exhibits a significantly greater propensity to use ZA than does a subject-prominent language such as English, as the following table amply shows.

	Chinese		English	Japanese
	Huang (1992)	Chui (1994)	Chen (1986)	Chen (1986)
NA	43.3%	41.8%	---	---
PA	34.7%	34.8%	---	---
ZA	22%	23.3%	20.5%	73.2%

Table 22. Distribution of anaphoric types.

English is standardly taken as a language in which the grammaticization of topic into subject has gone to the fullest extent, but it does not differ in any interesting way from Chinese in the distribution of given/new information with respect to valency roles, as Table 23 shows.

6. An anonymous referee questions the validity of Gundel's observation, pointing out that there are many languages with a lot of zero pronouns (subject and object) (e.g., Georgian, with subject and object agreement), but such languages do not exhibit other symptoms of topic-prominence. Conversely, German is generally taken to be a topic-prominent language---its 'first-prone' position is routinely taken, in the Germanic studies literature, to mark the topic of a sentence. But German allows very little zero anaphora---allowing zero anaphora only for the first position, in fairly informal style.

	Given		New	
	Chinese	English	Chinese	English
A	1182	206	32	11
	(97.4%)	(94.9%)	(2.6%)	(5.1%)
(pre-) S	812	233	66	20
	(92.5%)	(92.1%)	(7.5%)	(7.9%)
(post-) O	449	86	286	78
	(61.1%)	(52.4%)	(38.9%)	(47.6%)

Table 23. Distribution of information and valency roles in Chinese and English (Chui 1994, Kärkkäinen 1994).

This simply means that Chinese is just as much a syntactic order language as a language like English, if English ever is. Indeed we have shown above that word order in Chinese is much more sensitive to valency role than to discourse pragmatics, unlike flexible word order languages such as Papago or Nez Perce where word order is only weakly associated with valency roles, but overwhelmingly determined by pragmatic information encoded in a particular clause (Payne 1992).

To conclude, the present data clearly demonstrate that word order in Chinese is much more sensitive to valency role than to discourse pragmatics and that in many ways Chinese is just as much a syntactic order language as a language like English. We have also suggested that since initial position in a Chinese clause has not yet become completely divorced from its pragmatic origin, it might be more advisedly termed 'grammaticalized topic', distinct from topic and subject.

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漢語七個類型特徵的來源
Typological Changes in the History of the Chinese Language

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摘　要

本文用羅杰瑞(Jerry Norman 1988:11)的七個類型來分析亞洲的十八個語言，漢語的類型分成遠古和現代兩項來描寫。這七個類型特徵是：(1)語素是單音節的，(2)帶聲調，(3)沒有複聲母，(4)缺乏形態或形態薄弱，(5)必須用量詞，(6)A-N詞序；A代表adjective（形容詞），N代表noun（名詞），(7)SVO詞序。

按照這七個類型特徵的標準，第一、遠古漢語很像藏文、景頗語。第二、現代漢語既不像藏緬語，也不像遠古漢語。也就是說，除了單音節那項特徵以外，現代漢語其他的六項特徵都是新興的。

至於爲什麼漢語會轉換類型，本文認爲是從公元前3000-4000年開始，漢語在北方跟亞爾泰語以及其他江南的非漢語接觸。

一、

羅杰瑞(Jerry Norman, 1988:11)曾經用七個類型特徵來分析亞洲的十八個語言，漢語的類型分成古代(classical)和現代(modern)兩項來描寫。這七個類型特徵是：

(1)語素是單音節的。

(2)帶聲調。

(3)沒有複聲母。

(4)缺乏形態或形態薄弱。

(5)必須用量詞。

(6)A-N詞序；A代表adjective（形容詞），N代表noun（名詞）。

(7)SVO詞序。

按照這七個特徵，羅氏認爲古代漢語和現代漢語是：

	1	2	3	4	5	6	7
現代漢語	+	+	+	+	+	+	+
古代漢語	+	?	−	+	−	+	+

本文把羅氏的特徵和結論修改一下。修改的部分有三：第一、本文用上古漢語、遠古漢語來替代羅氏的古代漢語，進而推測遠古漢語的特徵。比方說，上古漢語還有SOV詞序的殘留，我們於是推測遠古漢語的詞序是SOV。第二、羅杰瑞(1988:11)認爲景頗語語素是多音節的，缺乏形態或形態薄弱。其實景頗語語素是單音節的，而且形態豐富。第三、我們把(6)改爲(6')：

(6')修飾語——中心語詞序。

A-N詞序只是修飾語——中心語詞序的一類。這樣修改以後，再抄上羅氏給景頗語、藏文作的分析，結果可以寫成下面的表：

	1	2	3	4	5	6'	7
現代漢語	+	+	+	+	+	+	+
遠古漢語	+	−	−	±	−	−	−
藏文	+	−	−	−	−	−(6)	−
景頗語	+	+	−	−	−	−(6)	−

這張表有兩點值得注意。第一、遠古漢語很像藏文、景頗語。第二、現代漢語既不像藏緬語，也不像遠古漢語。換句話說，除了單音節那項特徵以外，現代漢語其他的六項類型特徵都是新興的。本文最後一節討論這六個類型特徵是怎麼來的：是受鄰近語言的影響而產生的，還是漢語自己

從內部發展出來的？

二、

上面所說的七項特徵，(1)單音節、(2)帶聲調、(3)沒有複聲母、(5)必須用量詞－這四項比較簡單。(1)漢語從古到今，語素是單音節的。從漢代開始，語詞有雙音節化的傾向。(2)去聲來自-s，上聲來自-ʔ，所以遠古漢語是沒有聲調的；至於《詩經》時代是否有聲調，至今沒有一致的看法，也許短期內也無法解答這個懸案。(3)上古漢語有複聲母是大多數學者承認的，可惜目前我們還不知道複聲母到底有哪幾種。(5)先秦時代還沒有必須用的量詞；“一馬”、“此人”常見；眞正的量詞是漢代興起的。

剩下三項特徵是：(4)缺乏形態或形態薄弱，(6')修飾語——中心語詞序，(7)SVO詞序。下面分別討論。

2.1 上古漢語的形態

上古漢語的形態，我們知道得比較清楚的有s-詞頭，功用是使動化和名謂化(denominative)；-s詞尾，功用是名詞化；還有由清濁聲母交替形成的構詞法，清音聲母的是他動詞，濁音聲母的是自動詞或形容詞，後者也有既事式的意味。

2.1.1 名詞化-s詞尾的例：

動詞		名詞		
漢	藏	漢	藏	
量平 *C-rjang	bgrang (impf),-bgrangs (pf) -bgrongs (imp)	量去 *C-rjangs	grangs	
織入 *tjək	'thag	織去 *tjəks	thags	織成品

此外還有非去聲（動詞）／去聲（名詞）交替的例，如：入／內；立／位；泣／淚；結／髻；鍥／契；列／例；責／債。去聲來自-s，所以這些也是名詞化-s詞尾的例。

2.1.2　使動化或名謂化s-詞頭的例：

使動化：

順	*djəns > dzjuěn	馴	*sdjən > zjuěn
滅	*mjiat > mjät	威	*smjiat > xjwät

玄應《一切經音義》引《說文》：“養鳥獸使服謂之馴”；“使服”就是“使順”。《詩、正月》“燎之方揚，寧或滅之。赫赫宗周，褒姒　之”的意思是“褒姒致使宗周滅亡”。

名謂化：

墨	*mək > mək	黑	*smək > xək
林	*C-rjəm > ljəm	森	*srjəm > *sjəm
膚	*ngjans > ngjɐn	獻	*sngjans > xjɐn

2.1.3　清濁聲母交替的例：

		他動		自動
*p- > p-	: *b- > b-	敗補敗切	:	敗薄邁切
		別彼列切	:	別皮列切
*tj- > tśj-	: *dj- > źj-	折之舌切	:	折市列切
		屬章玉切	:	屬時玉切
*trj- > tj-	: *drj- > dj-	著陟略切	:	著直略切
		張陟良切	:	長直良切
*k- > k-	: *g- > γ-	解古買切	:	解胡買切
		見古甸切	:	現胡甸切
		繫古詣切	:	繫胡計切

至於更早是否有個詞頭，造成後來清濁聲母的交替，我們目前還說不清楚。

2.1.4　其他的形態

俞敏《中國語文學論文選》117-120頁舉“來／麥”，“令／命”，“劉／卯”，“緣／蠻”中古l-／m-交替的例，來說明上古m-有名詞化作用。“令／命”的例尤其引人入勝。《孟子，離婁》：“齊景公曰：‘既不能令，又不受命’”；《周禮，大司徒》“正歲，令於教官曰:‘……以聽王命’”。這兩個例都說明“令”是動詞，“命”是名詞。

張琨、張蓓蒂(1976)認爲上古漢語有個N-詞頭，我也曾想過上古-r-中綴的問題。前者構詞功用不明，漢語中缺乏明確的例證。後者也是功用不明，而且藏緬語中似乎沒有可以對應詞綴。這種可能存在而目前說不清楚的詞綴本文暫且不談。

據上所述，遠古漢語至少有s-詞頭、-s詞尾、清濁聲母交替的構詞，可能還有m-詞頭。這就是我們在(4)（形態）那項給遠古漢語劃“±”的原因。比起藏文固然不足，比起現代漢語來，上古的形態卻綽綽有餘。

2.2 修飾語——中心語詞序

現在以名詞爲中心語的偏正結構，詞序一般是修飾語在前，中心語在後。下面舉詞序相反的例。（藤堂明保《漢字の起源》(1966)，76-77）

㈠後代皇帝的謚號，詞序是〔修飾詞-名詞〕，如“高宗”、“太祖”、“文帝”、“武帝”等。殷商的人名則不然，如“帝堯”、“帝舜”、“后稷”、“公劉”（周的祖先）。甲骨文裏殷代帝后的名稱也是“父丁”、“祖庚”、“妣甲”、“帝辛”。到了春秋時代，齊國太公呂尙的子孫稱爲“丁公”、“乙公”、“發公”已是後世習慣的詞序了。

㈡殷墟卜辭中的地名有“丘商”、“丘雷”，是後世的商丘、雷丘。春秋時代有名的戰場“城濮”，如果是在後世，應稱爲“濮城”。春秋地名“城父”、“城穎”也是這型。

㈢數目字在殷周時代放在名詞之後，如甲骨文“獻牛一羊一”，西周金文“孚人萬三千八十一人，孚馬□匹，孚馬卅兩，孚牛三百五十五牛，羊卅八羊”（小盂鼎）。參考Greenberg's Universal 18 (Greenberg, Joseph. Universals of Language (second edition, 1966), p.86):

When the descriptive adjective precedes the noun, the demonstrative and the numeral, with overwhelmingly more than chance frequency, do

likewise.

	NA	AN
Num.-Noun	8	10
Noun-Num.	11	0

㈣《詩經》裏的“中谷”、“中林”、“中逵”是後世的“林中”、“谷中”、“街中”。唐代孔穎達已經注意到這種現象。《詩、葛覃》：“葛之覃兮，施之中谷”。傳云：“中谷，谷中也”。孔穎達《詩經正義》曰：“中谷，谷中。倒其言者，古人之語皆然，詩文多此類也”。

㈤我以前（梅祖麟1988b:155-157）曾嘗試說明，漢代由【〔S〕$_N$〔VP者〕$_N$】$_N$詞序變成【〔VP者〕$_N$〔S〕$_N$】$_N$ 詞序，同時【名＋〔數＋量〕】也變作【〔數＋量〕＋名】。現在簡單地綜述。

先秦如果要用動詞性謂語來修飾主語，一種方式是用【〔S〕〔VP者〕】，例如

臣弑其君者有之，子弑其父者有之。（孟，滕文公下）

南門之外有黃犢食苗道左者。（禮記，檀公下）

原（源）濁者流不清。（墨，修身）

漢代沿用【〔S〕〔VP者〕】，例如《史記》裏的句子：

他小渠披山通道者，不可勝言。（河渠書）

高乃與公子胡亥承相斯陰謀，破去始皇所封書賜公子扶蘇者。（秦始皇記）

當其時，巫行視小家女好者，云是當爲河伯婦，即聘取。（滑稽列傳補）

同時漢代又興起【〔VP者〕〔S〕】，例如《史記》裏的：

項王怒，將誅定殷者將吏。（陳丞相世家）

何太子之遣往而不返者豎子也。（刺客列傳，荆軻）

於是平原乃斬笑躄者美人頭。（平原君）

因厚幣用事者臣靳尙。（屈原傳）

《孟子》裏的“臣弑其君者”是【〔S〕〔VP者〕】，中心語在前，修飾語在後。《史記》的“用事者臣”是【〔VP者〕〔S〕】，修飾語在

前，中心語在後。

最初，〔數＋量〕表明名詞的數量，大多數放在名詞後面，例如：

子光賞貝二朋，子曰貝佳女。（三代言金文存）

孚人萬三千八十一人，孚馬□匹，孚馬卅兩，孚牛三百五十五牛，羊卅八羊。（小盂鼎）

冉子與之粟五秉。（論，雍也）

陳文子有馬十匹。（論，公冶長）

春秋以後，〔數＋量〕才逐漸出現前置，但條件很有限制，一般只限於度量衡或表容量的量詞，如“一簞飯，一瓢飲”（論，雍也），“一鈞金與一輿羽”（孟，告子下），數量兼帶天然單位詞則是後置，先秦只說“馬十匹”，不說“十匹馬”，只說“幄幕九張”，不說“九張帳幕”。到了漢代前置的用例才漸漸多起來，不但表度量衡或表容量的量詞可以前置，天然單位詞也可以前置，例如：

陸地……千足羊，澤中千足彘。（史記，貨殖傳）

安邑千樹棗，燕秦千樹栗……。（同上）

越使諸發以一枝梅遺梁王。（說苑）

這兩種詞序演變：

【〔S〕〔VP者〕】>【〔VP者〕〔S〕】

【名＋〔數＋量〕】>【〔數＋量〕＋名】

都是：

【中心語＋修飾語】>【修飾語＋中心語】

2.3 上古〔SOV〕詞序的遺跡

2.3.1 〔Neg＋Pr_o＋V〕和〔Q_o＋V〕

否定詞後面的賓語代詞要前置，賓位的詢問詞也要前置，這兩條先秦漢語的規律《馬氏文通》已經注意到了。所謂“前置”，是就著先秦〔SVO〕的一般詞序來說。從漢藏比較的觀點來看〔Neg＋Pr_o＋V〕和〔Q_o＋V〕都是〔SOV〕詞序的遺跡。

下面舉例否定詞的次序是“不”、“未”、“無”、“莫”，代詞包括“我”、“余”、“之”、“己”、“汝”、“爾”、“是”。

貞：祖辛不我𢀛？貞：祖辛𢀛我？（前1.11.1）

不汝瑕珍。（書，康誥）

豈不爾思？畏子不奔。（詩，王，大車）

居則曰：不吾知也。（論，先進）

不患人之不己知，患不知人也。（論，里仁）

蓋有之矣，我未之見也。（論，里仁）

晉國之命，未是有也。（左，襄14年）

鄰國未吾親也。（國語，齊語）

無我惡兮。（詩，鄭，遵大路）

爾無我詐，我無爾虞。（左，宣15年）

見利之聚，無之去。（呂氏春秋，功名）

莫我肯顧。（詩，魏，碩鼠）

不患莫己知，求爲可知也。（論，里仁）

莫余毒也已。（左，僖28年）

下面是賓位詢問詞在動詞前面的例。

吾誰欺？欺天乎？（論，子罕）

吹參差兮誰恩？（楚辭，九歌）

終南何有？有條有梅。（詩，終南）

內省不疚，夫何憂何懼？（論，顏淵）

王者孰謂？謂文王也。（左，隱元年）

2.3.2　"弗／不"和"勿／毋"

丁聲樹1935（〈釋否定詞弗，不〉，《慶祝蔡元培先生六十歲論文集》），呂叔湘1941（〈論毋與勿〉，《漢語語法論文集》1955，12-35）指出，"弗，勿"用在他動詞前，"不，毋"用在自動詞前，"弗"＝"不之"，"勿"＝"毋之"。

不＋Vt＋之 ＞ 不＋之＋Vt ＞ 弗Vt

毋＋Vt＋之 ＞ 毋＋之＋Vt ＞ 勿Vt

上面公式的第一步是"之"字在否定詞後前置。詞序還是〔OV〕時，就不必假設這一步。

2.3.3　〔S＋是o＋V〕和〔Pro＋V〕

王力(1958：355)指出，前面沒有否定詞，有時賓語代詞也放在他動詞之前，例子都出於先秦最古老的文獻：

〔Pro＋V〕

民獻有十夫予翼。(《書，大誥》；民間賢人有十個協助我。)

惟我事，不貳適；惟爾王家我適。(又，〈多士〉；天下事已歸屬我們，不再歸屬別國，你殷國也已歸屬我們了。)

赫赫師尹，民具爾瞻。(《詩，小雅，節南山》；威嚴的尹太師，老百姓眼睛都看著你。)

除此之外，還有“是”字作賓語用，在金文和《詩經》、《尚書》可靠的各篇都是前置的，例如裘錫圭(1979：440)所舉金文裏的例：

〔S＋是o＋V〕

懿父迺(乃)是子。(沈子簋；“是”似乎指作器者自己，“子”作動詞用；懿父就把(我)這個(人)當做兒子。)

子孫是保。(陳逆簋；“是”指這件簋；子孫保存這個。)

子子孫孫是尚。(陳公子甗；子子孫孫尊尚這個。)

是用壽老。(毛公鼎；用這個長命百歲。)

還有《詩經》、《左傳》裏的例：

葛之覃兮……是刈是濩，爲絺爲綌。(《詩，周南，葛覃》；葛長得長了……割了它來煮煮它，做成細葛和粗葛布。)

疆埸有瓜，是剝是菹，獻之皇祖。(《詩，小雅，信南山》；……切了它來醃起來，獻給皇祖。)

爾貢包茅不入，王祭不共，無以縮酒，寡人是徵；昭王南征不復，寡人是問。(《左，僖4年》；“包茅”，束裹起來的青茅，用來滲去酒裏的渣滓；“共”，供；“縮酒”，滲酒；“寡人是徵”，我要這東西；“寡人是問”，我質問這件事。)

裘錫圭指出，金文和西周、春秋時代可靠的作品，“是”字作賓語用都是前置，到《論語》、《左傳》等書裏，賓語“是”字的位置已經變爲後置爲常。不過，《論語》裏“以”和“用”的賓語“是”仍然是前置的。《左傳》由於是根據大量較古的史料編纂而成的，在大量出現賓語“是”後置的同時，也保存了不少賓語“是”前置的句子。除了上面引的

“寡人是問”、“寡人是徵”以外，還有“小國是懼”（襄28年），“商人是因”（昭元年）等。

2.3.4 〔Oi＋【是、之】i＋Vt〕

另外一種句式是賓語前置，後面跟著的“是”或“之”複指賓語，再跟著他動詞。下面轉引王力(1958：61)和俞敏〈倒句探源〉(《語言研究》1(1981)，78-82)的例：

尹氏大師，維周之氐，東國之均，四方是維，天子是庳，俾民不迷。(《詩，小雅，節南山》；尹太師啊，您是周朝的基礎，掌握著國家大權，保護四方，輔助天子，使人民不致迷失方向。)

Oh, Grand-master Yin, you should be the base of Chou; you should hold the ordering of the state; the four regions, them you should unite; the Son of Heaven, him you should (augment:) strengthen; you should cause the people not to go astray...(Karlgren, The Book of Odes, p.133)

君亡之不恤，而群臣是憂，惠之至也。(《左》僖15年；君王不把自己的流亡放在心上，卻還掛念著群臣，眞是仁愛到極點了。)

愎諫違卜，固敗是求，又何逃焉？(《左》僖15年；不聽別人的勸告，違背卜卦所得的預兆，這本來就是找敗仗吃，還逃避什麼呢？)

今吳是懼而城于郢。(《左》昭23年；現在害怕吳國，在郢築起城牆來。)

同樣句式用“之”字複指的例(王力1958：363)：

燕婉之求，得此戚施。(《詩，新臺》；想找個如意的丈夫，誰知嫁這樣一個駝背。)

吾以子爲異之問，曾由與求之問。(《論，先進》；我以爲你問別的事呢，你倒是問仲由和冉求的事。)

非子之求而蒲之愛，董澤之蒲可勝既乎？(《左》宣12年；不注意去找回兒子而只是捨不得幾枝箭，咱們董澤的箭材難道還用得完嗎？)

寡君其罪之恐，敢與知魯國之難？(《左》昭31年；敝國君王擔心

自己罪過還來不及呢，那裏還敢過問魯國的急難呢？）

先君之恩，以勗寡人。（《詩，北風，燕燕》；恩今先君莊公……）

“四方是維，天子是庳”這樣的句子，以前一直認爲“是”是代詞，複指前面的賓語：

四方　是　維　four regions, them (you should) unite

O_i　是i　V_t

俞敏(1981：81)提出了一種新的看法。他指出：(1)“是”、“之”作爲代詞，也可以修飾名詞，如“之二蟲”（《莊，逍遙遊》；這兩個東西），“是日”（這天）；(2)藏文有兩個指示代名詞，一個是 'di，他認爲和漢語的“之”、“時”相當；另一個是遠指詞 de，和“是”相當；(3)de 修飾名詞時是後置，如：

kha-rtsang yongs-pa-'i　mi　de　ltas　byung

昨天　來　人　那　看見　來著

【〔　〕$_N$ DEM】$_O$ V_t

我瞧見昨天來的那個人來著

rygal-pos　skad-cha　yon-dan　yod-pa　de　thos　nas

大王　話　道理　有　那　聽　以後

【〔　〕$_N$DEM】$_O$ V_t

聽見大王有理的那句話以後

俞氏認爲“四方是維，天子是庳”裏的“是”，也是後置的指示詞，修飾前面的名詞：

【〔四方〕是】$_O$維V_t，【〔天子〕是】$_O$庳V_t　保護這四方，輔助這天子

these four regions, you should unite; this Son of Heaven, you should strengthen

俞氏的說法如果能成立，非常重要。因爲這樣一來，這些例句不僅是〔OV〕詞序，也是〔N-Adj.〕N詞序，完全和藏緬語的詞序相同。

2.3.5 〔Pr＋CV〕和其他

〔SOV〕詞序的語言，一般是介詞(CV，coverb)後置。這是Greenberg的Universal 4： With overwhelmingly greater than chances frequency, languages with normal SOV order are postpostional.

因此，〔賓語＋介詞〕詞序也是〔SOV〕詞序的遺跡。

這類例句先秦文獻中常見，而且在以後的文言裏保留得很久，例如“何以”、“是以”（王力1958：358-360），還有（俞敏1981：80）：

戎狄之與鄰。（《左》昭15年）

侈故之以。（《左》昭18年）

吾誰與爲鄰？（《莊，山木》）

頑囂是與比周。（《左》文18年）

此外還有一些關於“於”和“焉”的例。先秦通常的詞序是〔V＋於＋處所詞〕，如“于擊磬於衛”（論，憲問），“於”字前置。但俞敏（《經傳釋詞札記》(1987)，10頁）指出，“於”、“焉”也有後置的（參看王力1958：361-362）：

其一二父兄，私族於謀而立長親。（《左》昭19年；謀於私族而立長親；跟私族商量。）

諺所謂“室於怒，市於色”者，楚之謂矣。（《左》昭15年；怒於室色於市；在家裏生氣，到街上發作。）

唯蔡於感。（《左》昭11年；唯憾於蔡；就是對蔡不高興。）

亡於不暇，又何能濟。（《左》昭4年；不暇於亡；對自己的流亡都忙不過來，又怎麼能去幫助別人？）

入而能民，土於何有？（《左》僖9年；何有於土）

謝於誠歸。（《詩，崧高》；誠歸於謝）

還有“焉”字後置的例（俞敏1987：26）：

我周之東遷，晉鄭焉依。（《左》隱6年；＝依於晉鄭；《周語》作“晉鄭是依”；注云：“幽王爲犬戎所殺，平王東徙，晉文侯鄭武公左右王室，故曰晉鄭焉依”）

誰侜予美，必焉忉忉。（《詩，防有鵲巢》；＝忉忉於心）

往來行言，心焉數數。（又，〈巧言〉；＝數數於心）

今王播棄黎老，而孩童焉比謀。（《國語，吳語》；＝比謀於孩童）

何書焉存。（《墨，非命》；＝存于何書）

必大焉先，（《左》襄30年；＝必先於大）

這些例子的結構都是：

〔賓＋介〕＋動詞（室於怒，市於色）

跟先秦常見的詞序有兩點不同。第一、“子路宿於右門”（論語，憲問）、“王坐於堂上”（孟，梁憲王上）這種句子，引進處所的帶“於”字的介詞組在動詞之後。這是先秦的常例。上面引徵的例句，帶“於”或“焉”的介詞組在動詞之前。第二、介詞在介詞賓語之後，這可能是〔SOV〕詞序的遺跡。

總說起來，〔SOV〕詞序的遺跡有以下幾種：

(1)詢問詞前置。代詞在否定詞後要前置。這條包括“弗”、“不”之別和“勿”、“毋”之別。

(2)前面沒有否定詞，代詞也往往前置。其中最多的用例是“是”、“之”這兩個代詞。

(3)“於”、“焉”這兩個介詞放在介詞賓語的後面。

三、

現在回顧一下我們走過的路程。

羅杰瑞提出七個現代漢語的類型特徵。我們把第(6)個AN詞序擴充爲修飾語--中心語詞序，然後分析上古、遠古漢語。初步結論是說：

1. 漢語從最早到現在，語素一直是單音節的。

2. 就其他六個特徵來看——(2)帶聲調、(3)沒有複聲母、(4)缺乏形態或形態薄弱、(5)必須用量詞、(6)修飾語——中心語詞序、(7)SVO詞序——現代漢語和遠古漢語正相反。

反思一下，我們覺得(2)、(3)、(4)、(5)這四項關於遠古的推測是比較可靠的；(6)、(7)兩項因爲缺乏明確的證據，論證時牽強附會，在所不免。但是我們面臨的問題是不可避免的。藏緬語現在的詞序是SOV，NA；漢語

是SVO，AN。在共同漢藏語階段，無論是AN還是NA，無論是SVO還是SOV，總會跟現代的一個語支詞序相反。我們假設共同漢藏語的詞序是NA、SOV，於是希望能在上古漢語中找到NA、SOV的痕跡。

就(2)、(3)、(4)、(5)四項結論比較清楚的特徵來看，我們可以說漢語的類型在近三、四千年內發生過很大的轉變。

"類型特徵是可以變化的"這種想法是近四、五十年興起的，也是非常重要的。爲了說明這點，我們不妨回顧一下另一種學說：類型特徵是永恆的，不會變易的。

不久以前流行一種漢藏語系的分類法，其中有兩個語群；一個是藏緬，一個是漢台（王力《漢語史稿》上(1957)，27-29頁）。漢台語群包括：

漢語、侗傣語族、苗瑤語族、暹羅語、越南語、其他。

爲什麼這些語言都可以歸入漢藏語系？《漢語史稿》（上）說，這些語言都具備聲調，大部份的詞以單音節的詞根爲基礎，而且具有單位名詞（量詞）。這種論證的前提，假設這些類型特徵都是永恆的。既如此，現在帶聲調，用量詞的單音節的各種語言從一開始就是這樣，想來是來自同一個祖先。

這種看法不限於《漢語史稿》（上）。A. Meillet and M. Cohen, Les langues du monde, 1st ed. (1924)也有類似的看法。

上面討論過漢語史中聲調和量詞的興起。其實單音節也是可以變易的特徵。越南語屬於南亞語。南亞語的語素是多音節的；越南語的近親孟高棉語(Mon-Khmer)的語素，單音節的雙音節的都有；中古越南語也是多音節的。因爲長期受漢語、台語的影響，越南語才變爲單音節的語言。另一個實例是Cham語，原屬多音節的南島語系，現在是單音節的語言。

我們現在的看法是：

有親屬關係的各種語言，類型特徵不一定相同。類型特徵相同的各種語言，不一定有親屬關係。

套句中國的老話，東亞、東南亞語言的類型特徵是"性相近，習相遠"。同一語系的語言一開始是類型特徵相同，一旦各自東西，自立門戶，就被鄰近的非同系的語言同化而類型特徵發生轉變。

另外還有一些治漢語史的學者，他們認爲現代漢語的類型特徵是永恆的，可以追溯到遠古。王力先生（《同源字典》(1982)）就是明顯的例。王力先生認爲上古漢語沒有複聲母，不相信聲調發生說(tonegenesis)。在王先生的上古音系統裏，不可能有不自成音節的s-、m-詞頭，-s詞尾。章黃學派的古音學跟王先生的上古音大同小異。我在別處（梅祖麟1992）已經討論過王力先生的上古音和語源學，這裏不贅。

類型特徵有哪些是比較穩固的，有哪些是比較容易改變的？這是令人困惑的問題。我們上面一方面認爲六個類型特徵在漢語史中曾經發生重大的變化，另一方面針對非漢語卻假設某些特徵沒有多大變化。比方說，我們上面說越南語受了漢語、台語的影響而變成單音節的語言。假設之一是台語一直是單音節的。但如果白保羅(Paul Benedict)的Austro-Thai hypothesis（南島--台假設）能夠成立，台語的前身在某個古代階段該是多音節的。造成困惑的原因之一是漢語歷史悠久，古代文獻豐富，我們可以用典籍中的資料來探索上古漢語。與漢語爲鄰的非漢語，文字記載大多數不早過公元後七、八世紀。要推測這些語言更早的情況，只能假設晚期的特徵可以直溯上古。在方法上這兩種假設是自相矛盾的。我們下一節討論六個特徵爲什麼在漢語史中發生變化，就是要假設與漢語爲鄰的亞爾泰語、南亞語，它們現代的類型特徵就是遠古（公元前1000-3000年）的特徵。知其不可而爲之，這是應該向讀者說明的。

四、

羅杰瑞(1988：12)給亞洲十八個語言做了類型分析以後說：

> 在地理上，漢語處在兩種語言之間。北邊是不帶聲調、多音節的亞爾泰語，南邊是東南亞典型的帶聲調、單音節的各種語言。從類型的觀點來看，漢語也處在這兩種語言之間。比方說，AN詞序是亞爾泰語系各種語言共同的特徵，漢語也是這種詞序。另一方面，漢語是帶聲調的，而帶聲調是東南亞語言最突出的特徵。

這段話已經含蘊著一種想法：跟漢語毗鄰的語言會影響到漢語，因而使遠古漢語的類型特徵發生變化。

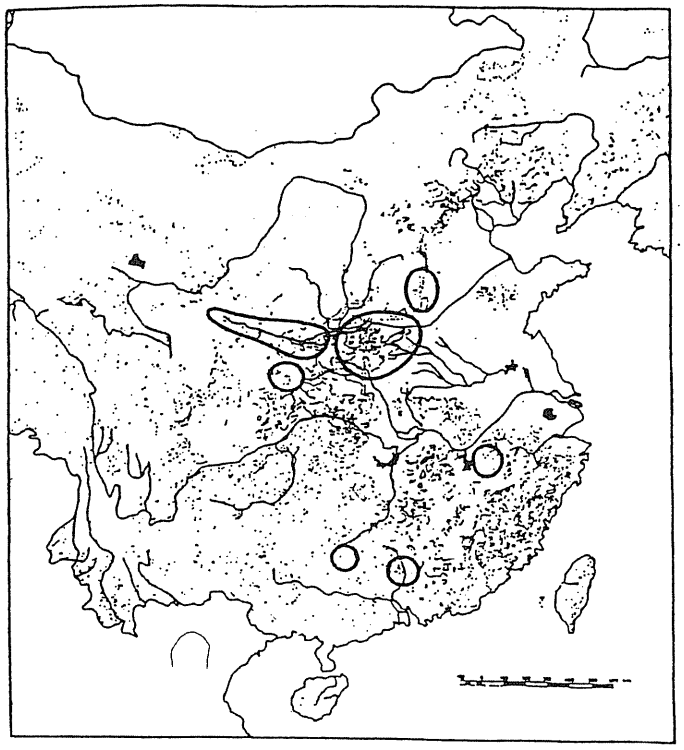
此外，羅杰瑞(1988：18)曾經說明漢語的“犢”字（上古音*duk）借自亞爾泰語；蒙古語tuγul，滿語tuksan， Evenki tukučən“小牛”，Lamut tu-～tuγu-“生小牛”。《說文》裏已有“犢”字。《史記，趙世家》記載公元前四世紀趙武靈王說的一句話：“今吾將胡服騎射以教百姓”。按照地望推測，趙國東部的胡人也是亞爾泰民族。據此，至晚在公元前四世紀，漢族和亞爾泰民族已經有了接觸。

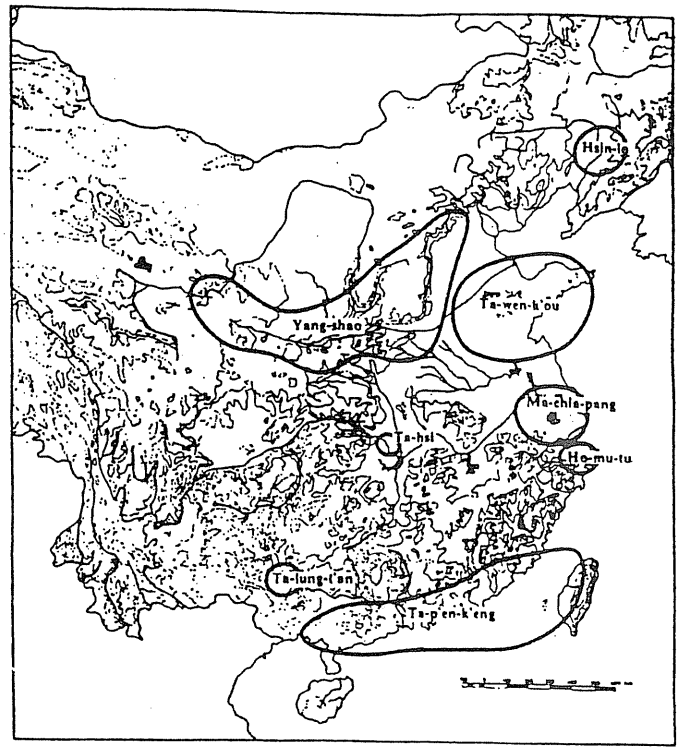
羅杰瑞和我(1976)還曾經說明漢語的“江”字借自南亞語。結論之一是漢族從黃河流域南下以前，長江南岸三角洲的土著民族是南亞族。漢族渡江南下是周初，公元前一千年左右；“江”字最早出現於金文和《詩經，江漢》。據此，漢族和南亞族接觸最晚是公元前十世紀。

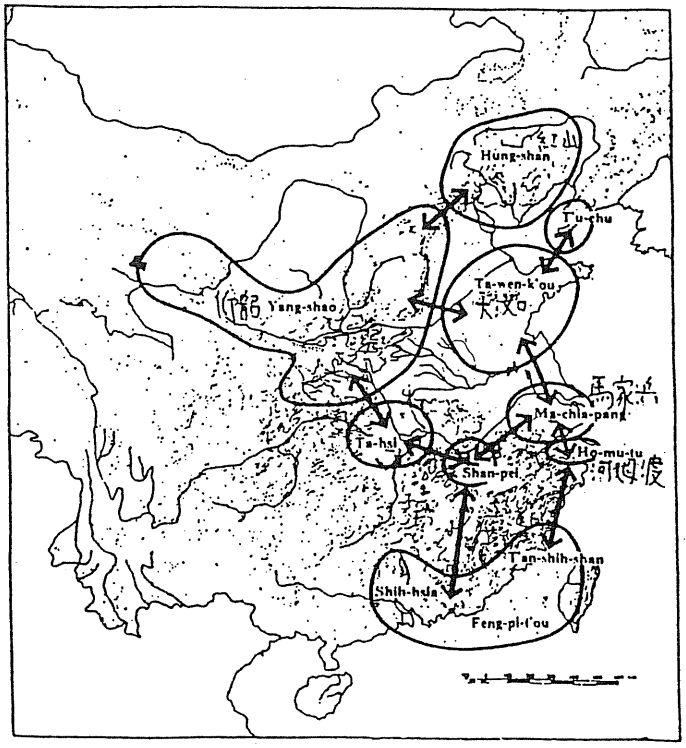
這裏還有個年代的問題。上面所討論的六個類型特徵的演變，粗略地估計，該是發生在公元前2000-0年。那麼，如果沒有其他證據可以說明那時漢族已經和亞爾泰、南亞等等非漢族接觸，我們就不能用非漢語的類型特徵來解釋漢語類型特徵的變遷。

在這方面考古學給我們幫了個大忙。張光直(Chang Kwang-chih, Archaeology of Ancient China (4th edition), p.234 ff)認爲新石器時代，一直到公元前5000年，在中國境內有六個獨自發展的文化，互不往來。到了公元前4000-3000年，這六個文化突然互相接觸，互相影響，形成華夏交流圈(Chinese Interaction Sphere)。下頁轉錄張書235頁的三個地圖。其中有四個文化特別值得注意。

	地區	民族（本文假設）
仰韶	黃河流域	漢族
紅山	遼河流域	亞爾泰族
馬家　，河姆渡	長江三角洲	南亞族
大汶口	山東半島	南亞族(？)，南島族(？)







197. Expansion of regional Neolithic cultures in China from 7000 B. C. (*left*) to 5000 B. C. (*right*) and 4000/3000 B. C. (*below*).

Source: Chang Kwang-chih, Archaeology of Ancient China (4th ed., 1986), p.235

下面再轉錄羅杰瑞(1988：11)的亞洲語言的類型特徵表。

	1 單音節	2 有聲調	3 無複聲母	4 少形態	5 〔量〕+〔名〕	6 A+N	7 SVO
現代漢語	+	+	+	+	+	+	+
古代漢語（羅杰瑞）	+	?	−	+	−	+	+
遠古漢語（梅祖麟）	+	−	−	±	−	−	−
台語（暹邏語）	+	+	−	+	+	−	+
黎語	+	+	−	+	+	−	+
越南語	+	+	+	+	+	−	+
高棉語	−	−	−	±	+	−	+
苗語	+	+	−	+	+	−	+
瑤語	+	+	−	+	+	−	+
藏文	+	−	−	−	−	−	−
彝語	+	+	+	+	+	−	−
景頗語	−	+	−	+	−	−	−
馬來語	−	−	+	−	−	−	+
魯凱語（台灣高山族）	−	−	+	−	−	+	−
蒙古語	−	−	+	−	−	+	−
滿州語	−	−	+	−	−	+	−
維吾爾語	−	−	+	−	−	+	−
朝鮮語	−	−	+	−	−	+	−
日本語	−	−	+	−	−	+	−

亞洲語言的類型特徵　Source: Jerry Norman, Chinese, p.11

現在我們來說個故事。

漢藏語族本來住在中國西部青海一帶。其中有一支東遷，來到渭水、黃河流域。最初他們還跟藏族、西夏族維持相當密切的聯系。久而久之，他們往東伸張，和藏緬族日益疏遠，同時也處在亞爾泰民族和南亞民族之間。這就是漢族的祖先。

一直到公元前5000年，當時地廣人稀。生活在現在中國疆土的諸民族還沒有什麼接觸。突然間，從公元前四千年到三千年開始，漢族和其他民族的交往漸趨頻繁。於是，漢語本身也起了巨大的變化。

跟亞爾泰語言接觸的結果是：(1)漢語的複聲母開始簡化，到了漢代，喪失殆盡。我們看亞洲偏南的語言，無論是藏緬語支的還是非藏緬語支的，差不多都有複聲母：台語、高棉語、苗瑤語、藏文、景頗語。由此可知這是區域性的特徵:越靠北越沒有複聲母。(2)因爲複聲母受到侵蝕，s-、m-、(N-)等原有的詞頭，也失去它們的音韻基礎。(3)漢語從漢藏語的N-A詞序變成A-N詞序，但是在現代的南方方言還保存著“豬公、豬母”之類的說法，這是N-A詞序的遺跡。漢代和匈奴時戰時和，匈奴有相當多的亞爾泰成份在內。而漢代正是詞序演變的時代：從【S〔VP者〕】變成【〔VP者〕S】，從【名＋〔數＋量〕】變成【〔數＋量〕＋名】。

跟南亞語以及其他南方語言接觸的結果是：(1)產生聲調。藏緬語支、南亞語系都有些語言沒有聲調，或者正在產生聲調。所以這兩種語言不像是聲調的發源地。聲調的原產地可能是台語，也可能是漢語本身。目前我們不知道漢語的聲調是本身發展出來的，還是受台語影響而產生的；但大致可以肯定漢語之所以有聲調跟上古漢語不南不北的位置有關。(2)-s變成去聲後，加-s的構詞法就變成四聲別義。(3)從西漢到南北朝，量詞的類別增多，用法漸趨嚴密。(4)詞序從SOV變成SVO。促成這種變化最可能是南亞語。南亞語系的語言一般是SVO，但是印度東北部的Munda語是SOV，跟周圍的Dravidian語一樣。Gerard Diffloth認爲Munda可能是從更古老的SVO變成後起的SOV("Austro-Asiatic Languages", in Encyclopaedia Britannica (1975, 2:483e)。果眞如此，南亞語原始的詞序是SVO，馬家、河姆渡的南亞民族在公元前4000-3000年已經跟中原的漢

族接觸。這可能是漢族從SOV轉爲SVO的原因。

從歷時和跨語系比較（crosslinguistic comparison）的觀點來看，現代漢語是個三不像的語言。它缺乏形態，又用AN、SVO詞序，所以在漢藏語系中是個異類。它一方面又像北鄰亞爾泰語（無複聲母，AN詞序），另一方面又像南邊的毗鄰語言（帶聲調，用量詞，SVO詞序）。換句話說，漢語是個兼容的語言，在歷史過程中吸收了鄰近語言的特徵。

漢代的人口有五千多萬，比整個羅馬帝國的人口還多。漢代的人口當然有不少非漢族在內，但漢族在漢代已是世界上人口數一數二的民族。漢族怎麼會人口那麼多？其中因素很多：農業發達得早，城市化發生得早，又有文字、嚴密的政治組織。另一個因素是漢人中有不少是漢化的非漢族。一個兼容的文化才能同化鄰近的民族。在漢語的類型轉變中我們看到漢語的兼容、應變能力。也許可以說，華夏民族是融合中國境內各種民族而形成的，漢語是吸收鄰近語言的類型特徵然後定型的。

〔後記：SVO、NA兩項，會場上丁邦新、貝羅貝兩位提出若干匡正的意見，我也接受了他們的批評。現在文章照原樣登出，倒不是堅持己見，而是如果擇善而從，他們兩位的文章就會無的放矢。孫天心先生指出拙稿的若干錯誤，謹此致謝。〕

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On Word Order and Word Order Change in Pre-Archaic Chinese*

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Abstract

Since the 1970s, following the work of Greenberg (1966) on language universals, the problem of word order and word order change in chinese has been much debated. The discussions have been essentially surrounding the hypothesis of Li & Thompson (1974) according to which Pre-Archaic Chinese (12th century B.C.) was a SOV language, which might have changed to a SVO one between the 10th and 3rd centuries B.C., before shifting back to SOV again, the last stage being still in action: a) SOV > b) SVO > c) SOV.

The hypothesis SVO > SVO has been much criticized, especially by those (Light 1979, Sun & Givón 1985) who try to show that, synchronically, Chinese is and remains a SVO language and that the OV order is a marked [+ contrastiveness] order. However, very few scholars have challenged the first change a) SOV > SVO in Archaic Chinese, because a SOV order in Pre-Archaic Chinese seems more plausible, insofar as this order is sometimes found in Classical Chinese (Early or Late Archaic Chinese) for pronominal objects under special conditions (for instance when these pronouns are interrogative or in negative sentences), or even for full lexical NPs, when they are followed by pretransitive markers shi or zhi.

It has therefore been supposed that these phenomena-even if they are minor-are relics of an ancient stage of the language, and that the regular word order must have been SOV. This opinion appears all the more to be probable to some that the language of the oracle bone inscriptions seems to reveal many more preverbal objects or preverbal PPs than during the following stages, i.e. Early and Late Archaic. From here, some have perhaps too hastily concluded that Proto-Chinese must have been SOV and, therefore, Proto-Sino-Tibetan also. Indeed, all the Tibeto-Burman languages (except Bai and Karen) have verb-final order.

This paper will show that the hypothesis of a) (SOV > SVO) change is not empirically motivated. Any meticulous analysis of the language of the oracle-bone inscriptions, as the one which has just been completed by Shen Pei (1992), does not allow the conclusion that Chinese was more SOV in Pre-Archaic than in Early or Late Archaic. The jiaguwen language shows a regular order of SOV. To suppose that in a more ancient stage than the one we know today the regular order could have been SOV is, under these conditions, of pure surmise.

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1. Introduction

1.1. Constituent order typology, usually-though improperly-called word order typology has played during the last two decades a major role in language typology. Studies on Chinese have not been an exception. Since the 1970s, following the work of Greenberg (1966) on language universals, the problem of word order and word order change in Chinese has been much debated. The discussions have been essentially surrounding the hypothesis of Li & Thompson (1974) according to which Pre-Archaic Chinese (12th century B.C.)[1] was a SOV (subject-object-verb) language, which might have changed to a SVO (subject-verb-object) one between the 10th and 3rd centuries B.C., before shifting back to SOV again, the last stage being still in action:

(1) a) SOV > b) SVO > c) SOV

1.2. The hypothesis of changing from b) to c) relies essentially on the following facts: the Prepositional Phrases (PPs), which were usually post-verbal in Classical Chinese, have become mostly preverbal today, and the ba construction (where ba is a preverbal direct object marker), non-existent in Archaic and Pre-Medieval Chinese, is increasingly in use in Contemporary Chinese.[2] The path of change, purely internal, might have been the following: the serial-verb structure "S+V1+O+V2" might have changed into a single-verb structure "S+Prep. (or marker)+O+V" after a classical process of grammaticalization changing the verb into a

1. What I mean by Pre-Archaic Chinese is the language of the oracle-bone inscriptions (jiaguwen), 14th-11th centuries B.C. The other periods are : Early Archaic Chinese, 10th-6th c. B.C., Late Archaic Chinese, 5th-2nd c. B.C., Pre-Medieval Chinese, 1st c. B.C.-1st c. A.D. For the justification of this periodization, see Peyraube (1988a).
2. There is a nearly exceptionless universal that languages in which the relative clause precedes the head noun are verb-final. Li & Thompson's hypothesis rules out Chinese being a well-known exception of a language which has the orders "Rel. -Noun" but SVO.

preposition or a marker.[3]

This hypothesis has been much criticized, especially by those (Light 1979, Sun & Givón 1985) who try to show that, synchronically, Chinese is and remains a SVO language and that the OV order is a marked [+ contrastiveness] order.[4]

1.3. However, very few scholars have challenged the first change a) SOV>SOV in Archaic Chinese, because a SOV order in Pre-Archaic Chinese seems more plausible, insofar as this order is sometimes found in Classical Chinese (Early or Late Archaic Chinese) for pronominal objects under special conditions (especially when these pronouns are interrogative or in negative sentences), or even for full lexical NPs, when they are followed by pretransitive markers shi 是 or zhi 之.[5] We even find objects of prepositions before some prepositions.[6]

It has therefore been supposed that these phenomena-even if they are minor-are relics of an ancient stage of the language, and that the regular word order must have been SOV. This opinion appears all the more to be probable to some that the language of the oracle bone inscriptions seems to reveal many more preverbal objects or preverbal PPs than during the following stages, i.e. Early and Late Archaic. From here, some have perhaps too hastily concluded that Proto-Chinese must have been SOV and, therefore, Proto-Sino-Tibetan also. Indeed, all the Tibeto-Burman languages (except Bai and Karen) have verb-final order.[7]

3. Such cases of grammaticalization have been analyzed by Peyraube (1988b).
4. For a good review of this long-winded debate on word order and word order change in which historical syntax was formerly entangled, see Qu Chengxi (1984) where the arguments raised by Li & Thompson (1974, 1975) Tai (1973, 1976) in favor of a change SVO>SOV are discussed in detail, as well as the arguments given by Light (1979), Mei Kwang (1980) against such a change. See also Huang Shuan-fan (1978), Li Mengchen (1980), Travis (1983), Hashimoto (1984), Sun & Givón (1985) and Wang Mingquan (1988).
5. See Yu Min (1981), Yang Bojun (1982), Yin Guoguang (1985), Mei Tsu-Lin (1994).
6. Sun Chaofen (1991) has found cases where the object of prepositions yu 于 and especially yi 以 was sometimes pre-prepositional, without the necessity of any marker, or of the object being a pronoun. In other words, the "prepositions" are in fact postpositions.
7. See LaPolla (1990, chapter 5; 1993; 1994), Sun Chaofen (1991).

1.4. I will try to show that this hypothesis of a) (SOV > SVO) change -which was probably first suggested by Wang Li, who was comparing Archaic Chinese, with its preverbal pronominal objects, with French-is not empirically motivated. Any meticulous analysis of the language of the oracle-bone inscriptions (jiaguwen), as the one which has just been completed by Shen Pei (1992), does not allow the conclusions that Chinese was more SOV in Pre-Archaic than in Early or Late Archaic. The jiaguwen language shows a regular order of SVO. To suppose that, in a more ancient stage than the one that these first documents are available to us, the regular order could have been SOV is, under these conditions, of pure surmise.

In the following account, I will make a distinction between object order and PP order, i.e. between the sequences SOV vs SVO and the sequences S-PP-V vs S-V-PP.

2. The Place of the Objects

I will distinguish between pronominal objects from full lexical NP objects.

2.1. Full Lexical NP-objects

When the object is a full lexical NP, the basic order is undoubtedly SVO. Everybody will agree with this statement. Having said this, one has to admit that there are situations which need more discussion. One also finds in jiaguwen examples of the type:

(2) 三 百 羌 用 于 丁
san bai qiang yong yu Ding (Xu: 2163)
three hunderd Qiang use-for-sacrifie to Ding
Three hunderd Qiang have been used for sacrifice to Ding.

One could see in such sentences a (S)OV order. Indeed, the common analysis (Guan Xiechu 1953, Chen Mengjia 1956, Chen Chusheng 1991)

is the following: DO (Direct Object)+Verb+Preposition+IO (Indirect Object). Therefore, there should also be in the language of jiaguwen an OV structure-certainly exceptional, but nonetheless existent-co-occurrent with the basic (S)VO order.

Tang Yuming (1990) and Shen Pei (1992) are the only ones who talk about subject-patient sentences (shoushi zhuyu ju) (in other words, the preverbal NP should not be an object but a subject-patient) existent in Chinese, of all stages (Archaic, Medieval, Contemporary).[8] I think they are right. As emphasized by Shen Pei, these sentences have effectively the following characteristics: (i) if an agent is present, it is placed between the patient and the VP; (ii) the negative form of such sentences is : "patient+negation+verb". These characteristics differentiate them from preverbal noun-object sentences, where the subject-agent, when present, is in initial position and where the adverb of negation is in front of the noun-object.

Sentence (2) is therfore not of pre-verbal object, but of subject-patient.

2.2. Full Lexical NP-objects Introduced by hui and wei

There also exists in the language of the oracle-bone inscriptions a "(S)+hui 叀 (or wei 隹)+O+V" form for affirmative cases and "(S)+Negation+wei+O+V" for negative cases. And there particles hui and wei have been interpreted as preverbal markers, like yi 以 in Classical Chinese, or ba 把/jiang 將 in Medieval and Contemporary Chinese (Guan Xiechu 1953, among others). Examples:

(3) 叀 黑 羊 用 有 大 雨
hui hei yang yong you da yu (He ji: 30300)
hui black sheep use-sacr. there-is big rain

8. For the notion of subject-patient, put forward by Zhu Dexi, see Lu Jianming (1986). The only difference between the jiaguwen language and that of the posterior periods is the following: in Ancient Chinese the VP is rarely a simple verb while it is the case in the oracle-bone inscriptions.

(If we) utilize a black sheep for sacrifice, there would be abundant rain.

(4) 王 勿 隹 尤 方 伐
wang wu wei Long fang fa (Xu: 0241)
king negation wei Long tribe fight
The king will not fight the Long tribe.

Such an analysis is problematic. Apart from the fact that there is no reason for analyzing san bai qiang as a subject-patient in (2) and hei yang as an object in (3) (they are indeed of the same type of sentences, no matter whether hui is present or not), it is clear today that hui and wei are not simple markers of preverbal objects, as one may think, but focalizers serving to stress the constituent which follows them, this constituent being an object, or a subject, or even an adverbial.[9]

(5) 隹 帝 肇 王 疾
wei Di zhao wang ji (Yi: 7304)
wei God provoke king illness
It is God who has provoked the illness in the king.

In this last sentence, it is the subject which is focalized. That hui and wei could thus introduce constituents other than the objects, proves that hui and wei are not simple markers of pretransitive objects.

Thus, sentences (3) and (4) should be understood as: "(if) it is a black sheep which is utilized, there would be abundant rain" and "It is not the Long tribe that the king has to fight". In (3) hui focalizes the subject-patient hei yang and in (4) wu wei focalizes the object Long fang. Another example with an object focalized with hui in an affirmative sentence is:

9. See Djamouri (1988), Huang Dekuan (1988), Zhang Yujin (1988) and Shen Pei (1992).

(6) 王 叀 土方 征

wang hui Tufang zheng (He ji: 6442)

King hui Tufang leave-in-expedition

It is (against) the Tufang that the king leaves in expedition.

These sentences of pre-verbal object preceded by hui/wei are therefore not unmarked sentences, but marked by a focalization of the object. As marked sentences, they should be discounted in favour of those marked when deciding what is the basic order of the constituents.

Of course, they are nonetheless sentences with pre-verbal objects. One therefore has to admit that the language of the oracle bone inscriptions, when it wants to focalize an NP-object, uses two devices: (i) to put in front of the said object a marker of focalization ; (ii) to move it, with its marker, in pre-verbal position. In the absence of hui/wei, the order remains (S)VO.

I would like also to notice that the Pre-Archaic is not different here from the Early Archaic or even from the Late Archaic, which uses markers of focalization shi 是 ou zhi 之 behind (and not in front of) the objects, before moving them in pre-verbal position. It is then unreasonable to think that the Pre-Archaic shows more (S)OV order than the Early/Late Archaic, at least in this problem of preverbal objects introduced by markers of focalization. It seems on the contrary that the opposite is likely.

Huang Dekuan (1988) remarks indeed that this "hui/wei+O+V" form is present in all periods of the oracle bone inscriptions, but he also emphasizes that the examples are more numerous in the inscriptions of the last period; and that since the 11th century B.C., wei could replace hui in the affirmative sentences.[10]

The subsequent evolution might have been the following: in the bronze inscriptions (11th-8th c. B.C.), wei had almost entirely replaced hui, then an intermediate form appeared: "wei+O+shi 是 +V", which im-

10. See also Hang Tianshu (1991).

mediately left its place to "O+shi+v" (all these forms attested in the Shang shu, 10th-8th c. B. C.), which itself would be later on replaced by "O+zhi 之 +V".[11]

No matter what the evolution was, one thing seems to be quite certain today: markers hui and wei in Pre-Archaic were focalizers, contrastive markers. It is also the case in Early and Late Archaic Chinese for shi and zhi. It is therefore untenable: a) to speak of a natural, unmarked SOV order while the objects were preceded by such markers, b) to suppose that the Pre-Archaic was more SOV than Early/Late Archaic, in that respect.

2.3. Pronoun-objects

What about preverbal pronouns which were not introduced by markers? The situation is the same. Pre-Archaic was not more SOV than Early /Late Archaic Chinese.

We know that in Classical Chinese pronoun-objects are usually preverbal in negative sentences, or when they are interrogative pronouns in interrogative sentences as well. Ex.:

(7) 今 予 惟 不 尔 杀
jin yu wei bu er sha (Shang shu: Duo fang)
now I for-the-moment neg. you kill
Now, for the moment, I won't kill you.

(8) 吾 誰 欺
wu shei qi (Lun yu: Zi han)
I who abuse
Whom I abuse?

(9) 不 吾 知 也
bu wu zhi ye (Lun yu: Xian jin)

11. See Yin Guoguang (1985).

negation I know particle
(He) does not know me.

They became postverbal, as the NP-objects already were, later, some time during the Han.

For the jiaguwen language, Guan Xiechu (1953) considers that the pronoun-objects are preverbal in the same conditions as in Classical Chinese. Chen Mengjia (1956), on the other hand, thinks that the constraints are even stricter: it is necessarey a) that the negatives should be those in bu 不; b) that the pronoun should be wo 我.[12]

He indeed seems to be correct. Examples:

(10) 帝 不 我 其 受 祐
Di bu wo qi shou you (He ji: 6473)
God negation we modal-particle give assistance
God will not give us assistance.

In this last example, the preverbal pronoun-object is the indirect object of a double-object construction. More examples with single objects are:

(11) 帝 不 我 熯
Di bu wo han (He ji: 10174)
God negation we dry-up
God will not dry up us.

(12) 祖 辛 不 我 害
Zu Xing bu wo hai (He ji:95)

12. In fact, in Classical Chinese, things are not as simple. Zhou Guangwu (1959) has done an exhaustive study on the preverbal pronoun-objects in the negatives of several works of Early/Late Archaic Chinese, and has concluded that the situation is relatively complex. It depends on the nature of the pronouns and of that of the adverbs of negation. He also agrees with the two constraints raised by Chen Mengjia (1956).

Ancestor Xing negation we harm
Ancestor Xing will not harm us.

There are also some cases where the pronoun is not wo and where the negation is not bu, but these are extremely rare:

(13) 勿 余 害
wu yu hai (He ji: 13750)
negation I harm
(He/They) will not harm me.

Shen Pei (1992: 23) has found 64 negatives with preverbal pronoun-objects: among these, 57 use the negation bu and the pronoun wo, 4 the negation bu and the pronoun yu, 2 the negation wu and the pronoun yu, 1 finally the negation bu and the pronoun er. One thing is certain: the preverbal pronoun-objects are always personal pronouns, never demonstratives, as it might be the case in Classical Chinese.[13]

The first conclusion that one can draw is the following: there are indeed preverbal pronoun-objects in the language of the oracle bone inscriptions, but they are probably rarer than in Archaic Chinese; they seem to be limited to personal pronouns (demonstrative pronouns are excluded from this structure) and they concern almost exclusively the one pronoun wo in the negatives with the sole negation bu.

Moreover, the inscriptions of the first period also show that these preverbal pronouns-objects, even in negative sentences, could also be postverbal. It is almost always the case when the negative is not bu, naturally, but also sometimes when the negative is bu.

Finally, as Djamouri (1988: 462) hypothesizes, the negative bu could be equivalent to bu wei, meaning "it is not". If this hypothesis is correct, the preverbal object-pronouns in the jiaguwen would have to be inter-

13. Djamouri (1988) has also noted that the object pronouns are rarer than subject pronouns. He gives the following figures : 97 object pronouns wo for 315 wo subjects, 6 objects yu for 152 yu subjects.

preted as always focalized and the sentences (10) to (12) would be marked and translatable as: "It is not us that God is going to give assistance" (10), "It is not us whom God will dry up"(11), "It is not us whom Ancestor Xing will harm"(12).

Anyway, the fact that some pronouns are preverbal in Pre-Archaic Chinese (or later in Early/Late Archaic Chinese) should not been taken into consideration when deciding if the basic order was OV or VO. It is the case that in many languages, such as French for instance, the order of the pronouns is different from that of the NPs, and pronouns "are often, cross-linguistically, subject to special positioning rules only loosely, if at all, relating to their grammatical relation, so sentences with pronouns can be discounted in favour of those with full NPs" (Comrie, 1989: 89).

2.4. Summary

The situation of the Pre-Archaic language could therefore very well have been the following: (i) the regular, unmarked order was SVO; (ii) there was also an inverse order SOV, but this order was marked (the object was stressed, introduced by a marker of focalization hui or wei); (iii) in the negative sentences with bu, however, when the object was the personal pronoun wo, the focalizer hui or wei was not necessary. From marked, these sentences became progressively unmarked, giving birth to an unmarked SOV order. Thus, pronouns could not have been conservative of an ancient order, as it is usually believed, but, on the contrary, initiators of a new order which, subsequently, had never been successful in imposing itself for the full-fledged lexical NP.[14]

Whatever the scenario has been, there is no evidence that Pre-Archaic Chinese was more SOV than later stages of Chinese.

14. It is probably true that in Romance languages the SOV to SVO order change affected full NPs before object clitics, but this is far from being a general phenomenon. Steele (1977) argues against the conservative nature of clitic pronouns on the basis of reconstucted changes in Uto-Aztecan. Similarly, in Modern Greek, we have postverbal full NP objects and preverbal clitic objects, but these citic objects arose long after Greek had undergone its SOV to SVO change. See Lightfoot (1979: 152).

Now let us look at the PP order in the language of jiaguwen.

3. The Place of the PPs

One usually considers that the PPs, mostly preverbal in Contemporary Chinese, are postverbal in Classical Chinese. However, criticizing Li & Thompson (1974), many linguists (Huang 1978, Li 1980, Sun 1991) have noted that PPs are far from being all postverbal in Classical Chinese (Early/Late Archaic). Thus, for the two common prepositions yu 于 and yi 以, if the first is essentially postverbal (proportionately more than 90 % of the cases), the second is basically preverbal (according to Sun 1991, only 12 % of yi occur in a postverbal position).[15]

3.1. What then is the situation in the language of the oracle bone inscriptions? The situation is even more complex. Both Guan Xiechu (1953) and Chen Mengjia (1956) consider that the natural order is (S)+V+PP. Wang Li (1958: 368) on the contrary thinks that in this period the order is not well fixed and that the locative PPs can be either preverbal or postverbal, while admitting that the postverbal cases are more frequent.

Only the preposition yu is present in considerable frequency.[16] The yu-PPs, as already noticed, are essentially postverbal, but examples of preverbal yu-PPs are not rare (many more indeed than in Classical Chinese), which could suggest that before the jiaguwen period, Chinese had perhaps been a language where the PPs were preverbal (see Wei Peichuan, 1993).

I will try to show that this induction is questionable. Shen Pei(1990, 1992) shows convincingly that it is necessary, if one wants to see more

15. These figures should be taken with precaution insofar as they were established from one single chapter from Mengzi and one single chapter from Zuo zhuan. See also Peyraube (1988a) who finds, for the same period (Late Archaic), that 70% of yi-pp are preverbal against 30% postverbal, but only in double-object constructions.
16. Other prepositions are zi 自 and perhaps zai 在 and cong 从, but they are less frequent. I will discuss here only the place of the yu-PPs.

clearly, to distinguish PPs [+time] from the other PPs, PPs [-time].

3.2. The Place of the yu-PPs [-time]

The yu-PPs [-time] are mostly postverbal, as in:

(14) 王 往 于 敦
wang wang yu dun (He ji: 7948)
king go to suburb
The king went to the suburbs.

However, sometimes, especially when the preposition yu is not the dynamic locative preposition meaning "to" (equivalent of dao 到 in Contemporary Chinese) but the static locative preposition meaning "at" (zai 在 in CC), or when yu is not a locative preposition but a dative one, the yu-PP can be either postverbal or preverbal. Example of a dative preverbal yu-PP:

(15) 于 父 甲 𢍰
yu Fu Jia sui (He ji: 27348)
to Fater Jia ask-for
(It is) to Father Jia (that we have to) ask for.

It is better, however, to say, as the translation of (15) indicates, that the preverbal yu-PPs are then marked; they are stressed, focalized. Cf. Chen Mengjia (1956), Shen Pei (1992).

Shen Pei cites several examples, in context, where it is obvious that the PPs are focalized. He adds that it is probably difficult to show that all the preverbal PPs [-time] are focalized, but it is impossible to show that they do not express emphasis.

Thus, yu-PPs [-time] are postverbal in unmarked utterances and preverbal while they are put into emphasis, i.e. in marked utterances.

3.3. The Place of the yu-PP [+time]

The yu-PPs [+time] have a different behavior. They can be either

postverbal or preverbal, but the preverbal ones are more numerous. They then can be, of course, marked, stressed, or focalized; however, for most cases, they are unmarked, and not focalized. Ex.:

(16) 于 大 律 日 酒
yu da ? ri jiu (Dun: 3676)
at Da ? day perform-wine-sacrifice
Perform the wine sacrifice at the Da ? day.

(17) 于 壬 王 其 田
yu ren wang qi tian (He ji: 29245)
at Ren king modal-particle hunt
At the Ren day, the king will go hunting.[17]

This is a situation very different from the one that has just been discussed for the PPs [-time]. However, one would be wrong to draw the conclusion that the PPs [+time] might all be preverbal in a stage of language prior to the one represented by oracle-bone inscriptions.

Indeed, as Shen Pei (1990) has noticed, in the most ancient inscriptions, those of the first period, which can be dated at the latest to the last decades of the Wu Ding reign, the time PPs in yu are postverbal, as in:

(18) 酒 升
jiu sheng
perform-wine-sacrifice perform-elevatory-sacrifice
岁 于 庚 寅
sui yu gengyin (Dun: 4318)
perform-immolating-sacrifice at Gengyin
(One should) perform the wine, elevatory and immolating sacrifices at Gengyin day.

17. In this last example, the subject is between the PP [+time] and the VP, but usually the subject appears in the initial position.

After having remarked that nouns of time, in these most ancient inscriptions are also sentence final or sentence medial, Shen Pei naturally concludes that there was an order change in the language of oracle-bone inscriptions, from "V+PP"to "PP+V" when the PPs were time PPs, and that the other PPs remained postverbal. In other words, the order of the PP, in the most ancient stage we know, was "V+PP".

3.4. Summary

PPs were originally all postverbal. Those of time became preverbal during the time of the oracle bone inscriptions. The other PP, [-time], remained mostly postverbal, at least in unmarked utterances. Preverbal PPs [-time] existed, but they expressed a focalisation, they were marked. So, only PPs [+time] had been normally preverbal in Pre-Archaic after changing from a postverbal position. However, this new order never imposed itself for the other PPs. Moreover, these preverbal PPs [+time] moved back to a postverbal position starting in Early Archaic Chinese.

4. Conclusion

4.1. In conclusion, a meticulous study of the jiaguwen language does not allow to assert that SOV or S+PP+V preverbal orders are found in greater numbers than in stages posterior to the language of the oracle bone inscriptions, i.e. Early or Late Archaic Chinese.[18] Therefore, there is no evidence to justify the hypothesis of SOV>SVO or S+PP+V>S+V+PP changes in Archaic Chinese, hypothesis which has been formulated by many linguists to explain certain SOV orders (particularly in the case where the objects are interrogative pronouns, or simple pronouns in the negatives) or S+PP+V orders (especially when the PPs are introduced by yi).

18. The only exception is for the PPs [+time] which were in Pre-Archaic Chinese more preverbal than in later stages. But they were postverbal in the first period of the jiaguwen language.

4.2. If there were changes, these were rather changes of an opposite nature which had taken place, that is SVO>SOV or S+V+PP>S+PP+V. Indeed, the first of these changes concerned personal pronoun objects, which were effectively postverbal, like all the other objects, but which became preverbal in the negatives. The second change concerned the PPs [+time], which were also postverbal as the other PPs, but which had become preverbal.

These changes were never imposed to marginalize the old orders.

4.3. One cannot, of course, make any final conclusion from here that Proto-Chinese was SVO and not SOV. The jiaguwen language does not represent Proto-Chinese. It is not impossible that in stages prior to jiaguwen, which are unknown to us, the language shows a SOV order. One can make such a hypothesis by arguing that several marked and marginal orders, in the jiaguwen language, reflect such an order. We know that the irregularities are often relics from the past and that, as said Meillet, "la grammaire comparée doit se faire en utilisant les anomalies bien plus que les formes régulières".[19]

What we still have to deal with is that if the exceptional SOV and S+PP+V orders of jiaguwen were relics of an ancient general SOV, it is not likely that these "relics" were marked utterances. The marked utterances, in the history of a language, are indeed new . It is unlikely also that these marked utterances, in jiaguwen, if they were really relics from an ancient order, could be then found in lesser quantities than in the periods following the Pre-Archaic, i.e. Early and Late Archaic Chinese.

4.4. Whatever the order of Proto-Chinese was, one thing is sure. The jiaguwen language does not give the least indication which could justify in any way that Proto-Chinese might have been SOV. It is generally assumed that Proto-languages should have been typologically consistent. But there is no reason a priori to expect that. A Proto-language could

19. see LaPolla (1992).

have had very free word order. This is may be the case of Proto-Indo-European.[20] It could also be the case of Proto-Chinese and of Proto Sino-Tibetan.

20. We still do not know for sure if Proto-Indo-European was SOV or SVO. Some of the early Indo-European languages like Sanskrit or Hittite have a predominant verb-final order, whereas other like Homeric Greek have a VO order.

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Formosan Clause Structure: Transitivity, Ergativity, and Case Marking[1]

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Abstract

In the first part of this paper, I compare two approaches to the description of syntactic typology: 1) the function-based approach which began with Joseph Greenberg's work and which was subsequently developed by R.M.W. Dixon and Bernard Comrie, and 2) a grammatically based approach, lexicase dependency grammar. I show that the dependency grammar approach is able to capture otherwise unavailable generalizations about case-marking typology, clause structure, and morphology within a more constrained and generative framework. The second part of the paper illustrates the points made in the first part by contrasting dependency and 'focus' approaches to questions of transitivity in Formosan aboriginal languages.

1. I also include date from Yami, which is geographically but not genetically a Formosan language, though it appears to be very close in the family tree. This will give a slightly broader base to this study, and if I am right about highest-order subgrouping (cf. Starosta to appear b), it will not affect any conclusions which might be inferred about the syntactic properties of Proto-Formosan. I would like to thank Dah-an Ho for editorial comments on the first version of this paper, participants at the Parasession on Typological Studies of Languages in China at the Fourth International Symposium on Chinese Languages and Linguistics for comments on the oral presentation, and Laurie Reid, Bernard Comrie, William O'Grady, Cathy Sin-ping Wong, and two anonymous reviewers for comments on the penultimate version.

1. Prologue

> In the beginning was Greenberg. And Greenberg saw that the tongues of men were many, and that the generative descriptions of them were few. And Greenberg said, "Let us go out into the fields and into the libraries, even into the dim studies and unto the musty sandalboxes full laden with clay data tablets that lie therein, and let us make sweet-smelling order from amongst the unruly data collections that rest upon the face of the earth, and let us make graven generalizations in accordance with the configurations that are made manifest by our labors."

And that is how modern linguistic typological research began.

2. Function-Based Typology

What Joseph Greenberg was up against was vast amounts of observations made from the point of view of utterly inconsistent descriptive frameworks, or from the point of view of the observers' unstated and frequently unrealized preconceptions. It would have been nice if he had had at his disposal a thousand complete and explicit descriptions of typologically diverse languages, all stated within the same formal and constrained and proven grammatical framework by trained and competent and experienced researchers, but he didn't. He was faced with the choice of either waiting for the linguistic millennium or doing something with what he had available.

His decision, as we all know now, was to go ahead. Since he didn't have formally consistent descriptions to work with, he had to create workable categories that he could superimpose on the data and use to extract generalizations from it, and the categories he chose, not surprisingly, were rather subjective and intuitive semantic ones.

> 'We are attempting to determine the universal properties of relative clauses (RCs) by comparing their syntactic form in a large num-

ber of languages. To do this it is necessary to have a largely syntax-free way of identifying RCs in an arbitrary language. Our solution to this problem is to use an essentially semantically based definition of RC.' (Keenan and Comrie 1977:63).

I think that this approach to typology was fine as a temporary expedient. However, this eurocentric and unformalized 'functional' approach to language comparison unexpectedly arose from the smoldering ruins created by the theory wars of the 60's and 70's and took on a life and identity of its own, with pretensions as a real theory of natural language.

In this paper, I will present an alternative approach to syntactic typology which retains the theoretical rigor which characterized early generative grammar but which insightfully accommodates a range of phenomena comparable to the range addressed by Greenbergian typology and its descendants. It is lexicase dependency grammar (LXC), a grammatical framework which has existed since about 1970. Following traditional assumptions of scientific methodology, I will maintain that the proof of the grammatical framework is in the constraints it imposes and the generalizations it captures, and I will accordingly show that in the case of ergative clause structure, specifically in the analysis of the grammatical properties of aboriginal languages of Taiwan, lexicase is able to capture generalizations better, that is, without the disjunctions, excessive descriptive power and formal muzziness characteristic of Greenbergian analyses.

3. The Functional Approach to Transitivity and Ergativity

Readers of this paper are probably all familiar with the pattern that is often presented to syntax students in describing the difference between ergative and accusative languages:

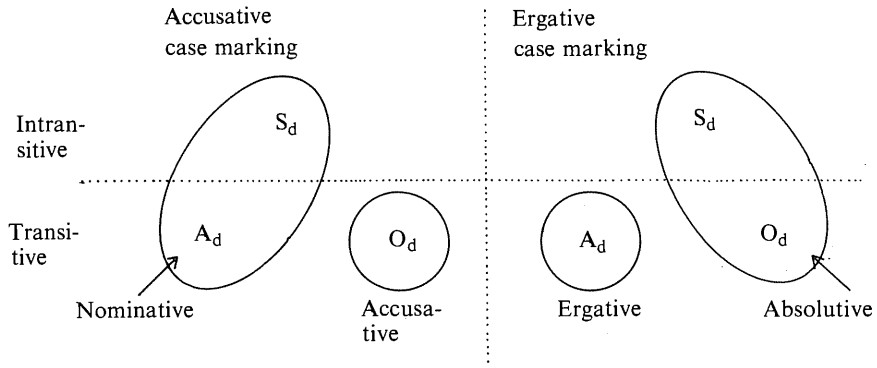


Figure 1) The conventional view of accusativity and ergativity

I use the labels S_d ('intransitive subject'), A_d ('transitive subject') and O_d ('transitive object') here rather than the usual S, A, and O to emphasize the fact that in the grammatically somewhat more sophisticated Dixonian approach at least, it is the terms in 'derived structure' which are relevant to the determination of ergativity, not the more subjective situational terms S_u, A_u , and O_u used in the bulk of the typological literature. The identification of S_d is straightforward, except in the analysis of 'active' languages (cf. Starosta 1991) or impersonal constructions: if we can identify a large class of sentences which contain only one NP, we are fairly safe in calling that S_d. The procedure for identifying S_d is thus a grammatically based one. By contrast, the procedure for identifying transitive clauses, and for distinguishing the A_u and O_u participants in the actions described by these clauses, is not. Instead, the wholly situation-based criteria Dixon prescribes for identifying A and O (cf. Dixon 1994: 8) actually identify A_u and O_u, and if these criteria were applied consistently, the result would be that passive and antipassive clauses would always come up transitive[2]. The fact that they don't shows that the A and O concepts that we need to refer to in determining transitivity and

2. One consequence of this approach which Dixon does not seem to have noticed is that two-argument intransitive verbs such as *reside or last* (duration) will also be categorized as transitive.

thereby ergativity are not the ones Dixon explicitly prescribes, but rather A_d and O_d, categories whose grammatical motivation is implied but not explicitly defined. The bottom line is then that an accusative language in this view is one which groups S_d ('intransitive subjects' in 'derived structure') together with A_d ('transitive subjects' in 'derived structure'), while an ergative language groups S_d ('intransitive subjects' in 'derived structure') together with O_d ('transitive objects' in 'derived structure') (cf. Dixon 1979:59, Comrie 1981:64).

The kind of transitivity which is tacitly and not always consistently assumed in determining the ergativity of a language in this way is thus grammatical transitivity, and constitutes at least a partial de facto acceptance of Paul Hopper and Sandra Thompson's very insightful demonstration (Hopper and Thompson 1980) that semantic transitivity and syntactic transitivity, though linked together in very interesting ways, are not the same thing. This distinction is depicted in Figure 2):

	Semantic transitivity	Syntactic transitivity	
	semantically transitive	+trns	
definite O_u,	↑	↑	O_d : PAT
perfective,	⋮	⋮	A_d : AGT, actr
⋮	⋮	⋮	
indefinite O_u,			
imperfective,	↓	↓	S_d : PAT, actr
•	semantically intransitive	-trns	

Figure 2) Semantic versus syntactic transitivity, based on Hopper and Thompson 1980

What Hopper and Thompson found out, among other things, is that there are two independent transitivity scales, a syntactic one and a semantic one, with semantically transitive situations tending to be encoded

by syntactically transitive clauses and vice versa. The semantic scale can be characterized in terms of the situational categories A_u and O_u and the degree to which the A_u is seen as affecting the O_u (Is the O_u definite? Is the action complete?, etc.), and this determination can be made fairly quickly, based on a very limited knowledge of the language in question. The identification of syntactic transitivity on the other hand requires a careful language-specific syntactic and morphological analysis. It involves determining which of the two or more two-argument structures a language may have correlates with semantic ergativity, and which if any groups morphologically and syntactically with one-argument intransitives. This identification can always be described in terms of a binary grammatical scale, using grammatically motivated categories such as the [±trns], PAT, AGT, and actr categories employed in lexicase dependency grammar.

4. The Grammatical Approach to Transitivity and Ergativity

In this section of the paper, I will outline a syntactic approach to transitivity and ergativity which is framed within a formal, explicit, and constrained version of dependency grammar called LEXICASE. This framework of analysis has been tested and refined in the analysis of more than 70 languages, most of them Asian and Pacific languages and a fair number of them ergative, and it makes a careful distinction between the kind of functional/situational categories used by most syntactic typologists on the one hand and grammatical categories which can be linguistically motivated on the other. The use of grammatical instead of situational criteria makes it possible to more precisely distinguish clauses which have an A_d and an O_d (A and O in 'derived structure') and are grammatically transitive from pseudotransitive and passive clauses, clauses which have an A_u and an O_u (A and O in 'underlying structure') but

which are grammatically intransitive.[3]

To begin with, the diagram below presents the lexicase counterpart of the conventional ergativity-versus-accusativity diagram given as Figure 1):

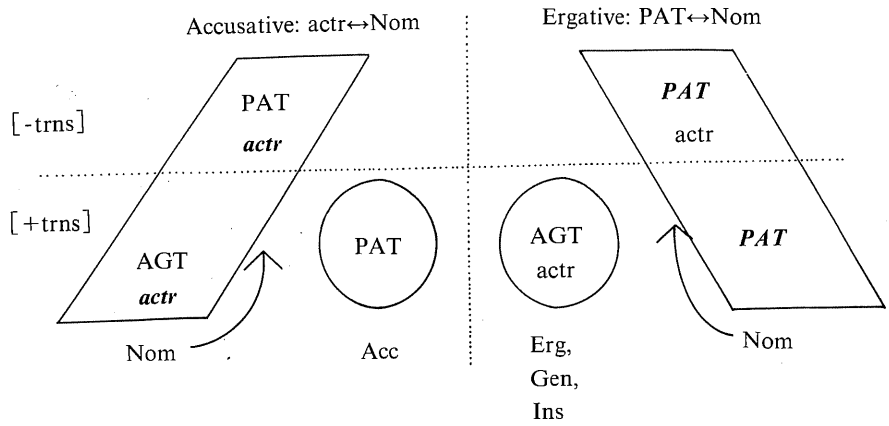


Figure 3) Accusative versus ergative case marking (lexicase)

In this diagram, [±trns] represents the distinction between grammatically (not semantically) transitive versus grammatically intransitive verbs. Unlike semantic or functional transitivity, grammatical transitivity is a polar rather than a scalar property, and every verb in every language is marked either positively or negatively for this feature. PAT (patient) and AGT (agent) are grammatical case relations, not subjectively identified situational roles like S_u, A_u, and O_u. Every verb takes a PAT as a dependent (divided into S_d and O_d in the Dixon-Comrie 'SAO' analysis depending on the transitivity of the verb), and every transitive verb takes an AGT (A_d in the SAO analysis). ACTR (actor) is a 'macrorole' (a

3. Thus statements such as the following: 'The passive derivation in English really does have O becoming S.' (Dixon 1994:21), 'One function of passive is to put an underlying O NP into derived S function...' (Dixon 1994:12) could be reinterpreted as 'The passive derivation in English really does have O_u becoming S_d' and 'One function of passive is to put an O_u NP into S_d function.'

term taken from Role and Reference grammar) which matches the AGT of a transitive verb and the PAT of an intransitive verb. (From this point on, I will take the term 'transitive' to mean 'grammatically transitive' unless otherwise indicated.)

Every noun bears not only a single case relation such as PAT or AGT, but also a case form, a grammatical encoding pattern which allows it to be distinguished from other Ns in the same clause and recognized as the bearer of a particular case relation. Nom is the nominative case form. It refers to any morphological and/or syntactic configuration which is common to both the single argument of a simple intransitive verb and either the PAT or AGT of a grammatically transitive verb. Nom is prototypically the least marked case form in terms of morphology, and if there is agreement between a predicate and any argument, there is agreement at least between the predicate and the Nom actant. ACC (accusative), ERG (ergative), GEN (genitive), and INS (instrumental) are also case forms, but only Nom and, for accusative languages, Acc, are universally present in all languages.

Given these basic categories, it is easy to state a universal syntactically based definition of ergativity as opposed to accusativity: an ergative case-marking system is one in which Nom marks PAT, and an accusative case-marking system is one in which Nom marks actr. (Note that I am not excluding the possibly that both systems may coexist in a single language, as they do of course in the native Australian language Dyirbal for example.) Nom can mark only PAT or AGT, so that there is no such thing in this system as e.g. Tang's 'goal subject' (Zeitoun 1992:7). In an accusative pattern, PAT is always marked by Acc, but in an ergative pattern there is no Acc case form, and AGT may be marked by the Gen case form as in Formosan and Philippine languages, Ins as in Tibetan and Dyirbal, or by a special Erg case form as in Hindi.

Case relations in a lexicase grammar are perceptual rather than situational. Depending on a speaker's perspective of a particular situation, a language may encode the participants in that situation in more than one way, and assign them different case relations accordingly. I will claim

that valid grammatical generalizations will always refer to these latter categories (comparable to S_d, A_d, and O_d in the SAO analysis), never to situational ones like S_u, A_u, O_u, 'instrumental', etc.

Determining which grammatical case relation an NP bears in a given sentence is then a grammatical matter, and cannot be settled by looking down from the grandstand and seeing who starts off with the baseball and who ends up with it, since a given language may allow such a situation to be encoded in more than one way. Assigning a given case relation to a given NP is not an a priori situationally based choice but an empirical hypothesis, testable on the basis of which assignment results in the best set of language-internal and cross-linguistic generalizations.

5. Exemplification

5.1 Function Versus Grammar

The lexicase categories I have described above are not divinely revealed. As in any other empirical science, they are hypotheses about the nature of some unobservable reality, in this case universal and language-specific human linguistic competence, and are justified to the extent that they produce a more compact description of the nature of language (Occam's Razor) and make the correct predictions about possible grammatical configurations in human languages. Accordingly, in the remainder of this paper, I will discuss each of the basic components of the lexicase case marking system in turn, and show how its existence is justified by the language-specific and cross-linguistic generalizations it makes possible and the insights that result in an analysis of data from Formosan languages.

5.2 Primitives

5.2.1 PAT

The kinds of generalizations that can be stated in terms of PAT alone include verbal semantics, the scope of complement case relations and infinitival complements, noun incorporation, resultative constructions,

verbal derivation, and patterns of discourse cohesion, especially coordination (cf. Starosta 1988a:210-216). Only the first three of these will be discussed in this paper.

5.2.1.1 The semantics of different verb classes

English examples such as *John loaded the hay on the truck* and *John loaded the truck with hay* and their counterparts in other languages have long been a popular topic in the case grammar literature.[4] The lexicase analysis of such examples (Starosta 1988a: 118-119) claims that two distinct though homophonous and derivationally related verbs are involved, $load_1$ and $load_2$. $Load_1$ is a transportation verb, like *throw*, in which a PAT is viewed as being moved to a LOC, while $load_2$ is an affect verb, like *cover*, in which a PAT is interpreted as being affected by the action of the verb. This derivational relationship is often marked by the prefix *be-* (Starosta 1994) in German, and in Dyirbal, an ergative language, it can be marked by suffixes such as *-ma-1-*, which indicates the interpretation of a situational 'instrumental' as a PAT (cf. Dixon 1994: 17) or-*ŋay*, which indicates the interpretation of a situational A_u as a PAT (cf. Dixon 1972:65).

In Philippine-type languages such as Tagalog, there are a number of affixation patterns for effecting this same kind of realignment between situational roles and grammatical roles, and differing from the Dyirbal situation only in the variety and morphological complexity of the derivational patterns. Linguists who are speakers of accusative languages have in the past regarded this as a very special and unique kind of phenomenon, even assigning it a whole new case-marking typology, as Masayoshi Shibatani (1988), Ting-chi Tang (Zeitoun 1992:33) and Anna Maclachlan (Maclachlan 1994) do, different from both accusative and ergative patterns. However, once semantic and grammatical transitivity are sorted

4. And recently also in SAO: 'Some languages have alternative construction types for ditransitive verbs, allowing each non-A argument to be in O slot, with different semantic emphases, e.g. English *load the wagon with timber* and *load timber into the wagon.*' (Dixon 1994:224). The transformational solution Dixon outlines here is identical to the kind of solution proposed in the old case grammar literature, and subject to the same criticisms (Starosta 1988:118-119).

out in accordance with Hopper and Thompson's criteria, Philippine languages must be recognized as ergative, and at that point Philippine-type 'focus' turns out to be nothing more than *load-hay* verbal derivation in an ergative mantle (Starosta 1986, Starosta 1994).

The following examples from Elizabeth Zeitoun's 1992 MA thesis on Tsou will serve to illustrate the difference.[5] I give the examples first as 1)-3), using Zeitoun's Greenbergian categories (but filling in information she left out, guessing as necessary, and leaving out non-relevant parts), and then in the lexicase ergative representation as 1')-3'):

1) [Zeitoun 1992:12, (28)a][6]

mo	mofi	to	emi	to	amo	?o	ino
AF-Non Past	give	Obl	wine	Obl	father	Nm	mother
			Theme?		Goal?		Agent?

'Mother gave some wine to father.'

2) [Zeitoun 1992:12, (28) b]

i	-si	fii	to	emi	to	ino	?o	amo
NAF-Non Past	3sg	give-GF	Obl	wine	Obl	mother	Nm	father
				Theme?		Agent?		Goal?

'Father was given some wine by mother'

3) [Zeitoun 1992:12, (28) c]

i	-si	faeni	to	amo	to	ino	?o	emi
NAF-Non Past	3sg	give	Obl	father	Obl	mother	Nm	wine
				Goal?		Agent?		Theme?

'The wine was given to father by mother'

5. Zeitoun objected after the oral presentation of this paper at the ICCL-4 conference to my use of examples from her 1992 paper rather than her more recent work (which I have not seen). However, she stated at the same time that she continues to reject my ergative analysis for Tsou, so using examples from her more recent work, even if it were available, would seem unlikely to make a significant difference here. If she does eventually publish a new analysis which is not subject to these criticisms, I will be happy to revise my evaluation accordingly.

6. I use ? and ŋ for Zeitoun's ? and N respectively. The category labels used in her analysis are identified as follows: AF='Agent Focus', GF='Goal Focus'?, NAF='Non Agent Focus', Nm='Nominative', and Obl='Oblique'

Zeitoun's discussion of this approach shows her framework of analysis, Tang's 'focusing' analysis, to be a variant of the kind of analysis being done for Philippine languages from Bloomfield's time up until the mid-70's (cf. Zeitoun 1993:A1 - 02, footnote 7), with a Chomskyan abstract superstructure grafted on top. One innovation she has made however, and one which does not seem to have any place in Tang's system, is to introduce a cover symbol NAF for all the verbal foci other than AF 'actor focus' (Zeitoun 1992:4; n.d. A1-03). As she describes Tang's analysis, it makes no provision for this kind of binary distinction. In fact, this is a category she has apparently taken (without attribution) from Shigeru Tsuchida's Ph.D. dissertation on Tsouic (Tsuchida 1976:43), and there is an extremely good rationale for it, though it doesn't emerge from Zeitoun's paper:[7] the Hopper-Thompson criteria show AF forms to be grammatically intransitive, and NAF clauses to be grammatically transitive. A detailed justification for this claim was given in Starosta 1988b and won't be repeated here. Instead, it will be considered to have been justified to the extent that it facilitates the formulation of non-disjunctive and economical generalizations about Formosan data. I will start by giving lexicase analyses of the same three examples 1)-3), with Greenbergian functional labels added for comparison and different glosses suggested:[8]

7. Zeitoun finally, on p. 49, refers to Hopper and Thompson's article and seems almost ready to equate AF with intransitivity and NAF with transitivity. As far as I could tell, though, she views this as purely a semantic matter and does not draw the syntactic consequences nor notice the inconsistency between an analysis stated in terms of a binary AF-NAF transitivity distinction and Tang's multipolar 'focusing' analysis.
8. For the remainder of the paper, all analyses assigned to examples from Formosan languages and Yami are mine unless otherwise indicated.

1')

mo	mofi	to	emi	to	amo	?o ino
	give		wine		father	mother
	[-trns		Gen		Gen	Nom
	+lctn]		MNS		LOC	PAT
						actr
			O_u			A_u

'Mother gave some wine to father.'

2')

i	si	fii	to	emi	to ino	?o amo
	she	give		wine	mother	father
	Gen	[+trns		Gen	Gen	Nom
	AGT	+lfct]		MNS	AGT	PAT
	actr				actr	
				O_u	A_u	

'Mother gave father some wine.'

3')

i	si	faeni	to	amo	to ino	?o emi
	she	give		father	mother	wine
	Gen	[+trns		Gen	Gen	Nom
	AGT	+lctn]		LOC	AGT	PAT
	actr				actr	
	A_u				A_u	O_u

'Mother gave the wine to father.'

There are several points to note here. The first is that *emi* 'wine' is translated as definite in 3), but as indefinite in 1) and 2), even though it would be O_u for all three examples in a Greenbergian analysis. The lexicase ergative analysis explains this difference by analyzing the wine as the PAT of a transiive verb (O_d) in 3') but not in 1') and 2'). By the lexicase ergative analysis, PAT is always marked as Nom and vice versa, and

PAT/O_d in Philippine and Formosan languages is almost always interpreted as definite, in harmony with the H/T transitivity scale. The notional 'object' O_u, on the other hand, is always interpreted as indefinite when encoded as MNS rather than PAT in grammatically intransitive clauses such as 1'). Second, *emi* 'wine' in the locational transitive [+lctn, +trns] clause 3') is interpreted as the PAT/O_d, the thing that is moving to the LOC, *amo* 'father', under the impetus of *ino* 'mother'. Similarly, *amo* 'father' is interpreted as a PAT/O_d being locationally affected by the action in the grammatically transitive location-affect [+trns, +lfct] clause 2').

In 1'), finally, *ino* 'mother,' the performer of the action (actr), is interpreted as the center of the action, with both father and the wine downgraded to the status of accessories to the action. In traditional Philippinist terms, it is the action that is important here, not the entities directly or indirectly affected by it. In Hopper and Thompson's terms, the example is semantically intransitive, and this is reflected in the lexicase analysis as a syntactically intransitive sentence with mother as the PAT/S_d, though once again the Greenbergian analysis makes no such distinction here.

5.2.1.2 Scope of complement and adjunct case dependents

A non-subject complement case relation such as LOC has a PAT in its scope; that is, the LOC complements in the following two Rukai sentences (*twalay ubula, ʔakɨla tarumak, twalay tarumak, ʔakɨla ḷɨgḷɨg*) has specific reference to the positions of the PAT (*kay aðaðam, kayvay tudaŋ*) rather than the domain within which the whole actions take place:

4) [Li 1973:122, (8)][9]

ania?alay	twalay	ubula	?akɨla	tarumak	kay	aðaðam sorc=source
flew	from	hill	to	Tarumak	this	bird
-trns	+sorc	Lcv	+goal	Lcv		Nom
+lctn		LOC		LOC		PAT
						actr
						A_u

'This bird flew from the hill to Tarumak'

5) [Li 1973:123, (14)]

kiaani?alay	sa sasɨvɨra	twalay	tarumak	?akɨla	lɨglɨg	kayvay	tudaŋ
was-blown	wind	from	Tarumak	to	mountain	this	tin-roof
-trns	Acc	+sorc	Lcv	+goal	Lcv		Nom
+lctn	COR		LOC		LOC		PAT
+pasv							actr
	A_u						O_u

'This tin-roof was-blown [by the wind] from Tarumak to the mountain.'

Note that this generalization can't be stated in an A_u/O_u analysis without using a disjunction. 'Ditransitive' verbs of giving also fit this pattern, e.g.

9. Note that these examples are analyzed in accordance with the accusative case-marking pattern, following Paul Li's original 1973 analysis. The Tanan and Maga dialects of Rukai are so far the only two Formosan languages I have found that have not yielded gracefully to an ergative analysis. A diachronic explanation of why this is so is given in Starosta 1995. An advantage of the lexicase approach is that the question of the scope of complement case relations is independent of the determination of ergativity, and generalizes across both linguistic classifications.

6) [Li 1973:129, (2)]

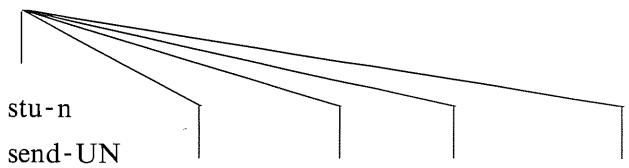
wabaay sa	a?as	inia	ɮulay	kuani	marudaŋ
gave	crab	that	child	that	old-man
+trns	Acc		Acc		Nom
+lctn	PAT		LOC		AGT
					actr
	O_u				A_u

'That old man gave a crab to that child.'

As in the previous examples, the LOC (*ɮulay* 'child') is the destination of the PAT (*a?as* 'crab'), rather than being the setting of the whole action or the position of the Nom or AGT.

The same pattern is found with other complement case relations, which again bear directly on the PAT, while other adjunct dependents refer to the action or state encoded in the predicate. Thus in the following Atayal example, *biru?* 'the materials' relates specifically to Tali--he is the one who ends up with them--while the adverb *suxan* describes the action of sending as a whole:

7) [Huang 1993:70, (45)a]

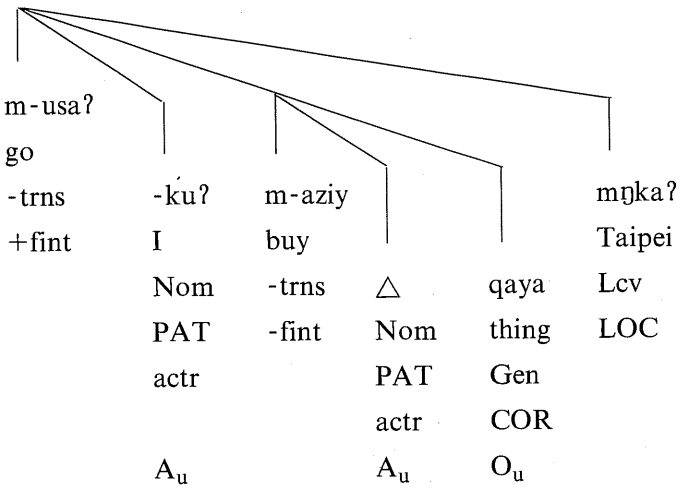


stu-n				
send-UN				
+trns	-maku?	biru?	suxan	tali
+lctn	-1S.G	book	tomorrow	Tali
	Gen	Gen	Adv	Nom
	AGT	MNS		PAT
	actr			
	A_u	O_u		

'I will send Tali the materials [sic] tomorrow'

We can also regard the PAT as the 'scope' of an infinitival complement construction, in that in the unmarked situation, the missing subject of an infinitival clause (Nom-actr in a lexicase analysis) has specific reference to the PAT of its matrix verb, regardless of whether the matrix verb is transitive or intransitive (cf. Starosta 1988a:135-136, 192-193; to appear). Two examples from Atayal will illustrate this point:

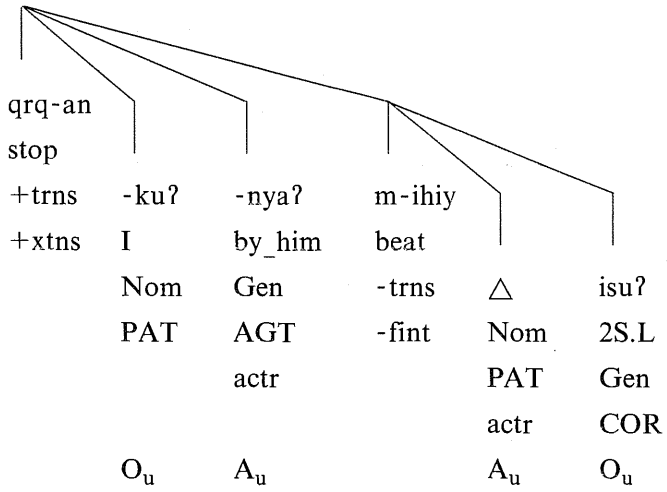
8) [Huang 1993:89, (3)b][10]



'I am going to Taipei to buy things'

10. In this paper, I will indicate the presence of missing constituents by the use of deltas (△). I do this as a courtesy to readers who have no particular interest in formal syntax. In a fully specified lexicase representation, however, there are no empty categories whatsoever: no trace, no PRO, no unfilled nodes, and no △.

9) [Huang 1993:89, (14)a]



'He stopped me from beating you'

5.2.2 Transitivity

The typical situation in Formosan and Philippine languages with respect to transitivity is the following: there are two classes of two-argument sentences, both involving A_u and O_u in some pretheoretical sense, but differing from each other systematically in morphology, syntax, and semantics, exactly as Hopper and Thompson have led us to expect. I will refer to them here as 'transitive' and 'pseudotransitive' respectively. Some of their differences canbe summarized as follows:

5.2.2.1 Morphology

Intransitive verbs in Formosan and Philippine languages, including both single-argument intransitives and pseudotransitives, commonly take a prefix of the form *m*(V)- or an infix of the form -(V)*m*-, while transitive verbs are commonly suffixed by -(V)*n* or, less commonly, suffixed by-*i* or -*a* or prefixed by *s*(V)-. Either the transitive or the intransitive affix can be absent in a transitive-intransitive pair, so that in Tsou there are intransitive *m*-forms contrasting with unmarked transitive forms (cf. Zeitoun 1992:15-17, Tung 1964:131) and transitive -*a* or -*i* forms paired with zero-marked intransitives (Tung 1964:131).

5.2.2.2 Syntax

If a Formosan language has clitic pronouns, a genitive set will occur with transitive verbs and a nominative set with intransitive verbs. The third person Nominative is commonly zero. There are two variants of this pattern: (1) Tsou and Yami[11] allow only one clitic per clause, so genitive pronouns occur with grammatical transitives and nominatives occur with grammatical intransitives, including pseudotransitives. Unfortunately, the two sets are almost identical in form in Tsou, and it is only the third person forms (*si* or *he* for Genitive, zero for nominative) which make a clear distinction. (2) Atayal has both sets, and they may cooccur in a grammatically transitive clause, while only the Nominative members occur with grammatical intransitives, again including pseudotransitives.[12]

5.2.2.3 Semantics

The Formosan transitive-pseudotransitive contrast is a beautiful example of what Hopper and Thompson were talking about. When there is a contrast between two related verbs along the transitivity axis, the syntactically transitive member of the pair is also semantically transitive, and vice versa. Huang (Huang 1993:64, 1994:131-133) has given a very nice and complete set of examples of this contrast for Atayal, but in case the reader is tired of this harsh northern language, here is a pair of examples from the gentle southern climes of Orchid Island, ancient home of the Yami people and more recently of a nuclear waste disposal site:

10) One-argument intransitive [Ho 1990:3.1-01c]

ya	△	mazies	u	kanakan
		bathe oneself		child
	Nom	-trns		Nom
	PAT			PAT
	actr			actr
	A_u			A_u

'The child is taking a bath.'

11. Yami is geographically but not genetically a Formosan language, though it appears to be very close in the family tree. I include data from Yami to give a slightly broader base to this study.
12. Surprisingly, Huang does not seem to have noticed this pattern in her paper on Atayal ergativity (Huang 1994), though in other respects she has identified the evidence for transitivity quite neatly.

11) One-argument intransitive [Ho 1990:3.1-15a]

ya	△	tumava	si	mapapu
		get fat		Mapapu
	Nom	-trns		Nom
	PAT			PAT
	actr			actr
	O_u			O_u

'Mapapu is getting fat.'

12) Pseudotransitive [Ho 1990:3.1-17b][13]

ya	△	kuman	si	mapapu	su	suli
		eat		Mapapu		taro
	Nom	-trns		Nom		Gen
	PAT			PAT		MNS
	actr			actr		O_u
	A_u			A_u		

'Mapapu is eating taros.'

Note the absence of a third person nominative clitic pronoun.

13) Grammatical transitive [Ho 1990:3.1-17a]

ya	na	ni-kan	ni	mapapu	u	suli
	by her	eaten		Mapapu		taro
	Gen	+trns		Gen		Nom
	AGT			AGT		PAT
	actr			actr		O_u
				A_u		

'Mapapu has eaten up the taros.'

13. As far as I am aware, Arlene Ho's MA thesis on Yami (Ho 1990, 1993) was the first published study after Starosta 1988b to apply Hopper and Thompson's transitivity analysis to a Formosan language and conclude that the language was ergative.

These four examples illustrate a typical manifestation of morphological, syntactic, and semantic transitivity: 10), 11), and 12) are analyzed as grammatically intransitive, while 13) is grammatically transitive. Accordingly, 10), 11), and 12) represent in-progress actions, and 12) represents an in-progress action with a partial affect on the O_u, while 13) illustrates a completed action with a total affect on O_u. Morphologically, the verbs in 10) - 12) have an -(*u*)*m*- infix, while the verb in 13) doesn't (*ni*- marks aspect, not focus), and syntactically, 10) - 12) have no nominative clitic pronouns marking their actors (a systematic gap in Formosan languages), while 13) has the genitive clitic *na* marking its actor. Thus the morphological and syntactic generalizations line up exactly with the semantic ones, exactly as Hopper and Thompson lead us to expect. For more examples like this, see Ho 1990 and/or Huang 1994.

Finally, the following Tsou examples illustrate the same contrast:

14) [Zeitoun 1992:32, (85)a][14]

mo	△	mavo	ta	piŋi	si	amo
		open		door		father
-trns	Nom	-trns		Gen		Nom
	PAT			MNS		PAT
	actr					actr
	A_u			O_u		A_u

'Father is opening the door.'

15) [Zeitoun 1992:32, (85)b]

i	si	pavi	ta	amo	si	piŋi
	he	open		father		door
+trns	Nom	+trns		Gen		Nom
	AGT			AGT		PAT
	actr			actr		
	A_u			A_u		O_u

'The door has been opened by father.'

14. In this and subsequent examples, I will omit Zeitoun's glosses for 'grammatical morphemes'.

16) [Zeitoun 1992:31, (82); 'A(gent) F(ocus) Construction']

mo	△	eobako	ta	oko	ʔe	ino
		beat		child		mother
-trns	Nom	-trns		Gen		Nom
	PAT			MNS		PAT
	actr					actr
	A_u			O_u		A_u

'Mother is beating the child'

17) [Zeitoun 1992:31, (83); 'N(on) A(gent) F(ocus) Construction']

i	ta	eobaka	ta	ino	ʔe	oko
	she	beat		mother		child
+trns	Gen	+trns		Gen		Nom
	AGT			AGT		PAT
	actr			actr		
	A_u			A_u		O_u

'The child has been beaten by mother.'

18) [Zeitoun 1992:31, (84)a]

mo	△	moŋsi	ʔe	oko
		cry		child
-trns	Nom	-trns		Nom
	PAT			PAT
	actr			actr
	A_u			A_u

'The child is crying'

The non-auxiliary verbs in 14) and 15) and in 16) and 17) differ morphologically. 15) and 17) have an *-i* or *-a* suffix, reconstructed as transitive suffixes all the way back to PAN by Starosta, Pawley, and Reid (Starosta, Pawley, and Reid 1982), so are morphologically transitive. In 14) and 18) (a one-argument clause and therefore intransitive by distributional criteria), the non-auxiliary verbs also begin with the expected

intransitive prefix *m-*, and the verb in 16) contrasts with the one in 17) in lacking a transitive suffix. Morphologically, then, 14), 16) and 18) are morphologically intransitive, while 15) and 17) are morphologically transitive. This conclusion is supported by the morphology of the auxiliary verbs in these sentences as well.[15] That is, the auxiliary verbs in 14), 16), and 18) all begin with m- while those in 15) and 17) don't. Syntactically, the auxiliary verbs in 15) and 17) are followed by third person singular genitive clitic pronouns, while those in 14), 16), and 18) lack them, even though all involve third person singular A_u participants. Thus 14), 16), and 18) fall into one class syntactically, a class which includes the one-argument clause 18), while 15) and 17) fall into a different syntactic class and always have two arguments. The situation is thus exactly parallel to that in Yami. Conclusion: 14), 16), and 18) are grammatically intransitive, and 15) and 17) are grammatically transitive. Lastly, the aspectual distinctions are as they should be according to the Hopper-Thompson system: progressive for the grammatically intransitive pseudotransitives 14) and 16) and simple intransitive 18), and completed for the grammatically transitive examples 15) and 17). The glosses for 14) and 16) are unexpected in another way, however. Based on my analysis and my experience with Tsou, both O_u NPs in these grammatically intransitive clauses should be indefinite, but Zeitoun has glossed them both as definite. If her glosses are right, they weaken my transitivity analysis somewhat (though the aspectual and other evidence still supports it), but if a recheck of the examples shows her glosses to be wrong, it will add further support to the transitivity analysis.

So how does Zeitoun, working within Tang's 'focusing language' analysis, view sets of examples such as these? First of all, the auxiliary verbs she refers to as 'focus markers' (Zeitoun 1992:34-69:A1-04) or 'preverbs' (Zeitoun 1993:A1-01, footnote 5, A1-04), both purely arbitrary categories whose properties don't follow from any general principles and

15. See Starosta 1988b:550-559 for a survey of auxiliary verbs in Formosan languages.

thus must be stipulated. Second, she is clearly using situational Greenbergian criteria to determine transitivity, since she regards both 16) and 17) as transitive:

> 'Aside from these two types of transitive sentences[16) and 17)], we also find intransitive sentences...' (Zeitoun 1992:31)

and therefore forfeits the nice correlations achieved by a H/T analysis.

5.2.3 Nom and relative clauses

According to the Keenan-Comrie Accessibility Hierarchy (AH) the relative accessibility to relativization of NP positions in simplex main clauses is expressed by the following formula:

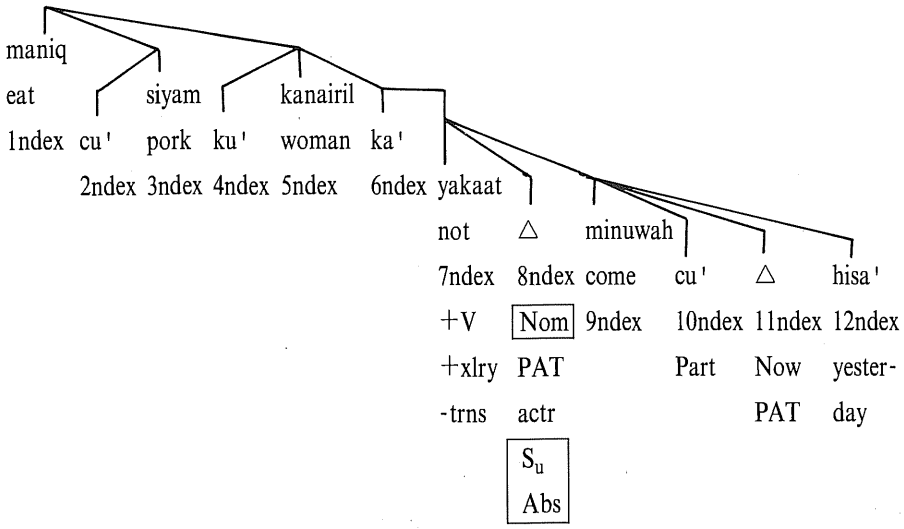
> Accessibility Hierarchy (AH)
> SU<DO<IO<OBL>GEN>OCOMP (Keenan and Comrie 1977:66)

Here SU='subject', and 'subject' is never formally defined; all they tell us is that 'We are using a largely traditional notion of subject' (Keenan and Comrie 1977:75). By examining their examples, we can infer that what they mean by 'subject' is whatever matches the grammatical subject in the corresponding English translation, that is S_u or A_u, but only if it is marked by whatever counts as the Nominative case form in that language. That is, if a language only relativizes on SU, then it won't relativize on, say, the 'Agent' of a passive.

When we try to make the AH precise enough to test in this way, though, we run into counterexamples. The problem arises in ergative languages such as Dyirbal, where it is the intransitive S_u and O_u that get relativized, not S_u and A_u, and then only if they would be marked by what is referred to in the Dixon-Comrie analysis as the so-called Absolutive case. Thus the AH as as made precise above doesn't apply to Dyirbal. I have tried to show here and elsewhere that Formosan languages too are ergative, and if so, the relativization situation is exactly the same as in Dyirbal. According to the lexicase analysis, however, there is no such thing as an 'Absolutive' case; 'Absolutive' is just a name given to Nominative in a Dixon-Comrie analysis when it appears in an ergative language. When 'Absolutive' is replaced by Nominative in these analyses, we

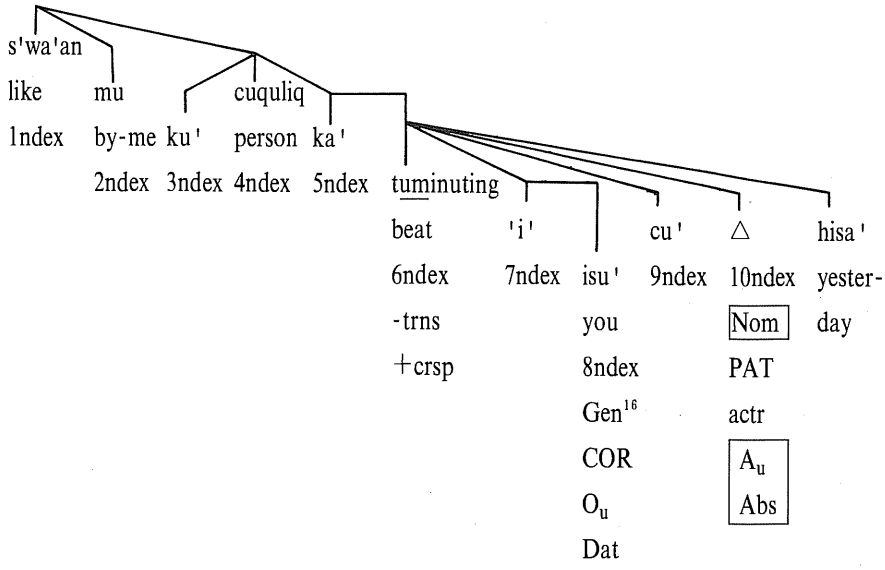
can make the AH more precise and at the same time more general by stating that the first term in the hierarchy is the Nominative-marked NP, regardless of whether the language is ergative or accusative. The Mayrinax Atayal examples 19)-21) below are from Huang 1995, with my analyses and interlinear glosses, and I constructed 20') in accordance with her claims about relative clause structure:

19) Huang 1995:210, (23)c; my glosses and analyses



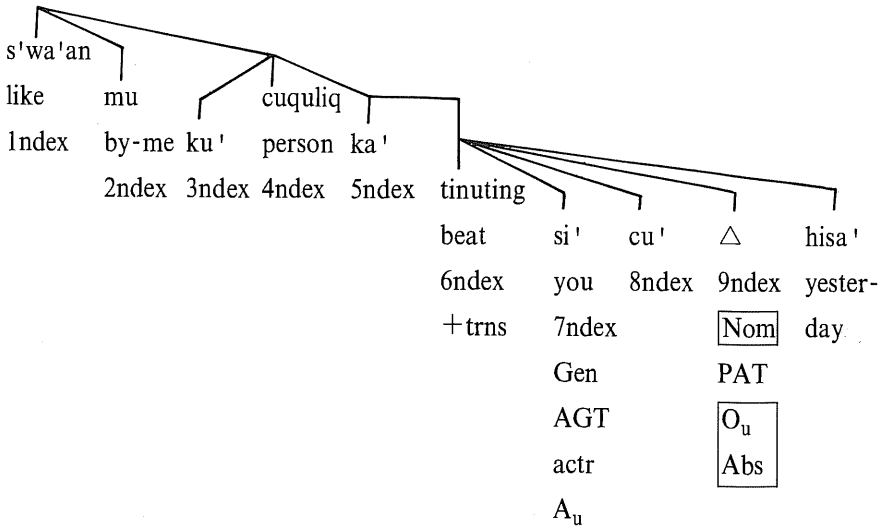
'The woman who did not come yesterday is eating pork.'

20) Huang 1995:211, (25)b



'I like the person who beat you yesterday.'

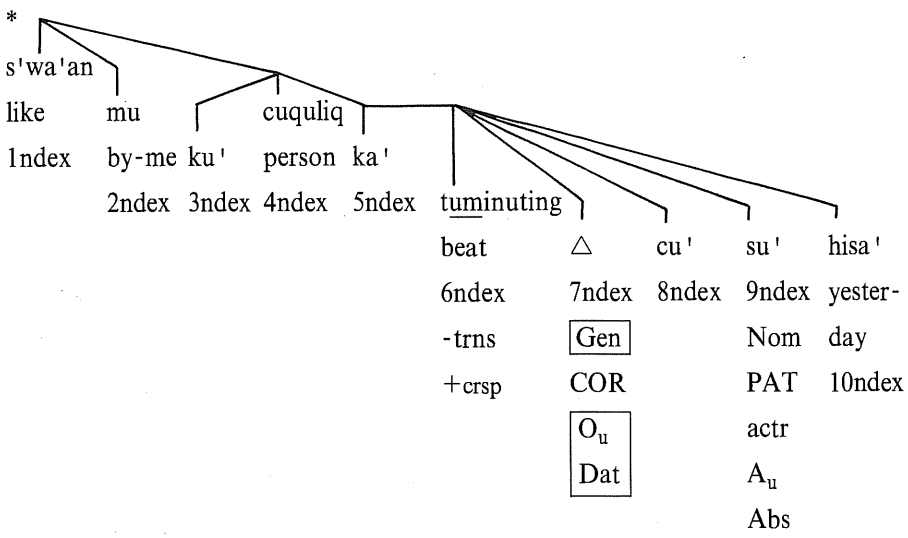
21) Huang 1995:211, (26)a



'I like the person who beat you yesterday.'

16. Here the form *isu?* has to be analyzed as Genitive rather than as Accusative, since by lexicase definition, pure ergative languages do not have an Accusative case form.

20')



'I like the person who you beat yesterday.'

As should be clear from the examples, the precise version of the AH does not apply to these examples, but the one restated in terms of the lexicase category Nom does.

6. Conclusion

I hope that I have demonstrated in this paper that the lexicase dependency grammar analysis is superior to the subjective and imprecise Greenbergian typological approach in capturing generalizations about various aspects of Formosan clause structure in a formal and constrained way, and deserves serious consideration as a preferable vehicle for future typological studies.

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漢語詞序問題札記

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摘　要

這篇短文針對上古漢語的詞序問題釐清一些誤解。主要內容有兩點：第一，從上古漢語到現代漢語方言，「修飾語－中心語」的詞序並沒有改變，上古並沒有「中心語－修飾語」的痕跡。「鷄公、鷄母」中的「公、母」是名詞，並不是後置的形容詞。第二，上古漢語中「主－動－賓」是基本的詞序，有時賓語前置，成爲「主－賓－動」的次序只用在加強語氣的時候。

討論漢語類型的人總要提到漢語詞序的問題，一個是「形容詞－名詞」的次序，一個是語句中「主－動－賓」的次序。對於「形－名」的次序常有人引用南方方言中「鷄公、鷄母」的說法，指出表示性別的形容詞有後置的現象，我認爲這是一種誤解。對於「主－動－賓」的次序，曾經引起過一番辯論，大致的結論是認爲古代漢語和現代漢語一樣，都是「主－動－賓」的結構。最近梅祖麟(1994)認爲上古漢語裏還有「主－賓－動」的遺跡，因而推論更早的遠古漢語的詞序是「主－賓－動」，我覺得也還有可以斟酌的地方。以下就這兩方面提出一點個人的看法。

一、上古漢語中「形容詞－名詞」的次序

梅祖麟(1994)把「形容詞－名詞」的次序更改爲「修飾語－中心語」

的次序，因爲前者只是後者的一類。現在就用「修飾語－中心語」的結構來觀察漢語的情形，所謂「中心語」也就是「被修飾語」。

首先討論一種常常有人誤解的結構，北方官話說「公鷄、母鷄」，閩語說「鷄公、鷄母」，橋本萬太郎（余志鴻1985:63-66）就認爲閩語是把表示性別的形容詞放在名詞後面了。換句話說，就是北方的「修飾語－中心語」，到了南方就成爲「中心語－修飾語」，而在南北之間就有過渡的地方，兩者並用，例如湘語。我想這是一種誤解，因爲在客家話中有「鷄嬤」指母鷄，「蝦公」指普通的蝦，並不是公蝦；湘語中有「鷄婆」指母鷄；閩南語中有「鷄角」指小公鷄。可見「鷄公、鷄母」的「公、母」和「嬤、婆」等字一樣，只是把人際的親屬關係字用之於家畜。「鷄公、鷄母」兩成分之間的關係仍舊是「修飾語－中心語」，「鷄」字修飾名詞性的「公、母」。當然在「鷄嬤、鷄婆」之中，「鷄」字也是修飾語了。

以古漢語來說，文言文裏早就有「雷公、電母、河伯、風姨」一類的詞彙，跟「鷄公、鷄母」的結構是一樣的，因爲根本沒有「公雷、母電」。

岑麒祥(1953)認爲廣州話有「名詞詞幹＋修飾成分」的複合詞，是和壯語交流的結果。橋本引用岑文，並認爲「菜乾」這一類的詞是修飾成分在後，因此有「非北方漢語性」。其實官話系統中有「蘿蔔乾兒」、「葡萄乾兒」這一種詞，明白表示「乾」或「乾兒」是名詞性的中心語。

其次，針對梅祖麟(1994)引用藤堂明保(1966)以及他自己（梅1988）的一些分析一一說明：

㈠梅氏指出殷周的人名如「帝堯、帝舜、后稷、公劉、父丁、祖庚、妣甲、帝辛」等，跟後代皇帝的謚號正好相反，如「高宗、太祖、文帝、武帝、丁公、乙公」等。如果後者的詞序是「修飾語－中心語」，那麼前者就是「中心語－修飾語」。

以「高宗、太祖、文帝、武帝」來說，前一個成分是形容詞，後一個成分是名詞。這些詞語都是「修飾語－中心語」的關係。但「帝堯、帝舜、后稷、祖庚」卻不相同，前後兩者都是名詞，難以証明後面的一個成分是修飾語，仍有可能是「修飾語－中心語」的結構。或者分析爲同位性的稱呼，前後兩個成分並無修飾的關係。例如英文中可以有great presi-

dent, good president，都是「修飾語－中心語」的結構，同時有President Bush, President Clinton，我們不能說Bush和Clinton是修飾中心語President的。

至於「公劉、父丁」和後代「丁公、乙公」的不同也可以作類似的分析。「公劉、父丁」和「帝堯、帝舜」的結構是一樣的，正如英文的「Uncle Sam」。後來「公、父」等字成爲尊稱、美稱，就有了「丁公、乙公、仲父」一類的詞語，似乎不能認爲在結構上有詞序顚倒的現象。

㈡殷墟卜辭中的「丘商、丘雷」，就是後代的「商丘、雷丘」，春秋時代的「城濮」就是後來的「濮城」，梅氏用來証明詞序的改變。這只是一種可能的解釋。由於每一個成分都是名詞，很難說定何者爲修飾語。例如英文中的 mount 出現在名詞前，而 mountain 則出現在名詞後，可以認爲是同一個詞的不同形式。如果把泰山翻譯爲 Mt. Tai，或者 the Tai mountain，大概都可以說得過去，我們不能因此就說英語的詞序改變了。丘商、商丘可能都是「修飾語－中心語」的結構。

另外一個考慮是當時語言的問題，「城濮」是楚國的名城，因此這種說法可能是楚語，楚語的詞序未必跟漢語相同，最出名的例子見於左傳宣公四年：

「初若敖娶於䢵，生鬥伯比。若敖卒，從其母畜於䢵。淫於䢵子之女生子文焉。䢵夫人使棄諸夢中，虎乳之。……楚人謂乳穀，謂虎於菟，故命之曰鬥穀於菟。」

如果「城濮」是楚語，自然不能用來証明漢語的詞序。我們知道卜辭中所說的殷商的敵人，就有「鬼方、土方」。方指方國，並沒有看到「方土、方鬼」的記載。

㈢梅氏認爲詩經裏的「中谷、中林」相當於後代的「谷中、林中」。葛覃：「葛之覃兮，施于中谷」。毛傳：「中谷，谷中也」。孔穎達正義：「中谷，谷中。倒其言者，古人之語皆然，詩文多此類也。」梅氏指出這也是詞序顚倒的現象。我認爲「中谷」和「谷中」意思並不完全一樣，「中谷」是指山谷的當中，「谷中」可以泛指山谷的裏面。

現代國語裏既有「中途」，也有「途中」。前者指「半路」，大體上是路途的一半；後者是說「路上」。兩者的意涵並不全同，也不牽涉詞序

的問題。「中」既是形容詞，也是名詞性的方位詞。作形容詞用出現在前，作方位詞用出現在後，兩者都是「修飾語－中心語」的結構。正如我們用「下江」指稱長江下游，也可以用「山下」泛指山的下面。孔穎達的話只是一種膚淺的觀察，不能完全信從。

㈣Greenberg (1966:86)指出，凡是有「形－名」結構的語言，通常指示詞和數詞也用在名詞之前。梅氏引用甲骨文「獻牛一羊一」，和金文「孚人萬三千八十一人，孚馬□匹，孚車卅兩，孚牛三百五十五牛，羊卅八羊。」証明殷周時代數目字放在名詞之後。但是這兩條都不能支持他的看法。

先看金文，在數目字之後都有一個名詞，例如「孚人萬三千八十一人，……孚車卅兩」，在「萬三千八十一」後還有「人」字，在「卅」之後還有「兩」（輛）字。我們不能說數目字放在名詞之後，因爲在結構上，數目字是跟後面的「人、兩」結合爲「修飾語－中心語」的結構。

再看甲骨文「獻牛一羊一」，不一定非要解釋爲「獻一牛一羊」不可，也許可以分析爲「獻牛，一；羊，一。」數目字是數詞，可以用爲述語。換句話說，在「牛、羊」和「一」之間可能有一個停頓。同時，甲骨文中也有下列的卜辭：

「丁酉卜貞：王宓文武丁，伐十人，卯六牢，鬯六卣，亡尤。[1]」

至於梅氏說到「名＋(數＋量)」有變爲「(數＋量)＋名」的情形，也還有可以討論的地方。上文已經指出在名詞和數目字之間可能有停頓，同樣的，名詞跟數量詞之間也可能有停頓。「孚車卅兩」可以是「孚車，卅兩」，數量可以是述語，也可以是解釋性的短句。例如「俘擄了敵人的兵車，共卅兩。」，「打落了敵人的飛機，五架。」雖然這兩句話跟「俘擄了敵人卅兩兵車；打落了敵人五架飛機」意思相同，但結構卻不一樣。

㈤梅祖麟(1988:155-157)指出早期的「S＋〔VP〕者」到漢代變成「〔VP〕者＋S」，S是主語，VP是動詞組。他舉的例子如下：

1.「數＋名」的詞序其實遠比「名＋數」的詞序更爲常見。此一卜辭轉引自管燮初1953:35。

第一類：S＋〔VP〕者

《孟子》滕文公下：臣弑其君者有之，子弑其父者有之。

《墨子》修身：源濁者流不清。

第二類：〔VP〕者＋S

《史記》陳丞相世家：項王怒，將誅定殷者將吏。

《史記》屈原傳：因厚幣用事者臣靳尙。

梅文說：「《孟子》裏的“臣弑其君者有之”是〔[S]＋[VP者]〕，中心語在前，修飾語在後。《史記》的“用事者臣”是〔[VP者]＋[S]〕，修飾語在前，中心語在後。

這些例句的分析都有可商之處。第一類的結構可能是[S＋VP]者，[S＋VP]是一個完整的句子，「者」是名詞化或主題化的記號。「臣弑其君」是SOV結構的句子，把它用爲名詞性的主語或主題時，要加一個記號「者」字，然後再加動詞。因此「臣弑其君者有之」應該分析爲「臣弑其君」＋者＋有之。而不是「臣」＋「弑其君者」＋有之。「源濁者流不清」也一樣。這樣的結構跟「修飾語－中心語」的討論是無關的。

再看第二類。「項王怒，將誅定殷者將吏」，「定殷者」之中還有兵卒，項王要殺的是其中的將吏。「因厚幣用事者臣靳尙」，「用事者」可能不止一人，這裏指明是「臣靳尙」。分析爲「用事者＋臣靳尙」或「用事者臣＋靳尙」也許都有可能，但我覺得在「用事者」之後有一停頓可能比較好。無論哪一種分析，都可視作「修飾語－中心語」的結構。上引第一類既然跟「修飾語－中心語」的討論無關，這一類又是正常的「修飾語－中心語」的結構，當然也就談不上詞序顚倒的演變了。

綜合以上的討論，我們可以說從上古漢語到現代方言，一直都是「修飾語－中心語」的型態，並沒有找到早期具有「中心語－修飾語」的痕跡，也沒有發現詞序改變的現象。

二、上古漢語中「主－動－賓」的次序

上古漢語中「主－動－賓」的語句是最主要的句式，對於這一點大家

並無異議。但也有爲數不少的「主－賓－動」語句，出現在下列的情形之下：[2]

㈠在否定詞後面，如果賓語是代詞，這個賓語要放在動詞前面。例如：尚書康誥：「無我殄享」，意思是說「不要斷絕了我們的祭祀」。丁聲樹(1935)、呂叔湘(1941)討論的「不之爲弗，毋之爲勿」也是代詞「之」前置的結果。

㈡在問句裏，如果賓語是詢問詞，這個賓語也要放在動詞前面。例如《論語》子罕：「吾誰欺，欺天乎？」意思是說「我要欺騙誰呢？欺騙老天爺嗎？」，又如顏淵：「內省不疚，夫何憂何懼？」意思是說：「自己反省沒有什麼愧疚，又擔心什麼害怕什麼呢？」

以上這兩類是很出名的例子，許多人都討論過。我只想指出一點，這兩種賓語前置的類型是很有局限性的，是在特定的環境裏把賓語提前。上古漢語裏大多數的語句都是「主—動—賓」的形成，有一兩種賓語前置的情形，可以認爲是一種加重語氣，未必能把這種有條件限制的結構上推到遠古漢語去。

除去上列兩類，還有一些賓語前置的例子，也可以用加重語氣的想法來解釋：

1.(1)《尚書》大誥：民獻有十夫，予翼。（＝翼予，輔助我。）
(2)《詩經》小雅節南山：赫赫師尹，民具爾瞻。（＝瞻爾，看著你。）
(3)《左傳》僖公四年：昭王南征而不復，寡人是問。（＝問是，問這件事。）
2.(4)《左傳》僖公十五年：君亡之不恤，而群臣是憂（＝憂群臣），惠之至也。
(5)《詩經》小雅節南山：尹氏大師，維岡之氐，秉國之鈞，四方是維（＝維四方），天子是毗（＝毗天子），俾民不迷。
(6)《詩經》衛風新臺：燕婉之求（＝求燕婉），得此戚施。
(7)《詩經》小雅四牡：是用作歌，將母來諗（＝諗母）。

2. 這裡只舉少數例句，請參見梅文(1994)，亦見於本論文集。

以上第1類三條，都是在加重語氣的時候把賓語提前。(2)中第一句的師尹就是第二句中「爾」。(3)中第一句說明的問題「昭王南征而不復」，可能就是第二句「是」字所指的事件。賓語先主題化，再用複指方式來加重語氣。(1)的情形稍有不同，但是說明有十位民間的賢人來協助自己，也是一種加強的口氣。

第2類四條，基本上可以歸納爲下面的公式：

名詞組＋是／之／來＋動詞

這裏的名詞組一定是後面動詞的賓語，可以把兩者之間的「是、之、來」視作賓語提前的記號。這種結構到今天的口語裏還保存一些成語；如「惟你是問」。「是、之」在古書裏常常通用，作爲指示詞時，「之子」就是「是子」，因此作爲賓語提前的記號用時，兩字也可以通用。「來」字的這種用法，在詩經裏只有一見，但關係是很明顯的。

比較第1類的(3)和第2類的(4)(5)，我們發現「寡人是問」不合於上面的公式，這句話的意思並不是「問寡人」，可見還是要倚靠上下文才能分辨確切的語意。

總之，所有賓語前置的情形都是用在加強語氣時，上下文語意清楚時，或者在記號明確時。這些情形使我們相信上古或者遠古時，漢語基本的詞序還是「主—動—賓」。

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Types of Tone Sandhi in Mandarin Dialects and the Implications for a Formal Analysis of Tone*

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Abstract

So far very few studies of tone sandhi have systematically dealt with the range of variations present in the dialects of a language. Such studies provide us with a much wider perspective on the extent of tonal variations and the nature of tone sandhi in general. A preliminary attempt is made in this study to look into the types of tone sandhi found in a number of documented Mandarin dialects representative of different Mandarin-speaking regions. The bulk of the discussion centers around the complex tone sandhi exhibited in two Xibei dialects, Pingyao and Changzhi, which have presented thorny and perplexing problems left unsolved by earlier analyses. Unlike the previous analyses of Pingyao which examined only the Type A compounds documented by Hou (1980), the present analysis takes into account the tone sandhi of the Type B compounds, and consequently argues that the register neutralization rule proposed by Chen (1991) to account for the tonal register alternations is not only problematic and costly on theoretical grounds, but also fails to capture the generality of tone sandhi rules governing Pingyao lexical compounds. Tonal alternations in both types of Pingyao compounds examined clearly indicate a process of independent tonal register spread (i.e. assimilation). The analysis of Changzhi mainly deals with the complex tonal alternations exhibited in the verbal reduplicates. Instead of proposing a set of unmotivated rules (e.g. Bao 1990), I treat verbal reduplication to be a tonal copying process which conforms to the templatic condition for verbal reduplication and the two general prosodic constraints in Changzhi. This treatment is successful in reducing the need for special, unmotivated rules to a minimum and shedding light on the prosodic nature of tonal alternations in Changzhi. From the dialects examined, types of tone sandhi found are summarized, and among them three major types can be concluded: partial association of complex contour tones, contour metathesis, and register dissimilation. It is argued that the majority of the types of tone sandhi found indicate a predominantly dissimilatory nature, which is characteristic of a prosodic property. These findings bear important implications for the formal representation of tone in generative phonology, which are discussed toward the end of the paper. It is suggested that tone be represented at the prosodic level; i.e., tone should have a place in the prosodic hierarchy, and that a level of representation higher than that of the mora may be necessary, which some tonal alternations (e.g. contour metathesis) must observe. The paper ends with a brief discussion of a few remaining issues which require further investigation.

* This paper is based on portions of my dissertation research (Chang 1992). I am indebted to Hongjun Wang for providing some valuable data, and am grateful to Moira Yip for her thoughtful comments on the earlier version of my analyses of Pingyao and Changzhi. In revising this paper, I have benefited from comments by two anonymous referees, and the historical insight of Tsu-lin Mei. Thanks also go to Jackson Sun for generously sharing some related data with me.

1. Introduction

Like other phonological processes, tone sandhi in general may be viewed as natural processes which are to a large extent phonetically motivated.[1] During the past few decades great strides have been made in our understanding of the working of tone sandhi in individual languages as more detailed documentation has become available. However, some broader, fundamental questions such as the nature of tone sandhi, the properties of tone sandhi rules, and the relation of tone sandhi to other prosodic units have not been fully answered. With regard to the Chinese languages, our understanding of these broader issues remains poor even within the better-studied languages, mostly due to the complexities of dialect variation and to incomplete documentation. Despite the difficulty of obtaining sufficient data, initial attempts to probe into the broad issues regarding tone sandhi can be made based on the data accessible so far. This paper thus intends to serve as a preliminary study of the nature of tone sandhi as it looks into the types of tone sandhi found in a number of Mandarin dialects documented and representative of different Mandarin-speaking regions. In this preliminary investigation, two widely discussed dialects with unusually complex tone sandhi, Changzhi and Pingyao, are singled out for lengthy expositions so as to offer sound analyses for their peculiar sandhi behavior. In concluding the paper, I discuss the implications of these tone sandhi properties for constructing a general theory of tone.

2. Tone Sandhi Rules in Mandarin Dialects

2.1. Dialects Surveyed and Their Tone Systems

Among the major Chinese languages, Mandarin has by far the most

1. There are, of course, exceptions to this statement. In Chinese languages, the well-known exception is Southern Min which basically involves widespread paradigmatic replacements of tones in grammatical contexts.

speakers and occupies a vast territory (Norman 1988). The language (i.e. entire dialect group) is further divided into subgroups on the basis of geographical location.[2] For this study, representative dialects from each major region for which sufficient documentation is available are used. Before we discuss the tone sandhi, the tone systems of the dialects studied are first listed in (1) below.

(1) Tone systems of Mandarin dialects:[3]

Tonal category	1	2	3	5	7	8
Beijing(BF)	55	35	214	51		
Tianjin(BF)	21	45	213	53		
Xuzhou(BF)	213	55	35	42		
Xian (XB)	21	24	53	45		
Pingyao(XB)	13	13	53	35	23	54
Changzhi(XB)	213	24	535	44/53	4	54
Chengdu (XN)	44	31	53	13		
Wuhan (XN)	55	213	42	35		
Zhenjiang(JH)	42	35	31	55	5	5
Yangzhou(JH)	31	34	42	55	4	4
Hefei (JH)	212	55	24	53	4	4

2. The following four major dialect groups are generally recognized: Northern (Beifang guanhua; henceforth BF), Northwestern (Xibei guanhua; XB), Southwestern (Xinan guanhua; XN), and Eastern, i.e. the Yangtze and Huai Rivers region (Jianghuai guanhua; JH). For their geographical spans, see Norman (1988) and the summary in Chang (1992).
3. The tonal categories are derived from historical development and used widely in field work to document the citation tones. The data of Xian, Chengdu and Wuhan are from Yuan (1960). Hefei and Yangzhou are from Beijing Daxue's surveys (1964). Pingyao and Changzhi are from Hou (1980, 1983). Tianjin is from Li and Liu (1985). Xuzhou is from Li (1985). Zhenjiang is from Zhang (1985). Note that the tonal category 5 which corresponds with the Qu-sheng category of Middle Chinese is split into two categories in Changzhi. Tone categories 7 and 8 are the Ru-sheng (checked syllables), of which the tonal duration is relatively abrupt and short.

In terms of tone sandhi in these dialects, two general observations are worthy of note: first, tone sandhi does not seem to be conditioned by the tonal categories which correspond historically with the Middle Chinese categories; instead, tone sandhi is clearly related to the tone values in the modern dialects and is perhaps triggered by other prosodic factors such as stress and the prosodic template in the dialect. Second, tone systems with almost identical tonal inventories (e.g., Zhenjiang and Yangzhou) may not undergo identical sandhi processes; however, dialects within the same group tend to share certain sandhi processes. These points are made clear in subsequent discussions.

2.2. Tone Sandhi in the Northern (BF) Dialects

The best known tone sandhi in Mandarin is that of Beijing in which a third tone changes into a high rising value (i.e. T2) when followed by other T3 syllables.[4] In the BF subgroup, the northeastern region (Manchuria) is most similar to the Beijing dialect; e.g., Shenyang (as documented in Yuan 1960) has the same tone system and the T3 sandhi as that of Beijing except for the lower register on the first tone ([33]). In contrast, the dialect spoken in Tianjin, about 120 kilometers southeast of Beijing, has a set of tone sandhi quite distinct from that of Beijing, despite the obvious similarity in tone values in citation tone categories. Tianjin tone sandhi occurs pervasively in the preceding syllable of a disyllabic string; the rule is illustrated below:[5]

4. We ignore the domain of the sandhi rule application here for conciseness and also for convenience of comparison. Beijing T3 sandhi is treated as a register dissimilation rule which changes the low register ([21])to a high register ([35]) when followed by a low-registered T3 (Chang 1992).
5. Again, for conciseness, the discussion with regard to directionality of tonal domains and extrinsic ordering among these rules are bypassed here. I refer interested readers to Chen (1986) and the articles in the special feature of a symposium on Tianjin tone sandhi in the Journal of Chinese Linguistics 15.2.

(2) Tianjin tone sandhi (Li and Liu 1985):[6]

a. 21→213/ _____21 i.e. ϕ→h/ L.l____L.l

b. 213→45/ _____213 i.e. L→H/ _____L

c. 53→21/ _____53 i.e. H.h l→L/ _____H.h l

d. 53→45/ _____21 i.e. h l→l h/ _____L.l

These sandhi processes are clearly dissimilatory in nature; i.e., both (2b) and (2c) involve register dissimilation, while (2a) and (2d) involve the dissimilation of pitch specifications.[7] With regard to the complex contour tone [213] and rule (2a), some clarification is needed; that is, in light of the rare occurrence of complex contours preceding other syllables, (2a) seems odd for it changes a low tone to a dipping tone (i.e. complex contour) when followed by another low tone. If the complex contour tone documented in Tianjin is similar to that of T3 in BM, the duration of the syllable bearing this tone should be much longer than that of the syllables bearing other tones. However, according to the phonetic studies by Shi (1990), the duration of the documented complex contour tone in Tianjin, whether it be the sandhi tone in (2a) or the citation tone in (2b), is not any longer than that of other tones. Based on this finding and the appearance of a clear rising contour in the phonetic studies, Shi treats this tone as simply a low rising tone [13], and his analysis is adopted here.

Another relatively well-documented BF dialect is Xuzhou, spoken in northern Jiangsu close to the border with Henan and Shangdong provinces. Like Beijing, major sandhi in Xuzhou is concerned with the complex contour tone [213].

6. The notation used here in the rule formations is highly abbreviated and informal. H/L and h/l are used as "shorthand" device to indicate the upper and lower register values and the pitch distinctions of a tone; the analysis follows the line of tone feature analysis initiated by Yip (1980). Except where necessary, the formations of the tone sandhi rules are informal as they are intended to be easy references to the sandhi processes involved.
7. As a general practice in this paper due to limited space, examples illustrating tone sandhi rules are generally left out where the rule formations themselves are sufficient to clarify the tone sandhi alternations.

(3) Xuzhou tone sandhi:

213→13/ _____213

213→22(or 21)/ _____X (X: all other tones)

(3) is reminiscent of the T3 sandhi in Beijing: the complex contour is never fully realized unless prepausally. The difference between the Xuzhou sandhi and the Beijing T3 sandhi is mainly in the register dissimilation which Beijing undergoes, but Xuzhou does not. In addition to (3), a lexical sandhi process in Xuzhou merits some discussion. In reduplicated forms, there is a strong tendency for the second reduplicated syllable to surface as a high level tone [55].[8] In addition, there is triplication in the Xuzhou lexicon which gives the following patterns:

(4) Triplication in Xuzhou:

a.	[213]:	[22-55-213]
b.	[55]:	[55-55-55]
c.	[35]:	[35-55-213]
d.	[42]:	[42-55-213 or 42]

With the exception of (4b), one may consider the second and third syllables in triplicated forms to follow a template with the first syllable maintaining its original tone.[9] It is most likely that the high level tone in the middle is motivated by weak stress; evidence of this comes from a simi-

8. This is somewhat reminiscent of many reduplicated forms in Beijing Mandarin in which the second reduplicated syllable or both syllables surface with high level tones and are considered as prosodically weak positions.
9. One may suspect that the template originates from the triplication of the complex tone [213]; moreover, the tonal pattern of (4a) indicates a re-reduplication process from the right. Both may be supported by evidence from other Chinese dialects. The latter is supported by the well-known triplication cases in Taiwanese, whereas the former is supported by the Mandarin spoken in Taiwan, in which there exists a reduplication template [21-35] in baby talk, originating perhaps in the spreading of the complex contour [214] over the disyllables. Due to its complex contour melody and longer duration, a complex tone may be more susceptible than other tones to split up, thus creating a template.

lar reduplication process involving three syllables (i.e., the BBA pattern), in which the second syllable can be either a [55] or neutral-toned (0).

(5) Triplication and BBA reduplicates involving [213](Li 1985:36-38):[10]

a. [tian 213]: [tian22-tian55-tian213] 'everyday'

b. [ban213-ban213-gao213]: (i) [ban22-ban55-gao213] 'that tall; the same height'
(ii) [ban22-ban 0-gao213]

2.3. Tone Sandhi in the Southwestern (XN) Dialects

Tone sandhi in the XN dialects tend to be limited. The following are the tonal alternations documented for Chengdu (in Sichuan), and Wuhan (in Hubei) respectively (Beijing Daxue 1964, and forthcoming):[11]

(6) Chengdu lexical sandhi:

a. 31→44/ 31_____ i.e. L→H / L
13→44/ 13_____ x y h x y_____

b. 53→31/ 53_____(in some reduplicates) i.e. H →L / H
(→44 (in a few isolated cases)) h l h l____

(7) Wuhan tone sandhi:

213→13/ _____213
213→21/ _____X

(7) is the same as (3), once again indicating the preference of partial realization of the complex contour tone. The Chengdu lexical sandhi (6a) and the major pattern of (6b) are both dissimilatory; i.e., in a sequence of identical tones, low register contour tones become high register level

10. The examples here are given in Pinyin, but are documented by Li (1985) with Chinese characters.
11. I am indebted to Professor Wang Hongjun (p.c.) at Beijing University for providing the updated information of the Lexical Survey.

tones, whereas a high falling tone becomes a low falling tone.[12] Furthermore, note that morphemes which undergo these changes tend to be functional morphemes (e.g. suffixes) bearing little stress. Comparing Chengdu with nearby Kunming (in Yunnan) which has exactly the same tonal inventory as Chengdu, we find some differences in sandhi environments, but very similar processes (i.e., dissimilatory change on weakly stressed syllables such as the second syllable in a reduplicated form and a suffixed form).

(8) Kunming lexical sandhi (based on the data from Beijing Daxue 1964):

(in limited cases)

53 →44/ 53 _____ i.e. H → H (h l → h l)

31 →44/ {31, 13} _____ i.e. L → Ⓛ→H (x y → h l)

2.4. Tone Sandhi in the Eastern (JH) Dialects

Two JH dialects are examined here. Hefei, spoken in Anhui, has the following lexical sandhi, based on the data from the revised version of the Lexical Survey (due to Wang Hongjun, p.c.).

(9) Hefei lexical sandhi:

a. 212→12/_____212 i.e. L (h l h) → L (h l h)

b. 212→21/_____X

c. 21→12/_____53 L (h l) → H (h l) / (l h) _____

12. Throughout this paper. I represent level tones with only one pitch specification. e.g. [44] in chengdu as H.h. This representation can be distinguished from the seemingly identical representations for short checked tones by their different moraic and segmental structures.

d. 24→33/ _____ $\left\{\begin{matrix}212\\55\\24\\4\end{matrix}\right\}$ $\begin{matrix}H\\ /\ \neq\\ l\ \ h\end{matrix}$ Y

e. 4→21/ _____ $\left\{\begin{matrix}55\\24\\4\end{matrix}\right\}$ $\begin{matrix}H\\ |\\ h\end{matrix}\rightarrow\ \begin{matrix}L\\ |\\ l\end{matrix}$ / _____ Z

(X: all but the same tone; Y: all but the falling tone; Z: all but a L tone or a falling tone)

(9a) and (9b) are not different from the partial association of the complex contour tone which appears widely in other dialects examined so far. (9c) is crucially ordered after (9b) and can be considered as a contour dissimilation rule which metathesizes the tonemes when followed by a falling tone. The dialect's preference for alternating pitch contour may be indicated by the more complicated rule (9d) in which the rising tone [24] undergoes contour simplification (i.e., becoming a mid tone) when followed by all but the falling tone [53], and rule (9e) which alters the high checked tone to low when followed by all high tones except the high falling tone.

Another JH dialect, Zhenjiang, spoken in Jiangsu, exhibits the following sandhi alternations:

(10) Zhenjiang lexical sandhi (based on data from Zhang 1985):

a. $\left\{\begin{matrix}42\\31\end{matrix}\right\}$→35/ _____ $\left\{\begin{matrix}42\\31\end{matrix}\right\}$ i.e. $\begin{matrix}H\\ /\backslash\\ h\ l\end{matrix}\rightarrow\ \begin{matrix}H\\ /\backslash\\ l\ h\end{matrix}$ / _____ $\begin{matrix}/\backslash\\ h\ l\end{matrix}$

b. $\left\{\begin{matrix}42\\31\end{matrix}\right\}$→33/ _____ $\left\{\begin{matrix}35\\55\\\underline{5}\end{matrix}\right\}$

c. 35 →33/ _____ $\left\{\begin{matrix}55\\\underline{5}\end{matrix}\right\}$ $\begin{matrix}/\backslash\\ x\ y\end{matrix}\rightarrow\ \begin{matrix}L\\ |\\ h\end{matrix}$ / _____ X (X: all but the same nonfalling high tones)

(10a) is clearly a contour metathesis rule which dissimilates the first falling contour when followed by another falling tone; moreover, when

two low falling tones are in a sequence, there is also register dissimilation as well as contour metathesis. In (10b) falling tones undergo contour simplification when followed by nonfalling high tones. High rising tone is simplified to level when followed by (high) level tones in (10c).

2.5. Tone Sandhi in the Northwestern (XB) Dialects

Among all the Mandarin dialects for which documentation is available, the XB dialects exhibit the greatest sandhi complexity. Pingyao and Changzhi, two widely discussed dialects spoken in Shanxi will be closely examined in Section 3. As we shall see, the tone sandhi in these two dialects involves register spread (i.e. assimilation) as well as dissimilation, contour metathesis and a number of the prosodic conditions in the case of Changzhi. Despite the preliminary nature of the investigation, these properties are important in understanding the extent and working of tone sandhi in Mandarin. Before entering into a detailed discussion of Pingyao and Changzhi, however, we look at Xian, a XB dialect with a relatively simple tone system and tone sandhi. Based on the Lexical Survey (Beijing Daxue 1964), Xian has two sandhi alternations within the lexicon as in (11).

(11) Xian lexical sandhi:

a. 21→24/ _____21 i.e. Ⓛ→H L

≠ h l h h l

b. 53→21/ _____53 Ⓗ→L H

h l h l

Both rules are dissimilatory. (11a) involves both register and contour dissimilation, whereas (11b) involves only register dissimilation.[13] The

13. Data provided to me by Jackson Sun on Yuncheng, another Shanxi dialect (Lu 1991), consist of four citation tones: [31], [13], [53] and [33], and three sandhi processes: [31]→[13]/ _____[31], [13]→[24]/ _____[13], [53]→[31]/ _____[53]. The tonal inventory and tone sandhi of Yuncheng resemble those of Xian. Like Xian, contour metathesis and register dissimilation are also at work in this dialect.

sketchy documentation prevents us from knowing whether these two alternations apply generally without exception and whether they cover all the tonal alternation cases in Xian.

Before summarizing the types of tone sandhi found in this study, we now turn to a discussion of the tone sandhi in Pingyao and Changzhi.

3. Tone Sandhi in Pingyao and Changzhi Revisited

3.1. Pingyao

There are five citation tones in Pingyao which have been listed in (1): [13], [53], [35], [23] and [54]; but since the two checked tones [23], [54] have exactly the same patterns of sandhi alternation as those of [13] and [53], the two sets can be treated with the same underlying representations. In disyllabic strings, the first syllable tends to undergo sandhi alternations, giving rise to the patterns in (12).

(12)

σ_1/σ_2	13	35	53
13	13-13	***31***-35	**35-423**
35	**13**-13	***31***-35	35-**423**
53	53-13	53-35	***35*-423**

Bao (1990) first drew attention to two cases of register assimilation in Pingyao in support of the process of register spread predicted by his tone model. One case is the [13-13] pattern which surfaces when [35] is followed by [13]; the other is the [35-423] pattern resulting from [13] followed by [53] (the underlined forms in (12)). In his analysis, a metathesis rule is needed to account for the italicized patterns in (12), and a phonetic detail rule accounts for the surface pitch change from [53] to [423] in the third column. Furthermore, when two [35] syllables are in a sequence, the surface pattern of [31-35] seems to require a register dissimilation rule in addition to contour metathesis. (13) summarizes the four rules proposed by Bao to account for Pingyao lexical sandhi:

(13) Bao's rules (1990:91-95):[14]

(a) Register lowering:

```
H    →    L/_____   T   e.g. [35]→[13]/___[35]
              / \   /\
              l h   l h
```

(b) Contour metathesis:

```
                 H
x y  →   y x/___x y      [13]→[31]/___[35]
                /\       [53]→[35]/___[53]
```

(c) Register assimilation:

```
R→  α R/_____  α R   e.g.,[13]→[35]/___[53]
          / \            [35]→[13]/___[13]
          l h
```

(d) Contour formation: (phrase-final detail rule)

```
   c]
 / | \
h  l  h                e.g. [53]→[423]/___#
```

The register assimilation proposed for Pingyao has generated some debate. In defense of her 1989 model which does not allow register spread, Yip (1992) argues that the register assimilation observed by Bao (as in rule (13c)) is subject to an alternative analysis proposed by Chen (1991) and thus cannot be taken as a case of register spread. Chen's argument against Bao's analysis of Pingyao tone sandhi is based on simplicity considerations; i.e., he claims that the two rules (13a) and (13c) can be collapsed based on the observation stated in (14) below:

(14) Register neutralization: For a rising tone, if the following syllable begins with h (or l), replace the Register value with H (or L).[15]

14. For conciseness in exposition, Bao's rules are rewritten here with "shorthand" notations to avoid the complications of the formalism adopted by him, which bears no relevance to our discussion.
15. In formalizing his observation, Chen follows Yip's 1989 model which takes register to be the tonal root node. The formalism used and the discussion of the formal problems with this rule are omitted here. For details, see Chang (1992).

Since this rule does not require register spread, Yip (1992) argues that Bao's claim of register spread is not valid.

On this, I object to Yip' argument for two reasons. First, ingenious and simple as it is, Chen's register neutralization rule poses serious theoretical problems. What is shorthanded as H/L and h/l in his statement has to be represented by two distinct tone features at distinct tiers in current theoretical models, and feature spreading across tiers is generally prohibited. It seems hardly justifiable to sacrifice theoretical rigor here just for the sake of simplicity. Second and more importantly, there is other evidence in Pingyao which does not support Chen's register neutralization analysis, but one with register spread, as we are to see now. In Hou's 1980 documentation of Pingyao, tone sandhi patterns are given for three types of disyllabic compounds classified on the basis of the grammatical relationship between the two syllables. Patterns listed in (12), those studied by Bao, demonstrate only what Hou termed Type A compounds.[16] The diverse Type B compounds exhibit tone patterns substantially different from those of Type A. Some examples of Type B compounds are given in (15) followed by a summary of the patterns of tonal alternations in (16).

(15) Type B disyllabic compounds in Pingyao:

(a)[u 13 'black'-ia 13 'crow']→[31-35] 'crow, raven'

(b)[tɕi 13 'hunger'-xuaŋ 13 'barren']→[31-35] 'famine'

(c)[tɕia 13 'home'-tɕy 35 'utensil']→[13-13] 'furniture'

(d)[tiə 13 'shake'-tɔ 53 'upside down']→[31-53] 'reverse'

(e)[tei 35 'big'-məŋ 13 'door']→[35-53] 'front gate'

(f)[ts'uŋ 13 'village'-Zʌʔ13 dimin. sufx.]→[31-35] '(small) village'

16. Type A consists of compounds whose components form verb-object or subject-predicate relationships, whereas Type B consists of those whose components form relationships such as adjunct-argument, argument-complement, conjunct (parallel) structure, suffixed noun, reduplicated noun, and reduplicated adjectives (see (15) for examples). Type C contains reduplicated verbs. All three types exhibit different sandhi patterns from one another. For conciseness, we limit our discussion to the Type B patterns here.

(g)[xuE 35 'alley' - xuE 35]→[35-53] 'alley'
(h)[uang 13 'curvy' -uang 13]→[31-35] 'curvy, bent'

(16) Type B tonal alternations:

σ_1/σ_2	13	35	53
13	**31-35** or 13-13	**13-13** or 31-35	**31-53** or 35-423
35	**35-53**	**35-53**	**35-53**
53	**53-13**	**53-35**	**53-53** or 35-53

The bold-faced patterns in (16) are the common patterns for Type B compounds (i.e., the second row starting with a [13] syllable and the second pattern for the [53-53] sequence which occasionally occurs when the first syllable is a checked [53] tone are minor patterns). Note that these minor patterns are exactly the same for the corresponding sequences of the type A compounds (cf. (12)).[17] One may speculate that their appearance in Type B is due either to an incomplete process of lexical diffusion or to dual-pattern sandhi alternations in certain types of compounds. For the purpose of our discussion, only the more common patterns for the Type B compounds are taken into consideration.

It is clear that metathesis also plays an important role in the sandhi patterns here. Metathesis applies to [13] when it is followed by [13] and [53] and when preceded by [35], and applies also to [35] when preceded by a [35]. These metathesis processes can be captured by the following rule:

(17) Metathesis for rising tones in Type B compounds: A rising tone (l h) becomes falling (h l) when the preceding tone is a high rising tone (H/l h) or when the following tone starts at either the bottom (L/l) or the top (H/h) of the entire pitch range.

17. Except for a minor difference which is noticed between Type B [35-53] and its corresponding Type A pattern [35-423]. This difference may nevertheless be considered a phonetic detail having little relevance to the discussion.

$$\text{i.e.}\quad l\,h \rightarrow h\,l \,/\, \left\{ \begin{array}{ll} \begin{array}{c} H \\ /\backslash \\ l\ h \end{array} \underline{\qquad\quad} & \\ L & L\,/\,H \\ | & \begin{array}{cc} | & | \\ l\,/ & h \end{array} \\ \underline{\qquad} & \end{array} \right\}$$

Comparing this metathesis rule with that of Type A (as formulated by Bao in (13b)), we find that this rule is less general than (13b) and the conditions under which the rule applies are more cumbersome. However, it is possible to conclude that in Pingyao, a metathesis process applies generally to the rising tones, but the environments in which the rule applies differ somewhat according to different types of compounding relationships. The second sandhi process observed in Type B is register assimilation, which accounts for the register lowering of [35] when it is preceded by [13], and the register raising of [13] (which after metathesis becomes [31]) when it is preceded by [35]. This rule is stated as follows:

(18) Register assimilation: The register value of the second syllable is assimilated to that of a preceding rising tone in the Type B disyllabic compounds. i.e. $R \rightarrow \alpha\ R \,/\, \alpha\ \begin{array}{c} R \\ /\backslash \\ l\ h \end{array} \underline{\qquad\quad}$

This rule is again reminiscent of the register assimilation rule (13c) given by Bao for the Type A compounds. The main difference lies only in the direction of the spread.

Before we go on, let us return to the crucial debate regarding register spread in Pingyao. In the Type B compounds, the register raising and lowering occur in the second syllable instead of the first syllable of the compound as in the case of Type A. Given that both types of compounds share similar sandhi processes as we have discovered, we then would expect a register neutralization process along the line of (14) in Type B as well. However, no evidence can be successfully put forth for any such register neutralization process here; that is, the process of regis-

ter assimilation (i.e. spread) seems to be indispensable in the account of Type B tonal alternations.[18] Furthermore, as mentioned earlier, even if the register neutralization rule may conveniently account for the register assimilation/dissimilation in the Type A compounds, the rule itself is theoretically problematic. Therefore, it is best to conclude that no register neutralization rule exists in Pingyao; instead, a rule of register assimilation is present in the Pingyao phonology, which applies to both Type A and Type B compounds under somewhat different conditions.

In addition to metathesis and register spread, a register dissimilation rule is needed to account for the register-raising of [13] when it is preceded by a metathesized [13]. This rule is formulated as (19) below:

(19) Register dissmilation (L-raising) in Type B: (crucially ordered before (18)) The register of the second syllable is dissimilated to high (H) when the preceding syllable has a L register.
i.e. L→H/ L_____

Again, this rule is also reminiscent of the register lowering rule (13a) formulated by Bao in which the first syllable of a [35-35] sequence undergoes a dissimilatory process, lowering its register. In comparison, (19) applies to the second syllable of a [13-13] sequence, raising the register value in this case.[19] The derivations of the sandhi patterns of Type B disyllabic compounds are given as follows:

18. For the sake of examining whether register neutralization exists in Type B, I hypothesize that the register value of a rising tone is positively correlated with the pitch value of the preceding syllable; i.e., replace the rising tone syllable with a H register value if the preceding tone ends with h, and vice versa. Ill-formed derivations arise when this hypothetical process is applied either followed or preceded by metathesis (17). For a detailed exposition, see Chang (1992).
19. There is a difference in the order in which the register dissimilation rule applies in these two types of compounds. The register-lowering rule applies before metathesis in Type A, whereas L-raising applies after metathesis but before register assimilation in Type B.

(20) Derivations of Type B compounds: (Rules (17), (18), (19))

σ_1-σ_2	Metathesis	L-raising	R-spread	Output
13-13	31-13	31-35	n/a	31-35
13-35	n/a	n/a	13-13	13-13
13-53	31-53	n/a	n/a	31-53
35-13	35-31	n/a	35-53	35-53
35-35	35-53	n/a	_____	35-53

Our findings regarding Pingyao tone sandhi may be summarized as the following two points: first, the process of register assimilation is strongly substantiated by the two types of Pingyao disyllabic compounds examined in this section. Yip's argument against register spread on the basis of the register neutralization rule proposed by Chen is untenable. Second, the great extent of similarity shared between the rules accounting for the Type A and the Type B tonal alternations does not appear to be a coincidence. It seems plausible that, for a language, there is a set of core phonological rules which may vary to certain degree (e.g. the conditions under which the rules apply) to make distinct different categories or functions. This latter point is worth pursuing further and may find support in some other Mandarin dialects to which we are to return shortly.

3.2. Changzhi

Like Pingyao, Changzhi is also a Mandarin dialect spoken in Shanxi of which the tone sandhi patterns have generated much debate. According to the documentations by Hou (1983), Changzhi has seven citation tones (i.e. [213], [24], [535], [44], [53], [4̲], and [5̲4̲] as listed in (1)) and a number of different tone sandhi patterns which appear in different grammatical functions. In the following, I give some examples of the suffixed forms and the verbal reduplicates:

(21) a. Nominal suffix/ tə; tə?/ :[20]

(i) ts'ə [213]	[ts'ə 213-tə? 213]	'car'
(ii) luŋ [24]	[luŋ 24-tə? 24]	'wheel'
(iii) i [535]	[i 535-tə? 535]	'chair'
(iv) tɕiɔ [44]	[tɕiɔ 44-tə? 535]	'sedan-chair'
(v) təu [53]	[təu 53-tə? 53]	'pea'
(vi) kuə?[4]	[kuə?4-tə? 4]	'valley'
(vii) tsuə?[54]	[tsuə?54-tə? 54]	'bracelet'

b. Adjectival suffix / ti/ :

(i) suaŋ [213]	[suaŋ 213-ti 213]	'sour'
(ii) xuaŋ [24]	[xuaŋ 24-ti 24]	'yellow'
(iii) ləŋ [535]	[ləŋ 535-ti 535]	'cold'
(iv) ts'əu [44]	[ts'əu 44-ti 535]	'stinky'
(v) la?[4]	[la?4-ti 4]	'spicy'

(22) Verbal reduplicates:

saŋ [213]	[saŋ 213-saŋ 35]	'to fan'
tɕ'iəu [24]	[tɕ'iəu 24-tɕ'iəu 53]	'to beg'
ts'ɔ [535]	[ts'ɔ 535-ts'ɔ 35]	'to fry'
k'aŋ [44]	[k'aŋ 31-k'aŋ 53]	'to look'
uŋ [53]	[uŋ 35-uŋ 53]	'to ask'

In Bao's 1990 analysis, he treats the suffixed forms (e.g. (21)) as cases of tonal spread; i.e., suffixes /tə?/ and /ti/ get their surface tonal realizations from the preceding syllables except in the case of [44]. When the first syllable is [44], the following suffix surfaces with a [535] in-

20. The fact that the two complex contour tones in Changzhi, [213] and [535], may appear in the first syllable of a disyllabic string is perplexing. It is not clear whether the contours are fully realized phonetically and, if so, whether the syllables bearing them are lengthened. Moreover, [213] and [535] contours are documented for the checked suffix /tə?/ by Hou. Again, the phonetic detail is not available. One may speculate that since, according to Hou, the nominal suffix often takes two forms /tə/ and /tə?/, no glottal ending appears when the suffix bears complex contours. These phonetic details await further documentation.

stead of a [44] tone. Bao attempts to explain away this exception by claiming that [44] is a default tone (i.e. an unmarked tone) in Changzhi, and that, since it is not specified, the underlying tone associated with the suffix surfaces. This analysis offered by Bao faces some difficulties: first, although Hou (1983) has stated clearly in his field report that /ti/ has the underlying tone [535], it is not clear whether or how /tə?/ gets the same underlying tone [535], since checked syllables carry either a short [4] or a short [54] tone in Changzhi. Second, the two checked tones in Changzhi generally have the same tonal alternations as [44] and [53] and thus can be treated with the same underlying representations as [44] and [53]. Now if [44] is unspecified (i.e. the default value) and cannot spread onto the suffix, one must wonder why the same surface pattern does not arise when the short checked tone [4̲] is the first syllable (i.e., compare (21a(vi) with (iv), and (21b(v) with (iv)). Treating the [44] case as an exception which needs some special stipulation, Duanmu (1990) suggests that the whole tone spread in Changzhi suffixed forms can be alternatively analyzed as tonal copying; i.e., the suffixes are considered toneless and get their tones by a tonal copying process which copies the tones of the preceding syllable.

On this issue, Yip (1992) argues against Duanmu's tone copying analysis of the suffixed forms by pointing out the difference in tonal alternations between the suffixed forms and the verbal reduplicates (e.g. (22)). In Yip's view, since the tonal melodies in verbal reduplicates do not seem to be 'held fixed by a prosodic template', the reduplication process must copy the tones as well as the segments before tone sandhi subsequently occurs. She then questions that if both suffixation and verbal reduplication involve copying the tone from the first syllable, why the suffixed forms and the verbal reduplicates do not exhibit the same tonal alternations. Consequently, Yip concludes that suffixation (as in (21)) involves tonal spread, spreading the whole tone of the first syllable onto the suffix with no further sandhi, whereas verbal reduplication (as in (22)) involves tonal copying, followed by tone sandhi. However, another set of tonal alternations is noted by Yip, which occurs in disyllabic compounds

with the same underlying (or citation) tones (examples listed in (23) below). Along the same line of reasoning, Yip is perplexed by the question why the patterns seen in (23) differ from those in (22), since, in her view, after reduplication the base tones in (22) should be the same as the corresponding forms in (23) and presumably undergo the same sandhi processes.[21] She freely admits that she has no explanataion for the different sandhi alternations seen here.

(23) Disyllabic compounds with the same underlying tones:

a.[kuŋ 213 'male'-tɕi 213 'chicken'] →[213-53] 'rooster'
b.[k'æ 213 'open'-ts'ə 213 'car'] →[35-213] 'to drive'
c.[sə 24 'snake'-y 24 'fish'] →[24-24] 'eel'
d.[mu 535 'female'-ma 535 'horse'] →[35-53] 'mare'
e.[tɕiɔ 535 'to wring'-liaŋ 535 'face'] →[35-535] 'to scrape facial hair'
f.[ts'əu 44 'stinky'-t'aŋ 44 'charcoal'] →[53-44] 'smoky charcoal'
g.[tɕiəu 53 'old'-faŋ 53 'cooked rice'] →[53-53] 'leftover'

So far no phonological analysis of tone sandhi in Changzhi can be considered satisfactory. Bao (1990: 126-34) has attempted to account for the suffixed forms as a case of tonal spread, and the tone sandhi in the verbal reduplicates by a set of rules, but has ignored cases such as (23). In Bao's analysis of the forms in (22), a number of category-specific and general rules are proposed.[22] We first give Bao's analysis of the underlying representations of Changzhi tones in (24) and the rules proposed for the derivations of the surface tones in verbal reduplicates in (25), followed by some derivations based on Bao's proposal.

21. Yip's rationale for rejecting tonal copying in (21) and for questioning the differences in tone sandhi between (22) and (23) is ill-conceived. Even if a copying process gives rise to the same base forms, it does not automatically follow that forms from different morphological categories are to undergo the same sandhi. According to the phonological theory conceptualized in lexical phonology, phonological rules have access to lexical/morphological information.
22. As indicated by (25c) below, Bao must also assume a tonal copying process in reduplication; however, he did not make clear how the reduplication process copies tones.

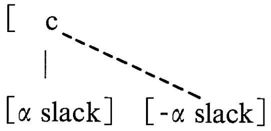
(24) Bao's analysis of Changzhi tones (with shorthand modifications):

$[213]\ \begin{array}{c}\mathrm{L}\\ |\backslash\\ \mathrm{h\ l}\end{array}\qquad [535]\ \begin{array}{c}\mathrm{H}\\ /\backslash\\ \mathrm{h\ l}\end{array}\qquad [24]\ \begin{array}{c}\mathrm{H}\\ |\\ \mathrm{l}\end{array}\qquad [53]\ \begin{array}{c}\mathrm{H}\\ |\\ \mathrm{h}\end{array}$

(25) a. Default: [ ]→[-stiff] (i.e.[ ]→L)

[ ]→[-slack] (i.e.[ ]→h)

b. Contour formation:



c. Verbal reduplication: (with informal simplifications)

(i) $\mathrm{h\ l} \rightarrow \begin{array}{c}\mathrm{H}\\ /\backslash\\ \mathrm{l\ h}\end{array} /\ \_\_\_\_]$

(ii) $\begin{array}{c}\mathrm{c}\\ \\ \mathrm{x}\end{array} \rightarrow \begin{array}{c}\mathrm{H}\\ /\backslash\\ \mathrm{h\ l}\end{array} /\ \_\_\_\_]$

(iii) Metathesis:

$\mathrm{h\ l} \rightarrow \mathrm{l\ h}\ /\ \begin{array}{c}\mathrm{H}\\ |\\ \_\_\_\_\end{array}\quad \begin{array}{c}\mathrm{H}\\ /\backslash\\ \mathrm{h\ l}\end{array}\ ]$

(26) Derivations of some verbal reduplicates with Bao's rules:

a. [213] (UR: L/h l):

redup. (25ci) (25b)

[21 21] ⟶ [21 35] ⟶ [213 35]

b. [53] (UR: H/h):

redup. (25cii) (25b) (25ciii)

[55 55] ⟶ [55 53] ⟶ [53 53] ⟶ [35 53]

c. [44] (UR: unspecified):

(25a)def. redup. (25cii) (25b)

⟶ L . h ⟶ [33 33] ⟶ [33 53] ⟶ [31-53]

According to Bao's analysis, the surface citation tones result from application of contour formation (i.e. (25b)) to the underlying forms in

(24) and the application of default rules in the case of [44]. For the sandhi alternations in verbal reduplicates, category-specific rules (25ci, ii) account for the rising tone on the second syllable when the first syllable is [213] and [535], and the falling tone when preceded by [24], [44] and [53]. Except for the sequence [53-53], where a metathesis rule (25ciii) is further needed to give the correct [35-53] pattern, contour formation (25b) accounts for the surface contours of the first syllables.

With regard to Bao's analysis, Duanmu (1990) has pointed out that there is no evidence that [44] is the default tone in Changzhi. Moreover, instead of being explanatory, Bao's category-specific rules (e.g. 25c i-iii) are merely formulated observations. To gain insight into the Changzhi tone sandhi, I state a number of general observations regarding the tonal variations in Changzhi below:

(27) General observations regarding Changzhi:

a. No low initial: No tones in Changzhi start off with an extreme low pitch (e.g. L/l). i.e. * [L
l

b. No high level final: No high level tone exists prepausally (or at word boundary). i.e. * H]
/ \
h h

c. Alternating contour tendency: In the sandhi patterns of disyllabic compounds, tonal alternations seem to be to a large extent motivated by a preference for alternating contours (i.e. falling (h l) followed by rising (l h) or vice versa). i.e. / \ / \
* x y x y

d. Contour forming tendency: For underlying level tones, the surface tone shape seems to be to a large degree determined by the beginning pitch level of the following tone; i.e., a mid tone becomes rising if the following tone starts with a high pitch; a high tone becomes falling if the following tone starts with a low pitch. i.e. / ≠ \ / or / ≠ \ /
l l h h h l

It seems most likely that these observed phenomena are all phonetically motivated. (27a) and (27b) are in accordance with acoustic properties of utterance-initial and utterance-final pitch contours (e.g. Maddieson 1978). I will consider them to be constraints in Changzhi and henceforth refer to them as constraint A (i.e. (27a)) and constraint B (i.e. (27b-)). (27c) and (27d), on the other hand, help to maintain a steady alternating contour rhythm and perhaps facilitate ease in articulation.

As for the underlying representations of the Changzhi tones, I consider Bao's stipulation of contour formation (i.e. (25b)) unverifiable and overly abstract. In the analysis which I am to present in (28), I avoid this abstraction and treat the underlying tones to be basically similar to their surface forms.

(28) Reanalysis of Changzhi tones:

```
[213]    L     [535]   H     [24]   H   [44]  L   [53]  H
       / | \         / | \         /\         |         |
       h l h         h l h         l h        h         h
```

Instead of proposing a set of unmotivated rules, I consider verbal reduplication to be a tonal copying process which conforms to the conditions set by the template of verbal reduplication.

(29) Template conditions for verbal reduplication: The first syllable bears a contour tone, while the second syllable must be in a high register.

```
i.e.        σ1          σ2
          /   \         |
          x     y       H
```

(30) Verbal reduplication:

a. Copy segments and tones from the first syllable.

b. When more than one toneme is copied, treat the leftmost toneme as extratonal; associate the rest of the tonemes to the moras of the second syllable from left to right, in a

one-to-one fashion.

c. Apply constraint B and constraint A wherever applicable.

d. Associate the inserted toneme required by the template for σ_1 from the left, unless otherwise constrained.

In this analysis, the surface tone patterns of the verbal reduplicates are the result of the interaction between the template and the tonal copying process of verbal reduplication, further constrained by the two phonetic constraints in Changzhi (i.e. (27a) and (27b)). The derivations are given below in (31):

(31) Derivation of verbal reduplicates: ((29)+(30))[23]

a. [213] (UR: L/h l h):

```
(30a)    L          L  (30b)+(29)    L        L H
 ⟶  / | \            ⟶  / | \        | \→[213-35]
         h l h   h l h              h l h   (h) l h
```

b. [24] (UR: H/l h):

```
(30a)  H    H  (30b) H    H  (27b)  H    H
 ⟶  /\        ⟶ /\    |  ⟶  /\    /\→[24-53]
       l h   l h      l h  (l)h      l h   h l
```

c. [44] (UR: L/h):

```
(30a) L L (29)+(30d) L   H (27b) L   H  (27a)+(30d) L        H
 ⟶ |    ⟶          /\  |  ⟶ /\  | \  ⟶          /\       /\
      h h            l h h       l h h  l           h l(*l h) h l
→[31-53]
```

d. [53] (UR: H/h):

```
(30a) H    H  (30d)+(29)  H      H  (27b)  H    H
 ⟶ |          ⟶          /\     |  ⟶  /\   /\→[35-53]
      h    h              l h    h        l h  h l
```

23. Segmental copying is omitted for conciseness.

As for the disyllabic compounds with the same underlying tones (i.e. cases in (23)), the tonal alternations involve no template but only tone sandhi rules, plus constraints (27a) and (27b). Two rules may be formulated for the observations given in (27c) and (27d); that is, the tendency for alternating contour (27c) suggests a dissimilatory process on adjacent contours. While the tendency for contour formation (27d) points to a pitch assimilation process which creates a contour by allowing pitch spread from the following syllable. In addition to these rules, a register dissimilation process can be seen in (23a, b & f) in which two identical tones of low register are in a sequence. In other words, (23a) and (23b) have undergone a contour alternation process along the lines of (27c) together with a register dissimilation process, while (23f) has undergone a contour formation constrained by no-low-initial (i.e. (27a)), then followed by a register dissimilation. The register dissimilation rule is given below:

(32) Register dissimilation in Changzhi disyllabic compounds: When two tones in L register are in a sequence, one of them must undergo register-raising.[24]

i.e. L L ⟶ H L

or L H (with pitch change omitted)

Finally we go back to the suffixed forms of (21a (iv) and b(iv)), of which the tone pattern defies a straightforward spread from the first syllable. Although admittedly I do not have a perfect explanation for this case, I suspect the following process to be at work: after tonal copying, the tone on the suffix undergoes a register dissimilation, the output of which (i.e. a high level tone) then undergoes a contour formation due to constraint B (i.e. (27b)) in the language, eventually giving rise to a surface [535]. I further assume that the reason for (21a-vi and b-v) not to go through the same processes is due to the "checked" tone involved; i.e.,

24. From the limited data given in Hou (1983), it seems that L register dissimilation occurs most regularly when the complex tone [213] is involved. Two patterns are given for the sequence of [213]: [213-53] and [35-213]. It is not entirely clear which pattern is preferred.

since the tone copied is a reduced, short tone, it does not go through register dissimilation nor meet the "high level tone" condition for constraint B to apply. Both hypotheses await further testing.

Despite the many aspects of Changzhi which remain perplexing, I have shown in this analysis that, contrary to Yip's 1992 claims, it is possible to consider both the suffixed forms and the verbal reduplicates to have undergone tonal copying: the former involves full association of all tones copied, whereas the latter involves only partial association of the tones copied and a template for verbal reduplication. In addition, tone sandhi in disyllabic compounds with identical underlying tones is treated to be entirely different from the verbal reduplication process; i.e., tonal alternations in disyllabic compounds (23) can be accounted for by a number of tone sandhi rules (e.g. register dissimilation and alternating contour), whereas tone sandhi of verbal reduplication is accounted for by an interaction of tonal copying and template, further constrained by (27b & a). Compared with previous analyses, this analysis can account for most types of tonal alternations in Changzhi and offers a more fully explanatory account which shows that the complex tone sandhi exhibited in Changzhi result from the interaction of a number of prosodic constraints, conditions, and rules.

4. Types of Tone Sandhi in Mandarin Dialects: Summary of Preliminary Findings

4.1. Major Types of Processes

In this preliminary study of tone sandhi in Mandarin dialects, some interesting discoveries have been made. From the foregoing discussions, it is quite obvious that dissimilation is the most powerful process in Mandarin tone sandhi. Following the practice of representing tone by a register and a pitch feature tier (e.g. Yip 1980 and subsequent studies, Bao 1990, Duanmu 1990, and Chang 1992), two major types of dissimilation may be categorized on the basis of the prosodic "level" (i.e. tier or dimension) at which the dissimilation occurs.

First at the register level, dissimilation is present in all four dialect groups. In the BF group, the well-known T3 sandhi in Beijing Mandarin is a classic example in which a L register is dissimilated to a H register when followed by another L tone. In Tianjin, a process comparable to the Beijing T3 sandhi is (2b); in addition, when two high falling tones are in a sequence, register dissimilation applies on the first syllable (as in (2c)). In the XN dialect of Chengdu, the register value of the final syllable is altered so as to differ from that of the more stressed first syllable. In the JH dialect group, register dissimilation occurs in Zhenjiang when two low falling tones are in a sequence (i.e. (10a)); in Hefei, the high checked tone is dissimilated to low when followed by nonfalling high tones (i.e. (9e)). In the XB dialect group, both of the sandhi processes observed in Xian (i.e. (11)) involve register dissimilation. Finally, register dissimilation is also observed in limited lexical cases in Pingyao (e.g. (13a) and (19)) and in Changzhi (e.g. (32)) as we have examined in the preceding sections.

Second, pitch dissimilation is also pervasive across all dialect groups. Three types of processes involving dissimilation may be inferred from the dialects examined: reassociation of the underlying pitch values, pitch insertion, and contour metathesis.

Reassociation of the underlying pitch values is usually seen when the tone sandhi involves complex contour tones; examples are the T3 sandhi in Beijing and similar processes in Tianjin (2b), Xuzhou (3), Wuhan (7), and Hefei (9a).[25] Pitch insertion is found in Tianjin (i.e. rule (2a)). The third type of pitch dissimilation is contour metathesis, a very productive process in Mandarin dialects, particularly in those of the XB and JH subgroups. Similar to pitch reassociation, the process of contour metathesis often involves the delinking of a pitch on the left plus a pitch spread from the right. In the JH group, metathesis is captured by (9c) in Hefei and (10a) in Zhenjiang. In the XB group, both classes of compounds examined in Pingyao require contour metathesis (i.e. (13b) and

25. In the case of Tianjin, if the tone documented as [213] should be treated as [13] as some suggest (e.g. Shi (1990)), then (2b) involves only register dissimilation.

(17)). Metathesis is also observed in the tendency for alternating contour (27c) in Changzhi and in the sequence of low tones in Xian (11a).

In sharp contrast with dissimilation processes, assimilation in Mandarin has only limited application.[26] The best examples are those of register assimilation in Pingyao (i.e., (13c) and (18)). In addition, the contour forming tendency in Changzhi (27d) may also be considered as a minor assimilatory process.

4.2. Tone Sandhi Tendencies Related to Stress, Contour Shape, and Register

Due to the limited data at hand, we have been able to observe only those more obvious cases of stress-tone interaction, leaving open the large extent of this phenomenon for future research. Based on the available sources, the high level tone in Xuzhou reduplicates (in (5)) and the tonal alternations on the final syllables in Chengdu (6) and Kunming (8) are most likely to be due to weak stress. We may further speculate that what in the first place motivates the templates for verbal reduplicates in Changzhi (29) and for the triplicates in Xuzhou (4) and the contour simplifications in Zhenjiang (10b,c) and Hefei (9d) may be stress-related; however, this possibility must await further exporation and is left open here.

In terms of contour shape, the complex contour tones have a high tendency to undergo sandhi alternation, as evident in all the above-examined dialects which possess them; moreover, they generally undergo contour simplification, except in Changzhi. In addition, the falling tones are most susceptible to contour metathesis when they are followed by

26. This statement, of course, may be argued otherwise because it depends on how assimilation and dissimilation are defined. For instance, if one treats the pitch spread from the right in a metathesis as pitch assimilation, then it would seem that the assimilation processes in Mandarin should also include metathesis and thus are not so limited. However, here in my analysis, although contour tones are taken analytically as sequences of level tones, the entire tonal contour is taken into account as a unit; therefore, a change from falling to rising contour is taken to be a dissimilatory process.

another falling tone. Finally, register dissimilation applies when two tones with identical register are in a sequence, with more cases involving a change of L register to H than the reverse.

To sum up our findings, there is little doubt that the most general sandhi processes in Mandarin are register dissimilation, particularly the dissimilation of the L register, and the simplification of pitch contour, a sandhi triggered by complex contour tones of a simplifying nature (e.g. reassociation of the underlying pitch values). In addition, contour metathesis in one of the identical contour tones in a sequence is a productive process which is observed particularly in the XB and JH dialects.[27]

5. Theoretical Implications

This preliminary study has presented a systematic account of the properties of Mandarin tone sandhi and offered a wider scope of study than that carried out by C. C. Cheng in 1966, one of the few systematic studies of dialectal sandhi phenomena. Although many of the observations made by Cheng still hold true, the current study has further shed light on the great complexity in the XB dialects and, to some degree, the JH dialects (e.g. metathesis).[28] More importantly, the tone sandhi properties discovered in this study are significant for our understanding of the nature of tone (i.e. the formal relation of tone to other phonological properties) and of the formal properties of a model of tonal representation. We discuss these implications in turn.

---

27. From the extent of the current study, no clear interaction or hierachy can be found among these dissimilation processes. As discussed in the preceding paragraph, these sandhi occur apparently within individual parameters which are set on the basis of the shape of pitch contour and the sequencing of identical register or pitch contour.
28. In Cheng's study (1966), data from only four dialects were available for analysis. On the basis of Xian, Shenyang, Chengdu and Beijing, he reaches the following conclusions: (1) when two low tones are in a sequence, the first one becomes high rising; (2) when two high falling tones are in a sequence, the first one becomes low falling; (3) except for Chengdu, the sandhi occurs on the first syllable. In the current study based on a wider source of data, we see that all three points are too simplified to be taken as entirely correct.

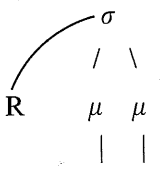
5.1. The Place of Tone in Phonology

From the current study, two contributions to general theory can be stated. First, the predominantly dissimilatory nature of the tone sandhi rules suggests that tone as a phonological property is more like stress (e.g. the dissimilatory nature of "stress clash") than segments in nature. This bears on the formal representation of tone, which should resemble to that of stress in some ways. Second, the prevalence of contour metathesis suggests that at some level of phonological representation, the entire contour tone must be taken as a unit, since metathesis always involves the contour as a whole instead of just a single component in the contour.[29] Both of these points are crucial in determining the formal status of tone in the organization of phonology. The former raises the question whether a tonal representation should be more similar to that of stress than of "segments" (i.e. in the sense of SPE); in other words, the measure of representing tone simply under a tonal node (regardless of the nature of the node) in feature geometry rather than constructing a tonal structure along the line of metrical tree/grid is questionable.[30] On the other hand, the latter indicates that a higher level of representation, namely the syllable level, may be necessary in the representation of tone, in spite of the relative success of treating contour tones as sequences of tones, of which the tone-bearing unit is the mora (e.g. Duanmu 1990, Yip 1992). This latter conclusion lends full support to Chang (1992), in which tone is at the same time borne by the mora which is directly built on the slot anchoring the feature geometry with articulatory relevance and by a

29. In addition, the sandhi environments in the JH dialects of Hefei (i.e. (9d & e)) and Zhenjiang (i.e. (10b, c, & d)) also indicate the formation of a natural class based on the shape of the contour (e.g. falling).
30. In addition, if a tone model represents tone only by laryngeal features under the relevant order of feature geometry, then it would not predict and naturally provide an account for the interaction between tone and stress which is represented by metrical structure built upon the skeletal tier (Liberman and Prince 1977 and subsequent works of Prince). However, such prosodic interaction has been observed in Chang (1992 and forthcoming), and therefore suggests a more complex view with regard to tonal representation.

more dominant syllable level which tonal changes must observe.[31] A simplified schematic model is given in (33) below:

(33) Chang 1992:



(R: tonal register; P: tonal pitch)

5.2. The Accountability of the Formal Model

In addition to aspects discussed above regarding the nature of tonal properties and the level of tonal representation in the overall phonological organization, there is ongoing discussion with regard to the power allowed for a model of tonal representation to predict possible types of processes (e.g. Yip 1989, 1992). The XB dialects of Pingyao and Changzhi examined in Section 3 offer some valuable insight into this issue. First from Bao's (1990) analysis of the Type A (i.e. (13c)), further strengthened by the present analysis of the Type B compounds in Pingyao (i.e. (18)), it is clear that register spread (i.e. assimilation) is a major tonal process for which a tone model must provide an account. The process of register spread forces the model to treat tonal register independently of tonal pitch so that as the register value assimilates, the pitch values remain unchanged (contrary to the prediction made by Yip's 1989 model). Second, from our discussion of Changzhi we see that both of the Changzhi suffixed forms (21) and verbal reduplicates (22) can be considered to have undergone a tonal copying process. Yip's 1992 argument for whole tone spread to derive the suffixed forms and tonal copying for verbal reduplicates is superfluous. In fact, there is so far no evidence that "whole tone spread" cannot be equally replaced by a tonal copying pro-

31. The tonal structure consisting of a syllable level is able to explain such syllable-observing processes as metathesis. It also accounts for the phenomena observed in speech errors, such as the anticipation and perseveration of the entire contour tone observed in Thai by Gandour (1976).

cedure.

6. Further Issues

In this study I have attempted to look into a number of documented Mandarin dialects in order to better understand the nature of tone sandhi. Although a great deal has been revealed, our analyses of the dialects in question and knowledge of tone sandhi in general must be further amended by more detailed field investigation. As pointed out in 4.2., the likelihood of a prominence-tone interaction needs to be seriously pursued both empirically and theoretically. In addition, empirical questions can be raised as to why the observed tone sandhi tendencies occur the way they do, such as the register dissimilation which occurs when two L-registered tones are contiguous and the contour metathesis when one falling tone is followed by another.[32] I suspect that here both tendencies may have phonetic bases; i.e., it is likely that L register dissimilation is due to articulatory or perceptual causes, whereas the contour metathesis of falling tones is motivated by timing/duration concerns.[33] Finally as for the theory of tone, I have pointed out some important theoretical implications in Section 5 and suggested a schematic model of tonal representation; however, our knowledge of many aspects of prosodic properties and the organization of phonological components involved in tonal representation (including tone features, tone-bearing units, and the prosodic structure) is still fragmented and incomplete. More studies, both empirical and theoretical, concerning the interactions of the prosodic

32. There may be historical evidence for these sandhi tendencies. According to Mei (1977), the Mandarin spoken in the sixteenth century has already shown a dissimilatory tone sandhi not much different from the well-known T3 sandhi in modern Beijing Mandarin. However, historical evidence of the earlier existence of these sandhi processes does not provide ready answers to the more fundamental questions why they occur and what triggers them in the first place.
33. Presumably L-registered tones tend to have less perceptual salience than H tones, and falling tones tend to have relatively shorter duration than that of other full tones in Chinese. However, this awaits further investigation.

properties are needed before the development of a more fully integrated phonological theory can be made possible.

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Causative Compounds across Chinese Dialects: A Study of Cantonese, Mandarin and Taiwanese

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Abstract

A comparison of the properties of verbal compounds in Cantonese, Mandarin and Taiwanese reveals that whereas all three dialects exhibit canonical resultative compounds and causative compounds, the use of causative compounds in Taiwanese is systematically more restricted than their use in Cantonese and Mandarin. In particular, Taiwanese causatives are excluded in cases where the post-verbal objects are definite or referential. This paper proposes that this difference stems from where in the grammar of each dialect the process of causative formation occurs. Whereas in Cantonese and Mandarin both resultatives and causatives are formed by lexical incorporation, in Taiwanese causative formation, but not the formation of canonical resultatives, takes places only in the Syntax through verb movement in a VP shell structure, where definite or referential NP objects occur in [Spec, VP] and non-referential NPs occur as sisters of V under V'. This analysis attributes syntactic variation to lexical variation, arguing for a lexical approach to parametric theory. It also supports the traditional distinction between event causation and factive causation, and provides evidence for the process that raises a verb out of a VP into the position of a functional head.

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1. Introduction

One of the controversies associated with resultative verb compounds (RVCs)[1] centers around the level at which the causative RVCs are formed. There are three different approaches to the formation of RVCs:(a) a lexical approach (Li 1990, 1993 among others), according to which causative RVCs are formed in the lexicon; (b) a syntactic approach (Huang 1991a, etc.), according to which causative RVCs are derived syntactically; and (c) a mixed approach (Cheng 1993), according to which both lexically and syntactically derived causatives are possible. A related issue of causative compound formation is the question of how close the representation of such a compound should reflect its meaning. In this paper, we discuss causative RVCs in Cantonese, Mandarin and Taiwanese. We show that the difference in the formation of causative RVCs between Taiwanese on the one hand and Cantonese and Mandarin on the other is reflected in a restriction on the definiteness of the postverbal object NP.

We argue that the difference is a result of different levels of causative RVC formation: in the syntax in Taiwanese and in the lexicon in both Cantonese and Mandarin. We further show that the lexical derivation of causative RVCs in Taiwanese is part of its overall "analytic" nature.[2]

2. Causative Constructions

As frequently noted in the literature, RVC formation is very productive in Mandarin Chinese. Long lists of such compounds are readily available, such as *da-si* 'hit-dead', *qi-lei* 'ride-tired', *ti-dao* 'kick-fall',

1. "Resultative verb compound" is a general term encompassing different types of verb compounds, which include causative verb compounds. See the next section for the types of resultative verb compounds.
2. It should be noted that Li (1988), Lien (1994) and Teng (1994) have made the observation that many Mandarin compounds can only appear in phrasal form in Taiwanese.

zhui-lei 'chase-tired', *qi-si* 'angry-dead', *lei-si* 'tired-dead', *zui-dao* 'drunk-fall', etc. Syntactically, these RVCs can be either intransitive (i.e. not taking an object as in the pattern [NP1 V]) or transitive (i.e., taking an object as in the pattern [NP1 V NP2]):

(1) ta he-zui le.
he drink-drunk asp
'He drank himself drunk.'
他喝醉了。

(2) ta lei-si le.
he tired-dead asp
'He is extremely tired.'
他累死了。

(3) ta da-si tamen le.
he hit-dead them asp
'He hit them dead'
他打死他們了。

(4) zhe-jian shi lei-si tamen le.
this-cl matter tired-dead them asp
'This matter tired them to death.'
這件事累死他們了。

The two transitive patterns are further divided into two types as exemplified in (3) and (4). (3) takes an agent as its subject and (4) takes an inanimate NP as the causer of the event. The contrast between (3), henceforth the Agentive construction, and (4), the Causative construction, will be the subject of this study. (See Cheng and Huang 1994 and later discussion in this paper for detailed distinction between the two constructions).

The productivity of the RVCs is shared by many other dialects. The sentences in (1-4), for instance, have their exact counterparts in Can-

tonese (5-8):

(5) keoi jam-zeoi zo.
he drink-drunk asp
'He drank himself drunk.'
他飲醉了。

(6) keoi mun-sei la.
he bored-dead part
'He is extremely bored.'
他悶死啦。

(7) keoi da-sei-zo keoidei.
he hit-dead-asp them
'He hit and killed them.'
他打死了他們。

(8) li-ceot hei mun-sei keoidei.
this-cl movie bored-dead them
'This movie caused them to be very bored.'
這齣戲悶死他們。

Taiwanese also has the counterparts (as shown in (9)-(11)) except, unexpectedly, for the Causative counterpart in (4), as shown in (12) (see also Hsieh 1993):

(9) i lim-tsui a.
he drink-drunk asp
'He drank himself drunk.'
伊飲醉矣。

(10) i thiam-si a.
he tired-dead asp
'He is extremely tired.'
伊累死矣。

(11) i pha-si in a.
he hit-dead them asp
'He hit them dead'
伊打死他們矣。

(12) *tsit-tsan taitsi thiam-si in a.
this-cl matter tired-dead them asp
'This matter tired to death.'
這件事累死他們矣。

The contrast between (11) and (12) shows that it is not the case that Taiwanese simply does not allow the RVCs to take a postverbal object. Rather, the generalization is that the Agentive type of RVCs contrasts with the Causative type in the acceptability of a postverbal object. In order to understand the contrast between (11) and (12) better, we start with the characterization of these two types of constructions. In general, the Agentive type indicates that some action of an agent results in a theme being in a certain state (for instance, the action of hitting is done by the agent *i* 'him' in (11) resulting in the theme *in* 'they' being dead). The second type, illustrated in (4) and (12), denotes a causer bringing about a causee being in a certain state. *tsit-tsan taitsi* 'this matter' in (12), for instance, is the causer and *in* 'them' is the causee. In other words, the subject of the Agentive construction is an agent and the subject of the Causative construction is a Causer. Pertinent to our discussion here, the Agentive constructions allow a postverbal object but not the Causative constructions. This distinction is further illustrated below:

(13) Agentive Construction

a. i tsau-kau in tshu a
he run arrive his home asp
'He ran and arrived at his home.'
伊跑到伊的厝矣。

b. hit-e lang ta-si hit-tsia tua katsua a.
that-cl person step-dead that-cl big cockroach asp
'That man stepped on that big cockroach and it was dead.'
彼個人踏死彼隻大蟑螂矣。

c. i that-si i-kati-e kiaN a.
he kick-dead his-own son asp
'He kicked-dead his own son.'
伊踢死伊自己的兒子矣。

d. i pha-phua gun tshu-e pole a.
he hit-break my house's glass asp
'He hit-broke the glass of my house.'
伊打破院厝的玻璃矣。

e. li mthang pha-phua lang angabo-e kamtsing.
you don't hit-break people couple's love
'Don't you break up the couple's love for each other.'
你不可打破人家夫妻的感情。

f. i ka-phaiN tsia-e gin-a a.
he teach-bad these children asp
'He taught these children and they turned bad as a result.'
伊教壞了這些小孩子矣。

(14) Causative Construction

a. *tsit-tsan taitsi kiaN-tsau i/hit-e lang a.
this-cl matter scare-away him/that-cl person asp
'This matter scared off him/that person.'
這件事嚇走伊／彼個人矣。

b. *tsit-kuan tsiu tsui-to i/hit-e lang a.
this-cl wine drunk-fall him/that-cl person asp
'This bottle of wine made him/that person very drunk.'
這罐酒醉倒伊／彼個人矣。

c. *tsit-pau hun tsia-si i/hit-e lang a.
this-cl cigarette eat-dead him/that-cl person asp
'This pack of cigarette made him/that person dead.'
這包煙喫死伊／彼個人矣。

d. *tsit-tsan taitsi tshio-si i/hit-e lang a.
this-cl matter laugh-dead him/that-cl person asp
'This matter made him/that person laughed till dead.'
這件事笑死伊／彼個人矣。

e. *tsit-kuan tsiu lim-tsui i/hit-e lang a.
this-cl wine drink-drunk him/that-cl person asp
'This bottle of wine made him/that person drunk.'
這罐酒飲醉伊／彼個人矣。

These examples seem to suggest that Taiwanese, as well as Mandarin and Cantonese, has the Agentive construction. On the other hand, Taiwanese, in contrast to Mandarin and Cantonese, does not have Causative constructions involving RVCs. This observation is not quite correct, however. Complicating the issue is that sentences like (12) and (14a-b) can be acceptable, if a different type of postverbal object is chosen:

(15) a. tsit-tsan taitsi thiam-si (tsit-tun) lang a.
this-cl matter tired-dead one-pile person asp
'This matter tired (many) people to death.'
這件事累死一群人矣。

b. tsit-tsan taitsi kiaN-tsau be-tsio lang a.
this-cl matter scare-away not-few person asp
'This matter scared off quite a few people.'
這件事嚇走不少人矣。

c. tsit-pau hun ikeng tsia-si tsap-e lang a.
this-cl cigarette already eat-dead 10-cl person asp
'This pack of cigarettes already made 10 people dead from smoking them.'
這包煙已經喫死十個人矣。

d. tsit-tsan taitsi tsintsiaN e tshio-si (gopa-gua) lang.
this-cl matter really will laugh-dead (500+) person
'This matter will really cause (500+) people to laugh themselves dead.'
這件事眞正會笑死(五百多)人。

e. in tsit-kuan tsiu lim-tsui saN-to lang a.
they one-cl wine drink-drunk 3-table person asp
'As for them, one bottle of wine got the people at all three tables drunk.'
他們一罐酒飲醉三桌人矣。

Comparing (12) and (14a-e) on the one hand and (15a-e) on the other, we note that the minimal difference between the two sets lies in the type of the object NPs: in the former set, the NPs are definite expressions (pronouns and NPs with a demonstrative); whereas, in the latter set, the NPs are non-definite expressions. The following generalization thus emerges:

(16) Postverbal objects of Causative constructions in Taiwanese cannot be definite.[3]

3. Postverbal Constraint on Definiteness

Generalization (16) at the first glance appears to be quite idiosyn-

3. Teng (1994) also notes that the definiteness of NPs can affect the possibilities of their occurring in postverbal object position.

cratic. However, the literature does not lack in similar observations. In fact, generalization (16) reminds us of a broader postverbal constraint in Mandarin Chinese discussed in, for instance, Li and Thompson (1981), Huang (1991b, 1994) and Tang (1990) concerning sentences containing a postverbal object NP and a duration (D) or a frequency (F) phrase. The pattern [V object D/F] requires the object NP to be definite (or more precisely, a referential NP in Huang's term):[4]

(17) a. *wo kan-le (henduo) shu liang ci/liang-ge zhongtou.
I read-asp many book two times/two-cl hours
'I read (many) books twice/for two hours.'
*我看了（很多）書兩次／兩個鐘頭。

b. wo kan-le na-ben shu liang ci/liang-ge zhougtou.
I read-asp that-cl book two times/two-cl hours
'I read that book twice/for two hours.'
我看了那本書兩次／兩個鐘頭。

The effect of definiteness/referentiality of the object NPs on the acceptability of the sentences is not only manifested in the Mandarin [V object D/F] constructions, but also in other phenomena in many other languages, including word order variations in Hungarian and agreement requirements in Hindi. In Hungarian, for example, a sentence with a non-referential object occurs in an SOV order whereas the neutral order for a sentence with a referential object is SVO, as shown in (18a-c) (see Maracz 1989, etc.).

(18) a. a fiu levelet ir (SOV)
the boy letter-acc writes
'The boy is writing a letter.' (The boy is busy letter-writing.)

4. The distinction is not clear. It may be definite vs. non-definite or referential vs. non-referential. It is no more clear whether different languages employ different types of distinctions (see the later discussion in the text concerning Hindi and Hungarian). What matters is that two different types of NPs should be distinguished.

b. a fiu ir egy levelet (SVO)
the boy writes det letter-acc
'The boy is writing a [specific] letter.'

c. a fiu irja a levelet (SVO)
the boy writes-Agro the letter-acc
'The boy is writing the letter.'

In Hindi, a sentence with a referential object NP shows object agreement on the verb whereas non-referential object NPs do not trigger object agreement (Mahajan 1990):

(19) a. raam-ne kitab paRhii
raam-erg-(m) book read-perf-f-sg
'Ram read the book.'

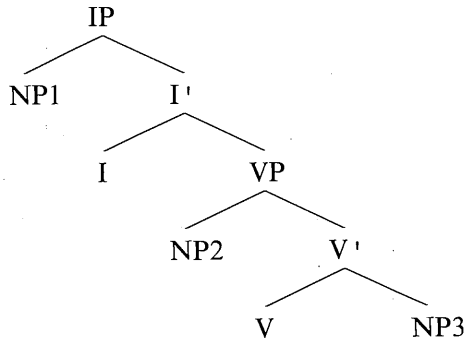
b. raam ek kitab paRhegaa
raam-(m) a book read-fut-m-sg
'Ram will read a book.'

To account for (19a-b) and other similar phenomena, Mahajan suggests that a referential object NP must move into the Spec of an object agreement phrase (AgroP) but a non-referential NP must remain as sister of V.

In the spirit of Mahajan (1990) and others, Huang (1991b, 1994) proposes to account for the contrast in (17) in terms of the base-generated position of object NPs. In particular, a referential/definite object NP is base-generated in the SPEC of VP (sister to V') (in the NP2 position in (20)) and a non-referential/indefinite object is generated as sister to V (in the NP3 position in (20)):[5] (Cf. Chao 1991 and Kung 1994.)

5. A subject may be base-generated as the Spec of VP (the Internal Subject Hypothesis, see, for example, Fukui 1986, Koopman and Sportiche 1990, among others). If this hypothesis is adopted, we will need more layers of VPs in the structure (see Larson 1988). However, it does not affect the main point of the paper that a definite NP is base-generated in the Spec position and a non-definite NP is base-generated as sister to V.

(20)



To illustrate with the sentences in (17), the definite/referential object *na-ben shu* 'that book' in (17b) occurs in the SPEC of VP (NP2) position. The D/F phrase can occur in NP3 position (see Larson 1988). After V raises outside the VP, sentence (17b) will be derived. On the other hand, if the object NP is indefinite/non-referential, it is generated in the NP3 position, which is competed for by the D/F phrases. (17a), thus, is not possible. The contrast between (17a) and (17b) is thus a manifestation of the constraint on the distribution of object NPs:

(21) A definite/referential object NP occurs in the SPEC of VP position and an indefinite/non-referential object NP occurs within V' (as sister to V).[6]

6. A reviewer pointed out that sentences like (i) pose a potential problem for (21):

(i) ta meixingqi he-zui-jiu liang san ci.
he every-week drink-drunk-wine two three times
'Every week he gets drunk two or three times.'
他每星期喝醉酒兩三次。

However, it appears that in (i) *liang san ci* is used as a predicate rather than a complement. There are several properties noted for this kind of usage. First, under the predicative use the frequency phrase takes the preceding (nominalized) VP as its subject. As a consequence, the suffix-*le*, which marks the aspectuality of a bounded event, cannot occur within the subject VP:

(ii) *ta zhexingqi he-zui-le-jiu liang san ci le.
he this-weed drink-drunk-asp-wine two three times asp
'This week he got drunk two or three times.'
他這星期喝醉了酒兩三次了。

Second, the predicative frequency phrase can be optionally preceded by the verb *you* 'have' (see, among others, Li (1987) for a discussion of this):

4. Analysis

With (21), we can proceed to account for the generalization in (16) which prohibits a postverbal definite NP in a Taiwanese Causative construction. Along the lines of Hsieh (1993), Huang (1993), Wu (1994) and Zou (1993), we take (22) to be the structure of a Causative sentence (such as (15a-e)):[7]

(iii) ta zhexingqi he-zui-jiu (you) liang san ci le.
he this-week drink-drunk-wine have two three times asp
'This week he has gotten drunk two or three times.'
他這星期喝醉酒有兩三次了。

But this is impossible if the VP *he-zui jiu* contains the aspectual marker-*le*.

(iv) *ta zhexingqi he-zui-le-jiu you liang san ci.
he this-week drink-drunk-asp-wine have two three times
'This week he has gotten drunk two or three times.'
他這星期喝醉了酒有兩三次。

This is because the appearance of-*le* within the VP *he-zui-le jiu* prevents it from being a (nominalized) subject. In this case the VP is itself the main predicate, and the frequency phrase is necessarily a complement. This rules out the occurrence of *you* in (iv). More importantly, once the action-denoting VP has the status of a main verb, (21) correctly rules it out, whether *you* is present (as in (iv)) or not (as in (ii)).

Returning now to (i), we note that the sentence can take neither *you* nor-*le* with the frequency phrase, even though we have hypothesized that its grammaticality stems from the possibility of analyzing the frequency phrase as the main predicate.

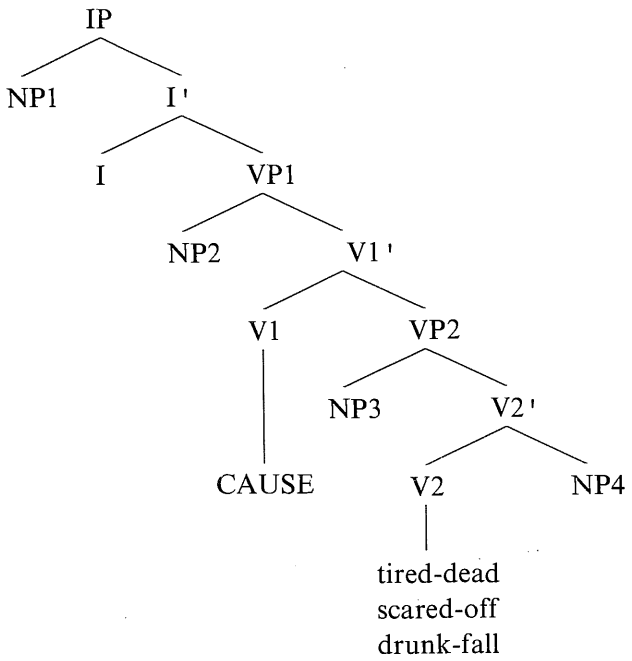
(v) *ta meixingqi he-zui-jiu (you) liang san ci le.
he every-week drink-drunk-wine have two three times asp
'Every week he gets drunk two or three times.'
他每星期喝醉酒有兩三次了。

There is an independent reason for the ungrammaticality of (v), however. It is well known that the perfective aspect marker occurs only with predicates denoting bounded events. It is not surprising then that generic sentences like (v), with expressions like *meixingqi* 'every week', are incompatible with-*le* and *you*.

In other words, the grammaticality of (i) does not pose a problem for the generalization indicated in (21). Indeed, if we were to give up this generalization in the presence of (i), then the ungrammaticality of (ii) and (iv) would be totally unexplained.

7. The compound verbs *thiam-si* 'tired-dead', *kiaN-tsau* 'scare-away' and *tsui-to* 'drunk-fall' may be further analyzed as consisting of two VPs, which will not affect the analysis here.

(22)



For the sentences in (15a-e), the object NP *tsit-tun lang* 'a group of people' occurs in NP4 position, since it is indefinite. V2 moves up to V1 Cause and combines with it to become a causative verb, deriving the well-formed sentences in (15a-e).

Turning to (12) and (14a-e), the causee is a definite NP. It should be base-generated in the SPEC position, NP3. Verb movement (V2 to V1) applies, as in the case involving indefinite NPs since it is an obligatory process to create a causative verb. This movement, however, would create the verb chain [V1, V2]. The minimal domain for the causative verb would therefore be VP1, not VP2. That is, with respect to the postverbal object constraint, we can no longer consider only V2. Rather, we need to consider the chain [V1, V2]. In other words, the Spec position that matters is no longer NP3 but NP2 of VP1. After verb movement, the definite NPs in (12) and (14a-e) occurs within the projection of V1' rather than outside of the V1', violating the constraint on where a definite object NP can occur as stated in (21). Note that V-movement to Cause does not create problems for (15a-e), since the indefinite object NP is

still within V1'. (21) thus accounts for the contrast betweeen (12) and (14 a-e) on the one hand and (15a-e) on the other. The generalization in (16) is captured.[8]

5. Towards Dialectal Differences: Syntactic vs. Lexical

The discussion so far, however, raises the question of why the coun-

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8. Our proposal to derive the generalization (16) from (21) in hierarchical terms goes far beyond previous linear accounts of word order rerstrictions on Chinese. For example, the general observation (e.g., Li and Thompson 1981) that NPs "tend to be definite" in preverbal position and indefinite in postverbal position is highly problematic, and at any rate lacks predictive power, in view of numerous examples with postverbal NPs with definite determiners and other overtly marked definite NPs. The postverbal object constraint, in fact, *requires* certain postverbal objects to be definite. Our account relates the feature of definiteness to the Spec position of a VP, and the lack of it to the sister of V^0 position. According to our analysis, apparent counterexamples arise from the effect of verb movement out of a maximal VP, and only in such cases. This account not only accounts for counterexamples that are problematic for the traditional informal observation, but also makes a strong prediction on when such apparent counterexamples can occur. Another case in point is the interpretation of bare NPs in Chinese. It is well known that a preverbal bare NP (except the *bei*-NP of a passive construction) has to be definite, whereas a postverbal bare NP can be ambiguous:

(i) ren zao zou le.
person early left asp
'The person left a long time ago.'
人早走了。

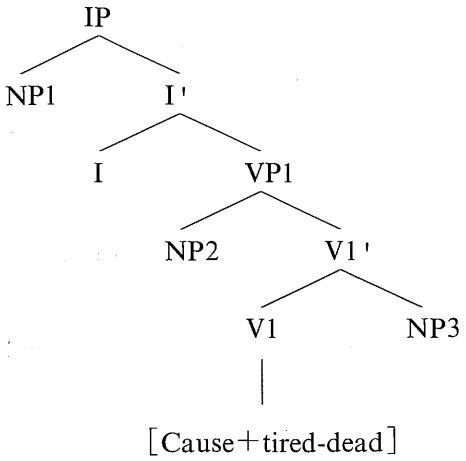
(ii) wo zhao-dao-le shu le.
I find-arrive-asp book asp
a. 'I found the book(s).'
b. 'I found a book/some books.'
我找到了書了。

According to our theory, the postverbal NP *shu* in (ii) may be indefinite or definite, depending on whether it occurs underlyingly to the right of the verb *zhao-dao* as its complement, or to the left of the V, in the Spec of the VP, before the verb itself moves across the Spec out of the VP: *wo zhao-dao*$_i$ t_i *shu le* vs. *wo zhao-dao*$_i$ *shu* t_i *le*. In the case of a preverbal NP, such as the *ren* in (i), it must occur in the Spec of some category, and hence it must be definite. Again, note that the facts under consideration are unexpected given the informal characterization that postverbal NPs 'tend to be' indefinite, but they are exactly as we have predicted.

terparts of the Taiwanese (12) and (14a-e) in Mandarin and Cantonese are acceptable, as illustrated by (4), (8), especially considering the fact that the postverbal definiteness constraint applies in Mandarin and Cantonese as well. An answer to this problem may be found in the literature concerning the level at which a causative compound is formed.

Note that the analysis of the Taiwanese Causative constructions assumes that the causative verb formation takes place at the syntactic level: V-movement takes place at the syntactic level, creating a structure where the definite object NP is within V', rather than the SPEC of its V. In other words, in Taiwanese, the RVC *thiam-si* 'tired-dead' is only a resultative verb in the lexicon and its causative counterpart is derived in syntax. On the other hand, the causative verb formation may take place at the lexical level, as suggested in Li (1990) among others. In other words, a surface verb such as 'tired-dead' may in fact be ambiguous: it can be the resultative 'tired-death' or it can be the causative 'CAUSE+tired-dead'. The former has one argument [theme] and the latter, two arguments [causer, theme]. The causative verb, with its two arguments [causer, theme], projects into the following structure, like any two argument verbs:

(23)



The causer argument is in NP1 position. The theme argument is in NP2

or NP3 position, depending on whether the theme NP is definite or not.

We suggest that Cantonese and Mandarin causative RVCs are derived lexically. That is, there is no verb-movement to the position of an empty causative verb CAUSE in syntax, as we have seen in Taiwanese. In contrast, a sentence such as (4) in Mandarin or (8) in Cantonese will be generated in exactly the same way as a sentence like 'John hit Mary' or 'John ate lunch', since the causative verb is treated as a lexical item taking two arguments. Given a structure such as (23) for the causative sentences in (4) and (8) as well as typical transitive sentences, the definite object NP will be generated in NP2 whereas the indefinite object NP will be in NP3. Since there is no further VP projection to "extend" the domain of the verb, NP2 will remain as the Spec of the VP even after the verb raises out of the VP to Infl. This entails that what we are dealing with in the case of syntactic causatives (the Taiwanese case) is a VP-shell (Larson 1988), the lower VP being part of a bigger VP. In contrast, with verb to Infl movement, we have a simple case of verb movement in Mandarin and Cantonese not involving VP-shells and the status of the NP positions does not change.

To sum up, Taiwanese derives the causatives syntactically and therefore given the extension of VP domain in a VP-shell, postverbal definite NPs are not allowd. In contrast, Cantonese and Mandarin have lexical derivation of causatives and thus the syntactic restriction of definite object NPs is always obeyed.

6. Further Evidence

We have characterized the Taiwanese vs. Mandarin/Cantonese contrast in terms of the syntactic vs. lexical treatment of causative compounds. This amount to saying that, in the relevant cases under consideration, Taiwanese is more "analytical" or transparent than Mandarin and Cantonese. There is some additonal contrast between these dialects that further demonstrates the relative transparent nature of Taiwanese syntax. This involves *ba*/*ka*-constructions of the sort illustrated below:

(24) a. lan ka i pa-si.
we ba him hit-dead
'We hit him dead.'
咱把伊打死。

b. lan ka i pa ho (i) si.
we ba him hit give him dead
'We hit him dead.'
咱把伊打給（伊）死。

(25) a. women ba ta da-si le.
we ba him hit-dead asp
'We hit him dead.'
我們把他打死了。

b. *women ba ta da gei (ta) si.
we ba him hit give him dead
*我們把他打給（他）死。

The contrast shown between (24b) and (25b) shows that the causation expressed by *pa-si* 'hit-dead' can be "spelled out" in a transparent way in Taiwanese but not in Mandarin. In (24b), we see that *pa-si* 'hit-dead' can be further "decomposed" into *pa-ho-si* with the causative meaning being overtly expressed. However, as shown in (25b), this is impossible in Mandarin, showing that such relations can only be expressed in a covert way in this dialect.

7. Conclusions and Theoretical Implications

In this paper, we have studied an area of comparative grammar across three Chinese dialects: Mandarin, Taiwanese and Cantonese, and showed that the observed systematic differences among these dialects in the syntax of causative sentences and other related constructions can be described with considerable insight within a formal model of Universal

Grammar and linguistic variation. In particular, treating dialectal variations as instances (on a smaller scale) of normal linguistic variation, we have assumed that the computation system of a language is invariant across languages and dialects, the seemingly radical superficial differences being reducible to the lexical or morphological variations among them. In particular, whereas all dialects compared have a lexicon that contains RVCs, only Mandarin and Cantonese have lexical causative compounds. (Pure) causative compounds in Taiwanese must originate in the lexicon as ergative (inchoative) compounds. Their causative use is permitted only when an ergative compound is underlyingly embedded under an abstract verb Cause, to which the ergative verb compound must be incorporated. This causes a definite/referential object to fall within the domain of a V^0, thus exhibiting the definiteness effects observed in this paper:

(26) a. *tsit-tsan taitsi thiam-si hit-e lang a.
this-cl matter tired-die that-cl person asp
'This matter caused that person to be tired death.'
*這件事累死彼個人矣。

b. *hit-kuan tsiu tsui-to Li SiansiN a.
that-cl wine drunk-fall Li Mr. asp
'That bottle of wine got Mr. Li to be so drunk as to fall.'
*彼罐酒醉倒李先生矣。

(27) a. tsit-tsan taitsi thiam-si gopa-gua lang.
this-cl matter tired-die 500+ person
'This matter got 500+ people to be tired death.'
這件事累死五百多人。

b. hit-kuan tsiu tsui-to tsin-tsoe lang.
that-cl wine drunk-fall quite-many person
'That bottle of wine got many people to be drunk and fall.'
彼罐酒醉倒很多人。

No similar definiteness effect is observed in Mndarin or Cantonese be-

cause the causative compounds may be lexically derived, and hence are not embedded under Cause, and hence a definite object in the Spec of VP would not be brought under V' as a result of verb-movement:

(28) a. zhe-jian shi lei-si nei-ge ren le.
that-cl matter tired-dead that-cl person asp
'This matter got that person tired to death.'
這件事累死那個人。

b. nei-ping jiu zui-dao-le Lisi.
that-cl wine drunk-fall-asp Lisi
'That bottle of wine got Lisi so drunk as to fall.'
那瓶酒醉倒了李四。

There is also no definiteness effect if an overt causative verb appears above the ergative compound, since an overt verb like *ka, ho, hai* 'cause' takes a proposition (a clausal category) but not an event (an ergative VP) as its complement and does not force the definite object to be a complement of a (complex) V^0.

(29) a. tsit-tsan taitsi ka/ho/hai hit-e lang thiam-si a
this-cl matter cause that-cl person tired-die asp
'This matter caused that person to be tired to death.'
這件事把／使／害彼個人累死矣。

b. hit-kuan tsiu ka/ho/hai Li XiansiN tsui-to a.
that-cl wine cause Li Mr. drunk-fall asp
'That bottle of wine caused Mr. Li to be so drunk as to fall.'
彼罐酒把／使／害李先生醉倒矣。

With respect to definiteness effects in causative compounds, then, Taiwanese is characterized as being more of an analytic language whereas Mandarin and Cantonese are more synthetic, a point further corroborated by a difference in periphrastic causative constructions.

In the analysis of each of these differences, we have assumed that

the dialects under consideration differ only in the contents of their Lexicons, but share a Computation System that operates according to general principles throughout these dialects. In the present cases, the existence of an abstract Cause and the absence of pure causative compounds distinguish Taiwanese from Mandarin and Cantonese. This result seems quite desirable and optimal, in the sense that our theory of linguistic variation makes use of little more than what appears to be a "virtual conceptual necessity" (that languages clearly must differ in their morphologies), and it seems possible to assume that language variation is reducible to, and in fact limited to, morphological variation. This conception of parametric theory is clearly more optimal than one that directly stipulates, say, the existence of definiteness effects in certain grammatical constructions in one dialect but not in another, or that of a given head-movement process in the computational system of one language but not another.

In other words, on a descriptive level, we can state the generalization, based on our analysis, that Taiwanese is more "analytic" and more transparent, and Mandarin and Cantonese more "synthetic" and more opaque, in that more goes on in the lexicon in Mandarin and Cantonese than in Taiwanese. But from the point of view of a more restrictive parametric theory, this generalization can be reduced to mere morphological differences among languages, in particular, in the distribution of certain grammatical lexical items.

Indeed, this "minimalist" parametric theory also appears to be the most optimal when it comes to the major differences that distinguish among languages of different typological types. One well known typological difference among languages is the existence of "wh-movement" in the formation of constituent questions. In early linguistic literature, this typological difference was directly taken to reflect in a variation in the design of the computation systems of individual languages: some languages possess the rule of "wh-movement" and others do not, this in turn follows from the elementary assumption that languages may differ in the distribution of certain substantive and formal constraints. A paramet-

ric theory of this sort, however, went little beyond observational adequacy. As Huang (1982) shows, this conception of the typology of constituent questions misses important generalizations about the cross-linguistic similarities and differences with respect to subcategorization, scope interpretation, and movement constraints (Subjacency, CED and the ECP). Huang's suggestion was to conceive of the wh-movement parameter in a different way: all languages share the substantive universal of having a wh-movement rule, but differ in where that rule may apply: if not in overt Syntax than in Logical Form. The hypothesis of wh-movement as a substantive universal explained the similar properties shared by wh-constructions across all languages, and their differences in where the rule applies account for observed differences among these languages with respect to locality constraints, etc. This conception of the typology of wh-constructions enjoys a level of descriptive adequacy that previous conception did not in that it captures certain linguistically significant generalizations that might have been treated as accidental properties of languages. This conception of parametric theory is not optimal, however, since the parametric differences, being in terms of the components of a computation system where a given rule may apply, relies on an assumption that is not itself of virtual conceptual necessity. Furthermore, although the issue of learnability does not arise, it is not explained why wh-movement may apply overtly in English, but only covertly in Chinese-rather than, say, the other way around.

More recent work offers a promising line of inquiry that has the prospect of attaining explanatory adequacy. One line of research, undertaken in Cheng (1991), relates the lack of overt wh-movement in Chinese-like languages to the existence in them of certain functional elements, in particular, question particles occupying the position of C in syntax. This assumption explains the clustering of properties in one language and their joint absence in another, and is relatively optimal in that it reduces superficially vast syntactic differences to a morphological difference in the distribution of certain functional categories. In current work, furthermore, Tsai (1994) proposes that the obligatoriness of overt wh-move-

ment in English, and its obligatory procrastination until LF in Chinese, can be directly tied to a morphological difference in the internal structure of the wh-words themselves. In English, wh-words have a microscopic syntax with a self-contained operator-variable structure; they are therefore inherently interrogative operators, and hence are subject to movement, given the general assumption that operator must occur in operator position, with expected locality effects. In Chinese, on the other hand, wh-words are open categories, i.e., polarity items that are underspecified for their interrogative vs. quantificational features. As such, they are not inherently identified as operators, and not subject to overt syntactic movement. Their interpretations are determined by the licensers that c-command them elsewhere within a sentence, outside of their internal structure. Thus the wh-words are on a par with variables that are unselectively bound in the sense of Heim (1982) (cf. Lewis (1975)). In the case of the interrogative interpretation, it is assumed that the wh-in-situ is bound by a (base-generated) null operator. The vastly different syntactic difference between Chinese and English thus boils down to the difference of the possibility of base-generating null operator, i.e., of whether the null OP is in the lexicon of either language. Chinese has null operators for all operator positions, but English has none, except those cases where the null operator is strongly bound (in the sense of Chomsky (1986), i.e., in parasitic gap constructions, *tough*-constructions, certain relatives, etc.). (See aslo Aoun and Li 1993a, 1993b for similar considerations.)

This difference in the presence of non-strongly bound null OP has further implications. For example, it also underlies the "null topic parameter" of the sort described in Huang (1984) concerning the distribution and interpretation of certain null arguments in Chinese and German. The theory, which is in spirit a minimalist theory of linguistic variation, thus explains why English and Chinese should differ not only with respect to the existence of overt wh-movement, but also with respect to the distribution and interpretation of certain null arguments.

Two additional theoretical implications of our analysis are worth

mentioning: First, our analysis supports the traditional distinction between resultatives and causatives, against recent attempts to treat them uniformly. As S. Huang (1974) argued, both the resultatives and causatives carry with them the semantics of causation, but a distinction is still necessary, between what he terms "event causatives" (resultatives) and "factive causatives" (causatives). Recently, Sybesma (1992) argues that these two construction types (what he calls "canonical resultatives" and "causatives") should be treated alike, as forming a typical ergative-causative paradigm. What we have shown here is that the three dialects under consideration do not differ with respect to their syntax of the resultatives, but do so with respect to their syntax of causatives. For us, the resultatives constitute an unergative-transitive paradigm, whereas the ergatives and causative compounds constitute a separate paradigm. The resultatives have an inherent semantics of causation, but they do not have a syntax of causation; only the (pure) causatives do. Our analysis, if correct, thus provides important evidence in defense of the traditional distinction, against the uniform-treatment hypothesis of Sybesma (1992).

Finally, if our analysis is on the right track, we have provided additional support for the hypothesis, advanced in Johnson (1992), that there is a process of movement that invariably raises the verb out of VP into a higher head position, as a universal principle and irrespective of the morphological properties of the functional projections of a particular language (such as the French-English contrasts of the sort considered in Emonds 1978 and Pollock 1989). This assumption is necessary to allow for cases of grammatical resultatives and (lexically derived) causatives taking definite postverbal NPs as their objects. The existence of such a process in Chinese has also been demonstrated in Chao (1991), Huang (1991b, 1994) and in Kung (1994) in accounting for the definiteness effects in connection with the occurrence of objects with certain duration and/or frequency expressions.

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重音在聲調語言中的形式、功能、互動及整合

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摘　要

本文探討聲調語言在共時和歷時兩個角度所呈現出的重音形式及功能。研究對象是以台語相對其他語言和語層所展現的重音特質爲例。本文所指的重音是一種具有標誌語法、詞法、語意或語音規律的特質，而這個特質在聲調語言中主要表現在聲調的變化上，包括：變調、輕聲、以及傳調。

漢語的重音形式可分三級：重、中、輕。漢語可依此三級重音的分佈情形分類。此外，爲了減少記憶負荷量，在古文朗誦，台語雙語人的華語和日語重音系統上有重音性弱化和固定的趨勢。

就歷史整合的角度來看，重音和其他語言層面，如：語音、詞匯、詞法、句法、語意會產生正面或負面的交互影響。本文希望能釐清重音在聲調語言所扮演的功能以及重音演變的誘因及結果，期望對聲調語言的重音有進一步的了解。

0. 導　言

本文主要探討聲調語言(tone language)在共時(synchronic)和歷時(diachronic)兩個角度所呈現出的重音形式及功能。研究對象主要是以台語[1]相對其他語言和語層所展現的重音特質爲例，包括重音的表現方式、

1. 台語在本文指的是在台灣使用的閩南語的統稱，類似的概念可能以台灣話、台灣閩南語、台灣福建話和台灣河佬話出現在其他台語的研究論文。

重音出現的位置，以及重音所扮演的功能。本文所指的重音(stress/accent)是一種具有標誌語法、詞法、語意或語音規律的特質，而這個特質在聲調語言中主要表現在聲調的變化上，包括：變調、輕聲、以及傳調。這些特質在共時的影響和歷時的演變中，時而相輔相成，時而互相較勁，使得重音在聲調語言中顯得複雜而界定模糊。因此，本文主要在釐清重音在聲調語言所扮演的功能以及其演變的誘因及結果，期望能增進對聲調語言的重音有進一步的了解。

1. 聲調語言中有沒有重音？

語言學界一般把自然語言劃分爲聲調語言以及重音語言(accent language)。其中重音語言又可細分爲音重強音(stress-accent)，如：英語，及音高重音(pitch-accent)，如：日語。如此分類的結果容易產生兩種誤解：一是聲調語言沒有重音；二是以重音語言的角度來分析聲調語言的重音。我們認爲採用聲調語言及非聲調語言(nontone language)來劃分自然語言可以避免以上的兩種誤解。

本文所指的重音是一種具有標誌語法、詞法、語意或語音規律的特質。重音在不同的語言裏有不同的表現方式。在日語是以由高音拍降爲低音拍來表現，一般把降低之前的高拍視爲重音所在。英語則由音節之間的音高、強度、以及長度的差異來表現重音與非重音的區別。在漢語裡，重音可表現於聲調的變化。

重音表現在聲調上的變化有四項：一)使原有的聲調更加顯著(more prominent)，如台語形容詞重疊三連音的頭一音節必高；二)重音保持原調，中音變調；三)輕音節不具聲調對立，也就是漢語一般所謂的輕聲。輕聲又可分爲兩種：詞匯輕聲及結構輕聲。詞匯輕聲指的是非結構性詞匯裏有重輕音的區別，如北京話的「認識」，「認」唸重音，「識」唸輕聲。結構輕聲則是有顯示實詞、弱化虛詞、辨義以及標誌結構的功能。實詞唸重音，虛詞或結構助詞唸輕聲；四)重音節可向非重音節傳調(tonal spread)。本文首先依上述四種現象在漢語方言分佈的情形，作一說

明。[2]

2. 重音表現在聲調上的變化

音高(pitch)的差異在英語和日語裏可以反映重音的位置，而音高在聲調語言裏則用於區別音節內部調類的差異。因此，重音在聲調語言裏常被誤爲是調類之間的差異。Hyman(1978)對聲調及重音在語言裏扮演的角色，及彼此互動的情形，做了一個系統性的描述。他說，聲調的作用主要在於縱向區分，也就是每個音節可因聲調的不同而辨義，而且在一個純聲調語言裏，橫向的影響趨向於零，也就是每個音節的聲調是獨立存在，而不受其左右聲調的影響。換句話說，純聲調語言是不容許任何橫向的影響，如：輕聲及變調。反觀重音的作用則是屬於橫向區分，重音節的決定通常是相對於重音組裏的非重音節，而且一個重音組裏通常有一個主要重音。所以藉著下述重音表現在聲調上的變化以及一般聲調所扮演的辨義角色，我們知道這兩者不應混爲一談。

2.1 重音使原有的聲調變得更加顯著

重音使原有的聲調變得更加顯著，我們找到的有：台語形容詞重疊三連音的頭一音節，如「紅紅紅」的第一個「紅」。形容詞重疊三連音的第一音節按一般變調的規則變調後，如非高調，則需再變爲高升調，因爲三連音的第一音節只容許高聲調（即高平或高降）。另一個例子是強調程度，如「偌好」【那麼好】、「偌 sui2」【那麼美】的「偌」。按照一般變調的規律，「偌」變調是低音，但由於強調程度，「偌」可再變爲高升調。我們認爲聲調變得更加顯著是反映重音對聲調的影響。

上海話也有類似的例子。根據 Chang (1992a)的敍述，上海話變調的一個次要類型是除了入聲以外，不管各音節的調類爲何，均變爲[55-31]，

2. 本文依袁家驊(1960)的分類，將漢語劃分爲七個主要方言區：北方話、吳方言、湘方言、贛方言、客方言、粵方言以及閩方言，其中北方話又分爲四個次方言：北方方言、西北方言、西南方言以及江淮方言。

她把這個現象解釋爲是受重音在前的影響，而使得第一音節的聲調變得更加顯著，也就是變成高調。

2.2 本調、變調的區別反映重音與中音的區別

本文提出漢語的重音形式可分爲三級：重、中、輕。將本調視爲重音，變調視爲中音，輕聲視爲輕音。理由在於本調、變調的區別屬於橫向的區分，取決於其在音段(phrase)的相對位置，在台語裏一般是音段最末一音節讀本調，其餘音節讀變調。如前所述，語言裡的橫向區分主要在反映該語言的重音系統，以突出音段的主重音。因此研究聲調語言中的重音現象，必要瞭解本調、變調的分佈情形。首先，根據變調的普及性來看，客、粵方言最不普遍(Hashimoto 1973, Yue-Hashimoto 1987)，贛方言變調現象並不明顯（袁家驊1960），湘和北方話不變調的情形比變調來得普遍。蘇州（吳）方言變調（含輕聲）的情形約佔三分之二（袁家驊1960），閩方言的變調情形最爲普遍，在袁家驊(1960), Yue-Hashimoto (1987)，以及 Norman (1988)均有提及。因此，根據變調的普遍性，我們可將漢語方言依其變調普遍性排列如 1：

1　漢語變調普遍性：閩、吳 ＞ 湘、北方話、贛 ＞ 粵、客

其次，按照變調的位置來分，北部吳方言的本調多在於語音組的第一音節，而閩方言以及南部吳方言的本調多在於語音組的最後一個音節(Yue-Hashimoto 1987)。北方方言（北方話的北方次方言）裡，徐州方言及北京話較接近閩方言的類型，其他的方言變調則多屬於不規則型，其變調的位置多受鄰近聲調、詞法及語法的影響。如：侯精一（1985)指出長治方言（屬北方話的西北次方言），語法結構可影響變調。

第三，就變調所具有的功能來看，由於其普及性以及其相對於語音組的位置，使得變調在台語（閩）具有標誌語法範疇的功能，這得歸功於變調在台語相當普遍又規律，且本調幾乎都固定在主要語法單位的末尾，因此具有相當重要的標誌語法單位分界功能，如2：

2　變調在台語具有標誌語法單位的功能：

o＝變調　　O＝本調

〔o o o O〕＃〔o o o O〕＃〔o o o O〕＃

2.3　輕聲不具聲調對立

除了變調，輕聲也反映重音的橫向影響。所謂橫向影響指的是音節之間的影響，如：漢語輕聲不具聲調對立，通常以低調出現，而且容易受到鄰近重音節的聲調影響。在台語裏，輕聲只出現在音段末尾，反映主重音後非重音節的輕化，而且重音節有向輕聲傳調的現象。輕聲在漢語可分爲詞匯輕聲及結構輕聲兩類。

2.3.1　詞匯輕聲

詞匯輕聲指的是單一詞匯裏有重輕音的區別，如北京話的「糊塗」(O.)，「糊」唸重音，「塗」唸輕聲。詞匯輕聲一般出現在雙音節詞詞尾，重輕音的分佈類似英語的前重形(trochee)。詞匯輕聲是北方方言的一大特徵，此外，吳語和贛語也有不少的詞匯輕聲，其次是湘方言。西北方言、西南方言、以及閩方言僅有極少數的詞匯輕聲，一般出現在表時間的詞尾。如：常德方言（西南方言）「工夫」(O.)的「夫」輕聲，「今年」的「年」、「后日」的「日」、「十二月」的「月」輕聲。閩方言的詞匯輕聲很類似西南方言，如「後日」的「日」、「十二月」的「月」在閩方言裏也輕聲。粵方言和客方言則幾乎沒有詞匯輕聲。

3　漢語詞匯輕聲分佈情形

北方方言、贛、吳 ＞ 湘、西北方言、西南方言、閩 ＞ 粵、客

2.3.2　結構輕聲

結構輕聲指的是虛詞或結構助詞唸輕聲，一般包括表示時態、移動方向的標誌語；表結果的補語；疑問詞、語尾助詞、數量語、重疊詞、代名詞以及附加的字首或字尾。粵方言與客方言的結構輕聲現象最不明顯，餘下的方言均有或多或少的結構輕聲。如：南昌方言（贛）裏名詞詞尾和形容詞重疊詞尾「子」、「里」以及數量語輕聲；長治方言（西北方言）疊

音的雙音詞第二音節常讀輕聲；揚州方言（吳）語氣詞輕聲；溫州方言（吳）處所語素 la 輕聲以及人稱代名詞詞頭輕聲[3]；徐州方言（北方方言）「難不住」的「不」輕聲，在該方言輕聲也導致元音的弱化，這和英語的非重音音節母音弱化(unstressed vowel reduction)極爲類似。

北方方言和西南方言語氣助詞、結構助詞，如「的，了，著」、詞尾「們，麼，子」等輕聲；結構輕聲在台語有辨義的作用，如「驚死」(o O)是動賓結構，意謂「害怕死亡」，而「驚死」(O.)則是動補結構，意謂「因驚嚇而致死或嚇得半死」。除此之外，名詞、代詞的詞尾常讀輕聲；趨向動詞、助詞以及表示結果或程度的補語也讀輕聲。

其次，按照結構輕聲的位置來分，除了閩方言的輕聲只出現在語音組末端，其他方言的結構輕聲可出現在非語音組末端，如：北京話「坐著睡」的「著」輕聲，在台語裏「坐咧睏」【坐著睡】的「咧」不可輕聲，「坐咧」的「咧」才可輕聲，因爲「坐咧睏」的「咧」不在語音組的末端，所以不輕聲。輕聲受制於語法範疇 VP, S 的語例請參閱附錄一。

2.3.3　詞匯輕聲和結構輕聲的比較

詞匯輕聲和結構輕聲音質類似，扮演的角色卻不相同，無論是在語言學習或是語言演變上，兩者都有不同的發展，因此有必要區分這兩類輕聲類型。詞匯輕聲是由個別詞匯決定(lexically determined)，因此需要個別記憶，記憶負擔大。反之，結構輕聲較易由語法、詞法結構以及虛詞種類或個別的虛詞來預測，記憶負擔較小。詞匯輕聲不具有標誌結構的功能，結構輕聲才有。由於北方方言及吳、贛方言具有較多的詞匯輕聲，因此結構輕聲在這兩個方言較難顯示標誌結構的功能。反觀西北方言、西南方言和閩方言，結構輕聲豐富而少有詞匯輕聲，因此輕聲能較有效地標誌結構及虛詞。尤其閩語的結構輕聲只能出現在語音組末尾，因此具有較明確的標誌語法範疇分界的功能。

2.4　傳調

傳調指的是重音節的聲調延伸至非重音節(tonal spread)。此種現象

3. 這是我們唯一發現的詞頭輕聲的文獻。

出現在吳方言和閩方言。Yue-Hashimoto（1987)提到兩個吳方言其第一音節的聲調有傳調到後面音節的現象。台語也有傳調的現象，傳調的調值是重音節尾音的延續。任何一個在台語可能輕聲的語詞，可能有四種發音。一是唸本調、二是唸變調、三是輕聲發低調、四是輕聲承前調（鄭良偉 1991a）。

1 一個可能輕聲的語詞的發音變化：（改自鄭良偉 1991a）

a、唸本調	來。	˨˩[4]
b、在其他聲調之前讀變調	牽來學校。	˥˨ ˩˥
c、輕聲化失去原來聲調對立時的一般調值	牽來。	˥ ˩.
d、輕聲化時傳調／承調後的調值		
向高平聲調承調而高、輕、長	牽來	˥ ˩.→˥˥
向尾中聲調承調而中、輕、長	行來	˨˩.→˨˩˥
	long7來	˥˩.→˥˥
向高降或低降聲調承調時低、輕、短	送來	˩ ˩.
（與一般輕聲發音同）	kheh來	˨ ˩.
	theh8來	˨ ˩.
	走來	˩˥ ˩.

3. 重音性強弱與記憶負荷量的交互作用

如果我們把重音性強弱定義爲橫向影響的多寡，我們發現漢語各方言的重音性強弱不一。因此，我們想進一步探討影響重音性強弱的因素。在分析不同語層以及第二外語學習的重音現象，我們發現重音性的強弱常受制於語言使用者的記憶負荷量。由於對不熟悉語層以及第二語言的重音類型在短期很難有效地掌握，語言使用者通常在基於記憶負荷量的考量之下，以較容易掌握的縱向區分，也就是音節內的聲調對比，取代較難掌握

4. 一般漢語學者習慣將本調標在豎槓之前，本文乃依本、變調出現的先後次序，將變調標在豎槓之前，本調標在豎槓之後。

的橫向區分，也就是變調、輕聲、傳調等重音導致的橫向影響，因此造成重音性在不同語層和中介語(interlanguage)有削弱的現象。此外，語言使用者也可能使用固定重音在某一音節，來減輕記憶的負擔。以下我們將用北京話（北方話）及台語（閩）和北京話的文言文朗誦、台灣華語、以及台語人士學習日語時所表現的重音類型來驗證重音性強弱與記憶負荷量的交互關係。

3.1 文言文朗誦的重音現象

本節比較北京話（北方話）及台語（閩）的文言文朗誦，北京話的文言文朗誦沒有輕聲，顯示重音性在不同語層有削弱的現象。詞匯輕聲的減弱性要比結構輕聲來得大，因爲詞匯輕聲是由個別詞匯決定，需要個別記憶，因此記憶負擔大。反之，結構輕聲較易由語法、詞法結構以及虛詞種類預測，記憶負擔較小。至於結構輕聲爲何在新起語層有減少的趨勢，原因可能是結構輕聲多與詞法、語法結構有關，而在不同語層裏，詞法、語法較不容易掌握。這顯示重音主要在於橫向的區分，涉及到較複雜的詞法、語法、及語音組規律，而且結構輕聲的出現造成一字多音，違反一字一音的原則，因此通常是常用的、熟悉的虛詞較有可能輕聲，因爲輕聲的目的在顯現實詞和虛詞的分別，所以，一個語言基本上是維持一字一音的原則，但是若是輕聲的出現可以有效地達到標誌語法、詞法、語意或語音韻律的功能，則相形之下，輕聲具有較高的優勢。反之聲調主要在於縱向區分，一個音節對比有固定的聲調，較容易掌握，如因重音要求變調，或喪失聲調對立，在認詞上要多一層手續，在記憶上也加重負擔。因此在不同的語層，結構重音性趨向減弱，也就是重音類型較類似客方言和粵方言。

重音影響減弱的現象也出現在以台語朗誦的文言文。台語朗誦的文言文有嚴格的變調，但是結構輕聲語（如「之、乎、者、也、否）的數量低於台語口語，而且沒有傳調現象。雖然重音性在不同語層有削弱的現象，但是北京話和台語之間結構重音規律性的差異在不同語層仍然顯現出來。台語輕聲的主要功能在於：一）弱化虛詞而顯示實詞；二）標誌語法單位分界，因此有少量的虛詞發展爲輕聲。北京話多量的詞匯輕聲的功能

在於分辨詞匯以及增強語言的韻律性，熟悉的日常詞匯傾向輕聲，其他的就傾向不輕聲，文言文無論是內容或是朗誦都屬不熟悉的生活經驗，因此在北京話的文言文朗誦較難標誌輕聲所在，爲了減輕記憶負擔，因此一律不輕聲。

文言文的台語朗誦：

1 遵循現代台語有關變調的規律。如：S, NP, VP之後有變調組分界。

2 結構輕聲較少。較常見的只有「之、乎、者、也」及句尾語氣詞。

3 沒有傳調現象。

4 在北京話和廣東話，文言語詞一律不輕聲，這顯示變調及結構輕聲在台語所擔任的功能及影響層面要比北京話、廣東話來得多而廣，至於台語的結構輕聲何時、如何開始仍是一項待研究的課題。

文言文的台語朗誦語例：

1a S S S S S
b NP NP NP VP NP VP NP VP NP VP VP
c 人 之初， 性 本善， 性 相近， 習 相遠。… 人 不學， 不知義。
d O oO O oO O oO O oO O oO oOO

1a S S S
b NP NP VP NP VP VP FP
c 大學之道，在明明德。……學 而時習之 不亦悅乎？
d oOoO oooO O ooO. ooO.
dd oOoO

3.2 台灣華語中的重音現象

重音性減弱的傾向也表現在方言的學習上，本文主要以台灣華語做爲說明。台灣華語指的是台灣人講的北京話，也就是一般所說的國語。

3.2.1 北京話與台灣華語重音類型的比較

台灣華語和北京話的一大差異是台灣華語幾乎沒有詞匯輕聲，如：

1a	行李	東西	風箏	糊塗
b 北京話	O.	O.	O.	O.
c 台灣華語	OO	OO	OO	OO

至於台灣華語的結構輕聲也比北京話來得少。台灣華語只有助詞輕聲，如結構助詞「的」；時態助詞「了、著」；語氣助詞「呢、嗎、吧、啊」等。此外，疊音詞在台灣華語也多半不輕聲，如「叔叔、想想、看看、人人、天天」。疊音動詞中間插進的「一、不」在台灣華語也不輕聲，如「聽一聽」、「走不走」。趨向動詞在台灣華語也不輕聲，如「出去」、「進來」、「跑出去」。名詞後的方位詞在台灣華語也不輕聲，如「地下」、「屋裡」、「頭頂上」、「那邊」。人稱代詞當賓語時在台灣華語也不輕聲，如「請你去」、「找他」。下面語例提供一些北京話、台灣華語和台語結構輕聲的比較。

	結構標誌	疊音詞	疊音中插詞	趨向動詞	方位詞	人稱代詞當賓語	不定數量語當賓語
1a 華語詞	好的	看看	聽一聽	跑出去	屋裏	找他	說幾次
b 北京話	O.	O.	O. O	O . .	O.	O.	O . .
c 台灣華語	O.	OO	OOO	OOO	OO	OO	OOO
2a 對應	好的	看看咧	聽一下	走出去	厝裏	chhoe7伊	講幾遍
b 台語詞	O.	o O.	O . .	O . .	O.	O.	O . .

台灣華語的重音類型類似前述文言文朗誦的重音現象，詞匯輕聲需要逐詞個別記憶，負擔特別重，加上台語只有極少的詞匯輕聲，因此詞匯輕聲在中介語的台灣華語語層幾乎不出現。至於結構輕聲，除了幾個虛詞輕聲以外，連對應台語詞輕聲的也不輕聲(Cheng 1985)，如：跑「出去」的「出去」在目標語(target language)北京話和母語(mother tongue)台語裏皆讀輕聲，在中介語台灣華語卻不輕聲。由於詞匯輕聲增加學習負擔，

而結構輕聲的產生賴於對語法、詞法、語意結構有相當的瞭解，才會將虛詞逐次弱化，在母語如此，在初期的中介語也是如此。輕聲規律詞語素失去聲調對立，是語音上的簡化，但另一方面使某詞具有多種發音，在辨詞上比起不輕聲的情形應該是屬於較不普遍的(marked)現象，對新生語層的學習者來說，不容易掌握，需要時間去加以整合。我們認爲在學習另一聲調語言的重音系統時，常有該輕聲而不輕聲的重音性減少現象。如：輕聲常不出現在新生語層及中介語，台語特有的普及性極高的變調，也完全不出現在台灣華語重音系統。四川人學習普通話（以北京話爲主的標準語）也有類似的現象。梁德曼(1982)提到『輕聲不輕是四川人學普通話時常犯的毛病』。

3.3 台語人士學習日語時所表現的重音類型

本節以台語人士說日語時的重音類型來驗證重音在新學得的語言裡傾向固定，理由也是爲了減少記憶負荷量，此外，重音在台語標誌語法單位末尾的功能以及結構輕聲的現象也移轉(transfer)到台灣日語裏。

3.3.1 日語的重音類型

日語的重音類型被歸類爲以音高標示重音(pitch accent)。重輕語音組由一個或一個以上的音拍(mora)組成，每個音拍的長短與強度都大約相同，只在音高上有一定的搭配形式。日本話不以聲調作爲縱向的詞匯區分，而是用於橫向的輕重音對比，將語音組內由高變低的高音拍視爲重音，沒有這種變化的語音組是平板型，有變化的是降落型。降落型又可分爲頭高型和起伏型兩種。重音在第一個音拍的一般稱爲頭高型，在第二個音拍或第三個音拍或以後的音拍有音高降落(pitch-fall)的語音組都叫做起伏型，起伏型的第一個音拍音調較低（台語人士聽起來是中平卜，近第七聲），第二個音拍變高，然後持高到重音音拍之後音高降落。每個降落型，只有一個重音。降落型的重音可在第一音節或其後的任何一個音節，而這些不同的重音型，在日語可用0，1，2，3，4，5，6，…等標誌，表示重音的音拍位置所在。日語裏藉著重音位置的不同來區分詞匯，如：hana 因重音位置的不同，可以指花或鼻子。這類重音類似北京話裏以重音類型區分詞義，如“大意”（O.)指的是粗心，而“大意”（OO)指的

是大略的含意。在台語裏變調語組（屬於同一主要語法範疇的語詞）也如此，全語詞只有一個不變調的重音節，前面的音節都變調，重音後面的音節都輕聲化。因爲一般的語音組只有一個重音，並且一定有一個重音，因此在台灣日語可用 -1，-2，-3，-4，-5，-6，…等標誌表示重音在倒數第幾音拍（請參閱下節台灣日語的重音類型）。

3.3.2 台灣日語與日語的重音類型比較

老一輩的台灣人精通日語的很多。他們所使用的日語有自己的一套重音標誌法，不同於東京日語[5]。下頁是東京日語與台灣日語之間重音類型的比較。

台灣日語的重音類型

拍數		一拍語詞	二拍語詞	三拍語詞	四拍語詞	五拍語詞	六拍或以上的語詞
重音類型							
台日		●	● O	● O	● ● O	● ● ● O	● ● ● ● O
		O	●	● ●	● ●	● ●	● ●
台日	日語	hi#ga	tori#ga	sakura#ga	tomodati#ga	nihoN gami#ga	murasaki 'iro# ga
2/-1	0	日#ガ	鳥#が 0	櫻#が 0	友達#が 0	日本髮#が 0	紫色#が 0
-2	01	火#が	花#が 01	男#が 01		わ正月#が 01	十一月#が 01
-2	02		雨#が 02	心#が 02	湖#が 02	にわか雨#が 02	あいあいがさ#が 02
-2	03			命#が 03	鶯#が 03	春霞#が 03	たたみおもて#が 03
-2	04				蝙蝠#が 04	おないどし 04	粉おしろい#が 04
-2	05					お月樣#が 05	お巡らさん#が 05
f-2	06						大神宮#が 06
							reN gou koku #ga
							連合國#が
-2				費用 03	特別 02		
-2				加入 0	參加者 02		特別參加費用 02
				● O	● O	● ● O	● ● ● ● O
-3				● ●	● ● ●	● ● ●	● ● ●
				yuuki# ga	i mo u to#ga	aNnaisyo # ga	saNkasya kai hi#ga
-3				勇氣#が 03	妹#が 01	案內書#が 01	參加者會費#が
-3				參加#が 0			

5. 年輕一輩的台灣人，能說流利日語的人不及老一輩的多，但是台語中卻有不少日語移借語。這些移借語中的重音有何特點，有待進一步研究。

● 名詞的一拍

O 助詞的一拍，日語助詞的高低決定於前面的實詞；台灣日語則不一定如此。

0 東京日語裏的平板型 01-06 東京日語裏的重音拍位置（從語詞末尾算起的數序，此表記法根據『日本音聲學』）

-1, -2, -3 表示台灣日語裏的重音拍位置（從語詞末尾算起的數序）

橫線上面的語例來自「金田一春彥辭典」。

3.3.3 台灣日語的重音特點

本節比較台灣日語與東京日語重音類型的異同。

一、與東京日語重音類型相同的部分

1.各個音拍的高低一般反映東京日語的高低音拍。

2.各個重音音組的開始，按照東京日語的規律。第一拍與第二拍的音高一定有變化，一般是第一拍低，第二拍高。

3.重音因音節結構而遷移(accent shift)： a.長音節的第二個音拍不帶重音，重音移至前一音拍。b.無聲音節不帶重音。（台灣日語不一定每一個人都有無聲音節）

4.每一個語音組只有一個重音，這和台語每一個語音組只有一個本調的特點類似。

二、與東京日語重音類型不同的部分

1.重音固定在倒數第二個音拍(penultimate mora)。（以“-2”表示），從最後一個非輕聲音拍算起。但是如果有下面情形之一，就出現在其前面的音拍(antepenult)。

a.倒數第二音拍是長音節的第二個音拍時。

b.倒數第二音拍是東京日語的無聲音節(voiceless vowel)時。台灣日語的無聲音節只見於較常用的虛詞。

2.東京日語屬二音階，即有高低音拍區別，台灣日語則屬三音階，即有高、中、低音拍的區別。東京日語的低音拍，相當於台灣日語的中音或低音拍。這項區別並不造成兩者重音的差異，因爲日語重音

的位置是落在高音拍。

3.就功能來說，各同拍數的語詞之間，台灣日語的重音只有一型，不像東京日語以不同重音類型分辨詞義，因此台灣日語也顯示新生語層重音性減少的現象。-2型與-3型之間的分別，決定於長音節和短音節之間的區別，因此就區分詞匯來說，-3型可以看成-2型的變体，沒有辨詞作用。

4.重音音組的末尾，一定是低音，第一音拍若是非重音則低音。

5.因爲重音音組的末尾，經常是低音，低音就有標誌語音組分界，同時具有標誌語法單位右分界的功能。

6.類似台語結構輕聲的語詞，如：さん[saN]、です[desu]唸低音。

台語與日語之間的輕重音組有三個特點是互相一致的：

1.一個語音組只有一個重音。

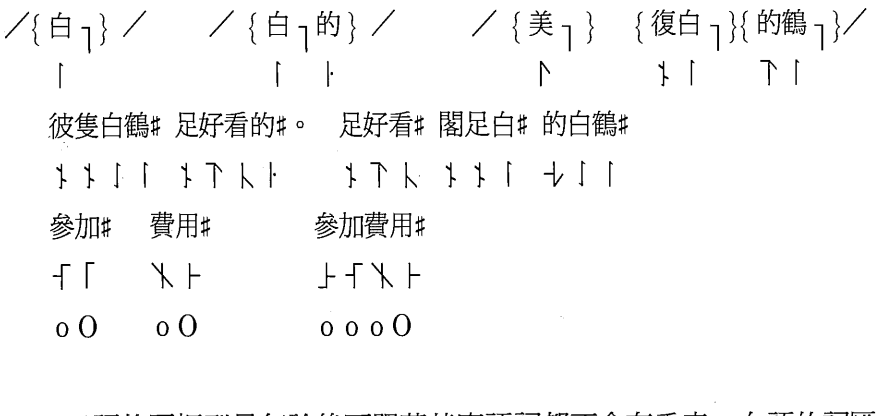
2.語音組與語法單位的範疇(NP, VP, S)經常一致：日語的語法單位之左端經常有語音組分界（第一拍與第二拍的音高一定有變化，一般是第一拍低，第二拍高）；台語的語法單位之右端經常有語音組分界（本調通常在主要語法範疇的右端）；語音分界的界定在於是否容許語音停頓。

3.語音組除了語音停頓以外，還經常有語音上的標誌。在日語裏，開端（左分界）經常有語音上的標誌：第一音拍與第二音拍之間高低一定不同。台語裏在末尾（右分界）有語音標誌：有重讀（不變調）或有輕聲語。

有關於第一點與第二點的類似點，日本語言學泰斗的服部四郎曾經在1957“王育德氏『台灣話常用語彙』への序”提過。在筆者所知範圍內沿用重音的觀點，注意到台灣話的輕重音現象的可能就是他。有趣的是他沿用“重音音素”的觀念，將沒有輕聲詞尾的詞分析爲降落型01。這是從重音的音節來算各詞的重音型。[6]習慣於語詞的本調與變調的人都只注

6. 服部四郎1957“王育德氏『台灣話常用語彙』への序”。文內鼓勵王教授從事台語重音與語法互動現象的語言學研究。後來爲王教授的“台灣語音の歷史へ研究”（1987平山久雄編）寫序時也提起這個研究課題。

意到變調或輕聲，而沒用重音的觀念來研究本調和變調的差異，因此，可說揭開了研究台語變調的一個新視窗。“／／”內的語詞取自服部四郎(1960)。



日語的平板型是無論後面跟著甚麼語詞都不會有重音。台語的詞匯裏沒有相當於日語平板型(0)的類型。因此，台灣人在學習日語平板型類型有較大的困難，而以重音固定在倒數第二音拍的類型取代之。（小川芳男等合編：日本語教育事典）

3.3.4　台灣日語重音特點的一些啓示

只看重輕音在日語和台語的形式，無法解釋台灣日語中介語獨特的重音現象，若從語言功能的角度來分析台灣日語，我們可以發現儘管重音的形式不同，其以輕重音所構成的語音單位標誌語法單位的功能卻極類似。

3.3.4.1　重輕音的功能、形式配合說

在台灣日語裏，語法單位的末端，前端都可有語音標誌。在 NP 之後的 case marker，以及 VP 或 S 之後的連接詞，本來在日語裏都是跟著前面的後接語，在台灣日語裏由於 NP, VP, S 前後都有分界，這些虛詞性語詞的音高取決於說話者將助詞單獨處理或歸附於前一語音組，若是單獨處理則發音爲高音，若是將助詞視爲依附前音組的附著語（enclitic，以＝1, ＝2 標誌），則唸低音，也就是省去前面的語音組分界。這個現象很類似台語裏經常和 S♯ 結合的句尾否定詞「呣、無、膾、未」按照句法組合結構是單獨形成一個語音組的，但可讀本調，也可以輕聲。輕聲時可看做最表層的語音結構裡這個獨立的虛詞語音組合併於前一語音組。如台語裏：

「你 bat 去過無？」的「無」。「無」在【S# 無 #】裏讀本調；在【S#＝無#】讀輕聲。類似結構還有台語 VP# 後的時態語「啊、咧、過」，都是虛詞單獨形成一個語音組，所不同的是時態語只讀輕聲。

		NP NP CJ/K NP man and woman that man 's child			虛詞相對於語音組的語音分界與重音位置
1)TWL1 台語	: NP# CJ NP#	查埔兮# 及 查某兮#	1a	-2# -2#	
		亻「卜 丶亻卜卜	b		
		o O. o o O.	c		
		彼個查埔人# 的 囝仔#	2a	-1# -1#	
		o o o o O o o O	c		
2)JPL1: 東京日語	#NP CJ # NP	#男 と # 女	1a	# 02# NA#	
		LHH L LHH	b		
（重音型有0,01..06等）		# めの男 の # 子供	2a	# 0 # NA#	
		LHHHH H LHH	b		
3)TWL1 JPL2: 台灣日語	#NP# CJ # NP#	#男 #＝と #女#	1a	# -2＝1 # -3 #	
		LHL L# HLL	b		
（重音型只有-2,-3）		或 #男 # と# 女#	1a	# -2#1 # -3 #	
		LHL H HLL	b		
		# めの男#＝の # 子供#	2a	# -2＝1 # -2 #	
		L HHHL L LHL	b		
		或 # めの男# の # 子供#	2a	# -2#1 # -2 #	
		L HHHL H LHL	b		

3.3.4.2 台灣日語輕重音所顯示的各種力量的對抗與調整

表(一)　日語、台語、以及台灣日語的重音位置與功能的比較

語言別	日語 Jpn（目標語）	台語 Tw（母語）	台灣日語 Tw-Jpn（中介語）
輕重音的語言功能	區分語匯 標誌語法單位分界	極少區分語匯 標誌語法單位分界 弱化虛詞，顯示實詞 分辨不同的語法結構	不區分語匯 標誌語法單位 少數虛詞弱化，如さん
語音組標誌方法	開端有明顯的標記	末端有明顯的標記	兩端皆有
重音的位置	不固定在某一音拍	輕聲之前或最後音節	倒數第二音拍
語音與語法的配合	{#NP+K}	{K+NP#}	{#NP#K#}{#NP#＝K#}
格標誌語	跟前面的NP合併	跟後面的NP合併	可獨立也可跟前面 的NP合併

從上表的比較，我們認爲台語人士的語言習慣中輕重音標誌語法單位的意識相當強烈。在中介語裏語法單位的兩端都有明顯的標誌。決定中介語重音的各種力量雖然十分複雜，但是可以從母語的重音功能，目標語的重音形式得到相當圓滿的解釋：

一、語音組前面分界一定有語音標誌，這是採用日語的音高規律與標誌語法起端的功能。

二、語音組後面分界也一定有語音標誌，這就來自台語的標誌語法單位末端功能。

三、NP之後的格標誌語形成獨立的語音組，採用台語的 K-NP#，與日語的#NP-K組合。

四、虛詞語音組可高可低，都不影響前面實詞的重輕形式。低時在表層語音上應算歸併到前面的語音組，特點與台語的虛詞語音組相同。

五、日語詞匯重音的區別，不出現在台灣日語，原因類似台灣華語沒有詞匯輕聲，都是爲了減輕記憶負荷量。

4. 速度對語音分段的影響與重音標誌語法分段的明確度

台語裡與主要語法範疇 NP, VP, S 配合的變調組分界都不會因速度而改變。這個特點比華語、日語都更嚴格而明顯。

北京話的輕聲不跟語法分界密切配合，既可出現在詞或詞組的末尾，也可出現在詞中間，因而也就缺少標誌語法單位的功能，北京話變調組的分界雖然多少受到語法的約束，但是也受到速度的影響（鄭錦全1973）。例如下面的北京話例句，相同的句子，卻有幾種不同讀法，不同於台語的變調和輕聲所承擔的語法角色，同一個句子，句法結構的單位分界，始終與變調分界一致。

	NP VP			
1a 北京話：	【老李 買好酒】	（*33333）23 3 23＞223 23＞23 223＞22223		
（上例取自鄭錦全 1973 速度對北京話變調的分析）				（四種）
2a	【酒 很好】	（*333） 3 23 ＞223		（二種）
1b 台語：	老李兮 買好酒	丁丅卜♯ 丁丁丅		（一種）
2b	酒 眞好	丅 ♯ 亍丅		（一種）

日語的語法單位雖然較密切地配合語法單位，但是也時常因爲速度而有所改變。在日常的會話裏並不一個文節一個文節分開發音，而發音成一個音組。【例語取自金田一春彥“明解日本語アクセニト辭典”附p.67】

	日語慢速		日語快速	台語慢速與快速
3	toriga . naku	>	toriganaku	鳥仔#teh吼
	L H H L H		L H H H H	
4	tooi . yama	>	too'iyama	遠遠#的山
	L HH L H (L)		L H H H H (L)	
5	higa . otiru	>	higaotiru	日頭#落山
	L H L H L		L H H H L	
6	hana . saku	>	hanasaku	花#teh開
	L H (L)L H		L H L L	
7	nagareru . mizu	>	nagarerumizu	teh流#的水
	L H H L L H		L H H L L L	
8	haruga . kita	>	harugakita	春天#到啊。
	H L L L H (L)		H L L L L	

5. 重音類型的整合

本文所討論的重音類型是否合理、有用，需要看是否能適用於擬構過去的語言歷史變化，以及解釋現在語言間或語層的類型特點的異同。類似的語音類型出現在不同語族，有其特別的研究價值。例如東京日語的虛詞音值(ni, wa, ga, o)，與實詞搭配的重音類型，台語則有重音節向非重音節傳調的現象。這顯示重音對非重音的影響並不限於同語族或經由語言接觸才有的現象，而是自然語言中的共同傾向。閩南白話字音的韻尾因韻鏡的內、外轉而有不同的發展，這個特點也見於吳語，此相同點很可能表示兩語有歷史的淵源。台語和日語類似的非重音受重音影響的現象屬於自然語言共同性，這類共同性和有歷史淵源的語言之間的共同點同樣具有擬構預測語言變化的價值。

本節先回顧閩南語本調、變調易位的歷史過程論之後，再探討閩南語變調類型是源自和其他方言共有的歷史，還是純粹的獨自發展，以及閩南語文白兩個語層不同類型特點之間如何整合，對語言演變的研究具有何種

意義。

5.1 閩南語變調、重音的搭配與本調、變調易位的歷史過程論

本節就閩南語本調和變調的歷史演變過程，看重音系統在現代台語的整合情形。現代台語本調在音段末尾，而對早期閩南語的研究則顯示以變調在音段末尾，較符合古閩語內部以及古閩語和其他漢語的對應關係。如果本調、變調的位置足以反映重音的類型，我們不禁要問：「早期閩南語是如何從變調在音段末尾的尾弱型重音轉變成現代台語本調在音段末尾的尾強型重音？」而現代台語的輕聲是否是承襲早期閩南語尾弱型的重音類型？

一)有關變調和本調位置的歷史轉移

A本調在後論

現代台語的本調在語音組末尾，變調在非末尾，這個看法是根據說話者通常把單字調當作原形，也就是本調。

B變調在後論

早期閩南語變調在語音組末尾，其餘非末尾音節皆讀本調，這個看法有幾個有力的根據。

一、漢語一般陽調（濁聲母）低於陰調（清聲母），這是受到濁聲母使聲調降低的影響，可是這個現象在閩南語的語音組末尾正好相反，而語音組其他音節則符合陽低陰高的規律，因此，若把最末音節視爲變調，則合乎漢語語音變化起動時陽低陰高的規律（Pulleyblank 1978，平山久雄 1975，李壬癸 1991）。

二、以非末尾的聲調來擬構古閩南語的調值，能合理地解決從古到今各方言的語音變化（鄭再發1983）。

二)本調、變調易位的歷史過程論

我們認爲上面兩種不同的看法都有合理的根據，而綜合兩者的推論便是：在閩南語的歷史演變中曾經有變調在後的尾弱型重音類型，轉位爲本調在後的尾強型重音類型。這個轉變是屬於閩南語內部的自行發展，還是受到其他方言的影響？這裏先就現代台語語層與語言做共時的比較，然後

再和吳語做歷時的，縱向的發展擬構。

今日台語的重音類型的來源

表A　各語層、各方言間的語言類型特點比較[7]

	尾弱類型		尾強類型				
	吳語	閩語	閩語	文言文	北京話	文言文	客語
	前重型	白話層	文言層	台語朗誦		華語朗誦	粵語
A.字層（音節內部的比較）：							
1a.鼻韻尾因內							
、外轉而分[8]	+	+	−	−	−	−	−
b.韻尾容易變化[9]	+	+	−	−	+	−	−
B.語層（音組內音節之間的比較）：							
2a.組尾重音,非組尾中音	−	−	+	+	+	+	+
（組尾本調,非組尾變調）	−	−	+	+	+	+	+
3a.輕聲限於組尾	−	+	+	+	−	NA	NA
b.輕聲不限於組尾	+	−	−	−	+	NA	NA

三)本調、變調易位的歷史過程擬構如下：

閩南語變調的起源，來自語詞末尾因句調而引起變化，屬於尾弱型重音類型，這個重音類型和吳語（蘇州）的字調以第一音節爲其基調，或第一音節保持本調的重音類型同屬尾弱型重音，加上在字音層，吳語和閩語也同樣顯示尾弱型的特徵，如：白話層鼻音韻尾皆因內、外轉而分，韻尾容易產生變化。這些現象可能表示吳語和早期閩語之間有歷史淵源，後來閩語衍生尾強型重音，發生本調、變調易位，可能是受到尾強型語言移民的影響。下面討論本調、變調易位的歷史過程和兩種重音類型--尾強型和

7. 台語輕聲的發展屬於口語層，應屬白話層。
8. 吳語和台語白話層鼻音韻尾因內外轉而分的對應關係，很可能是有歷史淵源。兩語分裂後，各有其他不同的音變，可是仍然保留這種字音對應關係。
9. 韻尾容易變指的是中古音韻尾喪失或韻尾對立減少。

尾弱型--的關係。

今日台語的字音語層來源：

台語字音受其他語言接觸的影響大致可以分爲三個階段，各階段和其他的語言各有字音的對應關係（梅祖麟1991， Norman, J.1979）。最早一個階段是秦漢層（上古漢語），此時的閩語白話層 x 和日語的上古音有規律的對應關係。第二個階段是南朝層（中古漢語前期－切韻），此時的閩語白話層 y 和吳音有規律的對應關係。第三個階段是晚唐層（中古漢語後期－韻鏡），此時的閩語文言層和漢音（粵語、客語）有規律的對應關係。

		閩語	日語	粵語、客語
1	秦漢層	白話層x	上古音	
2	南朝層	白話層y	吳音	
	鼻韻尾因內、外轉而分			
	韻尾容易變化			
3	晚唐層	文言層	漢音	✓
	韻尾保留得齊全			

本文探討的重音類型僅追溯到南朝層和晚唐層，由於當時南朝的建業以及唐朝的長安並沒有重音的書面記載，我們只能從現代漢語受這兩個文化中心影響的語層或方言（如：吳語、粵語、客語）比較來推測。現代吳語較傾向尾弱型重音類型，而粵語和客語則較傾向尾強型重音類型。本文所指的重音既包括音高重音(accent)，也包括音強重音(stress)。音高重音在漢語主要表現在本、變調的區分，音強重音則主要表現於重輕音的區別。本文的重音同時涵蓋音高重音和音強重音兩個層面。

漢語尾弱型和尾強型的重音類型

頭顯型（受南朝或吳語影響的方言或語層）

	台語白話層口語	
吳語輕聲	O。；O。o；	O。（台語帶輕聲音組的尾弱型）
吳語變調	Oooo	(*Oooo)（現代台語沒有此類型）

尾顯型（晚唐所影響的方言或語層）

		台語文言層口語
	（音強爲主的尾強型）	（變調音組爲主的尾強型）
粵、客語	oooO	oooO
文言文華語 朗誦		

根據上面的比較，我們可以說尾弱型重音“O_o”早在文言音的移借以前就有。這個重音類型在現代台語口語同時出現在白話層以及文言層，甚至連文言文台語朗誦也有少數的輕聲，很顯然是新舊語詞整合後採用了尾弱型的重音類型。至於輕聲不在音段末尾的重音類型（O_o o 或 o_o O），在現代台語沒有此重音類型，我們認爲如果早期閩語和吳語以及晚唐漢語有輕聲不在音段末尾的重音類型，後來因配合語法與變調的尾強型重音經過整合，一律只出現在音組尾。

較有問題的是台語的變調何時開始。粵、客語幾乎都沒有變調，北京話也沒有閩語式的變調，吳語有變調。比較合理的推測是文言層移進以前就有變調。至於變調在閩語何時開始、如何開始，則是另一個重要的課題。我們認爲閩語最初變調規律是與吳語類似的變調在後，本調在前(*Oooo)，以後變爲今日的變調在前、本調在後。這種本調、變調易位與上述的字音韻尾易變的吳語類型變化爲不容易變化的粵、客語類型相吻合。至於這些變化和句法上的語序類型時間上的前後關係如何，有沒有如下的語言類型上的因果關係，--頭顯型和尾顯型--有待進一步研究。

本調、變調易位的類型動因--尾弱型和尾強型語言接觸的結果

頭顯型	韻尾易變	音組尾易變	句法排序中心語在前 語氣、情態、疑問詞在前
尾顯型	韻尾不易變	音組尾不易變	句法排序中心語在後 語氣、情態、疑問詞在後

中原		福建語區	語音組重音
（有地區的遷移）		主要語層類型	
		非漢語？	
上古漢語	外來影響		
	⟶	白話層x	
中古漢語			
前期（切韻）			
	吳語區→	白話層y	尾弱型重音
		白話層x	變調在後
後期（韻鏡）			
河南	⟶	口語文言層	尾強型重音
		口語白話層y [10]	尾弱型重音
長安（文與音）	⟶	漢文朗誦x [11]	尾強型重音
近古漢語			
		文白融合語	尾強型重音
	>（文）	漢文朗誦y	尾強型重音
現代漢語			

5.2 各語層間的整合原則——各種力量的最有利搭配

閩南語文白兩個語層各有不同的語言類型特點，結合過程，所遵守的原則應該是：以最簡單、省力的方法，取得最好的傳達信息功能。因此，重音類型的演化，和語言系統其他成員有密切的互動關係，俗語說：「牽

10. 口語文言層指來自華北河南建立福建王國的統治者，語言是尾強型。口語白話層y指當時舊移民的語言類型，仍保持尾弱型重音。

11. 漢文朗誦很可能根據韻書，而當時推行文教的決策者來自河南，雖然私塾教師口音不同於當權者（王育德1966），但同樣是尾強型。

一髮而動全局」，最能代表語言系統成員之間的互動關係。本節比較經過長期整合的台語與新生語層的台灣華語與台灣日語的重音系統形式與功能，並探討整合原則的運作。

一)閩南語文白語層類型特點間的互動關係

一個語言各層面中簡單化與功能化的兩種力量，經常不斷地對抗，不斷地取得平衡。這兩股力量在語音、詞匯、詞法、以及句法上的抗衡關係如下：

	簡單化的力量	抗拒簡化的力量
1. 語音層面：	容易發音	容易辨音
2. 詞匯層面：	減少記憶量	維持詞匯間的分辨
3. 詞法層面：	詞法形式的簡化	詞法結構間的識別
4. 句法層面：	固定語序類型	語序不同的運用，表達主題、語意重點、擬象順序
5. 語意層面：	一字一義	新字彙增加記憶負荷量

過去對台語不同語層的詞匯記憶量與語音、詞法、句法特點有一定程度的研究成果（如 Tseng 1995，鄭良偉 1993）。可以就各層面之間的簡化與功能的互動關係做一些描述。下表右欄是有關正負面的註解：

1＋ 代表對語音層有正面的影響；	1- 代表對語音層有負面的影響
2＋ 代表對詞匯層有正面的影響；	2- 代表對詞匯層有負面的影響
3＋ 代表對詞法層有正面的影響；	3- 代表對詞法層有負面的影響
4＋ 代表對句法層有正面的影響；	4- 代表對句法層有負面的影響
5＋ 代表對語意層有正面的影響；	5- 代表對語意層有負面的影響

鄭良偉、曾金金

一、語音層面：

A. 白話層音節內韻尾的簡化	文白合併後，一字多音。	2-, 1+
	一字多音，不利由音分辨詞義	5-
B. 詞匯、詞法單位之間有語音標記。如：語音停頓，變調	容易辨認詞匯、詞法單位	2+, 3+
C. 輕聲失去聲調對立	多音節詞的增加	1-, 2-, 3-
	一字多音	2-
	節奏更加旋律化明顯化	1+
	憑藉重輕音分辨詞義	5+

二、詞匯層面：

A. 文白異讀	一字多音，增加記憶負擔	2-
	文白異讀有區別詞義的作用	5+
B. 有詞匯輕聲	同語詞有時輕聲，有時不輕聲	2-, 1-
	憑藉重輕音分辨詞義	5+
C. 無詞匯輕聲	缺少以輕聲區別詞義的作用	5-
	詞匯無須分輕重音，記憶負荷量小	2+, 1+
D. 虛詞同一詞類部分輕聲	須個別標誌哪些虛詞輕聲，哪些不輕聲	2-
	顯示實詞，分辨語法結構	4+, 5+
E. 虛詞同一詞類全部輕聲	須標誌哪些詞類輕聲，哪些不輕聲	2-
	可由詞類預測輕聲與否，無須個別標誌哪些虛詞輕聲	2+
	語音簡化	1+
	標誌語法結構	4+
	標誌語意重點的有無	5+

三、句法層面：

A. 單一語序類型	缺乏以語序的變動，表達主題、語意重點的功能	5-
	記憶負荷量小，無須處理不同語序	4+
B. 變調語音組分界配合	標誌語法分界	4+
	語法範疇分界	
C. 輕聲的出現只在音組末尾	輔助語法分界的標誌	4+

上表顯示語言系統內部的互動關係，語音層面的簡化，不僅影響語音層，也同時影響到其他層面。同樣地，其他層面的簡化也會影響到語音層。因此，在探討重音類型和其演變時，也須考慮與其他層面的互動關係。

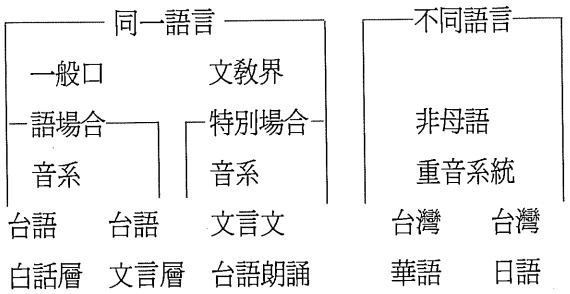
二)各語層間整合程度的比較

不同語言類型特點的整合原則：負面影響的同義異形語傾向淘汰，或劃分功能，增加正面影響而共存。

就變調與輕聲的各種特點與功能而言，台語的文讀層白讀層，除了字音不同以外，完全整合而運用相同規律。文言文台語朗誦整合的程度相當高，遠高於文言文的華語朗誦，如：變調及虛詞輕聲，但是仍然沒有完全整合，還有一些一般口語的規律沒有運用，如：傳調。

以下是將前述各語層的整合結果做一整理。由下表可見愈舊的語層，因整合的時間愈長，重音性也愈顯著。

各種語音規律於台語說話人的運用



0 三個台語語層的區分						
a	字音韻尾N、?	＋	－	－		
b	文讀音只用於文誦	－	－	＋		
1	音組內變調：非組尾					
	變調，組尾不變調	＋	＋	＋	＋(少)	
2	聲調中立化的產生與功能					
a	因語詞常用而輕聲	＋	＋	＋	＋(少)	＋(沒有固定調值)
b	輕聲只出現在末尾	＋	＋	＋	－dT*	＋
c	重輕音有					
	輔助標界功能，	＋	＋	＋(少)	－ dT	＋ dJ
	輕聲標誌結構之分	＋	＋	＋(少)	＋(少)	
3	各類輕聲記憶負擔的多寡					
a	個別虛詞記憶	多	少	極少	＋(少)	
b	詞類輕聲規律化	少	無	無	＋	
	輕聲標誌語意重點	＋	＋	－	－	
c	詞匯輕聲記憶	極少	無	無	－ dP	－dJ
4	重音向輕聲傳調					
a	重音向輕聲傳調	＋	＋	－	－ dT	＋
b	虛詞因實詞而變音高	＋	＋	－	－ dT	＋

*上表dT代表和台語不同，dP代表和北京話不同，dJ代表和東京日語不同。

三)台語輕聲承調的整合過程

輕聲承調在台語是正在變化中的語音現象，它不像變調與輕聲，已經經過長時間的整合，較趨向規律化，因此方言間的差異以及個人間的差異有限。反之台語輕聲承調的現象常因地域、年齡、場合甚至個人而異。從語言變化的觀點看，台語的承調現象可以提供語音規律如何影響詞匯，各結構層面在變化過程中如何互動。在承調剛起步時，由於說話者尚未將承調與輕聲聯想在一起，所以多半把承調的發音當作一般詞匯處理，因此，如果有承調的發音就不容許不承調的發音（也就是輕聲發低音），兩者只取其一，秉持一字一音的原則。我們把這個階段稱爲詞匯化承調。

1)詞匯化承調：一個詞一個詞記憶是不是承調。這種處理法有三個特點。

一、同一個輕聲語詞常常只說承調，或只說不承調：（如；「張兮」不說「˪，而只說「˥）；也就是同一個詞有了承調，不承調的發音就被淘汰。

二、同詞類又同語音條件的輕聲語有的承調有的不承調：如：「丁兮、曾兮、張兮、汪兮、包兮」可能只有「張兮」承調，其他都不承調。承調與否取決於說話者學習該詞時的發音。如果「張兮」在他學習該詞的時候是承調的發音，該詞就發承調，如果不承調，就發不承調。

三、在這個階段，由於承調現象少，就效率考量，以個別詞匯記憶的方式處理就足夠了。此類現象常見於承調現象少的地區或個人，很明顯是開始吸收承調發音時的處理方式。

2)規律化承調：將承調和其他語言規律結合，使承調規律化，減輕記憶負荷量。例如將承調與輕聲規律結合，可以輕聲的語詞就可承調。結果造成一個輕聲語詞可以有兩個不同的發音，可以承調或不承調。如：「張兮」可說「˪，也可說「˥，如此一來，所有承調的語詞均可納入輕聲規律，省去個別記憶的負擔，不過，也同時造成一字兩音的現象。如前所述，語言基本上是遵守一字一音的原則，以達到最高的效率。因此，承調的規律化，一方面對語言系統產生簡化的作用（與輕聲規律結合），另一方面卻又造成一字兩音的累贅(redundancy)，所以需要進一步的整合。

規律化承調常見於承調現象多的地區或個人，很明顯是使用承調發音的頻率很高時的處理方式。承調的規律常因地區和個人而有所差異，有些人除了將承調與輕聲規律結合，也和其他語言規律結合。因此造成所謂的詞匯擴散(lexically gradual and phonetically abrupt)現象，如：

一、被輕聲附加的組合成分愈短，承調現象愈普遍：被輕聲附加的成分的長度排序由短而長是：AN, V, VP, S；所以名詞後的詞尾承調最普遍，動詞後的動詞詞尾與代名詞等類輕聲語承調的情形較少，句尾否定與語氣詞則幾乎沒有承調的現象。

二、輕聲語本身愈短承調愈可能發生。一般來說，名詞詞尾、代名詞、所有格代名詞「的」多半是單音節，承調較普遍，動詞詞組尾次之，數量語最長，承調的現象幾乎沒有。如；「新兮、金兮、張兮、曾兮、chia兮」都可承調，也就是「˪與「˥兩種發音都可以。但是，「牽過來、收入來、chi^{n}入去、搬過來」的動詞詞尾就極少承調，也就是絕大多數只能說「˪˪而不說「˥˥。

三、愈常用的輕聲語詞愈容易有承調現象，如：常用的所有格代名詞「＝的」，比不常用的「＝家，＝氏」容易有承調現象。他們同樣是名詞詞尾，承調與否取決於他們被使用頻率的多寡，愈常用的愈容易承調。一般而言，代名詞比動詞詞尾出現的頻率高，所以較容易承調。

四、輕聲入聲詞不容易承調。可能是因爲入聲較短，而一般輕聲承調調長較長，比方說：在「鬃來、牽去」使用「來」、「去」承調（「˥）的人，在「鬃著」可能不使用「著」承調（*「˥）。

由於規律化承調造成一字兩音的累贅，因此爲了維持一字一音的效率原則，有下列兩種整合方式：

一)舊語詞遭到淘汰

台北、新竹等地區，承調較少，偶而一個詞有了承調，不承調的就被淘汰。（如：不說張兮「˪而只說「˥。）

二)語音功能的劃分

另一個避免一字兩音累贅的辦法，就是藉著賦予各個音不同的意義，

使它們成爲兩個獨立的詞匯而共存，一般承調在台語代表較溫和的語氣。例如：

a)藉著承調與否來區別親疏關係，承調表親切。

如：「王兮」的「兮」承調表示說話者和「王兮」是老朋友。

b)藉著承調與否來區別命令和狀態

如：「跪咧」的「咧」承調表示“跪的狀態”，不承調則表示“跪下！”的命令。

以上輕聲承調的整合，不但顯示語言系統各層面之間的互動關係，也提供了一個以效率爲主導的語言演變現象。雖然在簡化的過程中可能導致其他層面的複雜化，但是整個語言系統乃是以達到最高效率爲目標，而說話者的任務就是不斷嚐試各種組合以達到這個目標，這也就是爲什麼語言不斷在變化的原因。

6. 結　論

本文對漢語的重音類型作一初步的介紹。文中提出爲了減少記憶負荷量，在古文朗誦，台語雙語人的華語和日語重音系統上有重音性弱化和固定的趨勢，如台灣華語少有輕聲，顯示重音性在新習得的音系中有削弱的現象，此種現象也出現在用台語朗誦的文言文。文言文的學習，主要是師生相傳，因此整合的機會較少，所以結構輕聲低於台語口語。虛詞之輕聲化並非一朝一夕可成，而是需經長期的整合過程，將常用的、熟悉的虛詞功能化，納入輕聲，達到顯示實詞，弱化虛詞的效果。

台灣日語則顯示重音在中介語傾向固定，理由是爲了減少記憶負荷量的壓力，同時台灣日語的重音類型具有類似台語標誌語法單位分界的功能。

由以上的討論，漢語的重音可大致歸爲兩類，一是由詞匯主導的重音，如詞匯輕聲，此類重音不規律，多半不出現在中介語；另一類是由語音組配合詞法或語法結構產生的多種重輕音形式，各有特有的功能（標誌語法單位，區分語法結構、標誌語意重點等），這些功能較容易移轉到新生語層。如：台灣日語助詞、格標誌語輕聲，以及台灣華語的虛詞輕聲。

就歷史語言學的角度來看，輕聲承調的規律化，一方面使整個語言系統簡化，另一方面一字兩音卻造成語言使用人詞匯記憶累贅的壓力，但是也給他們很大的選擇空間，將豐富的結構類型，重新調整，發展不同的具有多種語法、語意功能的重音系統。整合的時間愈長，則由語音組配合語意、詞法或語法結構的規律化愈明顯。如：台語的結構輕聲和承調都有逐漸擴大的趨勢，而由詞匯主導的重音卻持續減弱。但是，在整合的過程中，不同的語音簡化現象，會產生對其他語言層面，如：語音、詞匯、詞法、句法、語意的正面和負面影響，語言變化也就是儘量在增加正面的影響，減少負面的影響兩種力量的平衡下改變。這個效率原則可解釋台語經過詞匯擴散過程，而逐漸產生幾個全組虛詞輕聲，造成今日台語重音系統，記憶負荷量小，並具有很多標誌結構的功能。反觀台灣華語與台灣日語都是新起的重音系統，放棄記憶負荷量極重的北京話詞匯輕聲以及日語的詞匯重音，卻還沒能充分發展記憶負擔較小且有高度功能的結構輕聲。至於吳語爲甚麼沒有發展成類似台語的重音系統，可能是吳語有詞匯輕聲又有結構輕聲，不像台語輕聲一定出現在語音組末尾。

本文所討論的重音類型不僅適用於擬構過去的語言歷史變化，也可解釋現代語言或語層間的重音類型特點，在此提出來供大家參考。

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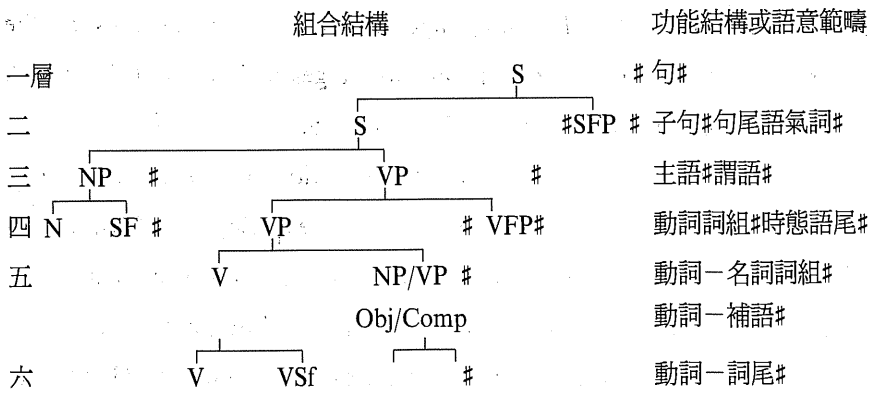
附錄一　在VP, S中間或末尾的台語「咧」

在台語的「咧」跨類於三種詞類：第一種「咧」出現於動詞後（V＋咧），出現在 VS 或 S 內部的末尾才輕聲，不然就不輕聲。第二、三種「咧」出現在主要範疇之後（VP#咧，S#咧），又永遠在 VP，S 的末尾，所以永遠在#之前，也就永遠是輕聲。



1a 張＝先生#　猶未來　#＝咧

b 張＝ 兮 #　已經看＝著　#＝啊

c 張律師 #　猶未看＝著　＝恁　#＝咧

d 張律師 #　已經看＝著　＝恁　#＝啊

e 張律師 #　猶呣捌看　過　林老師　#＝咧　#＝呢　#

2a 張老師 #　猶未行　落來　山腳　#＝咧

b 蔡＝先生#　走＝　煞　#＝啊　#＝講　#

c 蔡＝先生#　猶未走＝落來　#＝咧　#＝唔　#

d 蔡＝先生#　猶未走＝落來　#＝咧　#＝啊　#

3a 你　愛坐　＝咧　#　#＝啦　#

b 你　愛坐　咧　食　#　#＝啦　#【要坐著吃啊】

	呣通khû	咧	食	#	#＝啦	#
c 我	無愛坐	咧	食	#	#＝咧	#
d 你	猶閣無坐	咧	食	#＝咧	#＝ô	#
e 我	已經有坐	咧	食	#＝啊	#＝呢	#
f 你	猶未坐	咧	食	#＝咧	#＝咧	#
g 你	猶閣teh khû	咧	食	#＝咧	#＝啦	#【選蹲著吃呢】

↓ 咧:句尾詞,表堅持語氣

咧：謂尾，表不變時態

↓

咧：動詞尾，表持續時段

《中國境內語言暨語言學》
4:265－289, 1997

西夏語若干韻母轉換的起源
——重疊複合詞*

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摘　要

作者在本文中指出西夏語有三系列韻母，它們彼此間有成系統的音韻對應關係，作者把平上聲合併後的綜合韻第八至第十四韻稱爲 A 系列，第二十八至第三十三韻稱爲 B 系列，第三十四韻至第四十韻稱爲 C 系列。西夏韻書《文海》中這三系列韻母係依韻母的長短及等第次序排列，存在於這三系列韻母間的同源詞，在構成同源複合詞時有一定的排列次序，即：B 系列詞一定在前，A 與 C 系列詞一定在後，形成 BA 或 BC 的形式。由於 BA 與 BC 複合詞中 A 與 C 可以單獨出現，而 B 卻只能依附在 A 與 B 前出現，同時 A 與 C 可以變成緊元音造動詞的使動式，而 B 卻不能，因而推測 A 與 C 是基式，而 B 則爲導式。作者探討 B 系列韻母的起源，認爲 B 是 A、C 兩類韻母重疊詞弱化後所產生，因而主張從事漢藏語比較研究時，應該採用西夏語的 A、C 式，才能作正確的比較。

一、引　言

西夏語是屬於漢藏語系藏緬語族的語言，漢藏語系語言中保存古代文

* 本文是國科會專題研究計畫「西夏音韻的歷史比較研究」(NSC 83-0301-H-001-071-P2)的部分研究成果，發表前曾蒙評審人提供若干改進意見，在此謹致謝意。

字記錄的語言並不多，而西夏語則因有十一、二世紀的文獻資料而在漢藏比較語言學中佔有重要的地位。

然而由於西夏語係以類似漢字的表意文字書寫，要利用西夏語的資料作比較研究，必須從西夏語音韻的構擬著手。西夏語音韻的構擬至今已有多種研究出版，但因各家擬音差異很大，要進一步以構擬的語音作比較研究的基礎，必須先解決西夏語內部的問題。西夏語音韻轉換的研究旨在打破西夏語音韻構擬上的瓶頸，希望打破從來主要依賴對音資料的僵局，加入一些新的材料，使擬音的基礎更爲穩固。

隨著研究音韻轉換現象的進展，西夏語韻與韻之間的關係也逐漸清楚，西夏音韻系統也逐漸清晰，然而始終難以克服的問題是：在有音韻轉換現象之幾種語詞之間，究竟如何決定何者爲原來的（即基式base form），何者爲後起的（即導式derived form），作漢藏語比較研究時，須以西夏語最古的詞形爲基礎，因此決定西夏語多種詞形中何者爲原來的形式，成爲漢藏比較語言學首先必須解決的問題，茲舉二例以明其間的關係。

西夏語中與漢語「死」（上古音*sjid）、藏語'chi＜*sji「死」、shi＜*sji「死」及緬甸語se＜*sij「死」，同源的詞共有二字，一爲平聲三十韻的 [illegible] sji字，另一個是上聲十韻的 [illegible] sji，檢查西夏語此二字的用法，也仍然難以獲得任何線索，只能查知此二字出現的環境如下：

[illegible] sji　2.10「死、亡、歿、喪」

[illegible] [illegible]　已死

[illegible] [illegible] [illegible] [illegible]　親屬亡歿　（Nevsky 1960: I-418）

[illegible] [illegible] [illegible] [illegible]　遠喪他國　（Nevsky 1960: I-405）

[illegible] sji　1.30「死、歿」

[illegible] [illegible]　不死

[illegible] [illegible]　死屍

[illegible] [illegible]　死地

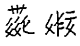
[illegible] [illegible]　死生

[illegible] [illegible]　退歿　（Nevsky 1960: I-387）

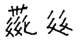
從 Nevsky 的西夏辭典只能辨認上面第一個字（  ）出現在表示完成貌的詞頭  之後，可確認是作動詞用，而第二個字（  ）則除了作動詞外，尚可作形容詞及名詞，在這種情形下實無法決定該引用何者作比較研究之用。

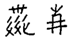
再舉另外一個例子，西夏語中與漢語「薪」（上古音 *sjin）、藏語 shing < *sjing「樹木、木材」及緬甸語 sac < *sik「樹木、木材」同源的也有二字，其字義與詞例如下：

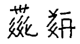
 sji 1.11 「木、樹、材、薪」

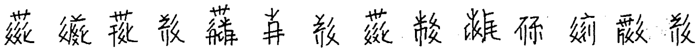
 木植

 木匠

 果木

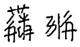
 樹

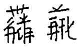
 拾薪、採薪 (Nevsky 1960: I-478)

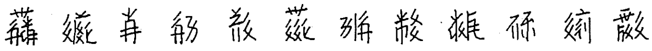
 （《文海》17.232）[1]

木 者 木 也 草 樹 也 木 種 種 之 名 是 也

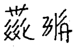
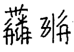
 sjɨ 1.30 「草木」

 草木

 菜蔬 (Nevsky 1960: I-487)

 （《文海》39.123）

木 者 樹 草 也 木 草 種 種 之 名 是

從對譯資料及《文海》注釋不難看出二者幾乎同義（例如「草木」既可寫做  ，又可寫做  ），然而究竟應以何者爲比較研究的基礎，也是找不到決定的方法。

但是若把以上二例合起來看，便立刻可以發現此二組字是依據一定的規律對應，因爲  sjɨ「死」與  sjɨ「木」是西夏同音字，而  sji

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1. 《文海》後面的號碼係依《文海研究》（史金波等1983）所用方式標示出處，例如：17.232表示第17頁，第2面，第3行，第2字。

「死」與 蕊 sji「木」雖然聲調不同，聲母與韻母都是相同的。

按西夏語平聲有九十七韻，上聲有八十六韻，平上相配共得一〇五韻，上面的轉換現象即發生在平上相配所得綜合韻第十一韻（以R.11表示），包含平聲第十一韻（以1.10表示）及上聲第十韻（以2.10表示）以及綜合韻第三十一韻(R.31)包含平聲第三十韻(1.30)及上聲第二十八韻(2.28)，爲清楚起見圖示如下：

R.11	[1.11-2.10]	-ji	——	R.31	[1.30-2.28] -jɨ
	𢑚	sji「死」			𢑚 sjɨ「死」
	蕊	sji「薪、樹木」			蕊 sjɨ「草木」

二、音韻轉換現象的研究

西夏語音韻轉換的現象，我在過去幾篇論文(Gong 1988, 1989，龔 1993)中曾陸續作了探討，茲將過去的研究中與本文有關，且須作本文進一步探討的基礎的部份，簡要說明如下：

2.1　在西夏一〇五韻中，第八韻至第十四韻與第三十四韻至第四十韻之間有成系統的音韻轉換現象（其中第十二韻與第三十韻之間未發現字例），而第十韻與第十一韻以及第三十六韻與第三十七韻韻母相同(Gong 1989:20-26)。

2.2　另外在第十、十一韻，第三十、三十一韻與第三十六、三十七韻之間有音韻轉換現象（其中第三十韻與第三十一韻韻母相同，參看龔 1993: 947-952），我用A、B、C分別指此三類。

另外也發現A、B、C三類韻母在「同源複合詞」構詞法中其結合有一定的限制，B可以與A及C結合，而成爲複合詞，而其結合的次序是B在前，A與C在後（即BA與BC）。A與C都可以單獨出現，但它們彼此間不能結合成複合詞。

2.3　在去年第二十六屆國際漢藏語言學會中，我曾提出西夏語韻母分三等，而元音分長短的假設(Gong 1994)，認爲西夏韻書排列韻的次序是依一、二、三等的次序，短元音在前，長元音在後，音韻轉換只發生在同等同長短的元音之間。

綜合上面(2.1, 2.2及2.3)的說明，這些音韻轉換的現象可列成表如下：

	A	B	C
短元音一等韻	R.8 [1.8-2.7] e		R.34[1.33-2.30] ej
短元音二等韻	R.9 [1.9-2.8] ie		R.35[1.34-2.31] iej
短元音三等韻	R.10 [1.10-2.9] ji	R.30 [1.29-2.27] jɨ	R.36[1.35-2.32] jij
	R.11 [1.11-2.10] ji	R.31 [1.30-2.28] jɨ	R.37[1.36-2.33] jij
長元音一等韻	R.12 [1.12-2.11] ee		R.38[1.37-2.34] eej
長元音二等韻	R.13 [1.13] iee		R.39[1.38] ieej
長元音三等韻	R.14 [1.14-2.12] jii		R.40[1.39-2.35] jiij

本文引言中所提的R.11 𢑴 sji「死」、𦬊 sji「木、薪」、R.31 𢑴 sjɨ「死」、𦬊 sjɨ「草木」，在上面的架構中即屬於A類韻母與B類韻母的轉換。

三、三系列韻母成系統的轉換

現在把過去研究的結果總結起來，我們便可以繼續作如下的預測，即：如果西夏語音韻轉換的規律正如我們所預測，且如果西夏韻書排列韻的次序也正如我們的預測，那麼B類韻母系列也應依序與A、C類對應，且可以發現B類與A類及C類之間有同源的語詞，而這些同源詞如果形成同源複合詞，也必定是依BA、BC的次序出現。

實際查証的結果印証了上面之推測。

3.1　短元音一等韻之間的轉換

依排列的次序推測，與R.8及R.34對應的B類韻應是R.28〔1.27-2.25〕ə。果然不出所料，在R.28中找到五組轉換的例子。

a）R.28與R.8

R.28 [illegible] lhə　1.27　*卷[2](S.4764)[3]

R.8 [illegible] lhe　1.8　*縮(S.5551)

《文海》(W.2856, W.2857)[4]　lhə-lhe二字連用，其義爲「*攣縮」，參看史金波等1983《文海研究》雜12.141及雜12.142。

R.28 [illegible] ldə　2.25　相撲(S.3408)《同音》[5](49B6)注左 [illegible] lde

R.8 [illegible] lde　2.7　相撲(S.4873)《同音》(52B3)注右 [illegible] ldə

《文海》(W.1754, W.2149) ldə-lde二字連用，其義爲「相撲、打鬥」。

上面兩組同源詞中第一組由《文海》的注解明顯可看出二字連用且B(R.28)在前，A(R.8)在後。至於第二組，則除了《同音》的注字及《文海》的注解外，還有文獻資料(Nevsky 1960: II-60，《類林》[6]346-4)都顯示二字連用，也是B在前，A在後。

b）R.28與R.34

R.28 [illegible] ɣwə　1.27 鬥(S.3635)　《同音》(42B4)注左 [illegible] ɣwej

R.34 [illegible] ɣwej　1.33 鬥、爭、戰(S.1964)《同音》(42A4)注右 [illegible] ɣwə

《文海》(W.938)ɣwə-ɣwej二字連用，《掌中珠》[7](295)鬥爭。

R.28 [illegible] sə　2.25　清、淨、潔(S.4149) cf.　藏文 seng-po　clean

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2. 星號表示西夏字的漢譯係由《文海》注釋間接推知，並無對譯資料的文獻作根據。
3. S代表Sofronov(1968)字表號碼。
4. W代表《文海》號碼，請參看Kepping et al. 1969。
5. 關於《同音》，請參看李范文1986。
6. 關於《類林》，請參看Kepping 1979。346-4表示該書第346頁第4行。
7. 關於《掌中珠》，請參看骨勒茂才1190。295表示第二十九頁第五欄。

R.34 [illegible] sej 1.33 清、淨(S.1855) bseng-po

R.28 [illegible] pə 1.27 大(S.3941)

R.34 [illegible] pej 1.33 *大(S.3476)

《文海》(W.870) [illegible] pə(大)字從 [illegible] pej(大)。

在上面三組同源詞中，第一組有《文海》及《掌中珠》的字例，顯示B(R.28)與C(R.34)連用，且B在前C在後，第二、三組未找到文獻上使用的例子。

3.2 短元音二等韻之間的轉換

依排列的次序推測，與R.9及R.35對應的B類韻應是R.29〔1.28-2.26〕iə。果然在R.29中找到兩組與R.9轉換的例子，以及三組與R.35轉換的例子。

a) R.29與R.9

R.29 [illegible] kiə 1.28 叫呼(S.0135)《同音》(24B1)注左 [illegible] kie

R.9 [illegible] kie 1.9 叫呼(S.0560)《同音》(24B1)注右 [illegible] kiə

《文海》(W.286, W.943) kiə-kie 二字連用，其義爲「叫呼」。又參看 Nevsky 1960: I-548 及 Kepping 1979: 429, No.734。

R.29 [illegible] khiwə 1.28 *剛硬(S.2182)《同音》(25B4)注左 [illegible] khiwe

R.9 [illegible] khiwe 1.9 *剛硬(S.2397)《同音》(28A2)注右 [illegible] khiwə

《文海》(W.299, W.961) khiwə-khiwe二字連用，作「*剛硬」解，又作族姓名稱。

上面二組同源詞連用，都是B(R.29)在前，A(R.9)在後。R.29－R.9連用的同源複合詞構詞法一旦獲得確証，下面一組同源複合詞的第一字也可以據此推斷是屬於R.29。

R.29? 𗍊[8] dźiwə? 1.28? 拳(髮)(S.5336)《同音》(41A3)注左 𗍊 dźiwe

R.9 𗍊 dźiwe 1.9 拳(髮)(S.3853)《同音》(39B1)注右 𗍊 dźiwə

《文海》(W.2764)dźiwə-dźiwe二字連用，據《類林》(291-5)二字對譯「拳(髮)」。

b) R.29與R.35

R.29 𗍊 dziə 2.26 迴(S.5338) 《同音》(34A3)注左 𗍊 dziej

R.35 𗍊[9] dziej 2.31 旋、輪(S.0468)《同音》(40B7)注右 𗍊 dziə

《文海》(W.3002) dziə-dziej 二字連用，《掌中珠》(371)對譯「輪迴」，《類林》(518-4)對譯「迴旋」，又西田《西夏文華嚴經》(072-051)對譯「流轉、旋環」。

R.29 𗍊 kiə 2.26 ?(S.2096)《同音》(24B1)注左 𗍊 kiej

R.35 𗍊 kiej 2.31 ?(S.1780)《同音》(21B5)注右 𗍊 kiə

由《同音》注字知 kiə-kiej 二字連用，Nevsky 1960西夏語字典(I-307) 𗍊 字下注明 𗍊 𗍊 𗍊 (頸骨節)，不知所據爲何，《俄譯文海》[10](W.3785, W.3940)據此譯作 šejnye pozvonki(頸椎)。《同音研究》[11]譯爲「輪迴」，大概是據字形所作的推測。

據我的推測此二字原義當爲「迴旋」，故字從「迴旋」，引申爲「頸項」取義於其左右轉動的功能。二字字義雖僅止於推測，但二字構成音韻轉換則毫無疑義。

R.29 𗍊 śiə 1.28 *引、導(S.5424)《同音》(35B6)注左 𗍊 śio

R.35 𗍊 śiej 1.34 *引、導(S.1836)《同音》(38B6)注左 𗍊 śio

二字下《同音》都注 𗍊「導、引」，而知其爲同義字。

上面共有三組同源詞，前兩組由《文海》及《同音》注字知二字連用，且B(R.29) 在前C(R.35)在後。

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8. 「𗍊」字見於《同音》正齒音類，《文海》應在雜類，正好雜類正齒音部份殘缺，因無反切資料而不知所屬何韻。本文依西夏語音韻轉換及構詞法而推測其所屬韻。

9. 「𗍊」字 Sofronov以爲在1.30，但據《文海》其反切下字作 𗍊 Shiej，此字在1.34，而反切下注明「上聲」，故應在與1.34相配的2.31。

10. 參看Kepping et al. 1969。

11. 參看李范文1986。

3.3 短元音三等韻之間的轉換

這一類的轉換例子最多，也是以前就發現的（參見龔1993:959-965），本文的研究乃是在這基礎上進一步的發展。爲了方便本文的閱讀仍舉其例以見其全貌。

a）R.30, R.31 與 R.10, R.11

R.31 [illegible] bjɨ 1.30 *低、下(S.0501)《同音》(5A5)注左 [illegible] bji

R.11 [illegible] bji 2.10 下(S.3591) 《同音》(2A6)注右 [illegible] bjɨ

《文海》(W.1028)以第一、二字爲同義詞，且二字連用 bjɨ-bji，意爲「下」。

R.31 [illegible] mjɨ 2.28 默(S.2544)

R.11 [illegible] mji 2.10 默(S.3760)

文獻中二字連用mjɨ-mji對譯「默」、「默然」。

R.31 [illegible] kwjɨ 1.30 鳥名(S.5707)《同音》(25B2)注左 [illegible] kwji

R.11 [illegible] kwji 1.11 鳥名(S.5746)《同音》(24B6)注右 [illegible] kwjɨ

《文海》(W.416, W.1095)kwjɨ-kwji二字連用，爲鳥名。

R.31 [illegible] lhjɨ 1.30 安詳、徐徐(S.3347)《同音》(48A5)注左 [illegible] lhji

R.11 [illegible] lhji 2.10 安詳、徐徐(S.5001)《同音》(47A2)注右 [illegible] lhjɨ

《文海》(W.1083, W.3026) lhjɨ-lhji 連用，意爲「安詳、徐徐、漸漸」。對譯資料中，[illegible] lhji字又作 [illegible] lhji，同音假借。

R.31 [illegible] lhjɨ 1.30 蟲名(S.3375)《同音》(48A4)注左 [illegible] lhji

R.11 [illegible] lhji 2.10 蟲名(S.0406)《同音》(47A2)注下 [illegible] [illegible] phjɨ-lhjɨ

《文海》(W.1082, W.3030)phjɨ-lhjɨ-lhji「蟲名」。

R.30 [illegible] śjɨ 1.29 往、至、詣(S.1052)《同音》(38B1)注左 [illegible] śji

R.10 [illegible] śji 2.9 往、到、詣(S.1020)《同音》(35A6)注右 [illegible] śjɨ

《文海》(W.985)以二字爲同義詞，《同音》注字顯示śjɨ-śji的次序。第二字並可接詞頭 [illegible] 或 [illegible]。

R.30 [illegible] ljɨ 2.27 ？(S.2208)《同音》(48B5)注左 [illegible] lji

R.10 [illegible] lji 2.9 ？(S.3356)《同音》(49A7)注右 [illegible] ljɨ

《俄譯文海》譯作「同意、同志」，《文海研究》譯作「溺愛」，不知何者爲是？《同音》注字顯示 lji-lji 的次序。

R.31 [illegible] kji 1.30 *高歌(S.5038)《同音》(25A5)注左 [illegible] kji

R.10 [illegible] kji 1.10 *高歌(S.4134)《同音》(25B3)注右 [illegible] kji

《文海》(W.313, W.1055)kji-kji連用，意爲「高歌」。

b) R.30, R.31 與 R.36, R.37

R.31 [illegible] bji 1.30 高、上(S.0494)《同音》(5A4)注左 [illegible] bjij

R.37 [illegible] bjij 2.33 高(S.1309)　《同音》(2B4)注左 [illegible] so

《文海》(W.1027) bji-bjij 連用，「上」義。《同音》注字顯示的意義是：[illegible] 字經常與 [illegible] 連用，而 [illegible] 字則有獨立的意義「高」([illegible])。

R.31 [illegible] tji 1.30 一、若(S.2704)《同音》(18A7)注左 [illegible] tjij

R.37 [illegible] tjij 1.36 或、若(S.2071)《同音》(15B3)注右 [illegible] tji

《文海》(W.1032) tji-tjij 二字連用，文獻資料對譯「若、假使」。

R.31 [illegible] dji 1.30 *病(S.4116)《同音》(13B1)注左 [illegible] djij

R.37 [illegible] djij 1.36 *病(S.4546)《同音》(14A2)注右 [illegible] dji

《文海》(W.1047) dji-djij 二字連用，其義爲「疾病」。

R.31 [illegible] nji 1.30 姑、*親(S.2959)

R.31 [illegible] nji 1.30 * 親(S.5081)

R.37 [illegible] njij 1.36 親、近(S.1235)

《文海》(W.1041)以第一、三字爲同義詞。

R.31 [illegible] khji 1.30 *後代(S.1878)《同音》(24B4)注左 [illegible] khjij

R.37 [illegible] khjij 1.36 *後代(S.2083)《同音》(22A1)注右 [illegible] khji

《文海》(W.1058) khji-khjij 二字連用，意爲「後代、子孫」。

R.31 [illegible] tsjwi 1.30 *搓、揉(S.1608)《同音》(34A5)注左 [illegible] tsjwij

R.37 [illegible] tsjwij 1.36 *搓、揉(S.4928)《同音》(34B4)注右 [illegible] tsjwi

《文海》(W.1104, W.1116) tsjwi-tsjwij 二字連用，《文海研究》譯爲「揉困」。

R.31 [illegible] sji 2.28 識、知(S.2058)《同音》(30A6)注左 [illegible] sjij

R.37 [illegible] sjij 2.33 識、情(S.1272)《同音》(31B5)注右 [illegible] sji

文獻資料 sjɨ-sjij 二字連用(Nevsky 1960: I-305, 306)對譯「相識、顧識」，《類林》(332-6)對譯「親知」。

R.30 [illegible] dźjɨ 1.29 *眞(S.2540) 《同音》(39B3)注左 [illegible] dźjij

R.36 [illegible] dźjij 1.35 純、*眞(S.4909)

《文海》(W.2705, W.2720)dźjɨ-dźjij 二字連用，意爲「眞、實」。

R.30 [illegible] ljɨ 1.29 午(S.5675)《同音》(48B5)注左 [illegible] ljij

R.37 [illegible] ljij 2.33 午(S.4815)《同音》(52A5)注右 [illegible] ljɨ

文獻資料 ljɨ-ljij 二字連用，對譯「卓午」(《掌中珠》094)，「日中」(《類林》241-3, 429-6)。

3.4 長元音一等韻之間的轉換

依排列的次序推測，與R.12及R.38對應的B類韻應是R.32〔1.31〕əə，然而此韻字數不多(《文海》中只有十九字)，只發現可能有同源關係的字只有一組如下：

R.32 [illegible] dəə 1.31 *惡味(S.0847)

R.12 [illegible] dee 2.11 垢穢(S.4553)

二字是否可連用，並無資料可考。

3.5 長元音二等韻之間的轉換

B類韻母長元音二等無字，自也無轉換的例子。

3.6 長元音三等韻之間的轉換

與R.14及R.40對應的B類韻母是R.33〔1.32-2.29〕jɨɨ。R.33與R.14之間共發現八組同源詞，其中有文獻資料可以確定連用的共有六組，都是B(R.33)在前，A(R.14)在後，其例如下：

a) R.33與R.14

R.33 [illegible] phjɨɨ 1.32 *使遣(S.5249)《同音》(9A6)注左 [illegible] phjii

R.14 [illegible] phjii　2.12 *使遣(S.1038)《同音》(8A2)注右 [illegible] phjɨɨ

《文海》(W.1161) phjɨɨ-phjii 二字連用，意爲「使遣」。[12]

R.33 [illegible] bjɨɨ　1.32　* 羂、罟(S.4779)

R.14 [illegible] bjii　2.12　　羂、罟(S.5399)

《文海》(W.1163)以二字爲同義。

R.33 [illegible] djɨɨ　2.29　濯、氾(S.4168)《同音》(16A7)注左 [illegible] djii

R.14 [illegible] djii　2.12 *濯、氾(S.4169)《同音》(15B2)注右 [illegible] djɨɨ

《同音》注顯示二字連用爲 djɨɨ-djii。

R.33 [illegible] dzjɨɨ　2.29　習、令(S.4867)《同音》(33B4)注左 [illegible] dzjiij

R.14 [illegible] dzjii　2.12 *學、敎(S.0561)《同音》(32B7)注左 [illegible] dzjiij

《文海》(W.2930) dzjɨɨ-dzjii 連用，指「學習」。

R.33 [illegible] tśjɨɨ 2.29 蹶(S.2983)《同音》(39A7)　　注左 [illegible] tśjii

R.14 [illegible] tśjii 2.12 跌(S.2980)《同音》(Sofronov 1968: II-210)注右 [illegible] tśjɨɨ[13]

對譯資料顯示tśjɨɨ-tśjii連用，意爲「蹶失」。

R.33 [illegible] śjɨɨ　1.32 疑(S.0228)《同音》(41A3)注左 [illegible] śjii

R.14 [illegible] śjii　1.14 疑(S.4072)《同音》(39B2)注右 [illegible] njiij　心

《文海》(W.453)及對譯資料 njiij-śjɨɨ-śjii 三字連用，對譯「(心)疑、(心)恍惚」(《類林》399-1)。

R.33 [illegible] ljɨɨ　2.29 *待(S.4712)

R.14 [illegible] ljii　2.12　待(S.2265)

第二字可接詞頭 [illegible]，並單獨出現。

R.33 [illegible] lhjɨɨ　2.29 *悔(S.0319)　　《同音》(51B2)注左 [illegible] lhjii

R.14 [illegible] lhjii　1.14　悔、退(S.5375)《同音》(54B3)注右 [illegible] lhjɨɨ

《文海》(W.2827) lhjɨɨ-lhjii 二字連用，意爲「改悔」。

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12. 《文海研究》及《同音研究》均譯爲「阿諛」，但《文海》字形解說認爲 [illegible] 字从 [illegible]「話」从 [illegible]「傳」，我認爲是取義於「遣人傳話」。從「同源詞」的觀點看，此二字與1.14的 [illegible] phjii、2.12的 [illegible] phjii以及1.11的 [illegible] phji都是同一來源。

13. 舊版《同音》因有殘缺而不見此字。此處引用的是新版《同音》。關於舊版《同音》請參看李范文1986；關於新版《同音》則請參看Sofronov 1968。

b）R.33與R.40

R.33 [illegible] dji̇i̇ 2.29 *笑(S.0496)《同音》(16A7)注左 [illegible] djiij

R.40 [illegible] djiij 1.39 笑(S.1173)《同音》(19A2)注右 [illegible] dji̇i̇

《文海》(W.1352)dji̇i̇-djiij二字連用，意爲「嘻笑」。第二字可獨用，並接詞頭 [illegible]（《類林》197-5, 210-5, 300-6等等）。

R.33 [illegible] dzji̇i̇ 2.29 習、令(S.4867)《同音》(33B4)注左 [illegible] dzjiij

R.40 [illegible] dzjiij 2.35 教、學(S.4859)

《文海》(W.2916, W.2934)dzji̇i̇-dzjiij二字連用，意爲「學習」。

R.33 [illegible] sjwi̇i̇ 1.32 思、憂(S.3461) 《同音》(33B6)注左 [illegible] sjiij

R.40 [illegible] sjiij 2.35 思、想、惟(S.5662)《同音》(29A1)注右 [illegible] sjwi̇i̇

《文海》(W.1185)sjwi̇i̇-sjiij二字連用，其義爲「思念」。

又Nevsky1960: II-29對譯「慮」。

R.33 [illegible] lji̇i̇ 2.29 稍待(S.4712)

R.40 [illegible] ljiij 2.35 待(S.2266)

R.40 [illegible] ljiij 1.39 *稍待(S.3497)

《文海》(W.1368)lji̇i̇-ljiij二字連用，其義爲「稍待」。又第二字可接詞頭 [illegible]，第二、三字均可單獨出現。

四、三系列音韻轉換的起源

從上一節的討論中我們看到B類韻母與A、C類韻母之間有成系列的轉換現象，而且其結合方式爲BA及BC，在這一節中我們擬探討這種轉換現象及構詞法的起源問題。

4.1 首先必須解答的問題是有同源關係的A、B、C三系列語詞中何者爲基式，何者爲導式的問題。從大多數的情形來看，在可造BA式及BC式的複合詞中，語詞B通常不單獨出現，它出現時經常與A或C結合，相反的A與C則既可與B結合，也可與其他的詞結合，甚至也可以單獨出現。例如：BA式的 [illegible] bji̇-bji「下」與BC式的 [illegible] bji̇-bjij「上」在夏譯《類林》中有如下用法：

《類林》(346-6)

緒	纖	絳	䟽	𠀤	緻	敝	絳	䟽	緒	緻	𢧵	蕤	𢧵
病	者	心	上	上	方	及	心	下	下	方	等	pre.	置

＝病在膏肓之上下

a)在BA式的 䟽緒 bji-bji「下」中，第一個音節（B類）的 䟽 bji，在 Nevsky 的字典(1960: I-573)裏沒有詞例，第二音節的 緒 bji（A類）則有下列三個詞例(Nevsky 1960: II-72)：

緒 𠀤　高下
緒 𠀤　下劣，卑賤
緒 𠀤　下民

此外在西田《西夏文華嚴經》(204-068)也有下列兩個詞例：

緒 紇　下地
緒 𢧵　垂下

在西夏字書《文海》中B類的 䟽 bji共出現五次，每次都是與A類的 緒 bji字連用（如：䟽緒 bji-bji「下」），沒有與其他的字連用的例子。A類的 緒 bji 則共出現八次，其中四次爲上面所說的 䟽緒 bji-bji 連用的例子外，其他則有：

10.171	𢧵 𢧵 緒	閣步下
34.271	𢧵 緒	高低
37.252	緒	下（單獨用）
37.251,38.221	𢧵 緒	不低（單獨用）
38.241	𢧵 𢧵 𢧵 緒 𢧵	子孫下輩人

無論是 Nevsky 或西田所錄的文獻詞例，或是西夏字書《文海》的詞

例都一致地顯示，B類的 [illegible] bjɨ 不單獨出現。它只能與A類的 [illegible] bji 連用，不能與其他詞連用。相反的，A類的 [illegible] bji 則不但可單獨出現，也可與 [illegible] bjɨ（B類）以外的詞結合出現。

b)以下我們再看看BC式 [illegible] bjɨ-bjij 的情形。

B類的 [illegible] bjɨ 字在 Nevsky 的字典沒有看到詞例(1960: I-569)。C類的 [illegible] bjij字則有下面三個詞例（上引書 II-354）：

[illegible]	高下
[illegible]	尊嚴
[illegible]	人有高下

再看看《文海》的情形，B類的 [illegible] bjɨ在《文海》共出現八次，都是與C類的 [illegible] bjij結合（如 [illegible] bjɨ-bjij「上」），無一例外。C類的 [illegible] bjij 字在《文海》中共出現二十六次，其中八次即是上面所說 [illegible] bjɨ-bjij 連用的情形，此外的十八次其情形如下：

10.132,37.252,78.121	[illegible]	不高（單獨用）
23.121	[illegible]	高言
23.141	[illegible]	下上
27.111	[illegible]	（地名）
32.272,36.233,57.241	[illegible]	上輩
52.141	[illegible]	高高在天
60.121	[illegible]	地高低
67.211	[illegible]	地面上
82.172,84.141,雜 3.221	[illegible]	高地
雜 7.132	[illegible]	敬上
雜 10.141	[illegible]	（地名）

從上面的討論，我們看到在BA式及BC式構詞法中，A與C都可以獨立出現，是一種「自由語式」(free form)，而B只能依附在A或C前才可

能出現，是一種「附著語式」(bound form)。

4.2　西夏語的音韻轉換，另外還有一種是鬆緊元音之間的轉換。在西夏語一〇五韻中，第一韻至第六十韻是屬於 Sofronov 所謂的大循環韻，第六十一韻至第七十六韻屬於第一小循環韻(Sofronov 1668:137)。大循環韻與第一小循環韻的分別，西田龍雄(1964:68)認爲是鬆元音與緊元音的分別。

關於鬆緊元音之間的對應關係，經過研究已可確認下面的關係（參看龔1993:952）：[14]

		鬆元音		緊元音
A類	A	R.10〔1.10-2.9〕ji	A_I	R.70〔1.67-2.60〕ji̤
		R.11〔1.11-2.10〕ji		
B類	B	R.30〔1.29-2.27〕jɨ	B_I	R.72〔1.69-2.61〕jɨ̤
		R.31〔1.30-2.28〕jɨ		
C類	C	R.36〔1.35-2.32〕jij	C_I	R.64〔1.61-2.54〕jij
		R.37〔1.36-2.33〕jij		

從上面的架構來觀察上一節所討論的BA式及BC式中ABC三類語詞的鬆緊元音間轉換的問題，我們發現只有A類與C類有A與A_I及C與C_I的鬆緊元音轉換，而B類則沒有B與B_I鬆緊元音轉換的例子。茲將其關係圖示如下：

		鬆元音			緊元音
A類	A	緯	bji² 低，下(2.11)	⟶ A_I	緯 bji̤¹ 使低，使下(1.67)
		↓			
B類	B	硊	bji¹ 低，下(1.30)		
B類	B	硊	bji¹ 上(1.30)		
		↑			
C類	C	𠀤	bjij² 高，上(2.33)	⟶ C_I	𠀤 bjij̤¹ 舉＜使高(1.61)

14. 在 Gong (1988:820)中誤把R.31與R.64相配，因而導致推論上的錯誤。根據後來的研究(Gong 1989及龔 1993)已確認R.64應與R.36及R.37相配。

在上面的例子中A與A_I及C與C_I的轉換，顯示西夏語構詞法中有一條規律，即由鬆元音變成緊元音以造動詞使動式，由鬆緊元音之間的轉換及AC類語詞可以獨用而B類語詞只能依附在AC語詞之前，可以看出A及C乃是基式，而B則是導式。

4.3 接著我們必須探討的問題是基式（A類及C類）與導式（B類）在語音上各有什麼特點，它們的主要區別在那裏。在上面我們爲了討論的方便從一開始就把擬測的音值代入。根據這些擬測，A類與C類韻母共同的特點是它們都是前元音，而B類韻母則屬於央元音。這樣的擬測主要是根據對音資料而來，西田(1964)與 Sofronov（1968)一致認爲R.8至R.14（西田稱爲第三攝）具有前元音，而R.28至R.33（西田稱爲第五攝）則具有央元音。至於C類韻母(R.34 至R.40)雖然西田與 Sofronov 意見稍有不同，也大致認爲它們具有前元音。茲將他們兩人與本文的擬音對照列表於下：

	西田(1964)	Sofronov(1968)	本文
A類韻	第三攝		
8(1.8-2.7)	-ɪ	e	e
9(1.9-2.8)	-ɪě	ê	ie
10(1.10-2.9)	-i	i̯e	ji
11(1.11-2.10)	-iɦ	i	ji
12(1.12-2.11)	-^{w}ɪɦ	e	ee
13(1.13)	-^{w}ɪɦ	ê	iee
14(1.14-2.12)	-ɪɦ	i̯e	jii
B類韻	第五攝		
28(1.27-2.25)	-ʉɦ	ə	ə
29(1.28-2.26)	-ʉ	ə̂	iə
30(1.29-2.27)	-ɨɦ	i̯ə	jɨ
31(1.30-2.28)	-ɨ	ɪ	jɨ
32(1.31)	-ʉ̃	ə	əə
33(1.32-2.29)	-ɨ̃	i̯ə	jɨɨ

C類韻	第六攝		
34(1.33-2.30)	-ɛ	ei	ej
35(1.34-2.31)	-ǐɛ	êi	iej
36(1.35-2.32)	-ɛɦ	i̯ei	jij
	第七攝		
37(1.36-2.33)	-eɦ	ɪn	jij
38(1.37-2.34)	-e	ai	eej
39(1.38)	-ey(?)	ai	ieej
40(1.39-2.35)	-ǐeɦ	i̯e	jiij

從表上可以看出本文所謂的A類韻母相當於西田的第三攝及 Sofronov 的 e 類元音。本文的B類元音相當於西田的第五攝及 Sofronov 的 ə 類元音。本文的C類元音相當於西田的第六攝及部分第七攝（西田的第七攝還包括R.41至R.43）。

本文的擬測在確認主要元音的性質上沿襲了西田與 Sofronov 的說法，但是在各攝內各韻的擬測則根據我以前的研究(Gong 1994)，把韻母分成三等（Sofronov 則分成四等），元音分長短（Sofronov 不分長短）。至於各韻間關係的定位也參照了韻母轉換的現象。在這裏必須強調的是認爲B類韻母具有央元音，而AC類韻母則具有前元音乃是根據對音資料的証據而來，現在從這一語音特徵出發，來觀察轉換現象，可以說A→B的變化表示前元音＞央元音的變化，至於C類韻母與A類韻母的區別如果認爲是在韻尾 -j 的有無（參看Gong 1989:28-32），則C→B的變化除了表示元音的央化外，還加上韻尾的脫落。

A→B	e ＞ə	ee ＞əə
	ie ＞iə	iee ＞iəə（沒有字例）
	ji ＞jɨ	jii ＞jɨɨ
C→B	ej ＞ə	eej ＞əə
	iej＞iə	ieej＞iəə（沒有字例）
	jij ＞jɨ	jiij ＞jɨ

4.4　接下來我們必須考察，在BA式及BC式複合詞中B類韻母產生的背景，由於B類語詞經常依附在A、C類語詞之前才能出現，而其中A、C是基式，則我們不難推知原來的語式是重疊式的，由於重音落在第二音節，第一音節因弱化而變成央元音，由此產生了B類韻母，[15] 其關係可簡示如下：

AA⟶BA

CC⟶BC

按西夏語中有相當豐富的「重疊式」構詞，馬忠建(1987)把它們分成七類，包括形容詞、動詞、代詞、數詞、量詞、名詞、副詞等等，可以說包羅萬象，應有盡有。

但既然認爲是「重疊式」，而且係藉由同一西夏字的重複來表示，照說便不能認爲發生了第一音節的韻母弱化的現象，這樣便使本文所提出的「三系列音韻轉換起源於重疊構詞法」的主張根本發生動搖。但在這裏必須說明的是：第一音節的韻母發生弱化並不是對所有的元音都發生，就目前所看到的情形來說，似乎只發生在前元音重疊的時候，在a、o、u等元音的音節中並沒看到韻母的變化。例如：

sar-sar	𢧐	𠢕	𢧐	𢧐	𢧐	𢧐	𢧐	（令軍人佯裝雜亂不整）
	軍	人	佯	散	散	行	令	（夏譯《孫子》25A-4）[16]
bow-bow	𢧐	𢧐	𢧐	𢧐				（其疾如風）
	風	如	急	急				（夏譯《孫子》6B-2）
bio-bio	𢧐	𢧐	𢧐	𢧐	𢧐	𢧐		（無邀正正之旗）
	旗	正	正	上	勿	進		（夏譯《孫子》11-7）
thju-thju	𢧐	𢧐	𢧐	𢧐	𢧐	𢧐		（勿擊堂堂之陳）
	陳	堂	堂	上	勿	擊		（夏譯《孫子》12A-1）

15. 但B類韻母可能原先已獨立存在，故嚴格的說，應該是B類韻母從A、C類韻母分裂出來，再跟原來的B類合併。

16. 關於夏譯《孫子》，請參看Kepping 1975。25A-4表示該書附錄25A頁第4行，行數以該句第一個字出現處爲準。

rjur-rjur	處 處 道 有	（處處有通道）
	諸 諸 道 有	（夏譯《孫子》8B-7b）
ɣu-ɣu	木 立 隱 隱	（林木隱蔽）
	木 立 隱 隱	（夏譯《孫子》22A-1a）

最後一個例子，西夏文雖用了不同的文字，然而卻是同音字，故也屬於重疊的例子。

在這裏必須指出的是：西夏語使用表意文字，是否有因文字上的限制以致音韻變化未能充分反映的情形，例如應該分別造字，但因造字不夠而權且使用同一個字表達，或雖已分別造了字，但作者卻未加利用的情形。以下是西夏文字本可以分別寫出BA式重疊，但不知何故卻寫成AA式重疊的例子，例如：

BA式	lhji-lhji	徐 徐 pref 驅	徐行驅之
		徐 徐 pref 驅	（夏譯《孫子》14A-1a）
AA式	lhji-lhji	林 如 徐 徐	其徐如林
		林 如 徐 徐	（夏譯《孫子》6B-3）

上面二句中BA式及AA式表達的語意看不出有何基本的差異，我們可以認爲二者原本是一體的，後來發生AA＞BA的變化，遂產生兩種不同的形態，但是我們也不能排除西夏人原來即已分別AA式與弱化的BA式，以表示不同的語意的可能性。

以馬忠建(1987)所舉的例子來看，動詞的重疊都有一些共同的語意特徵，例如：

1. dju-dju	有 有	有有→所有、一切
2. dźjij-dźjij	有 有	有有→所有、一切
3. śja-śja	現 現	現現→所現、所現之物
4. ljij-ljij	見 見	見見→所見、所見之物
5. wji-wji	作 作	作作→所作

6. rjir-rjir　　[illegible]　　得得→所得、所得之物
7. dźjiij-dźjiij　　[illegible]　　居居→所居

但是BA、CA式構詞法所表達的語意卻無此特徵，例如：

8. lə-le　　[illegible]　　鬥鬥→打鬥
9. ɣwə-ɣwej　　[illegible]　　戰戰→鬥爭
10. ki-kie　　[illegible]　　叫叫→呼叫
11. dźiə-dźiej　　[illegible]　　迴迴→迴旋
12. kji-kji　　[illegible]　　唱唱→歌唱
13. tsjwɨ-tsjwij　　[illegible]　　揉揉→搓揉
14. sjɨ-sjij　　[illegible]　　識識→相識

上面兩種類型之間的差異可能與所表達的語意有關，因爲依照本文所提出的轉換規律，上面例2、4、5、6、7都需要與相對應的央元音作音韻轉換，但是在這裏並沒發生音韻轉換的現象，因此我們或許可以提出我們的初步的看法，西夏語重疊構詞法通常用於表示“強調”（如表示一切）“每一”（如日日、世世）等語意，如果重疊而語意表示“互相”（如上面例8至例13多少含有“互相”的語意）或與不重疊無很大差異時，重音落在第二音節，因而引起第一音節的弱化，第一音節如果是前元音，它將轉換爲相對應的央元音。

爲了說明單音節詞與雙音節詞在語意上沒發生太大的變化，可以舉下面二例加以說明，夏譯《類林》有下面兩句：

[illegible] [illegible]…[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]　病在膏肓之…下
病　者　心　下　下　方　等 pre. 置
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]　楚王在上而伏向下
楚　王　上　爲　者　面　下　方 pre. 視　（《類林》346-6，占夢篇）

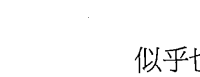
上面兩句中表示「下方」部分，一作ＢＡ式重疊的下下方（[illegible] [illegible] [illegible]

），一作不重疊的下方（ 緯 𢧐 ），而其意義無殊。

另外《掌中珠》(295)的

與人鬥爭

似乎也與《類林》中的下面兩句，在意義上無大差別。



晉侯（欲）與楚戰

明日與楚戰

BA式重疊的 𢧐 與不重疊的 𢧐 似乎在意義上也沒很大的差異。

五、結　語

西夏語A、B、C三系列韻母間有成系統的音韻轉換現象，我們在三類韻母之間發現不少的同源詞，這些同源詞往往可以結合而造同源複合詞，在這時通常是B在前，而A、C在後，形成BA及BC的結構，在這樣的結構中，通常是B類韻母不單獨出現而A、C則可以單獨出現。A、C另外也可以與緊元音的A_iC_i轉換造使動式，但B則不再與其他字轉換，由此推知A、B、C三者中，A、C是基式，而B則是導式。B式的產生乃是起源於西夏語重疊構詞法，由於重疊與不重疊在語意上並無很大的功用，通常重音落在第二音節，第一音節因弱化而產生音韻變化。

西夏語雖然有少部分的詞不構成BA、BC式，而仍然有A與B或B與C兩種形式的語詞，且其中各語詞也都可以單獨使用，如本文開頭所舉的兩個「死」字與兩個「樹、薪」字，這樣的詞因爲也符合整個轉換系統，應該是轉換現象發生以後的個別發展，這類詞彙分化的條件，如果個別去觀察無法了解其產生的背景，只有從整個系統的觀點才可以了解此類個別語

詞產生發展的過程。根據本文的討論，只有A類韻母的 [illegible] sji, 2.10 與 [illegible] sji, 1.11可以拿來作漢藏語的比較，同樣的道理在BC式中也只有C類語詞可以作漢藏語比較之用。經過這一番清理，西夏語與藏緬語的對應關係便顯得清晰可見了。

西夏語A類韻母的漢藏語對應關係：

夏：	[illegible]	*sji［死］		[illegible]	*sji［樹、木、薪］
漢：	死	*sjid		薪	*sjin
藏：	[illegible]	*'sji > 'chi「死」		[illegible]	*sjiŋ > shing「樹木、木材」
緬：	[illegible]	*sij > se 「死」		[illegible]	*sik > sac「樹木、木材」

西夏語C類韻母的漢藏語對應關係：

夏：	[illegible]	njij「近」		[illegible]	sjij「知、識」
漢：	邇	njir[17]			
藏：	[illegible]	nye「近」		[illegible]	shes「知道、知識」
緬：	[illegible]	nî「近」		[illegible]	si'「知道、認識」

17. 漢語上古音脂部字在中古入脂韻的字本文依董同龢(1967)及李方桂先生(1971)用-d韻尾表示，另外上古脂部字在中古入支韻的字（如「邇」）也依董同龢（上引書）用-r韻尾表示，以爲區別。

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漢語方言音節類型“鬆緊”的南北差異

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摘　要

本文討論下面四項問題：

(1)“帶濁流”聲母在中國境內的分布情形。
(2)“帶濁流”聲母和音節的“鬆緊”對立的關係。
(3)音節“鬆緊”對立所引起的漢語南方方言特殊音變。
(4)音節“鬆緊”現象在漢語方言的南北差異。

1. 前　言

中古漢語的全濁聲母在現代方言中以各種面貌出現，其中多數經過了“清化”音變。關於語音分化的條件，楊秀芳（1989）、許寶華（1991）有詳細論述，今根據楊先生的說法把主要類型定爲下面七種：

筆者在岩田禮先生主持的漢語方言研究會（1989年8月靜岡大學）第一次提出本文的初步想法，幸蒙與會師友的指正。後來平山久雄先生應筆者的請求賜贈平山(1960a)影印件，給了我閱讀這篇精彩文章的機會。寫出 IsCLL-IV 會議論文以後，先後承丁邦新先生、遠藤光曉先生、何大安先生、平山久雄先生、岩田禮先生、楊秀芳先生指教，特別兩位匿名審稿人細讀全文提出了詳盡中肯的修改意見。謹此一併表示由衷的感謝。當然，本文中的任何錯誤，都由筆者一人負責。本文的撰寫得到了日本文部省1993-95年度科學研究費、三菱基金會（The Mitsubishi Foundation）人文科學研究資助。

①全部清化。塞音塞擦音的平聲送氣、仄聲不送氣－官話方言。

②全部清化。塞音塞擦音的部分，平仄皆送氣－客贛語。

③全部清化。塞音塞擦音的部分，平仄皆不送氣－新湘語。

④全部清化。塞音塞擦音的部分，多數不送氣，少數送氣，無條件可循－閩語、徽州方言。

⑤全部清化。塞音塞擦音的部分，平上送氣，去入不送氣－粵方言。

⑥單字音「清音濁流」，連讀後字弱讀時帶音－吳語。

⑦部分讀帶音，部分清化－老湘語。

其中⑥比較特殊，這就是所謂“帶濁流（murmur[1]）”聲母，另有一套“緊喉”聲母跟它對待。趙元任（1928）很早注意到吳語的這個特點，以後有一些學者在中國南部陸續發現了類似的現象。論其分布範圍，北方邊緣是漢語南方方言[2]中的吳語、贛語、湘語，西南邊緣是粵語及非漢語中的苗語、佤語等，語音實質可以概括成發聲類型上的“氣嗓音breathy voice”。而在漢語北方方言，到現在還沒有發現類似的語音現象。

本文首先舉例說明(1)“帶濁流”聲母在中國境內的分布情形，然後討論(2)“帶濁流”聲母和音節的“鬆緊”對立、(3)音節“鬆緊”跟漢語南方方言特殊音變的關係，最後提出(4)音節“鬆緊”在漢語方言的南北差異問題。

2. “帶濁流”聲母在中國境內的分布

2.1　吳語

趙元任（1928:27-28）觀察現代吳語聲母的性質，以爲：

幫端見破裂音讀法是法文派的硬音，比北京的讀法較緊而脆。

吳語的濁類聲紐的發音最特別。在大多數地方這些字都用一個帶音

1. Tsuji（1980）採用“murmur”。Catford（1977:101）、Laver（1980:147）認爲“murmur”跟“whispery voice”相同。
2. 這裏所謂“南方方言”相當於Norman（1988）的“the Central dialects”和“the Southern dialects”，再加上江淮官話泰如片。

的氣流就是［彎頭 h］音。假如是個破裂音，那音的本身並不帶音，換言之當它閉而未破的時候，聲帶並不顫動，等開的時候接著就是一個帶音的h，就是［彎頭 h］，因此聽起來覺得像很“濁”似的。……上海的‘l’不是純［l］，乃是［l右下角加小彎頭 h］。……以上都是講這些字獨立重念的時候的音。遇到輕讀而前頭有字（在intervocalic position）的時候吶，那就都又念作普通不吐氣純帶音的［b, z, dz, l］等等聲音了。

有好些次濁母的字在好些地方（江蘇多，浙江少）不用吐氣的讀法而讀如北方的 m, n, l 等母的讀法。

這一段記載寫得細緻準確，對吳語音系的分析影響極大。李榮（1966）基本遵從趙說描寫溫嶺話，把聲母分爲“緊喉”、“帶濁流”兩套，以後諸家大多沿用這分類法。筆者曾經聽辨過上海話、蘇州話、溫嶺話的“緊喉”和“帶濁流”聲母，音值的差異非常明顯。

趙元任（1935）還指出了吳語“濁送氣”有兩種:

第六是強音加濁音送氣，如上海“牌”［pɦa］。……第七類［bɦ］有濁音送氣，……它總是跟第六類［pɦ］成一個互換音位。例如，寧波“牌”有時候讀［bɦa］有時候讀［pɦa］。

Chao（1967）也指出，浙江的“濁”聲母是眞正的帶音聲母，跟江蘇不同。不過，Cao and Maddieson（1992）分析的江蘇（常陰沙、上海）和浙江（寧波、溫州）四處方言的“濁”聲母似乎都屬於所謂“第六類”，看不出江、浙的差異。是本來就沒有分別，還是在近六十年之間發生了音變，無法論定。

2.2 湘語

趙元任等在三十年代進行湖南方言調查，在西部及南部地區（新寧、武岡、溆浦、邵陽、祁陽、東安、零陵等）發現了跟吳語相似的“帶濁流”聲母。其中有些地點的“帶濁流”現象係趙氏親自聽音記錄，相當可信：

武岡（白倉）話的“p 組 p, p‘, b, m, f, v……b 讀音較軟性，很像吳語的 b̥ɦ”〔1935年11月2日趙元任記音〕（楊時逢1974:497）

平江（三墩）話的“p組p, p‘, m, f。p‘較軟性，送氣略濁，嚴式可作pɦ，不像臨湘的全濁音，連吳語半濁音的程度都不夠，所以仍寫作清音。”〔1935年11月6日董同龢記音〕（楊時逢1974:333）

最近發表的有關湘語的論著，對聲母音值描寫得比較簡單，找不到可以用來核實的材料。

2.3　粵語

Tsuji（1980:12-13）指出，廣西容縣、岑溪、鬱林等粵語的古全濁塞聲母今讀有覆蓋整個音節的“murmured breathiness”：

> In the Guangxi dialects, such voiced friction called murmur or breathiness extends over an entire syllable when it is clear and strong.……Rongxian, Cenxi and Yulin have the highest degrees of the murmured breathiness among the dialects. Note that these three are, incidentally, the only dialects in our data that show voiced labial and dental stop initials [b～ʔb] and [d～ʔd] in contrast to their murmured counterparts.

這一段描寫記得十分清楚，可以依信。楊煥典等（1985:183）說，廣西粵語勾漏片“古全濁聲母今讀塞音、塞擦音時，就本區廣大農村地區說，不論平聲仄聲都讀不送氣聲母，但縣城的情況不一樣”，舉例中沒有提到“帶濁流”的現象，跟Tsuji（1980）不一致。這或許由於方言的內部分歧。

鄭張尚芳（1995a:16-17）[3] 介紹了廣東連山話古全濁聲母“平聲字濁音最強，爲bɦ、dɦ等，仄聲讀成清音濁流的bɦ、dɦ等”，陽山話“也有陽調讀濁或帶濁流現象”的事實。連山、陽山地處粵北，語言複雜，附近有許多地點使用客家話、瑤語。

2.4　佤語、苗語

3. 鄭張尚芳（1995a）認爲，閩語少數地點（浙江蒼南蠻話、江西廣豐橫山話、福建浦城石陂水北話）也保留中古三套塞音的區別。這些地點都在吳閩方言的交界，應該愼重處理。

以上所述三種都屬於漢語方言。非漢語中的“濁送氣”一類語音現象，主要出現在滇黔湘一帶的佤語、苗語等。

佤語分布在雲南，屬於南亞語系。其音系沒有聲調，元音系統存在“鬆緊”的對立，清濁輔音有送氣不送氣的對立。鮑懷翹等（1990）探討雲南滄源佤語的四個緊元音音節 ta̲ tha̲ da̲ dha̲ 的性質，認爲“佤語濁送氣輔音既是典型的濁輔音（除阻之前聲帶震動），又有獨立的濁送氣段，只是這種送氣段不是摩擦噪聲而是‘氣嗓音’”，並根據切音聽辨實驗指出了這“氣嗓音”應該歸到輔音上。“獨立的送氣段”是吳語所沒有的，應該指爲佤語的特點。

濁輔音的送氣不送氣對立現象在苗語也廣泛存在。王輔世（1994）指出濁不送氣、濁送氣在苗語聲、調分配上互補，推斷了古苗語的濁輔音只有一套。孔江平（1993）對苗語（貴州威寧石門坎話）清不送氣音、清送氣音和濁不送氣音、濁送氣音（如 tau thau dau dɦau）進行語音實驗，確認了苗語的清濁可以根據元音起始時間（VOT）的正負區別清楚，“濁送氣”是強度上貫穿整個韻母的氣嗓音，聲調的高低和氣化元音有關（非氣化音節高，氣化音節低）。

佤語、苗語的“濁送氣”輔音的元音起始時間都是負值（VOT＜0），出現濁音杠，這一點跟吳語不同（鮑懷翹等1990、孔江平1993）。

3. “帶濁流”聲母的實質

上面引用的材料大部分靠聽覺描寫音值，很難判斷具體的特徵。我們必須參照聲學試驗的結果，考察方言之間的同異。可惜筆者只能看到吳語若干方言、佤語、苗語等的實驗報告，只得根據這些材料推斷其他方言的情形。

3.1 吳語“帶濁流”聲母的實質

關於吳語的“帶濁流”聲母，已出實驗報告的方言有江蘇丹陽（Sagart1979）、江蘇常陰沙（曹劍芬1982、曹劍芬1987）、江蘇蘇州（石鋒1984、石鋒1988、Iwata et al.1991）、浙江鎮海（Rose1989）、

浙江溫嶺（李榮1986）等。另外有Cao and Maddieson（1992）對江蘇（常陰沙、上海）、浙江（寧波、溫州）四個地點進行了對比分析。

根據這些報告做出總結，吳語“帶濁流”聲母有如下共同特點：

1. 在音節開首位置，一般不出現濁音杠（voice bar）[4]，元音起始時間是正值（VOT＞0）。聲母位置的“濁”輔音除阻以後，元音帶有氣嗓音，從強變弱（石鋒1988:174）。
2. 古全清塞音字的元音不帶氣嗓音，而古次清、古全濁塞音字的元音都帶氣嗓音（石鋒1988:168-169）。Rose（1989）對鎮海話“陽”調類音節進行詳細分析，指出了“whispery, whispery voice, growl”三種發聲類型的存在。
3. 在音節開首，區別清濁的一個重要特點是後接元音的起點音高（石鋒1988），聲母的“清濁”一定跟聲調的“陰陽”相配。
4. 在音節中間位置，聲調失去區別上的作用，元音的氣嗓音也消失，而在“濁”聲母前面出現濁音杠[5]。這可以確實“帶濁流”聲母在語流中變爲純帶音聲母的說法。

吳語的這種“濁送氣”現象，跟輔音、元音、聲調、音節都有關係。它畢竟是什麼語音層次的特性，各家的意見不一（曹劍芬1987:105-106）。正如石鋒（1988:174-175）指出，這裏就存在趙元任所謂“音位標音法的多能性”的問題。下面舉出一些有代表性的意見：

a. 聲母　石鋒（1988:169,174）發現，蘇州話的濁塞音在音節開首位置時，後接元音在“前一（時間）點的氣化程度大於後一時間點”，石再引述Nian-qi Ren的聲學實驗結果：“上海話不同塞音的後接元音氣化程度只是在元音起始處表現出明顯區別”，得到了“在音位分析中把後接元音的氣化程度歸結爲聲母輔音的濁送氣”的結論。

b. 元音　趙元任（1930）認爲吳語“濁送氣”是“元音的一種形容

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4. 丹陽話的古全濁聲母，在高元音前面出現濁音杠（Sagart1979）。
5. 根據筆者請壇辻正剛先生做的聲學實驗（1994年9月在關西大學進行，發音人山東大學曹志耘先生），吳語浙江湯溪話“濁”塞音（來自中古全濁塞聲母）在雙音連讀後字的位置始終沒有出現濁音杠，跟蘇州等地點的情形不同。實驗結果將另文發表。

性”，李榮（1986）用溫嶺話的倒聽試驗核實了這看法[6]。這些著作雖然沒有運用“發聲類型”的概念，基本想法跟下面 c. 相似。

c. 發聲類型　曹劍芬（1987:107-109）以爲吳語古全濁聲母已經清化，“清濁對立在現代吳語裏也已轉化爲相應聲調的陰陽對立”，“濁送氣”實際上就是“韻母元音氣聲化的表現”。Cao and Maddieson（1992）、Rose（1989）均屬這一立場。孔江平（1993:73）根據苗語的情形把吳語“濁送氣”解釋成發聲類型上的“氣嗓音”，還提出了“（氣嗓音）用於輔音時表現爲輔音的濁送氣，……用於元音時……整個元音（韻母）都體現爲氣嗓音發聲類型。對發聲類型的研究使我們認識到，音質（quality）的定義或者說層次應該重新考慮”的觀點。

3.2　前人對“緊喉、帶濁流”兩類的看法

古全清是不帶濁流的“緊喉”聲母；古全濁是“帶濁流”聲母；古次濁或屬“緊喉”、或屬“帶濁流”，兩類都有。趙元任（1928）的吳語塞音聲母“硬、軟”，Tsuji（1980）的廣西粵語“glottalized/murmur”，都是指這對立說的。

“帶濁流”聲母的氣嗓音跟元音同時發生，可以覆蓋兩個以上的音段；“緊喉”聲母始終不出現明顯的氣嗓音。兩類聲母的特點都不容易歸結爲一個音段。在音系分析中怎樣解釋這種現象，前人分析吳語聲母系統時提出過幾種答案：

1. 聲母的區別特徵“鬆緊”
2. 發聲類型
3. 語音層級的分析方法

3.2.1　“緊/鬆”

平山（1960a）把 Roman Jakobson and Morris Halle（1952），*Fundamentals of Language* 的區別特徵“緊 tense/鬆 lax”應用到中古以來的漢語語音的發展，分析全面，可以視爲“鬆緊”說的代表作。可惜

6. 參石鋒（1988:171-172）對“鹹淡”倒讀同音現象的解釋。

這篇論文一直沒有正式出版，只有平山（1960b）、平山（1968:145）極簡單地談到了作者對中古聲母“清濁”的看法。下面扼要介紹平山（1960a）的一些論點：

1. 中古全濁聲母可能具有某種帶音性特徵，但這並不意味著區別“清濁”的特徵就是“不帶音voiceless/不帶音voiced”。如果我們把這兩類的特徵擬定爲“緊/鬆”，比較容易解釋漢語方言聲母“全濁音清化”和聲調調類分化的過程。如現代吳語“濁聲母”的［ɦ］音成分，也是由聲帶鬆化而產生。
2. “緊喉 glottalized / 非緊喉 non-glottalized”（相當於 Jakobson 等的“checked/unchecked”）很可能是區別“全清、次清”兩類的特徵。其論據有兩點：①影母（全清）的中古擬音及一些現代方言中的讀法都是［ʔ］；②根據袁家驊等（1960:61）、趙元任（1928），吳語浦東話、川沙話、南匯話的古全清聲母今讀都帶縮氣音成分。“緊喉”會引起喉頭的下降，容易產生縮氣音。
3. 在自然語言中有一個普遍的傾向：人們選擇更容易、更省力的發音方式。這是語音變化的一個重要機理。

   發出全濁聲母的時候，聲帶本來就需要保持比較鬆的狀態。如果爲了省力使聲帶再鬆化，它的顫動就會變弱，引起塞音持阻初期階段（或全部持阻階段）的清化和整個音節的氣聲化（唐代長安方言的全濁清化、現代吳語的“帶濁流”聲母等，就代表這種音變）。氣聲化導致聲調調值的下降，人們開始憑調值的高低（表二“第一階段”的［33］和［113］）聽辨聲母的“清濁”。

   氣聲化需要吐出大量氣息，這跟省力化的要求完全相反。因此有一些人以調值“陰陽”代替聲母“清濁”當區別特徵。到此階段，全濁聲母或歸入全清，或歸入次清（表二“第二階段”），失去了原有的音位地位。
4. 全清、次清、全濁三套中古聲母的具體音值，在各個祖方言可能有所不同。這差異會決定各方言的全濁聲母清化音變方向：

   ①在全清音讀得比較強（fortis）的方言（如現代吳語），全濁音不容易跟全清音合併，因此發生 b＞p‘ 的音變。

②在次清音的送氣成分比較強而長的方言，全濁聲母不容易跟次清音合併，因此發生 b>p 的音變。

③次清音聲母有帶音送氣成分（甚至韻母也帶著氣音）或者全濁音的［ɦ］比較強而長的時候，全濁跟次清容易合併，因此發生 p‘, b>b 或 p‘, b>p‘ 的音變。

5. 聲調“陰陽”代替聲母“清濁”以後，原來區別聲母的這一組語音特徵失去了意義。到此階段，有些方言的全清音失去強音（fortis）的特點，不再保存喉塞音、縮氣音之類的緊縮成分。
6. 我們不能單純地把全清、次清、全濁三套的重組看做“全濁聲母清音化”。這音變實際等於全部聲母系統的重新組合：有些區別特徵變成非音位性的語音特點，有些非音位性的語音特點成爲區別特徵。假如某個方言的全濁音發生音變，它很可能誘導發生全清、次清音的音變。

平山（1960a）討論的範圍極廣，上面只對其中一部分論點做了很不完整的介紹。另外，還有 Hashimoto（1960a）根據“glottalized、aspirated、voiced”三項特徵把古全濁聲母在漢語方言中的發展分爲六個類型，其中不乏精彩議論，值得參閱。

表一　平山（1960a）假設的中古漢語聲母的特徵

	glottalized (checked)	non-glottalized (unchecked)
tense	全　清	次　清
lax	全　濁	

表二　平山（1960a）的中古全濁聲母清化模式

〔注〕在此假定某聲調的古調值是中平調/33/。

第一階段	全清 /pa33/ [pa33]	次清 /p‘a33/ [p‘a33]	全濁 /ba33/ [pʰa113]
第二階段	全清 /pa33/ [pa33]	次清 /p‘a33/ [p‘a33]	全濁 /pa113/或/p‘a113/ [pa113]或[p‘a113]

3.2.2　發聲類型（phonation types）和分析的層次

“調音 articulation”指發音器官（主要是聲腔）產生語音的活動，它只產生一個音位；“發聲”指喉頭的非調音性活動產生的各種嗓音，它可以覆蓋兩個以上的音位成分。“發聲”可以分爲“正常音 normal voice”、“耳語音 whispery voice”、“擠喉音 creaky voice”、“氣嗓音breathy voice”等幾類，總稱叫做“發聲類型”。關於每個發聲的生理機制和嚴密定義，語音學家的意見有些分歧，參 Catford（1964）、Catford（1977:93-156）、Laver（1980:93-156）等。

在漢語方言語音研究的領域，“發聲類型”比較早爲人所注意。例如平山（1960a）寫作時間在 Catford（1964）以前，但視野並不局限在“調音”的範圍，已經說到喉頭的活動和氣嗓音對方言音變的影響。Egerod（1971）系統地把“發聲類型”的概念應用到中國和東南亞的語言，提出了下面重要見解：

> We shall see that such phonation types appear in languages all over China and South East Asia and that the manifestation may be conditoned by final or by initial. Having left their trace in the tonal system or in the vocalic system, or both, the phonation types may be disappear.（163）

還有 Sagart（1981）也從“緊喉調 glottalized tones”（即“擠喉音”）的角度剖析了“送氣分調”的成因。隨著聲學語音學研究的進展，著重描寫、分析漢語方言發聲類型的著作逐漸增加了起來。

如上所述，“調音”產生的語音通常可以切成一個音段，而“發聲類型”可以覆蓋一個音節中兩個以上的音段。這事實迫使人們重新思考語音分析的層次問題。沈鍾偉（1988:165）根據古全濁字“濁流在（吳語青浦）商榻話中並不是聲母的性質，而是音節的特徵，在濁的音節中自始至終存在”的語言事實，認爲：

> 濁流的出現是在整個音節上的，它應當是屬于音節層級的事實，不屬于聲母或韻母。所以，音節濁流和音節曲折變化及音長一樣都是音節的區別特徵，不同的音節的類別是由這些要素一起構成的。

商榻話聲母［p t k s］配陰調，［b d g z］配陽調，聲母、聲調拼合

關係上互補。因此沈先生把傳統分析法的“清濁”兩套聲母分析成一組音位/p t k s/的變體。

前面所引孔江平（1993:73）劃分“發聲音質”和“調音音質”，並指出了兩者的不同組合可以產生三種不同的情形。雖然具體處理跟沈鍾偉（1988）不同，分析語音層次的方式有共同點。

3.3 音節的“緊tense”和“鬆lax”

3.3.1 定義

綜上所述，“緊喉、帶濁流”的對立不能只歸結於聲母、韻母等音段。我們不妨折衷諸家的意見提出一個設想：音節的“鬆緊”。這概念依用 Laver（1980:148）所說，指發音時整個器官的肌肉“鬆緊”。

> tension settings are being considered here as a matter of overall muscular tension throughout the vocal system. Lax voice, for example, will be realized by a constellation of different local settings, and breathy phonation at the larynageal level will be merely one contributory factor amongst several.

“鬆緊”以各種不同的面貌實現。Laver（1980:154-155）列出的“緊”類的特點有：發聲的“ligamental voice”、“harsh voice”；肺部氣壓比較高；喉頭稍升；喉頭上部、咽頭下部及軟腭緊張；調音時舌、嘴唇、下腭的活動範圍較大。“鬆”類與此相反，有氣嗓音等特徵[7]。只是這些都是“有可能”實現的，不是一定出現的。

也許有人感到，音節“鬆緊”這種概念過於主觀，無法把界說劃定清

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7. "A tense voice will tend to have these characteristics: ligamental, harsh or ventricular phonation which will sound comparatively louder and higher-pitched; higher subglottal air pressure; slightly raised larynx; constriction of the upper larynx and lower pharynx, and possibly of the faucal pillars; a tensed velum; vigorous and extensive radial movements of the convex-surfaced tongue in segmental articulation; vigorous activity of the lips; and a more mobible jaw."（Laver 1980:154-155）

Maddieson and Ladefoged（1985）指出，中國西南部哈尼等四種語言的“鬆”音的 flow/pressure 比“緊”音大，有“氣聲化 breathy”的特點。

楚。何況漢語南方方言的“鬆緊”很少單獨構成語音上的最小對立，比起藏緬語“鬆緊元音”定義更加模糊[8]。我們需要考慮，在語音分析中找出一個絕對客觀特徵的困難。

音節“鬆緊”的假設，有下面優點：

1. 表三是溫嶺話跟容縣話的聲母和“鬆緊”的配合關係。溫嶺話聲母的緊喉、帶濁流二類分別跟陰調、陽調相配；容縣話塞音塞擦音聲母的拼合情形也跟溫嶺相同。但是溫嶺話“各種聲母跟‘變音’的拼合是沒有限制的”，“逢‘變音’時……聲母有緊喉與帶濁流之別”（李榮1966:47）。音節“鬆緊”可以代替兩套聲母的對立。

表三　聲母類型和“鬆緊”（李榮1966、Tsuji1980）

	吳語（溫嶺）			廣西粵語（容縣）		
聲母類型	半元音	鼻音流音	其他	半元音	鼻音流音	其他
-breathy	＋	＋	＋	－	－	＋
+breathy	＋	＋	＋	±	＋	＋

2. 亞洲東南部一些語言的元音“非氣聲化/氣聲”（Shorto1966、Egerod1971）、“清濁”鼻音（Dantsuji1984、黃雪貞1984、Norman1991）等現象，可以概括成音節性的對立。如果承認漢語南方方言也有音節“鬆緊”對立，可以用“音節類型”的範疇討論這些語言在類型學上的特徵。

3.3.2 中古聲類和“鬆緊”

既然承認音節有“鬆緊”的對立，下面要考察一下什麼屬“緊”類，什麼屬“鬆”類的問題。本文的出發點是“緊喉、帶濁流”聲母，討論時最好先從區別這兩套聲母的方言入手。

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8. Maddieson and Ladefoged（1985:451）分析哈尼語、彝語、景頗語、佤語的“鬆緊元音”指出，“鬆緊”的具體語音特徵在各個語言都不相同，進行嚴密討論時不應該使用“鬆緊”這種籠統的概念："In short, there is no support for "tense" and "lax" as general phonological terms describing "syndromes" of co-occurring properties."

傅國通（1984）描寫的吳語武義話，聲調（單字調、變調）分爲高低兩類，“用五度制聲調符號，……全字字調的高低限於1（低），2（半低），3（中）的，叫做低調；全字字調超過3（中），或一部分超過3（中），到達4（半高），5（高）的叫做高調”。聲母可以根據跟聲調的搭配分爲高低二類，分別相當於“緊喉”和“帶濁流”。吳語塞音通常只有一套“帶濁流”聲母，而武義話有兩套。［pɦ tɦ tsɦ tɕɦ kɦ hɦ］六聲母單字音中沒有，只在連調中出現。“［pɦ tɦ tsɦ tɕɦ kɦ］仍爲送氣音，只是過渡到元音時有個濁擦成分，跟［b d dz dʑ g］五個濁聲母不同音”。可以說武義話是“鬆緊”對立非常完整的方言。

如果經過變調，調值的高低替換，“高調變低調，聲母同時由高的一類變到低的一類，如［p］變［b］；低調變高調，聲母也由低的變到高的，如［b］變［p］”。

表四　吳語武義話聲母的高低二類

高	低	高	低	高	低	高	低
p 波標	b 波備	p’ 破	pɦ	f 飛方	v 飯肥	ʔm 扮	ɦm 毛
t 的	d 頭豆	t’ 透跳	tɦ			ʔn 短	ɦn 男
ts 爭增	dz 陳贈	ts’ 撑村	tsɦ	s 生絲	z 神寺	ʔl 對	ɦl 來
tɕ 九酒	dʑ 舅琴	tɕ’ 秋輕	tɕɦ	ɕ 休興	ʑ 徐齊	ʔɲ 燕	ɦɲ 年
k 光工	g 狂厚	k’ 寬康	kɦ			ʔŋ 暗	ɦŋ 汗
ʔ 愛意	ɦ 移胡	h 歡花	hɦ				

從這些情形類推，武義話的高類聲母似乎屬“緊”，低類似乎屬“鬆”。平山（1960a）從“清濁”的觀點分析中古塞音塞擦音聲母，認爲屬陰調的古全清、古次清成一類，屬陽調的古全濁另成一類。古全清（武義不送氣高類）、古全濁（武義不送氣低類）的性質清楚，歸類沒有困難。最成問題的是古次清（武義送氣高類）的處理。筆者對古次清的看法跟平山（1960a）不一致，把古次清改爲“鬆”類。因爲：

①古次清和古全濁二類都帶氣嗓音，跟古全清相對立。

②假定古次清和古全濁同屬“鬆”類，容易說明下文4. 的音變。

本文歸納的音節“鬆緊”跟中古聲母的對應關係，見下：

緊	tense	古全清	—	古次濁（今讀緊喉聲母）
鬆	lax	古次清	古全濁	古次濁（今讀帶濁流聲母）

4. 從音節“鬆緊”看漢語南方方言的音變

漢語南方方言有一些特殊的語音現象，一直引起人們的關注和爭論。筆者以爲，如果按照上面定義把音節劃成“鬆緊”，比較容易解釋①古全濁聲母次清化、②古次清聲母濁化、③送氣分調、④古全清聲母的緊喉化等現象的成因。

4.1　古全濁聲母次清化

在客家話、贛語以及江淮官話泰如片，古全濁塞音聲母多數變爲送氣清音[9]，參表四。從地理分布看，這類音變集中地出現在吳語、老湘语的邊緣，參地圖一。

趙元任（1935）指出，贛語南昌話的送氣清音（來自古次清、古全濁）是弱送氣［b̥h］，跟北京不同，顏森（1986:21）說贛語德安話的“古全濁聲母字今有讀［b d g］一類濁音，有讀送氣的清音濁流的，有讀不帶濁流的送氣清音的，同一個字有時這樣讀，有時那樣讀”[10]。這些

9. 古全濁聲母的次清化並不是現代江淮官話、贛客方言所特有的現象。從中唐時期開始，我們可以看到如下例子：①韓愈〈諱辯〉（作於元和五年，即公元810年。《昌黎先生集》卷十二）把山攝開口三等入聲薛韻“徹（徹母）”、“轍（澄母）”二字當做同音字；②十世紀藏漢對音（高田 1988:73）；③十二世紀末的西夏－漢對音（龔煌城1981、王洪君1987）；④現代中原官話汾河片的白讀層（侯精一1986、王洪君1987）。

10. “鬆”類音節通常伴隨著氣嗓音，古全濁聲母比較自然地變成送氣清音。但如 Laver（1980:148）所說，氣嗓音不一定是決定“鬆”類性質的根本特徵。“鬆”類音節的聲母也可能以弱讀不送氣濁音的面貌實現，後來變爲不送氣清音。鄭張尙芳（1985:4）說，在福建浦城“臨江話、水北話主要是陽平字讀濁音，但很不穩定，常常游移於清濁之間……例如臨江‘爬pa^{11}～$ba^{11'}$’”，我們從此可以看出古全濁聲母不送氣清音化的過程。只是新湘語、平話爲什麼成片地發生了不送氣清音化音變，還有待於分析。
全濁聲母清音化選擇不送氣或送氣，在鄰近方言之間也不一致。例見4.2.4引述的丹陽話（城內、永豐鄉）、鄭張尙芳(1986:16-17)介紹的吳語宣州片幾個方言。

例子說明，“帶音性”對贛語古全濁聲母不是最重要的特徵。具體音變過程可以如下推測：

①“濁”聲母把帶音特徵轉化成聲調調類，產生了陰陽調的區別。

②古全濁聲母變成不帶音的輔音，剩下“鬆”類的氣嗓音。

③古次清、古全濁兩類都具有“鬆”的特點，音值比較接近。最後合併成一個聲母，只保存聲調上的陰陽對立。

曹劍芬（1987:107）說，“古代聲母的清濁對立在現代吳語裏也已轉化爲相應聲調的陰陽對立。……當這類字在弱讀的情況（即作連讀後字而非重讀的情況）下，它們的聲母仍然是地道的帶音，而且相當系統、整齊”。客贛江淮的“濁”聲母比吳語清化得更徹底，在“弱讀”條件下也不恢復帶音的特徵。只要把吳語、湘語、客贛江淮方言的“濁”聲母音變聯繫起來討論，我們完全可以解釋“古全濁聲母次清化”現象的分布。“古全濁聲母次清化”不一定反映客贛江淮的同源關係[11]。

表五　古次清、古全濁的合併現象（以並母爲例）

	全清	次清	濁（平）	濁（仄）
江淮官話泰如片	p	p‘	p‘	p‘
吳語	p	p‘	bɦ	bɦ
贛語〔東北〕	p	b	b	b
贛語〔多數〕	p	p‘	p‘	p‘
客家話	p	p‘	p‘	p‘

4.2　古次清聲母濁化

在南方方言還有一種音變，其方向跟“古全濁聲母次清化”相反。這就是“古次清聲母濁化”，原來的送氣清音聲母變爲帶音聲母，跟古全濁

11. Sagart（1984:91）認爲，江淮官話泰如片處於官話和吳語的過渡帶，其古全濁次清化的音變過程跟贛、客方言相同，都是南渡的北方移民（其音系已失去帶音聲母）不準確地摹仿南方的氣聲化（breathy）帶音聲母的結果（參看 4.2.2）。筆者很贊成“過渡帶”說，但以爲不一定需要假定“北方移民”的語言影響。理由有兩點：第一，移民遷徙時南方方言“氣聲化”聲母的實質如何，不易論定（現代吳語“濁”聲母在連讀中沒有氣嗓音）；第二，古全濁次清化音變集中出現在吳語、湘語的邊緣，可以看做“濁音”按內在機制發生的變化。

聲母合併（表四的贛語〔東北〕）。代表地點有江西省德安、星子、都昌、湖口、武寧；湖北省蒲圻、通城；湖南省的岳陽、臨湘[12]等。這類音變在漢語方言比較罕見，有不少人討論過其音變機制。下面擇要介紹若干看法，並從音節“鬆緊”的角度給予解釋。

4.2.1　**“鬆緊”**

平山（1960a）雖然沒有正面談到“次清音濁化”，該文23-24頁的內容非常耐人尋味，爲了解決這一問題提供重要線索。下面是筆者參考該文內容擅加推測的音變過程，並不代表平山先生本人的觀點。

趙主任（1935）報告南昌話送氣音是弱送氣，在語流中有時出現“互換音位［b］”。在這種送氣清音的阻塞比較弱（lenis）的方言，古次清和古全濁的差異相對比較小，容易合併。具體音變過程有下面兩種可能性：

①由於後接韻母的影響，次清音聲母的送氣段濁化［p>ɦ］。

②聲母的送氣段使韻母的元音氣聲化，產生濁氣流。

Hashimoto（1960a）從“glottalized 全清/non-glottalized 次清、全濁”的觀點分析“次清音濁化”的原因，跟平山先生的看法有類似之處。

4.2.2　**矯枉過正（hypercorrection）**

Sagart（1984:89-91）提出了“矯枉過正 hypercorrection”音變的說法。這學說照顧到“古次清濁音化”的分布、贛南北方言的特點、江西移民史等方面，非常引人入勝：

①漢晉時期從北方南渡的移民，定居鄱陽湖一帶以後使用“贛北祖語 Proto-northern Gan”，它的音系保留著聲母全清、次清、全濁的三向對立。

②到唐朝時期，有大量“新移民”南下進入了鄱陽湖地區。他們的音系已經經過了b>pɦ>p‘的音變，只得用［p‘］摹仿、代替土著居民所說“贛北祖語”的［pɦ］，這就是“贛南祖語Proto–southern Gan”。他們“新移民”的語言，後來在江西南部發展成了贛南方

12. 參顏森（1986）、趙元任（1948）、鮑厚星等（1986）。據曹劍芬（1987:104)引述的張歸璧先生的聲學分析，湖北通城“大坪話裏古次清的塞音和塞擦音聲母今天基本上都讀眞正的帶音輔音。”

言、客家話。

③因爲漢晉以來的土著居民在贛北的社會、經濟上比較優勢，留在贛北的一部分“新移民”試行摹仿高級階級性方言的濁音聲母。而在這“新移民”的音系，古次清、古全濁都讀爲［p‘］，因此“矯枉過正”，連古次清聲母也讀成了濁音。

Sagart（1988:152）對自己的學說有所修改,但沒有改變“矯枉過正”說。

4.2.3 規律逆轉

何大安（1988:37-52）從“規律逆轉”的觀點解釋湖南臨湘話的“次清化濁”和湖南平江話的“濁化次清”兩個相反現象，假設了下面演變過程：

$$[+\text{濁}] \cdots\rightarrow \begin{bmatrix} +\text{送氣} \\ -\text{濁} \end{bmatrix} > \begin{bmatrix} \pm\text{送氣} \\ +\text{濁} \end{bmatrix}$$

這種逆轉音變“本來只應發生在陽調，但由於過度應用的關係，或者由於是個很強的影響規律，於是連陰調中的送氣清聲母也被一起捲入了”。何大安（1989:774-775）認爲，“次清化濁”比“送氣分調”發生的時間更晚。

Sagart（1984）、何大安（1988）所設想的音變過程比較相似，一個考慮歷史背景，一個關心音變機制，以致表面上用詞的分歧。

4.2.4 音節“鬆緊”和“次清濁化”

以上三種說法中，筆者最贊同平山（1960a）。趙元任（1935）說：贛語南昌話的弱送氣清音聲母［b̥h］“非但在兩字詞的第二字裏會濁化而變成純濁音（不送氣）的［b］……，並且還跟［b］隨便互用成爲一種互換音位（variphone）”。趙元任（1928:第一表1）又指出：吳語丹陽話的城內白讀把古全濁聲母一律讀成比較弱的不送氣清音［b̥］，而城外永豐鄉讀成［b‘］。可見在吳語、贛語一些方言，古次清和古全濁聲母的最關鍵的特點是“鬆、弱”，其重要程度甚至超過帶音不帶音、送氣不送氣等特徵。帶音不帶音失去區別作用，會發生“古全濁次清化”；送氣不送氣失去區別作用，就會發生“古次清濁化”。兩種音變都是優先選擇

“鬆緊”特徵的結果。

4.3　送氣分調

“送氣分調，是指由聲母的送氣成分所引起的聲調分化現象”（何大安1989:765）。關於這一現象，Sagart（1981）、何大安（1989）、石林（1991）等文網羅漢語跟非漢語的具體例證，做了很有意義的工作。送氣分調在漢語方言中的分布，見地圖二。

根據目前能利用的材料，“送氣分調”分布在江淮官話泰如片（南通郊區[13]）、吳語、贛語、湘語、平話以及苗語、侗語。下面是石鋒（1992）記錄的吳語吳江黎里話的調值：

不送氣清聲母	全陰平	33	全陰上	51	全陰去	42	全陰入	5
送氣清聲母	次陰平	33	次陰上	22	次陰去	212	次陰入	2
濁聲母	陽平	13	陽上	11	陽去	12	陽入	1

分析“送氣分調”現象的論著中，比較重要的有平山（1960a）、何大安（1989）。平山（1960:22-24）以爲“氣聲化必然會使聲帶顫動頻率變小，次陰調的調值也隨著變低”；何大安（1989:771）認爲，發送氣音時，爲了保持肺壓可以採取降低喉頭的方式，這意味了聲帶的鬆（［slack］），“送氣成分之後的元音在聲帶振動時，就要比不送氣聲母之後的元音頻率爲低。頻率低，音高就低，而所謂聲調，也就跟著降低了。”Cao and Maddieson(1992:90)也指出：“the breathiness contrast may be a more powerful influence on pitch than plain voicing is”。

平山先生、何先生的著眼點都在發聲對調值的影響。本文採用這兩家的看法，如下解釋音節“鬆緊”和調值的聯繫：

	音節	發聲類型	喉頭	音高
p-	緊 tense	ligamental	raised larynx	high-pitch
p‘-	鬆 lax	breathy	lowered larynx	low-pitch

13. 根據吉川雅之先生的田野調查記錄。誌此致謝。

聲母送氣不送氣的對立在漢語方言非常普遍。假如送氣成分使調值下降，幾乎所有的方言都有可能發生“送氣分調”，但在北方至今沒有發現這種音變。這一點好像暗示音節“鬆緊”在南北方言之間的差異，值得留意。

4.4 古全清聲母的緊喉化

高本漢把古全清聲母定爲不送氣清音以來，諸家對這擬音基本上沒有異辭。不過，在漢語南方方言，往往能發現一些古全清聲母（最多的是幫端二母）的特殊音值。首先李方桂先生在海南島發現縮氣音聲母，接著趙元任（1928）報告吳語松江話的“眞濁音”，趙元任（1935）綜述漢語塞音的種類分出第九（聲門有一點緊縮作用）、第十（喉部更緊一點）兩類，以後各家陸續報告了各種特殊的語音對應。其分布範圍包括官話（雲南）、吳語、閩語（閩北）、粵語、壯語、黎語以及越南漢字音，地點很多，這裏僅舉出一些代表點：

先喉塞音	吳語	松江（趙元任1935）、金山（游汝傑1984）、南匯（陳忠敏1988）
	粵語	岑溪（Tsuji1980）
縮氣音	海南閩語	萬寧（楊秀芳1987）、海口（張光宇1989）
	儋州村話（丁邦新1986）	
鼻音	吳語	永康（趙元任1928）、武義（傅國通1984）、湯溪（曹志耘1990）
濁塞音	粵語	化州（梁猷剛1979）、蒼梧（Tsuji1980）
零化	吳語	麗水（鄭張尙芳1995b）
	閩語	建甌（鄭張尙芳1995b）
	粵語	台山（Tsuji1980）、開平（橋本1962）

目前已認明鼻音化、濁塞音化、零化等音值都由緊喉成分的影響產生，發生音變的聲母也並不限於幫端二母。這一點可以補充趙元任（1935）的內容。不送氣清塞音本來帶點緊喉成分，所以全部古全清系列

都有可能參加這些變化。關於古全清緊喉化音變的各種變體，參 Hashimoto（1960a）、平田（1983-84）、鄭張尙芳（1988）、鄭張尙芳（1995b）、陳忠敏（1989）等。Haudricourt（1959）、Hashimoto（1960b）比較早指出來從東南亞到中國南方的“先喉塞聲母帶”，陳其光等（1991:213-214）又提出了“勉語和漢語中的喉塞濁聲母是侗台語等影響的結果”。

既然古全清聲母能“緊”到讀成先喉塞音、縮氣音、零聲母，古次清和古全濁也會“鬆”到最極端的程度。這就是張光宇（1989:44-45）所謂“從閩南到海南的聲母”的“兩極化”現象：“以氣流在發音部位上所受的阻礙程度而言，一種變化是受阻程度加大（即喉塞化），一種變化是受阻程度減弱（即通音化）”。持阻階段的弱化是塞音、塞擦音發得最“鬆”的狀態，最後只留下氣嗓音。

喉塞化	閩南話［p t］	＞	海口話［ʔb ʔd］
通音化	閩南話［ph］	＞	海口話［ph］（吐氣量較大）
	［th tsh］	＞	［h s］

“通音化”主要分布在贛語撫廣片（透母）、閩語建陽話和泰寧話（透定徹澄母）、閩語瓊文區（古次清、古全濁）、粵語四邑片（透母）、南寧心圩平話（溪母）等東南地區方言，在北方幾乎不出現[14]。

5. 音節“鬆緊”在漢語南北方言

通過上文討論，我們指認了聲母“緊喉”、“帶濁流”二類的對立在漢語南方方言比較明顯，而在北方找不到類似的現象。在上文 4. 考察的四種音變可能都跟音節“鬆緊”有關，其中見於北方的只有古全濁聲母次清化（中原官話汾河片），另外三種根本看不到什麼踪跡。例如北方方

14. 東漢劉熙《釋名》〈釋天〉：“天，豫、司、兖、冀以舌腹言之。天，顯也。在上高顯也”、《集韻》平聲先韻馨烟切：“祆，關中謂天爲祆”。根據這兩則或許可以假設：在北方地區也存在過透母字“通音化”現象。

言雖有送氣聲母卻沒有發生送氣分調，古全清聲母“緊喉化”只見於南方“先喉塞聲母帶”。

音節“鬆緊”以及它的種種殘跡，爲什麼只在南方方言出現？具有某個語音條件的方言有可能發生相應的變化，但不能說凡是具備同一條件的方言一定會發生同樣的音變。語言變化的方向可以隨時隨地而異。但是，如果某一類語言特點集中出現在一個地域，也許應該考慮所謂“區域特徵”的問題。我們有理由提出：音節“鬆緊”的對立，很可能是漢語南方方言的一個重要特點。它直接產生“緊喉”、“帶濁流（氣嗓音）”兩種發聲類型，繼而引發了上文討論過的幾種音變。

“鬆緊”的作用在北方相對微小，而由“平仄”[15]來承擔制約古全濁聲母音變的功能。雖然“平仄”的實質到現在還不十分清楚，或許可以認爲“鬆緊”、“平仄”分別是制約漢語南方、北方方言聲母音變的因素。前人提出過若干條區分漢語方言的標誌（Norman1988:181-183），音節“鬆緊”對立的重要性，是否可以列爲其一？

不過，在總的漢語方言語音發展中，這裏所謂南北差異是相對的。“鬆緊”的重要程度在南方方言之間也有差異，“平仄”或聲調制約音變的情形在南方也不少。下面舉出一些例子：

1. 南方有些方言的“濁母清化”受平仄、聲調的制約，而音節“鬆緊”的影響不大顯著，參表六。
2. 吳語溫嶺話的變音按本字的聲調分化成兩個調值（李榮1978）。

   升變音55調來自：陰平33調　陽平31調

   降變音51調來自：陰上42調　陽上31調　陰去55調　陽去13調

   陰入55短調　陽入11短調

15. 詩律上應用“平仄”的情形在六朝永明年間萌芽（興膳1991），到唐代初期纔有名詞“平仄”。宋元以後開始出現“濁入歸平”等平仄相混現象，說明“平仄”失去了原有的韻律特性。

    據李方桂的研究，台語（Thai）系語言廣泛存在詩律上的“平仄”對立（李方桂1940、李方桂1956、李方桂1970）。它跟漢語“平仄”有什麼關係，筆者還得不到答案。

表六　“濁母清化”的優先條件[16]

	平仄、聲調優先							音節類型優先			不規則	
	官話 北京	官話 監利	吳語 上饒	吳語 泰順	吳語 龍泉	湘語 吉首	粵語 廣州	吳語 蘇州	客家 梅縣	湘語 長沙	徽語 休寧	閩語 廈門
平	p‘	p‘	p	p	b	b	p‘	bɦ	p‘	p	p/p‘	p/p‘
上	p	p‘	b	b	p	p	p/p‘	bɦ	p‘	p	p/p‘	p/p‘
去	p	p‘	b	p	b	p	p	bɦ	p‘	p	p/p‘	p/p‘
入	p	p	b	b	b	p	p	bɦ	p‘	p	p/p‘	p/p‘

3. 閩語福州話的單字音分緊音韻母、鬆音韻母，“鬆音韻母主要元音的舌位比緊音韻母較低或較後”，“緊音韻母只出現在陰平、陽平、上聲、陽入裏，鬆音韻母只出現在陰去、陽去、陰入裏”（馮愛珍1993:102），聲調決定元音音值。
4. 音節“鬆緊”跟跟音節“鬆緊”有關的音變，南方方言的基本情形見表七[17]。根據反映“鬆緊”的現象多寡，大致可以劃分南方方言中的兩個小類型：①江淮吳贛粵、②徽客閩湘。當然，在表七舉出的標準只限於筆者個人想到的幾種。如果今後增加其他標準，也許還要對本文的分類進行修改。

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16. 黃雪貞（1987:85）指出，“古全濁聲母字客家話今音也有不送氣的。這個不能簡單說成少數或例外”。這現象在McIver的客家話詞典已有反映。
17. 實際情形十分複雜，表中無法列出該方言區全部方言點的特徵（例如粵語採用了勾漏片的材料），下面說明一部分情形：
①緊喉、帶濁流聲母：湘語有“帶濁流”聲母，但沒有明顯的“緊喉”聲母。
②全濁音次清化：在徽語和閩語，全濁音分化成不送氣、送氣清音，找不到規律。粵語限於吳化片。
③送氣分調：閩語有建陽黃坑話的例子，但此地靠近吳閩贛三個方言的交界。
④全清先喉塞音化：閩語建甌話有“零化”現象，但也靠近方言交界。楊秀芳（1987:15）指出，閩語瓊文片的縮氣音聲母“吸入的讀法不是漢語的傳統，一般認爲受海南島語言環境影響而來”。粵語限於吳化片、勾漏片。
近幾年來有不少學者把中古全濁聲母構擬成發聲類型上的“murmur”，反對中古“濁塞音不送氣說”。如果再進一步推論，也許可以假設：北方方言曾經也有過音節“鬆緊”的對立，現代南方方言的“鬆緊”是中古音系特點的遺存。但本文所列反映“鬆緊”的幾項語音現象中，除了唐五代時期的全濁聲母次清化以外，大多不見於中古時期北方方言的材料。

表七　南方方言中的音節“鬆緊”

	江淮	吳語	徽語	贛語	客話	閩語	粵語	湘語
緊喉、帶濁流聲母	－	＋	－	－	－	－	＋	(＋)
全濁音次清化	＋	／	±	＋	＋	±	＋	－
次清音濁化	－	／	－	＋	－	－	－	－
送氣分調	＋	＋	－	＋	－	(＋)	－	＋
全清音先喉塞音化	－	＋	－	－	－	(－)	＋	－

6. 餘　論

苗語、佤語有發聲上的“氣嗓音”（即“帶濁流”現象），苗語、侗語有“送氣分調”，亞洲東南部多種語言有先喉塞聲母。既然如此，能不能把音節“鬆緊”和非漢語的近似現象互相比較？這樣說來，比較容易想到的語言現象有兩種：一個是藏緬語的“鬆緊元音”，另一個是孟語（Mon）等孟－高棉語的“chest register（breathy voice quality, general laxness of the speech organs, relatively centralized articulation）”和“head register（clear voice quality, relative tenseness, peripheral vowel articulation）”的對立（Shorto1966:400）。

可是這些語言和漢語南方方言的系屬關係不明；我們對發聲類型上“非氣嗓音化/氣嗓音化”的分布範圍也了解得不夠全面，無法論證區域特徵上的連續性。尚且藏緬語的“鬆緊元音”歷時上從清濁、舒促等變來（戴慶厦1990），不應該根據幾項語音特點猜想“鬆緊”的起源、對應等問題。本文的討論，到音節“鬆緊”現象在地理分布上的偏南特點爲止。

最後補充一點值得注意的事實：

> 藏語裏的喉塞音尾［？］是發聲類型的概念，在寬語圖上，它沒有獨立的長度段，只是寄存在元音裏。……（廣西瑤族勉語）六沖標曼話喉塞音尾也是發聲類型上的概念，在寬帶語圖上的表現與藏語相似，後面的聲門脈衝變疏。（唐永亮1994:22-23）

在藏語、瑤語，發聲類型甚至可以區別音節“舒促”。類似的情形在漢語方言中也存在。岩田（1992:534）根據聲學實驗總結：

> 粵語、閩南語和蘇州話的入聲音節很短促，蘇州和閩南的-?音節整

個韻母就“喉化”，我們也不妨把它們視爲“音節特徵（syllable feature）”或“發聲類型（phonation type）”。

這些現象都說明，非調音性的特徵在中國南方語言中的重要性。

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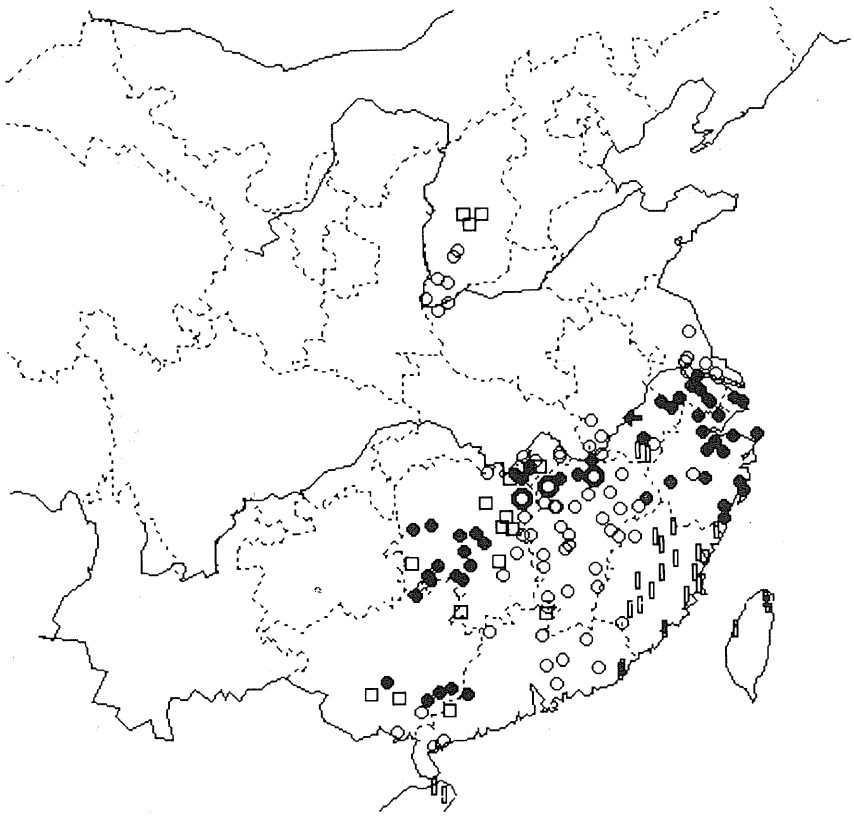
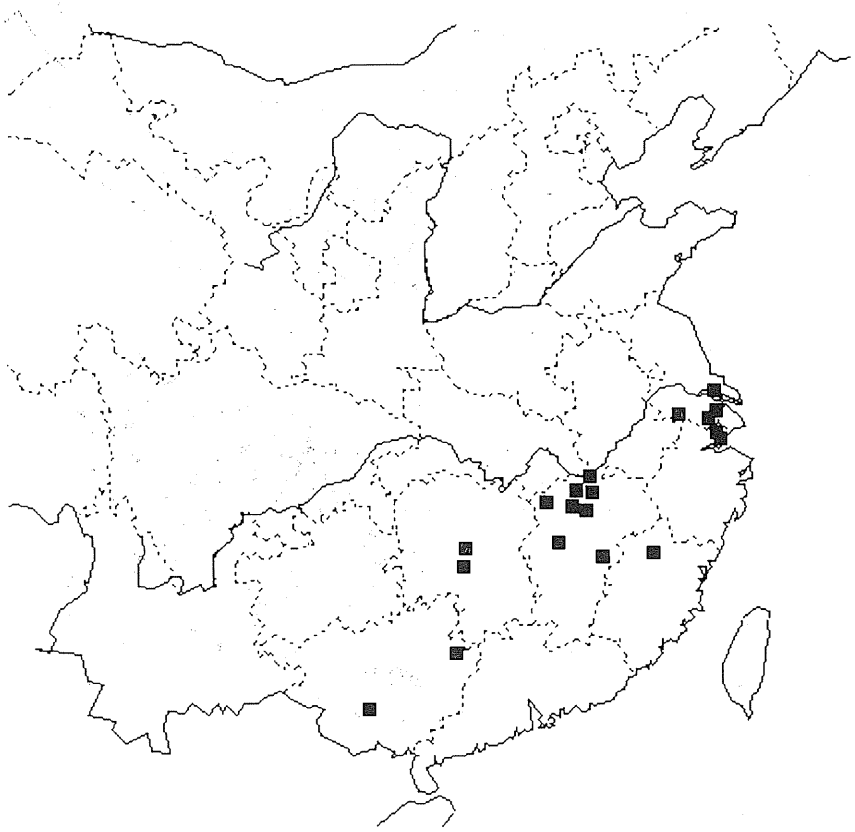


地圖一　漢語方言的古全濁聲母今讀（不包括官話類型）

- ● 保留“濁”音
- ◎ 古次清濁化
- ○ 一律讀送氣清音
- ← 閃音（定母）
- □ 一律讀不送氣清音
- ▯ 分化成不送氣清音，送氣清音，沒有規律



地圖二　漢語方言的“送氣分調”現象

■　已發現“送氣分調”的地點

《中國境內語言暨語言學》
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漢語饒舌歌的口語節奏：從語言類型談起*

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摘　要

本文旨在探討漢語饒舌歌的口語節奏，此爲一種相當特殊的口語藝術，發展的時間尚短，韻律形式猶未成熟，因此牽引出許多很有趣的語言現象。本文的第一項研究主題即是分析各種語言類型的全面競爭；包括「音節計時」(syllable-timing)與「重音計時」(stress-timing)的拔河現象、「聲調」(tone)與「重音」(stress)的對抗現象、以及「起伏聲調」(contour)與「固定聲調」(register)的妥協現象等等。整體來看，在漢語饒舌歌中，一個韻行裏存有兩種音韻類型互相較勁，而較勁現象亦不斷出現在行與行、段與段之間，形成了十分獨特的韻律。本文的第二項主題即是語言成分(Linguistic Components)之間的互動關係：包括虛詞的逆向附著(functor cliticization)、直接成分的分解切割(IC split)、以及重音與句法方面的韻律緊張(metrical tension)等等。連續性的語言互動亦使得漢語饒舌歌的節奏格外生動，而與英語饒舌歌大異其趣。簡單地說，漢語饒舌歌在語言上出現一股新的張力，此種口語藝術初現雛形，語言現象頗爲豐富，這也是它值得研究的地方。

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1. 引　言

漢語饒舌歌是一種相當特殊的語言藝術，一九八七年首次出現於臺灣坊間，由於發展的時間尚短，韻律形式猶未成熟，因此牽引出許多很有趣的語言現象。本文旨在於探討漢語饒舌歌的口語節奏，分析的語料包括一九八七年至一九九四年出版的國臺語饒舌歌。我們將從六個切面來研究此種語言藝術的節奏特色，茲列如下：

1. 音節計時與重音計時的拔河
2. 聲調與重音的對抗
3. 起伏聲調與固定聲調的妥協
4. 虛詞的逆向附著
5. 直接成分的分解切割
6. 強調式的重音衝突

前三個切面將仔細剖析語言類型(language typology)的全面競爭，後三個切面則延伸觀察各個語言部門(linguistic components)之間的互動關係。

2. 音節計數與重音計時的拔河

漢語在傳統上是以「音節計時」(syllable-timing)來表現它的節奏，每一個音節所佔的時間大致相等，也就是說，語句所需的時間長短取決於音節數的多寡。小孩子朗朗上口的童謠是最自然的例子：[1]

(1) 小姐小姐別生氣
明天帶妳去看戲
我坐椅子妳坐地

1. 例(1-2)乃是作者兒時常掛於口頭的念謠，是否有人收編不詳。

我吃香蕉妳吃皮

(2) 小姐小姐妳眞美
小鳥頭，鸚哥嘴
水桶腰，蘿蔔腿
西瓜肚皮香蕉背

例(1)的四個韻行皆爲七個音節所構成，每行所需的時間一樣多，正常速度約爲2.8秒。例(2)的二、三行只有六個音節，前後各1.2秒（三個音節），中間停頓0.4秒。由於音節計時的特性，停頓的時間常常會塡上一個讚歎詞或擬聲詞之類的虛字音節，如「啊」、「呀」、「喲」等等，因此例(2)常以例(3)的形式出現：

(3) 小姐小姐妳眞美
小鳥頭呀鸚哥嘴
水桶腰呀蘿蔔腿
西瓜肚皮香蕉背

例(3)插入「呀」之後，相關的韻行遂湊足了七個音節， 而與其它兩行所需的時間一般。

英語的節奏與漢語不同，它是一個「重音計時」(stress-timing)的語言，一段話耗費的時間端視重音的數目而定。[2] 重音計時的節奏特色是強弱間起伏鮮明，其中以黑民族饒舌歌的重勢節奏(Heavy Stress Rhythm)尤爲凸顯。以下是一個比較整齊的例子：（´ ＝重音）

(4) （Nasty：末段）

2. 有關「重音計時」與「音節計數」的觀念，請參閱Fry(1955)、王力(1958)、Abercrombie (1967)、Allen (1975,1979)、Oller (1979)、Roach (1982)、鄭恆雄(1990)等等。

Who's that thief in nasty thoughts?

Who's that in that nasty calls?

Who's that eat that nasty foods?

Who's that came to my nastic room?

例(4)的第四個韻行與前三行的音節數不同，但是每行皆有四個重音，因此所耗費的時間沒什麼差別，約3.2秒。一般說來，重讀音節(stressed syllable)所佔的時間通常較長，非重讀音節(unstressed syllable)所佔時間較短，各個重音之間所含音節數可能不同，但是時間間隔(Timing Interval)則往往是相等的，此即所謂的「等時轉換」(isochronous movement)。[3] 當漢語套上饒舌歌的韻律形式時，語言類型的衝突可以說是一觸即發：

(5) （跳：第1-3行；臺語）

跳 跳 跳乎伊 爽

跳 跳 跳乎伊 勇

跳 跳 跳甲欲起 恔

例(5)的漢語饒舌歌詞是使用英語「等時轉換」的特質來處理的，每行有四個重音，而重音與重音之間的時間間隔相等。不過，漢語對重音計時的節奏其實並非照單全收，例(5)的饒舌應屬一個特例，因爲它的作者與主唱者是以英語爲母語，對國語或臺語的認識十分模糊，因此在吟唱的時候較容易擺脫音節計數的束縛。[4] 如果饒舌歌由漢語語者所作、所唱，其表

3.「等時轉換」的觀念與爭議請參閱Lehiste (1977,1979)、Hogg & McCully(1987)等等。

4.「跳」的作者與主唱者爲洛城三兄弟(L. A. Boy Z)，其中有兩位出生於美國，另一位於兩歲時移居美國，因此皆以英語爲母語。

現的節奏形式則可能出現音節計時與重音計時的全面競爭現象。可能前幾行是音節計數，後幾行即變成了重音計時：

(6) （報告班長：第4-5行；國語）

昨天晚上沒睡好　現在頭疼不得了

管你睡好沒睡好　出操上課照樣跑

(7) （報告班長：第12行；國語）

給你福利當福氣　給你方便當隨便

給你輕鬆當放鬆　給你臉你不要臉

例(6)的韻行是由兩個七音節的半行所合成，每一個音節約占0.4秒，爲典型的音節計數節奏。例(7)由四個韻律結構所組成，結構裏也包含七個音節，其中頭一個音節皆爲重音，而重音之間的時間間隔亦相等，約1秒鐘，可以說是音節計數與重音計時的融合。有趣的是重音間隔中的音節長度被迫縮短，使得重讀音節時間相對延長且強度加大。類似的實驗證據在許多學者的的研究中也曾發現，如Allen (1975,1979)，Lehiste(1977, 1979)。我們再看看下面的節奏變化：（Σ＝音步）

(8) （報告班長：第7行；國語）

Σ　Σ　Σ　Σ　Σ　Σ

摸魚 摸到 大白 鯊・　看你以後　還敢不敢亂搞

(9) （報告班長：第10行；國語）

Σ　Σ　Σ　Σ　Σ　Σ

報告班長 早餐吃不飽 五百障礙　沒有 力氣 跑・

例(8)分爲六個音步，前四個音步皆由兩個音節（或一個音節加一個停

頓）組成，每一個音步所佔時間大致相等，表現音節計數的節奏，而頗令人訝異的是接下來的兩個音步突然轉成了重音計時的形式，重音落於「看」與「還」，雖然這兩個音步內所含的音節數不同，但所占的時間則無明顯差異，各約0.8秒。例(9)恰好相反，前三個音步屬重音計時，而後三個音步屬音節計數，其中「早餐吃不飽」與「沒有力氣跑」形成鮮明的對比，前者構成單一的音步，後者分而爲三。簡單地說，一個韻行裏竟允許兩種音韻類型互相較勁，而這類較勁現象亦不斷出現在行與行、段與段之間，時而重音計時占優勢，時而音節計時扳回一城，形成了十分獨特的「拔河式」韻律。

3. 聲調與重音的對抗

漢語是一個「聲調語言」(tone language)，而英語屬於「重音語言」(stress language)，當聲調模式與重音模式接觸時，任何一方的音韻功能都有不堪埋沒的趨勢，因而發生互相干擾的情形：

(10) （報告班長：第15-17行；國語）

帶單兵攻擊教材小板ML凳

戴鋼HH盔步槍不用上刺刀

紮S腰帶打綁LH腿不戴防毒面具

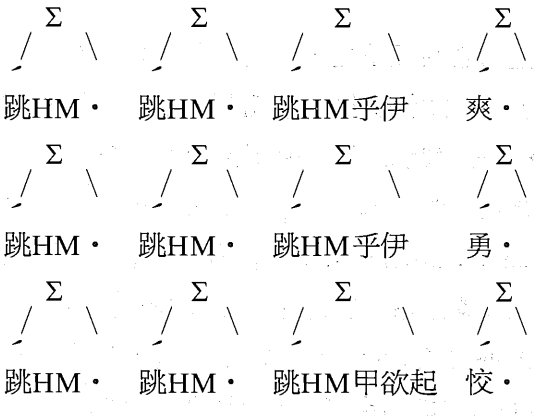
由例(10)顯示，韻行的第一個音節爲重音所在，聲音的強度最大，亦即「帶」、「戴」與「紮」。不過每行除了重讀音節之外，還有一個音節刻意拉長爲兩拍，形同次重音，如底線標示。拉長的音節凸顯了它的聲調，其中「板」爲三聲、「鋼」爲一聲、「綁」爲二聲（連調）。[5] 也就是說，每一行不僅有一個音節特別重讀，而且另有一個音節的調型格外明

5. 三聲的本調調型爲MLH，但在詞中呈ML，也就是所謂的半三聲，詳參Cheng (1973)。

顯，形成了重音與聲調分庭抗禮的韻律。

基本上，重音在漢語語音層次的功能(phonetic function)不外乎四個方面：亦即加強音節的響度(loudness)、增加音節的長度(length)、加寬聲調的弧域(contour range)、以及提高聲調的音階(pitch height)。[6] 例(10)的「板」與「綁」爲起伏調，音節拉長連帶地使其調弧明顯加寬；「鋼」的高平調拉長之後，聽起來要比「盛」略高半音。聲調的音階提高並不只限於平板調，重勢節奏的重音(heavy stress)也可能將起伏調的調弧提高八度：

(11) （跳：第1-3行；臺語）



例(11)使用的語言爲臺語，「跳」的本調調型爲低降ML，而高降HM是它的連調。[7] 從這個例子來看，每行有三個「跳」，其中只有第三個合乎變調原則，前兩個各自構成一個單音節音步，沒有連調變化的環境。可是在三個「跳」都接受重音的前提下，它們皆呈高降調，具體而言，重音將前兩個「跳」的音階(register)的提高，使低降ML變爲高降HM，重音的語音功能亦隨之提升至音韻的層次。[8]

6. 關於漢語重音的語音功能請參閱Ho(1976)、孟綜(1982)、Chan(1985)、Tso(1990)、蕭宇超與吳琇鈴(1994)等等。
7. 臺語的「跳」爲陰去，本調調型亦作低平LL，詳參蕭宇超(1995a)。
8. 就前兩個「跳」而言，有兩種可能的猜測：一者，可能重勢重音使臺語的「跳」在不合語境的情況下變調；二者，可能爲了配合重勢重音而發生「語碼轉換」(code-switching)，選擇國語的「跳」，其本調調型即爲高降。兩者任何一個解釋都告訴我們，饒舌歌的重音節奏已經攪亂了漢語聲調的正常運作。

此外，饒舌歌的重音指派通常不會像例(11)這麼整齊，往往是一會兒「左揚」(left-prominent)，一會兒「右揚」(right-prominent)，這種多變的重音節奏也往往牽制了漢語的特殊變調：（N＝輕聲）

(12) （報告班長：第2-3行；國語）

稍息N以後 開始行動

稍息HH———

「稍息」的「息」通常必須輕聲化，但是當它重讀的時候輕聲則不能運作，如例(12)後行的「息」所呈現的既非輕聲，亦非本調，而是拉長的高平(HH)。Yin (1989)曾就此類高平調的浮現提出了一個十分貼切的說法：認爲它是一種後補性的「抵輔調」(default tone)。輕聲與抵輔調成互補分佈(complementary distribution)，前者只能落在輕讀位置，後者則位於重讀音節。重音的轉變使得輕聲與抵輔調並排於前後行，形成鮮明的對比。Roach (1982)的研究觀察發現，高聲調的音節有時會被誤認爲是帶有重音的音節；例(11-12)則出現了重音選擇高聲調的現象。聲調語言套上了重音語言的韻律模式，不可避免的是聲調與重音糾纏不休，饒舌歌的節奏也因此橫生趣味。

4. 起伏聲調與固定聲調的妥協

聲調語言大致可分爲「起伏聲調語言」(contour tone language)與「固定聲調語言」(register tone language)兩類。漢語屬於起伏聲調語言，可是在饒舌歌裏有時也會出現固定聲調語言的特質：

(13) （MONKEY在我背：第3段；國語）

M————————————
我拼命的跳舞我還我還大風吹

M————————————
我風車頭轉前撲後閣兼劈腿

M————————————
我大白天甩到三更半夜
可是MONKEY在我的背，爲什麼它在我的背

(14) （MONKEY在我背：第6段；國語）

M————————————
各位消防大爺恁著稍控制一咧

M————————————
我是溫柔細緻天生麗質的花花大少爺

M————————————
你們要小心謹愼如履薄冰如臨深淵
事成之後每人贈送一隻黃金大烏龜

例(13-14)基本上是以國語發音，只有「閣」與「恁著稍控制一咧」爲臺語。這裏有一個很奇怪的韻律現象，也就是前三行固定在一個中平(M)的音階，失去了原來的調弧起伏，直到第四行才恢復聲調的區別功能(distinctive function)。換句話說，這兩段的節奏主要是以調階而非調弧來表現。不過，此種表現方式並不是每一次都必須中和(neutralize)聲調的區別性：

(15) （我是神經病：第4段；臺語）

H —L-M —— H —L-M ———
我　是神經病啊 我　是神　經 病

↑ H —L-M —— H —L-M ———
我　是神經病啊 我　是神　經 病

↑ ↑ H —L-M —— H —L-M ———
我　是神經病啊 我　是神　經 病

↑ ↑ ↑ H —L-M ——　↓ ↓ ↓ ↓ H —L-M ———
我　是神經病啊　　我　是神　經 病

例(15)的四個韻行雖然都保持了音節的連調調型，但也很技巧地迴避了起伏調，故而每一個小句都是由高(H)、低(L)、中(M)三個調階來構成規律性的韻律。此外，當每一行結束以後，下一行的聲調都會升高一個音階（如朝上箭↑所示），第四行的前句升至最高，而後句則突然驟降至比第一行更低的音階，固定聲調(register)的起落在這裏取代了起伏聲調(contour tone)的功能。不過，這種現象可能給人一個疑問：英語饒舌歌並沒有「固定聲調語言」的特性，何以此種韻律形式會出現於漢語饒舌歌裏？其實饒舌歌的本質是一種解放、自由的韻律，因此若有急欲擺脫傳統起伏聲調之束縛的傾向，也是可以理解的。

5. 虛詞的逆向附著

除了音韻類型的競爭之外，漢語饒舌歌亦表現出語言部門之間的互動關係，虛詞附著(function word cliticization)所導致的韻律緊張(metrical tension)即是其一。虛詞在音韻上的行爲往往與實詞不同，趙元任（1968：第81頁）指出，若干語助詞如「的」在句法上是跟著前頭的詞或詞組，但似乎又不屬於詞或詞組的某一部分。個中原因乃是由於單音節虛詞的音韻規律通常較不穩定，很容易附著於緊鄰的韻律成分，此種現象在某些漢語饒舌歌中尤爲明顯：

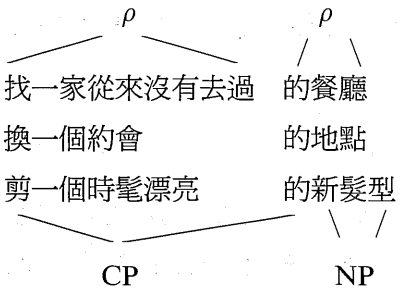
(16)　（週末派：第11-13行；國語）

```
 Σ       Σ       Σ       Σ
/ \     / \     / \     / \
跳躍 的訊號 飛翔 的年紀
奔放 的青春 開心 的日子
強烈 的節奏 新奇 的事物
 \ /     \ /     \ /     \ /
 AP      NP      AP      NP
```

在句法的層次上，「的」屬於左方的形容詞片語(AP)，可是在韻律的層次上，「的」卻向右附著而與相關的音節組成音步。而虛詞的附著並不僅限於音步，也可能擴大運作在音韻詞組(phonological phrase)和語調詞組

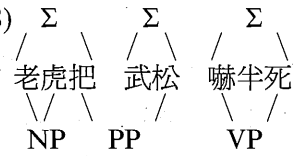
(intonational phrase)的層次；[9] 虛詞向右附著的情形在閩南語中頗爲常見，譬如該方言的代名詞等即屬此類，相關的音韻詞組不標於代名詞右端，除非該代名詞爲語義焦點（詳參Hsiao 1993, 1995a）。

(17) （週末派：第24-26行；國語）



ρ的標記表示語調片語。例(17)的「的」雖然在句法結構上是CP的中心語，但它不屬於第一個語調片語，而是向右附著到第二個ρ範疇。Hsiao (1991)也曾發現「把」字之類的虛詞音節在快速說話時會向左附著於相鄰的音步，如下例：

(18)



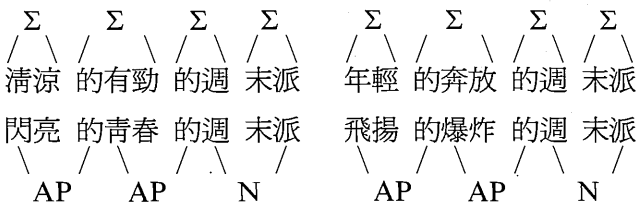
例(16-17)的虛詞附著亦屬快速音韻規則，表面上看起來「的」與「把」的附著方向不同，前者向右，後者向左；不過仔細觀察相關的句法結構樹，我們不難發現虛詞的附著乃是朝著韻律結構與句法結構的「錯開」方向，此種錯開現象可以造成「韻律緊張」而使節奏格外鮮明。

9. 語調片語通常對應到最主要的停頓(major pause)。國語的語調片語功能請參閱Shih(1990)，臺語的音韻片語和語調片語功能請參閱Hsiao (1993,1995a)。

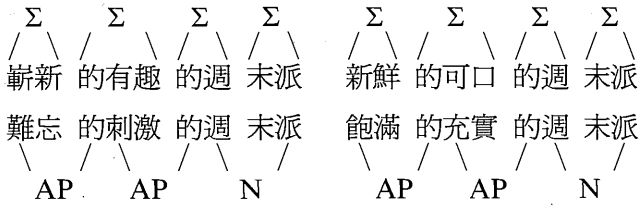
6. 直接成分的分解切割

結構上所造成的韻律緊張也可能發生在沒有虛詞的句法節點上。在一般的口語中，甚至在詩歌的格律中，句法上的「直接成分」(immediate constituent)必須優先構成音步，不可割開而分屬不同的音步。[10] 可是漢語饒舌歌的另一項節奏特色即是在韻律上分解句法上的直接成分：

(19) （週末派：第8-9行；國語）

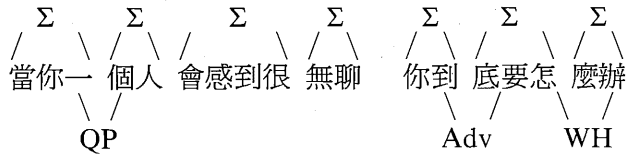


(20) （週末派：第29-30行；國語）



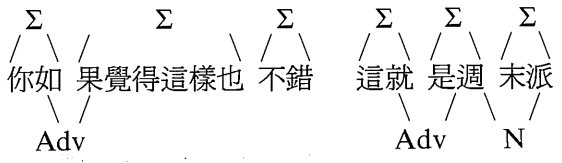
「週末」是句法上（或詞彙上）的名詞節點，也就是說，「週」與「末」是結構關係非常緊密的直接成分，但是在韻律上卻被分解於不同的音步，營造出強而有勁的節奏感。當一個韻行不止一個直接成分在韻律上遭到分解時，其節奏的強烈自不在話下：

(21) （週末派：第2行；國語）



10. IC音步的論點請詳參Chen (1984)、Shih (1986,1990)、Hsiao (1991)等等。

(22) （週末派：第15行；國語）



例(21-22)的韻行各有三個直接成分被音步所分解，韻律緊張可以說升到了最高點。這種分解效果比「的」附著所產生的節奏更強、更重。

7. 强調式的重音衝突

例(22)的高度韻律緊張不僅是結構上的理由，也牽涉到詞性與重音的關係。虛詞通常不讀成重音，除非是拘於格律或意味強調的時候，才會有接受重音的現象。試比較例(23)的(a)與(b)：

(23) （週末派：第14-15行；國語）

(a)

(b)

例(23)(a)的節奏比較規則，表現「右揚」的音步格律。但是到了(b)時，強度增大，而且第一個與第四個音步變成「左揚」的形式，使得「你」與「這」出現重音，和(a)形成格律上的對比。句首虛詞「你」的重讀也導致(b)在詞性上的韻律緊張，在節奏上有強調的效果。此種強調功能於例(24)更加明顯：

(24) (報告班長：第26行；國語)

不要懷疑　就　是　你

這個例子除了詞性上的韻律緊張之外，也呈現了連續的「重音衝突」(stress clash)。Liberman & Prince (1977)、Prince (1983)等曾指出，英語之類的重音語言必須避免任何兩個相連的重音，而英詩中的韻律緊張主要即是仰賴此種重音衝突的設計（參閱Hayes 1989等）。例(24)出現三個相連的重音，使得節奏強度劇增，同時速度由快而慢；隨著速度減慢，音步的範疇亦由大變小，從四音節音步到單音節音步。例(25)更明確地告訴我們存在於節奏強度、速度、與韻律範疇之間的互動關係：

(25) （週末派：第1行；國語）

Σ　　Σ　Σ　Σ　Σ

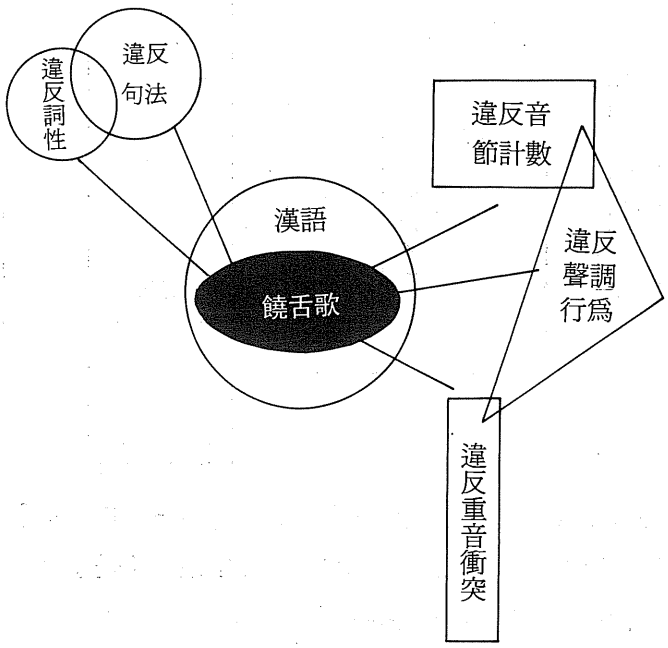
清涼有勁　週末派　週　末　派

此一韻行的音步由四音節、三音節、而至單音節。速度愈慢，音步愈小，強度則愈大。

8. 結　論

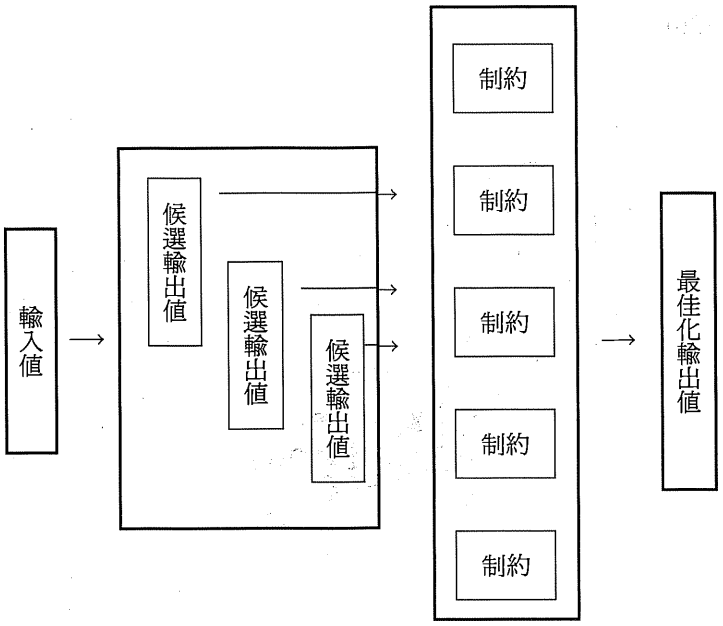
就音韻類型而言，漢語饒舌歌可以說是一種「判逆性」的語料，它的形成建立在一連串的違規，大致歸納如下圖：

(26)



Prince & Smolensky (1993)、McCarthy & Prince (1993,1994)等人認爲「通用語法」(universal grammar)所提供的「制約」(constraints)必須能夠容忍極小(minimal)程度的違反。具體來說，每一個語言輸入值(input)會藉由函數GEN對應到一組「候選輸出值」(candidate outputs)，其中違反最低等級的制約或是最少制約的輸出值即是「最佳化輸出值」(optimal output)，此即所謂的「最佳化值理論」(Optimality Theory)。它的基本邏輯摘要如下：

(27)

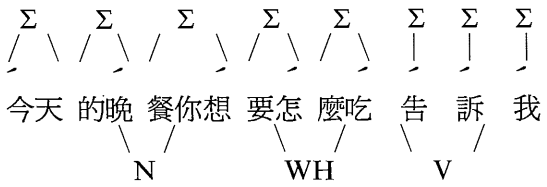


通用性的制約CON乃從語言個別差異(language-specific)的層面來分等級，從這個角度來看，漢語饒舌歌的最佳化輸出值似乎是違反最多或最高等級制的輸出值。譬如，句法直接成分(syntactic ICs)在不少漢語方言裏皆必須優先構成音步，但是在饒舌歌中則可優先分解；重音語言間通用的節奏制約乃是避免連續重音所產生的重音衝突，不過饒舌歌則毫無禁忌。以例(28)爲輸入值來試驗：

(28) 今天的晚餐你想要怎麼吃告訴我

只要將「IC法」與「節奏法」全部違反，即可選出節奏感十足的饒舌歌韻律：

(29)



簡言之，漢語饒舌歌刻意違反一般的口語節奏原則，透過一連串的違規以建立一系列特殊的制約，從而得出最佳化輸出值。[11] 漢語饒舌歌的下一步研究即可從此一理論性方向開始。

11. 關於「最佳化值理論」(Optimality Theory)的分析，請詳參Hsiao (1995b)。

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A Syntactic Typology of Formosan Languages -- Case Markers on Nouns and Pronouns[1]

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Abstract

This is a typological study of case markers on nouns and pronouns for all the extant Formosan languages. Some languages distinguish between common nouns and personal nouns like the Philippine languages, whereas the others do not. Such a distinction is made in Atayal (Mayrinax), Rukai (Tanan, Maga and Tona), Paiwan, Puyuma, Amis, Kavalan, Thao and Saisiyat. The distinction is not made or found in Seediq, Tsou, Kanakanavu, Saaroa, Rukai (Budai, Mantauran), Bunun or Pazeh. It seems to have existed at an earlier stage but was lost in some modern languages and dialects. However, there is no evidence that such a distinction ever existed in the Tsouic languages, which differ from most other Formosan languages in this respect. Another typological difference is that the third person nominative pronouns are missing in almost all Formosan languages except Tsou and perhaps also Kanakanavu. All Formosan languages have fairly elaborate pronominal systems, and most have three or more different sets of pronouns: nominative, genitive, oblique (or accusative) and/or locative. The pronominal systems are in general more complicated than those of case markers for nouns in all these languages. Moreover, most of the languages have developed the short forms of personal pronouns. Rukai is perhaps the only genuine accusative language.

1. I would like to thank two anonymous reviewers for their comments and suggestions for improvement. Unfortunately I was unable to follow all their suggestions, mainly due to space limitations. I would also like to thank all my informants for various languages and dialects that I have worked with over these years.

1. Introduction

1.1 Theoretical Considerations

Studies of language typology can certainly enhance our knowledge of language in general. These studies are closely related to studies of language universals; see, for example, Greenberg (1966), Comrie (1989) and Croft (1990). Moreover, studies of language typology are also related to studies of genetic relationships among languages, especially to the problems of subgrouping.

What significant features should we look for in language typology? Is there a hierarchy (i.e. degrees of significance) in typological features? If so, what is it? Questions such as these can be raised and discussed.

1.2 Previous Work on Formosan Languages

Most of the previous publications on Formosan languages deal with an individual language or dialect, while only a few are cross-linguistic studies, The few cross-linguistic studies are either phonological, e.g., Tsuchida (1976) and Ferrell (1979b), or limited to a single syntactic feature covering only a few languages. For example, Ferrell (1979a) compares only the construction markers in several Formosan languages, while Starosta (1974) compares only the causative verbs in six Formosan languages: Amis, Bunun, Rukai, Saisiyat, Seediq and Tsou. More recently, Starosta's (1988) paper "A Grammatical Typology of Formosan Languages" is much more comprehensive. It deals with several syntactic features, including word order, topicalization, auxiliary verbs and pronoun contraction, illustrated with examples from eight Formosan languages: Amis, Tsou, Saaroa, Atayal, Seediq, Bunun, Saisiyat and Puyuma. However, there is limited data in the paper, due to space limitation and limited field work that has been done on some of the languages. Moreover, these studies may be somewhat misleading as they are often based on very innovative dialects, such as the Squliq dialect of Atayal, which have lost many important grammtical features.

1.3 Purpose of This Study

In this study we shall cover all extant Formosan languages. We shall try to pick a relatively conservative dialect for each language. All examples given in this paper are based on my field notes, unless indicated otherwise.

Ideally a great many syntactic features, including case markers, personal pronouns (both long and short forms), tense and aspect, focus, ergativity, transitivity, word order, topicalization, nominalization, relativization, interrogatives, negatives, imperatives, and so on, should all be examined, as most of these features are closely related. For instance, a language may have two or more types of imperative, which indicate different foci. In so doing, we can compare the syntactic similarities and differences among Formosan languages. Such a cross-linguistic study will have a bearing on their genetic relationships and may resolve some problems of subgrouping.

To take the noun phrase as an example, nouns and pronouns are marked for case in these languages. How many different cases are there in each language? In some languages like Seediq and Saaroa, there are only two different cases for nouns: nominative and oblique. In some other languages, there are three different cases for nouns: nominative, accusative and genitive. In still other languages like Amis, there are four different cases: nominative, accusative, genitive and locative. In fact, even more different cases may be distinguished in a few languages such as the Mayrinax dialect of Atayal. Some of these languages distinguish between common noun and personal noun as in Philippine languages, while the others make no such distinction. All Formosan languages can be divided into two main types, based on whether such a distinction is made.

In western Austronesian languages, a relative clause can only modify the subject of the sentence. Such a restriction has been suggested by Ross (1995) as inherited from Proto-Austronesian. Some Formosan languages observe the same restriction, whereas in a few others, such as Tsou and Atayal, a relative clause can also modify an object. Again, all Formosan

languages can be divided into two main types, based on such a distinction. Furthermore, we may object to the hypothesis that only the subject can be relativized and that it is a syntactic feature attributable to the stage of Proto-Austronesian (Ross 1995).

If we compare Formosan languages type by type, we can see which of these languages share more syntactic features with each other and which of them share fewer.

Due to space limitation, I can only describe one aspect of Formosan languages in this paper, i.e. case markers on nouns and pronouns. In fact, verb inflections also indicate case, in agreement with those in nouns and pronouns. This study is only a first step.

2. Case Markers on Nouns and Pronouns in Formosan Languages

Like western Austronesian languages, in many Formosan languages a noun is modified by a case–marking particle. Even if a language has no overt case–marking particle, all its personal pronouns are inflected for case, and there may be different sets of case, including nominative, accusative, genitive and locative, depending on the language or dialect.

The term "case marker" is called "construction marker" by Ferrell (1979a) and "relation marker" by Tsuchida (1976, 1980).

2.1 Atayal

The Mayrinax dialect of Atayal is conservative not only in phonology and morphology, but also in syntax. It retains many grammatical particles that have been lost in the Squliq dialects (see Egerod 1965, 1966, 1993, Huang 1993). It has an obligatory case marker for each noun, except for the one serving as a predicate, in every sentence, as in:

A1. hibag-un na? buli? ni? yaba? ku? qulih.
cut PF[2] Ins knife Gen father Nom fish
'The fish was cut with a knife by a father.'

A2. kabaux cu? pila? ki? hakiŋ ?i? tali?.
AF-borrow Acc money Acc name Nom name
'Tali? borrowed some money from Hakiŋ.'

A3. situiŋ nku? ?ulaqi? ga?, rahuwal cu? matanah.
clothes Ben child Top big Acc red
'As for the clothes for the child, they are large and red.'

A4. si-baiq mu cku? ?ulaqi? ku? pila?.
BF-give my Dat child Nom money
'The money was given to the child by me.'

A5a. ?ukas ku? ?ulaqi? mu.
not exist NomSp child my
'My child is not around.'

b. ?ukas a? ?ulaqi? mu.
not exist NomNsp child my
'I have no child.'

Mayrinax has the following case-marking particles:

	Nom	Acc	Gen	Ben	Dat	Ins	Loc
Common Spec:	ku?	cku?	nka?	nku?	cku?	nku?	cku?
Nspe:	a?	cu?	na?			na?	i?
Personal:	?i?	ki?	ni?	ni?	ni?	--	i?

There is good evidence that the nominatives are definite, whereas the obliques are indefinite (see Li 1995).

Squliq has lost the case markers ?i? and i?, and merged na? and ni? as na? (see Li 1995). In other words, it has lost most of the distinction between common noun and personal noun. It also makes no dis-

2. A list of abbreviations are given at the end of the paper.

tinction between specific and nonspecific. Moreover, most of the case markers it still retains are optional. In addition, it has undergone some sound changes, including c>s and k>q. Compare the case markers in the two dialects:

Mayrinax: ku? a? cu? nku? cku? na? ni? ?i? ki? i?
Squliq: qu? -- su? nqu? squ? na? na? -- ki? su?, sa?

Moreover, Mayrinax has a much more elaborate pronominal system than Squliq (see Egerod 1965, 1966). Like most other Formosan languages, there are both long and short pronominal forms in Mayrinax.

	Predicate	Nom/Acc	Nominative		Genitives	
	Topic	Long	Short		Short	
1sg	?ikuiŋ	kuiŋ	cu	ci	mu	mi?
2sg	(?i)?isu?	?isu?	su?	si?	su?	si?
3sg	?ihiya?	hiya?	---		nia?	
1exc	?icami	cami	cami		niam	
1inc	?i?ita?	?ita?	ta?		ta?	ti?
2pl	?icimu	cimu	cimu		mamu	
3pl	?inha?	nha?	---		nha?	

There are two variant short forms for the first and second person singular nominatives: cu~ci 'I' and su?~si? 'you,' as illustrated in A6 and A7 below. One variant is derived from the other in special phonological as well as syntactic conditions (see Li 1995, Huang 1995a for details):

Similarly, there are also two variant short forms for the first person (mu~mi?) and second person (su?~si?) singular genitives, and the first person inclusive (ta?~ti?) genitives. Again one variant is derived from another in special phonological as well as syntactic conditions, as illustrated in A8 and A9 below:

A6. m-tutuliq cu.
AF get up I-Nom
'I got up.'

A7. m-in-a-nubuag ci cu? qusia?.
AF Asp drink I-Nom Acc water
'I have drunk some water.'

A8. nubu-un mu ku? qusia?.
drink PF I-Gen Nom water
'The water was drunk by me.'

A9. bahiy-aw mi? (<mu+?i?) ba?ay.
beat LF I-Gen Gen Nom name
'I shall beat Ba?ay'

Like all the other Atayal dialects such as Squliq, in Mayrinax cami 'we (exc)' is used instead of cu or ci 'I' in such expression as:

A10. ma-tutiŋ cami ki? ba?ay.
AF-fight Nom/we Acc name
'I fight with Ba?ay.'

2.2 Seediq

Seediq has only two case markers, ka 'nominative' and na 'oblique.' Both markers are most often optional. There is no distinction between common and personal nouns. The genitive marker na right after a noun indicates possession or an Agent in a non-Agent-focused sentence.

D1. malu ka rseno.
good Nom men
'The men are good.'

D2. mu-nu-bahaŋ ku wada huqin ka pawan.
AF-Perf-hear Nom/I Asp die Nom name
'I heard that Pawan had died.'

D3. su-sapo na lupi ka laqi na tama.
BF-lay Obl mat Nom child Gen father
'Father laid a mat for the child.'

D4. tama su-sapo na lupi ka laqi na.
father BF-lay Obl mat Nom child his
'Father laid a mat for his child.'

There are four different sets of personal pronouns in Seediq: nominative, genitive, accusative and locative. Only the genitive has both long and short forms, and the nominative has only short forms, whereas the accusative and the locative have only long forms.

Personal Pronouns in seediq

	Nominatives		Genitives		Accusatives	Locative
	Long	Short	Long[3]	Short	Long	
1sg		ku?	naku?	mu	yaku?	kenan
2sg		su?	nisu?	su?~sa-	?isu?	sunan
3sg		---	neheya?	na?	heya?	
1inc		ta?	nita?	ta?	?ita?	
1exc		nami	nami	nami	yami	mian
2pl		namu	namu	namu~ma-	yamu	munan
3pl		---	ndeheya?	na?	deheya?	

The short form personal pronouns in Seediq are treated as clitics, rather than suffixes, because the penultimate stress of the verb or noun does not shift when there is a following short form pronoun.

Unlike Atayal, Seediq uses the first and second persons singular in such expression as:

3. As pointed out by an anonymous reviewer, the long genitives usually occur as predicates and thus can be referred to as "possessive absolutes." The same is true in the other Formosan languages in which the long genitives occur.

D5a. kuxun su-mu.[4]
love you my
'You are my love=I love you (sg.)'

b. sunkuxun ku isu?.
AF-love Nom/I Acc/you
'I love you (sg).'

Atayal and Seediq are closely related. Yet they differ in that the former distinguishes between common and personal nouns, whereas the latter makes no distinction. Apparently the distinction has been lost in all Seediq dialects, just as in the case of the Squliq dialects of Atayal.

2.3 Tsou

Tsou has two different sets of case markers:

Nominative: ?e, si, ta, ?o, na, co
Oblique: ta, to, nca, no, ne

Like the Mayrinax dialect of Atayal, there is some evidence that the nominatives are definite, whereas the obliques are indefinite in Tsou. For detaild descriptions and discussions of the syntactic and semantic functions of these case markers, see Tung (1964:147), Tsuchida (1976:94), Starosta (1974) and Zeitoun (1992, 1993). Given below are examples to illustrate the case markers:

T1. man?i ?e i - si eaa { to / ne / ta } c?oyha ci[5] yoskə ta oko.
many Nom PF he PF-catch { to / ne / ta } river Att fish obl child
'The child caught many fish at the river.'

4. Note that the glottal stop in the word-initial or final position disappears when affixed.
5. The term "equative attribute" was suggested for the Tsou form ci by an anonymous reviewer.

T2. ʔo oko mo ticunu to mo yuso ci meoi si yoskə.
Nom child Aux catch Obl Aux two Att big Nom fish
'The child caught two big fish.'

T3. smoa-zomə ne fuyŋu ne tasiona ʔe amo.
AF-shot bird Loc mountain Loc morning Nom father
'Father shot birds in the mountain in the morning.'

T4. sia na suu?
who Nom you
'Who are you?'

T5. mio coŋo co tʔaŋo-ʔu.
Aux hurt Nom leg my
'My leg hurts.'

No distinction between common noun and personal noun is made in Tsou.

Like most other Formosan languages, Tsou has both long (free) and short (bound) pronominal forms. The long forms can occur freely like an ordinary noun, but they can only be optionally preceded by a nominative marker na, and nothing else. A short form is attached to a preceding auxiliary verb or noun. Tsou is perhaps the only Formosan language that has short (bound) form nominative pronouns for the third person, as in T10 below.

T6. os - ko eobak-a (na) aʔo.
PF you hit PF Nom I
'I was hit by you (sg).'

T7. ta - ʔu m-imo to chumu.
Aux I AF-drink Obl water
'I shall drink water.'

T8. oh-ta ima-a (na) ʔo emi.
Aux he drink PF Nom wine
'The wine was drunk by him before.'

T9. i-si p-toŋs-a ta ino-si si oko.
PF he cause-cry-PF Obl mother his Nom child
'The child was caused to cry by his mother.'

T10. mi-ta eobako ta oko ʔe taini.
Aux he AF-beat Obl child now
'He is beating a child now.'

Personal Pronouns in Tsou

	Free	Bound	
		Verbal	Nominal
1sg	aʔo	ʔu ~ ʔo[6]	ʔu
2sg	suu	su ~ ko[7]	su
3sg spec[8]	---	ta	taini
gener	---	si	si
1inc	aʔto	to	to
1exc	aʔmi	mza	mza
2pl	muu	mu	mu
3pl spec	hinʔi	hinʔi	hinʔi
gener	hee	he	he

2.4 Kanakanavu

Kanakanavu has the following two (or three) sets of case markers, as based on Tsuchida (1976:36-17) and Mei (1982):

Nominative: sua, sa, si
Oblique: sua, sa
Locative: na

6. The variants ʔu ~ ʔo are phonologically conditioned: ʔu after back vowels, e.g., ta-ʔu, da-ʔu, and ʔo after front vowels, e.g., mi-ʔo, te-ʔo; see Szakos 1994:130 for more examples. But note the exception: os-ʔo (Zeitoun, p.c.).
7. There is a dialectal difference for this pronoun: su in Tapangu while ko in Tfuya.
8. Specific and general are usually visible and invisible respectively (Zeitoun, p.c.).

The distinction between nomiative and oblique is rather obscure since the same markers, sua and sa, are used for both cases. Moreover, these case markers are optional.

Kn1. kanakanavu sua caau iisua. (Tsuchida 1976:36)
Nom person that
'That person is a Kanakanavu.'

Kn2. ni-m-ia-pacal sua caau sua tutui na tau-canum-a. (Tsuchida 1976:37)
Perf-AF kill Nom person Obl pig Loc water
'The person killed a pig at the place to draw water.'

Kn3. ni-m-ia-pacai avia tutui. (Mei 1982)
Perf AF kill name pig
'Avia killed a pig.'

There is no distinction for a common noun and a personal name, as illustrated in Kn3 above.

Kanakanavu also has both long (free) and short (bound) Pronominal forms. Note that the form m-ini, as given in Tsuchida (1976:38), is the only third person bound nominative pronoun. This needs to be rechecked with informants.

Personal Pronouns in Kanakanavu

	Bound				Free	
	Nominative	Genitives			Nominative	Oblique
		I	II	III		
1sg	ku, kia[9]	aku	maku	naku	iiku, iikia	?ikua
2sg	kasu	su	musu	nsu	iikasu, iimukasu	kasua
3sg	--	---	iisa	nni	iisa	iisa
1inc	kita	ta	mita	nta	iikita	kitana
1exc	kimi, kia	mia	mia	nmia	iikimi, iikia	kimia
2pl	kamu	mu	mmu	nmu	iikamu, iimukamu	kamua
3pl	--, m-ini	ni, kiai, ini		ini	ŋuani	?inia

9. As pointed out in Tsuchida (1976:39), the difference between (ii)ku and (ii)kia is that the latter indicate contrastive, whereas the former are neutral. Compare:

Kn4. niani ŋanai su ?
what name your
'What is your name?'

Kn5. tia ku mi-ia-pacai caau.
Fut Nom/I AF kill person
'I shall kill a person.'

Kn6. ma-ʔicəpə kasu ʔuucu?
AF fear Nom/you ghost
'Are you afraid of ghosts?'

Kn7. c-um-acəʔəra kasu ʔikua.
AF see Nom/you Obl/me
'You see me.'

Kn8. puaka ku ʔinia.
dislike Nom/I Obl/him
'I dislike him.'

The subtle differences between the different sets of genitives remain to be worked out. Given below are examples to illustrate each set of genitive:

Kn9. iisa ʔənal-aku.
that land Gen/I
'That is my land.'

Kn10. ni-pa-tapau maku.
Perf make hole Gen/I
'The hole has been made by me.'

Kn11. icuʔ-a naku.
thirst PF Gen/I
'I was thirsty.'

---

(1) masarənpə kia.
sleepy I-Nom
'I am sleepy, but not you or he.'

(2) masəkuamə ku tatia.
ill I-Nom serious
'I am seriously ill.'

2.5 Saaroa

There are only two sets of case markers in Saaroa:

Nominative: ka, a (wa, ya)
Oblique: na, ka

All of them are optional (indicated by parentheses) in the sentences:

Srla. maciʔi (a) tasau.
AF-die Nom dog
'The dog died.'
b. maciʔi (ka) tasau.
'The dog died.'
Sr2. um-au-a-u a mamaini na vutukuɬu.
AF R eat Nom child Obl fish
'The child kept eating fish.'
Sr3. um-a-ala cucuʔu na vutukuɬu na ɬuuɬuŋ.
AF catch person Obl fish Obl river
'The person caught fish in the river.'
Sr4. t-um-a-tutulu a ina - ku na mamaini na kari.
AF- teach Nom Mom my Obl child Obl language
'My mother taught language to a child.'

Like Tsou and Kanakanavu, Saaroa does not distinguish between a common noun and a personal noun. The same case markers may precede both nouns. For example,

Sr5. ɬi-m-ari-vakəsə ka aŋai na mamaini. (Ting, MS)
Perf AF beat Nom name Obl child
'Aŋai has beaten a child.'

Somewhat like Kanakanavu, ka in Saaroa may also precede an Agent

in a non-Agent-focused sentence. Hence, it is also an oblique marker, as in:

Sr6. sa - alu-a ka cucuʔu kanaʔa ka vutukuɬu.
RF catch Obl person that Nom fish
'The fish was caught by that person.'

Similar to Tsou and Kanakanavu, Saaroa has both free and bound pronouns. The general free forms (the first column in the table below) may appear as the topic, as in Sr7, or as an object of the sentence, as in Sr8, while the two sets of bound forms are suffixed either to the verb as the nominative marker or to the noun as the genitive marker respectively. In addition, the genitive bound forms may combine with na- as free forms. There is no distinction between singular and plural forms for the third person in Saaroa.

Sr7. iɬaku k-um-ita vuɬiʔi.
Top/I AF-see snake
'As for me, I saw a snake.'

Sr8. ɬi-k-um-ita-aku iɬau.
Perf AF see Nom/I Obl/you
'I have seen you.'

Sr9. kaniʔi ia isikana-ku.
this Top possession Gen/I
'As for this, it is mine.'

Personal Pronouns in Saaroa

	Topic/Obl	Nominative	Genitive	Oblique
1sg	iɬaku	-aku	-ku	na iɬaku
2sg	iɬau	-u	-u	na iɬau
3sg/pl	iɬaisa	--	-isa	isana
1inc	iɬata	-ita	-ta	na iɬata
1exc	iɬaɬamu	-amu	-ɬamu	na iɬaɬamu
2pl	iɬamu	-mu	-mu	na iɬamu

2.6 Rukai

According to Starosta (1988, 1991, 1995a, b), among all Formosan languages, Rukai is the only one that is accusative, rather than ergative.

The Tanan dialect of Rukai has the following case markers (Li 1973: 84-94):

sa Accusative common noun
ko Nominative personal name
ki Accusative personal name

RT1. aw-baay nakoa sa omas ʔasilalak ko tina - li.
AF give Acc/me Acc person adopt Nom mother my
'My mother gave me away to a person as an adopted child.'

RT2. ko maLəŋa, "tobaasa ina kənsas sa gooŋ" amia ki doLay.
Nom name cook soup police Acc cow so Acc name
'Maləŋa said to DoLay, "Cook beef soup for the police!"'

Tanan distinguishes between a common noun and a personal noun, as illustrated above. The distinction seems to have been lost in a closely related dialect, Budai, in which both ko 'nominative' and ki 'accusative' occur before common nouns and personal names, as in the examples below:

RB3. ko karaða la moaDiŋ ki daə.
Nom pangolin then AF-enter Acc ground
'The pangolin then entered the ground.'

RB4. la kəla ko soLaw o-pala-palaŋ ki baləŋ.
then come Nom snake AF woo Acc name
'Then the snake came to woo Baləŋ.'

RB5. papacay ko saovalay sa ababay.
kill Nom man Acc woman
'The man killed a woman.'

The difference between ki and sa in Budai is that the former is definite and the latter indefinite.

In the Maga dialect of Rukai, there are the following case markers:

ki Nominative, human noun, common or personal
na Accusative, non-human, common noun
-(an)a Accusative, personal
ku Nominative, leading and nominalizing a clause (indicated by [ ])

RG6. u-stiti ŋkua ki toto.
AF-beat Acc/me Nom name
'Toto beat me.'

RG7. u-stiti vlavlakɨ ki marDaŋ ɨ.
AF-beat child Nom old
'The old man beat a child.'

RG8. u-kanɨ DaDoŋo na blɨblɨ.
AF-eat monkey Acc banana
'The monkey ate a banana.'

RG9. kamdu maa ki vakau na mu-ini ɨθdɨ na bɨkɨ.
die will Nom name Comp go his feed Acc pig
'Vakau will die if he goes to feed a pig.'

RG10. n-u-be maa pesu Dia vakav-ana ki pipecɨ.
Fut give will money Acc name Acc Nom name
'Pipecɨ will give money to Vakau.'

RG11. u-rgu musu ku [aci - Da [ku amua takihoku]]?
AF-know Nom/you Nom who 3inv Nom went Taipei
'Do you know who went to Taipei?'

RG12. ika-Da ku [p-ika ki ipulu alapi]?
where 3 Nom put Nom name stone
'Where did Ipulu put a stone?'

Instead of making a distinction between a common noun and a personal noun as in Tanan and Tona (see below), Maga distinguishes be-

tween human and non-human nouns. The case marker for personal nouns has extended its scope to human, and that for non-personal (common) nouns to non-human (Zeitoun, p.c.). We assume this direction of change because the distinction between the common and personal nouns is widespread among Formosan and western Austronesian languages.

The Tona dialect of Rukai has the following case markers:

ku Nominative, common
ki Nominative, personal
na Oblique (Accusative, Locative, Genitive)

RN13. ki-a-kanə ku bələbələ na aDawanə.
PF eat Nom banana Acc monkey
'The banana was eaten by a monkey.'

RN14. w-a-kanə ki ʔipulu na bələbələ.
AF eat Nom name Acc banana
'Ipulu ate a banana.'

RN15. magaʔaucu na valavalakə ku maruDaŋə.
scold Acc child Nom old
'The old man scolded a child.'

RN16. pa-ua na kay!
Put Loc here
'Put it here!'

All these case markers are mostly optional in the sentence. However, ku may not be deleted when the noun it modifies is topicalized, as in RN17, or when there is agreement between the predicate and the subject, as in RN18:

RN17. ku cu-cumay kiakanə na ikulaw.
Nom bear PF-eat Acc leopard
'As for the bear, it was eaten by a leopard.'

RN18. ʔiakai-ni ku valisanə?
exist its Nom wild pig
'Where is the wild pig?'

Syntactically Mantauran differs from the other Rukai dialects in the following respects:

1. Passive construction is rare in Mantauran. Only a few verbs can be prefixed with ʔi-, correspinding to ki- verbs in the other Rukai dialects, such as Tanan (Li 1973:193-197).
2. It has developed an object-verb agreement (see examples below), not found in any other Formosan language. The agreement occurs only between the verb and a human object or an object possessed by a human. It may indicate a human object (but not a subject). as in RM21, or a human possessor who has been affected, as in RM22 below.
3. It has few case markers. Hence the subject and object of the sentence are determined by the unmarked word order of VOS. The only case marker ʔi 'definite nominative' may have derived from the demonstrative ðonaʔi 'that' or conceivably from the case marker ki, which occurs in several Rukai dialects.
4. Most of its personal pronouns are bound.

RM19. okanə vələvələ mavoroko.
eat banana monkey
'The monkey ate a banana.'

RM20. okan-inə vələvələ mavoroko.
eat Acc/him banana monkey
'The banana was eaten by a monkey.'

RM21. okan-inə vələvələ - ini tamatama.
eat Acc/him banana Gen/his father
'Father's banana was eaten by someone.'

RM22. okanə-ŋ-iaə vələvələ-li ocao.
eat Perf acc/me banana my person
'My banana has been eaten by a person, and that affected me.'

RM23. ʔokoloð-iaə ʔi pələŋə.
fear Acc/me Nom ghost
'The ghost is afraid of me.'

RM24. ʔoponoho ka-li.
Place not I
'I am not from the village of ʔoponoho.'

Except for Mantauran, all Rukai dialects have free personal pronouns, which usually occur in the topic position. They all have bound forms for the nominative, accusative and genitive. See Li (1977: Appendix, 1996b, forthcoming) for more details for the personal nouns in the five major Rukai dialects.

2.7 Bunun

There is no distinction between common noun and personal noun in Bunun.

According to Ogawa and Asai (1935:588), Bunun had a contrast between the nominative marker as and the oblique marker is (in the Northern and Central dialects) or mas (in the Southern dialect). However, in the Isbukun dialect of Bunun spoken in Nantou prefecture, there is usually only one oblique case marker mas,[10] as in BS2 below. Nevertheless, the Isbukun dialect of Bunun spoken in southern and eastern Taiwan still retains the nominative marker as, or more often as a (Nojima 1994). Even in Nantou, the nominative marker a occasionally appears, as in:

BS1. ʔa maʔ-un cina-ciaʔ a ʔuvað.
carry-PF mother Obl Nom child
'The child was carried by that mother on her back.'

The grammatical particle tu between two nouns indicates subordi-

10. The oblique marker mas is often shortened as s and attached to the preceding verb which ends with a vowel. For example,
tatahuʔ dau-s cinaʔ, "saikin haiʔ pauncia."
tell said Mom Nom/I Top so
'It is said that (he) told his mother, "That is how I am."'

nate relationship; cf. BS3a and b:

BS2a. m-aun ʔutuŋ mas bunbun.
AF-eat monkey Obl banana
'The monkey ate a banana.'

b. kaun-un mas ʔutuŋ - cia? bunbun.
eat -PF Obl monkey that banana
'The banana was eaten by that monkey.'

BS3a. mataisah bukun mas cina?.
AF-dream name Obl mother
'Bukun dreamed of Mother.'

b. mataisah bukun tu cina?.
AF-dream name mother
'Someone dreamed of Bukun's mother'

In most Austronesian languages, case markers precede the noun they modify. Nevertheless, the nominative and oblique markers usually appear as suffixes to nouns in Isbukun spoken in Nantou, as in BS4-5. The case-marking affixes may have derived from demonstratives. This can be considered a unique syntactic feature developed in the Isbukun dialect of Bunun.

BS4. makua? cina? - a? si?al (mas) ʔuvað-cia? ?
how mother Nom/that coax Obl child Obl/that
'How does that mother coax that child?'

BS5. manah tama?-an ʔaval-tan.
shoot Dad Nom/this squirrel Obl/this
'(This) father shot this flying squirrel here.'

In the Takbanuath (a Central) dialect of Bunun, as reported by Jeng (1977), there are several case markers that precede nouns, including:

a Nominative (Jeng 1977:185)
ka Nominative (Jeng 1977:185)
ki Accusative (Jeng 1977:257)
i Locative or accusative[11] (Jeng 1977:107)

BK6. m-ama? a tina? ?uvaðʔað.
AF-carry Nom mother child
'The mother carried a child.'

BK7. ?ama?-un a ?uvaðʔað ki tina?.
carry-PF Nom child Obl mother
'The child was carried by Mother.'

BK8. taŋis a ?uvaðʔað ?i lumaq.
AF-cry Nom child Loc house
'The child cried at home.'

See Jeng (1977) for further examples in sentences.

There are four different sets of pronouns in Bunun: nominative, accusative, genitive and locative. There are both long and short forms in the first three sets, whereas in the fourth set there are only long forms. See Li (forthcoming) for Isbukun examples for all pronominal forms in sentences.

Personal pronouns in Bunun (Isbukun)

	Nominative		Accusative		Genitive		Locative
	Long	Short	Long	Short	Long	Short	
1sg	saikin	-ik	ðaku?	-ku	?i-nak	-nik	ðaku-an
2sg	ka-su?	-as	suu?	-su?	?i-su?	-su?	su?u-an
3sg Cl	saian	--	saicin	---		sai-an	
Di	saia?		saicia?		?i-saicia?	saicia?	
1inc	ka-ta?	-ta?	mita?	-ta?	?i-mita?	-mita?	mita-an
1exc	ka-imin	-im	ðami?		?i-nam	-nam	ðami-an
2pl	ka-mu?	-am	muu?	-mu?	?i-mu?	-mu?	mu?u-an
3pl	naia?	--	naicia?	---	?i-naicia?	naicia?	nai-an

11. Jeng (1977) used the label ACC, standing for accusative.

As in the other Formosan languages, the pronominal forms vary from dialect to dialect in Bunun. Phonologically, perhaps also syntactically, the northern dialects of Bunun are more conservative than the others. Given below for comparison is the pronominal system in Takituduh, a northern dialect of Bunun. The missing short forms may be due to the limited data I have collected for the dialect.

Personal Pronouns in Bunun (Takituduh)

	Nominative		Accusative		Genitive		Locative
	Long	Short	Long	Short	Long	Short	
1sg	ʔaðak	-ak ~ -ku	ðakun		ʔinak	-nak	ðakuan
2sg	ʔasu		ʔasu		ʔisuʔu	-suʔu	suʔuan
3sg	cia		cia		ʔicia		
1inc	ʔata	-ta	ʔita	-ta	ʔimita	-mita	ʔitaʔan
1exc	ʔaðam		ðami		ʔinam	-nam	ðamian
2pl	ʔamu		muʔun		ʔimu	-muu	muʔuan
3pl	nai		nai		ʔinai		

BN9. ma-ludaq ʔasu ðakun.
AF hit Nom/you Acc/me
'You(sg) hit me.'

BN10. ma-ludaq cia ʔita.
Nom/he Acc/us
'He hit us(inc).'

BN11. caiv-i ʔaðak hutan.
give PF/Imp Nom/I potato
'Give me sweet-potatoes!'

BN12. ʔinak tu ʔuvaʔað.
Gen/I child
'(He) is my child.'

BN13. muhaan-ak suʔuan.
AF-come Nom/I Loc/you
'I came to your place.'

2.8 Paiwan

There is personal and non-personal distinction in Paiwan nouns (Ogawa and Asai 1935:137, Ho 1978).

	Nominative	Genitive	Accusative	Locative
Common:	a	na, nua	ta, tua	i
Personal sg.	ti	ni	tjay	
Personal pl.	ti-a	ni-a	tjay-a	

The following examples were elicited from DəməDəman, a lady who came originally from the village of TimuL, which does not distinguish between palatalized and non-palatalized consonants.

PA1. k-əm-a-kan a kaLaŋ tua vəlvəl i tua kasiv.
R-AF- eat Nom monkey Acc banana Loc Acc tree
'The monkey is eating a banana on a tree.'

PA2. kəmakan ti muni tua vasa.
R-AF-eat Nom name Acc taro
'Muni is eating a taro.'

PA3. p-in-acun-an ti muni nua kakDian.
Perf-see- PF Nom Gen child
'Muni has been seen by a child.'

PA4. ŋuaŋuaq a kava ni kai.
Pretty Nom clothes Gen name
'Kai's clothes are pretty.'

PA5. na-vaik-amən a pacun tay kina.
Past go we/ Nom see Acc mother
'We went to see our mother.'

Pa6. t-əm-əkə-təkəL tia muni tua vava.
AF R drink Nom name Acc wine
'The Munis are drinking wine.'

PA7. ŋuaŋuaq a kava nia muni.
pretty Nom clothes Gen name
'The Munis' clothes are pretty.'

PA8. d-əm-au-daul a vavuLuŋan taya muni.
AF R call Nom old Acc name
'The old man is calling the Munis.'

PA9. si-kəsa tua vurasi na kina a kakDian.
BF-cook Acc potato Gen mother Nom child
'A mother cooked sweet potatoes for the child.'

There are four different sets of personal pronouns: nominative, genitive, accusative and locative, and only the nominative and genitive have both long and short forms (Ogawa and Asai 1935:138, Ho 1978):

	Nominative		Genitive		Accusative	Locative
	Long	Short	Long	Short		
1sg	tiakən	-akən	niakən	ku-	tjanuakən	tjitjanuakən
2sg	tisun	-sun	nisun	su-	tjanusun	tjitjanusun
3sg	timadju	---	nimadju	---	tjamadju	tjimadju
1inc	titjən	-itjən	nitjən	tja-	tjanuitjən	tjitjanuitjən
1exc	tiamən	-amən	niamən	nia-	tjanuamən	tjinuamən
2pl	timun	-mun	nimun	nu-	tjanumun	tjitjanumun
3pl	tiamadju	---	niamadju	---	tjaiamadju	tjiamadju

2.9 Puyuma

There are two major dialects of Puyuma, Nanwang and the others, including Katipul, Tamalakaw, Rikavong, etc. Nanwang is phonologically more conservative in retaining the voiced stops, which have all changed to fricatives in the other dialects. It is assumed that Nanwang may also be more conservative in syntax. In fact, both dialect groups have the same or similar case markers for nouns; see Cauqelin (1991) for Nanwang and Tsuchida (1980) for Tamalakaw.

Puyuma is a VOS type of language. It distinguishes between common nouns and personal nouns, and there is a singular and plural (indicated by -a) distinction for personal nouns, just like Paiwan. It has four sets of case markers: nominative, genitive/agentive, oblique and locative.

		Nominative	Oblique	Genitive/Agentive	Locative
Common	Spec	na	kana	kana	
	Nspe	a	Da	Da	i
Personal	Sg	i		Kan	
	Pl	na		kana	

P1. maTaŋ is na maudəŋ.
cry Nom baby
'The baby cried.'

P2. sagar ku Da walak.
like Nom/I Obl child
'I like children.'

P3a. muruma? la i ina.
return already sg mother
'Mother returned home.'

b. muruma? la na ina.
return already pl mother
'Mother and others returned home.'

P4. tu bəray-ay Da walu kan tina-taw iDina walak.
give RF Obl candy Pers sg mother his this child
'This child was given some candy by his mother.'

P5. tu kan-aw kana walak iDina bu?il.
eat PF Gen-Com-sp child this taro
'This taro was eaten by a child.'

P6. na məkan kana radis i: a walak.
Nom-sp eat Obl peanut Nom-Nspe child
'The one who ate peanuts was a child.'

P7. nanu ruma? i puyuma. (Cauqelin 1991)
your house Loc
'Your house is at Puyuma.'

Personal Pronouns in Puyuma

	Nominative		Genitive		Accusative	Agenitive
	Long	Short	Long	short		(Cauqelin)
1sg	kuyku	-ku	naŋku	-li	kaŋku	-ku
2sg	yuyu	-yu	nanu		kanu	-nu
3	taytaw	---	nantu	-taw	kantaw	-tu
linc	tayta	-ta	nanta		kanta	-ta
1exc	mimi	-mi	naniam		kaniam	-niam
2pl	muymu	-mu	nanmu		kanmu	-mu

Given below are examples to ilustrate some personal pronouns in sentences:

P8. məkan yu la?
AF-eat Nom/you already
'Have you (sg) eaten already?'

P9. məna?u mu kaniam.
see Nom/you(pl) Acc/us(exc)
'You (pl) saw us (exc).'

P10. taytaw məna?u kanta.
he see Acc/us(inc)
'He saw us (inc).'

P11. səLTa?-ay kuyku.
slap RF Nom/I
'I was slapped on the face by someone.'

2.10 Amis

Amis distinguishes between common nouns and personal nouns. It has four different sets of case markers: nominative, genitive, accusative and locative. Moreover, like Paiwan and Puyuma, personal nouns distinguish between singular and plural (Zeng 1991:109, Huang 1995b).

This study is based on the central dialect, which is most widely used among all the Amis.

	Pred	Nominative	Genitive	Accusative	Locative
Common:	o	ko	no	to	i
Person Sg	ci	ci	ni	ci...-an	
pl	ca	ca	na	ci...-an	

M1. t-om-aŋic ko wawa i lumaq.
Af- cry Nom child Loc house
'The child cried at home.'

M2. mi-palo ko mama to wawa.
AF-hit Nom father Acc child
'The father hit a child.'

M3. palo?-ən no mama ko foŋoh no wawa.
hit PF Gen father Nom head Gen child
'Father hit the child's head.'

M4. mi-cahiw ci raraq ci təfiq-an.
AF-persecute Nom Acc
'Raraq persecuted Tefiq.'

M5. patay-ən no ina ko fafoy to cahiw.
kill PF Gen mother Nom pig Acc hunger
'The pig was starved to death by a mother.'

M6. patay-ən ni raraq ci təfiq.
kill PF Gen Nom
'Tefiq was killed by Raraq.'

M7. o mama?-ako ci lifok.
Pred father my Nom name
'Lifok is my father.'

M8. ci raraq ko wawa?-ako.
Pred name Nom child my
'My child is Raraq.'

Regardless of the variant word order VSO~VOS in the Amis sentence, the Agent always precedes the Patient.

Amis has a variety of dialects. The most conservative dialect is Saki-

zaya, which retains more archaic phonological and lexical features than the other dialects. Unfortunately I have no data for its grammar. According to a recent report by Tsukida (1993), Sakizaya has exactly the same case markers and make the same distinctions: common vs. personal, and singular vs. plural.

Personal pronouns are essentiallly the same in all dialects of Amis.

Personal Pronouns in Amis

	Nominative	Genitives		Accusative
		Free	Bound	
1sg	kako	mako	-ako	takoanan
2sg	kiso	miso	-iso	tisoanan
3sg	ciŋra	nira	--	ciŋraʔan(an)
1inc	kita	mita	-ita	titaʔanan
1exc	kami	niam	-ami	tamianan
2pl	kamu	namu	-amu	tamoanan
3pl	caŋra	naŋra	--	caŋraʔan(an)

M9. palo?-ən-ako ko wawa? - ako.
hit-PF Gen/I Nom child Gen/I
'My child was hit by me.'

M10. ci raraw ko mi-palo?-ay, ca?ay-ay kako.
Pers name Nom hit NM not NM Nom/I
'It is Raraq who hit (him), not me.'

M11. ma-tawa ko tamdaw takoanan.
laugh Nom person Acc/me
'The person laughed at me.'

2.11 Pazeh, Kavalan, Thao and Saisiyat

I (Li 1978) described the case-marking systems of the four less known Formosan languages (Pazeh, Kavalan, Thao and Saisiyat) in some detail. Readers are referred to the paper for their case markers for nouns and pronouns and their examples in sentences. Here I shall briefly cite

only the case markers on nouns for the convenience of a genersl comparison.

Pazeh has the following four sets of case markers for nouns:

ki Nominative marker
u Accusative marker, coordinate marker
ni, nu Genitive markers
di Locative marker

Kavalan has the following case markers (see Li 1996a for more details):

	Nom	Acc	Gen	Loc
Common	a, ya	tu	na	ta, sa
Personal	(ti)	ta	ni	

Thao has the following case markers:

na Nominative for a common noun
ti Nominative for a personal including kinship terms
s(a) Nominative or accusative for general
tu Accusative
ʔi Locative

Saisiyat has the following case markers (cf. Yeh 1991):

ka Accusative
noka Genitive for common noun
ni Genitive for personal name
no Genitive and Benefactive for common noun
ray Locative or directional for common noun
kah Directional marker for personal name
kir Comitative for common and personal nouns

3. Summary and Discussion

Some Formosan languages distinguish between common nouns and personal nouns like the Philippine languages, whereas others do not. Such a distinction is made in Atayal (Mayrinax), Rukai (Tanan, Maga, Tona), Paiwan, Puyuma, Amis, Kavalan, Thao and Saisiyat. The distinction is not made or found in Seediq, Tsou, Kanakanavu, Saaroa, Rukai (Budai, Mantauran), Bunun or Pazeh. The distinction seems to have existed at an earlier stage but was lost in some modern languages and dialects, including the Squliq dialect of Atayal, Seediq, and the Budai and Mantauran dialects of Rukai. However, there is no evidence that such a distinction ever existed in the Proto-Tsouic language. The Tsouic languages differ typologically from most other Formosan languages, the Atayalic and the so-called "Paiwanic," in this respect. Three eastern Formosan languages (Paiwan, Puyuma and Amis) distinguish between singular and plural personal markers.

The case markers in most of the languages have relatively simple systems. Only two of them have more elaborate systems, i.e. the Mayrinax dialect of Atayal and Puyuma. Have these two languages developed elaborate systems of case markers on their own, or have the others simplified their systems? This requires further study.

All Formosan languages have fairly elaborate pronominal systems, and most have three or more different sets of pronouns: nominative, genitive, accusative and/or locative. The pronominal systems are in general more complicated than those of case markers for nouns in these languages. Moreover, most of the languages have developed the short forms of personal pronouns. Thus they have both long (free) and short (bound) forms for one or more sets. Only a few have not, including Saisiyat and Thao, and these languages are more conservative in this respect. The other extreme in the developement of personal pronouns is that a language, such as the Mantauran dialect of Rukai, has mostly bound forms. Such a language has undergone one of the most drastic syntactic

changes. By comparing the different case markers in Formosan languages, we can get a better picture of how they differ from each other in the evolution of their case-marking systems.

The third person short form nominative pronouns are missing in almost all Formosan languages except Tsou and possibly also Kanakanavu. This is another important typological difference between Tsou (or perhaps Tsouic) and the other Formosan languages.

Rukai is perhaps the only Formosan language that is definitely accusative.

It is clear that both Tsou (or Tsouic) and Rukai (especially Mantauran) differ typologically from most other Formosan languages in some salient syntactic features.

List of Abbreviations:

Acc	Accusative	Loc	Locative
AF	Agent-focus	NM	Nominalization
Agt	Agent	Nom	Nominative
Att	equative attribute	Nspe	Nonspecific
Aux	Auxiliary verb, preverb	Obl	Oblique
Ben	Benefactive	Perf	Perfective
BF	Benefactive-focus	Pers	Personal
Comp	Complementizer	PF	Patient-focus
Dat	Dative	pl	plural
exc	exclusive	Pred	Predicate
Fut	future	R	Reduplication
Gen	Genitive	RF	Referential-focus
gener	general	sg	singular
inc	inclusive	spec	specific
Ins	Instrument	Top	Topic
Inv	invisible	Vi	intransive
LF	Locative-focus	Vt	transitive

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臺灣閩南語的趨向補語——方言類型和歷史的研究*

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Abstract

This paper studies the semantic and grammatical functions of directional complements such as khí 起, lo̍h 落, tńg 轉, tò 倒, kè 過, ji̍p 入, chhut 出, chiū^{n} 上, lâi 來, and khì 去 in Taiwan Southern Min (TSM). Its aim is twofold: (A) to capture a dialectal typology of directional words by a comparison with Taiwan Mandarin (TM) and other dialects, and (B) to provide a historical account for the word order of directional complement relative to verb and object and its semantic interpretation in TSM. Specifically, the bulk of this paper is organized around the following topics: (1) a comparison of the systems of directional words in TSM and TM, (2) chronological strata and dialectal typology of directional words, (3) paradigmatic relationship of directional words, (4) word order of verb, object and complement, (5) sandhi forms of directional complements, (6) idiomatic verb-complement-object constructions, (7) lexical potential complements, (8) the origin and development of directional complements, (9) the semantic relation between verb and complement, and (10) the evolutionary history of khì 去 and liáu 了.

* 本文曾宣讀於第四屆中國境內語言暨語言學國際研討會。會中得到梅祖麟，湯廷池，鄭良偉諸位先進的指正。會後又承兩位匿名評審者不吝匡正並提出有益的建言，謹此致謝。如有掛一漏萬之處，應由作者負責。

引　言

本文研究臺灣閩南語的趨向詞‘起’，‘落’，‘轉’，‘倒’，‘過’，‘入’，‘出’，‘上’，‘來’，‘去’做爲動詞補語的語意和語法的功能。我們將分析各個詞最基本的語意特性，透過和國語及其他方言的比較找出趨向動詞的方言類型，比如，很清楚的看得出閩國語之間對立詞的相應關係：起-落<>上／起-下，去-轉／倒<>去-回，入-出<>進-出。方言類型的差異也反映了歷時的時代層次。‘轉’和‘回’自古以來就是並存的方言詞，但是‘進’確實比‘入’晚出，反映了時代的先後。作爲動詞後的趨向補語，閩國語有如下的對應關係：

閩					
起來	落來	轉來／倒來	過來	入來	出來
起去	落去	轉去／倒去	過去	入去	出去
國					
上來／起來	下來	回來	過來	進來	出來
上去／(起去)	下去	回去	過去	進去	出去

除了方言詞的不同外，兩者之間最明顯的差異是閩南語沒有‘上來’和‘上去’的說法。因此‘起來’和‘起去’涵蓋的範圍比國語還廣，另外，國語‘起去’的說法幾近絕跡，形成一個有趣的空缺。雖然上列的閩南語國語趨向補語有一部份產生虛化的現象，如‘講落去’，總的來說，閩南語趨向補語以單音節不帶‘來’或‘去’爲多，不像國語雙音節補語那麼發達，比如，閩南語沒有‘唱起歌來’這樣的說法。歷史上也是單音節比雙音節的趨向補語先出現，閩南語反映比較早的發展階段。

閩南語的單音節趨向補語‘來’有虛化的始動意，而‘去’有虛化的完成意，但是‘去’還相當具有滋生力，基本上保存了晚唐的語法特性。國語裡‘了’兼表始動和完成的時貌，在歷史的發展上顯然是中和化的結果，反之，閩南語呈現了詞彙的多樣性，表完成的時貌詞有並存甚而競存的

‘去’，‘了’，‘過’，‘煞’等幾個語詞。

閩南語的趨向詞由具體的詞彙意義經過虛化發展出抽象的語法意義，可以在動趨式中表示始動，持續，完成等的時貌意義，已如上述，也可以在動補式中表示可能的意義，如‘買𣍐起’，‘讀會來’，‘做𣍐去’，‘看𣍐出’等。此外，這些趨向詞也有引申的用法和連音變化的現象。

本文的結構組織如下：1. 閩南語和國語趨向詞系統的比較，2. 趨向動詞的時代層次和方言類型，3. 趨向動詞的縱聚合性，4. 動詞，賓語，補語的詞序問題，5. 動趨式的連讀形式，6. 成語性的動補賓結構，7. 詞匯性的可能式，8. 動趨結構的起源和發展，9. 動詞和補語的語意關係，10.‘去’，‘了’的演變歷史，11. 結語。

1. 閩南語和國語趨向詞系統的比較

本文所討論的趨向詞有兩種：(1)單一趨向補語，(2)複合趨向補語。以下先列出閩南語和國語這兩種趨向詞的對應系統：[1]

單一趨向補語：

閩							
起[2]	落	轉／倒	過	入	出	來	去
khí	lo̍h	tńg／tò	kè	ji̍p	chhut	lâi	khì
國							
上／起	下	回	過	進	出	來	去

1. 閩南語趨向詞的研究請參考Cheng (1982)。國語趨向詞的研究請參考范（1963），劉（1989:29-92），房（1992:486-552）。本文閩南語的音標是用教會羅馬字（Douglas 1873）。有特殊需要時用國際音標表示。
2. 閩南語裏跟‘起’語意相近的‘上’屬文語層，使用的範圍極爲有限，且只能做趨向及物動詞，不能當趨向補語。非音韻和音韻的時代層次chronological stratum是兩種不同的系統。就非音韻系統而言，趨向詞‘起’是白話和固有的層次，‘上’是文語層次，但是在音韻系統裡‘上’這個詞又可分文白層：〔白〕chiū^{n}, chhiū^{n} < >〔文〕siōng. chiū^{n}和chhiū^{n}的差別在聲母送不送氣。第二個形式聲母送氣，有使動的causative意義，如chhiū^{n} tsúi上水〔打水draw water; cause water to come up (from the well). chiū^{n}只能做動詞，不能做趨向補語。

複合趨向補語：

閩					
起來	落來	轉來／倒來	過來	入來	出來
起去	落去	轉去／倒去	過去	入去	出去
國					
上來／起來	下來	回來	過來	進來	出來
上去／[3]	下去	回去	過去	進去	出去

閩南語單一趨向補語的基本義簡單地說可以這麼描述：'起'和'落'指向上和向下的動作，'轉／倒'指從原地出發再返回原處，'過'指一點到另一點，'入'和'出'分別指向封閉的三度空間內部和外部移動，'來'指往發話者的方向移動，'去'指離開發話者往遠處移動。（有關閩南語趨向詞的引申意請參看附錄）

從上表可以看出，單一趨向補語加上指示詞'來'或'去'就可形成複合趨向補語。閩國語兩相對照之下，趨向詞的異同可以歸納爲三類：(1)用詞完全相同，(2)用詞不同，如落：下，轉／倒：回，入：進，(3)其中一個方言有空缺，如國語沒有'起去'。在比較不同的音韻系統時我們都知道同一個語音在不同的系統有不同的功能。同理，同一個趨向補語在閩國語中也有不同的語法語意功能，這點尤以趨向詞的引申用法最爲明顯。以下就扼要逐一加以討論。

就單一趨向補語'去'而言閩國語都有引申的完成意。閩南語裏這個用法有一定的限制，但仍然頗具有滋生力，可是國語這樣的'去'只限跟少數的動詞連用。（呂1980: 401）

趨向補語在方言中發展了不盡相同的引申意。因此方言間趨向補語有錯綜的對應關係。例如，有些情況閩南語單一補語相當於國語複合趨向補語：

3. '起去'在北京話已接近絕跡。（鍾1988）臺灣通行的國語裏這個複合趨向詞已銷聲匿跡。

閩南語		國語	
動詞	補語	動詞	補語
昏	-去	昏	-過去
昏昏死死	-去	死	-過去
睏	-去	睡	-過去[4]
做／創𣍐[5]	-來	做／幹不	-過來

有時方言間不同的趨向補語產生可對應的引申意。

閩南		國語	
精神	-起來	醒	-過來
活	-起來	活	-過來

以上“起來”特指從一個狀態進入另一個狀態。但是閩南語的‘起來’最基本的引申意是完成（動作的完成或目的的達到）：

	閩南語		國語	
	例子	語意	例子	語意
A	衫褪起來	完成／脫離	脫下一件衣服來	完成／脫離
B	紙liah起來	完成／脫離	把紙撕下來	完成／脫離
C	樹阿剉起來	完成／脫離	把樹砍下來	完成／脫離
D	門開起來	完成／脫離	把門打開	完成／脫離

從上表可以看出一個有趣的對照：方言中引申意〔完成／脫離〕有不同的發展途徑。這種引申意閩南語的源頭是‘起’(向上的動作)，而國語的

4. 相當於閩南語的‘睏去’大陸普通話‘睡’後頭也可以接‘過來’（注意這裏‘過來’是引申意），不過只能用於可能式，如‘睡不過來’（即‘睡不著’／‘睏𣍐去’）。另外，‘睡過去’也有在睡覺中死去之意。（語料方面大陸普通話參考孟鄭孟蔡1987: 676，閩南語參考宋1987: 173-336，胡1993ab, 1994）。
5. ‘𣍐’是m̄（否定詞）和會ē或boē（＜解）的合音詞，念做bē或boē。通俗的寫法爲‘袂’或‘褫’。

源頭是‘下’（向下的動作）。就這些例子而言閩南語‘起來’引申出的完成意明顯，原來的趨向意很不明顯，國語‘下來’引申的完成意和原來的趨向意勢均力敵。

閩南語裏時貌標記‘起來’基本上表示完成之意，不過根據某些人的語感它也可以表示始動（動作或狀態的開始）。雖然如此，“起來”原來恐怕只有完成意。[6] 它的始動意也許是與國語接觸而產生的，但是這種始動意還沒有站穩腳步。大多數動詞的始動意都是tī…a “佇…啊”的格式表示：[7]

閩南語		國語	
例子	語意	例子	語意
佇褪衫啊	進行＋新情況	脫起衣服來了	始動＋新情況
佇睏啊	進行＋新情況	睡起來了	始動＋新情況
佇跳舞啊	進行＋新情況	跳起舞來了	始動＋新情況

這裏“啊”表示進入新的情況。進行貌‘佇’和新情況標記“啊”搭配成的“佇…啊”的格式相當於國語的“…起來了／起…來了”。新情況標記“啊”或“了”可以和進行貌、始動貌、完成貌、狀態搭配。換言之，新情況可以是進行、始動、完成、狀態等情況：[8]

閩南語		國語	
例子	語意	例子	語意
A.佇笑啊	進行＋新情況	笑起來了	始動＋新情況
B.笑起來啊	始動＋新情況	笑起來了	始動＋新情況
C.睏去啊	完成＋新情況	睡著了	完成＋新情況
D.紅啊	狀態＋新情況	紅了	狀態＋新情況

6. 小川等（1931-32上册：277）只列舉〔完成〕意，沒列〔始動〕意。如果不是漏記，這可以證明我們的假設。
7. 本文帶始動意的“啊”是個訓讀字。它的來源有兩種說法：一說是來自“矣”（楊1991）；一說是來自“也”（梅1994）。進行貌‘佇’是‘著’的俗寫。（梅1988）
8. 有關時貌詞、時相詞比較詳細的討論請參看鄭（1989,1992）和連（1995）。

一個語言中常會有新舊並存的形式。以上閩南語中的A和B就是一對並存的語詞。A是固有詞語，B是受國語影響形成的新興詞語。將來兩者可以由並存進入競爭的局面。

'起來'在國語裏始動意味很濃，閩南語則多指完成。試比較[9]

閩南		國語	
例子	語意	例子	語意
寫起來啊	完成＋新情況	寫了起來[10]	事件發生＋始動
記起來啊	完成＋新情況	記了起來	事件發生＋始動[11]

閩南語'起來'的始動意使用的範圍本來極有有限，但年輕一代受到國語的影響，這種語義就用開了。

2. 趨向動詞的時代層次和方言類型

'入'和'進'是同意詞，有時代先後之別。從歷史文獻來看，趨向動詞'入'先出現，一直到元代'進'才開始出現，取代了'入'。[12]

'入'被'進'所取代是北方官話的演變情況。語法虛詞在各個方言發展的速度不一致，閩南語裏只有趨向動詞'入'而沒有趨向動詞'進'。這一點說明閩南語的'入'反映了宋以前的時代層次。因此，'入'和'進'不只表現方言類型的不同，也表現時代的先後。

閩南語趨向動詞除了反映時代層次還表現出方言的類型。相對於北方

9. 這裏的國語趨向補語是參照呂（1980）和孟鄭孟蔡（1987）。
10. 國語動詞後頭的了（了$_1$）和賓語後頭的了（了$_2$）語意不同，如'他吃了$_1$飯了$_2$'…了$_1$指事件發生但未必完成（這一點是本人的意見），了$_2$指進入新的情況。（參見Chao 1970: 246-248, 691-692；鄭1992）就了$_1$而言事件發生的時間參照點不一定限於過去，可以是現在或未來，如'你吃了飯再回家'。了$_1$和了$_2$在國語是同音，在別的方言（如吳語）是兩個不同的詞項（參見Mei1979，梅1981）
11. 閩南語'睏起來'是睡醒起來的意思，而'睡了起來'是始動之意，相當於閩南語的'佇睏啊'。
12. 太田（1958: 210-222）。

官話的‘上’，‘下’，閩南語‘起’，‘落’是一對反義的趨向動詞。‘起’表示向上的動作，‘落’表示向下的動作。同樣地，‘回’，‘轉’的對應形成北方和南方方言的分野：

北方	回	下	上
南方	轉	落	起

‘轉’，‘落’的用法是南方方言（如閩語、客家語、贛語、吳語）的特色。[13]

另外，就閩南語內部系統而言，‘上’，‘起’有文白之分，‘上’只能用於一些套語中，如，‘看膾上目’〔看不起〕。

3. 趨向動詞的縱聚合性

雖然漢語沒有屈折變化，但是有些語詞還有縱聚合 paradigmatic 的關係。相關或對立趨向動詞的發展常有不均衡的現象。‘起去’和‘起來’都表示向上的運動，就原始意義來說，兩者的不同是前者往遠處移動，而後者往近處移動。不過這對相關的趨向動詞並不做同步的發展。這點可以從兩方面來看。以出現的頻率來說，‘起來’顯然比‘起去’的見次多得多。[14] 從語意的擴展而論，‘起來’發展出了非趨向意義，可以表示‘始動’和‘完成’的時貌意義。‘來’，‘去’分別表示向近處和遠處移動。作爲趨向動詞兩者出現的頻率很難分出高下。除了當趨向詞外兩者都可以做時貌的標誌。‘來’表示始動，‘去’表示完成。作爲一個時貌詞‘去’的滋生力遠比‘來’強，因此頻率也爲‘來’望塵莫及。

國語裏‘上’和‘下’是一對對立的趨向動詞或補語，在閩南語裏‘上’雖可

13. 客贛語的語料參考李張（1992: 208, 366），吳語的語料參考錢（1992: 960, 1053）。

14. 據一般了解國語中‘起去’已經絕跡，可是近代漢語或甚至現代北京話還有蛛絲馬跡可尋。參見羅（1993: 1089-1090），鍾（1988），太田（1958: 212），香阪（1983: 192-193）。

用於口語中，可是使用的範圍比語意相近的‘起’小多了，且帶有文語的味道，只在少數的例子中用做趨向動詞，但絕不能做趨向補語。‘下’只殘留於文語中，不能當作口語中的趨向動詞，這個語意空缺由‘落’承擔。閩南語的‘起’‘落’和國語的‘上’‘下’都分別是一對滋生力很強的趨向動詞或補語。國語裡表示向上位移的趨向動詞除了‘上’之外還有一個勢均力敵的‘起’，兩者的語意略有不同，‘上’有達到終點的意思。閩南語裡‘上’使用的範圍極爲有限，因此‘起’涵蓋的範圍比較大，相當於國語‘上’或‘起’的範圍，語意上兩可，可以指有終點或沒有終點的向上位移。

4. 動詞，賓語，補語的詞序問題

早在1944年（呂1984: 132-144）呂叔湘就從歷史語法的觀點提出漢語動詞，賓語，補語的詞序發展問題，對補語逐漸向動詞接近的趨勢，略有提及。後來岳（1984）又對‘得’字句的詞序做了更細緻的研究。他根據文獻語料得出‘得’字句的詞序和出現的年代：

	詞序	出現年代		
1a.	動得賓補	始於唐代	宋代開始普遍	明代還有
1b	動得補賓		宋代還未普遍	元代逐漸普遍

如果不考慮‘得’字動，賓，補的相對位置有下列兩種可能性：

	詞序	出現的方言
1c.	動　賓　補	閩南
1d.	動　補　賓	國語

這裡補語指引申的單一趨向補語，舉例如下：

	閩南語	國語
1e	看儂無起	*瞧人家不起
1f	*看無起儂	瞧不起人家

我們可以看出閩南語反映出較早的時代層次，國語反映較晚的時代層次。

動趨式和處所賓語連用時，閩南語兩個趨向補語都放在處所賓語之前，[15] 國語兩個趨向補語通例由處所賓語隔開。舉例如下：

閩南語	國語
走落樓骸	跑下樓去
行入去厝內	走進屋裏去
走起去山頂	跑上山去
走轉去厝e	跑回家去
行起來樓頂	走上樓來

兩個方言詞序的不同可以用結構公式表示：

閩南語的結構公式：

動詞＋趨向補語1（＋趨向補語2）＋處所賓語（＋方位詞）

國語的結構公式：

動詞＋趨向補語1＋處所賓語（＋方位詞）＋趨向補語2

兩個方言對照之下可以看出詞序的不同限制：

閩南語	國語
*行落山骸來	走下山來
行落來山骸	*走下來山

閩南語另外的變式是把處所賓語提前：

動＋介詞＋處所賓語＋方位詞＋趨1＋趨2

淹對厝內入去　　淹到屋子裏去

15. Li（1988）曾指出這一點。

如果賓語是非處所名詞，動趨式和賓語的詞序又有所不同：

閩南語	國語
？the̍h 出來一本書[16]	？拿出來一本書
*the̍h 出一本書來	拿出一本書來
the̍h 一本書出來	拿一本書出來

和處所賓語的情況一樣，第二種結構表現出兩個方言詞序限制的差異。但是就第一種結構而言，即趨向補語在賓語之前，兩個方言都不太通順。這點和賓語是處所詞的情況不一樣。

5. 動趨式的連讀形式

動趨式中動詞讀單字調，趨向補語讀輕聲。比如，‘無去’的單字調是13（陽平）＋21（陰去）。這個詞組有兩個意思，即兩種結構分析方式：(1)動趨式：13（單字調）＋輕聲，解作‘不見了’，(2)否定詞＋動詞：21／33（連字調）＋21（單字調），解作‘沒有去’。[17] 如上所述，主要動詞用單字調，趨向動詞念輕聲，但是如果趨向動詞後面又有詞語，就不能念輕聲。（鄭 1989: 36-47; 1993: 142）試比較：

起去
〔動詞＋趨向補語〕
51＋21＞51＋輕聲
起去山頂
〔動詞＋趨向補語＋處所賓語＋方位詞〕
51＋21＋55＋51＞55＋51＋33＋51

16. 鄭（1989: 32-35）認爲這種句型可以成立。
17. 21或13代表不同次方言的連字調。

‘起去’的‘去’讀輕聲，所以主要動詞讀單字調。‘起去山頂’的‘去’讀連字調（即重音調），因此‘起’也讀連字調。有趣的是，‘起去山頂’的‘去’雖然是在強音節的位置，聲母k'-還可以弱化爲l-。可見音段和超音段不是同步發展的。

一般來說，不管是單一或者複合動趨式動詞都是讀單字調，趨向補語都是讀輕聲。但是如果信息重心從主要動詞轉到第一個趨向補語。那麼動詞和第一個趨向補語就讀單字調而第二個趨向補語讀輕聲。

趨向補語除了變爲輕聲外，聲母韻母也產生變化。請先看下表：

起去	k'ik'i	>	k'i li[18]		
起來	k'ilai	>	k'iai	>	k'e
落來	lo?lai	>	luai		
落去	lo?k'i	>	loi		
轉去	tŋ k'i	>	tŋ i		
倒來	to lai	>	tuai		
倒去	to k'i	>	to i		
入去	lip k'i	>	lip i		
出去	ts'ut k'i	>	ts'ut i		

歸納起來有三種變化方式：(1)阻塞音變響音，如k'-變l-，(2)輔音的失落，如聲母l-，k'-或韻尾喉塞音-?的丟失，(3)元音的融合，即由於第一音節塞音韻尾（如果有的話）和第二音節聲母的失落，前後音節的元音融合起來。第一二種的變化主要出現於第二個音節。第三種變化使兩個音節合成一個音節，形成〔合併的語形〕portmanteau morph，即一個語形等於兩個語素的合音。

18. k'-如果在兩個音節重複出現，第二音節弱讀，那麼第二個k'常會弱化爲次濁邊音l，如k'ai lai（<k'ai k'ai開開），k'i li（<k'i k'i起起）（小川等1931-32上：190, 277）。這樣的音變可以給‘起去’的弱化形式提供一個旁證。

6. 成語性的動補賓結構

有一類的成語是由動詞＋趨向補語＋賓語所組成。動詞不能直接接賓語，必須中間插入趨向補語才行。有的還只能出現於帶結構助詞“會”或“𣍐”的可能式中，把結構助詞抽掉之後就不合語法了，如“行𣍐開骸／*行開骸”。舉例如下：（標星號者爲不合語法）

閩南語	國語
講會出喙	說得出口
講出喙	說出口
行𣍐開骸	走不開
*行開骸	
聽入耳／聽落耳	聽得清楚
聽無入耳／沒聽入耳	聽不清楚
行會入心	打得火熱（胡 1994：88）
看𣍐上目	看不上眼／看不起
看會上目	看得上眼／看得起

我們以‘看上目’爲例。‘看’不能直接接‘目’，‘看目’不成話。‘看’後頭加上‘上’才能接賓語，形成成語；這裏文語層次的‘上’只能出現於套語中。以上這類成語，賓語都是指人體的部位。其中一類不帶結構助詞也可以成立，這類成語可以用動補賓結構做底子去推衍可能式即可。另一類不帶結構助詞不行，我們就不能以動補賓結構做基底去衍生了。這個問題涉及到語意，詞法，句法的互動關係，值得進一步的探討。其他類似的成語組合 idiom chunk有‘睏落眠’〔睡著〕，‘行無路’〔吃不開〕等。這兩個成語拿掉趨向補語後動賓式還可以成立，但是語意已經離遠了。‘睏眠’是指〔睡意〕，而‘行路’是字面〔走路〕之意。

7. 詞匯性的可能式

這裏詞匯性的可能式只限定於結構助詞後頭帶趨向補語，趨向補語已失掉具體的趨向意，而發展出引申意。這種可能式雖然有一定滋生力，但不能完全在句法的層次上處理。此外，語意也不完全是組合性的，因此必須在詞匯中列舉。從以下的結構和例子可以看出兩點：(1)可以做這種可能式的趨向閩國語不盡相同，(2)閩南語的結構助詞比國語的豐富多了，且兩個以上的助詞可以連續出現；連續出現的助詞（如-會得-）也許反映了兩個不同的層次。可以做可能式的補語有下列的趨向詞：[19]

7.1.　-來，-去

閩南語“來”“去”都可以當可能式補語，可是國語只有“來”可以：（括弧裏的是可用 optional 語詞）

閩南語	國語
教會（得）來	教得來
教𣍐（得）來	教不來
食會（得）去	吃得了／吃得完
食𣍐（得）去	吃不了／吃不完

閩南語“去”發展出與名詞有關的全稱計量語意。

7.2.　-起，-落

閩南語‘起’，‘落’對應於國語‘上／起’，‘下’，可是用做可能補語時兩個方言表現出不同的分布情況。一般來說，閩南語國語都用可能補語‘起’，但有時候，如c,d，‘起’在兩個方言中發展出不同的語意：

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19. 有關詞匯性可能趨向補語，請參考Chao（1970: 458-480）。這裏部份的語料參考李（1950）和ko et al（1976）。

	閩南語	國語		國語
a.	買會起	買得起		
b.	買𣍐起	買不起		
c.	學會起	學得來	≠	學得起
d.	學𣍐起	學不來	≠	學不起
e.	看有(起)	看得起		
f.	看無(起)	看不起		

閩南語‘落’和國語‘下’對應比較整齊：

閩南語	國語
食會(得通)落	吃得下
食𣍐(得通)落	吃不下
拍會落	打得下
拍𣍐落	打不下

7.3. -轉

閩南語的‘轉／倒’跟國語的‘回’對應，可是這裏只有‘轉’才能做可能補語而且使用的範圍極爲有限：

閩南語	國語
講會lìng轉	說得順口
生理做𣍐轉	生意做不好

7.4. -過

閩南語和國語雖然都有趨向詞‘過’，可是做爲可能補語極爲有限，而且分布方式不同：

閩南語	國語
(大氣)喘會過	喘得了
騙𠊎過	騙不了
信用會得kàu	信得過[20]

7.5. -出，入

閩南語的'出入'和國語的'出進'對應，可是就可否做可能補語而言'出'比'入'更有孳生力：

閩南語	國語	釋意
看會出	看得出	能辨別
看𠊎出	看不出	不能辨別

閩南語	國語	
走會入	？跑得進	跑得進去／來

第五節談到動趨式輕重音的分布，指出動詞念重音趨向補語念輕音，但是如果趨向補語由結構助詞，如"會"，"𠊎"，"有"，"無"，所引介，就必須念重音。因此詞匯性可能趨向補語，如"寫𠊎來"的"來"，雖然出現在最後一個位置可是必須讀單字調。

8. 動趨結構的起源和發展

根據潘（1980）動趨結構可以歸納爲五種：

A.	動	＋	單趨補
	走		來／去
	上		來
	下		去

20. 鄭（1989: 187）。

B	動	＋	複趨補				
	走		上來				
	走		上去				
C	動	＋	趨補	＋	賓		
	走		上		台		
	走		下		台		
D	動	＋	賓	＋	單趨補		
	看		戲		去		
	看		戲		來		
E	動	＋	前複趨補	＋	賓	＋	後複趨補
	走		上		台		去
	走		上		台		來
	唱		起		歌		來

從歷史的發展來看，單趨補語A C最早出現，起源於先秦，盛行於漢代，以後再擴展爲複趨補語B D，而E式近代才出現。每一種的出現年代和個別的發展列出如下：

A　式中單趨補語由‘入’，‘去’擴散到‘出’，‘來’，‘下’

B　起源於西漢，漢以後陸續產生‘出去’，‘上去’，‘過去’，‘過來’。

C　兩漢漸多起來

D　漢代開始

E　宋代以後才有

漢語動趨式的發展有三點值得注意：(1)由單趨補語演變成複趨補語，(2)動趨式的詞匯擴散現象，(3) E 式是在 C 式之後發生的。就第一點而言，單趨式變成複趨式是漢語由綜合變成分析語的一種現象，如古代的‘售’現在說成‘賣出去’。就第二點而言，在 A. B.式中我們觀察到趨向補語並不是一夜之間同時湧現的，而是同一系列的趨向補語陸續出現。這就

構成了句法的詞匯擴散現象。[21] 就第三點而言，E 式是在 C 式中的賓語之後加上指示詞‘來’，‘去’而成的，不是經由賓語和指示詞換位而成的。閩南話不能有 E 式，因爲還沒有發展到那個階段。

9. 動詞和補語的語意關係

動趨式中趨向補語隨著不同類的動詞而有不同的語意。趨向補語的基本義會因不同的連用動詞而衍生各種引申義。動詞和趨向補語的搭配關係會造成前者對後者的影響。有的語意因橫組合 syntagmatic 關係而形成，如法文…pas 的否定意是由與它合用的 ne 傳遞而來了。現在以趨向詞‘去’爲例子說明。[22]

閩南語‘去’至少有下列五個語意：[23]

(1) 趨向意：往遠處移動，如‘走去’，‘飛去’。

(2) 引申意1：表示動作的完成，‘食去’〔吃掉〕，‘燒去’〔燒掉〕或表明事物的消失，如，‘無去’〔不見了〕，‘phàng見去’〔不見了〕[24]，它的語意近似‘了’liáu，但搭配關係不同，如：

看了	講了	想了
*看去	*講去	*想去

(3) 引申意2：表示進入某種狀態，已沒有轉圜的餘地，‘爛去’，‘冷去’，‘暗去’。試比較‘-去’和‘-啊’：

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21. 在音韻方面Wang（1969）提出語音演變是透過詞匯擴散而完成的觀點。（參看Wang and Lien 1993和Lien 1993）最近也有學者論證其他方面（如句法）也有詞匯擴散的現象。（參看梅1980, Tottie 1991, Yue-Hashimoto 1993, Lien 1994）
22. 有關閩南語趨向詞的引申意的大略說明請參看附錄。
23. 閩南語趨向詞‘來’，‘去’的語意引申研究也可以從概念結構入手，參閱Chen（1992）。
24. 這裏‘無去’的‘無’念單字調，‘去’念輕聲。phàng khìⁿ〔拍唔見〕的phàng是由phah-m̄縮減而成，-ng（-ŋ）是-m受後頭音節軟顎聲母k-同化作用而產生的。

閩南語		國語	
瓜果	爛去	蘋果	爛掉
瓜果	爛啊	蘋果	爛了

‘瓜果爛去’是指蘋果爛得很徹底，而‘瓜果爛啊’是指蘋果剛開始爛的階段。‘去’表示動作已達成，‘啊’表示進入新的狀態，而那個狀態還未到達終點。

‘去’當時貌補語時有一定的結合限制：它只能附著於兩極程度詞 polar gradable terms 的負極詞之後：

冷去	〔冷了，冷掉〕	暗去	〔暗了，暗掉〕
*燒去	〔熱了〕	*光去	〔亮了〕
燒啊	〔熱了〕	光啊	〔亮了〕

(4) 引申意3：除了表示動作完成還附帶有蒙受和遭受之意，常用於被動式中：（比較陳 1993）

衫乎雨沃tám去	〔衣服被雨淋濕了〕
Chhân乎日頭曝焦去	〔田給太陽曬乾了〕

‘去’原來是動作完成之意，蒙受和遭受之意可能來自被動式。[25]

(5) 引申意4：實意弱化，只剩下語法的意義，當結果式動補結構的結構助詞：

煮去眞好食	〔煮得很好吃〕
縛去眞ân	〔綁得眞緊〕

25. 語詞的意義隨時間而變，一個語詞也隨著語意演變而分化。其中一個演變方式是，單詞因縱聚合paradigmatic的關係而產生新的語意。本項的蒙受意是由被動式帶來的。這個意義是否夠格獨立成一個意項要看它是否固定下來。目前還處於不穩定的狀態，有待進一步的發展，才能塵埃落定。

這裏去的用法很像其他的結構助詞：，如liáu了，tiòh著，hō͘ 乎，kā，和國語的‘得’[26]。‘去’，‘了’，‘著’本來都是時貌詞或時相詞，透過結構重新分析變成結構助詞。這種結構的調整和語意的虛化可以算是一種語法化。

10. 助詞‘去’，‘了’的演變歷史

根據劉江白曹（1992: 111--121, 129-138）的研究近代漢語裏完成動詞‘了’在北宋時代轉化爲事態助詞‘了’，而趨向動詞‘去’在晚唐時代開始有事態助詞的用法。[27]

太田（1958: 221-222，中譯本：209-210）認爲唐代‘去’表示繼續，或狀態的逐漸加深。第二種用法可以算是始動意。李（1990）也認爲晚唐時期《祖堂集》中的‘去’主要是表示始動意，但也有少數的例子表示完成意。他又指出《祖堂集》裏完成意絕大多數都是由‘卻’表示。劉江白曹（1992: 129-138）指出‘去’和‘了’的分工。‘去’出現於假設句中，表示完成的‘了’出現的環境剛好和它互補。

以上各家都把‘去’看成是事態助詞而非動態助詞（即表完成意的時相詞）。但是陳（1992）根據《祖堂集》的語料論證晚唐時代‘去’已經發展成了表完成意的時相詞。他又指出福州話的‘去’附在動詞的後面也表示狀態變化的完成。如果陳（1992）的說法可以成立，我們似乎應該假定閩南語和福州話表示完成的‘去’是由中古漢語傳承下來，不必假定是由於和中原官話接觸而產生的語法形式。[28] 至於‘去’的歷時研究還應做得更深入才能認清它演變的軌跡。

‘去’和‘了’時間的交叉發生於宋代以後，兩個詞的命運各有不同：‘去’

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26. 有關閩南語述補結構的討論請參看湯（1992: 1-93），連（1994）。
27. 劉等（1992）的事態助詞涵蓋本文的〔始動inchoative〕和〔進入新情況〕兩個語意。事實上‘去’也有完成意（同書：133）。有關表完成的‘了’的發展楊（1991）和梅（1981, 1994）有詳盡的論述。
28. 梅（1994: 93）指出“中原（官話）的‘V卻O’在閩南話變成‘VO去’代表一種調整後的吸收”。有關閩南語‘去’的共時研究可參閱 Chen（1992），陳（1993），連（1995）。

消亡，‘了’擴大。這是官話系統的演變情況。但是這兩個詞在閩南語有獨特發展的情況：‘了’還保持表示完結的時相用法，語音形式也沒弱化，‘去’有時相和時貌的用法，而且做表完結的時相詞具有相當的活力。‘去’的這種用法是由中古漢語或更早的時期一路發展下來的。‘去’元代後消亡只能算是中原官話的特性，不適用於閩南語或福州話。我們不能期待中原官話的文獻反映出所有的南方方言的語法特性。

11. 結語

本文第一節比較了閩南語和國語趨向詞系統，並討論兩方言趨向詞引申意用法上的歧異，第二節分析閩南語趨向動詞中的時代層次和方言類型的特性，第三節探究趨向動詞的縱聚合性，指出結構不均衡的現象，第四節結合歷史文獻論證閩南語的動賓補結構反映比官話早的時代層次，並說明賓語的性質會影響語序，第五節討論動趨式的連讀形式，包括變音，失音和合音的現象，第六節研究成語性的動補賓結構，並談論詞匯，語意，句法的關係，第七節介紹詞匯性的可能式，其中補語用的是趨向詞，第八節探索動趨結構的起源和發展，指出動趨式的詞匯擴散現象及與閩南語語序的關係，第九節討論動詞和趨向詞語意的互動關係，第十節從‘去’和‘了’的演變歷史來看這兩個時貌詞的時代層次。

附錄：趨向動詞的引申意

以下引申意後都接例子，沒有列出表示沒有或極少有引申意。

趨向詞	語意	例子	釋意
來	始動	老來phái命	老了受苦
去	完成	gōng去	呆住了
		àu去	爛掉
		燒去	燒掉
…來…去	反復	罵來罵去	罵來罵去
起	始動	想起	想起
		thê起	提起
起來	始動	精神起來	醒過來
	完成	開起來	打開
	合攏	包起來	包起來
	條件子句的標記	看起來	看起來
落來	繼續到現在	存落來	存下來
落去	繼續到將來	流傳落去	流傳下去
轉／倒		想倒轉	想回來
過	完成	食過	食了
	表經驗	犯罪過	犯過罪
出來	顯露／完成／實現	講出來	說出來
出去	顯露／完成／實現	講出去	說出去

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A Typology of Chinese Affixation*

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Abstract

This paper discusses and compares different ways to cross-classify various affixation patterns in more than twenty Chinese languages, and proposes a set of parameters that are phonologically or morphologically defined for a typology of Chinese affixation. Lin (1989, 1993) considers the phonological aspects of Chinese affixation and *bianyun* (a word formation process that modifies the sounds and/or tone in the rime of a syllable), and analyzes *bianyun* as a special type of affixation. On the basis of this finding, we suggest that three new parameters are needed for a complete classification of Chinese regular affixation and *bianyun* patterns: Affix Form, Stem-Affix Contraction, and Syllable Weight. The systematic gaps in the proposed classification paradigm are accounted for by general principles. Discussion of several cases of intra-dialectal variations lends further support to the proposal and leads to a hypothesis for the mechanisms of variation and change in Chinese affixation.

Although affixational morphology is limited in the Chinese languages,[1] this study demonstrates that the morphophonological patterns of diminutive/hypocoristic and *zi* affixation are rich enough to merit a detailed investigation. After discussing and comparing different ways to

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1. In this paper, I use the terms 'language' and 'dialect' interchangeably.

cross-classify the various affixation patterns in more than twenty Chinese languages, I propose a set of parameters that are either phonologically or morphologically defined for an innovative typology of Chinese affixation.

This paper is organized as follows. In §1, I briefly discuss the inadequacy of a more traditional classification for Chinese affixation. In order to include *bianyun* in the affixation system, a different classification is proposed in §2. §3 examines intra-dialectal variation that provides further support for the proposal. Finally, a conclusion is given in §4.

1. Types of Affixation

The most general view of an affixational typology is determined by Affix Placement, i.e., the position of the affix with respect to the stem. Based on this view we can classify affixational processes into prefixation, suffixation, infixation, and circumfixation. In Chinese languages, suffixation is the most common type, but the other three are also attested, as shown in (1).[2] Prefixation is not uncommon in Chinese, but infixation and especially circumfixation are rare.[3]

(1) Affix Placement: prefixation, suffixation, infixation, circumfixation

a. Prefixation:	Taiwanese	a-ma	'grandmother'
b. Suffixation:	Beijing	pan-*er* → par	'board'
c. Infixation:	Pingding	xua-*er* → xlua	'flower' (Xu 1981)
d. Circumfixation:	Yanggu	tu -*er* → tlur	'rabbit' (Dong 1985)

In addition to regular affixation, some Chinese languages also ex-

2. Throughout the paper, place/city names are used to represent the dialects spoken in the area, but common terms like Taiwanese, Cantonese, etc. will be used instead of the place names. In all the examples, tones are marked only when relevant to the discussion.
3. The only case of circumfixation I know of is Yanggu *er*-noun formation. Lin (1989) posits a cirumfix [l ...r] for -*er*, and Yip (1992) treats -*er* as a combination of a floating feature [lateral] and a suffix [r]. Chen (1992), however, argues that the phonological form of the affix is simply /-r/. If one accepts Chen's arguments, then the Yanggu *er* affix is a suffix.

hibit stem internal alternations in a word formation process called *bianyun* (rime change), where the sounds and/or tone in the rime of a stem syllable are modified (see e.g. Li 1963, Hou 1985, He 1981, 1982). Some examples of segmental changes from Jiyuan *zi bian yunmu* (*zi* changed rimes) are given in (2). The examples in (2bc) show segmental changes in the vowel and the coda consonant; (2d) is a case where the nuclear vowel and the coda consonant merge into a new segment. In the Yangcheng example in (3), a tonal change accompanies changes in both segmental quality and quantity.[4]

(2) Jiyuan *zi bian yunmu* (He 1981)

	stem	*zi* noun			stem	*zi* noun	
a.	pi	pi:u	'nose'	c.	tçin	tçi:ŋ	'gold'
b.	xua	xuɔ	'flower'	d.	pan	pã	'board'

(3) Yangcheng *zi bian yunmu* (Hou 1985)

t^hye (31) t^hyɔ: (313) 'rake'

In a model of morphological theory like that in Anderson (1992), *bianyun* may be considered a typical case of non-affixational morphology. If so, *bianyun* would constitute a separate category along with other word formation processes such as reduplication and compounding:

(4) Word Formation in Chinese:

a. Affixation (prefixation, suffixation, infixation, circumfixation)

b. *Bianyun* (vowel change, coda change, segmental merger, tonal change)

c. Reduplication (XXX, XYY, XYXY, XXYY, etc.) (Chiang 1992)

d. Compounding (NN, VV, NV etc.) (Chao 1968, Li & Thompson 1981)

4. Tones are marked based on Chao's numeral five-point pitch scale, with 1 indicating the lowest and 5 the highest pitch.

This treatment of *bianyun*, however, misses two important generalizations. First, *bianyun* and the majority cases of affixation in Chinese derive the same types of words, i.e., diminutive/hypocoristic and *zi* words, which indicates a close tie between these two processes (Lin 1989, 1993). Second, the phonological alternations induced by *bianyun* are also typical in many cases of Chinese affixation. Consider, for example, Yiwu *er* suffixation in (5), where we can see vowel lengthening, change in coda consonant, and segmental merger (cf. (3) above). (We will see more examples in §2.) I have argued in Lin (1993) that *bianyun* is a special type of affixation with templatic constraints on the affixed output. If we accept this view, *bianyun* should be subsumed under affixation.

(5) *er* suffixation in Yiwu (R. Li 1963, Fang 1986)

a.	di	+	n	→	di:n	'younger brother'
b.	doŋ	+	n	→	do:n	'basket'
c.	tsau	+	n	→	tso:n	'table'

If *bianyun* is incorporated into the category of affixation, we are left with three types of processes: that is affixation, reduplication, and compounding. In the framework of non-linear morphology and phonology, reduplication may be treated as affixation with a copying device (Marantz 1982, McCarthy and Prince 1986 among others). Furthermore, McCarthy and Prince (1986) distinguishes two types of reduplication: affixation (partial reduplication) and compounding (total reduplication). Chinese reduplication has also been analyzed as syllable affixation and compounding by Chiang (1992). If reduplication is analyzed as either affixation or compounding, Chinese word formation processes would consist of only affixation and compounding. With the affixation category to encompass both reduplication and *bianyun*, an adequate classification of affixation patterns would require parameters beyond Affix Placement. In what follows, I will discuss new ways to classify patterns in regular affixation and *bianyun*, and leave the issue of affixal reduplication for future study.

2. A Typology of Affixation and *Bianyun*

Lin (1989) takes into consideration the phonological aspects of Chinese affixation and *bianyun* and provides the classification as in (6). For regular affixation, if there is no syllable contraction, the affix surfaces as a separate syllable; if syllable contraction occurs, the affix merges with the stem. On the other hand, since *bianyun* is considered to be affixation of a feature-sized affix with a monosyllabic output, the featural affix is incorporated into the stem and transforms the rime, as the Jiyuan examples show.

(6) A. Regular affixation: Affixation of a full-segment affix with/without syllable contraction

a. without syllable contraction: e.g. Wushan (Li 1963)

tau + z'*er'* → tau z 'knife'

b. with syllable contraction: e.g. Rongchang (Li 1963)

pei + ər → pər 'cup'

B. *Bianyun*: Affixation of a feature-sized affix with a monosyllabic output.

e.g. Jiyuan *zi bian yunmu* (same data as in (3), analysis by Lin 1989, 1993)

pi	+	[+bk, +rd](zi)	→	pi:u	'nose'
xua	+	[+bk, +rd]	→	xuɔ	'flower'
tçin	+	[+bk, +rd]	→	tçi:ŋ	'gold'
pan	+	[+bk, +rd]	→	pã	'board'

This classification is based on differences in the phonological shape of the affixes and whether or not the derived word is monosyllabic or polysyllabic. For our purpose, we may identity two major classifying parameters to characterize this proposal:

(7) a. Affix Form: full-segment affix
feature-sized affix (degenerate affix, Lin 1993)[5]

b. Stem-Affix Contraction: yes (incorporation of the affix into the stem)
no (affix as a separate syllable)

Let us now examine an extensive list of examples classified according these two parameters. Examples of common regular affixation are shown in (8) through (14), where the affix stands alone as a separate syllable. With the exception of cases like Taiwanese in (13) and Lichuan in (14) where gemination/resyllabification occur, no phonological alternations are induced in these cases.

A. Affix Form: full-segment Stem-Affix Contraction: no

(8) *zi* suffixation in Beijing

a. tsuo	+	tsɨ	→	tsuo	tsɨ	'table'
b. pʰan	+	tsɨ	→	pʰan	tsɨ	'plate'

(9) *er* suffixation in Taihu (Fang 1993)

a. hua	+	əl	→	hua	əl	'flower'
b. təŋ	+	əl	→	təŋ	əl	'bench'

(10) *er* suffixation in Hangzhou (R. Li 1963)

a. təŋ(44)	+	l (213)	→	təŋ(44)	l (213)	'bench'
b. kʰuɛ(44)	+	l (213)	→	kʰuɛ(44)	l (213)	'chopsticks'

(11) *er* suffixation in Wushan (R. Li 1963)

a. kə	+	z	→	kə	z	'song'
b. tau	+	z	→	tau	z	'knife'

5. A degenerate affix is in the form of less than a full segment. It may consist of only one or a few features, a prosodic weight unit: mora, or the combination of these two.

(12) *er* suffixation in Xining (Zhang & Zhu 1987)

a. xua	+	ɛ	→	xua	ɛ	'flower'
b. kɔ	+	ɛ	→	kɔ	ɛ	'song'

(13) *zi* suffixation in Taiwanese (Yip 1980; Zhang 1983; Chiang 1990)

a. kam	+	a	→	kam mã	'orange'
b. ap	+	a	→	ab ba (~a βa)	'box'

(14) *zi* and *er* suffixation in Lichuan (Yan 1989)

a. k^hio	+	ɛ(*zi*)	→	k^hio	ɛ	'eggplant'
b. hai	+	ɛ	→	hai	ia	'shoes'
c. mɛn	+	ɛ	→	mɛn	nɛ	'mosquito'
d. pa	+	i(*er*)	→	pa	i	'scar'
e. pɛn	+	i	→	pɛn	ni	'notebook'

On the other hand, examples (15) through (20) illustrate the group of dialects in which the affix is incorporated into the stem, often resulting in phonological alternations. We have seen vowel lengthening, nucleus-coda merger, and coda replacement by the suffix in Yiwu above (examples repeated as (15)). The replacement of the coda segment with the suffix is a common result of stem-affix contraction; two more cases, Beijing and Luoyang, are given in (16) and (17). In addition, epenthesis may apply to bridge between a high nuclear vowel and the newly incorporated suffix, as in (16a) in Beijing and (18c) in Zhengzhou. The Rongchang examples in (19) present a case where the suffix substitutes the whole rime of the stem,[6] while the examples in (20) show tonal substitution. As discussed in Yip (1992) and Lin (1993), the stem and affix elements can both be retained as long as the resultant syllable is well-formed. For example, in (19e), the stem rime is not replaced by the suffix; rather, they coexist in the derived word.

6. Another example of this sort is Anxiang *er* suffixation (Ying 1988, Yip 1992).

B. Affix Form: full-segment Stem-Affix Contraction: yes

(15) *er* suffixation in Yiwu (R. Li 1963, Fang 1986) (=(5))

a. di	+	n	→	di:n	'younger brother'
b. doŋ	+	n	→	do:n	'basket'
c. tsau	+	n	→	tso:n	'table'

(16) *er* suffixation in Beijing (C. Cheng 1973, R. Li 1963)

a. i	+	r	→	ir	→	iər	'clothes'
b. pa	+	r	→	par			'rake'
c. pan	+	r	→	par			'board'
d. k^huai	+	r	→	k^huar			'lump'
e. iaŋ	+	r	→	iãr			'sheep'
f. kou	+	r	→	ko^ur			'dog'

(17) *er* suffixation in Luoyang (He 1984)

a. pi	+	ɯ	→	piɯ	'nose'
b. mən	+	ɯ	→	məɯ	'door'
c. ma	+	ɯ	→	mɐɯ	'mother'

(18) *zi* suffixation in Zhengzhou (R. Li 1963)

a. ua	+	u	→	uau	'socks'
b. çüɛ	+	u	→	çüau	'boots'
c. pi	+	u	→	piəu	'nose'

(19) *er* suffixation in Rongchang (R. Li 1963, Lin 1989)

a. pei	+	ər	→	pər	'cup'
b. kaŋ	+	ər	→	kər	'cistern'
c. tau	+	ər	→	tər	'knife'
d. kuan	+	ər	→	kuər	'officer'
e. ü	+	ər	→	üər (*ər)	'fish

(20) *er* suffixation in Tunxi (Qian 1991)

a. $mi_{(55)}$	+	$n_{(24)}$	→	$min_{(24)}$	'riddle'
b. $k^hua_{(53)}$	+	$n_{(24)}$	→	$k^huan_{(24)}$	'chopsticks'

With the parameters in (7), *Bianyun* can then be defined as a type

of affixation with a different parameter setting from the two regular types discussed above; that is, under *bianyun*, the affix form is less than a full segment and the affix is always incorporated into the stem. Examples are given in (21) through (27). If a feature-sized affix consists of a syllable weight unit, i.e. a mora, as in (21) (22), the affix may contribute to vowel lengthening (Yangcheng in (21), Heshun in (22)) and thus affect the syllable weight of the affixed output; on the other hand, an affix consisting of only a tonal feature (Cantonese in (23)) or segmental features (e.g. Jiyuan in (24)) results in feature changes in the stem. The prosodic mora, 'μ', which is devoid of segmental feature contents, could be filled by the nuclear vowel of the stem resulting in vowel lengthening as in Yangcheng (21) and Heshun (22) or by the default vowel as in Huojia (25). In addition to vowel lengthening and epenthesis, the surface alternations also result from the creation of a new segment by imposing the affixal features on the vowel or the syllabic coda of the stem, e.g. (21c) and (24 cg), or by merging the nuclear vowel and the coda, e.g. (24d) and (25bc). (Since this paper concerns mainly on the general classification of affixation types, readers are referred to Lin (1993) for a detailed analysis of *bianyun*.) One thing worth noting is that in (21) through (24), the derived words may consist of either closed or open syllables, while those in (25) through (27) require an open syllable output. Such requirement, according to Lin (1993), triggers segmental merger, e.g. Huojia in (25). Segmental losses in (26b) and (27b) may also be considered a response to the same open-syllable restriction. The observation about the distinction between open and closed syllable outputs is crucial to the identification of the next parameter.

C.Affix Form: feature-sized; Stem-Affix Contraction: yes

(21) *zi* rime change in Yangcheng (data from Hou 1985, analysis from Lin 1993)

a. t^hi	+	μ…[+bk,+rd]	→	t^hi:u	'ladder'
b. pa	+	μ…[+bk, +rd]	→	pɔ:	'rake'
c. cin	+	μ…[+bk, +rd]	→	ci:ŋ (ci:^{o}ŋ)	'heart'

(22) *zi* rime change in Heshun (data from Tian 1986, analysis from Lin 1993)

a. lu	+	μ	→	lu:	'stove'
b. tai	+	μ	→	ta:i	'bag'
c. liŋ	+	μ	→	li:ŋ	'collar'

(23) Cantonese diminutive tonal change (Yip 1980)

a. üü:$_{(21)}$	+	[+H]	→	üü:$_{(35)}$	'fish'
b. tsœ:ŋ$_{(53)}$	+	[+H]	→	sœ:ŋ$_{(55)}$	'a surname'
c. yuk$_{(22)}$	+	[+H]	→	yuk$_{(35)}$	'jade'

(24) *er* and *zi* rime changes in Jiyuan (data from He 1981, analysis from Lin 1993)

a. pi	+	[+bk, +rd](*zi*)	→	pi:u	'nose'
b. xua	+	[+bk, +rd]	→	xuɔ	'flower'
c. tçin	+	[+bk, +rd]	→	tçi:ŋ	'gold'
d. pan	+	[+bk, +rd]	→	pã	'board'
e. pi	+	[-bk, +rd](*er*)	→	piü	'nose'
f. ma	+	[-bk, +rd]	→	mæ	'horse'
g. çin	+	[-bk, +rd]	→	çĩü	'heart'
h. pan	+	[-bk, +rd]	→	pö	'board'

(25) D rime change in Huojia (data from He 1982, analysis from Lin 1993)

a. li	+	μ ('D')	→	liə	→	iɛ	'Li (surname)'
b. sun	+	μ	→	suən	→	suɛ̃	'Sun (surname)'
c. tiŋ	+	μ	→	tiəŋ	→	tiõ	'Ding (surname)'

(26) *er* suffixation in Dinghai (data from Fang 1993, analysis by Lin)

a. ba	+	[+nas, -bk]	→	bɛ̃	'card'
b. kai	+	[+nas, -bk]	→	kĩ	'dog'
c. ŋau	+	[+nas, -bk]	→	ŋõ	'goose'

(27) *er* suffixation in Ezhou (data from Wan 1990, analysis by Lin)

a. tso	+	[-bk, +lo]	→	tsa	'table'
b. ɕiən	+	[-bk, +lo]	→	ɕiɛ	'heart'
c. kau	+	[-bk, +lo]	→	kæ	'cake'

Although the classification based on (7) appears to have successfully merged affixation and *bianyun* into one category, it has not addressed the question of variation in syllable types. As mentioned above, the contraction of the stem and the affix under *bianyun* produces two distinctive output types: a single syllable (either open or closed) and a strictly open syllable. Such a distinction, which goes beyond the Stem-Affix Contraction parameter, is also called for in cases such as Jiyuan *bianyun* in (24) where the derived words are grouped into two: a strictly open syllable is required when the nucleus of the stem is a low vowel (24dh), but a high vowel may be followed by a coda nasal or glide (24aceg).[7]

In addition to Affix Placement (as in (1)), I propose three new parameters for a complete classification of Chinese affixation patterns: Affix Form, Stem-Affix Contraction, Syllable Weight. The options within each parameter are shown in (28).

(28) a. Affix Form: (i) Full-segment affix
(ii) Degenerate affix

b. Stem-Affix Contraction: Yes
No

c. Syllable Weight: (i) a heavy bimoraic syllable
(ii) a light monomoraic open syllable

(29) exemplifies how these three parameters cross-classify the diverse affixation patterns in various Chinese languages. If there is no stem-affix merger, as in (29A), we find only full-segment affixes. If the stem and

7. I will come back to the transitional cases where different groups of stems choose different options of one parameter.

the affix merge, the affix could be of the full-segment or the degenerate type and the output could be open or closed syllable, as shown in (29B).

(29) A. Stem-Affix Contraction: No

Affix Form	Examples
Full segment	Beijing *zi* suffixation, Taiwanese *zi* suffixation, etc. ((8)-(14))
Degenerate	?

B. Stem-Affix Contraction: Yes

Affix Form	Syllable Weight	Examples
Full-segment	heavy	Yiwu *er* suffixation, Beijing *er* suffixation, etc. ((15)-(20))
Full-segment	light	?
Degenerate	heavy	Yangcheng *zi* suffixation/infixation (21) Heshun *zi* infixation (22)
Degenerate	light	Huojia D infixation (25) Dinghai *er* suffixation(26) Erzhou *er* suffixation (27)

Notice that not every combination of these parameters has attested examples. First, if the affix is separate from the stem, the affix is always in the form of a full-segment syllable; I have not found cases where a feature-sized affix could become a separate syllable in the output. Second, if the output shape of a word is restricted to a light open syllable, a full-fledged affix does not stand a chance to surface. As examples in (15)-(20) show, e.g. Beijing *er* suffixation, incorporation of a full-fledged suffix into the stem always creates a heavy syllable since the suffix would occupy the coda position of the syllable. In contrast, under *bianyun* a feature-sized affix may surface by creating a new segment that contains the features of both the suffix and the original rime, e.g. in (25) through (27). There are two possible ways to solve the problem: one is to reduce the number of parameters so as to eliminate redundancy, the other is to invoke universal principles/constraints for an explanation of the gaps in the paradigm. The reduction of the number of parameters would result in

undergeneralization and fail to reveal the similarities and differences between regular affixation and *bianyun*. An explanation of the gaps lies in the concept of maximization. Maximality Principle in (30) intends to capture the generalization that languages tend to retain as much information as possible.

(30) Maximality Principle (Prince 1985, Itô 1989):
Units are of maximal size, within the other constraints on their form.

First, for the gap in (29A), given that a degenerate affix cannot form a syllable since it contains only one or two features, the property of the degenerate affix is then in conflict with the requirement for a disyllabic output. Thus, the output requirement cannot be fulfilled, and the affix would be lost. Second, for the gap in (29B), the requirement for a single open syllable output and the addition of a full-segment affix is also contradictory, and to achieve such a combination would require extensive loss of materials, which is a situation deviating away from the Maximality Principle. If this explanation is on the right track, we may never find examples to fill the gaps in (29).

In this section, I have demonstrated that three new parameters successfully cross-classify various types of regular affixation and *bianyun* in Chinese and the systematic gaps of this typology may be accounted for by appealing to the universal principle of maximality.

3. Transitional Cases

Examples (31) through (33) are dialects that cannot be directly classified into the system in (29); they usually exhibit a mixed system in which stems in different phonological shapes choose different options of a parameter. I consider them to be transitional cases that are in the process of moving from one affixation type to another. In Mancheng, syllable contraction usually applies, but, as we can see in (31ab), if the stem ends in a velar nasal or the high back vowel [u], the suffix would stay as a

separate syllable. The Yuanyang examples in (32cd) show that when the stem ends in a nasal, the derived *zi* word has to be an open light syllable.[8] As mentioned in §2, the outputs of Jiyuan *er* and *zi* suffixation in (24) vary between heavy and light syllables; Huojia zi suffixation in (33) shows similar behavior, i.e., open syllable for nonhigh vowels and closed syllable for high vowels.

(31) *er* suffixation in Mancheng (Chen 1988)

a. aŋ	+	ər	→	aŋ ŋər	'vegetable'
b. au	+	ər	→	au uər	'peach'
c. ü	+	ər	→	üər	'fish'
d. ɕin	+	ər	→	ɕiər	'heart'
e. pʰan	+	ər	→	pʰɐr	'plate'

(32) *zi* suffixation in Yuanyang (R. Li 1963)

a. ʂua	+	u	→	ʂuau	'brush'
b. pi	+	u	→	piᵒu	'nose'
c. pʰan	+	u	→	pʰa	'plate'
d. lian	+	u	→	lia	'curtain'

(33) *zi* suffixation in Huojia (data from He 1982, analysis from Lin 1993)

a. pi	+	[+bk,+rd]	→	pi:u	'nose'
b. tɕü	+	[+bk,+rd]	→	tɕüu	'young horse'
c. ʂa	+	[+bk,+rd]	→	ʂɔ	'fool'
d. tɕʰye	+	[+bk,+rd]	→	tɕʰyo	'eggplant'
e. pʰyaw	+	[+bk,+rd]	→	pʰyɔ	'ticket'
f. faŋ	+	[+bk,+rd]	→	fɔ̃	'house'
g. tɕin	+	[+bk,+rd]	→	tɕi:ŋ	'gold'

8. See Yip (1992) and Lin (1993) for analyses.

These transitional cases can be characterized according to the proposed parameters as the type of affixation that splits the stems into different groups that select different options within the Stem-Affix Contraction or the Syllable Weight parameters, as shown in (34).[9] In Mancheng the two options of Stem-Affix Contraction are chosen by different types of stems, and in Yuanyang and Jiyuan the choice of one option over the other of the Syllable Weight parameter is also determined by the phonological shape of the stem.

(34) a. Affix Form: Full-segment
Stem-Affix Contraction: no for stems ending in /ŋ/and/u/
yes for other stems
Examples: Mancheng *er* suffixation (31)

b. Affix Form: Full-segment
Stem-Affix Contraction: yes
Syllable Weight: light for stems closed with a nasal
heavy for other stems
Example: Yuanyang *zi* suffixation (32)

c. Affix Form: Degenerate
Stem-Affix Contraction: yes
Syllable Weight: light for stems with non-high vowels
heavy for stems with high vowels
Example: Huojia *zi* suffixation (33)

We can imagine that in these cases, some stems have switched from one setting to the other when they undergo affixation, leaving behind the remaining stems with the old setting. The split of the stems into groups that are subject to different parameter values indicates that changes in parameter setting in affixation may proceed by affecting one group of

9. I am grateful to Chin-chuan Cheng for discussion of parameter setting for these transitional cases. Although I do not completely agree to his suggestion, which would set only one value for every parameter and treat the variations as exceptions, the discussion has led me to clarify my thinking and revise this section.

words at a time, thereby resulting in these transitional cases. No matter how changes in parameter setting are actually carried out, the existence of such transitional cases further supports the need to recognize the proposed parameters Stem-Affix Contraction and Syllable Weight.[10]

We have seen that the same set of parameters accounts for both the inter-dialectal and intra-dialectal variations in the patterns of affixation. These variations also shed light on how one type of affixation changes to another. In terms of the proposed parameters, I hypothesize that the different types of affixation in (29) represent different stages of a changing process in which a full-segment affix is reduced to a feature-sized affix, stem-affix separation is being replaced by stem-affix merger, and the merged forms are changing from closed heavy syllables to light open syllables. The transitional types in (34) then showcase a change in progress that can be characterized as in (35).

(35)	Affix Form:	Full-segment affix	→	Degenerate affix
	Stem-Affix Contraction:	No	→	Yes
	Syllable Weight:	Heavy	→	Light

A detailed investigation to support the hypothesis is beyond the scope of this paper and will be left for future research. The analysis provided here, nevertheless, points to the direction along which one could gain understanding of the formal mechanisms involved in the change of Chinese affixational patterns.

10. An anonymous reviewer has pointed out that parameters should be set either 'on' or 'off', and different options of one parameter should not coexist in a single case. These transitional cases in a sense have split the system into two subsystems, so within each subsystem, the parameters are set either 'on' or 'off'. For example, Huojia *-zi* suffixation is split into *-zi* suffixation for stems with nonhigh vowels and *-zi* suffixation for stems with high vowels. In the former subsystem, the parameter Syllabel Weight is set at "light", and in the latter, it is set at "heavy".

4. Conclusion

In this paper, I propose an expansion of the parameters for a typology of Chinese affixation beyond the general classification in terms of Affix Placement. The process of identifying the appropriate parameters is based on the morphological and phonological patterns of regular affixation and *bianyun*. The systematic gaps in the paradigm are accounted for by a universal principle. This study not only suggests a new perspective in investigating the similarities and differences of Chinese affixation patterns but also provides a direction for future studies of the mechanisms of variation and change in affixation.

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Conceptual Basis and Categorial Structure: A Study of Mandarin V-R Compounds as a Radial Category[1]

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Abstract

This paper aims to explain why the Mandarin V-R compounds stand as a grammatical category and how the various V-R subtypes are interrelated. With an emphasis on cognitive-linguistic process, this paper suggests that Mandarin V-R compounds manifest a universal tendency of conceptual conflation of events and represent linguistic pairing with domain schematization. The V-R category is re-analyzed along the lines of a *radial* structure, with proposals of various spatial schemas serving as the conceptual basis for categorial expansion. The Path-Endpoint schema is considered to be central and non-central cases are built upon varied path schemas. Extension of each subcategory is made possible via metaphorical transfers from Spatial to Physical to Mental/Perceptual domains. It is shown that only by viewing the V-R category as radially-structured can we find motivations for its semantic and syntactic diversity.

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1. Introduction

1.1 Theoretical Background

Recent work on cognitive semantics and lexicalization has drawn substantial attention to the correspondence between language and cognition, with a special emphasis on categorization (cf. Lakoff 1987; Talmy 1985, 1991; Langacker 1987, 1991; Tai 1989 a & b; Ono and Thompson 1994). It is argued that language is characteristic of human cognitive activities and that there are direct pairings of parameters of form with parameters of meaning. To fully understand language, one has to probe into the underlying conceptual organization of language. As one central aspect of cognition, categorization in general bears gestalt properties and an ecological structure. It is neither objectivistic nor atomistic as traditionally thought. Similarly, linguistic categories should be viewed as **schematic** in nature and **radially** structured, rather than with discrete boundaries (Lakoff 1987).

The notion of radial structure as defined in Lakoff (1987) provides a new perspective to the study of Mandarin Verb-Resultative (V-R) compounds (eg. 走進, 打破, 哭醒, 聽懂, etc.). As a grammatical category, V-R compounds display a wide range of morphological, syntactic and semantic variations, and prove to be a productive resource for new complex verbs. Early studies on Mandarin V-R compounds focus mainly on their internal morphological and semantic make-ups (cf. Chao 1968; Thompson 1973; Li and Thompson 1981). More recently, researchers have worked intensively on the argument structure and semantic restrictions associated with V-R compounds. Chang (1988, 1991) emphasizes the importance of thematic roles in relation to the grammatical properties of V-R's. Lin (1990) adopts a semantic approach, deriving collocational and subcategorizational regularities of V-R's on the basis of a semantic classification of individual verbs. Within the framework of GB theory, Li (1990, 1993) proposes a structure-based account, which takes the first V as the head. Following the theory of LFG, Huang and Lin

(1992) demonstrates a morpholexical approach by postulating argument templates and selection rules to match the argument structure with the thematic structure. Other studies focus on one specific subcategory of V-R's with a detailed characterization of its syntactic or semantic properties (cf. Chang 1993, Gao 1993, Yeh 1993).

1.2 The Question

In their attempts to account for the diverse behavior of V-R compounds, previous studies all operate under the assumption that V-R compounds as a grammatical category consist of a fixed set of 'classes', whose behavior can be rigidly formulated and perhaps predicted in terms of the syntactic and semantic properties of the verbal elements. However, given the wide range of diversity and the huge number of V-R's, a more basic question needs to be asked: **what makes it possible that all these different event complexes with distinct semantic combinations share the same surface form, i.e., all being coded as a V-R compound.** More specifically, **what *motivates* the various V-R subtypes and how are they interrelated and perceived as one unique grammatical category?**

1.3 Scope and Goal of the Paper

As an attempt to answer the above questions, this paper follows the proposal in Talmy (1991) that certain types of event complex are universally amenable to conceptualization as a single fused event and, accordingly, to expression by a single clause. Mandarin V-R compounds manifest exactly such a conceptual conflation of events (a 'macro-event' in Talmy's terms), which may be established as a component of cognitive-linguistic organization. To account for the internal structure of the V-R category, various *image-schematic models* are proposed as the conceptual bases for categorial extension. This paper further characterizes the cognitive principles that motivate these subtypes, and specifies the semantic links between them. It ultimately shows how the category of V-R compounds can be reconstructed as a complex, 'radial' category, with non-discrete boundaries, rather than one whose members can be de-

scribed in terms of a set of shared properties (cf. Lakoff 1987).

1.4 The Data

The analysis of this paper is based on entries of V-R compounds collected in a large electronic dictionary of Mandarin, which has been developed by the CKIP group at the Institute of Information Science, Academia Sinica. The total number of V-R's in this dictionary is about 2430, but not all of them are found in the CKIP corpus[2] of written Mandarin. Below are the 3 most common types of V-R's that occur in the corpus:

(1) Most frequently used V-R types in CKIP corpus:
   a. V-到: 送到 流到 移到 增加到 申請到 讀到 觀察到
   b. V-Ending State: 割斷 曬乾 修齊 剪開 弄髒 關緊 壓扁 勒死
   c. V-出/出來: 放出 掘出 結出 訓練出來 表達出來 想出來

2. Event Structure and Typological Account

2.1 Event Conflation as a Universal Cognitive-linguistic Process

The prototypical function of the V-R compound taken as a unit is to report a complex event (cf. Hopper and Thompson 1984:736). This complex event consists of two subevents --an initial activity (V) and a resultative stage (R), expressed only with a single clause. This kind of event structuring is examined in great detail in Talmy (1991). According to Talmy, although a complex event is usually partitioned into a main event and a subordinate event, together with the relation between them, 'there appears to be a general cognitive process at work in language whereby an

2. The CKIP corpus of written Mandarin consists mainly of newspaper and journal articles, with approximately 20 million characters.

event that under a more analytic conceptualization would be understood as complex and represented by a multi-clause syntactic structure can be alternatively conceptualized as simplex and represented by a single clause' (Talmy 1991:481). This cognitive-linguistic process is termed 'conceptual conflation of events', which produces an event complex called 'macro-event'.

Within the macro-event, there are two event-components: a main, *framing* event and a subordinate, *supporting* event. The framing event provides the overarching conceptual framework or reference frame for the whole macro-event, and it serves to delineate a certain type of schematic structure in a particular set of organized conceptual domains, a function called 'domain-schematizing'. Talmy identifies five types of domain schematization that the framing event can represent, as listed in (2):

(2) Five types of domain schematization:

a. Path in an event of motion: *The ball rolled in.*

b. Aspect in an event of contouring in time: *They talked on.*

c. Change property in an event of state change: *The candle blew out.*

d. Correlation in an event of action correlating: *She sang along.*

e. Fulfillment/confirmation in an event of action realization: *The police hunted the fugitive down.*

On the other hand, the supporting event performs a function of *support* in relation to the framing event, which can be further specified as Cause, Manner, or Purpose, etc. Talmy further suggests that the framing event and the macro-event, both representing a conceptual unit mapped with a linguistic unit, should be recognized as two components of cognitive-linguistic organization (Talmy 1991: 481-87).

2.2 Typology of Event Conflation

An important claim in Talmy (1991) is that the existence of the macro-event as a cognitive unit and its specific conceptual structuring

may be *universals* of linguistic organization. There are two typological accounts concerning the coding of a macro-event (1991: 486-87):

> First, languages can generally be divided into a two-category typology on the basis of the characteristic pattern in which the conceptual structure of the macro-event is mapped onto syntactic structure. That is, the core schema of the macro-event may be expressed either by the **main verb** or by the **satellite**[3] (or adjunct). English is mentioned as an example of satellite-framed language, since it is the particle 'in' in sentences like 'The ball rolled in' that expresses the schematic core. Spanish, on the other hand, exemplifies a verb-framed language.
>
> Secondly, the syntactic site -- verb or satellite -- where Path is characteristically expressed is also to a great extent where aspect, state change, action correlation and realization are characteristically expressed.

As will be clear below, these two typological accounts may both apply to Mandarin V-R's, which shows that the V-R category in Mandarin is not an isolated phenomenon. It actually complies with the universal, cognitive-linguistic process that maps conceptual conflation of events with a single syntactic unit. However, a more elaborated account is still needed to account for the language-specific structure of the Mandarin V-R's and the interrelationship among its subcategories.

2.3 Domain Schematization with Mandarin V-R Compounds

The V-R compound in Mandarin illustrates exactly a macro-event as defined above, conceptually conflating a complex event into a simplex one and linguistically coding it with a single clause. Following Talmy's typology, Mandarin can be categorized as a satellite-framed language: it

3. A satellite is defined by Talmy (1991:486) as 'the grammatical category of any constituent other than a nominal complement that is in a sister relation to the verb root.' It can be either a bound morpheme or a free word, such as English verb particles, Chinese verb complement, German verb prefixes, etc.

maps the core schema of a V-R macro-event into the satellite, i.e., the verb complement (R). And the five types of domain schematization, including path, aspect, state change, action correlation[4] and realization, can also be found in Mandarin:

(3) Domain-schematizing functions of Mandarin VR compounds:

a.	Motion-Path:	跳下去
b.	Temporal contouring-Aspect:	講下去
c.	State change-Changed property:	弄破
d.	Action correlation-Correlation:	唱和
e.	Action realization-Fulfillment:	殺死

Examples in (3) help to provide some basic ideas regarding the semantic domains commonly encoded by V-R's. Nevertheless, the categorical diversity of V-R's is much more complicated than (3) may show. For example, the same R component may be used with both motional and non-motional activities, resulting in an interesting semantic parallelism between the two domains:

(4)

Motion:	Non-motion	
a. 跑到	a. 想到	
b. 跑出/進（來 or 去）	b. 想出（來）	聽進（去）
c. 跑上/下（來 or 去）	c. 看上	節省下（來）
d. 跳過	d. 想過	
e. 走遍	e. 找遍	
f. 站起（來）	f. 想起（來）	

Given the categorical complexity of V-R's, what needs to be further explored is the relationship among different semantic domains and the

4. Examples of VR compounds that specify action correlation are extremely limited in Mandarin.

motivation for clustering them into the same syntactic category. Beyond merely listing possible semantic subtypes of V-R's, the following sections will examine in detail their interrelationships, and identify cognitive principles that allow the Mandarin V-R category to encompass such a wide range of semantic variations.

3. V-R Compound as a Radial Category

3.1 Radial Structure

Lakoff (1987) has made it clear that the grammar of a language is a cognitive subsystem. It is dependent on many other aspects of cognition, such as prototypes, cognitive models, mental spaces, etc. It is shown that similar to conceptual categories such as the notion 'mother', linguistic categories in general exhibit categorial structure of a ***radial*** type. Aradial structure is defined by Lakoff (1987: 68) as having a central subcategory and non-central extensions on it. The central case provides the best illustration of the category, and the non-central cases are derived by convention as variations on the ideal case. The possibilities for extension are by no means random, since they are determined or more accurately, *motivated* by the central model plus certain general cognitive principles.

According to Lakoff (1987: 113-14), there are four types of structuring principles that give rise to radial categorization: propositional structure, image-schematic structure, metaphorical mappings, and metonymic mappings. These four cognitive principles are essential to the characterization of the overall category structure, specifying the central members and links between the central and non-central cases.

The concept of a radial structure, as defined above, may well be applied to the categorial characterization of Mandarin V-R compounds. As will be shown in the next section, Mandarin V-R's consist of a central subcategory and a number of extensions, whose interrelationships may be accounted for with image-schematic models and metaphorical/metonymic mappings.

3.2 Path-Schemas and Metaphorical Links

It is well established in the literature that bodily experience with the *spatial* domain proves to be most basic in human cognition. It provides the foundation for conceptualization or many other semantic domains. Lakoff and Johnson (1980: 17) states clearly: 'Most of our fundamental concepts are organized in terms of one or more spatialization metaphors.' As also mentioned previously, Talmy (1991, 1987) takes the event of motion with a specified Path or Location to be the basic type of event conflation. More relevantly, Goldberg (1992) proposes that the constructional scheme describing caused motion is mapped unto the expression of resultatives. According to Goldberg's analysis of English constructions, the resultative construction in English, which marks a 'change of state', is itself a metaphorical extension of the caused-motion construction, which marks a 'change of location'. In other words, the semantic pattern 'X causes Y to move to Z' is utilized to express "X causes Y to become Z", as illustrated by the two sentences in (5):

(5) a. Caused-motion: Joe kicked the bottle into the yard.
b. Resultative: Joe kicked Bob black and blue.

Goldberg's analysis points out one important fact that the way 'change of state' is expressed is usually modeled upon the way locational change is expressed. The Mandarin coding system provides even stronger evidence, since in Mandarin, both caused-motion and resultative can be expressed as V-R compounds:

(6) a. 我把球 踢進 洞裏. 'I kicked the ball into the hole.'
b. 我把他 踢傷 了. 'I kicked him and (as a result) he was hurt.'

The domain of spatial/locational motion (Motion-Path) provides the basic cognitive model for describing other non-spatial resultative activities. This is made possible via the metaphor ACTIVITY as MOTION,

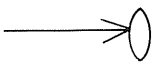
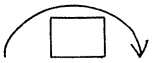
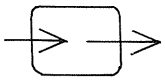
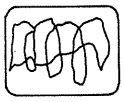
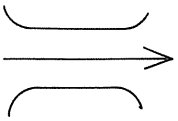
or ACTIVITY as JOURNEY (Lakoff and Johnson 1980). The metaphor highlights a meta-schema underlining the semantic character of all V-R's, namely, a BOUNDED PATH (cf. Goldberg 1991, Chang 1993). The meta-schema may give rise to a number of schematic variations, which are in turn utilized to conceptualize distinct activity patterns in non-spatial domains, as illustratedin (8) below.

As for the direction of metaphorical extension among non-spatial domains, it may be viewed in the light of the generally-observed unidirectionality of metaphorical as well as semantic change (cf. Claudi & Heine 1986; Traugott 1982, 1990; Hopper and Thompson 1984, etc). As Traugott has made clear, semantic shifts go from external-situated to internal-situated meanings. And a portion of the implicational scale for basic categories of conceptualization, as proposed by Claudi and Heine, has the order: Space > Process > Quality. In view of these previously established studies, we may postulate the direction for V-R extensions as:Spatial Process > External (physical) Process > Internal (mental or perceptual) Process. And the metaphorical links among different semantic domains, along the same Path-schema, can be specified as follows:

(7) Direction of Metaphorical transfer:
Change of spatial/locational state → Change of physical state → Change of mental or perceptual state

In (8) below, some of the most common Path-schemas are represented, each with its unique schematic features, and examples of V-R's are listed to show that the Path-schemas may be mapped from the spatial/locational domain (SP) to the domain of physical state (PH) and to the domain of mental/perceptual state (M/P):

(8) Schematic representation of Path variations

Path-Schema	*Visual Image*	*Semantic Domain* SP	PH	M/P
Schema 1. Path towards a Goal/ away from a Source		放到	籌到	想到
Schema 2. Path with a spatial orientation		升起	湧起	想起
Schema 3. Path over/across a landmark		越過	勝過	信(得)過
Schema 4. Path into/out of a container		跑進	賺進	讀進
Schema 5. Path as a surface		撒遍	找遍	看遍
Schema 6. Path through/ penetrating a landmark		打通	買通	想通

In the above examples, the transfer of the same schematic features among different domains is evidenced by the use of the same R component, while the target domain is revealed by the semantics of the V element. However, in some cases, the same V can be used with various domains, as in the case of 裝進:

(9) Same V-R sequence in different domains:

SP : 裝進 （盒子）
HP : 裝進 （磁碟）
M/P : 裝進 （腦袋）

The above proposed schemas not only capture the semantic basis of path-related V-R's, they also serve as the conceptual ground for the class of non-path-related V-R's. As will be clear in the discussion of individual schema in the following section, V-R's that are not path-related can be viewed as arising from distinct conceptual/metaphorical manipulations of a particular schema.

In the next section, a detailed specification of each Path-schema will be given, together with a discussion of possible R-components and associated extensions.

4. Schematic Properties of Path-Schema and Possible Extensions

4.1 Schema 1 (Path towards or away from a Reference)

The major schematic properties in Schema 1 include: a generic trajectory of Path and the deictic specification of the Path as either towards or away from a Reference. The two sub schemas may take different R components:

(10) Some typical R-elements with Schema 1:
  a. Path Towards (a Goal): V-到,V-至,V-往,V-成,V-做,V-來,V-回
  b. Path away from (a Source): V-去,V-開,V-走,V-離,V-掉

Among the proposed image-schemas in (8), Schema 1 is considered to be central for the V-R category due to the following reasons:

a) It represents the most general case of a Path and associates with the largest number of R's.
b) It provides the basis for prototypical, seemingly non-path V-R's, as exemplified in (1b) above: 割斷 曬乾 修齊 剪開 弄髒 關緊 壓扁 勒死. These V-R's can be viewed as derived from Schema 1 with a SPECIFIED endpoint. It represents a variant of the subschema - Path Towards an Endpoint, with the Endpoint high-

lighted and focused. The R component thus describes the final state/stage[5] of an activity, which may be compared to a specified locus of an activity-path. A subgroup of V-R's in this class is equivalent to English accomplishment verbs in that the ending state signals the attainment or fulfillment of the action, as in 學會, 殺死 (cf. Tai 1984, Talmy 1991).

c) It provides the conceptual basis for the most frequently used V-R pattern, as exemplified in (1a): 送到 流到 移到 增加到 申請到 讀到 觀察到. Among the top 40 V-R's that occur over 20 times in the CKIP corpus, 14 have the form V+到／至／往.

As it turns out, other subcategories of V-R's with different Path-schemas can all be taken as variations of the central case. They are in general motivated by the Bounded-Path schema and linked with the central subcategory with varying specifications.

4.2 Schema 2 (Path-Direction)

4.2.1 Schematic Variation and Conceptual Manipulation

The second schema highlights a *directional* motion - Path with a spatial orientation. The feature of a spatial orientation is commonly until-ized to describe non-spatial activities, which may be conceptualized as having an orientation/direction. The typical R components with Schema 2 are:

(11) Typical R-elements with Schema 2
上，下，起，上（來／去），下（來／去），起來

As has been explained previously, it is well motivated that these R elements are used across different domains, maintaining the orientational

5. Goldberg (1991) proposed that English Resultatives can only be predicated of the argument bearing a Patient role. This semantic constraint seems to also hold for Mandarin V-R compounds. For example, in 她哭累/睡/醒/傷了, the subject can all be said of bearing a Patient role (in Goldberg's definition) to the R element.

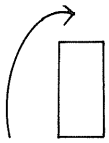
Path feature, as illustrated below:

(12) Schematic directional feature preserved in Path-related V-R's:

SP	PH	M/P
坐下	吃下	望下
拉上來	遞上來	報上來

While the feature of a spatial orientation is clearly the defining character of schema 2, a subschema exists where a specific landmark may be included, and the path is directed up to the top or down to the bottom of the landmark, as shown below:

(13) Schema 2':
Schema 2': Path up to the top/
down to the bottom of a Landmark:
eg. 爬上 考上 看上



The subschema preserves the feature of a spatial orientation, with the addition of a reference landmark for orientational specification. This distinction helps to explain the two senses of '上':

(14) '上' with two schemas:
Schema 2: 爬上來 遞上來 報上來
Schema 2': 爬上 考上 看上

Now, another question arises as to what kind of conceptual links we have between path related and non-path related V-R's? For instance, what is to be said about the relation between 爬上 and 關上, 坐下 and 住下? It is speculated that most of the non-path V-R's are motivated by specific metaphorical or conceptual manipulation of the schematic features.

For the case of 關上, it is grounded in a rotated schema of sub-

schema 2' - path up to the top of a landmark (cf. Lakoff 1987:429). With a rotation from the vertical, the movement up to a top is utilized to describe movement up to a surface.

(15) Rotated schema in 關上,貼上: From  to 

As for other seemingly non-path V-R's with '上, 下, 起', different metaphorical reasonings may be at work for different groups of V-R's, as speculated below:

(16) Metaphorical bases for non-path V-R's of schema 2:

a. Settlement is Down: 創下,買下,住下,訂下,答應下來,安靜下來

b. Being subject to control (of capacity) is DOWN (cf. Lakoff and Johnson 1980:15)放(得)下,裝(得)下,容(得)下

c. To afford something is to 'uphold' something: 住得起,吃得起

d. Ability to achieve something is going UP: 說不上來,答不上來

e. Social Status/relation is Orientational Status/relation:
(High status is UP; Low status is Down, Lakoff and Johnson 1980:16)
Transaction from Higher to Lower status: (作業)交代下去/來
Transaction from Lower to Higher status: (作業)交上去/來

4.2.2 Extension to the Temporal Domain

More importantly, the directional schema 2 is extended to the temporal domain to mark aspectual distinctions. The upward movement '起來' can be interpreted as either inchoative or completive[6], while the downward movement 下來 or 下去 marks continuation, either from past to now or from now to past. And their respective metaphorical basis can

6. While the analysis of V-'起來' as a V-R is controversial, this paper follows Chang (1993) and Huang & Chang (1994) in treating both inchoative and completive '起來' as an R element, and takes the distinct morphosyntactic behavior of V-'起來' as an iconic indicator of its non-central status in the V-R category (see 4.2.3 below).

be represented as below:

(17) Metaphorical bases for temporal/aspectual extensions of Schema 2:

a. (For activity verbs) Activation is UP:
Inchoative V-起來：交談起來 惱火起來 開心起來 流行起來

b. (For accomplishment verbs) Activation is going all the way UP to the final state:
Completive V-起來：堆積起來 集合起來 連接起來 組織起來

c. (For Chinese, Past is UP, Future is DOWN[7]) Continuation is DOWNWARD:

i) Continuation toward the speaker → from Past to the speech time
V-下來：唱下來 讀下來 摸索下來

ii) Continuation away from the speaker → away from the speech time to Future
V-下去：唸下去 過下去 教下去 努力下去

The distinction between inchoative and completive reading of '起來' has been extensively studied in previous work (cf. Chang 1993, 1994, Wei 1994, Huang & Chang 1994). According to Huang and Chang (1994), the inchoative '起來' is a marked imperfective aspect, focusing on the continuation of an event with an initial start point. And the completive '起來' is only a special case of the inchoative sense, bringing focus on the continuation of the final state of an activity. They also maintain that completive use is in complementary distribution with verbs occurring with inchoative '起來'. While Huang and Chang's analysis brings a unified account for the two readings of '起來', its claim that the focal point '起來' falls on the continuation part of an event seems to be inconsistent with the metaphor ACTIVATION is UP.

7. The reverse applies for English: Future is up (and ahead). For discussions of the complex temporal system, see Lakoff and Johnson (1980, ch.9), and Huang (1982), Wei (1994) for Chinese.

An alternative explanation would be that '起來' marks the activation of an event and its interpretation as being inchoative or completive depends largely on the lexical aspectual property of the V, in the sense of Smith (1991). Adopting Smith's framework, inchoative reading of '起來' is obtained if the V signals an activity or state, whose internal aspectual alignment stays the same over time; the completive reading is obtained if the V is of accomplishment type, whose activation entails a PROCESS+ NATURAL OUTCOME, as represented respectively in (18):

(18) Lexical Aspectual Structure of the V (cf. Smith 1991: 45, 49)

a. Activity or State V eg. 跑, 悲傷

I.....F_{Arb} or (I)_____(F)

(I: initial point, F_{Arb}: arbitrary final point)

(Typically non-telic)

b. Accomplishment V eg. 躲, 召集

I.....$F_{Nat\ R}$

(Typically telic)

As exemplified below, with activity verbs like '跑', whose internal aspectual potency stays the same over time, the most salient feature in its activation is the change from non-action to action. Hence '跑起來' favors an inchoative reading, signaling the inceptive change. On the other hand, accomplishment verbs like '躲' denote inherently an event with a final stage. The activation of such verbs will lead to, or guarantee the reaching of the final state, hence giving rise to the completive reading:

(19) Interpretation of '起來' with different V aspect:

a. Inchoative with Activity V '跑'：他跑了起來

b. Completive with Accomplishment V '躲'：他躲了起來

In addition, contrary to Huang and Chang's observation that the two readings of '起來' are in complementary distribution, when '起來' occurs with a verb which may take either an activity or accomplishment

aspectual structure, both inchoative and completive readings may be obtained. In such cases, the syntactic position of '起來' interpretation. (20) below shows that with verbs that may be used as either activity or accomplishment V, such as '想' ('think'), the placement of the aspectual particle '了' makes a difference:

(20) V with both Activity and Accomplishment lexical aspect (eg. 想, 畫, 蓋):

a. Inchoative: 想／畫／蓋 了 起來

b. Completive: 想／畫／蓋 起來了.

Besides the metaphorical transfer of the upward movement '起來', the downward path '下去' or '下來' is also utilized in the temporal/aspectual domain to conceptualize continuation of an activity. This extension seems to be relevant to the conceptual basis in Chinese that PAST is UP (eg. 上一年) and FUTURE is DOWN (eg. 下一年度), and thus going on in time is downward. Moreover, continuation from past to the present is signaled by the deictic marker '來'[8], marking motion spatially toward the speaker and hence temporally toward the speech time. On the other hand, continuation from present to future is signaled by '去', marking motion spatially away from the speaker and hence temporally away from the speech time down into the future.

Although the transfer from spatial to temporal domain is a common process cross-linguistically, in Mandarin, only a limited set of path-schemas are utilized to describe temporal contouring. This observation indicates one important feature of radial structure. That is, not all possible variations of the central case exist as subcategories. The subcategories are derived by culturally-specific conventions and have to be learned.

Another interesting observation associated with schema 2 is that the derived temporal subcategory with the complement -'起來' is further util-

8. The suffixes '來' or '去' are deictic markers that functions primarily to indicate the point of view of the speaker. For an intensive and detailed study of these two morphemes, see Wei (1994).

ized, via a *metonymic* transfer, to signal the temporal or conditional frame for a descriptive proposition:

(21) Metonymic Extension of the use of '-起來'
Activation of an activity → temporal span of the activity
a. 他走起路來 蹦蹦跳跳的.
b. 她打起球來，絲毫不讓鬚眉.

The instances of 'V-起來' in (21) are usually analyzed as an *evaluative* use in previous studies (cf. Chang 1993, Gao 1993, Yeh 1993). However, the 'evaluative' interpretation actually arises from the descriptive statement following the '起來' -clause, not from the very use of '起來'. The compound 'V-起來' should be treated as separate from the subsequent clause, and its function should be analyzed in terms of its relation to the subsequent clause. The use of 'V-起來' in (21) can therefore be glossed as 'when/if V', as it signals a temporal frame for the subsequent proposition when occurring in realis mode, or a conditional frame in irrealis mode.

From marking the very start of an activity to signaling temporal/conditional frame, the directional feature of -'起來' undergoes a *metonymic* transfer in that the *starting* of an activity is used to represent the *occurrence* or the temporal span of that activity, which may in turn provide a conditional frame in relation to another proposition.

4.2.3 Iconic Relation between Categorial Status and Morphosyntactic Marking

An essential question may arise at this point[9]. The syntactic position of '起來' in examples (20) and (21) actually calls into question the status of V-'起來' as a V-R compound. Since '起來' is morpho-syntactically separated from the V, can it be still considered as a part of the compound? This seemingly damaging observation actually provides crucial

9. Thanks to the comments from one of the anonymous referees of the earlier version of the paper.

evidence for the 'radial' categorial structure of V-R compounds: the syntactic reflects the non-prototypical status of a V-R in the category. As being radially structured, the V-R category consists of central, prototypical members and non-central, peripheral members. And the morpho-syntactic difference of '起來' is exactly iconic to its categorial distance from the core members, as it requires further conceptual extensions from the spatial Path domain. We can state this iconic principle as follows:

(22) The iconic principle for the Mandarin V-R category:
The less prototypical a V-R is, the less morphosyntactic constraints of V-R apply.

The above principle echoes the iconic nature of lexical categories of nouns and verbs, as advanced in Hopper and Thompson (1984).

Another note on the categorial structure of V-R's is that although the transfer from spatial to temporal domain is a common process cross-linguistically, in Mandarin, only a limited set of path-schemas are utilized to describe temporal contouring. This observation indicates one important feature of radial structure. That is, not all possible variations of the central case exist as subcategories. The subcategories are derived by culturally-specific conventions and have to be learned.

4.3 Schema 3 (Path Over/Across a Landmark)

The third Path-schema (Path over/across a Landmark) contains two salient features: a Reference-Landmark and a Trajectory across the Reference-Landmark. Such a path-pattern, when applied to other domains, suggests the concept of 'getting through an obstacle or challenge', as exemplified in '勝過', 通過(考試)'.

Moreover, the trajectory feature encoded in Schema 3 also provides the conceptual basis for describing Experiential aspect, as in '嚐過': the spatial motion of going through or across an object is compared to the temporal experiencing of an activity. The transferring possibilities of Schema 3 can be outlined below:

23) Metaphorical extensions of Schema 3

a. (Spatial to non-spatial) WINNING is OVER: 勝過 通過

b. (Spatial to temporal/aspectual) EXPERIENCING is Over: 去過 嚐過

4.4 Schema 4 (Path Into/Out of a Container)

Schema 4 highlights the concept of a container and a trajectory into or out of it. This schema is commonly seen in languages and traditionally called the Container metaphor (cf. Lakoff and Johnson 1980:29-31). As the notion of 'container' may apply almost to any physical object that has a boundary, and even to abstract entity such as the mind, this schema is extremely productive in the coining of V-R compounds.

In terms of lexical choice, the complements '進' or '入' are typically used to express the notion 'into', such as '賺進(手裏)', '讀進(腦袋)'. On the other hand, the motion of coming out of a container may be extended to describe the event of producing something, as a *product* coming out of a given activity-container. Examples of this sort are: '湊出', '裝出', '訓練出來', '表達出來', '整理出來', etc.

Below is a summary of the possible extensions of Schema 4:

(24) Extensions of Schema 4 to non-spatial domain:

a. OBTAINING is getting IN: 賺進(手裏) 讀進(腦袋)

b. PRODUCING is getting OUT: 湊出 長出 訓練出

4.5 Schema 5 (Path on a Surface)

This schema underlines a common metaphor Path as Surface (cf. Lakoff and Johnson 1980), on the basis that the totality of all the points covered by a path can be viewed as filling up a surface. A surface is two dimensional and the spatial property of a two-dimensional surface is utilized as the conceptual basis for describing such states as *thoroughness*, *scatteredness*, *dispersedness*, or *centeredness*, as evidenced from the possible R elements in this schema: 遍, 開, 攏, 散, 滿, etc. In a sense, Schema 5 marks a transformational link from a one-Path schema to multiple

paths on the same surface (cf. the analysis of 'over' in Lakoff 1987). The feature of multiple paths seem to be preserved in the extensions of schema 5 to other non-spatial domains:

(25) Examples for the extension of Schema 5:

SP	PH	M/P
走遍	找遍	看遍
散開	漫開	想開

4.6 Schema 6 (Path Through/Penetrating an Obstacle)

This schema highlights a Path that goes through a surface or a tunnel-like landmark, representing the spatial experience of going through an obstacle. Possible R's in this Schema include: 通,穿,破,透, etc. Like all the above schemas, the unique path feature may be transferred to other domains:

(26) Examples for the extension of Schema 6

SP	PH	M/P
打通	買通	想通
敲穿	磨穿	看穿

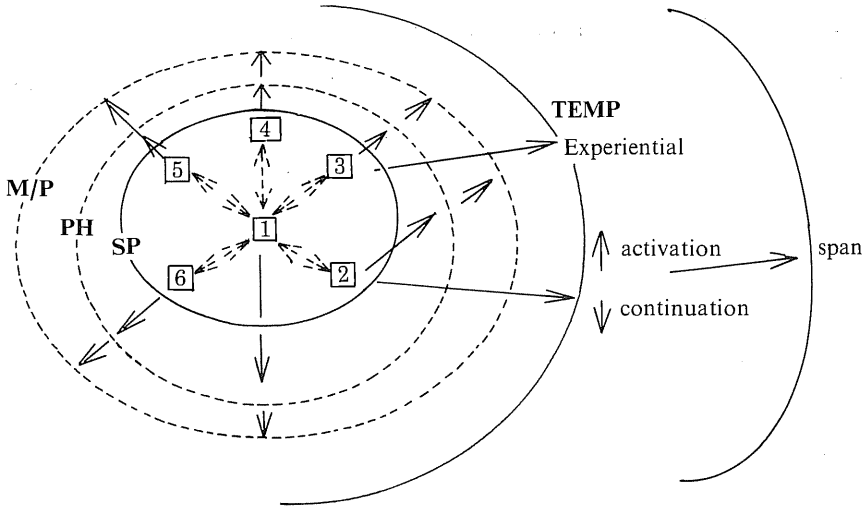
The above characterization of the Path-schemas and their extensions are aimed to provide a fundamental account of the internal categorial make-up of Mandarin V-R compounds. Although there may be some other subcategories or extensions that are not addressed, the above discussion should be sufficient to establish the fact that the V-R category is well-motivated and radially structured.

4.7 Mental Representation of the V-R Category

Having analyzed Mandarin V-R compounds as a radial category

with extensional links among a variety of spatial Path-schemas, I would like to attempt a visual representation of such structure in (27):

(27) Representation of the V-R Category



Although it is premature to claim that the V-R category is mentally represented as above, the graph in (27) nevertheless provides essential cues for representing the complexity and non-discreteness of the V-R category.

5. Conclusion

As an attempt to justify various semantically-diverse cases of V-R compound as belonging to the same grammatical category, this paper undertakes the task to explain the interrelationships among and the motivations behind major subtypes of V-R compounds. It is proposed that Mandarin V-R compounds exhibit properties of a *radial* category by having a central subcategory, established along the Path-Endpoint schema, and non-central subcategories, established on variations of the central schema plus metaphorical or metonymic extensions.

This work is essential to the understanding of Mandarin V-R com-

pound as a cognitive-linguistic component that complies with universal observations on the conceptualization and coding of complex events. It also shows that Chinese V-R's exhibit an iconic relation between categorial membership and morpho-syntactic marking. Ultimately, the analysis helps us to view Mandarin V-R compounds not only as a language-specific mechanism, but alsoa cross-linguistic phenomena.

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Cognitive Constraints and Discourse Anaphora in Mandarin Chinese*

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Abstract

This study investigates how a speaker/writer's discourse organization determines when and where a particular syntactic form of reference is used to refer to a given discourse participant in spoken and written Chinese narratives. We hold that an overall discourse is composed of a set of well-defined, topic-centered and inter-related structural units which are hierarchically organized to facilitate discourse production and comprehension, and this discourse organization has dramatic consequences for reference tracking in texts and oral narratives. We attempt to describe and define how those structural units are formed on the basis of cognitive activities underlying discourse production and comprehension and how speaker/writer-audience relations direct the goal of discourse processing.

The study demonstrates, through analyzing text data and elicited oral and written samples, that discourse organization is mainly a audience-oriented process, where speakers/writers try to help hearers/readers build a hierarchical representation of discourse congruent with their own along the linear path of discourse by signaling their audience of the units at different levels. The alternative use of nominal NPs and pronominal NPs (including zero anaphora) is an important signaling device speakers/writers employ: pronominal NPs are used to maintain thematic coherence within different levels of structural units, and nominal NPs are used to indicate thematic discontinuity between these structural units. We therefore conclude that while discourse may be presented in a linear fashion, it is nevertheless formulated and processed hierarchically as constrained by cognitive resources, and this organization controls, to a large extent, reference tracking in discourse production and comprehension.

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1. Introduction

The study of anaphora has always been the focus of considerable research on discourse analysis because it is fundamental in understanding the relationships among cognitive processes, discourse structure and information distribution. In general, three influential models of discourse anaphora have been developed in the functional domain during the past two decades: the distance model (Givón, 1983, 1989), the structural model (van Dijk & Kintsch, 1983, Fox, 1987; Hinds, 1977, 1979; *inter alia*), and the attention model (Chafe, 1987; Tomlin, 1987).

The distance model argues for a correlation between anaphora and referential distance in discourse, e.g., number of clauses between a given anaphor and its antecedent. The distance model could be a manifestation of a psychological factor, such as short-term memory decay. According to an "iconicity principle" underlying the model, the longer the distance, the harder it is for the hearer to identify the referent, and so a more explicit referential form (e.g., a full noun phrase) is required. The shorter the distance, the easier it is for the hearer to identify the referent, and hence a less explicit referential form (a lexical pronoun or a zero anaphor--ellipsis) is required (Givón, 1983:18). The model recognizes various psychological factors that underlie the distribution of anaphora. However, it overemphasizes the linear nature of discourse and thus fails to account for instances of long-distance pronominalization and short-distance nominalization.

The structural model emphasizes the relationship between discourse structure and anaphora. The hierarchical structure of discourse allegedly controls the use of anaphora: NPs (full noun phrases) are often used at the beginning or peak of a structural unit (e.g., episode, paragraph, etc.), while pronominals (lexical and zero pronouns) are often used within such a structural unit. The model presupposes the importance of hierarchical organization of discourse. Unfortunately, the problem faces difficulties to the extent that structural units such as paragraph, episode, event, theme,

etc., are not well defined theoretically. Many structural units are hard to identify in spoken and written texts, and are prone to misinterpretation.

The attention model emphasizes the role of cognitive processes, such as attention and memory, in guiding anaphoric choice in discourse. Tomlin (1987) defines these psychological factors in terms of a discourse unit (i.e., episode). He argues that an episode represents sustained attentional effort and endures until attention is diverted (i.e., an episode boundary is reached). He demonstrates that NPs are used at the boundary of episodes when attention shifts, while pronominals are used within episodes when attention sustains (see also Tomlin & Pu, 1991). The model shows greater sensitivity to subjects and text-specific variations than other approaches in relatively simple production tasks. However, the model is less effective in accounting for anaphoric patterning in more complex spoken and written production and comprehension because the model seems to ignore the critical role played by social, interactional, and affective factors.

While sharing the view that there is an important connection between a particular linguistic unit (namely, the episode/paragraph), and a cognitive factor (namely, the limited capacity of working memory), the present study departs from the prior research in two important ways. First, the study argues that cognitive constraints are not the sole factor in determining a speaker's anaphoric choice. Most specifically, discourse is not merely organized in terms of information flow and propositional content. There are often factors that relate discourse and anaphora, such as discourse structure, pragmatic information, and interpersonal factors. We cannot provide a complete account of the distribution of anaphora in discourse processing unless we take into consideration all of these factors. Second, the study compares spoken with written Chinese narratives, and demonstrates that the two modalities exhibit an overall similar pattern of anaphora, although some differences exist because of the specific characteristics of the two types of discourse.

In what follows, We will first explore three important aspects of discourse processing--cognitive constraints, discourse structure, and pragmatic considerations, and the relationship between the three factors and

the use of anaphora in Section 2. We will then provide a general interactive principle determining the basic pattern of anaphora in Section 3. While Section 4 will present an experimental study to test the general principle of anaphoric patterning and discusses the results of the experiment, Section 5 will illustrate, with a text-data analysis, that the general principle is also operative in written narratives. Finally, Section 6 will discuss the general findings and the implications of the present study.

2. Factors Determining the Basic Pattern of Discourse Anaphora

The present study proposes, with data drawn from both spoken narrative production tasks and written discourse, that anaphoric choices made by Chineses peakers are constrained by cognitive, discourse, and pragmatic factors. Cognitive constraints refer to the memorial and attentional processes that underlie anaphoric patterning during narrative production. Discourse constraints specify speakers' hierarchical organization of discourse into smaller units and the marking of these units. Pragmatic constraints include speakers' intention of signaling hearers of the status of a given referent, their effort to avoid referential ambiguity, and their empathy with human central characters. Although these factors have been discussed in theories of anaphoric production in cognitive science, psycholinguistics (Chafe, 1987; van Dijk & Kintsch, 1983; Gernsbacher, 1990; Tomlin, 1987), discourse processing (Fox, 1987; Givón, 1983; Hinds, 1979; Marslen-Wilson, Levy, & Tyler, 1982; Tannen, 1982) and pragmatics (Brown, 1983; Givón, 1989; Grimes, 1978), they tend to be explicated in isolation of one another. We argue that these three factors represents three dimensions of the relationship between discourse and anaphora: the plane of cognition, the plane of discourse structure and the plane of pragmatics. They integrate and interact to determine a speaker's anaphoric choice throughout discourse. Cognitive constraints characterize structured representation of information in memory, which is manifest most conspicuously by the hierarchical units of discourse. Discourse

structure of various levels controls the basic pattern of anaphora with regard to the location of each specific referent (e.g., structure-initial or structure-internal), and thematic coherence of each discourse unit. Pragmatic considerations specify speaker's empathy with human central referents and speaker-hearer interaction. Without structural factors, the use of anaphora would appear to be random, and without pragmatic consideration, anaphoric patterning would not be complete.

2.1. Cognitive Constraints, Discourse Organization, and Anaphora

The cognitive basis of episodic organization of discourse has been extensively investigated in linguistics, psychology, and cognitive science. Studies have shown that speakers, who are constrained by limited memory capacity, try to organize the overall discourse into sequences of episodes. Each episode consists of a sequence of sentences dominated by a macroproposition (van Dijk & Kintsch, 1983). The macroproposition relates sentence propositions at a higher level and thus derives the global meaning of an episode or a whole discourse from the local sentential meaning of the discourse.

The notion of episode as a semantic unit dominated by a macroproposition has been found to have psychological relevance. Black and Bower (1979), for example, demonstrated in a psychological study of story processing the existence of episodes as chunks in narrative memory. Similarly, Guindon and Kintsch (1982), in their experiment studying the macrostructure of texts, found that macrostructure formation appears to be a virtually automatic process. That is, people appear to form macrostructure during reading and derive relevant macropropositions of a passage as soon as possible. Their findings provided evidence for the "episode" and the "macrostructure" theories of van Dijk and Kintsch (1978, 1983).

Other studies of story processing (Mandler & Johnson 1977, Haberlandt, Berian, & Sandson 1980, Gernsbacher, 1990) suggest that readers slow their processing at or around the episode boundary. The increased

reading time at boundaries exceed that which would be predicted on the basis of sentence level and text level factors. The boundary hypothesis, which derives from these findings, assumes that there are cognitive processes at or around the episode boundary which are not present inside the episode. At the beginning, readers shift from actively building one substructure to start another, and laying the foundation for the new episode consumes more mental effort. Haberlandt et al. (1980), who tested the boundary hypothesis with reading and recall experiments, found that the encoding load was greater at the boundary nodes than elsewhere, suggesting that readers are sensitive to episode boundaries and use them in encoding story information.

Gernsbacher (1990) supports the episodic organization in story comprehension on the basis of various experimental results. She reports that comprehenders capture the episode structure of narratives in their mental representation by building separate substructures to represent each episode. The readers shift to build new substructures for new episodes, when and where information of the previous episode is less accessible to them. It is therefore harder for readers to draw coherence inferences across two episodes than within the same episode.

The cognitive basis of discourse organization helps us further understand the relationship between discourse structure and anaphora. An episode, as a semantic unit subsumed under a macroproposition, is the textual manifestation of a memory chunk which represents sustained attentional effort and endures until an episode boundary is reached. Attention shifts when the processing of the episode is completed. In other words, "the macroproposition remains in Short Term Memory for the rest of the interpretation of the same episode. As soon as propositions are interpreted that no longer fit that macroproposition, a new macroproposition is set up" (van Dijk, 1982, p. 191). At an episode boundary where a change of macroproposition occurs (i.e., new agents, places, times, ojbects or possible worlds are expected to be introduced), the encoding load is much heavier, the reference under concern is less accessible, and hence a more explicit anaphoric form (e.g., an NP) is required to code the referent.

Within an episode, when the macroproposition is maintained, the referent under consideration is more accessible and hence a less explicit anaphoric form (e.g., a pronominal) is sufficient to code the reference.

Indeed many studies on anaphora have reported the alternation between NPs and pronominals to be a function of the paragraph or episodic structure. Hinds (1977), for example, discusses how paragraph structure controls the choice of NPs and pronouns. He finds that noun phrases are used to convey "semantically prominent" information in peak sentences of a paragraph while pronouns are used to indicate "semantically subordinate" information in non-peak sentences. Fox (1987) demonstrates that structural factors of discourse establish the basic pattern of anaphora: NPs are generally used at the beginning of a "development structure" to demarcate new narrative units, whereas pronominals are used within that structure. Marslen-Wilson et al. (1982) also argue that a speaker's use of referential devices is governed by discourse structure and the context of speaking. The general pattern of anaphora is that NPs and proper names are used to establish initial reference at an episode when a particular referent is in a state of low focus, whereas pronouns are used to maintain reference within an action sequence when a particular referent is in a state of high focus.

2.2. Pragmatic, Interpersonal Factors and Anaphora

In addition to discourse structure, pragmatic and interpersonal factors also affect the speaker's anaphoric choices. Speakers, at any given moment, try to help hearers build a structure representation of discourse congruent with their own in order to convey the intended message successfully. The speakers' assessment of the hearers' current knowledge affects both what is said and the structures chosen for saying it.

In narrative production, speakers' referential choice is based partially on an assessment of their hearers' knowledge with respect to a particular referent, and they provide guidance for the hearers to identify uniquely each given referent through the use of anaphoric form. If speakers believe that a concept has already been "activated" or is resident in the

hearers' consciousness (Chafe, 1987), they will treat that concept in an attenuated manner, most likely pronominalizing it. If speakers believe that the concept has not yet been activated, they will treat it in a less attenuated manner, most probably nominalizing it. If speakers believe that they need to disambiguate referents for their hearers, they will nominalize them to resolve the ambiguity. In general, speakers' anaphoric choice seems to follow closely Grice's (1967) dictum: do not be more informative than required.

Moreover, when two or more referents have been activated and compete for attention, human referents are preferred to be pronominalized over non-human or inanimate referents. Speakers tend to empathize with a human (Kuno & Kaburaki, 1977, Brown, 1983) because humans are generally more topical, central, and frequently attended to in narratives. On the other hand, when two or more human referents are competing for focal attention, the protagonist of a narrative tends to stay in focus longer than non-central characters and is consequently more likely to get pronominalized (Currah, 1990).

3. A General Principle of Anaphoric Patterning

Based on the interaction of all these factors explicated above, the present study proposes the following general hypothesis for the anaphoric patterning in narrative production.

> The basic pattern of anaphora throughout discourse is controlled by speakers/writers' organization of discourse into episodes, which in turn is constrained by cognitive processes of attention and memory. The pattern is completed by the consideration of pragmatic information available for each specific referent.

The general hypothesis involves several claims. First, episodes represent separate memory units in discourse processing. Narrative discourse is not only memorized, stored and recalled as episodes, but also produced as episodes. Second, episodic structure partially controls anaphoric patterning. NPs are used at the beginning of an episode when attention shifts

and the reference is less accessible; pronominals are used within an episode when attention sustains and the reference is more accessible. Third, interpersonal and pragmatic considerations complete the pattern. While indefinite NPs are used for the first mentions of referents anywhere in discourse, definite NPs are used for reinstating reference at the boundary, resolving referential ambiguity, and coding nonhuman and noncentral reference within an episode or a subunit.

In order to test the hypothesis and hence the above three predictions, anaphoric patterns in both spoken and written narratives are examined in both experimental condition and naturally occurring written texts.

Since the construct of episodes plays a crucial role in the present study, definitions are needed for the theoretical concepts of episode and episode boundary. The definitions are defined according to van Dijk (1982), van Dijk and Kintsch (1983), and Tomlin (1987),.

Episode. An episode is defined cognitively as a memory unit/chunk in the flow of information processing. Attention is sustained in an episode until an episode boundary is reached. Linguistically, an episode is a semantic unit subsumed under a macroproposition. The macroproposition is generally a topical expression, which is derived from a sequence of sententially expressed propositions of discourse. Episodes in a discourse may be of varying length or scope.

Episode boundary. An episode is conceived of as a part of a whole discourse, having a beginning and an end. The beginning and end of an episode are defined in terms of propositions subsumed under the same macroproposition, while the propositions preceding the first and following the last proposition of an episode should be subsumed under different macropropositions. The transition between macropropositions represent episode boundaries. They are normally marked by expressions denoting changes in time, place, scenery, participant, perspective, possible world, etc. Cognitively, boundaries may also be manifestations of attention shifts.

4. The Experiment

The experiment was conducted to examine the relationship between cognitive processes, discourse structure and use of anaphora in speakers' narrative production. More specifically, it was designed to test (a) if the structural unit of episodes has psychological relevance, (b) if the episodic structure controls the basic pattern of anaphora, and (c) if pragmatic and interpersonal factors are employed to complete the anaphoric patterning.

In the present experiment, episode boundaries were operationally defined and manipulated by imposing perceptual disruption (i.e., videocuts) in the flow of visual materials. The manipulation of speakers' attentional effort would presumably affect their episodic organization and hence their use of anaphora throughout discourse production.

4.1. Experimental Method

Stimulus materials. The stimulus material for the study consisted of adaptions of three excerpts from a children's picture storybook (without a written text) about a little boy, "*Here comes Alex Pumpernickel*" (Krahn, 1981). The picture book was chosen for several reasons. First, many of the cognitive processes and mechanisms involved in language processing are not specific to language (Gernsbacher, 1990). They are general cognitive processes and mechanisms. Comprehenders easily segment stories after viewing a non-verbal picture story, or watching a movie without a dialogue (Baggett, 1979). Second, the book consists of eight separate, but related episodes of a story. Each episode describes some activities during a day in *Alex's* life and each episode is subtitled. Third, with the subjects' recognition of episodes in this experiment would be independent from linguistic information. We would thus avoid risking the problem of circularity in defining and identifying episodes. The purpose of the experiment was to see if subjects would organize, store, produce or recall the non-verbal story in terms of episodes after viewing the picture sequence without any linguistic clues.

The three episodes adapted for the present experimental study are subtitled: (a) *Alex Pumpernickel in a sticky situation* (12:00 *p.m.*), (b) *Alex Pumpernickel swats [a fly]* (2:00 *p.m.*), and (c) *Alex Pumpernickel lends a hand* (10:00 *a.m.*). These three particular episodes were selected because of some pragmatic characteristics of anaphora to be investigated. Each episode consisted of (a) human, nonhuman and inanimate referents, (b) human central versus noncentral characters, (c) old versus new characters and human characters of the same versus different gender. These options would permit us to assess whether the pragmatic considerations of empathy, centrality, and ambiguity resolution play a role in subjects' anaphoric choice.

Each of the three episodes consisted of eight pictures, presented in pairs on each page. The three episodes (i.e., twelve pairs of pictures, with subtitles removed) were made into a black and white video program. The video could be viewed as a cartoon sequence of 12 pairs of pictures from a Macintosh screen. The resulting video program was designed to provide as little background information as possible.

Experimental conditions. While watching the video, subjects had to press the computer mouse button to advance from one picture to the next. The transition between pairs took approximately 3 seconds. At the moment the mouse was pressed, its click and the noise coming from the computer as it changed pictures were clearly audible. The brief interrupting period between the video-cuts, together with the accompanying noise, provided strong visual and auditory disruption to the subjects' attention. The disruption between each pair of pictures was inserted to manipulate subjects' cognitive processes of attention and memory. In other words, it served as an imposed episode boundary, which would force subjects to reorient their attention (and hence reorganize episodic structures) so as to continue with their production task.

Two experimental conditions, Even and Odd, were established to test the present hypothesis. In the Even condition, the picture sequence was presented in the original pairs (twelve picture frames); that is, the three original episode boundaries did not cut into any of the twelve im-

posed boundaries. In the Odd condition, the first single picture of the first episode was presented alone and the rest of pictures were in pairs, with the last single picture of the last episode also presented alone. There were therefore thirteen picture frames in the Odd condition, with two of the three original episode boundaries being embedded in two of the picture frames. That is, the two original episode boundaries conflicted with two imposed boundaries.

Subjects. Twenty volunteers participated in the experiment. They were all adult native speakers of Mandarin Chinese at the University of Alberta. Half of the subjects were male and half female. All subjects completed the experiment in Mandarin Chinese. The subjects were assigned randomly to two conditions, Even and Odd.

Procedures. There were two narrative production tasks: an on-line description task and a recall task. In the on-line task, subjects were asked to watch the video program and at the same time produce a story based on the pictures presented on the screen. They were told to take as much time as needed for each single or pair of pictures. Once finished with a screen, they could not see it again.

Since discourse organization is assumed to be a manifestation of cognitive processes, it was expected that subjects would respond to the episode boundary in exactly the same way, regardless of how the picture sequence was presented. In other words, subjects were expected to recognize and mark the episode boundary with full NPs regardless of whether or not it was embedded within a picture frame.

Upon completion of the on-line description, subjects were asked to recall the entire story they had just described. They were instructed to retell as much as possible of the story, without seeing the picture sequence. Since no video-cuts were present in the recall task, subjects were expected to retrieve the story as consisting of three original episodes, regardless of their experimental conditions. Because the episodes are assumed to act as separate memory units/chunks, subjects should be able to structure and mark such units linguistically.

In the recall task, each of the Mandarin groups (i.e., Even and Odd)

was divided into two subgroups: five of each group performed the recall task in oral form and the other five in written form. The task was so divided because Mandarin Chinese makes no gender distinction among third-person pronouns in oral form; all third-person singular pronouns ("he/she/it") have the same pronunciation *ta*. Chinese subjects therefore might have to use NPs to distinguish male characters from female characters in orally retelling the story. However, in written Chinese, a gender distinction is present for personal pronouns, and there are three different forms for "he," "she," and "it." By performing a written recall task, subjects would be able to use disambiguating pronouns instead of NPs. Thus, it could be possible to distinguish disambiguating anaphors from those sensitive to episode boundary conditions by comparison of oral and written productions.

4.2. Results and Discussion

General Performance The subjects' general performance across conditions and tasks was very similar in terms of anaphoric production. Subjects in each group produced almost the same number of NPs (Even, 113; Odd, 117) and pronominals (Even, 85; Odd, 77). No statistically significant differences were found. Moreover, when written and oral narratives were compared, no difference was found in the use of lexical pronouns for the human central character: for the Even condition, 27% in the written and 27% in the oral; for the Odd condition, 23% in the written and 23% in the oral. As for the human non-central characters, lexical pronouns used in the written recall were less frequent than those used in the oral recall. Since no differences were found in subjects' anaphoric choice between written and oral recalls, the two sets of data were combined in the present study.

Humanness and Centrality of Referents As discussed in the previous section, speakers tend to empathize first with a human in narratives and use this pragmatic information in encoding referents. This prediction was borne out in our experiment. Figure 1 below shows the frequency distribution of pronominals over the three types of referents (i.e., human,

nonhuman and inanimate) for both conditions. While about 49% of human referents were coded by pronominals, nonhuman and inanimate referents were coded by pronominals only about 25% and 11% of the time respectively.

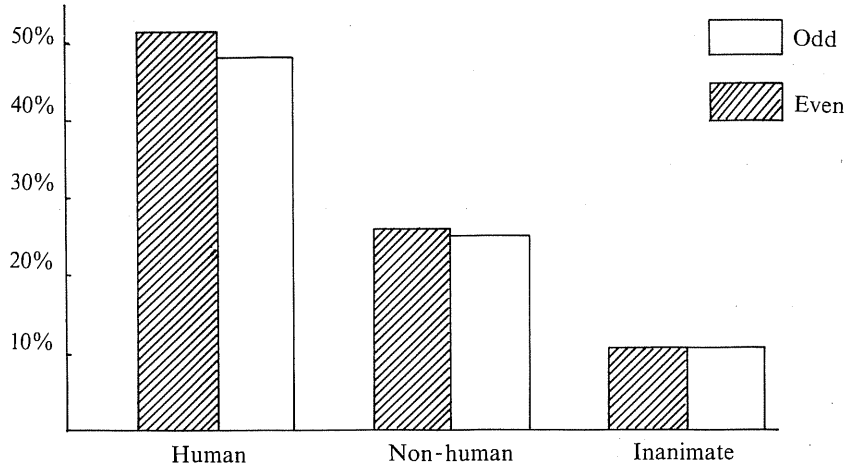

Figure 1: Pronominal Distribution by humanness

Based on Figure 1, the following hierarchy can be proposed for anaphora and pragmatic factors:

Pronominal: Human > Nonhuman > Inanimate
(NP: Human < Nonhuman < Inanimate)

The hierarchy, which conforms to Kuno & Kaburaki's (1977) empathy hierarchy, illustrates a general pattern of anaphoric choice over different types of referents. Since humans are generally more topical, more central, and more frequently attended to in narratives, pronominals (less coding materials) are more frequently used to refer to them. On the other hand, the factor of "centrality", as predicted by the present study, plays a very important role in determine speakers' anaphoric choice during narrative production. Figure 2 below shows the huge difference between the coding of human central and noncentral referents in the use of pronominals.

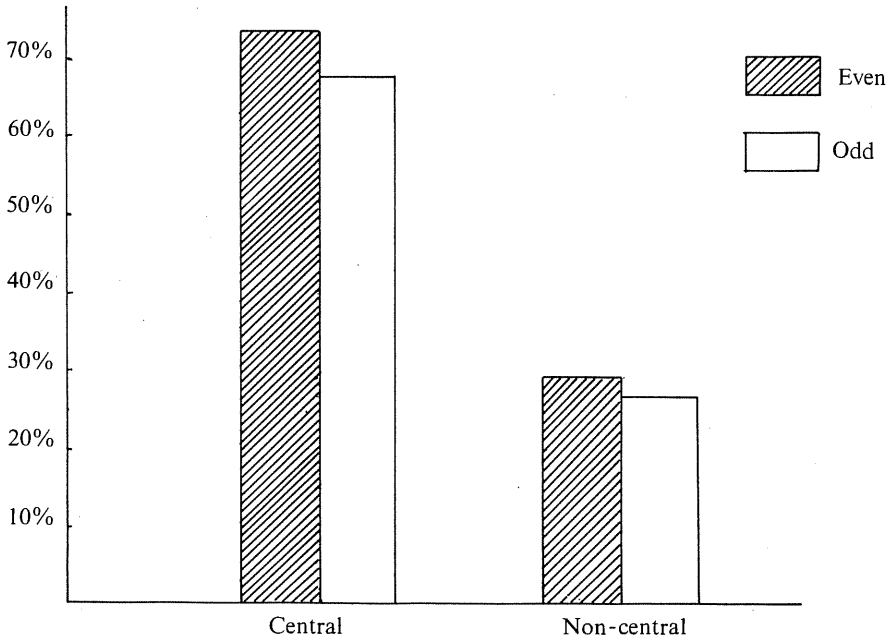

Figure 2: Pronominal Distribution by Centrality

The percentage of human central versus noncentral referents encoded by pronominals is about 70% versus 28% on average across conditions. Although these differences are striking, they are not surprising because human central referents are usually the subject of the narrative, and they tend to be under focus and are discussed more frequently than are non-central referents. Moreover, when human referents is distinguished for centrality, the difference between the proportion of human noncentral versus nonhuman referents is only marginal. This was resulted from the differential use of lexical versus zero pronouns. While lexical pronouns are rarely used to code referents other than humans in Chinese, zero anaphora are very often used to refers to both human and non-human referents.

The experimental results support the claim that "humanness" and "centrality" affect a speaker's anaphoric choice in narrative production: the more central a referent is (i.e., usually human), the more it will be at-

tended to, the longer it will remain in focus, and consequently attenuated anaphoric devices (i.e., pronominals) will be used to code and identify it.

Episodes as Memory Units The episode boundary results obtained from the recall task in all four groups provided evidence that episodes exist as chunks in narrative memory. Although there was no written clue in the video stimuli that there were three original episodes in the story, 17 out of 20 subjects (85%) recognized the three original episodes and mentioned the fact overtly. More interestingly, some subjects' recall data showed the specific monitoring role that macropropositions play in discourse processing. These subjects first recalled the paragraph level theme, or macroproposition, and then the whole episode came flowing out. Some exact wordings are "well, it's about the boy chasing the fly, ...", "Okay, it's about the kid swatting a fly, ...", or "Yes, it's about the boy and the fly".

In addition to the overt mention of the three episodes, subjects consistently marked the beginning of each episode by using NPs that reinstate the referent throughout their recall task. This demonstrates, as specified by the boundary hypothesis (Mandler & Johnson, 1977; Kintsch, 1977; Haberlandt et al., 1980), that cognitive processes at episode boundaries are different from those inside the episode. The subject had to devote a special effort to encoding the beginning of an episode because (a) the subject tried to grasp the initiating and topical event of the episode during the quick flow of discourse processing, (b) the subject identified the protagonist of the episode and established a new memory location for the protagonist, and (c) at the beginning, the subject shifted the perspective, breaking the sustained attentional effort for the previous episode even when the protagonist of the episode remained the same. In general, much as Gernsbacher (1990) observes, subjects shift to build a new substructure for a new episode, when and where more cognitive efforts are required for laying the foundation of the new episode.

Episode Boundary Results As the present hypothesis predicted, NPs should be used at episode boundaries to reinstate reference when attention shifts, while pronominals should be used within episodes to maintain reference when attention is sustained. This was exactly what hap-

pened in the experiment regardless of conditions. The episode boundary results are shown in Tables 1 and 2, where data are calculated as *Hits* and *Misses*. *Hits* are NPs used at an episode boundary plus pronominals used within an episode; *Misses* are NPs used within an episode plus pronominals used at a boundary.

Anaphora	At an episode boundary		Within an episode		Proportion of of Hits (%)
	NP	Pronominal	NP	Pronominal	
Even	75	0	139	353	75.49
Odd	76	3	143	294	72.71
TOTAL	151	3	282	647	74.10 (Average)

Table 1: Episode Boundary Results in the Recall Task

Anaphora	At an episode boundary		Within an episode		Proportion of of Hits (%)
	NP	Pronominal	NP	Pronominal	
Even	210	30	48	371	88.16
Odd	232	31	75	340	84.37
TOTAL	442	61	123	711	86.27 (Average)

Table 2. Episode Boundary Results in the On-line Task

The hit rates of the two groups in each task are very similar (about 74% in the recall task and 86% in the on-line task). There is no statistically significant difference found within and across conditions. The results demonstrate that subjects managed reference in discourse production following a general pattern. Their choice of anaphors reflected their discourse

organization in the oral and written production task, which was partially controlled by their cognitive activities of memory and attention.

On the other hand, the experimental results reveal that overall about 19% of tokens (26% in the recall task and 14% in the on-line task) seem to run counter to the boundary theory, i.e., NPs used within the episode (intraepisode NPs) and pronominals used at the boundary (interepisode pronominals). Most of these counter-examples can also be accounted for by the present hypothesis.

Let us first examine the interepisode pronominals. About 95% (61 out of 64 tokens) of the interepisode pronominals were found in the on-line task, where both the original and imposed episode boundaries occurred, and both were supposed to be marked by NPs. However, subjects seemed to be more sensitive to the original episode boundaries than the imposed ones. They tended to keep the central character in focus and pronominalize them until an original boundary was reached. In other words, the subjects frequently marked the original boundaries but failed to mark the imposed ones from time to time. In addtion, it is interesting to see that though the central character was often maintained with pronouns within the original episode, non-central characters were almost always referred to by NPs regardless of the gender of the central and non-central characters. This resulted in about 34% of intraepisode NPs.

Another phenomenon observed for intraepisode NPs was the fact that more NPs were used within the first episode (in which *Alex* appears with another child) than within the other two. There are two possible reasons for this trend: 1) at the beginning of the recall task, subjects usually established and identified the participants with more NPs than expected, and 2) in the first episode, both participants appeared in each of the eight pictures and both took part in the activities together; subjects thus tended to weigh both characters equally for centrality.

It was also noted that intraepisode NPs occurred more frequently in the recall task than in the on-line task. This was the case because the episodes in the recall task were relatively longer and more complex than the imposed ones in the on-line task, and speakers were more often obliged

to mark minor thematic discontinuity occurred within the episodes, e.g., changes of scenes, changes of participants, changes of perspectives or point of views within each episode. Subjects tended to use NPs to signal these changes, i.e., to treat them as indicating sub-episodes in the story structure.

5. Written Narratives

While Section 4 focuses on the distribution of anaphora in both spoken and written narrative samples elicited in the experimental condition, this section will examine written Chinese texts and explore the basic pattern of anaphora in popular Chinese novels/narratives. We argue on the one hand, that the general principle of anaphoric patterning proposed in the present study holds for both written and spoken Chinese narratives, and on the other hand, that some differences exist between speakers and writers in their use of anaphora because of some distinct characteristics of the two modalities.

The differences between spoken and written discourse have been explored since 1960s (Chafe, 1982; Havelock, 1963, 1971; Ong, 1977; Tannen, 1982, 1984; *inter alia*). Some studies have focused on particular differences or sets of related differences, and argued that the two modalities differ from each other in more ways than just the medium in which they are conveyed. Others have held that the differences between speaking and writing can be overridden when the context is appropriate. There are some styles of speaking which make use of features associated with writing, and some styles of writing which are more like speech. Beaman (1984), for example, finds that the spoken narratives are just as complex as the written ones: subordinate clauses frequently occur in spoken narratives as well, contrary to the findings of the previous studies, though they are different types and used for different discourse purposes.

In this study, we consider the alleged structural characteristics of spoken and written discourse to be best represented by a continuum. Spontaneous conversation and formal academic prose would set up two

poles on the continuum, and other styles of spoken and written discourse may be posited on various points of the continuum, closer or farther away from the poles. Spoken and written narratives, for example, would be close to each other on the continuum, as Tannen (1984) claims: "all narratives, spoken or written, is modeled on the oral story-telling genre" (p. 39) because they depend for their effect on interpersonal involvement between the writer or the character and the reader. The similar story-telling style, and hence the similar structural characteristics of written and spoken narratives would also reveal a similar pattern of anaphoric distribution between the two modalities. The experimental study discussed in the previous section has given evidence to the prediction. The naturally occurring (as versus experimentally elicited) written narratives, on the other hand, would yield the same basic pattern of anaphora since writers organize the discourse, empathize with their audience, utilize pragmatic and contextual information in a similar way as do speakers in their narrative production.

5.1. The Hierarchical Structure of Written Narratives

The present study argues that writers' hierarchical organization of written narratives, like spoken ones, governs their use of anaphora to a large extent. The basic assumption underlying structural analysis of discourse is that speakers/writers try to produce stories and conversations as separate but interrelated structural units, and hearers/readers also try to represent incoming information in a group of hierarchically organized units.

The major difference between spoken and written narratives in this study is that the discourse organization in narrative production is a speaker-and-hearer oriented process, but the discourse organization in written narratives is mainly reader-oriented. This results from different cognitive demands imposed upon speakers and writers. As discussed earlier in the paper, the hierarchical organization of discourse is a manifestation of the limited capacity of human cognitive resources: the spoken units, usually simple and short, are limited by short-term memory constraints, and also

by speakers' empathy with hearers' cognitive capacity limitations. Writers, on the other hand, are relatively freed from cognitive constraints (as far as the final written product is concerned). Their production processes would be little affected by discourse organization from their own point of view. Nevertheless, writers write for an audience. They would also try to organize the overall discourse into sizable, comprehensible units of different levels because they know intuitively that language so packaged will be easier to process for their readers, who are more constrained than themselves by cognitive resources and have to process incoming information without a specific discourse plan. To ensure a successful delivery of what they write, writers try to help their readers build a discourse representation congruent with their own by forming hierarchical structural units along the linear path of discourse production. While lacking the opportunity for a direct interchange, writers employ various signaling devices to separate and link structural units. The alternative use of NPs and pronominals is one of the signaling devices writers employ to cue comprehenders where and when a new unit starts.

Previous work has been done on the structural analysis of written story or narratives. Among numerous theories dealing with discourse representation and story comprehension, the theory of story grammar or story schema is most influential (Brown & Yule, 1986; Mandler & Johnson, 1977; Rumelhart, 1977; Thorndyke, 1977). A story grammar generally consists of a set of rules that describe how a story can be chunked into smaller units such as setting, episode, event, action, goal, consequence, etc., and how these units are related to one another. The approach of story grammars helps provide ways of representing knowledge stored in memory and how it relates to discourse understanding. However, such a story grammar appears to be appropriate only for short, simple and specially constructed texts. In analyzing naturally occurring narratives, the problems of the story grammar (see especially Thorndyke, 1977, p. 79) become apparent: 1) the lower level components such as subgoal, event, attempt, etc. are so loosely defined that identifications of such categories in long, complex, natural narratives are extremely dif-

ficult; 2) it is not at all clear how recursive units such as episode and event differ from or relate to one another, and how they relate to the overall structure of the narrative; 3) the set of rules defined in the story grammar are either too restrictive or too general to account for narrative units of different types.

The present study proposes, in accord with the hypothesis proposed in Section 3, that both written and spoken discourses are hierarchically organized into sequences of episodes. The general difference found in this study between the two modalities, however, is that episodes in the latter are simple, short, and similar in length and content, whereas episodes in the former are of varying length, complex, and have more layers of recursive units. Specifically, four levels of units are identified in written narratives: the overall discourse, macro-units (episodes), micro-units (subunits), and sentences/clauses, ranging from the highest to the lowest. These lower-level units are related to one another to maintain local thematic continuity, while they contribute to higher level theme to manage the global coherence of the discourse. Of these structural units, episodes are regarded as the core unit of discourse because they pertain both to global structure of discourse and to topically coherent parts of discourse. Moreover, as illustrated in our experimental study, episodic organization in discourse processing has psychological content and is crucial to anaphoric patterning in written discourse.

5.2. An Analysis of Written Texts

According to the present hypothesis, NPs would be expected to be used at episode boundaries to mark the beginning of a new structural unit, and pronominals are used within episodes to maintain thematic coherence of the unit. For our text analysis, episodes are first identified in written texts, and then the distribution of anaphora is examined to see if the written narratives used for the present study exhibit the pattern of anaphora predicted by our hypothesis.

As defined in Section 3, an episode is recursive in nature and subsumed under a macropropositions. Since each episode is subsumed by a

different macroproposition, topic changes would be expected to take place at the beginning of a new episode. Writers often use subtitles, chapter or section headings, or even blank lines to separate episodes and divide boundaries. The beginning of an episode is sometimes also cued by time or place phrases such as *Friday, March 20; Three days after; Outside the restaurant; In the hospital*, etc. Writers use these cues to signal the advent of a new episode, and readers depend largely on these cues to build separate substructures to represent episodes during comprehension. Moreover, NPs (more coding materials) would occur at the beginning of an episode to facilitate readers' construction of the new substructure since reference would be less accessible to them across episode boundaries.

In the present analysis, episodes are identified roughly corresponding to chapters, sections, paragraphs in the written narratives, and episode boundaries are usually accompanied by chapter headings, sub-headings, blank lines, and adverbial phrases of some kind. NPs would occur in an episode accompanying one or more of the following parameters, which is/are employed to signal transitions between episodes.

1. the first mention of a participant in an episode, and/or changes in
2. time
3. location
4. topic
5. participant

In the remainder of this section, I will analyze one of the chapters randomly chosen from each of the following three contemporary Chinese novels, and illustrate the general pattern of anaphora with examples taken from these written narratives. I will narrow the focus on human referents only, i.e., examine anaphora in its prototypical use--tracking a human participant through a discourse.

1. The Aged (Cheng, 1991)
2. The Years that Slipped By (Ye, 1982)
3. The Leaden Wing (Zhang, 1984)

The chapter from Cheng is composed of 20 episodes (11 pages), the chapter from Ye consists of 27 episodes (18 pages), and the chapter from

Zhang contains 25 episodes (13 pages). Generally, the hit rate (i.e., NPs used at the boundary and pronominals used within episode) is very high for all three chapters. They range from 92% to 94%, with an average hit rate of about 93%. Specifically, almost 99% of pronominals are used within episodes to maintain thematic coherence, only 78% of NPs are used at the boundary. Special attention is thus paid to the analysis of the NPs.

First, of the 78% of NPs occurring at the boundary (Hits), 8% are used for the first mentions of participants in an episode. These can either be the first introductions or re-introductions of a referent. The following passage takes the first few clauses from each of the three consecutive episodes in the selected chapter by Zhang (1984). All three episodes focus on a major discourse participant *He Jiabin* and referred to frequently by pronominals within each episode, yet the character is reinstated by an NP at the beginning of each episode.

1) **He Jiabin** looked sternly, even somewhat gloatingly, at the man's fat, greasy face, ...

He Jiabin had many things on (his) mind as he made (his) way to Room 213, ...

He jiabin had just got off work when (he) spotted Wan Qun at the gate, ...

Second, about 12% of NPs are used at the beginning of an episode accompanied by adverbial phrases of time. Consider the following passage:

2) In a large office, Zeng Huixin's desk was placed at an inconspicuous corner. She sat at the corner since (she) graduated from university, ...

After a few years, **Zeng Huixin** had become a skillful editor. She still sat at the corner, ...

Third, about 7% of NPs are used to mark thematic discontinuity after changes indicated by adverbial phrases of place. The following example provides an example.

3) ...She (Xia Zhuyun) was a bit upset, thinking that the hairdresser was over friendly.

Outside the beauty saloon, **Xia Zhuyun** took a glance at her watch. ...

Next, another 16% of NPs are used at the beginning of an episode where a change in topic occurs. Changes in topic are of varying kind such as a shift from the description of one participant to another, a shift froma participant's appearance or personalities to authorial comments, or changes from action sequences to a character's inner thoughts, etc. An example of this kind is given below.

4) ...She (Ye Zhiqiu) herself couldn't quite figure out why she would do it. It may be because she could never be a mother in her life, (she) would try to seize any opportunity to show her love as a mother like all women in the world.

For a woman, ugliness is certainly a misfortune.

Taken individually, there was nothing wrong with **Ye Zhiqiu**'s features, but these features, viewed as a face, made her one of the few most ugly women.

Finally, about 35% of the NP hits are used for shifts between two participants in a close interaction, especially in a dialogue. Dialogues in written narratives are often explicitly cued (about 70% of time) by the characters' names, although some (about 30% of time) are not cued at all to intensify the effect of making the reader a closer onlooker of the progressing events. The following dialogue provides an example of the former case.

5) **Du Jianchun** asked: "Tell me, how did you come to this remote area?"

"I?" **Ke Bizhou** hesitated, stumbling: "You, you want to know the truth?"

"Of course!" **Du Jianchun** was much surprised: "Who'd like to hear lies?"

Ke Bizhou was somewhat uneasy, he said dryly: "I came here not of my own free will ..."

"What!" **Du Jianchun** cried loud and cut him short. ...

Although the two characters are of different gender, the dialogue is still cued by proper names rather than pronouns.

While inter-episode pronominals are negligible (about 1%), intra-episode NPs accounts for about 22% of all NP tokens. Of these NPs misses, about 8% are NPs used within episodes to disambiguate referents, where two participants of the same gender are involved. However, there still exists a pattern of referential choice between the two characters. Lexical pronouns are generally used to refer to the currently more topical character (from whose point of view the passage is oriented), while NPs are used for the less topical character. For example,

6) **Shi Quanqing** considered He Jiabin stupid. **He** had worked with Jiabin for many years. During all those years, **he** had watched He stumble time and again (politically), **he** had spotted every obstacle in He's way, but **he** had never once alerted He of the danger; **he** couldn't wait to see He fall flat on (his) face.

Another 6% of NPs are used within episodes to mark perspective or point of view changes of the author and/or discourse participants. This is illustrated by the following passage.

7) ...Her (Zeng Huixin) talent was recognized by the group. Some famous writers' work were put on her desk for translation, and some

hard-to-translate phrases and sentences were also sent to her for solution. She was like Cinderella discovered. Even her reticence made her more attractive than ever.

But **Zeng Huixin** was still single, and (she) still hadn't got a boy-friend. She was by nature proud and aloof, ...

Here in this passage, the perspective changes from how the character is evaluated by other people to how the character is by herself. At this transition point, an NP is used to indicate the change.

To summarize, in the written narratives analyzed above, NPs are used at the beginning of an episode (together with other cues) to trigger readers to shift and initiate new substructures so that they can represent each episode in its own substructure, and they are sometimes also used within episodes to mark perspective or point of view changes, or resolve referential ambiguity between discourse participants. Altogether, these usages account for 92% of all NP tokens found in the three chapters selected for the analysis.

6. General Discussion and Conclusion

The present study proposed a model of anaphoric choice in which cognitive constraints, discourse organization, and pragmatic/interpersonal factors interact to control a speaker/writer's referential decision during discourse processing. The model not only illustrates the general rule of anaphoric patterning in narrative production, but also predicts alternative uses of anaphora at specific places.

The findings support the general hypothesis proposed in the present study. First, the experimental results demonstrate that episodic organization of narrative production has psychological content: the story was hierarchically organized and remembered as a series of episodes. The psychological reality of episodes provides a sound foundation for the episode theory explored here. Second, the episodic structure of discourse largely governs a speaker/writer's anaphoric choice. Both the experimental

results and the text analysis show that speaker/writers are sensitive to episode boundaries. They use more marking materials (NPs) at episode boundaries where more cognitive resources are demanded, and they use less marking materials (pronominals) within episodes where thematic coherence is maintained. Third, the thematic discontinuity within episodes such as change of perspectives, possible worlds, and ambiguity resolution also demands more coding materials. Besides the general characteristics of anaphoric distribution in both spoken and written narratives, differences also exist between the on-line oral production of stories and written narratives. First, the different cognitive demands imposed on speaking and writing makes a writer's discourse organization (and hence anaphoric choice) even more audience-oriented. While the speakers' use of anaphora was a manifestation of both their own cognitive processes and an assessment of their hearers' current knowledge, the writers' major concern was to help readers build a hierarchical representation of discourse congruent with their own by their patterning of anaphora. Second, the episodic structure in the written narratives was more complex, recursive than that in the oral story-telling, and the writers therefore were more likely to employ NPs to create subboundaries for their readers to facilitate comprehension. Third, while the speakers consistently pronominalized human central characters of the story in the relatively simple oral production task, writers' view of central/topical characters changed from episode to episode. Nevertheless, it was still the currently topical referent who received attention and remained in focus, and was hence more likely to get pronominalized.

The present study gives further evidence that while stories and texts may be presented or produced in a linear fashion, they are nevertheless formulated and processed hierarchically. This hierarchical organization of discourse is constrained in part by the cognitive processes of memory and attention. In this process, the episode serves as a basic unit in production as well as in comprehension. The alternative use of NPs and pronominals is a very important device to represent discourse structure in production and facilitates the restructuring of discourse representation in comprehen-

sion. The correlation between discourse organization and anaphoric patterning has provided an informative method of investigating the relationship between language and cognition.

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The Typology of Tone in Tibetan

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Abstract

This article contributes to Sino-Tibetan phonological typology by exploring tone in one principal member of this language family: Tibetan.

A survey of the variegated stages of tonality attested in modern Tibetan dialects serves as the backdrop for the paper. In the main presentation, the framework of autosegmental phonology is adopted which proves especially revealing for explicating tone representation and tonal processes in Tibetan. A recent autosegmental treatment of Tibetan tone is critically reviewed, followed by a more comprehensive reanalysis with some explicit claims for Lhasa and other tonal Tibetan dialects: (i) The fundamental tonal contrast is register-based, i.e. High vs. Low. (ii) The predictable high tone on non-initial syllables stems from tonal neutralization rather than from left-to-right tone spread. (iii) Tone-spreading rules should be reserved for authentic processes of tonal assimilation. Also discussed are two important related issues: the historical origin of the high tone as the default tone in Tibetan, and the derivational relation between syllable tone and word tone. The proposal for a typological distinction in Sino-Tibetan tonology between template word-tone systems (exemplified by Tibetan), and contoureme ones (exemplified by New Shanghai Chinese) concludes the paper.*

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I. Introduction

The study of tone has figured prominently in Sino-Tibetan linguistics, for a very good reason: the majority of the extant languages in this family[1] make distinctive use of pitch-related phenomena of one type or another. Considerable progress has been made in recent phonological investigations into the tonology of Sinitic languages (see for example Yip 1980, Yue-Hashimoto 1987, Shih 1986, Bao 1990, and the relevant articles in Buszard-Welcher 1992). Comparable studies on the highly diversified and relatively under-explored Tibeto-Burman languages are however still scanty, with a few outstanding exceptions such as Mazaudon 1977, Michailovsky 1988, Weidert 1987, and Dai 1992. The present study intends to contribute to a better understanding of the typology of tone in Tibetan, one of the principal languages of the Tibeto-Burman family.

An overview of the attested types of tonality in modern Tibetan in §1 puts the paper in perspective; the particular tone system of Lhasa, representing a relatively advanced tonogenetic stage, is then briefly described. In §2 Tibetan tonology is explored from the vantage point of autosegmental phonology, a framework which holds special promise in elucidating tone in Tibetan. The particular autosegmental account of tonal phenomena in four Tibetan dialects given in Duanmu 1992 is critically examined in §2.1; a more comprehensive and explanatory reanalysis is offered in §2.2 which diverges from the foregoing with respect to (i) the representation of the underlying tones, (ii) the source of the high tone on non-initial syllables, and (iii) the role of tone-spreading in Tibetan tonology. Next, two issues involved in the proposed analysis are further explored, bearing respectively on the high tone as the 'default' tone in Tibetan (§3.1), and the problem of whether word-level melody is derived

1. The Sino-Tibetan language family contains at least two subfamilies, Sinitic (Chinese) and Tibeto-Burman. According to a more conservative view in the field, the Miao-Yao and Tai-Kadai languages are not genetically related to Sino-Tibetan.

from syllable tones through 'tone sandhi' (§3.2). Based on the findings of this paper, a typological distinction is suggested in the concluding section between **template word-tone** languages represented by Tibetan and Dongkou Chinese, and **contoureme word-tone** languages represented by Tamang and New Shanghai Chinese.

1.1. Tonality in Tibetan

Tonality is under-developed in Tibetan and some other Tibeto-Burman languages.[2] It is generally held that Old Tibetan was not a tone language, in view of the complete absence of tone-marking in the traditional Tibetan script dating from the seventh century, and a fortiori in view of the existence of modern dialects which remain atonal to this day. Modern Tibetan, however, presents such a variegated scenario of tonal developments that the simple dichotomy of '**tonal**' versus '**atonal**' dialects seems insufficient. It would be more realistic to plot modern Tibetan dialects along a scale of increasing tonality, ranging from completely atonal to relatively highly tonal as exemplified in Table 1 below, based in part on Huang 1994:

Tonality Scale	Description of Each Stage	Representative Dialects
Atonal ↓	no phonemic tone or redundant 'habitual' tone	Ndzorge; Ngaba
	no phonemic tone; redundant 'habitual' tone	Labrang; Zhangla
	tone phonemic in restricted environments only	Amdo Sherpa; Balti
	tone generally phonemic; tone values unstable/non-contrastive in some syllable types	Derge; Chamdo
	tone values stable; redundancy high	Lhasa; Gar
Tonal	additional contrast between falling and level contours	Shigatse; Dzongkha

Table 1: The Tibetan Tonality Continuum

2. Chinese-like, or **omnisyllabic** (Matisoff 1991:491) tone systems where all syllables normally carry contrastive tone are lacking in many Tibeto-Burman branches, such as Tani, West Himalayish, Bodo-Garo, and Bodic (including Tibetan).

At one end of the above scale are found dialects in which all syllable types carry a high (falling) tone when uttered in isolation, whereas the initial syllable of polysyllabic words are predictably low-pitched. This is, of course, the **completely atonal** stage, represented by such Amdo dialects as Ndzorge (Written Tibetan: mDzod-dge; Sun 1986)[3], Amchog (A-mchog; Wu 1982), and Ngaba (rNga-ba; Huang 1994); old Tibetan, in all likelihood, also belonged to this type. The next stage is marked by the genesis of 'habitual tone' (Hu 1980: 31) or 'natural tone' (Huang 1994: 2), i.e. fixed redundant pitch patterns determined either by the voicing state of syllable initials such that voiced and voiceless initials respectively condition low and high pitch in such dialects as Labrang (bLa-brang; Hua 1980:72, Hu 1980:fn. 20) and Daofu (rTa'u; Huang 1994:2)[4], or by syllabic quantity such that long syllables with certain types of initials carry a redundant rising pitch in such dialects as Zhangla (lCang-la) and Qiuji (Chos-rje).[5] Tone, however, did not become contrastive until the **emergent-tone** stage where a limited number of tonally distinguished minimal pairs began to enter the scene. Two subtypes of this stage can be identified; contrastive tones are either restricted to certain syllable types, such as those with nasal initials in the case of Amdo Sherpa (A-mdo Shar-pa; Nagano 1980), or apply only to disyllabic and trisyllabic nouns as is the case in Balti (sBal-ti; Sprigg 1966: 186-9).[6] Such varieties of Khams Tibetan as Derge (sDe-dge; Qu 1979:121; Huang 1994: 3) and Chamdo (Chab-mdo; Liu 1984) embody the next stage of tone development, with

3. Written Tibetan (hereafter **WT**) forms in this paper will be given in the standard system of transliteration proposed in Wylie 1959.
4. Hence the popular slogan 清高濁低 '**High-pitched if the initial is voiceless; low-pitched if the initial is voiced.**' It is often implied that this slogan can be applied to all Amdo dialects (Hu 1980: 31; fn. 20; Hua: 1980:72-3), and even to Old Tibetan also (Hu 1980: 31). One of the important contributions of Huang 1994 is to dismiss this misconception by pointing to the existence of such Amdo dialects as Ngaba where the above slogan does not hold. See also §3.1 below.
5. Zhangla (漳臘, Mayi Village, Shuijing Township, Zhangla District, Songpan County) and especially Qiuji (求吉, Mazang Village, Qiuji District, Ruo'ergai County) are aberrant forms of Amdo Tibetan. Data were recorded by the author in western Sichuan during two recent field trips.
6. Huang 1994:2-3 reports a few minimal pairs on **monosyllables** also in her Balti consultant's speech.

distinctive tones on most syllable types but variable and hence non-distinctive pitch patterns on others (see §3.1 below). Then came the stage represented by Lhasa as well as many other varieties of tonal Tibetan where contrastive tones have permeated all syllable types, nevertheless with a high degree of redundancy, being multiply realized by such features as phonation type, final glottality, tensity, and syllable quantity, as well as pitch. The most advanced tonogenetic stage in Tibetan is reached by such dialects as Shigatse and Dzongkha (rDzong-skad; Mazaudon and Michailovsky 1988),[7] where a new distinctive (steep) falling pitch arises in compensation for the ʔ-coda apocope in the case of Shigatse (Qu 1981a: 186-7; Huang 1994: 4) or sonorant-coda apocope as well as syllable contraction in the case of Dzongkha, making it necessary to recognize both a register (high vs. low) and an intersecting contour (falling vs. level) contrast.

One of the most important generalizations on Tibetan tone, even in its most advanced state, is that the primary register contrast is realized only on the initial syllable of a phonological word; all other syllables are predictably high-registered.[8] The drastic neutralization of tone in polysyllabic domains results in at most **one contrastive tone per (phonological) word** in Tibetan regardless of the number of constituent syllables, hence the growing consensus that the Tibetan tone system is word-based rather than syllable-based (Sprigg 1954; Mazaudon 1977; Ossorio 1982:2.5.6; Shih 1986: §4.5).

1.2. Tone in Lhasa Tibetan

Although Lhasa is the best-known variety of modern Tibetan, some areas in Lhasa phonology, in particular its tone system, remain controversial. A number of factors are responsible for this lack of consensus. First, not all sources on alleged 'Lhasa Tibetan' represent genuine samples of the native speech of the Lhasa city. Second, elicitation methods

7. Also to be included in this type are such other varieties of Central Tibetan as Langkazi (sNang-dkar-rtse) (Qu 1981a), and Shap (Ossorio 1982).
8. Except unstressed clitic syllables (see §2.2) and a minor case to be discussed in § 3.2.2.

which make no provision for the pronounced stylistic differences in Tibetan may yield dubious results (Sprigg 1993). Moreover, how one should properly handle multiple phonetic realizations of tone and tonal neutralization in non-initial syllables mentioned above contributes further to divergent interpretations of Lhasa tonology (Tan 1982; Hu 1980).

Examine now the following table of the citation pitch patterns of Lhasa monosyllables reported in Hu 1980 and Hu et al. 1982, based on an instrumental study of the colloquial-style pronunciation of three native speakers:[9]

Register	WT Form	Lhasa Form	Pitch Pattern	Gloss
HIGH	bka'	ka^{54}	high (slight) falling	'decree'
	ka-ba	ka:^{55}	high level	'pillar'
	bkag	ka?^{52}	high (steep) falling	'hinder'
	skam	ka:m^{55}	high level	'be dry'
	bskams	kam?^{52}	high (steep) falling	'make dry (perfective=pf)'
LOW	sga	ka^{12}	low (slight) rising	'saddle'
	bsgar	ka:^{113}	low level-rising	'fasten'
	'gag	ka?^{132}	low rising-falling	'be clogged'
	gam	ka:m^{113}	low level-rising	'box'
	'gams	kam?^{132}	low rising-falling	'put in mouth (pf)'

Table 2. Lhasa Monosyllabic Citation Pitches

9. Pitch patterns are given in the familiar numerical tone notation (highest pitch level=5; lowest pitch level=1). See also the instrumental study reported in Kjellin 1977, which yielded comparable results. However, Sprigg 1993 argues against the citation-form approach, warning that literate Tibetans may give **spelling-style pronunciations** when uttering syllables in isolation. However, I have had quite different personal experiences working with my literate Amdo Tibetan consultant, who, keen on the stylistic differences, has no difficulty whatsoever enunciating citation forms in the colloquial-style on demand (see Sun 1986: Chapter 4). It would be only fair to point out that the linguists conducting the experimental study reported in Hu et al. 1982 were also fully aware of stylistic distinctions in Lhasa Tibetan, and explicitly state: 'this experiment was based entirely on the colloquial pronunciation ... as natural in fluency and tempo as in normal daily conversation as possible... ' (Hu et al. 1982:23, translation mine).

Several observations can be made about the preceding data:

(1) a. High-register syllables are characterized by a fall in pitch, and low-register syllables by a rise in pitch.
b. On long syllables, pitch movements are flattened.
c. The glottal stop coda -ʔ induces a drop in pitch.
d. There is at most a two-way **register contrast**, high versus low, on any of the five rhyme types in Lhasa (-V, -VV, -VP, -VM, and -VMP; where V=vocalic nucleus; P=stop coda, including the glottal stop -ʔ; M=sonorant coda).

The complementarily distributed pitch patterns in Lhasa, therefore, leave much room for different tonemic interpretations,[10] four of which are summarized below (cf. Hu 1980:23-4):

(2) **Four-tone analysis A:** This system, employed by Tibetologists affiliated with the Chinese Academy of Social Sciences, marks glottal stop but regards syllable quantity differences as inherent features of tone, yielding four tones: 'high short tone'^{53}, 'low short tone'^{35} vs. 'high long tone'^{55} and 'low long tone'^{15}:

ka^{54}	→ka^{53}	'decree'	ka^{12}	→ka^{35}	'saddle'
kaʔ^{52}	→kaʔ^{53}	'hinder'	kaʔ^{132}	→kaʔ^{35}	'be clogged'
kamʔ^{52}	→kamʔ^{53}	'make dry (pf)'	kamʔ^{132}	→kamʔ^{35}	'put into mouth (pf)'
ka:^{55}	→ka^{55}	'pillar'	ka:^{113}	→ka^{15}	'fasten'
ka:m^{55}	→kam^{55}	'be dry'	ka:m^{113}	→kam^{15}	'box'

(3) **Four-tone analysis B:**[11] This system, devised and used by Tibetologists from the Central University of Nationalities in Beijing, represents

10. Thus, the statement that 'Lhasa Tibetan has six citation tones' (Shih 1986: 19) is valid only at the phonetic level.
11. Kitamura and Nagano 1990 adopts a similar transcription system for Lhasa Tibetan which, however, is word-based.

syllable quantity segmentally (quantity in syllables closed by sonorant codas are not marked) and gives falling pitch tonemic status, yielding four tones: -f=high level; -h=high falling; -v=low rising; -w=low rising-falling:

ka^{54}	→gaf	'decree'	ka^{12}	→gav	'saddle'
ka:^{55}	→gaaf	'pillar'	ka:^{113}	→gaav	'fasten'
ka?^{52}	→gah	'hinder'	ka?^{132}	→gaw	'be clogged'
ka:m^{55}	→gamf	'be dry'	ka:m^{113}	→gamv	'box'
kam?^{52}	→gamh	'make dry (pf)'	kam?^{132}	→gamw	'put into mouth (pf)'

(4) **Four-tone analysis C:** This system, proposed by Chang Kun and Betty Shefts Chang (Chang and Shefts 1964; Chang and Chang 1978) and adopted in a number of influential teaching materials on Lhasa Tibetan by John Goldstein, has become by far the best-known system in use outside of China. Length is represented segmentally while falling pitch acquires tonemic status. Unlike analysis B, where the two falling tones are marked distinctly (i.e. high falling=-h; low falling=-w), this system recognizes only two register tones on short syllables, but posits for long syllables[12] an additional falling pitch in combination with the two registers, yielding four tones: high-high, low-low, high-falling, and low-falling:

ka^{54}	→qā	'decree'	ka^{12}	→qa̱	'saddle'
ka:^{55}	→qāā	'pillar'	ka:^{113}	→qa̱a̱	'fasten'
ka?^{52}	→qāà	'hinder'	ka?^{132}	→qa̱à	'be clogged'
ka:m^{55}	→qām̄	'be dry'	ka:m^{113}	→qa̱m̱	'box'
kam?^{52}	→qām̀	'make dry (pf)'	kam?^{132}	→qa̱m̀	'put into mouth (pf)'

12. Syllables with the glottal stop coda are represented in this system as long syllables. This has to do with the fact that -V? is often realized as -VV in the first syllable of multisyllablic words in Lhasa (Qu 1981a:191-2). Moreover, according to Hu 1980: fn. 13, some Lhasa speakers pronounce all glottal-coda syllables as long open ones (Rinzin Wangpo, R. K. Sprigg's main Lhasa Tibetan consultant, is one such speaker).

(5) **Two-tone analysis:** This is the tonemic system of Lhasa advocated in this paper. Both glottality and quantity are marked segmentally, leaving pitch register as the only relevant tonal feature:

ka^{54}	→kā	'decree'	ka^{12}	→ka̱	'saddle'
ka:^{55}	→kāā	'pillar'	ka:^{113}	→ka̱a̱	'fasten'
ka?^{52}	→kā?	'hinder'	ka?^{113}	→ka̱?	'be clogged'
ka:m^{55}	→kām	'be dry'	ka:m^{113}	→ka̱m	'box'
kam?^{52}	→kām?	'make dry (pf)'	kam?^{132}	→ka̱m?	'put into mouth (pf)'

Most phonologically defined words in Lhasa Tibetan are more than one syllable long. They include, in the main, nominal and verbal stems with their respective clitics and affixes, and disyllabic (and sometimes trisyllabic) compounds. Phonological words are characterized by a number of **internal sandhi** phenomena such as the presence of certain medial 'intrusive' consonants,[13] vowel harmony, deaspiration of stop/affricate initials, voicing of second-syllable voiceless sonorant initials, and above all, tonal modulations.[14] Table 3 below lists the six surface pitch patterns pronounced in isolation and the respective modulated pitch shapes when these occur in the initial, medial, and final syllables of polysyllabic words (based on Hu 1980):[15]

13. These are the remnants of Old Tibetan consonant clusters, e.g. in the Lhasa word *me̱ntā* 'firearm' (<*me̱* 'fire'+*ta̱* 'arrow'), the medial nasal *-n-* is a reflex of the nasal preradical *m-* of the second morpheme *ta̱* (<WT *mda'*). See Ossorio 1982 5.1.4 and Sun 1986: 4.4 for more details.
14. These are the phonetic exponents of the **interverbal junction** (i.e. close juncture) prosody (Sprigg 1954: 146-9). For a different set of sandhi devices in the atonal Ndzorge Shæme Xəra dialect, see Sun 1986: Chapters 3 & 4.
15. Polysyllabic words in Tibetan are at most three syllables long. Quadrasyllabic expressions in Tibetan behave tonally as combinations of two disyllabic words (Qu 1981b:21). In the Lhasa system, the pitch of a long second syllable is rising rather than level if the first syllable contains a low tone in polysyllabic words. Moreover, unstressed syllables also behave differently (see §2.2 below).

Monosyllabic Tone Value	Tone Value in Polysyllabic Words		
	Initial Syllable	Medial Syllable	Final Syllable
54	55	55	54
55	55	55	55
52	55	55	52
12	11	55	54
113	11	55	55
132	11	55	52

Table 3. Lhasa Pitch Patterns in Polysyllabic Words

Again, several observations can be made:

(6) a. In the first syllable, the characteristic fall and rise in pitch associated respectively with high- and low-register syllables are not observed; the attested pitches are level in both cases (high level ^{55} and low level ^{11}).

b. In the medial syllable, if any, the pitch is always high level ^{55}. [16]

c. In the final syllable, only high-register pitch patterns are found.

Thus, polysyllabic words in Lhasa, as in most other tonal dialects, carry a two-way contrast only in the first syllable; all subsequent syllables are predictably high-pitched.

2. Autosegmental Analyses of Tibetan Tonology

Autosegmental phonology, an offshoot of non-linear phonology

16. An important exception is the process of Low Tone Assimilation; see (7e) and (16b) below.

developed by John Goldsmith and others (Goldsmith 1979, 1990; Yip 1980), is the descriptive model adopted in a recent article by Duanmu San on the analysis of tone in modern Tibetan (Duanmu 1992),[17] where it is contended that an autosegmental approach to Tibetan tone can bring out insights missed by the traditional, syllable-based approach.

Indeed, autosegmental phonology seems a particularly fitting framework for the insightful treatment of tone in Tibetan, given the characteristics of Tibetan tone mentioned above. First, it is the contrast in (high vs. low) **pitch register** that is fundamental in Tibetan, whereas pitch contours are often redundantly associated with particular syllable types. Thus, a high tone in Lhasa falls slightly, stays level, or falls steeply depending on whether the tone-bearing syllable is short, long, or checked/glottalized. Dialects also differ significantly with respect to how surface pitch contours are realized (see Table 5 below). As has been amply demonstrated in previous work on African tone languages, the autosegmental approach is particularly suited for the representation of register-tone systems. Moreover, autosegmental phonology allows both general and localized tone processes in Tibetan to be characterized in a revealing way. Consider for example the pervasive reduction of tone in Tibetan non-initial syllables, resulting in highly restricted tone patterns in polysyllabic words. Instead of exhaustively listing individual pairs of citation tones and the respective 'sandhi tones' as is done in the traditional approach (see for example Qu 1981b), an autosegmental analysis can reflect the simplicity of the underlying tonal neutralization process by formulating a simple unitary tone rule which nullifies the underlying tones on non-initial syllables, leaving only the initial tone to bear the tonal contrast of the entire word (see §2.1 and §2.2 below).

Concurring with Duanmu's general points on the usefulness of the autosegmental model in representing tonal oppositions and processes in Tibetan, we nevertheless hold rather different views regarding what constitutes an adequate autosegmental treatment of Tibetan tone, for

17. Subsequent reference to this source will be by data-set number and page number only.

reasons we shall see below.

2.1. Duanmu's Analysis

In Duanmu 1992, tonal variations in monosyllabic and polysyllabic expressions in four Tibetan dialects, Lhasa, Zedang (rTsed-thang), Gar (sGar) and Gaize (sGer-rtse),[18] are examined in order to show that tone in Tibetan behaves in ways similar to tone in other parts of the world, such as Africa and east China (the Wu dialects of Sinitic), in that (i) contour tones are made of level tones, and (ii) tones lie on an independent tier and may spread across segments.

For Duanmu, all four varieties of Tibetan have the same system of high (H) and rising (LH) underlying syllable-tones, differing from each other mainly in the tone-mapping rules. The set of tone rules proposed by Duanmu for Lhasa are given in (7) below:

(7) a. Delete tones from non-initial syllables.
b. Associate tone to syllables one-to-one, left to right.
c. If there are more syllables, spread the last tone to excess syllables.
d. If there are more tones, link excess tones to the last syllable.
e. If a L precedes a final long syllable with a H, spread L to the latter.

The relations between the underlying tones and their realizations in different syllable types are given in Table 4 below (adapted from Duanmu 1992: 75):

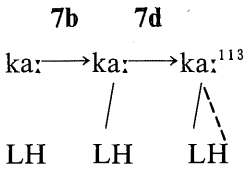
18. Lhasa, Zedang, and Gar are dBus-gTsang or Central dialects, whereas Gaize belongs to the heterogeneous Khams dialect group, according to Qu and Tan 1983.

	Underlying Tone		Syllable Type
	H	LH	
Realization	54	12	-V (open syllable)
	55	113	-VV/-VM (long syllables, including long open syllables and closed unchecked syllables
	52	132	-VP (checked syllables)[19]

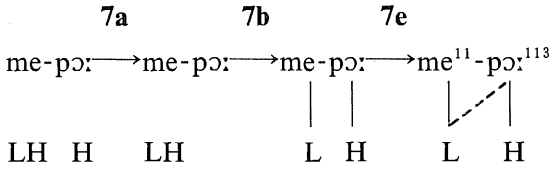
Table 4. Lhasa Surface Pitch Patterns and Underlying Tones in Duanmu's Analysis

Consider now the sample derivations of the monosyllable **ka:**^{113} 'fasten; install', and the disyllabic compound **me**^{11}**-pɔ:**^{113} 'coal-pan' (composed of **me**^{12} 'fire' and pʰɔ:^{113} 'bowl'):[20]

(8)



(9)

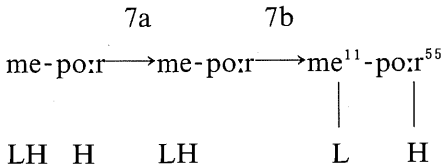


Only two aspects of the polysyllabic tone patterns in the three non-Lhasa tone systems, where they diverge from the Lhasa system, are treated

19. Not mentioned is the rhyme type -VM? which, in contrast with -VM, behaves tonally as a short checked syllable.
20. Actually, the pitch value on the second syllable of this compound should be ^{24} rather than ^{113}. We will return to this important fact later in this section.

by Duanmu. For one thing, Gar and Gaize, unlike Lhasa, lack the tone-spread rule 7e. Contrast (9) above with (10) below, showing the derivation of the compound for 'coal-pan' in Gar:

(10)

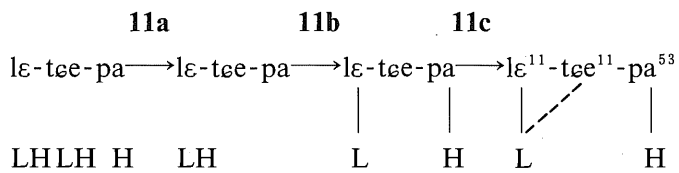


The second divergent pattern pertains to trisyllabic compounds in Zedang, where the medial tone, rather than being invariably high-toned as in the other dialects, becomes low if the tone of the first syllable is low. This fundamentally assimilatory process is accounted for by appealing to 'edge-in association', expressed as (b) and (c) of the following Zedang tone rules (p. 83):

(11) a. Delete tones from non-initial syllables.
b. Associate the first tone to the first syllable, and the last tone to the last syllable.
c. If there are free tones in between, spread the first tone to them.

Consider the sample derivation for the compound word for 'cadre' below:

(12)



Ingenious as it may seem, Duanmu's analysis of Tibetan tone falls short of being completely satisfactory. On the one hand, what he advocates for Tibetan is a typologically odd system of underlying tones. Given a two-tone system, it is in principle far more natural to have a simple contrast of high vs. low **registers** than a mixed system of level (H)

vs. contour (LH) tones, especially in view of the high variability of pitch contours in tonal Tibetan (Sprigg 1993).[21]

We noted earlier that in Lhasa, as well as in many other Central Tibetan dialects, high-register syllables are characterized by a fall in pitch, and low-register syllables by a rise in pitch when uttered in isolation. To accord the pitch rise associated with the low tone underlying status, i.e. LH, while relegating the pitch fall associated with the high tone to 'domain-final intonation', representing it simply as H, seems rather contrived. The correlation between underlying and surface tones would be much more consistent if **both** the pitch fall (with high-register syllables) **and** the pitch rise (with low-register syllables) were regarded as low-level domain-final phenomena, to be dealt with uniformly by language-specific allotonic rules.

In fact, this heterogeneous system of underlying tones is extended by Duanmu not only to Zedang and Gar, whose surface tonal phonetics are akin to those of Lhasa, but even to Gaize, which has the entirely disparate monosyllabic pitch patterns shown below:

H	LH	Syllable Type
53	31	short
51	22	long

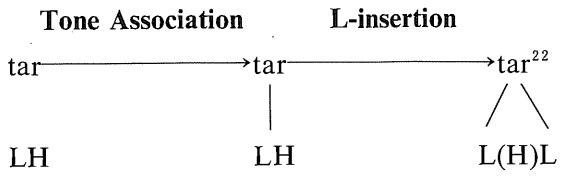
Table 5. Gaize Underlying and Surface Tones in Duanmu's Analysis

In Table 5, the high tone on long syllables is a steep falling tone while

21. R. K. Sprigg has repeatedly underscored the fact that Tibetan is a register tone system (see for example Sprigg 1990, 1993). Y. R. Chao also recognized the two Lhasa tonemes as a basic contrast of high vs. low registers, even though he described their actual citation values as contour tones (respectively high falling ^{53} and low rise-fall ^{131}) (Chao and Yu 1960:9-12). Other Tibeto-Burman languages with similar two-term register tone systems include PaTani (Saxena 1991), Apatani (Weidert 1987: §6.2), Manipuri (=Meithei; Chelliah 1992), and certain languages of Eastern Nepal, such as Sunwar and Khaling (Michailovsky 1988: 28-9).

the low tones do not rise at all in Gaize, contrary to what the proposed underlying tones H and LH indicate. The obvious mismatch between the underlying and surface tones is dealt with by Duanmu by adding a patch -up rule which tags a L to the right of monosyllables ((38d), p. 81), and, in the case of the low-toned syllables, stipulating that a H tone sandwiched between two L's may 'stay unlinked'; for instance ((39 b.), p. 81):

(13)

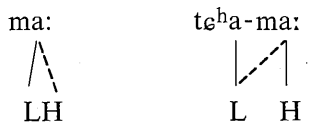


It should be evident by now that Duanmu pays a high cost in descriptive naturalness and plausibility for treating the Tibetan low-register tone as underlyingly LH. This decision is presumably motivated by an important fact related to tonal phonotactics in Tibetan, which, we recall, is that in non-initial syllables of polysyllabic words the tonal contrast is neutralized to a relatively high-pitch tone in all tonal dialects of Tibetan so far recorded. Under Duanmu's analysis, this state of affairs is accounted for by attributing the non-initial high-tone to a H emanated from **both** underlying tones on the initial syllable through left-to-right tone-spreading.

There are, however, indications that this conception of the origin of the non-initial high tone is misguided. First, the requirement that all underlying tones have a H on the right edge demands in effect that **all** varieties of tonal Tibetan have only two kinds of underlying tones, high level (H) and rising (LH). This stipulation flies in the face of such surface pitch patterns as falling (HL) in the high-register as well as level (L) and falling (HL) in the low register actually attested in many modern dialects (Qu 1988: 327). We have seen in the above how much Procrustean stretching has to be exercised in order to fit the data into Duanmu's theory of underlying tones in the case of Gaize; even more ad-hoc manipulation will have to be performed if other dialects are taken into consideration.

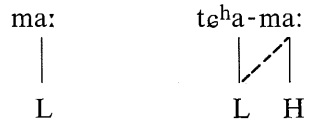
Second, treating the low-register tone as LH misses the underlying unity of certain tonal processes. Consider again the pitch patterns me^{11}-pɔː^{113} 'coal-pan' in Lhasa and lɛ^{11}-tɕe^{11}-pa^{53} 'cadre' in Zedang, where the second syllables become respectively rising and low level when abutting a low-register tone in the first syllable. Intuitively, what is clearly at work here is the low pitch of the initial syllable permeating, to different degrees, the neighboring syllable. The underlying uniformity of the two tonal processes will be directly captured by representing the low-register tones simply as L (see below). Contrast this with Duanmu's approach discussed above (see (10) and (12)), which obscures the relatedness between these two instances of **low-tone assimilation** by positing distinct tone-association rules. Furthermore, the representation of the low tone as underlyingly LH predicts tonal outputs directly contradicted by actual tone patterns. Observe, for example, the following representations of the morpheme *maa* 'butter (<WT *mar*)' both in isolation and in the compound tɕʰa-*māā* 'tea and butter (<WT *ja-mar*)' under Duanmu's analysis:

(14)



Since both occurrences of *maa* 'butter' bear the same LH tones, the prediction is that their surface tones should also be identical. On the contrary, the instrumental research conducted by Hu et al. (1982: 34) reveals that the morpheme for 'butter' has a higher general pitch (^{24}) in the compound 'tea and butter' than its citation pitch (^{113}). If the underlying citation tone of 'butter' is posited simply as L, then the two occurrences of 'butter' will have distinct tone structures, L vs. LH:

(15)



Crucially, the presence of a H tone in the non-initial occurrence of the morpheme for 'butter' (on the provenance of this H tone, see below) provides a natural explanation for the heightened pitch in this particular environment. This constitutes further, and in our opinion clinching, evidence that the underlying low-register tone in Tibetan should be no more complex than L, and that the high pitch of non-initial syllables in Tibetan is by no means inherited from the initial syllable.

2.2. Alternative Analysis

The above arguments, as well as insights distilled from a long tradition of Tibetan tonal research (Jäschke 1881: xiii-xxi, Chao and Yu 1930, Miller 1955, Mazaudon: 1977: §3.1; Sprigg 1954 through 1993), make it clear that the underlying tonal representations in Tibetan should be none other than H(igh) vs. L(ow) registers.[22] The observed pitch contours which appear on the last syllable of phonological words differ from dialect to dialect and may vary from one phonological or sociolinguistic context to another even within the same dialect (Sprigg 1993). Such largely predictable domain-final contours, rather than being represented underlyingly, should be generated by **dialect-specific** detail rules. Thus, there are distinct allotonic rules for Lhasa and Gaize Tibetan to the effect that, for instance, the underlying low tone tends to be realized in short open syllables with a slight **rising** pitch in the former dialect but with a slight **falling** pitch in the latter.

Also at variance with Duanmu's analysis is our account of the predictable high register on non-initial syllables in Tibetan polysyllablic words. We contend, following a well-known principle in markedness

22. At least for those dialects (e.g. Lhasa) where the (steep) falling pitch can be consistently derived from the presence of the glottal-stop coda by an automatic allotonic process. Only in such dialects as Shigatse (Qu 1981a, 1988, Huang 1994) where the loss of the glottal stop makes the steep pitch fall no longer predictable from the segmental structure, is it justified to recognize both a register (high vs. low) and a contour (level vs. falling) distinction (for an autosegmental representation of tone in such dialects, see §4 below).

theory, that the high register is the unmarked register in Tibetan since this is the value found **in contexts of neutralization** (Greenberg 1966: 13-24). The high tone in Tibetan non-initial syllables, in other words, results not from assimilation to a H in the initial syllable but rather from phonological neutralization reducing the original tonal contrast to a non-distinctive high register. In our analysis, this generalization is conveyed by a tone-deletion rule which cancels (neutralizes) the original lexical tones on non-initial tone-bearing syllables, and a **default-tone rule** which fills the empty tone slots with the default value H.[23] Our proposed tone rules for Lhasa Tibetan can be tentatively given as (16) below:

(16) a. **Tone Association (TA):** equivalent to Duanmu's tone rules (7 b), (7c), and (7d) cited above.

b. **Low Tone Assimilation (LTA):** If the tone of the initial syllable is L and the second syllable is long, spread L to the latter.

c. **Tone Neutralization (TN):** equivalent to Duanmu's tone rule (7 a).

d. **Default Tone Assignment (DTA):** Fill unspecified tone slots with the default high tone (symbolized herein as boldfaced **H**).

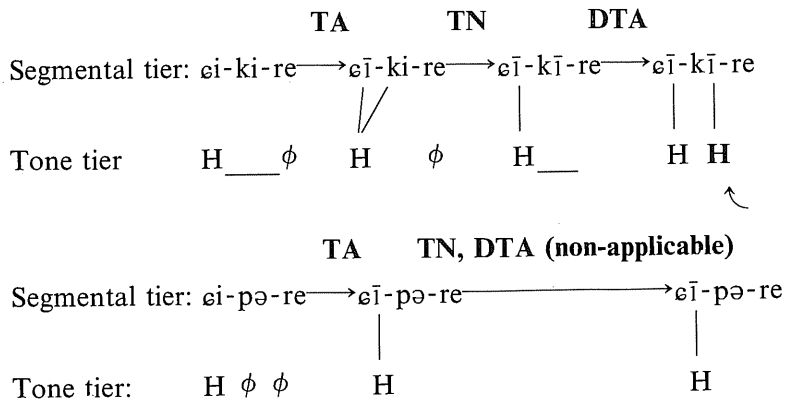
At this juncture, some remarks are in order concerning two areas of Lhasa tonology not touched upon in Duanmu 1992. First, many grammatical elements such as case markers, verbal endings, and sentence-final illocutionary particles behave as unstressed **toneless** enclitics in Tibetan (Qu 1981b: 20; Wang 1984). Such enclitics, for example the perfective marker *-pə-*, are **extrametrical** in that the host syllables they are attached to are characterized by domain-final contours, as if the enclitics do not count as part of the tonal domain (Qu 1981b: 20; Mazaudon 1977:82-3; Durand 1990:211-5). Furthermore, TN and DTA apply

23. Yip (1993: 257) attributes the default high register on the second syllable in Tibetan compounds rather to the deletion of the laryngeal node (and also the subordinate feature [murmur]) on that syllable.

vacuously to toneless syllables for these do not possess corresponding slots on the tone tier to serve as landing sites of the default high tone.[24] Second, toneless syllables are to be distinguished from cases like the high -toned imperfective aspect marker ***-kī-*** in Lhasa which, being bound morphemes, never occur by themselves in natural speech and therefore are lexically unspecified for tone. Unlike toneless syllables, however, such bound forms do hold places on the tone tier (hence the slot-holding underline ___below) and are entitled to receive the default tone.

In the sample derivations of (17) below, contrast the underlying tonal representations of the two phonological words *ɕī-kī-re* 'will die' and *ɕī-pə-re* 'died', consisting of the verb root *ɕī* 'to die', the enclitics *=-pə-* and *=-kī-* and the (optionally) toneless auxiliary *re* (< WT *red* 'copula'):[25]

(17)



We turn now to the input conditions of Low Tone Assimilation above, which require that the second syllable be long, consisting either of an

24. There are as yet no experimental studies devoted specifically to the surface pitch shapes of toneless syllables. Wang (1985: 89) observes that such syllables are usually spoken at an indistinct mid pitch, but when the preceding domain-final contour is falling, the fall is normally spread to the toneless syllable. For example, the surface pitch contour of the word *tɕe̲-lə* 'then; afterwards' (<WT *rjes-la*) is *tɕe*^{13}*-lə*^{2}.

25. Although this copula is normally weakened to a toneless clitic, it can also be pronounced as a low-toned full syllable *rɛ̲ʔ* in deliberate speech (Wang 1985: 86-8).

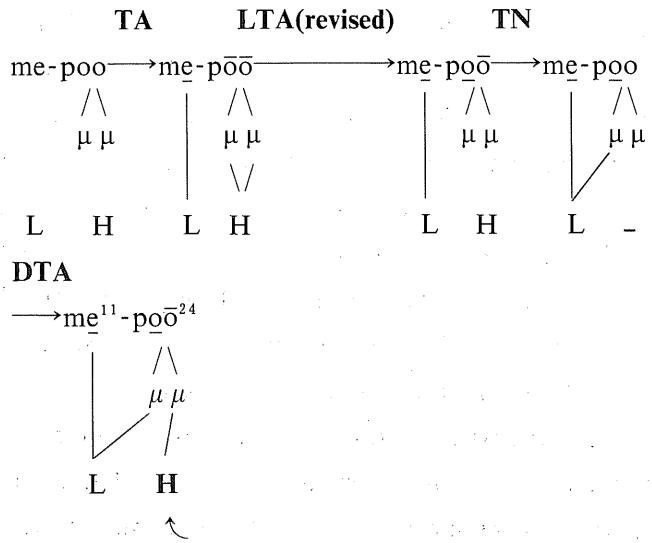
open syllable with a geminate vowel or diphthong or a syllable closed by a sonorant coda. Experimental studies on Lhasa Tibetan have shown that the duration of such syllables is roughly double that of short syllables (Hu et al. 1982), and in the case of closed unchecked (i.e. sonorant-coda) syllables, the length of the coda equals that of the preceding nuclear vowel (Tan and Jiang 1991). Evidently then, long syllables in Tibetan are **bimoraic** where the second vowel in the case of long open syllables or the sonorant coda in the case of closed syllables occupies a separate mora.[26] Also, the LTA rule in Lhasa and elsewhere[27] must be made sensitive to moraic structure, otherwise its restriction to long (bimoraic) syllables would be unexplained. This furnishes direct evidence that the tone-bearing unit in Tibetan is the mora rather than the rhyme or the syllable.[28] Hence, LTA is to be reformulated as (18):

(18) **LTA (revised):** If the tone of the initial syllable is L and the second syllable is bimoraic, spread L to the latter, causing the originally associated tone on the first mora to delink.

Consider now the revised derivation of the same compound *me*^{11}-*pɔ*:^{24} (phonemicized herein as ***me̱-pōō***) 'coal-pan':

26. Checked syllables in Lhasa Tibetan, including those with a nasal coda followed by the glottal stop -ʔ are shorter in duration even than short open syllables (Tan and Jiang 1991). Such syllables are clearly monomoraic.
27. Other dialects that have similar low-tone spreading rules include varieties of dBus Tibetan spoken near Lhasa city and in Sannan (lHo-kha) District further to the south, plus a few varieties of Khams Tibetan spoken in Diqing (bDe-chen) Prefecture in northwestern Yunnan (Tan 1984: 637-9).
28. The same conclusion is reached by Yip (1993: 257) based on different Tibetan data. Hyman (1993: 77) claims that the tone-bearing unit is universally the mora.

(19)



Another case of low tone spreading is presented by Zedang Tibetan where the medial syllable in trisyllabic compounds, rather than bearing the default high tone as in the other dialects, becomes low-toned if the tone of the initial syllable is low. As argued above, this particular type of low-tone spreading obviously involves the same underlying process as LTA and therefore should not be treated by distinct mapping mechanisms. Instead, we propose that Zedang Tibetan adds a late dialect-specific tone rule which spreads an initial low tone to the word-medial syllable. In contrast with LTA, also attested in this dialect, where the spreading L reaches only an adjacent mora, this additional minor rule is more thoroughgoing in causing the entire medial syllable to be assimilated to L. Following are the Zedang tone rules:

(20) a. **Tone Association (TA):** =(16a)

b. **Low-Tone Assimilation (LTA, revised):** =(18)

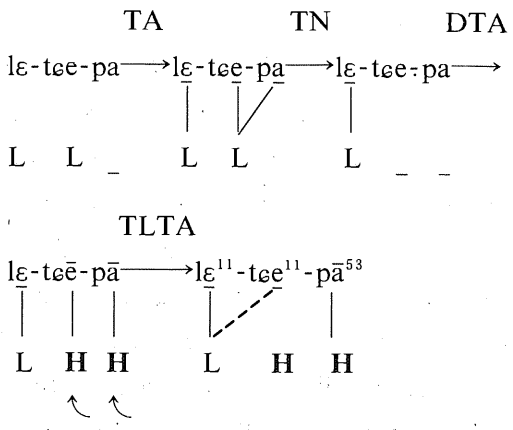
c. **Tone Neutralization (TN):** =(16b)

d. **Default Tone Assignment (DTA):** =(16c)

e. **Trisyllabic Low-Tone Assimilation (TLTA):** In a trisyllabic phonological word, if the tone of the initial syllable is L, spread L to the medial syllable and delink the originally associated tone.

Consider the derivation in (21) for the compound *lɛ̱-tɕe̱-pā* 'cadre' in Zedang:[29]

(21)



Thus, although we do not ascribe the non-initial high tone to a H spread from the first syllable, tone-spreading rules do have a role to play in our analysis; namely, they are reserved for cases of **genuine** processes of tonal assimilation such as LTA and TLTA.

3. Related Issues

The foregoing analysis of Tibetan tone hinges on, among other things, the existence of the default high tone and tonal processes that derive word tones from syllable tones. In what follows, additional data will be brought in to further elucidate these descriptive devices.

3.1. Why is the Default Register High in Tibetan?

It will be recalled from §2.2 that the postulation of the high register as the unmarked or default register value in Tibetan stems strictly from marking phenomena observed in synchronic Tibetan phonology. In order to understand this particular skewed distribution of the high vs. the low

29. The underlying tone of the bound agentive morpheme *-pa* 'the one who...' is unspecified in our analysis.

register, it is necessary to venture beyond synchrony and consider the paths along which contrastive tone arose in Tibetan. Comparative evidence presented in §1.1 suggests that Tibetan originally must have been in a state where, the effects of stress and intonation aside, all syllables were normally produced in the high register. The postulation of an **atonal par excellence** proto-stage on the Tibetan tonality continuum seems well-motivated, for this stage is still attested in many modern dialects, as indicated above. The first significant change altering this incipient state was the emergence of the **non-contrastive** low register in Amdo Tibetan conditioned either by voiced initials or by syllable quantity, depending on dialect (see §1.1 above).[30] It should be emphasized that in this dialect the phonetically conditioned 'register split' is limited only to the initial syllable, whereas **all non-initial syllables are still high-registered**, much as in the tonal dialects (Hua 1980: 72, Hu 1980: fn. 20). The next diachronic step is taken when, as a result of phonological attrition of syllable initials, the low register came to be minimally distinguished from the high register in certain environments, as in the case of Amdo Sherpa mentioned above (Nagano 1980). At this juncture, the interactions of the two pitch registers in many Khams dialects seem highly suggestive. In Derge and Batang ('Ba'-thang), for instance, syllables which bore voiced obstruent initials in Old Tibetan became low-registered if the original initial underwent devoicing, but stay high-registered where devoicing has not happened, as shown in these Derge examples: ***ko̲*** 'hear' <WT *go*; ***gū*** 'nine' <WT *dgu* (Qu 1988:323).[31] Furthermore, register on syllables with **synchronically** voiced obstruent initials show variation in register which is apparently random in some dialects (e.g. Derge; Huang 1994:3; Chamdo; Liu 1984) or apparently conditioned by the articulatory positions of the

30. This stage, where the low register permeates the entire syllable, is to be carefully distinguished from the universal phonetic tendency for voiced sylable initials to induce a lower onset pitch.
31. The resulting state is the exact inverse of the situation portrayed in the slogan 'High-pitched if the initial is voiceless; low-pitched if the initial is voiced' seen above.

root initials in others (e.g. Batang: ndʐ ɛ̄ɛ̄ 'rice' <WT *'bras*; ndʐ ɛ̱ɛ̱ 'resent' <WT *'gras*.; Gesang 1985: 24). The Khams data above would be hard to explain if the phonetically conditioned low pitch is assumed to be always present on voiced-initial syllables (e.g. Hu 1980:31). If, instead, we assume a uniform high-register starting point for Tibetan, then the scenario of tonogenesis in this language can be conceived of as **the emergence of the distinctive low register which has encroached gradually on the territory of the high register.**[32] The unmarked register in modern Tibetan is high simply because this **was** the original state of the ancestral language ubiquitously retained in the modern dialects. Thus, granting the non-initial high register default status not only is well-motivated synchronically, but also expresses an important generalization in Tibetan phonological diachrony.

3.2. Is There 'Tone Sandhi' in Tibetan?

As indicated above, the proper domain for tone in Tibetan is the (phonological) word where, regardless of the number of constituent syllables, contrastive pitch register is borne by the word-initial syllable. Since most morphemes in Tibetan are tone-bearing monosyllables (hence the apt term 'morphosyllables' proposed by Light 1978), the question arises as to how, given a polysyllabic word, the word tone should be related to the underlying tones of the constituent morphosyllables. Sprigg 1975:179 argues explicitly against deriving the latter from the former:

> I... find it structurally misleading to describe the lexical items *sgam* 'box', *ja* 'tea', and *yi* (*g*) 'letter' that occur in the first-syllable place of the words *sgam-chung*, *ja-ldong*, and *yi-ge* with contrastive low pitch as having changed tone from low tone to high tone in the words *lcags-sgam*, *gsol-ja*, and *lam-yig* simply

32. The effects of the low register invading **non-initial syllables** can also be witnessed in the various rules of Low Tone Assimilation discussed in this paper (see 25b, 25 d, in §2.2 and 27 in §3.2 below).

> because, in these last three words, those lexical items have a high pitch, the non-contrastive high pitch appropriate to the second-syllable place in those words...

Ossorio 1982: 57; 114, sharing Sprigg's conviction, denies in even stronger terms the existence of 'tone changes' in Tibetan not only diachronically (and we agree, see §4 below), but also synchronically:

> There is no evidence that the restricted tonal patterns of polysyllabic words ever developed through sandhi changes of the tones carried by the monosyllabes involved... Using the word as the domain of tone there are no tones to be raised on non-initial syllables; **never, at any stage in the derivation, do such syllables carry low tone**.

These claims, however, must be modified in view of the counter-evidence to be presented in the following sections.

3.2.1. Low Tone Assimilation (LTA) in Purang

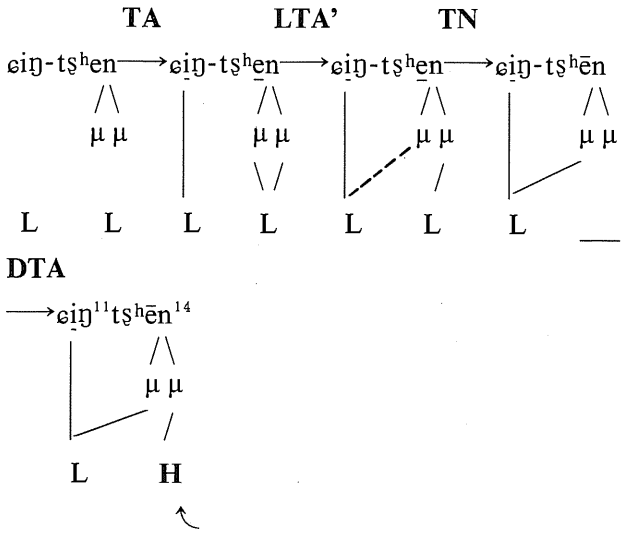
In §2.2 we inspected in detail a case of tonal assimilation, **LTA**, attested in many Tibetan dialects. An interesting variant of LTA is reported in the Purang dialect where the initial low tone spreads to the right when the second syllable is **originally** low-toned, but unlike in the ordinary LTA, tone-spreading does not occur if the second syllable is originally high-toned (Tan 1984:633-5). The Purang version of Low Tone Assimilation (**LTA'**) can be stated as (22) (tone rules in Purang are otherwise identical to those in Lhasa):

(22) **LTA'**: If the tone of the initial syllable is L and if the second syllable is low-toned and bimoraic, spread L to the latter and delink the originally associated tone on the first mora.

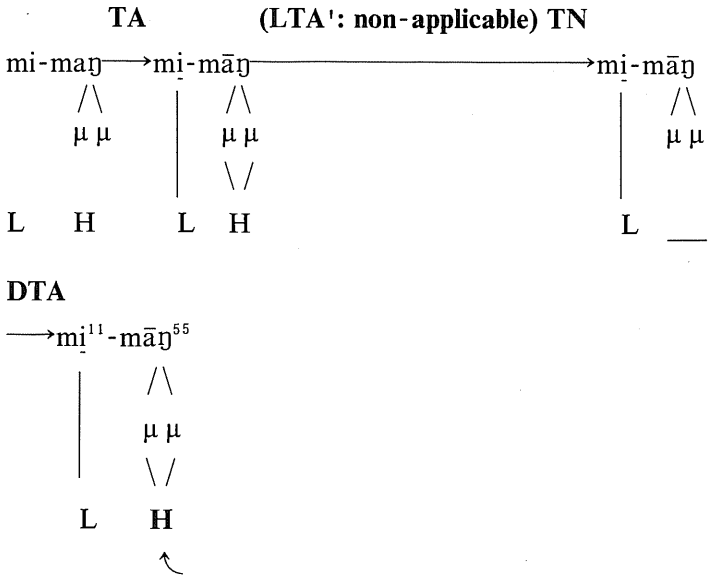
Contrast the derivations in (23-24) of the compounds $\varepsilon i\eta^{11}$-$t\varsigma^{h}\varepsilon\varepsilon n^{14}$

'serf' (phonemicized herein as *ɕiŋ-tʂʰēn* < WT *zhing* 'field' + *bran* 'slave') and *mi*^{11}-*maaŋ*^{55} 'populace' (phonemicized herein as *mi-māŋ* < WT *mi* 'human' + *dmangs* 'multitude, vulgar'):

(23)



(24)



Thus it is clear that LTA', a tonal process which shapes the tonal melodies of polysyllabic words, can access the underlying tones of the compo-

nent syllables.[33]

3.2.2. The Negator **ma-** in Lhasa

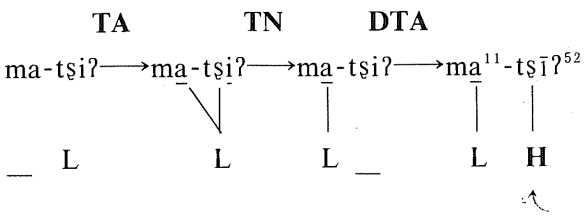
Another revealing example of the interactions between syllable and word tones is furnished by the negator morpheme *ma-* in Lhasa Tibetan, which is used both with the perfective aspect (cf. the low-toned imperfective-aspect negator *mi̲-*) and in prohibitive commands. One unusual property of *ma-*, which always forms a single phonological word with the verb stem onto which it is tagged, is that its tone is always identical to the **underlying** tone of the verb stem, although owing to its non-initial position the latter itself always ends up bearing the default high tone.[34] Since the inherent tone of the bound morpheme *ma-* cannot be ascertained (barring recourse to spelling pronunciation), we suggest that it is lexically unspecified for tone (i.e. bearing only a place-holder __ on the tone tier), and that its surface tone is automatically received from the verb stem by applying ordinary tone association (especially 7c above). The underlying tone on the verb stem is then nullified and reassociated with the default high tone under DTA. Consider the sample derivations of the negative forms of the perfective verb stems *tē?* 'saw' (<WT *ltas*) and *tʂi̲?* 'wrote' (<WT *bris*), respectively *mā-tē ?* 'did not see' and *ma̲-tʂī?* 'did not write' below (Qu 1981a:24):

(25)

	TA	TN	DTA
ma-te?	⟶ mā-tē?	⟶ mā-te?	⟶ mā^{55}-tē?^{52}
__ H	H	H __	H H

33. Incidentally, the Purang data (as well as the data concerning the prefix *ma-* in Lhasa, see below) cause embarrassment to Duanmu's analysis, as all non-initial underlying tones are deleted from the tone tier at the start of the derivation, making it impossible for other tone rules to refer to them later.
34. The imperfective negator *mi-* in Purang Tibetan shows the same tonal behavior (Tan 1984: 637).

(26)



Since here the original syllable tone of the verb stem is **inherited** by the *ma-* morpheme on its left rather than completely obliterated by tone neutralization, a purely **distributional** approach to the problem at hand (such as Sprigg's prosodic analysis) will fail to give a principled account of the fact that *ma-* is high-toned in one case but low-toned in the other.

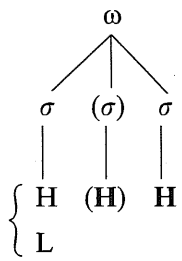
The preceding data present strong empirical evidence that, in synchronic word-formation at least, derivational relations do exist in Tibetan between tones of the constituent syllables and the melody of the polysyllabic word as a whole, and that, consequently, an adequate description of Tibetan tonology cannot do without 'tone sandhi' rules.

4. Concluding Remarks

We have witnessed in modern Tibetan a continuum of increasing tonality, reflecting various stages of the gradual emergence of lexically distinctive pitch. A typical tone system in Tibetan differs in two important respects from a typical Sinitic tone system: (i) the basic tonal contrast is that of simple pitch registers: high vs. low; (ii) the register contrast is realized only on the first syllable of a given phonological word.[35] This type of tone system is so restricted that tone in polysyllabic Tibetan words may be viewed as adhering by and large to a simple **tone template** (where ω=phonological word; σ=syllable; **H**=default high register):

35. Furthermore, word-tone can be completely obliterated by the overriding post-emphasis intonation at least in Lhasa Tibetan (see for example Sprigg 1981:56-7).

(27)



As indicated above (§1.1), some tonal dialects seem to be undergoing change in the direction of adding an intersecting dimension of **contour** contrast, level vs. falling, on the final syllable. One straightforward way of expressing this target of sound change in autosegmental phonology is to add a L to the right of the basic contrast of H vs. L, yielding four distinctive monosyllabic tone patterns: H, HL, L, and LL. The realizations of these four underlying tones in the Shigatse dialect is given in Table 6 below (Qu 1981a:189):[36]

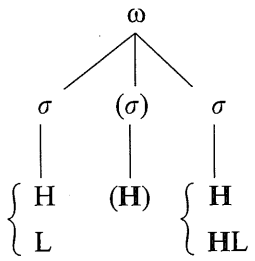
	H	HL	L	LL	Syllable Type
Realization	53	51	12	131	short
	55		113		long

Table 6. Shigatse Underlying and Surface Tones

To account for the fact that the contour contrast is limited to the last syllable in a polysyllabic word, we need only posit a simple rule which realizes (i.e. associates to the segmental tier) the second half of composite tones only at word-final position. The innovative tone template may then be represented as (28):

36. The level/fall contrast is restricted to short rather than long syllables in all three dBus-gtsang dialects discussed in Qu 1981a. This is contrary to what is found in one variety of Lhasa where the rhyme gets compensatorily lengthened with the apocope of the glottal stop, resulting in the contour contrast being carried by long syllables (Kjellin 1977). Note that this means the contour distinction may not necessarily depend on bimoraic syllable structure, contra Yip 1992: §3.2.

(28)



It is to be noted that in (28) the secondary contour distinction is **superimposed** on the basic tone template of (27), such that the final syllable, like all non-initial syllables, still bears the default high register.

In Sino-Tibetan, tone systems that are closest to the Tibetan one are those found in such dialects/languages as Dongkou (Xiang; Yue-Hashimoto 1987: §2.1) and New Shanghai (Northern Wu; Duanmu 1992) in Sinitic, and PaTani (West Himalayish, Saxena 1991), Tamang (Tamang-Gurung-Thakali-Manang; Mazaudon 1977: 54-7; Weidert 1987: §7.1.4; Sprigg 1990), and Konyak (Northern Naga; Weidert 1987: 215-6; 414-5) in Tibeto-Burman. All of these systems are characterized by **initial-dominance** (Yue-Hashimoto 1987: §2.1; Duanmu 1992:68), whereby in a polysyllabic domain the pitch pattern of the entire domain is borne solely by the initial syllable with the sweeping reduction of tonal contrast elsewhere. The tone systems of Dongkou Chinese and Tibetan differ from the other systems with respect to the behavior of tone on non-initial syllables. In the former systems, non-initial tones are largely independent of the initial tone, abiding by a more or less constant tonal template such as the ones shown in (27-28) for Tibetan. In the latter systems, however, the tonal melody of the initial syllable is mapped onto the entire polysyllabic tonal domain. Two distinct types of Sino-Tibetan word-tone systems, therefore, can be distinguished: **template word-tone systems** represented by Tibetan and Dongkou Chinese,[37] and (adopting the terminology in Wei-

37. Template word-tone systems resemble some restricted tone systems labeled 'pitch-accent' in the literature in their use of tone reduction rules to meet the '**one tone per phonological word**' requirement. Unlike more typical 'pitch accent' systems such as standard Tokyo Japanese, however, template word tone systems as defined here do involve **paradigmatic** pitch contrasts.

dert 1979:84, fn. 28) **contoureme word-tone systems** represented by Tamang and New Shanghai Chinese. Needless to say, contoureme systems should represent the more fully tonal type on the tonality scale since the contrastive melodies in such systems are distributed (spread) to the individual component syllables in the domain, whereas in template systems non-initial syllables contribute little to the realization of the contrastive word-tones.[38]

If, in summary, our phonological descriptions are to properly reflect this important distinction in the typology of Sino-Tibetan word-tone systems then tone-spreading or melody-mapping analyses, useful as they are for languages like New Shanghai, should be utilized only where they are really called for with languages like Tibetan.

38. The cases studies discussed in §3.2 constitute rare exceptions to this generalization.

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Topic Choice, Switch Reference and Zero Anaphora: The On-Line Construction of Grammar[1]

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Abstract

The study provides a cross-linguistic analysis of the discourse pattern of switch reference in comparison with the function of zero anaphora in Chinese.

The choice of zero anaphora as opposed to other overt anaphoric devices has been explained mainly by the discourse notion of topic continuity (Givón, 1983a). The present study demonstrates that, in Mandarin Chinese, the occurrence of zero anaphora is not constrained to this pattern only. Instead, the paper argues the following: (a) In the discourse environment where there are two referents interacting, zero anaphors may code either or both referents; thus the referent of the zero may switch between two referents. (b) The switch of referents coded by zero anaphors results in a 'switch reference' pattern that is not manifested by morphological or syntactic markings. (c) Reference tracking in this 'switch reference' pattern can be explained by a set of cognitive strategies named 'emergent reference.'

The strategies of emergent reference can be summarized as the procedure of construction and integration; that is, by using a zero anaphor, Chinese speakers may utilize special grammatical units constructed during the process of the on-going discourse.

By examining data from written and naturally occurring conversational discourse, this study suggests that the 'emergent reference' process offers a valid explanation of discourse processing with abundant use of zero anaphors in Chinese. The study also proposes that this processing could be the underlying motivation for the abundant use of zero anaphors in Chinese discourse production, as well as for the formation of some syntactic structures.

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1. Introduction

This paper studies one specific discourse pattern where zero anaphora in Mandarin Chinese often occurs: the switch reference pattern, which marks referential status on the grammatical subjects of two adjacent clauses. By comparing the use of zero with overt linguistic markings in switch reference, the study presents the argument that zero anaphora can be used in this pattern as a way of directing hearers' attention via covert linguistic cues in processing the language. The pattern of switch reference may be realized in different forms cross-linguistically; therefore when processing this pattern, speakers of different languages may utilize different cognitive strategies to track discourse reference.

This study follows the belief that language is used for the purpose of communication (Brown & Yule 1983; Chafe 1976, 1981, 1987; Du Bois 1980, 1985, 1987; Fox 1987, 1994; Fox & Thompson 1990; Givón 1981, 1983a, b, 1990; Li & Thompson 1976, 1979, 1981, Tannen 1982; inter alia). It tries to show that language, hence grammar, is contextual, and linguistic information is indexical. Because of the indexical nature of language, referent information which is coded by a zero anaphor can 'emerge' into Chinese speakers' cognitive understanding in their processing of Chinese discourse.

The present study first proposes a three-way taxonomy for the pattern of switch reference cross-linguistically:

a. the morphological type,
b. the syntactic type, and
c. the inference type.

Of the three types, the first two are similar in that both use overt linguistic markings to indicate whether or not a certain NP referent is coreferential with some other NP referent in the discourse. The difference between the two is that languages with the morphological type of switch reference pattern have grammaticalized this phenomenon with certain

morphological markings to indicate switch reference,[2] whereas languages that belong to the second type only signal the switch of a referent by overt anaphoric devices (e.g., full NP, independent and/or personal pronouns). The third type refers to a switch reference phenomenon where zero anaphora occurs as in Chinese. All three types illustrate how languages accommodate the pattern to facilitate reference tracking.

The taxonomy proposed here may not seem conventional with regard to the notion of switch reference, since traditionally the term is used only to refer to the first type. Yet for the purpose of this study, it provides a useful tool for comparing reference tracking devices.

Of the three types, the third one occurs in Mandarin Chinese (hereafter Chinese). The current discussion will be centered on the third type of switch reference pattern in comparison to the first two types.

Chinese is a zero anaphora language, a language that permits abundant use of zero anaphora in its written and oral discourse. Former studies attribute the choice of zero anaphora as opposed to overt anaphoric devices to the discourse notion of topic continuity or to the topic chain construction (Chen 1986; Givón 1983a; Li & Thompson 1981; Pu 1989; Tsao 1979). However, The present study demonstrates that in Chinese, the occurrence of zero anaphora is not restricted to this pattern only. Instead, in a discourse environment where there are at least two NP referents interacting (Tao 1993), zero anaphors may code either or both referents; thus the referent of the zero may switch between discourse topics. The switch of discourse topics coded by zero anaphors results in a 'switch reference' pattern that is not manifested by overt linguistic markings.

To account for this switch reference pattern, the study proposes a new cognitive model that may help explain how zero anaphora may be processed in this discourse pattern. The model suggests that reference tracking in this inference type of switch reference can be explained by a

2. This type has been considered the canonical type of switch reference. Most of the linguistic researches on switch reference focus on this type.

set of cognitive strategies termed 'emergent referents'

The plan of this study is as follows. In Section 2. the paper examines the three types of switch reference pattern by comparing how languages facilitate reference tracking in discourse processing at the levels of morphology, syntax, semantics and/or pragmatics; in Section 3, the study tackles the question of how reference tracking is possibly carried out by speakers of Chinese. Section 4, the conclusion, proposes some direction in testing the hypothesis of emergent referents.

2. Reference Tracking in Discourse and the Switch Reference Pattern

The present study assumes that speakers of various languages use different linguistic means to help facilitate reference tracking. Reference presentation is a very important aspect of discourse cohesion, and anaphora functions as one of the major reference tracking devices in the discourse of the world's languages (Foley & Van Valin 1984:321).

The switch reference pattern is a discourse pattern which involves the referential status of grammatical NP subjects in adjacent clauses. The pattern is generally in the form as illustrated below:

...NP Subject**1**....., ...NP Subject**1/2**.....

In this pattern, if the first grammatical subject codes referent **1** and the second subject codes referent **2**, then there is a switch of referents in the two clauses. The clause 'I**1** came into the house, and my dog**2** was really glad to see me (see Section 2.2.1, example 2b),' illustrate this pattern. Whereas if both grammatical subjects code referent **1**, then there is no reference switching in the pattern. As is illustrated later in this section, different grammatical structures may be used in different languages to indicate the switch reference pattern.

2.1. Subject, Topic and Topic Continuity

In this study, two definitions are closely related to the pattern of switch reference: 'grammatical subject' and 'discourse topic'.

The subject, roughly defined in this study, is an NP (or a clause, whose role is not considered in this study) that has a grammatical relationship with the predicate verb in one of the following fashions: it is the main argument of an intransitive predicate verb (Chao 1968; Ding et al. 1979); or it is the agent of a transitive verb in an active clause.

The role of subject is important to this study for three reas ons: it occupies one of the grammatical slots where zero anaphora occurs in Chinese; it is closely related to the canonical type of switch reference pattern, where in most cases subjects are marked for their referentiality with some other subjects; and it often coincides with the discourse topic.

A topic in this study refers to an NP referent that is the center of a discussion in discourse (Grosz 1977, 1980). Thus, it is referred to as the discourse topic in this study.[3] Topicality in discourse is determined by how much the NP referent is in the speaker/hearer's conscious mind while processing discourse information (Givón 1983a).

A discourse topic often coincides with the grammatical subject of a clause due to its pragmatic status in the discourse.[4] In Mandarin Chinese, such a topic is often coded by zero; thus the occurrence of zero anaphora is closely related to the issue of discourse topic. It is mainly on the role of topic/subject that zero anaphors occur in a switch reference pattern in Chinese.

This study mainly examines the occurrence of zero anaphora as opposed to overt anaphoric devices in switch reference patterns. According to Givón (1983a, b), cross-linguistically, the choice of anaphoric devices follows a "discourse reference scale" which reflects the predictability of NP referents, as illustrated below.

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3. In addition to the notion of the discourse topic, there is another term topic which refers to the topic that occurs in the topic-comment construction. For a detailed discussion, see Chao (1968), Tsao (1979), Li & Thompson (1981) and Tao(1993).
4. This issue is related to the notion of referential management for the flow of information. Roughly speaking, the discourse topic often represents old or given information that has been mentioned in the immediately preceding context. There is a discourse tendency that such information often occurs in the agent slot in a clause. For a detailed discussion, see Du Bois (1987), Fox & Thompson (1990), and Givón (1990). Also see examples in Section 2.2.3 of this paper.

1a. Givón (1983a:18)

most continuous/accessible topic

↑ Zero anaphora

pronouns or grammatical agreement

Full NP's ↓

most discontinuous/inaccessible topics

b. Iconicity principle (Givón, 11983b:67)

The more continuous/predictable is the topic/subject/referent NP, the less overt expression it needs to receive.

Both la and lb reflect a cognitive tendency cross-linguistically for the choice of anaphoric devices in discourse. The principle in lb offers a cognitive explanation for the scale of topic continuity as illustrated in la. Both la and lb indicate that when an NP referent is mentioned consecutively in a discourse, and when there is no other NP referent that may be bistaken for it, then the information for this NP referent is easy to retrieve in people's short-term memories; thus less overt linguistic coding is needed. According to Givón (1983b), topic continuity is the discourse basis underlying the phenomenon of switch reference in all languages.

The iconicity principle argues that the choice of anaphoric devices is determined by the pragmatic discourse requirements, which accommodate hearers' cognitive constraints in discourse processing. The principle predicts that when a switch of discourse topic/grammatical subject renders the new referent information discontinuous (i.e., less predictable than when it is continuous), then a more specific linguistic coding device (e.g., a full NP as opposed to a pronoun or zero anaphor) is used to facilitate reference tracking.

The present study contends that, although Givón's iconicity principle has explanatory power for languages with different switch reference patterns, this principle has neglected the strength of inference in discourse so that it does not offer adequate explanations for certain discourse patterns in Chinese. I will discuss this point after we examine the switch reference patterns.

This study only examines zero anaphors whose referents are third person human referents or are things/objects. The study covers only the zero anaphors that are discourse-related; that is, the understanding of the zero has to depend on the local discourse environment.

2.2. Switch Reference

In the introduction section, I proposed three types of switch reference patterns cross-linguistically, which are repeated here: the morphological type, the syntactic type, and the inference type.

The three different types are illustrated in the next sections.

2.2.1. Morphological switch reference

Formally, languages belonging to this switch reference system all have some grammaticalized patterns marking NP referents in discourse. The canonical marking of switch reference "is an inflectional category of the verb, which indicates whether or not its subject is identical with the subject of some other verb" (Haiman & Munro 1983: ix).

"Functionally, switch reference is a device for referential tracking" (Haiman & Munro 1983: ix). Psychologically, a grammaticalized pattern marking referential identities and the possible range of NP referents can facilitate reference tracking in discourse processing.

With regard to Givón's iconicity principle, languages with morphological switch reference have all developed special grammatical devices to code the pragmatic conditions of continuity or predictability stated in the principle.

These languages have a wide distribution, including Manchu-Tungus languages (Nichols 1979); the Papuan languages;, some of the Austronesian languages, e.g., Lenakel (Lynch 1983); many of the North American languages, e.g., Central Pomo (Mithun 1993); and some African languages (Comrie 1983). Most of these languages demonstrate a relatively strict OV word order (a few have VO word order, e,g., Lenakel), and almost all the morphological markings of SS (same-subject referent) and DS (different-subject referent) occur on the verbs instead of on the nouns, though the markers indicate the referential status of NP referents.

The clause whose predicate carries the marking may be called *the marking clause*. The marking indicates same or different reference in relation to the preceding or following clause, which may be called *the reference clause*. Marking clauses may be subordinate to or coordinate with reference clauses. In addition to indicating referential status, these markings may code other grammatical functions such as aspect or valence, as shown in the example below.

One instance of morphological switch reference can be illustrated in Central Pomo, a native American language spoken in Northern California. In this language, switch reference is manifested by three pairs of aspectual markers. Let us look at the pair **-ba** (SS) and **-li** (DS), which are used in realis constructions (Mithun 1993:121).[5]

2a. Subject==Subject (SS)

?a· čáw=yó-**ba** maţi ?-čhá·-č-**ba** ma?á qa·-yú?či-w

I.AGT in=go-same down by.gravity-sit-INCH-same food biting-begin-P

'**I** came into the house, (**I**) sat down, and (**I**) started to eat.'

b. Subject=/=Subject (DS)

?a· čáw=yó-w=**li** háyu=?el ?úda-w ţo· sé-č-mad=a

I.AGT in=go-p=DIFF dog=the really 1. PAT glad. to. see-AFF=IMM

'I came into the house, and **my dog** was really glad to see me.'

We can see from these two examples that in Central Pomo, the referential status of the subjects is clearly marked by the morphological structure of the verbs.[6] Notice that in 2b, even though the identity of the second referent is shown clearly by a full NP (my dog), the DS marker is

5. The abbreviations that appear in the glosses of this example are the following; AFF: emotional affect; AGT: agent; DIFF: different subject; IMM: immediate; INCH: inchoative; P: perfect aspect; PAT: patient.
6. These markers indicate switch reference consistently in elicited sentences. But in natural discourse, they are occasionally inconsistent. The inconsistency reflects the fact that the primary function of these markers is to show the aspectual relationship between two clauses; switch reference is its secondary function. For a detailed discussion, see Mithun (1993) and Watkins (1993).

still used, a fact indicating the grammaticalized nature of switch reference in this language.

In the Manchu-Tungus language family, switch reference is carried out by a distinctive set of suffixes which occur consistently with SS or DS (Nichols 1979). The marking clause is a nonfinite clause which is subordinate to or coordinate with the referent/finite clause. One set of the markings works in the following fashion: SS in the marking clause is indicated by a verbal stem with a suffix indicating number agreement with its own subject (plus tense markers), and DS is manifested by a participial stem with a tense marker, an oblique case (usually dative), and a possessive marker of agreement with its own subject. Following is an example from the Manchu-Tungus language family (Nichols 1979:421).

3a. (Ulcha, the Amur branch of the Manchu-Tungus languages) (SS)
laŋi **ŋene-meri**, ičeheti ...
close go-pl., sim (they) saw
'Coming up close, they saw...' (p.421)

b. (DS)
ti dūse **kalčin -du -ni** ni -de, iŋda-da aurasi bičini
dem tiger approach-dat-3sg man-ptc dog-ptc not -sleep aux
(past ppl)

When the tiger was in the vicinity, neither people nor dogs slept, (p. 421)

In these examples, the verbs in the dependent clauses assume two different forms. In 3a, the verb of the marking clause is the verbal stem with the simultaneous tense, plus the number agreement with its own subject, which is the same as the subject in the referent clause.

In 3b, however, the verb in the marking clause is a past participle with a dative case marker and a third person possessive marker, indicating that the subject is different from that in the referent clause. In the Manchu-Tungus languages, it is almost always different verb forms and their different affixes in the marking clauses that signal switch reference.

Lenakel, an Austronesian language, is different from most other lan-

guages with the morphological switch reference pattern. This language is not verb-final, and switch reference markings occur as prefixes to the verbs. Following are two examples (Lynch 1983:211).

4a. i =īm -vīn (kani) **m**=īm -apul[7] (SS)
lexc-past-go (and) ES-past-sleep
I went and slept.

b. i =īm -vīn (kani) **r**=īm -apul (DS)
lexc-past-go (and) 3sg-past sleep
I went and he slept.

In both of the Lenakel examples, the verb of the first clause takes person and number prefixes which agree with the subject of this clause; the verb of the following clause takes prefixes marking whether or not the subject of the following clause is coreferential with (or echoes) that of the first clause.

What languages with the morphological switch reference pattern have in common is their grammaticalized markings on the verbs to indicate referential status. In this way, they serve the function of facilitating reference tracking.

2.2.2. Syntactic switch reference

Syntactic switch reference languages differ from the morphological type in that they lack specific switch-reference markings on the verbs. Instead, they only use anaphoric devices, such as stressed independent pronouns (Spanish, as discussed by Bentivoglio (1983)), or logophoric pronouns (e.g., Igbo, as discussed by Comrie (1983)) to indicate referential status.

As mentioned in the previous section, a grammaticalized pattern marking referential identities can facilitate reference tracking in discourse

7. The abbreviations used in the morphene-to-morpheme analysis are: exc: exclusive, and ES: echo-subject.

processing. In this sense, both morphological and syntactic types of switch reference bear overt grammatical devices (switch reference markers on the verbs or different anaphoric elements in the grammatical subject slots) to indicate the switch of a referent in adjacent clauses; thus functionally both types serve the function to facilitate the task of reference tracking. Givón (1983b), for example, argues that languages in both types follow the *iconicity principle* to code subject referent (topic) continuity, as stated in 1b.

Examine the following English expression (Givón 1983b:59).

5. He gave presents to the king and the queen. *Hé* thanked him, but *shé* just grunted.

Since English has a M/F gender distinction in its pronominal system, the use of stressed pronouns here is sufficient to code the switch of subjects between the king (he) and the queen (she).

Spanish also seems to employ stressed pronouns to indicate switch reference. When comparing the choice of bound personal pronouns and stressed independent pronouns in Spanish, Bentivoglio (1983) argues that certain occurrences of stressed independent pronouns function just to signal the switch of reference.

In some West African languages, there is a set of logophoric pronouns that indicates coreferential status of third persons. Examine the next example from Igbo (Comrie, 1983:21). The number associated with each pronoun indicates the same or different referents.

6a. ó sìrì nà ó byàrà. (DS)
he said that he came
'He**1** said that he**2** came.'

b. ó sìrì nà yá byàrà. (SS)
he said that LOG came
'He**1** said that he**1** came.'

These logophoric pronouns indicate the same referential status among single third person referents in this language. Thus, logophoric pronouns is evidently another means of facilitating reference tracking.

From a functional-pragmatic perspective, almost all languages reflect some form of syntactic switch-reference. For instance, to deal with the English expression as illustrated in example 5, Chinese may have to use full NPs since the language lacks a gender system to distinguish the two referents by pronouns in the spoken language.

However, when there is no need for such a special contrast, Chinese may use zero anaphors to code different NP referents in a switch reference pattern. This brings us to *the inference* type of switch reference pattern.

2.2.3. Switch reference by inference

The present study claims that the inference type of switch reference pattern occurs in Chinese, and it involves a discourse pattern where the switch of subject/topic is not marked by any linguistic devices at all. In this case, zero anaphors are used to encode two different NP referents. Thus, the status of referents is not mentioned grammatically, and the reader/speaker is left to track reference by other available discourse cues.

The present study bases its claim on the data taken from both written and conversational discourse. The written discourse data are from four books (*Hong Lou Meng* by Cao Xueqin & Gao E (reprinted in 1982); *Dongting Hu Shenhua* by Kang Zhuo; *Zheng Hongqi Xia* by Lao She; and *Zhongguo Shenhua Chuanshuo* by Yuan Ke). The conversational data are from approximately three hours of natural conversation srecorded in four different places, Beijing, Changsha, Australia and the U.S. All speakers in the conversations are native speakers of Mandarin Chinese.

The switch reference pattern with zero anaphors has been observed in all four books as well as in the conversations, a fact indicating that this phenomenon has existed in Chinese from the language of Ming/Qing vernacular (e.g., *Hong Lou Meng*, written approximately in the middle of the 18th century) to contemporary usages.

The referent of a zero anaphor in the switch reference pattern may occur not as the subject but as the grammatical object of the previous clause (a switch role pattern), or it may be some referent mentioned in the prior discourse but not in the immediately preceding clause. In most cases the referents coded by zero anaphors are considered discourse topics that are at the center of the discussion.

In the following examples, each anaphoric device is assigned a number to indicate which referent it refers to. The location of the zero anaphor is somewhat arbitrary: It is the most likely position for an NP or pronoun to occur should there be a need to replace the zero, based on the author's understanding of the discourse data.

The first example has a SS pattern where the zero (O) represents the same grammatical subject of the previous clause. The arrow in the examples indicates where instances of SS or DS occur.

7. (Kang, 1991:163)[8]

Nà yí-cì tā-men**1** jiāo-huí -le zhè gè yǎng-le jǐ -nián de ròu -huò**2**,
that one-time 3-pl hand-return-Asp this Cl feed-Asp several-year GEN meat-goods
→ 0**1** yào-le Zhōng-jiā liù-bǎi xiàndàyáng.
take-Asp Zhong-family six-hundred silver-dollar
That time they returned the 'meat-goods' whom they had fed for several years, (and they**1**)[9] took six hundred silver dollars from the Zhong family.[10]

In this examole, the zero represents the grammatical subject (*tāmen*,

8. The abbreviations appearing in the glosses are the following: Asp: perfective aspect marker (without distinguishing between the perfective and 'change of status' indication by the same morpheme *le*); BA: bǎ; CL: classifier; CSC: complex stative construction; Gen: genitive; Int: interjection; Neg: negative; NOM: nominal or relative clause; pl: plural; Q: question.
9. The parentheses in the English translations indicate that the NPs inside are represented by zeros in the Chinese versions.
10. The 'meat-goods' in the story is the name given to a group of people raised by those bandits. They were brain-washed so that they could be turned in to the officials to take the blame for the bandits.

'they') of the previous clause, The subject 'they' here refers to a group of bandits. Since the two subjects occur in two adjacent clauses, and since this referent is in the center of discussion, the referent 'they' is the discourse topic and this example forms a topic chain discourse pattern. The occurrence of zero anaphora in Chinese is often attributed to this pattern (Tsao 1979; Li & Thompson 1981).

But the next two examples show that zero anaphora may occur in the discourse pattern with DS (the different subject); thus topic chain is not the only discourse environment permitting the use of zero anaphora. The next two examples illustrate a 'switch role' pattern where the zero represents a non-subject in the preceding clause.

8a. (Lao, 1982:78)

Fùqin**1** jīn -nián zhǐ mǎi-le yì kē Wǔsèméi**2**, kěshi 0**2** kāi -huā pō mài lìqì.
father this-year only buy-Asp one CL verbena but bloom-flower rather sell strength

This year father**1** only bought one pot of verbena**2**, but (it**2**) worked rather hard to produce many flowers.

b. (Cao, 1982:892)

Bǎoyù xiān yǐn -le bàn bēi, 0**1** chǒu rén bú jiàn,
Baoyu first drink-Asp half cup see people Neg see

→ 0**1** dì -yǔ Fāngguān**2**, 0**2** duān-qǐ-lái biàn yì yáng buó.
pass-give Fangguan hold-up-come then one raise neck

Baoyu**1** drank half of his wine. Seeing that nobody was noticing,
(he**1**) gave the rest to Fangguan**2**,
(who**2**) threw her head back and emptied it in a gulp.

Both examples in 8 share a similar pattern: the zero codes the referent that is the grammatical object of the previous clause, and the grammatical subjects in the two adjacent clauses are different; hence the discourse pattern is DS. Notice here that in example 8a, the NP verbena is only mentioned in these two adjacent clauses and is not mentioned again later. Such NP is not considered a discourse topic.

In the above examples, the referents of the zeros are mentioned by

overt NPs as objects in the previous clauses. In the following examples, the referent of the zero is not mentioned in the immediately preceding clause. The first one comes from a natural conversation.

9. (Changsha, p.1)

→1.A:Tā**2** jiù tiào-dào dì -shàng -lái,
it then jump-arrive ground-on -come

→2. 0**1** dào -dǐ gěi tā**2** zhuā -zhù le.
till-end by it catch-stop Asp

3.B: Shì ma?
right Q

4.A: Nèi ézi**1** fēi-lái cuān-qù de,
that moth fly-come dash-go CSC

→5. 0**1**yíxià jiù dào zhèi-biān lái -le.
all-of-a-sudden then arrive this-side come-Asp

→6. Yíxià, 0**2** yòu bǎ tā**1** zhuā-zhù -le.
all-of-a-sudden again BA it catch-stay-Asp

1.A: ... It**2** (the cat) then jumped down.
2. (The moth**1**) finally was caught by it**2**.
3.B: Is that so!
4.A: That moth**1** flew all around.
5. In a flash, (**1**) flew over here,
6. All of a sudden, (**2**) caught it**1** again. ... ...

In this example, there are two referents (a cat and a moth) interacting, with the cat trying to catch the moth. Both referents are discourse topics in this case, since both are the protagonists of this short narrative. We can see that the subjects of four clauses (clauses 1,2 and 5,6) are switching between the cat and the moth. Except for the first subject at line 1, which is a pronoun, the remaining three subjects are all zeros. Although the pronoun here does not differentiate between the cat and the moth, to a native Chinese speaker there is no confusion about the identities of the subjects in this example, in which reference presentation is simplified to

the minimum.

Next is a similar example from the written data.

10. (Lao, 1982:119)

1. Duì zhè-xiē xiāoxi**1**,
   about this-pl news
2. tā**2** gāoxìng ne,
   he happy Int
3. 0**2** jiù xiǎng yì xiǎng 0**1**,
   then think one think
→4. 0**2** bù gāoxìng ne,
   Neg happy Int
→5. 0**1** jiù yóu zuǒ ěr jìn lái,
   then from left ear enter come
6. 0**1** yòu ěr chū qù.
   right ear out go

1. As for this kind of news**1**,
2. if he**2** happened to be in a good mood,
3. then (he**2**) would give (it**1**) a thought;
→4. if (he**2**) was not pleased at the moment,
→5. then (it**1**) would enter from his left ear
6. and (0**1**) exit from the right one. ...

In this example, a person (*tā*2, 'he') and an abstract entity (*xiāoxi***1**, 'news') are in the center of the discussion. At lines 4 and 5, the subjects of the two clauses are both coded by zeros, but their referents are different. The referent of the zero anaphor in line 5 is not the same as that in the immediately preceding clause, but is mentioned overtly at line 2. Yet such switching of referents does not seem to cause any problem to Chinese readers.

The last example to be discussed suggests a possible procedure by which switch reference with the use of zero is created.

11. (Yuan, 1984:282)

1.Tàiyáng**1** chū-lái le, ... Dāng tā**1** gāng cóng Yánggǔ chū-lái,
sun out-come Asp when he just from Yanggu out-come

01 zài Xiánchí-lǐ xǐ -le-gè zǎo, **01** cóng Fúsāng shù de xià -miàn
at Xianchi-in wash-Asp-Cl bath from Fusang tree GEN under-side

shēng-shàng Fúsāng shù de diāndǐng de zhè shíhòu**2**, jiù jiào-zuò "Chénmíng".
rise-on Fusang tree GEN top GEN this time right name-as Chenming

2.**01** yǐjīng shēng-shàng Fúsāng shù de diāndǐng, **01** zuò-shàng māma gěi
already rise-on Fusang tree GEN top sit-on mom for

zhǔnbèi hǎo de chēzi, **01** kāishǐ chūfā le, zhè shíhòu**2** jiù jiàozuò "Fěimíng".
prepare well GEN chariot begin set-off Asp this time then name Feiming

→3. **01** dào -le Qǔ'ā de difāng, **02** jiù jiàozuò "Dànmíng".
arrive-Asp Qu'a GEN place then name Danming

1. The sun**1** came out,... When he**1** came out of Yanggu, (**01**) took a bath in Xianchi, and (**01**) ascended from the bottom of the Fusang tree onto the very top, this time**2** (of the day) was named Chenming.
2. After (he**1**) had already ascended onto the top of the Fusang tree, (**01**) sat into the chariot already prepared for him by his mom and (**01**) started to set off, this (period of) time**2** was called Feiming.

→3. When (he**1**) arrived at the place Qu'a, (the time**2** (of the day)) was named Danming.

This example reports two things: the sun's activities in the morning, and the names of various time periods associated with the sun's ascension. In this example, the first referent, the sun, is often coded by a zero; but the second referent, the time, is presented in the form of full NPs until line 3, where both referents are coded by zeros, and a DS switch reference pattern is formed. In this example, the repetition of the verb phrase *jiàozuò* 'to be named as' in association with the sun's activities formulates a pattern that makes the referents of the last clauses almost

transparent. The use of zeros in this case seems very natural. This example demonstrates how on-line grammar form the inference type of switch reference pattern.

From examples 8-11, one can see that reference switching does not restrict the use of zero anaphora in Chinese discourse, and that Chinese can afford not to use any overt linguistic coding in this pattern.

Recall that Givón's (1983a, b) iconicity principle predicts that the choice of anaphoric devices is highly correlated to the notion of topic continuity (see 1a, b). The principle predicts that when a certain referent is unpredictable, or when there are potentially two NPs that may be mistaken as representing the same topic/subject/referent NP, then more overt linguistic coding than a pronoun or a zero is needed to resolve the ambiguity. Languages bearing the first two types of switch reference patterns (the morphological and syntactic types, see Sections 2.2.1, and 2.2.2) demonstrate more or less the discourse patterns predicted by this principle. As mentioned at the end of section 2.2.2, sometimes Chinese discourse also reflects certain patterns predicted by this principle. But from examples 8-11, one can see that in other cases Chinese discourse can also produce patterns that the principle fails to account for.

It seems counter-intuitive to use the least overt coding device (zero anaphora) in a switch reference situation, but close examination reveals that if we observe discourse processing from a different angle, from the cognitive processing perspective, the inference type of switch reference pattern is not so surprising. This point is discussed in Section 3.

2.3. Interim Summary

This section has exhibited three types of linguistic patterns coding the phenomenon of switch reference. The three types illustrate two extremes; on the one hand, it seems so important to facilitate reference tracking in discourse that some languages have developed specific grammatical patterns and morphological markings to obligatorily code switch reference; on the other hand, languages like Chinese can afford not to use any overt linguistic coding for similar discourse patterns.

The three types of switch reference seem to reflect at the syntactic and discourse level the principles that Grice (1975) predicts in human communication. These principles predict that to cooperate in a conversation, people try to make information as explicit as necessary while as simple or economical as possible. It could be due to these competing motivations of explicitness and economy that typologically, language formation follows a continuum of either presenting information as clearly as possible (e.g., through the morphological and syntactic switch reference patterns), or maintaining economy in communication by using overt linguistic devices only when absolutely necessary (e.g., Chinese).[11] The next question is, how do Chinese speakers tolerate the abundant use of zero anaphors? This issue is addressed in the next section.

3. Emergent Reference and the Construction of Grammar

3.1. Emergent Reference

Chinese is an isolating language with no phonological or morphological markings indicating parts of speech, gender, case or grammatical relations. This 'under-marked' system once led some historical linguists to consider Chinese a primitive language that had not developed to modern sophistication (e.g., like English and other Indo-European languages) with conjugation, word class differentiation and so forth (Schleicher, reprinted in 1983). Even though such a view of Chinese was presented over one hundred years ago and most linguists have taken a view contrary to Schleicher's, the question of how the language functions with practically no morphology still remains unanswered.

11. Languages with the canonical type of switch reference pattern also require inference in information processing (see, e.g., Haiman & Munro, 1983; Mithun, 1993; Watkins, 1993). On the other hand, Chinese may also require overt linguistic devices when there is the need (see Tao, 1993). This fact indicates that the motivation of language formation is constant competition between coding explicit and non-excessive information.

The case of zero anaphora in Chinese switch reference suggests that the examination of overt linguistic patterns alone will not sufficiently explain the abundant occurrence of zero anaphora in Chinese. Rather, the solution comes from the information in the discourse context. The present study proposes that reference tracking in Chinese is largely carried out with the help of discourse cues (Fox, 1987), which may be one of or a combination of the following:

13. Discourse cues:
    a. prior discourse context;
    b. specific semantic requirements of the verbs associated with the referents;
    c. the specific nature of the referents presnted by zero anaphora; and
    d. language users' general knowledge about the world, including their social, cultural, and personal experiences.

These discourse cues may not seem to offer a specific explanation for reference tracking, since they cover almost everything that one needs to consider in language processing (e.g., Givón 1990). However, if we take the approach that only some of the cues may actually function in each individual case, then all of the cues may be taken as a network that is always partially activated in the processes of reference tracking. In other words, assuming that the cues form a network connecting all possible information crucial for tracking reference, and assuming that within this network there are always certain cues that may have stronger connections than others with certain referents, then it seems natural that only some of the discourse cues will be activated in the process of tracking the identity of referents coded by zeros.

This assumption of a network is supported below by re-examining the actual language data, where one can see in fact that reference tracking in Chinese does rely on these cues, and that not all of them play the same central role in each individual case. Rather, in each instance of

matching a zero to its proper referent, it seems that Chinese speakers pay attention to one or two of the most salient cues. The referent of a zero may thus 'emerge' together with the discourse cue to complete the information needed in reference tracking.

Consider first the two examples in example 8. In 8a, it seems the semantic cue from the second verb *kāihuā* 'blossom' is sufficient for people to know that it is the plant that is performing this action; hence the referent of the zero in the second clause has to be the grammatical object *Wǔsèméi* 'verbena' in the previous clause.

In 8b, the semantics of the verbs do not offer any specific cues since both people have the ability to drink wine. Yet the cue from the prior discourse information (Bǎoyù passing his wine to Fāngguān), notifies us that the one who drank the wine is Fangguan.

In example 9, presumably Chinese speakers have to rely on their general knowledge about the status of the two referents (cat, the predator, and moth, the victim) to make clear which referents the zeros represent.

In 10, one has to draw on one's general knowledge about people (who can think) and about information (that can metaphorically enter people's ears) to infer that the referent of the zero anaphor in line 5 is not the human subject in the preceding clause.

In example 11, the association of the verb *jiàozuò* 'to be named as' plus the discourse structure (a type of cause-and-effect pattern) makes it clear that the referent of the zero in the final clause is different from the zero subject in the preceding clause.

In the above analysis, it is clear that the discourse cues are local in that they are specific to the contexts of these examples, and that one cannot come up with a summary of essential cues that can be useful to all discourse patterns (unless of course we consider all the cues essential). Assuming that all information proposed in 13 may be present in an information network during discourse comprehension, and that only some of the cues have strong connections with the information of some referents in any given instance of a local discourse context, then we can reasonably suggest that the network is always only partially activated in that

only some of the cues play a central role in tracking reference.

If we start from the premise that speakers use language to facilitate communication, then in the interactive use of language, the choice of anaphoric devices reflects the speaker/writer's understanding of the interactive needs in the communication; and their comprehension reflects the hearer/reader's language processing strategies. I propose that in language comprehension, the network model described above is applied in one particular set of such strategies, which I will call 'emergent reference.'

Emergent reference refers to a set of cognitive strategies used by heaer/readers of a zero anaphora language to perform reference tracking during their processes of discourse information. To successfully comprehend any discourse with abundant use of zero anaphora, the hearer/reader must pay special attention to discourse cues associated with each referent represented by zero anaphora. These locally distributed cues activate the inferential process from which the identification of the right referent emerges. The stages of this inferential process are defined and summarized below.

14. Emergent reference[12]
    a. *Cue identification*: When processing discourse information with many NPs missing, language users are attuned to specific cues provided by the local discourse context; cues that have to do with the referents;
    b. *Reference construction*: While processing language, individual NP referents become part of information patterns that are constructed with information from these distributed local cues;
    c. *Information integration*: By integrating the cues to the recurring zero anaphors, which now serve as the referents in question, the referents that are 'missing' due to the use of zero anaphora emerge, so that reference tracking is not only possible but also easy.

12. The terms 'construction and integration' are borrowed from Kintsch (1988).

This 'emergent reference' model follows the principles of the theory of spreading activation (Dell, 1986), and is based on the theory that referent information is *indexical* in that it is constructed from the local discourse context (Heritage 1984; Fox 1994). From this premise, it follows that language comprehension is highly context-sensitive: The identity of a particular referent coded by a zero anaphor actually comes out with the help of local discourse cues; referents thus 'emerge' out of the local discourse context into language users' understanding.

The model of 'emergent reference' assumes that, first, all human beings possess more or less the same cognitive capacity in language processing. Second, it assumes that even though inference always plays an important role in discourse processing (Van Dijk & Kintsch 1983; Givón 1990). the amount of attention that must be paid to different linguistic or nonlinguistic cues varies among speakers of different languages. In other words, speakers' activation of different discourse cues is language specific. The first assumption is shared by many previous studies of discourse processing, yet to my knowledge, the proposal of the current model has not been fully addressed in other studies.

The most comprehensive model for discourse processing so far is postulated by Van Dijk and Kintsch (1983). This model offers a valuable explanation of general human cognitive behavior in strategic discourse processing. Yet it does not offer any specific explanation as to how reference tracking is carried out while dealing with the phenomenon of zero anaphora in discourse.

There are several prominent semantic models that study the roles of predicate verbs in discourse processing. Some of the most widely accepted and representative ones include a functional grammar approach dealing with the inherent nature of verb semantics (Rijksbaron 1989); the theory of selectional restriction (Lyons 1985); and the theory of Conceptual Dependency (Schank & Abelson 1977). Yet these models attend mainly to the interpretation of overt linguistic forms in discourse rather than trying to account for the processes of zero anaphora in discourse. Further more, these theories mostly cover English or Indo-European

linguistic phenomena.[13]

In contrast, the model of emergent reference proposed here tries to explain how a non-overt device, zero anaphora, may facilitate coherent understanding of a discourse sequence; thus this model complements most of the previously proposed discourse processing models.

Previous studies have noted that, given the same set of linguistic data, speakers of different languages pay attention to different cues, both overt (e.g., word order, gender, morphological marking, etc.)and covert (e.g., semantic and pragmatic information), (e.g., Bates & MacWhinney, 1981, 1989; Bates, McNew, MacWhinney, Devescovi & Smith, 1982; Tao, 1993; Tao & Healy, 1995 inter alias). If the results of these studies are valid, then we can assess that within the three-way typology of switch reference (Section 2), speakers of different languages will focus on these cues that can best facilitate reference tracking for their languages. If a language does not indicate referential status grammatically, then the speakers will have to focus on other non-grammatical cues to track referents. The model of emergent reference proposes a specific set of cognitive strategies to explain how it is done by speakers of Chinese (and possibly other zero anaphora languages as well). On a more general level, the cognitive strategies proposed in this model also help explain how Chinese speakers deal with the abundant occurrence of zero anaphora for coherent understanding of discourse.

The emergent reference process is probably unique to speakers of Chinese and other zero anaphora languages as one of the major cognitive strategies used in discourse processing. This point is elaborated in related studies by the present author. The next section examines how grammar interacts with the inference type of switch reference pattern.

3.2. The On-line Construction of Grammar

The above discussion suggests that, in the inference type of switch

13. See Tao (1993) for a detailed discussion of some of the semantic and discourse processing models.

reference, reference tracking depends on local discourse cues, and zero anaphors in the switch reference pattern are conditioned by such cues. In this section, the study addresses the issue of the contextuality of grammar.

In the Chinese switch reference pattern, whenever a zero is used instead of overt anaphoric devices, the local discourse pattern almost always provides accompanying cues; the present study assumes that Chinese and other zero anaphora language users are likely to pay significantly more attention to these cues than other language users.

With regard to the frequent occurrence of zero anaphora, the present study proposes some linguistic patterns that occur in formulating Chinese discourse. First, from examples 8-11, one can see that it is often, though not necessarily always, the verb that provides discourse cues.

The second pattern is the apparently headless relative clause, whose head is actually encoded by a zero. The following is an example.

15. (Beijing, p.71-76)

1.A: Nǐ-men jùtǐ **gǎo de** shì shénme, bìyè shèjì?
you-PL exact make NOM be what graduation design

2.E:Wǒ **gǎo le** yí[14] mázuì qiāng**l**.
I make Asp one anesthesia gun

...(A and E continued talking about the anesthesia gun, thirteen more turns.)

...(A, G and B talked about water melon seeds, and about A's mother, fourteen more turns.)

...(A, B and E talked about Lin, a person not present at the conversation, twelve more us There are about three and a half pages of transcription from line 7 to this point.)

14. In Beijing Mandarin vernacular, sometimes the classifier of a noun is omitted.

→42.A:Ao, na ní **gǎo** nèi -ge 01 jiù shì, děng -yú 01 dǎ -chū-qù yǐ -hoù
OK then you make that-CL just be amount-to shoot-out-go then-after

zhí -jiē jiù, nèi -ge yào jiù zhí -jiē zhùshè jìn -qù la, ha?
direct-connect right that-CL medicine right direct-connect inject enter-go Asp Q

43.E:Tā nèi zhēn -tǐ bà, ...
it that syringe-body Int

1.A: For your graduation project, what exactly did you *design*?

2.E: I *designed* an anesthesia gun**1**.

→42.A:Oh, that (syringe**1**) *that you designed* is just like, (it) amounts to the fact that after (it**1**) is shot out, (it) immediately--the anesthesia medicine gets injected right away, is that right?

43.E: Of the internal part of syringes,...

This example presents an instance of verb repetition associated with a zero anaphor. In this example the verb is inside a relative clause with the head "syringe" omitted. The headless relative clause is underlined in the example. Headless relative clauses, which occurred in both the written and conversational data for the present study, seem to be one of the structures often used to present information about referents without mentioning the referents themselves. The structure appears to be a means of associating the verb with a zero anaphor to present information about its referent, though further study is necessary to verify this claim.

Notice that in this example, the speaker tries very hard to return to the previous discussion of the graduation design by using a headless relative clause and detailed description of the function of the syringe, but the overt referent *mázuì qiāng* 'anesthesia gun' was never mentioned.[15]

People might question whether the headless relative clause in this example should be considered a nominalized clause with no head; thus there would be no zero in the construction. But if the clause is taken out its

15. This phenomenon is termed 'a return-pop' For a detailed discussion of the return pop, see Fox (1987) and Tao (1990, 1993).

context, then one can see that it needs a head NP to clarify what is being discussed (*nǐ gǎo nèige O*: that ___that you designed). For this reason, I interpret the clause as a headless relative clause. On the other hand, the ambivalence around the definition of this clause brings up an interesting issue: if, as some people may suggest, the clause is a nominalized clause that does not require a head NP, given the fact that the information of the head NP has to be presented somewhere in the discourse, then it might be the case that the clause has evolved from a headless relative clause into a nominalized clause. In other words, the occurrence of zero anaphora may have helped grammaticalize a syntactic pattern in Chinese discourse. This proposal poses an empirical question that awaits future study.

This section has tackled the question of syntax. The discussion maintains that the construction of Chinese discourse is extremely context dependent, as illustrated in the switch reference pattern with the use of zero anaphora. Each zero occurrence seems to trigger the construction of a local information unit whose function is to facilitate reference-tracking and coherent understanding. Thus discourse production and comprehension should be taken as on-line mental activities.

4. Conclusion

This paper has mainly discussed two issues: how the pattern of switch reference is coded cross-linguistically; and how Chinese speakers track anaphoric referents in the switch reference pattern with zero anaphora.

In section 3.1, the paper suggests a set of cognitive strategies, termed 'emergent reference' that seems to be utilized by native Chinese speakers. It further suggests that these strategies could also be primary for speakers of all zero-anaphora languages, but not for speakers of other languages; thus the impact of zero anaphora could produce some cognitive processing differences among speakers of different languages.

There have been some preliminary psycholinguistic tests with results

indicating possible cognitive differences between native Chinese and native English speakers in their processing of discourse with regard to zero anaphora (Tao, 1993; Tao & Healy, 1995, 1996). Further psycholinguistic studies may help examine and verify the hypotheses proposed in this study.

In summary, the abundant use of zero anaphora in Chinese switch reference illustrates the contextual construction of that language. The phenomenon may reflect the nature of discourse formation. It also demonstrates what the study of discourse can tell us about grammar in language production and comprehension.

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論古代漢語中幾種處置式在發展中的分與合

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摘　要

本文主要是探討古漢語幾種處置式的起源、發展以及各式間的分合關係。我們把處置式分爲甲、乙、丙三類，以下再分型。甲類的主要動詞爲三元動詞的「處置給」「處置到」（「處置作」也暫歸此類）；乙類的主要動詞是二元動詞；丙類則或者動詞是不及物動詞，或者「把」的賓語是施事而非受事。我們在這樣的架構下討論「以」「用」「持」「將」「把」幾個次動詞在處置式各類型上的演變過程。就所觀察到的來說，並非每一種處置式都是甲、乙、丙三類俱全的。有的即使有某類的用法，也不見得所有該類的次型都不缺的。總的來說。在隋以前，只有甲類句，較早的「以」「用」「持」並未發展出乙、丙類句來。乙類句基本上是唐以後才發展開來的，然後才又有丙類句。各詞中只有「把」字句的三類句式都很發達。結論是，無論是甲類句還是乙類句，大體都來自連動式。但有甲類句的，未必就跟著發展出乙類句來。能發展出何種類型句，和動詞的詞義以及當時的語言結構有關。此外，方言勢力的消長和諸式的興衰也是不無關係的。

0. 引　言

本文所謂的處置式的涵義及其範圍，大致相當於王力(1958)所提出的。我們不打算在此文探討「處置式」這個術語是否妥當。之所以使用這個名稱是因爲現在的歷史語法學者大致都知道其所指範圍，而且它也可以

涵蓋諸多相類的形式。

過去對處置式起源及發展的研究不少，也有很值得重視的看法。但是由於對語法史上某些語言事實有所忽略（如「持」「用」在處置式發展中的地位），難免影響到觀察及推擬的可靠性。因此我們想利用本文讓這些語言事實彰顯出來，並據以重新檢驗過去對處置式演變過程及變因所提出的理論。

由於本文側重在處置式的起源問題，因此討論的重點就以隋唐以前爲主。

本文的章節安排是：第一節先把要討論的處置式加以分類，並羅列上古到中古用法和處置式相關的詞，再稍微介紹過去對處置式起源的幾個主要論點。第二節討論歷史上幾個不同的詞在處置式上的演變過程，並參酌現代的方言，提供作爲檢證的基礎。第三節則針對過去的起源理論加以討論。第四節則提出筆者個人的主要論點。

1.處置式的類別以及過去對處置式起源的說法

1.1　處置式的種類

爲了簡化敘述，此處不對分類作詳細的說明，而採用先列出例句，並隨例附標類別，然後加以簡單說明的做法。本文處置式的分類大致依梅祖麟(1990)的分法，但因所討論的著重不同，所以內容略有區別。例句的選擇以明晰爲主，因此並不刻意選取最早的例子。因爲到唐宋爲止，「將」多於「把」，所以以下舉例便以「將」爲主。

1. 如是更將四頗梨鉢，而亦不受，（隋闍那崛多《佛本行集經》801頁下）
2. 是時使人，將彼弓來，（同上，710頁下）
3. 從鐵圍山，將一大石，來置此地，（同上，846頁中）
4. 然此后妃，將諸瓔珞，以施我者，（同上，903頁下）
5. 到已，將手抱釋王項，然後卻坐，在於一面，（同上，921頁下）（「將」引介工具語，以下簡稱「工具式」。）

6. 將草作鋪。（同上，790頁下）（「處置作」，甲一型）
7. 於後證時，當將甘露分布與汝，（同上，736頁下）（「處置給」，甲二型）
8. 從鐵圍山，將一大石，安置佛前，（同上，846頁上）（「處置到」，甲三型）
9. 惠虛假，只貪才，早晚曾將智慧開。（〈維摩詰講經文（二）〉，《敦煌變文集新書》294頁）（純處置，乙一型）
10. 但將賤奴諸處賣卻，得錢與阿郎諸處沽酒買肉。（〈嶧山遠公話〉，《敦煌變文集新書》1053頁）（純處置，乙二型）
11. 誰承望馬嵬坡塵土中，可惜把一朶海棠花零落了。（〈梧桐雨〉，《元曲選》）（丙型）

從甲一型到丙型（如例6到例11），屬於一般所謂處置式的範疇。在例1中「將」作爲主要動詞。在例2中，它作爲連動式的次要動詞。在本文中，我們將把例2這種和處置式無關的句子排除在討論之外。例3、4這種例句和甲類處置式（如例6、7、8）很相似，只是在「將」和主要動詞間又多了一個動詞（如「來」）或連詞（如「以」）。這種例句並不算在以下要論及的連動式之內，我們可以稱它作「準連動式」。[1]以下所說的連動式指的是具有處置式或工具式的形式和功能而「將」「把」等仍未虛化爲介詞的句式。當「將」「把」這類的動詞用作爲連動式的第一個動詞，相對於其後的動詞，便退居不顯著的次要地位，也較易於「虛化」(grammaticalization)，而成爲介詞或其他的功能詞。只是一個動詞什麼時候虛化爲介詞常常缺乏憑準來斷定，因此在本文中把這種還不能或不需要決定是動詞還是介詞的詞都稱作「次動詞」（指相對於主要動詞是居於

1. 連動式在漢語中介於單句和複句間，有時候難辨明何屬。如果二動詞間有連詞，則宜視爲複句。「來」雖是動詞，但現代漢語處置式的「把NP」和主要動詞間不能插入它，因此仍然可以把「來」前的「將」分析作動詞。Sun(1988:205-6)即把「來」「去」作爲「把」是否虛化爲介詞的憑準。以「將」「把」等作次動詞的準連動式去掉「來」「以」這類連詞之後，形式上就和處置式相當，次要動詞也就有了進一步虛化的基礎。

次要附屬的地位，因此可以是動詞或介詞）。就本文的行文而言，凡是句式或功能相當甲、乙、丙類的都稱作處置式，不論「將」「把」是否虛化爲介詞。例5的「將」作爲引介工具語用，這種用法和處置式的次動詞無論在淵源上或分辨上都有密切的關係。

我們把處置式分爲甲、乙、丙三類，有的類中還再分型，其作用在以下的討論中可見分曉。現在先大致說明一下。甲類的主要動詞爲三元動詞，[2]不過其中甲一型的三個論元或可以視爲是「將」和「作」合構的。乙類的主要動詞是二元動詞。乙一型和乙二型之別在於有無補足語。[3]丙類則或者動詞是不及物動詞或者「把」的賓語是施事而非受事。因爲本文主要是探討乙類的起源問題以及它和甲類間的關係，而丙類相對較晚，因此我們只將丙類分出，而不特加討論。

甲類所以需要和乙類分別開來，是因爲除了「將」「把」之外，歷史上還有「以」「用」「持」也用於甲類句及工具式，而未產生乙類句。這種情形也就像現代普通話的「拿」也用於甲類句和工具式，卻只有在非常有限制的情況下才能用於乙類的句型一樣。「將」「把」的特點是不但有甲類句，也常用於乙類句。

1.2　過去對處置式起源的幾個主要觀點

過去談處置式的起源主要是針對乙類句來說的，雖然有的人並不分辨甲類句和乙類句，也並未認識到這二者未必有發生上的關係的。以乙類句

2. 動詞有哪些論元角色仍是見仁見智的事。爲了討論的方便，我們在本文中僅區分如下的論元：施事(agent)、受事(patient)、經驗者(experiencer)、終點(goal)。「終點」包括收受者(recipient)，因爲二者在處置式中的語法表現相類，因此有說明必要的時候才將二者分開。「受事」和「客體」(theme)有時是有分開的必要的。就我們的分類，靜態動詞的主語，或者位移的事物都是「客體」，所以在我們的甲類句中，處置的對象就是「客體」，但爲了易於比較說明，我們把它併入「受事」中。在現代漢語中，承受認知或心理經驗的角色即「經驗者」論元，它要用在處置式中是相當有限制的，因此它和施事是有必要分開的，即使在本文的討論中我們並不處理這個問題。
3. 如果把動詞前後的修飾語分別命名爲狀語及補語，那麼現代漢語處置式是否合語法，不僅要看補語，還要看狀語。我們在分類中暫時將狀語忽略掉，是因爲我們將對補語在處置式演變上的地位加以討論，而不涉及狀語的問題。

爲主要探討的對象，那是因爲「把」「將」有提賓作用，牽扯到類型學上的重要問題，也就是漢語到底是SOV還是SVO語言的問題。這個類型學上的問題並非本文關涉所在，因此以下只談過去論及處置式緣起的幾個主要觀點。

「將」「把」處置式來自連動中次動詞的虛化是一個廣爲人接受的看法，如祝敏徹(1957)、王力(1958)、Li & Thompson(1974)、Benett(1981)、貝羅貝(1989)等，另外也有其他的語言可供佐證。[4]原則上，我們可說先有連動式而後有所謂的虛化。連動式可說是複句的緊縮。當緊縮造成「將」「把」這樣的詞在地位上成爲其後動詞的修飾語，並且和該動詞共享一個受事論元時，在形式上就是處置式的句型了。且當這樣的句式的「將」「把」進一步虛化，且固定搭配主要動詞的受事論元時，那就是一般所謂的處置式了。這樣意義的處置式維持著其所自來的連動式的結構，只是動詞虛化爲介詞了。

綜觀歷來的說法，支持處置式來自連動式的人較多，理由也簡易明白。其中有些人還進一步探求「把」「將」重新分析的緣由，例如Benett(1981)、Sun(1988)認爲「以」的工具式及處置式的用法促使「把」或「將」受到類化而分析爲介詞。這基本上還是應該假定先有連動式的存在。

另外還有些不同的觀點，但並不一定和上述的觀點相抵牾。例如有些人認爲「被」字被動式和處置式的產生有關係，如Tai(1976)、Sun(1988)、梅祖麟(1990)、Huang(1986)等。其理由不盡相同，而是否支持連動式虛化說，態度也不見得一致。如Huang以爲「將」變成介詞是因被動式有處置特徵而起，而Sun認爲處置式是爲了和被動式在動詞前區辨施事和受事而起。Tai認爲處置式是阿爾泰化所產生的SOV句型，至於是來自連動式還是移位，似欠缺清楚的交代。這其中Huang雖認爲「將」處置式來自連動式的虛化，卻贊成「將」處置式是連動式受被動式的影響而產生。Sun如上述是支持連動式虛化說的，而梅祖麟(1990)和Sun的文章雖有淵源關係，卻是認爲處置式的產生主要是受事主語句加上「將」「把」而成。

4. 如非洲的語言，可參考Li(1975)中Givon和Hyman的文章。

又有些人認爲處置式的產生和當時語言的表面結構的限制有關，主要的觀點是動補式的補語造成賓語的提前，如Cheung(1976)、Benett(1981)、Huang(1984)。[5]假如提賓是介詞組直接移前，那當然和連動式虛化說相衝突；如若不然，所謂賓語的移前從語言演化上仍不能排除來自連動式的可能。

以上是以連動式虛化說爲中心來看其他的觀點，這樣處理是爲了第二節敍述的方便。此外，有一些學者有自成一套的看法，這些看法頗值得提出來討論。但因這些看法有時稍複雜了一些，從上面的局部介紹中看不出其論證的始末，因此需要個別的說明。爲了避免重複說明，只好不在這裏介紹，留到第三節再一起提出來討論。

2. 處置式史述

本節將概述幾個次動詞在處置式上的歷史（處置式將只就句型而言，不論次動詞是否已經虛化），這些陳述將作爲第三、四節討論的基礎。本節主要陳述的次動詞有「以」「用」「持」「將」「把」，並旁及其他的幾個詞以供比對。

「以」「用」「持」「將」「把」若按動詞在先秦的常用義大致可分爲三類：1.「帶領」「攜帶」義（「以」「將」）；2.「使用」義（「用」）；3.「執持」義（「持」「把」）。這些義類有時是有關連的，如「帶領」可以引伸出「攜帶」義（或者是「攜帶」義引申爲「帶領」義），再引伸爲「執持」義，再虛化可作爲表「憑藉」的介詞。不過，原本同義類的在發展上未必一致，原本爲異類的卻又未必不同趨。

2.1 「以」

梅祖麟(1990)指出，「以」有處置式甲類三型及工具式等用法，其中「處置給」及「處置作」都已見於先秦，但「處置到」最早在《史記》才出現。如：

5. Huang(1984)和Huang(1986)的意見不一定一致，可參考貝羅貝(1989)的批評。

12. 天子不能以天下與人。（孟子・萬章下）（處置給）
13. 吾必以仲子爲巨擘焉。（孟子・滕文公上）（處置作）
14. 復以弟子一人投河中。（史記・滑稽列傳）（處置到）
15. 醒，以戈逐子犯。（左傳・僖23年）（工具式）

不過「處置到」實際上也許沒有這麼晚。如：

16. 若以石投水奚若？（呂氏春秋・精諭）
17. 今以木擊木則拌，以水投水則散，以冰投冰則沈，以塗投塗則陷，（呂氏春秋・論威）

這種例子和工具式很難區別，如例17「以水投水」和「以木擊木」相對，後「水」似乎也是前「水」對付的對象，非單純的「處置到」。但話說回來，後「水」仍是前「水」位移的終點，和一般的「處置到」又難截然區分。

魏培泉(1993)指出，「處置到」的興起，和上古漢語介詞「於」的沒落以及新的動詞後的成分限制有關，這種改變造成三元動詞的受事論元改放在動詞前而成爲「以」的賓語。先秦表示「給與」義的動詞在句法上可大分成二類。一類利用「以」構成「處置給」的句式；一類原本和「處置到」一樣，採「S＋V＋O＋於G」的句式，到西漢，這一類也改用「S＋以O＋V＋G」的句式。[6]

即使不管「處置到」，先秦「以」已有提賓的「處置給」（甲文中似乎已有），而且也早有「處置作」。那麼這是怎麼來的呢？我們認爲至少「處置給」即是來自連動式。

甲金文中「以」有「率領」的意思。如：

18. 丁酉卜，亞𡆥以衆涉于囟，若。（《粹》1178）

6. 英文字母所代表的是：S（主語）、V（主要動詞）、O（受事賓語）、G（位移的終點。包括雙賓動詞的間接賓語以及終點場所）。

這種用法到《史記》還有餘緒。如：

19. 欲以客往赴秦軍，與趙俱死。（《史記・魏公子列傳》）

另外在祭祀的卜辭中所用的「以」有人說有「進貢」或「捕獲」的意思。[7]如：

20. 丁亥貞，用望乘以羌自上甲。（《佚》875）

不過「率領」義似可兼括這種詞義，因爲本有掌控他人之意。在祭祀場合操縱俘虜及將之用爲犧牲，似乎是「率領」義可以連及的涵義。「以」的「使用」義或者另有途徑。我們在金文中常看到「用」「以」混用，而二者都有工具式及「處置作」的用法，而且在兩周之時「以」單用爲動詞時主要的詞義是「使用」而非「率領」。如：

21. 不使大臣怨乎不以。（論語・微子）

這樣看來，「以」的「處置作」用法似可能來自「使用」義。不過先秦「用」似乎無「處置給」的用法（參2.2節），因此「以」的「處置給」未必來自「使用」義，而可能別從「率領」義轉成的「執持」義來。回頭看「率領」義。「率領」義可以引伸有「攜帶」「執持」，乃至「憑藉」義。「率領」爲掌控他人。由掌控人物，引伸到掌控物體，乃至掌控抽象的事物，這樣的延伸在詞義的演變上是相當自然的。其實「率領」義也可能是由「攜帶」義引申而來，不過這二義間孰先孰後在這裏並不十分重要。重要的是在其後意義的再轉變。如果「率領」義的「以」因搭配別的語詞而使範圍逐步擴張，而發展到「執持」義，那麼就可以解釋爲何會和後來的「持」「將」「把」一樣發展出甲類句。次動詞在連動式中發展出與原來詞義相異的意義或功能，這也是一種我們熟知的虛化過程。

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7. 陳初生(1983:201)說「以」的諸義中似有「捕獲」「進貢」之義。

無論假定處置式中的「以」是來自「使用」義還是「率領」義的動詞，都比假定「以」本有動詞及介詞等多種義項，且處置式只是從無實義的介詞發展出來要更合乎漢語語法演變的規律。

在甲類三型中，「處置到」歷史較晚，要討論甲類句的起源可暫置一旁，先談其他二型。「處置給」的產生應不晚於西周，「處置作」或許稍晚。「以」的「處置給」的產生可以表示如下：

22. NP_i＋以＋NP_j，ϕ_i＋V＋NP_k＋ϕ_j＞NP_i＋以＋NP_j＋V＋NP_k

也就是說「以」詞組原本和其後的詞組是兩句，但在「以」的主語及賓語和後一句的三元動詞的主語、賓語（受事論元）同指的情況之下，使得那三元動詞的主、賓語可以使用零形式。由於在表面結構上「以＋NP」和其後的動詞緊鄰，因此複句造成緊縮而成具有甲類句形式的連動式。

「處置作」的起源似乎不同，因爲先秦「作」和「爲」並無明顯的証據証明它是三元動詞。此式的「以」可能和工具式的「以」有關係。我們可以這樣看它：有一個事物，施事者既以它爲工具，又使得它成爲物理或心理過程變化的對象。這個工具本身同時也是被改變的事物，而改變的結果也可算是一種終點。因此「處置作」在語義上和「處置給」「處置到」也有共通之處。「處置作」的三個論元既可能是「以」「爲」共構而成，因此從來源看，該式比起「處置給」，「以」和主要動詞間顯得更緊密性些。

「以」的虛化應該早在先秦就已完成了。一則在戰國時期的處置式及工具式的用法中已不大容易看出其詞義；二則「以」雖仍有用作主要動詞的，義爲「用」，但例子已罕見，相反的，「用」作爲主要動詞卻很常見。

「以」從未發展出乙類句來。[8]後來當乙類句產生的時代到臨時，「以」早已虛化爲介詞，已缺乏條件產生乙類句了。因爲照我們的看法，

8. 有些人舉了西周金文的例子，但都是尙不足採信的。葉友文(1988)對此有很好辨析。

乙類句來自連動式，「以」既已虛化，不是動詞，就失去產生乙類句的條件了。

在南北朝，介詞「以」已有沒落之勢。如「持」在口語中已取代它成爲甲類句的主流，且「持」「用」也常用於工具式。由於書面語的傳承性甚高，所以「以」的見數仍然不少，只是常常出現於固定格式中，或者不是介詞而是連詞。如隋《佛本行集經》的「以」有1963次之多，但常常出現在「何以故」、「所以者何」、「以…故」、「以…因緣」和「及以」等格式中。這其中表原因的固定格式出現頻率特高。「以」的甲類句約180次（計算不包括「以爲」，因爲「以爲」似有固化之勢，所以暫時不和「以NP爲（作）」的格式併爲一談），也只和「持」「將」的甲類句總數相近。我們認爲，在隋代，「以」的甲類句應只是書面語保守作風的一種體現，眞正的主流應已由「將」取代（參2.4節）。至於東漢到此時之前，甲類句的主流可能也不是「以」，而是「持」（參2.3節）。

2.2 「用」

「用」的原義應相當「殺牲而用於祭祀」，引伸爲一般的使用。「用」在甲文中有幾個例子像是次動詞，引介工具語，[9]但我們認爲仍可分析爲主要動詞。不過在西周金文中「用」有工具式及「處置作」用法應無疑義。例如：

23. 白公父作金爵，用獻用酌，用享用孝，于朕皇考，用祈眉壽。（伯公父勺）（工具式）
24. 曶用玆金作朕文考弃伯䵼牛鼎。（曶鼎）（處置作）

金文中常見「用作…」的格式，這個「用」既可能是「處置作」的次動詞，也可能是和連詞「以」相當的連詞（雖然同時是缺乏相當的格式「以作…」的）。二者的連詞用法應都由省賓的介詞轉化而成的。「用」在西周、春秋的金文中大量出現，常用於「處置作」和工具式中，在工具式中

9. 如戴璉璋(1979:132)就說是介詞。

且常常和「以」混用，[10]「以」「用」原可能只是方言的關係。然而在先秦到西漢的傳世文獻中，「用」儘管仍常以「使用」義作主要動詞用，它的「處置作」及工具式的用法卻殊爲少見，而「以」卻相對罕見用爲動詞的。例如：

25. 若金，用女作礪；若津水，用女作舟；若天旱，用女作霖雨。（國語・楚語上）
26. 用何爲名？（春秋繁露・立元神）
27. 庸知子用非爲是，用是爲非乎！（說苑・建本）
28. 用此觀之，人之性惡明矣。（荀子・性惡）
29. 下匿其私，用試其上；上操度量，以割其下。（韓非子・揚權）
30. 以爲儒者用文亂法，而俠者以武犯禁。（史記・老子韓非列傳）

但是到了東漢，「用」的工具式和「處置作」用法又逐漸興起，[11]工具式用法甚至一直延續到今日，「以」卻只殘存於書面語中。由此看來，「用」這種用法在先秦西漢的傳世文獻中少見，應和方言的消長有關。

「用」的「處置給」用法史上不經見，先秦則未見其例。例如：

31. 吾用封汝。（史記・梁孝王世家）
32. 白令勝用尚書授太后。（漢書・夏侯勝傳）
33. 因用吏民所言王氏事示禹。（漢書・張禹傳）
34. 即探囊中五百銀錢，盡用與之。（支謙《佛說太子瑞應本起經》473頁上）

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10. 參陳永正(1986:311-5)
11. 如《論衡》的「用」引介工具語及用於「處置作」就比先前的傳世文獻有較多的用例。此外，傳注有時也可看到用例。例如：
    1.用偶人葬，恐後用生殉，用明器，獨不爲後用善器葬乎？（論衡・薄葬）
    2.且筆用何爲敏？（論衡・定賢）
    3.欲其用禮爲節也。(《詩・蟋蟀》「無已太康，職思其居」鄭箋)
    另外在《佛本行集經》中就有不少工具式和「處置作」的用例。

35. 我今應用此之竹林，奉施世尊，以爲坐處。（《佛本行集經》860頁中）

至於「處置到」並無可靠的用例。《佛本行集經》有四個形式爲「（以）用＋V＋G」的例句，但既無主語，且「用」或「以用」直接在動詞前，所以極可能是連詞。[12]例如：

36. 盛滿香水，以用灑地。（691頁中）
37. 即取此釧，用安其缽。（931頁下）

「用」在先秦已有「處置作」，但沒有「處置給」，可能在詞義上和「以」互有異同。後來雖出現了幾個「處置給」的例子，可能是因和「以」功能有部分雷同而類化的結果。但這種影響既微，也沒有發展出「處置到」，應和「用」的詞義的維持有關，因此不但不大受「以」的影響，也不受東漢六朝流行的「持」用法的影響。不僅如此，也不受後來「將」「把」的影響。經過漫長的歷史，它的工具式仍通行於今，和「把」形成互補的狀況，因爲「把」基本上並不用作工具式。[13]由此可見，部分詞義或功能的重疊不必然產生更大範圍的類化，而且動詞詞義的保持對於句型是否擴充發展仍有一定的影響力。

2.3 「持」

在秦漢之際，「持」應該已經有工具式及「處置給」的形式和功能。這種句式在當時仍應是連動式，「持」仍然是動詞。這種句式既然形式和功能和次動詞虛化的處置式相類，而且次動詞虛化與否並不易辨識，因此我們以下將具有這種句式的都稱作處置式，在討論「將」「把」時也一

12. 此書「處置給」的用例有多少也因爲常用這樣的格式而難以確計。事實上表「給與」義的動詞在搭配「用」的例子中只有例35是不直接在「用」之後的。有趣的是，接在「以用」之後比接在「用」之後常見得多。「以用」似宜分析爲並列連詞。
13. 其實現代普通話還有一個「拿」在這一點上也和「把」呈互補的局面，因此在工具式上和「用」有重疊的現象。

樣。以下幾個例子或可算是先秦之例：[14]

38. 以魏之勤，而持三萬乘之國輔之。（國策・魏策二）（工具式）
39. 持白馬非馬也服齊稷下之辯者。（韓非子・外儲說左上）（工具式）
40. 持千金之資幣物，厚遺秦王寵臣中庶子蒙嘉。（國策・燕策三）《史記・刺客列傳》同。（處置給）
41. 乃使使者持衣與豫讓。（國策・趙策一）《史記・刺客列傳》的「使者」作「使」。（處置給）

這種「處置給」的句式到了西漢就逐漸多了起來，如《史記》中就有8次（動詞分別爲「遺」（3次）、「獻饗」、「獻」、「與」、「予」、「告」等），到了《漢書》中則約18次。例如：

42. 持鹿獻於二世。（史記・秦始皇本紀）
43. 持兒與舜。（漢書・外戚傳）

「持」的這種用法的產生應該不是受「以」的類化而產生的，因爲在先秦「以」早已虛化爲介詞，作爲主要動詞用的「以」詞義也和「持」不同，因此無從類比。這種句式的產生應和西漢以來連動式的次動詞分攤主要動詞的論元的趨勢有關（參魏培泉1993），「持」的這個發展只是這趨勢的一個面相，是配合著當時語言的結構與限制的產物。[15]此式的「持」極可能仍是動詞，因爲在「持NP」和動詞之間仍可插入「以」「來」「入」

14. 因《戰國策》語言所反映的時代恐有爭議，所以不做確論。
15. 也有別的次動詞具有相類的句式與功能，如「取」。但因爲「取」的詞義內涵超出「持」，因此難以普化爲處置式的常式。比較以下二例的「持」「舉」「取」「以」間的關係。
    1a.取財物置其中。（東漢支婁迦讖《道行般若經》451頁下）
    1b.以財物著中。（吳支謙《大明度經》493頁上）
    2. 舉右手著阿難頭上，摩阿難頭，持手著阿難肩上。(《道行般若經》478頁上)

「還」「欲」之類的連詞或動詞。比較例44和例45：

44. 乃持羽頭示其父兄。（漢書・高帝紀）
45. 持其書以示丹。（漢書・王商傳）

我們固然可以把例44的「持」視爲已虛化的介詞，而把它視爲處置式，把例45視爲非處置式。但是不僅如例44的例句在東漢末年之前仍非普遍，而且主要動詞和「持NP」之間可以插入連詞或其他動詞的例子也並非少見（如例45）。因此我們在的分類上雖把例44這樣的例子列爲處置式，而不把如例45的例子算作處置式，但是認爲二例的「持」都還是動詞。至於處置式的「持」什麼時候虛化則不易斷定，也並非此文所關切的問題。

就文獻看，「持」的「處置到」要晚於「處置給」。《漢書》有三個例子。例如：

46. 宇即使寬夜持血灑莽第。（漢書・王莽傳）
47. 持頭送都護在所。（漢書・匈奴傳）

「處置到」的發展和「處置給」一樣，是語言結構的限制改變引致的。

「處置作」目前可見最早的例子在東漢末。例如：

48. 持無常作有常。（東漢支婁迦讖《佛說遺日摩尼寶經》192頁上）
49. 持五百女人爲汝給使。（同上作者《道行般若經》476頁上）

這種句式的產生不無可能是自「以」類化來的，因爲先已有了句式相類的工具式和「處置給」「處置到」，故可以類比推擴而得。

「持」的工具式和處置式在東漢末的洛陽方言中可能已取代了「以」的地位，這可以從兩部內容相當的佛經譯作中看出端倪。如：

50a. 菩薩持初頭意近阿耨多羅三耶三菩，若持後頭意近之？（東漢支婁迦讖《道行般若經》457頁上）

50b. 闍士以初意近無上正眞道耶，以後來意近乎？（吳支謙《大明度經》496頁中）

51a. 復自破骨持髓與之。（《道行般若經》472頁中）

51b. 又破骨以髓與之。（《大明度經》505頁上）

52a. 前持頭面著足已，遶三匝卻住。（《道行般若經》475頁上）

52b. 前以頭面著足，起遶三匝卻住。（《大明度經》506頁中）

53a. 持手著阿難肩上。（《道行般若經》478頁上）

53b. 又以著阿難肩上。（《大明度經》508頁上）

支謙的譯作較近傳統的文言，而支婁迦讖所譯反倒接近當時的口語。前者用「以」，後者用「持」。從例52及例53看來，「持」似已有相當程度的虛化，因爲實際上不是具體用手來操縱著頭或另一隻手而移動的。不過動詞因借諭而能夠搭配範圍更廣的名詞在語言中是很常見的。由手對具體事物的握持推擴到其他較抽象的心理或物理行爲的掌控是很自然的，這未必就是動詞的虛化。例如現代普通話的「拿」的動詞詞義仍很清楚，但也可以有類似的用法。

「持」的工具式及處置式的用法在東漢以後的佛經中屢有所見，到了隋代的《佛本行集經》時，處置式的使用似乎有由「將」取代「持」之勢，因爲「將」的甲類句用例超過「持」一倍有餘（「持」約50次，「將」約120次，二者都是三型俱全）。這可能是政治勢力移轉，新政治中心的方言成爲優勢方言，壓倒了舊時的主流方言，並反映到書面語上，因爲在這之前，我們是難得見到「將」的工具式或處置式的用法的。在《佛本行集經》中，「持」雖有498次之多，[16]但常見於固定的熟語中，如「執持」「受持」「護持」「持鉢」「持戒」……等，差不多佔了「持」用例的一半。這顯示「持」在搭配語詞上有固化之勢，其組詞造句的鮮活力似已在減褪中。此時甲類句中的「持」是否已經虛化爲介詞仍不易判斷，因爲「持NP」和其後動詞間仍常間以「以」「用」「而」之類

16. 包括名詞「軍持」（8次）。

的連詞，[17]而且有連詞的例句的主要動詞也常常和沒有連詞的是一樣的。我們或許可以這樣看：無論「持」的詞義是否已經虛化，不見得就妨礙它可以和「以」有一樣的甲類句的句式及功能。

「持」未見有乙類句的例句，儘管它應該是有條件可以發展出來的，因爲它原本和「把」可說是同義詞。如下之例可爲佐証。

54. 高祖持御史大夫印弄之。（史記・張丞相列傳；漢書・周昌傳）

例中的「之」和「御史大夫印」同指，因此如果「之」省略，就是乙類句。雖然這個時代這樣省略的條件尚未形成，但是作爲賓語代詞的「之」到了東漢六朝已呈急遽衰退之勢（參魏培泉1990:58），因此理論上已有條件可以以零形式來替代「之」，而造出乙類句來，但是這樣的想象畢竟未曾實現。看來「持」在六朝時要構成乙類句並非不可能，而是接受這種句式的時機尚未成熟。由此可見，由甲類句發展到乙類句並不是那麼順理成章的事。

「持」的處置式用法似乎後來就在歷史中被「將」「把」或其他功能相似的詞給淹沒了，我們還不知道現代方言中是否有保留它的。

2.4 「將」

「將」在先秦作動詞有「率領」義，另外有「送」「扶進」「持奉」諸義，看來也和「率領」義有關。基本上這幾個意思大都含有「掌握」及「前進」兩個義素。前文已經說過，「率領」義可以引伸出「攜帶」義，再引伸出「執持」「憑藉」等義。我們認爲工具式及處置式中「將」就是源於「執持」義的動詞。當「將」發展出「執持」義而且具有甲類句的形

17. 佛經中常常因音節的需要而墊以不必要的虛詞，如「以」「而」之類，所以「以」「用」「而」之類的詞是否可用來證明「持」仍是動詞是一個問題。不過這些詞雖常看來不必要，但是卻不會插在動詞（或介詞）及賓語間（佛經中「於」是常插在動賓或介賓間的，參魏培泉(1993:769-771)），因此也不能說這些詞的使用是無規律的。儘管如此，要以此來證明這些詞前的「持NP」仍是動詞組恐怕還是不太夠的。

式，在本文就視爲處置式。

「將」的工具式用法大概始於戰國時期，但是罕見。例如：

55. 百工將時斬伐。（荀子・王霸）

56. 蘇秦始將連橫說秦惠王，曰…（國策・秦策一）

在例56中「將」有「執持」義；而例55可說是較抽象的「憑藉」義；大概是受其賓語的影響。約在同時也有「將NP」和其後的動詞組間以連詞「以」來連繫的，「將」也是「執持」義。如：

57. 趙襄子最怨知伯，而將其頭以爲飲器。（國策・趙策一）

58. 我將汝兄以代之。（呂氏春秋・士容）

這樣看來，例56的「將」應仍保持爲動詞。

從漢開始，一直到隋以前，「將」用於工具式仍然罕見。如：

59. 將弓射之，矢沒其衛。（論衡・儒增）

「將」的甲類句更是罕見。目前只見到六朝之例。如：[18]

60. 時遠方民，將一大牛，肥盛有力，賣與此城中人。（西晉竺法護《生經》98頁上）

61. 今天王釋將我眷屬盡塡天宮。（後秦竺佛念《菩薩說廣普經》7）

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18. 例60不算是好例子，因爲「大牛」和「賣與」間還插了「肥盛有力」來追述「大牛」的狀況，使得句子像複句，而且「將」也難說就不能解釋爲「帶領」。這個例子有點像《韓非子》中的一個例子。如：

1.因令奄將宮人之美妾二十人並遺季也。（外儲說左上）

此例既可解釋作「處置給」（亦即將「將」釋爲「執持」義），也可把「將」釋爲「率領」。但因先秦「將」別無相當「處置給」的例子，所以只好暫時視爲「率領」義。如果是處置式，就值得我們對「將」處置式的來源重作考慮了。

「將」的甲類句用法一直到隋代文獻才見大量成長。如《佛本行集經》中即有許多用「將」的甲類句，形成此書的一個特色，而且甲類三型都有。[19]例如：

62. 將草作鋪。（790頁下）
63. 我今乃可將臭肉身於此泥上作大橋梁。（667頁下）
64. 將所齎食，奉上菩薩。（770頁下）
65. 將此女與彼摩那婆，持以爲妻。（863頁下）
66. 將一最大寬廣之石，安置佛前。（846頁上）
67. 將彼瓔珞財寶之物，懸著樹枝。（922頁下）
68. 將好金器滿盛銀粟。（826頁中）

例68比較特殊，「將」的賓語是終點，「盛」後保留的卻是受事。「盛」這種用例在此書中出現了幾次，卻沒有「終點」「受事」位置互調的例子。

「將」的流行還有一証。由於「將」的工具式和甲類句的流行，當時爲了便於和表「將來」的時間副詞「將」作區分，就常常用「將欲」「欲」以取代時間副詞「將」。《佛本行集經》中的時間副詞「將」因此相對較少，因爲很容易和「執持」義的「將」混淆，不如「將欲」「欲」語義易於判定。

此書甲類句的「將」是否已虛化也是一個問題，因爲「將NP」和其後的動詞間也常插入連詞或動詞「以」「用」「以用」「來」「而」「欲」…等，而不管是有連詞還是無連詞的例子，主要動詞也常用相同的詞，這使得我們還不敢把此書的「將」分析爲介詞。

「將」的甲類句是否受「以」或「持」的類化而產生的呢？「以」在戰國時期已虛化爲介詞，作爲動詞只是殘餘的勢力，而且是釋作「用」。

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19. 有時「將」屬工具式還是甲類句會成問題。如：
1.我將一切諸好飲食，供養於汝。（《佛本行集經》910頁下）
如果單用「供」，應是甲類句；如果單用「養」，應是工具式。當二詞合併，就不易確定屬於何類。我們在計算此書的甲類句時，這種例子就暫時排除在外，雖然「供養」這種例子並不少。

「將」在先秦有「率領」及「持捧」二種解釋，到了漢以後，文獻上作主要動詞則主要是「率領」義，「持捧」義較少。但無論何者，都和作動詞的「以」有差距，缺乏類比的條件。至於「持」是否可能造成「將」的類化呢？如果說是由動詞詞義相同而類化而也發展出處置式，則不無疑問。因爲在漢以後到隋以前，「將」若作主要動詞，絕大多數爲「帶領」義，只有作次動詞時才使人感覺常有「執持」義。因此要類化比較有可能發生在連動式中。這就是假定有了連動式，才有這種類化，不是僅需靠一個詞的同義即可達成。我們看「將」在先秦的工具式用法即是連動式，而且在這樣的環境下「將」詞義和「持」相當，因此如要類化應早就可以進行。但「持」的甲類句從漢代流行到六朝，何以「將」同樣的用例只零星見於六朝，到了隋代又突然大量出現而冒出了頭？我們對此的解釋是：「將」其實在「以」「持」發展出甲類句時，就有足夠的條件也發展出甲類句的，因爲那正是流行次動詞分攤三元動詞的受事賓語的時代。「將」處置式之所以到了隋代才大量出現，是因爲從東漢到六朝其所代表的方言並非政治中心，其方言未受到重視而無以反映到文獻上。不論在隋代「將」是否已虛化，它的甲類句的發展成熟應早於此時，而且產生的條件是依賴其時語言的結構與限制，而不必是倚賴「持」的類化。如果只是類化，那麼自隋代以後「將」的甲類句突然大量出現和「持」的急遽縮減到消失就不好解釋了。甲類句中也許唯有「處置作」比較可以適用類化的解釋。

「將」的乙類句的產生時代不易確定。貝羅貝(1989:7)認爲如下之例中「殺之」去掉「之」就可以產生乙類句。

69. 我敕左右，將此人以稱稱之，…又告侍者：「汝將此人，安徐殺之，勿損皮肉。」（後秦佛陀耶舍《佛說長阿含經》44頁下）

例中「之」複指此人，所以如果「將」和「把」同義，這倒是合宜的解釋。這個例子其實也可當複句看，指涉兩個分開的動作（你抓住此人，然後慢慢地殺他）。不過即使是分開的動作，兩句一緊縮即合爲連動式。一旦零形式替換「之」的時機一成熟，只要複句緊縮構成連動式，就可能造

出乙類句。[20]我們認爲六朝以降「之」的使用率已大爲衰退，因此時已是有條件來造成乙類句的。

目前乙類句最早的見例如下：

70. 便謂旁臣：「急將是梵志釋逐出我國界去。」（吳支謙《佛說義足經》180頁下）

隋以前尚未發現其他的用例。[21]《佛本行集經》有如下之例：

71. 將此龍女，莊飾其體。（826頁中）
72. 即將種種妙好飲食，自手擎持，以奉如來。（661頁中）
73. 我今將此糞掃之衣，何處而洗？（804頁上）
74. 後羅刹女，復欲將彼隨意處分。（882頁中）

例71「此龍女」和「其體」是一種屬有關係，因此很像後來的動詞後有保留賓語的乙類句。但是此例也未必不能把「將NP」和「莊飾其體」視爲二句。例72的「擎持」後省賓，因此「將NP」就好像是提賓的作用，不過此例「自手擎持」在語氣的連接上和「以奉如來」好像更緊，因此「將NP」也是可以視作獨立爲句的。例73的「洗」的零賓語，和「此糞掃之衣」同指，因此「將NP」也像是提賓。但是「洗」和「將NP」中間插了個「何處」，而且又隨附個連詞「而」字，因此要視爲提賓也並非毫無疑義。例74在形式上的確和乙類句相同，唯一的問題是「將」在此是否已經虛化。如果其義相當「抓住」，那麼既可把「將彼」和「隨意處分」看作

20. 我們對代詞「之」在六朝時的功能頗難下決定。代詞「之」在當時的使用率大爲下降，當時的「之」也許只是「附屬詞」(clitic)，是一種多餘的重指。粵語中的處置式在動詞後還可附添「佢」，如：（參Cheung 1992:286）
    1.麻煩你幫我將封信打打佢。（勞駕您給我把這封信打一打）
    2.將佢紮起佢。（把他綁起來）
    唐以後的「之」也許正如祝敏徹(1957)所說只是書面語言的一種形式。
21. 我們因此疑心例70是複句，可釋爲「趕快抓住這個梵志釋，（把他）趕出我們的國界去。」

兩句，也可看作連動式。照我們的看法，最初也正因爲「將」保持實義，這種連動式的主要動詞才可以省賓，也才有後來的乙類處置式，以及供「將」進一步虛化的可能。如果我們假設「將」原本就已是用來標示賓語的介詞，那麼這樣的介詞從何而來便很成問題。它不能是由動詞後的成分移位產生，因爲並無「將NP」在動詞後的歷史；如果是一個另外產生而附加在前置賓語的格記號，那麼爲何會突然冒出這樣的記號，而且爲何會是如「將」（或「把」）這樣的詞而不是別的，就是個不易回答的問題。

如例70、例74這種例子的重要性是在於它提供了乙類句的句型。至於「將」是否虛化爲介詞，要看詞義是否褪去且搭配的賓語可盡涵受事角色的語義範圍。只是在文獻上要去分辨總不是容易的事，尤其在初現於文獻而例句還不太多的時候。要斷定是否動詞，可能還比較可以找出一些憑準，如「將NP」後如果有「來」「去」「以」「便」之類的詞，或者「將」後可以加詞尾之類。[22] 但是要斷定它是否已是介詞，則是相當不容易的。

「將」的乙類句就如貝羅貝(1989)所說，初期是先有乙一型，而後才流行乙二型。《佛本行集經》的情形應可作爲此說的佐証。乙二型的特點是有補語。各類補語何時可以用在處置式中，完全要看那個時代有什麼樣的補語。

「將」的丙類句例子在文獻中殊爲罕見，可能是因爲在北方「將」沒落得早而未受「把」的影響。例如：

75. 將一艙活魚都走了。（《水滸》・38回）

此例可能是受「把」類化的結果，因爲該書「將」「把」經常混用。我們並不清楚現今方言中是否有「將」使用作丙類句的。據Cheung(1992)，粵方言的「將」處置式中是絕無丙類句的。

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22. 從唐代以後動詞詞尾「了」「著」才逐漸被使用，可以用來判斷某些詞是否仍保留動詞的用法。如：

1.將著書簡，引領高俅，逕到學士府內。(《水滸》・2回)

但是一個詞同時保有動詞及虛詞用法，在語言中不僅可能，也是常見的。

從文獻上看處置式，「將」「把」呈現此起彼衰的歷史。

考察一些重要的白話文獻，從隋到南宋，「將」是處置式的主流（包括甲、乙類），一般較「把」常見；從明清以後，「把」又逐漸把「將」掩蓋過去。這可能是方言消長的關係。在宋室南渡之前，「將」應是優勢方言。不過在南宋時的南方還有不少人口使用「將」，並且反映到當時的文獻中。[23] 其影響且尚可見諸現今的粵、客、閩等方言，因爲都還使用「將」處置式。「將」在閩南方言口語中使用較有限制，該方言同時也還有一個介詞ka也用於處置式。由於南宋人口的往南移徙，乘此空隙，可能造成北方新方言勢力的興起，「把」也就得到發展擴充的機會。元明清以來的政治中心都在北方，因此北方方言成爲元明清以來官話的基礎。其時的官話反映到小說中，便多是用「把」少用「將」；反映到現代的方言，是北方方言也以用「把」爲主。「將」「把」的互爲消長，其原因應是方言勢力的推移所致。

2.5 「把」

「把」原爲「握持」義，和「持」義相近。如：

76. 因左手把秦王之袖，而右手持匕首揕抗之。（國策・燕策三）
《史記・刺客列傳》同，但無「抗」字。

在隋唐之前，動詞「把」不常見，更少用作連動式的次動詞的，但是有用在由連詞「以」連結的複句形式中的。如：

77. 禹親把天之瑞令以征有苗。（墨子・非攻下）

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23. 如變文中「將」多於「把」（參王錦慧，(1993)），《朱子語類》也是（參祝敏徹，(1990)）。元明以後的《水滸傳》《西遊記》《儒林外史》《紅樓夢》中反倒是「把」佔優勢（參向熹，(1958)）。金、元之際可能已有部分方言「把」壓倒了「將」，如《董西廂》處置式「把」遠多於「將」，《永樂大典》中的〈張協狀元〉等三篇戲文也是「把」多於「將」（參袁賓(1992:247-8)）。

隋以前，處置式甲類句罕見。如：

78. 甲把其衣錢匿臧（藏）乙室。（睡虎地秦墓竹簡・法律答問）
79. 把粟與鷄呼朱朱。（《洛陽伽藍記》四）
80. 把碎華蘂著其眼中，令彼人眼轉闇，更閉不得開明。（北魏般若流支《不必定入定入印經》700頁上）

乙類句更是未見其例。奇怪的是，在《佛本行集經》中「把」用作主要動詞或次動詞例子都極少，而且並無甲類句，卻有一個疑似乙類句的例子。但此例有異文，因此應當存疑。如：

81. 汝今把我心中所愛如意聖夫，將何處置？（740頁中）此例「把」或本作「抱」。

到了唐代，「把」的乙類句卻似乎一下子冒出了頭，雖然這種句子的「把」可能有不少仍是動詞。如：[24]

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24. 如果探索處置式來源的方法是以現代普通話爲基礎往前推，那麼要認定哪些例句是初期的乙類處置式就會有困難。除了唐代出現乙類句的材料韻多於散外，還有別的問題，如現代普通話處置式的動詞通常是不能無狀、補語而以單音節的形式存在的。此外，在普通話中處置式能不能成立也還要依動詞的小類而定。因此如下的例子便應和普通話的處置式的來源搭不上關係。

1.月下把書看（貫休〈寄烏龍山賈泰處士〉）

普通話的處置式不能單用「看」，甚至也不能用「看見」，卻可以用「看完」，這是因爲動詞的各小類對處置式的接受與否是有差異的（Sun(1988)認爲只有「達成」(accomplishment)類的動詞才可用於處置式）。如果我們不局限於普通話，把其他方言相當「把」的也算作處置式，就會發現有的方言也可以使用像例1這樣的句子。閩南語的ka即是一例。如：

2. i ka gua khuaN。（他看我）
伊 （把） 我 看

青海也有這樣的例子：

3.我把你沒見。

或許會有人說例1不足爲據，因爲「把」可能仍保存實義，非眞正處置式。可是如下的例子普通話也是不合法的，其中的「把」已是虛化的了。

4.我把娘子十分錯愛。（《水滸》・45回）

這裡所要強調的是普通話不是歷史一脈相承下的唯一繼承者，漢語歷史也不是單線發展的。

82. 閑常把琴弄。（任華〈寄杜拾遺〉）

83. 徒把涼泉掬。（宋之問〈溫泉莊臥病寄楊七炯〉）

例82的「把」或者還可以看作是和「弄」分開的動作，但例83則不可以，因此例83的「把」應算是已虛化的介詞了。[25]

我們粗估了一下，在唐代，「把」「將」的處置式除了甲類句以外，就多爲乙一型，乙二型的例子仍然不多。我們同意祝敏徹(1957)、貝羅貝(1989)的看法，初期乙類句是乙一型，且來自連動式。總計甲、乙二類，唐代的「將」無疑多於「把」，但如僅就乙類而言，二者恐怕差不了多少。因此就初期乙類處置式而論，到底是「將」影響「把」，還是「把」影響「將」，恐難驟下斷語。在探討現代漢語處置式的時候，其實應該把甲類句和乙類句分開來看。甲類句源遠流長，句式產生的語言環境和所代表的意義和乙類是不一樣的。

「把」的處置式在隋以前絕少，到唐宋則逐漸增長，到明清以後成爲主流，這應如前文所說，是方言勢力隨著政經中心的移轉而在文獻上所反映的現象，不應只是一條線下來的詞彙替換而已。

雖然乙二型後來越來越流行，但乙一型也還繼續流傳下來，而且在現代的方言中也還有保留著的。如：

84. 這潑皮強奪洒家的刀，又把俺打。（《水滸》・12回）

85. 蠻把牛打。（渭南方言）[26]

從唐代以來，乙類句動詞的補語在型類及用率上逐漸的擴充，而狀語

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25. 處置式中的「把」在唐代已可分析爲介詞，但這不意謂著只有這個可能。因爲即使到了元明，有時「把NP」和其後的動詞間還可插入「來」「去」「便」…等。如：

1.且把他來綑做粽子。（《水滸》・19回）

2.把馬去繫在綠楊樹上。（同上，5回）

3.把船便放攏來到岸邊。（同上，37回）

26. 參杜永道(1989)。

和「把NP」的相對位置也不斷的在變化。乙二型補語的使用與擴充可能在於賓語提前後所留下的地位可供各類補語的填補。[27]這也就是說並非因補語的使用才促使賓語提前。因此在文獻中和現代方言中都不乏賓語和補語同時留在動詞後頭的事實。[28]至於狀語，它和動詞間的位置關係也隨時代和方言而變。在「把」處置式的早期，「把NP」和動詞的關係較鬆懈，因爲中間可以插入花樣較繁複的狀語，這很可能和「把」仍保有動詞性有關。即使後來「把」虛化了，原有的用法難免也有所殘存。方言間對狀語位置的安排也不一致，普通話大部分的狀語要放在「把」之前，但其他方言狀語的擺放位置則可以不同。我們可以從如下的例子看到否定詞「不」放在「把NP」之後的用法從古流傳到今，這樣的用法在普通話一般是不許可的。[29]

86. 今人所以悠悠者，只是把學問不曾做一件事看。（《朱子語類輯略》44頁）
87. 儘人勞攘，把我不覷。（《董西廂》卷二）
88. 林沖每日和智深吃酒，把這件事不記心了。（《水滸》・7回）
89. 把鷄不要放出來。（渭南方言）[30]

丙類句獨在「把」上得到發揚。這種句式中「把」的賓語已不是一般的受事，而且該式有致使或不如意的意涵在內。這已是「把」原來用法的擴充。這樣的用法見於元以來的部分文獻中，並且還保留在部分的方言裏。[31]「把」的這種用法可能一直只流行於部分區域，所以並未普及到所有的官話地區。至於這種用法如何產生則尚不能確定。

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27. 參邵敬敏(1985:208)。
28. 如「V＋得＋NP＋VP＋」在《朱子語類》及現代長沙方言中（參張大旗(1985)）可以看到。如果把甲類句考慮在內，則相對應的「V＋NP＋PP」的用法在近代文獻及現代方言中也時有所見。
29. 不過普通話某些熟語性的「不」則可前可後（參呂叔湘(1980:51)）。
30. 參杜永道(1989)。
31. 就筆者所知，如山西、熱河等方言中就還在使用。至於文獻上是否有更早的例子則尚未確定。

「把」在唐宋時就已經是甲類三型、乙類二型、工具式俱全了，元明以後還發展出丙類句，它的功能超越過去的「持」「以」「將」（文獻中「將」的丙類句雖可看到若干例子，但看來後來並未得到開展）。這應和「把」出現較晚、流行範圍廣、使用的人口多有關，因爲這樣才使它有機會合併更多的可能。

2.6　其他

2.6.1　「捉」

敦煌變文中如〈鷰子賦〉〈王昭君變文〉〈降魔變文〉中就有好幾個以「捉」用作處置式的例子。如：

90. 良由畫匠，捉妾陵持。（〈王昭君變文〉，《敦煌變文集新書》915頁）
91. 胥是捉我支配。（〈鷰子賦〉㈠，同上1144頁）
92. 官人夜遊戲，因便捉窠燒。（〈鷰子賦〉㈡，同上1162頁）

有趣的是變文中「捉」都是乙一型，而別無其他用法。這應該和「捉」的詞義有關。在閩南語中有一個同義的lia，主要也是乙一型。「捉」的詞義較窄，因此不像「持」「將」「把」那樣容易虛化。變文中的「捉」應該還保持著實義，只是主動詞的賓語因和「捉」的賓語同指而省罷了。就句式而言是乙類句，但也還是連動式，「捉」仍未虛化。「捉」詞義的保持阻礙了它在句型上做更大範圍的延伸。

2.6.2　現代南方方言的處置式

處置式的甲、乙類句在現代方言中似乎是相當普遍的，儘管不一定用「把」。在南方，有其他的詞彙可以用來代替「把」。如「將」在粵、客、閩方言中使用，「拿」在吳語中使用，還有其他一些來源不十分清楚的詞，如閩南語的ka、客語的lau之類。

「將」歷史上的用法已如前述，至於「將」在現代方言中的用法仍得隨方言而定。如粵語的「將」的甲、乙類句的使用規則就和普通話有所出入，閩南語「將」在口語中的使用似乎又更有局限性。普通話「拿」只發

展到工具式及部分的甲類句以及非常有限度的乙類句，[32] 它基本上仍是個動詞，如可以附加詞尾（如「著」）。可是在吳語中「拿」的甲、乙類句已差不多和「把」相當（不計「把」之丙類）。不過儘管句式大致相當，使用的環境與頻率卻往往不同。如錢乃榮(1992:1010)指出，吳語一般的口語喜歡用話題句（即不加「拿」或「撥（＝被）」的SOV或OSV），而少用處置式或被動式。閩南語大致也是如此。此外，閩南語的ka雖說有時相當「把」，可是在用法上有許多獨特之處（如有的方言「把」的賓語不能是一般的名詞，而得是稱代詞）。因此處置式看似普遍，但是卻隨著方言展現種種不同的風貌。

從方言來看，過去把「把」處置式視爲SOV的特徵且該特徵是受北方游牧民族的影響的看法是有問題的，[33]因爲處置式在南方也是相當普遍的。除非能証明南方方言也是受北方方言的影響，否則僅從現代方言的分布作爲立論基礎恐是不足的。

3. 對處置式起源問題的檢討

以上略述了筆者對史上幾種處置式的一個觀察，現在我們就利用它來對處置式的起源問題重作一番檢討。在進行檢討之前，有兩點想先釐清一下，這將有利於以下討論的進行。其一是處置式的句式和次動詞的虛化是應該分開的兩件事，不可等同視之。有了處置式的形式未必就代表次動詞的虛化。如普通話的「拿」雖有甲類句，卻仍是動詞。怎樣的次動詞會虛化，是否虛化，虛化所費的時間多長，這些問題都和處置式的句式什麼候產生及怎麼產生的問題性質是不相同的。其二是處置式的發生原因和開展原因應該要分清。在我們看來，部分學者對處置式發生原因的解釋毋寧說是對開展原因的解釋。

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32. 普通話「拿」可以造甲類句，但是應用範圍沒有「把」那麼廣，尤其是用在「處置到」就比較有限度。乙類句大概就只有乙一型，如「拿一本書看」。但是因爲仍是動詞（如可附加「著」），受詞義的影響，它的適用範圍很窄，如不能說「拿一個人打」。「拿」的甲類句各型的適用範圍上的差別應該也和詞義有關。

33. Hashimoto(1976)就主張北方外族語言對漢語有類型上的影響。

以下的檢討原則上就配合1.2節敘述的順序來進行。

3.1　說處置式是來自連動式中次動詞的虛化，這就意涵次動詞在未虛化前，不能算是處置式。可是我們看過去提出連動式虛化爲處置式的理論的學者不一定就把次動詞可能還保持實義的例句排除在處置式之外，可見在語料中作辨識仍是有其困難的。其次，即使連動式的次動詞仍保持實義，當它在功能和次動詞已虛化的處置式並無二致時，我們基於什麼理由說這種連動式並非處置式？這麼做的好處是可以把一個語言演變的規律彰顯出來，但這並不意謂著就可以很容易的去區辨次動詞的虛化與否，也容易使人忽略掉虛化後不僅可保持句構，有時還會維持相當的功能。以是否虛化來區辨是否處置式，可能會造成同性質的句式被視爲兩類而忽略其同。如普通話「拿」仍是動詞，中古的「持」「將」「把」可能也有相當長的時間是動詞，可是這些詞在甲類句的句式和功能都和上古虛化的「以」相當，那麼是否只有後者才應該算作處置式呢？在這裏，我們並非反對處置式這個名稱以及虛化理論，只是想指出：具有處置式形式的連動式和次動詞已虛化的處置式在實際上並不一定可以作嚴格區分，因此在能區分之前，本文把二者一律都稱作處置式，和過去提出虛化說的處置式含義不同。[34]

3.2　以「以」歷史早於「將」「把」，而「以」又有工具式和甲類句，因此就斷定「以」類化了「將」「把」，並促使「將」「把」分析爲介詞，這可以說是相當自然的想法。不過類化這個原則也不可濫用。如果說「將」「把」在沒有和「以」相當的處置式之前，僅依賴「以」和「將」「把」同義以及「以」有處置式，就可以使得「將」「把」產生相應的句式，這就是值得討論的看法。因爲在「將」「把」產生處置式之前，「將」「把」應仍是動詞，那時「以」就已經虛化了，這就缺乏了類化的條件（因彼此全無共通之處）。至於說「將」「把」先有和「以」相當的

34. 我們固然可以把虛化前的句式稱作「準處置式」來和處置式作區別，但這仍然面臨到實際上怎麼區別二者以及在作比較時稱呼上易致困擾的問題。

連動式，然後「以」促使「把」「將」重新分析爲介詞而造成處置式的看法也不無問題。首先，在「把」「將」虛化之前，「以」就已經沒落了。其次，「以」只有甲類句而無乙類句，它頂多只能促使「將」「把」在甲類句中的虛化。如果它在「將」「把」產製乙類句之前就使「將」「把」完成虛化，那麼「將」「把」的乙類句應無從發生。乙類句的產生須在「將」「把」仍爲動詞時才有可能，這也可以說明已虛化的次動詞爲何不能再產生乙類句。最可能因「以」而虛化的應該是「持」，因爲二者時間上相銜接，也都只有甲類句而無乙類句。唯一的問題是我們還不大能斷定「持」後來是否虛化或者虛化程度是否和「以」相同。按照我們的看法，次動詞的虛化可以是自然的演化，不一定是受到其他詞的類化。「持」的「處置作」有可能是受到「以」的類化，但是這應是建立在「處置給」「處置到」句式既有的雷同上，而不是因爲詞義的類比。「持」的「處置給」「處置到」可能都是連動式普及下的自然歸趨。只有「處置作」還難說，因爲它需要次動詞和「爲（作）」緊密的配合，因此就有可能是在「以」「持」都共有「處置給」「處置到」而後類化完成的。不過類化不是造成「持」產生「處置作」的唯一解釋，因爲我們認爲普通話「拿」的「處置作」就不是由「把」類化而產生的。

3.3　以「被」字句作爲引致處置式產生的原因，這是著眼於處置式的句型來源。提出這種構想的一個出發點是將「把」「被」當作格標記來看，也就是說是依據有了施事標記就應有受事標記的想法來的。但是即使僅就初期處置式而言，「將」「把」都不一定只是標示受事，如例68引介的是終點而非受事。再者，魏培泉(1994)指出，被動式的「被」從來不是介詞，而是母句動詞，因此結構和處置式是不能相提並論的。又其次，要說被動句和處置式有關係，也還得辨清是否包括甲類句。含施事的「被」字句是到隋代才有較多的用例，可是處置式甲類句卻早已有之，至少「持」的引介受事不可能自「被」字句來。即便是「將」，最早也多是甲類句，動詞爲三元動詞，可是被動式卻很少是三元動詞的，何況「將」處置式產生的時期也不見得晚於含施事的「被」字句。因此至少「將」甲類句的產生和「被」字句毫無關係，能連上關係的頂多只能就乙類句而言。此外，

如果說「被」是施事標記，那麼要和受事相對比可以採取的方式也不止一途。例如現代方言也有用話題句來替代處置式的功能的，此其一。在動詞前要分辨施事、受事，可以只用「被」來標示施事，而用ϕ來標示受事，一樣可達到區辨的效果，此其二。最後，要選擇和「被」對比的受事標記，所選擇的何以是「把」「將」而不是其他的詞也是問題。

被動式造成處置式的另一個構想是被動句有處置特徵。這個構想所指的處置特徵就是動詞有體貌詞尾（如「了」）或者是有動補結構。但是我們知道，初期的乙類處置式是沒有這種特徵的，而且在乙類句產生之前被動式的例句中具有這種特徵的是相當少的（詞尾「了」甚至尚未發生）。至於甲類句和被動式更難談上什麼關係了。一則孰前孰後尚成問題；二則甲類句是用三元動詞的（「處置作」則不論），被動式則幾乎都是二元動詞。

3.4　如果主張處置式的產生是因爲動詞後成分的限制而使賓語提前，那也得把甲類句和乙類句先分開來說。初期乙類句是乙一型，並不存在動詞後成分的限制問題，何況當時的使成動補結構也不算十分發達。再說現代方言也還是有乙一型，或是賓語、補語共現於動詞之後的。[35]如果單就甲類句而言，把動詞賓語分配給次動詞的趨向的確是早就有的。不僅「將」「把」，更早的「以」「持」都是。不過這種規則僅限於三元動詞，而且有時提賓卻不一定是因補語的擠壓造成的。如下面二例動詞後是空的。[36]

93. 將一長刀，向菩薩擲。（《佛本行集經》788頁上）

94. 火急將吾錫仗與。（〈大目乾連冥間救母變文〉，《敦煌變文集新書》70頁）

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35. 如使用「把」的渭南方言就有乙一型。閩南語雖不用「把」，但乙類句也有乙一型。長沙方言可以在補足記號「得」後同時有賓語及補語的（事實上這也是延續歷史的，如《朱子語類》就有同樣的句法）。

36. 其實在六朝時就有如下的句式：

1.(NP)＋持＋(NP)＋{著，與…}＋(NP)

不過當時「著」「與」是否已分析爲介詞是一個問題（參魏培泉(1993)），所以我們並未拿來作爲動詞後成分限制說的反證。

我們認爲，如果只談乙類句，那麼動詞後成分的限制不會是它的起因，因爲這種限制的成立是在乙類句相當普遍之後的事。實際上應是乙一型先產生了，相應的動詞之後就有了容納其他成分的空間，這種分散成分的便利才使得乙二型更加發展開來，然後才有今日的成分限制。但是否要接受一個表面結構上的限制，則還要視方言而定，因此在傳統文獻及現代方言中都可以看到不遵守普通話表面結構限制的現象。

3.5　以下再針對幾個學者的看法來加以檢討。其意見有上述困難的，就不再作重複的批評。

3.5.1　Huang(1986)以爲連動式的次動詞「將」受「被」的影響而重新分析爲介詞，然後「把」再以詞彙替換的方式接替了「將」。

關於「被」使「將」虛化爲介詞的困難已如前述，不必再談。他理論中特別的地方是「把」對「將」的詞彙替換關係。其立論的出發點是初期處置式「將」多於「把」，因此「將」應前於「把」。但我們覺得他應把處置式的甲、乙類分開來看。如果就初期乙類句而言，「將」和「把」哪個較多或哪個在前仍是問題，所以若說詞彙替換，也不知哪個替換哪個。更成問題的是，假如「將」先已虛化，而「把」還是動詞，那麼兩個詞性、意義不同的詞如何進行詞彙替換呢？只有假定詞義、詞性和「把」相同的動詞「將」同時常用才有可能造成這種替換的結果。如果句型的產生可以僅憑這樣的詞彙替換，我們就可以把處置式的詞彙替換推得更前。如「以」「持」和「將」都有相似的甲類句，是否也可按其時代先後說「將」替換「持」，「持」替換「以」呢？

3.5.2　梅祖麟(1990)將處置式分爲三型。甲型即「處置作」「處置給」「處置到」；乙型、丙型都是用二元動詞，而乙型是動詞有狀語或補語修飾的，丙型則只有動詞，無修飾成分。他認爲甲型是源、丙型爲流，又認爲乙型、丙型是由甲型發展而來。他特別提出受事主語句在處置式的產生上居關鍵地位。處置式興於南北朝，當時受事主語句已形成。爲了和被動式作區別，就在受事主語句上加上「將」「把」即成處置式。此外，處置式是由甲型擴充到乙、丙型的。但他同時又認爲丙型的產生又不同，因爲不能直接加「把」「將」而成。同樣的，「以」雖也有甲型，但因更早並

無相應的受事主語句，所以產生的歷程也和「將」「把」不同。

關於他理論中被動式的問題這裏不再提及。他理論中特別有異於人的是認爲處置式的產生是在受事主語句上加上「將」「把」而成。這個看法的問題是：若處置式只是受事主語句加「把」「將」而成，那麼它的施事主語從何而來？更有進者，「把」「將」是怎麼產生的？怎麼會被選來和「被」作對比而不是由其他的詞來擔任？由於他把處置式和受事主語句關連起來的構想是來自普通話的受事主語句通常是有補語的，因此在推尋處置式的來源時，不能不把他的丙型句（亦即無狀、補語的乙類句）排除在外。他對這個例外的解決方式便是把丙型視爲旁支，不是主流。他這樣做的缺點是把他的丙型和乙型割裂開來，視爲不相干的演變，而且等如把丙型前於乙型的事實推置一邊。然而事實上，一則丙型不僅見於古文獻，在現代方言中也還保存著；再者，現代漢語或中古漢語的受事主語句和處置式在搭配補語上也不見得一一對應。此外，採用這一套解釋不僅造成對「以」處置式的起源問題放棄解釋，連帶地也不能處理「持」處置式的起源問題。

3.5.3　Her(1990,1991)提出「以」類化「將」，「將」類化「把」的理論，並預測「把」也會類化「拿」。而時間居後者之所以會受到居前者的類化，是因爲居前者所負擔的功能過多，需要其他的詞來分擔部分的功能，這就是一種「精化」(functional refinement)。類化原則和精化原則互爲推拉，就造成語言不斷的變動。在他的理論架構中，一個動詞會受到類化而獲得另一個詞的功能與句式，主要在於享有共同的詞義。這樣看來，甲詞只要具有和乙詞一樣的詞義便可模仿乙詞而產生同樣的功能和句式。從Her的理論中可以看出他並不支持處置式來自連動式的說法。

Her用兩個原則的共同作用來解釋語言的不斷變動，就理論而言是很吸引人的。不過驗諸實際的情況，這種推拉造成處置式演變的理論似乎不能符合事實，至少我們也看不出精化原則可以用來解釋他所說的演變。例如他說「將」因類化而得到「以」的工具式及處置式的功能，接著「把」也得到「將」的工具式及處置式的功能，接著「拿」可能也會取得「把」的這些功能。在他描述的變化中，我們只看到類化，而沒看到他所謂的精化。他的處置式歷史是「以」「將」「把」前後相繼。當「將」興盛以

後，「以」就淘汰了；當「把」興盛以後，「將」也就淘汰了。居後者並沒有和居前者分攤功能，它只是把居前者排除掉了。精化原則即指功能的分攤，但是卻沒有在他所陳述的歷史中得到証實。再者，要談精化，似乎也不能忽略「用」，至少「用」保有了工具式的用法，並且也曾在不同時代和其他的詞有過功能上的重疊。他的類化說可能也失之過簡。甲詞只要和乙詞具有相同的詞義以及詞性就可以進行類化而取得乙詞的功能或句式，就好像一套既有的公式，只要代入同義的詞彙就完成一次演變。那麼這個原則付諸實際又怎樣呢？首先，他的應用至少有一點不太對。因爲「以」虛化得相當早，如何能使後來詞性、詞義都不同的「將」產生類化而取得「以」的功能或句式呢？其次，詞義相同未必即可替換而取得相同的功能。例如「用」在先秦有一個階段和「以」同義，但是「用」一般只用在工具式及「處置作」，它的「處置給」例子罕見，而且這些例子的出現也遠在先秦之後，而「以」的「處置給」在先秦已相當流行。「用」的「處置給」很可能是因爲和「以」有句式上的雷同而類化的，而不是因爲同義關係。「以」後來發展出「處置到」，「用」也沒有平行的發展。因此事實上，「用」「以」的關係基本上是維持著先秦的情況，一直到「以」沒落爲止。此外，「將」的乙類句用法是新的功能，是「以」所無，這是不能靠類化產生的，他對這點也只是承襲過去「將」受「被」類化的說法。

4. 結　論

語料中所呈現的處置式歷史表面上看有時像是一個循環的過程。後起者取得了居前者的全部功能，然後將居前者加以吞併而取代它。從先秦到西漢，「以」發展完成處置式甲類諸型；然後，從東漢到六朝，「持」又成爲甲類句的主流；從隋唐到宋，「將」不僅取代「持」成爲甲類句的主流，也是新生的乙類句的主流；到了明清，「把」又成爲甲、乙類句的主流。這其中又可大分爲兩個階段。在隋以前，幾乎就只有甲類句而沒有乙類句，乙類句是在唐代才得到開展的。以上所述只是個概觀，有些旁出的現象需要更深入的審視才會呈顯出來，如先秦「用」和「以」的關係或者

元明以後丙類句的發展等。

上頭所呈現的各領風騷的局面其實是相當浮面的觀察。如果把它當作一種前後相繼的過程，那麼只是把語言史當作單線式的演化來看。要是我們把這語言的演變史與政經文化史對照著看，不免就會對這種單線思維產生懷疑。我們發現，這些新舊處置式輪替之時往往也正是政治勢力移轉的時候。如「持」突然流行起來是自東漢佛經開始，當時的政治中心和西漢時是不一樣的。「將」的湧現且壓過「持」是在隋唐。由於當時是北方統一了南方，北方於是又成爲政經的焦點，不免將先前南方在文化上的優勢遮蓋了去。「把」盛於明清。當時不僅政經中心和宋代不同，北方的族群和南宋之前也有相當的差別，因爲南宋時有大量的人口由北往南移。由此看來，新處置式的產生可能和優勢方言大有關係。作爲政治中心的方言往往是優勢方言，而優勢方言的語言現象往往也較能反映到文獻上。這可以說明爲何政經中心或勢力移轉到其他區域時，文獻上的語言有時也可以看到變化。這其中尚需補充說明的是東晉和南宋人口移徙時的方言變化問題。六朝的語料中「持」的使用似乎一直保持著，直到隋代才由「將」取代，所以看來南北方言似無不同。但我們應知，東晉人口即使大量南移，導致方言分布的變化，但是北方文化顯然居於弱勢，所以在六朝的語料中，其語言所反映的可能是比較接近以南京爲中心的普通話，而這普通話應該也繼承了不少東漢以來普通話的成分。「將」也許早在隋以前就在北方的西安流行了。隨著北人重掌政權，普通話的方言基礎也就改變了。「把」在北方逐漸壓過「將」，這種轉變也許自金就已發生，只惜今日流傳的南宋口語材料顯然以南方佔絕大多數。「把」的勢力的展現是到元代才逐漸在文獻中浮現出來。

我們這裏想強調的是：漢語從來是多線發展的，但是有幸有不幸，有的方言比較有機會將其特點反映到文獻上，而通常政經中心所在的方言區是比較能獲得這個機會的。當政經中心一移轉，不同方言所帶的不同語言色彩就有機會反映到文獻中。由於文獻中新舊處置式的輪替恰好和政治勢力的移轉相平行，因此我們相信這種輪替不是同一方言區前後的變化，而是方言勢力的興替。所以從文獻上看來，是後起者統一並吞併前者，可是實際上方言的分異一直是存在著的，儘管各方言本身也是會變的。舉例而

言，「將」原是唐宋處置式的主流，但因南宋時人口的大量南移，導致北方方言勢力的改變，而後在明清時「把」就成爲處置式的主流，「將」則保留在南方的粵、客、閩等方言中。有時方言的特點也會隨著政經地位的移易而沒落，如「持」似乎不見於今日的方言，可能和它沒落得早，沒機會發展出乙類句有關。

以上的看法也和我們怎樣對待處置式的起源問題是密不可分的。當我們說乙方言的處置式取代了甲方言的處置式時，我們並非指乙方言是以詞彙替換的方式來獲致處置式的。我們其實是說，當乙方言成爲新的優勢方言之前，就已經有了自己的處置式，乙方言只是取代甲方言成爲新的普通話或通俗文獻上的通用語，但別的方言仍可維持自己的發展。這個觀點可以驗諸處置式及工具式的歷史。雖說文獻上所反映的處置式的歷史是：「持」接替「以」，「將」接替「持」，「把」接替「將」，但是這些接替者誕生的時期未必就在新舊交替間。如「持」「把」的甲類句並不晚於秦漢之際；「把」的「處置到」甚至和「以」的「處置到」的產生時期略相當。至如工具式，則「持」「將」都已見於先秦。「將」「把」的處置式在西漢之前沒有得到充分的發展，就不只是類化或單線性思維可以說明的。

依我們的看法，有史以來，連動式一直是漢語的一個語言現象。最初它創造了「以」的「處置給」和工具式（「處置作」稍後再談）。「處置給」的創造，建立了把三元動詞的受事賓語分配給次動詞的模式。由於先秦介詞「於」仍肩負著引介終點的功能，所以「以」的「處置到」並沒有隨著「處置給」立即產生。大約到秦漢之交，「處置到」才出現，同時「於」在引介終點的功能上的地位也逐漸失去。就古漢語的發展而言，只要有連動式，和「以」同義的詞就很容易產生工具式。只要將三元動詞的受事賓語分配給次動詞的模式一建立，凡是能常用作次動詞並能分攤三元動詞的受事賓語的動詞就有機會建構甲類句的句式。如果這動詞意義夠寬泛，且動作時間一般和其後的三元動詞相重疊，那就很容易成爲甲類句的常式（意義較特定的「取」雖曾有甲類句的例句，但卻不能成爲甲類句的常式）。因此「持」「將」「把」的甲類句或工具式在西漢以前就出現並不是件奇怪的事。它們能不能出頭的關鍵是在歷史是否給與機會，如其所

屬的方言成爲優勢方言即是一個好機會。

現在我們可以進一步來談漢語史上工具式及甲、乙、丙三類處置式的起源與過程，以及其在類型學上的意義了。

在不同的時空中，漢語以更換次動詞的模式不斷地呈現同樣的句型，所依賴的不止是次動詞詞義的相同而已，主要還在於漢語的結構類型提供了那些同義詞在同一句型中充作次動詞的環境。

只要是具有「使用」或「執持」義的動詞就很容易借連動式造成工具式，無論它後來是否虛化。因此「以」「用」「持」「將」「把」「拿」…等都有引介工具語的用法。當具有特定意義的動詞成爲次動詞且分攤三元動詞的受事賓語的模式成爲一種結構類型時，就很容易延伸到具有相類意義的動詞上。「以」和「持」「將」「把」「拿」的「處置給」或「處置到」句式的產生即是這種結構類型下的產物，而不應只是倚賴和他詞詞義相同而類化產生的。「取」也可以作次動詞而造出甲類句的句型，但它的意義內涵超出「執持」（外延則較窄），因而難以成爲常用的處置式（它應仍是保存爲連動式或甚至可分析爲複句，主要是因爲「取」和其後的三元動詞不容易合併爲一個時間上不可分的動作）。

「使用」義的動詞似乎比較不能造出「處置給」及「處置到」的句型的。因此「用」雖然在上古就如同「以」一樣有工具式和「處置作」的用法，而且到今日引介工具語主要還是用它，但它在「處置給」「處置到」的句型上幾乎沒有得到發展。從它不太受到「以」的類化上看，可以說明次動詞的詞義可以一直保持著，並且可以控制句式的發展。

「處置作」的來源最難確定，其次動詞可能是源自「使用」義的動詞（「以」「用」即是例子），或者也來自「執持」義的動詞（「持」「將」「把」「拿」等都有「處置作」）。「以」在先秦就有「執持」和「使用」二義，因此「持」「將」「把」的「處置作」的產生既可能是連動式的自然歸趨，也可能是受「以」的類化所致。假如是類化，那麼類化的基礎就不在詞義和「以」相同，而是在於都共有「處置給」「處置到」的句型。從普通話「拿」「把」都有甲類三型而「把」早已虛化這點看，「拿」的甲類三型不大可能是受「把」的類化產生的。因此「處置作」的產生也是有可能是來自連動式。

乙類句也是來自連動式的。當連動式中的主要動詞的賓語可以在和次動詞的賓語同指的條件下而省略時，乙一型就產生了。「將」「把」的乙一型從唐代開始流行，就是因爲這樣的條件已經成熟。由於乙一型在動詞後的位置上留下可供補語發展的空間，因而隨著動補式的逐漸廣用，就在乙一型的基礎上很自然地產生了乙二型。乙二型的特點是可以使賓、補語分別由動詞前後的位置來分攤。這樣的結構類型建立以後，對方言的影響是相當廣泛的，因爲即使在南方的方言中這種句型也是相當普遍的現象。這種類型擴大到不同的方言，並非只是單純的詞彙的替換，且都維持相同的功能。因爲乙二型在方言中的差異不僅是次動詞詞彙的參差，而且在使用的限制上也是有不同的。例如在普通話使用處置式的場合，其他方言未必用處置式表達，且動詞後的成分限制或動詞小類的限制也不是處處皆同的。

丙類句的起因可能源自對「把」功能所作的重新分析。這種變化一直局限於方言，因此在文獻及現代漢語方言中都不普遍。

綜合上述，甲、乙類處置式大體是來自連動式的。隋以前基本上只有甲類句，當時流行次動詞分攤三元動詞的受事賓語的句型。隋以後，乙二型因補語可以得到較充分的擴充而成爲一種普遍的結構類型，但是其基礎則來自具有乙一型句型的連動式。因爲有這樣的結構類型而造成不同的詞一再的構建出同樣的句型，而會有這樣的結構類型也正基於漢語有連動式。漢語會有創造處置式的連動式至少和漢語具有一些類型特徵是相關的。這些特徵如「主題標顯」(topic prominent)、「代詞刪略」(pro-drop)、形態缺乏、X標槓結構限制等。[37]這些特徵所造成的一些現象是造成連動式或處置式產生的先決條件，如複指不必有外顯的語音形式、複句可以緊縮到和單句難以區別、主要動詞和次要動詞或介詞在形式上難以分辨、次動詞位居主要動詞之前等。

37. X'標槓結構限制爲Huang(1982:41)提出，其主要意旨是：漢語的表面詞組結構，除了最小的V'以外，都是中心語在後的。

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Toward a Typology of Tense, Aspect and Modality in Formosan Languages: A Preliminary Study[1]

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Abstract

This paper deals with the temporal/aspectual and modal systems of five Formosan languages (Atayal, Bunun, Rukai, Saisiyat and Tsou) which have been selected for their geographic dispersion as well as their syntactic diversity. We show that all these languages exhibit a basic distinction between non-future/realis (in which situations are viewed as having occurred or as actually taking place) and future/irrealis (which refers to conditions or predictions), but display various degrees of complexity. We also argue that in order to understand the temporal/aspectual and modal systems of these languages, all the constituents of the sentence must be taken into consideration. It enables us to account for the possible and impossible co-occurrences of auxiliary verbs with pronominal clitics in Atayal (Wulai) or with case markers in Tsou.

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To avoid any confusion, we use IPA symbols throughout the paper. The following abbreviations are used in the glosses: Act: Active, Adv: Adverb, AF: Agent Focus, Asp: Aspect, BA: Bound Accusative, BF: Benefactive Focus, BG: Bound Genitive, BN: Bound Nominative, Caus: Causative, Comp: Completive aspect, FL: Free Locative, FN: Free Nominative, FO: Free Oblique, Fut: Future, Gen: Genitive, Hab: Habitual, IF: Instrumental Focus, Irr: Irrealis, LF: Locative Focus, Loc: Locative, NAF: Non Agent Focus, Neg: Negation, Nom: Nominative, Obl: Oblique, P: Plural, Pass: Passive, Prf: Perfective, PF: Patient Focus, Real: Realis, Red: Reduplication, S: Singular, Top: Topic.

Introduction

In the past decades, preliminary studies of Formosan languages have mapped their phonologies to a considerable extent. There is still little understanding, however, of the syntax of the vast majority of these languages, not to mention the variations that divide each language family. With the exception of the analyses provided by Ferrell (1972) and Starosta (1974, 1988 and 1992) and more recently by Huang (1994) and Li (1994), there have been virtually no comparative studies based on first-hand data. Such studies are needed to clarify the still-controversial relationships of the Formosan languages with respect to one another and to languages spoken outside Taiwan.

The present paper being part of on-going research on the grammatical typology of the Formosan languages, we do not intend to discuss here the genetic relationships of these languages, nor do we try to reconstruct the proto language from which they are derived. Our aim is to present a typological overview of the temporal/aspectual and modal systems of five of these languages: Atayal, Bunun, Rukai, Saisiyat and Tsou, which were selected for both their geographic dispersion and syntactic diversity.

Geographically, these languages stretch from north to south and east to west. Atayal is the most widely spread language: it is found in northern (Ilan, Taipei, and Taoyuan counties), north-western (Hsinchu, Miaoli and Taichung counties), central (Nantou county) and eastern (Hualien county) areas of the island. Saisiyat is spoken by a small community in the north-west (Hsinchu and Miaoli counties), Bunun in central and southern Taiwan, Tsou in the south-west (Mount Ali area). Rukai stretches throughout the south (Taitung, Pingtung and Kaohsiung counties). All these languages include a number of dialects.[2] These may differ only

2. Because of limitations of both space and time, we have been obliged to select from each language a representative dialect on which to base our discussion. Atayal consists of two major dialects, Squliq and C?uli?. We selected Wulai to illus-

phonologically (e.g., Tsou, Saisiyat) or diverge also syntactically (e.g., Rukai, Atayal, Bunun).

Syntactically, all these languages are basically verb-initial.[3] The post-verbal order of the NP arguments is more or less fixed and determined by a series of syntactic and semantic factors that will be discussed in forthcoming papers.

With the exception of Rukai,[4] all these languages pattern alike in that the semantic role of the NP selected as subject is marked morphologically on the verb by means of an affix. Two kinds of constructions can be distinguished: in the first, the agent is the focus of the clause (in so-called A(gent) F(ocus) constructions); in the second, an NP other than the agent can function as subject (in N(on)-A(gent) F(ocus) constructions), the verbal affix determining its semantic role (either theme/patient, source/goal/locative, instrument or benificiary).[5] This dichotomy is illustrated in (1a) and (1b) respectively.

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trate only the former. Bunun is made up of five dialects, Takituduh, Takibakha, Takbanuað, Takivatan and Isbukun, the last of whick will be the object of our study. Finally, Tfuya and Budai were selected as representative of the Tsou and Rukai languages respectively. The data on Saisiyat (Tungho dialect) is based on Yeh (1991).

3. Note that Saisiyat displays SVO word order in ellicited sentences, supposedly under the influence of Chinese (Yeh, 1991:34-36), but VSO word order in folkstories and traditional songs.
4. For reasons still ill-understood, the Rukai dialects lack the verbal affixes (e.g., AF -um-, LF -an, PF -ən, IF si-) found in the other Formosan languages. On the other hand, the Rukai dialects have developed an active/passive voice dichotomy not found in the other Formosan languages. Compare (i) and (ii).

   (i) Budai
   w-a-sititi-aku ki lampaw
   [Act-Real-beat-1S.BN Lampaw]
   'I am beating/ beat Lampaw'

   (ii) Budai
   ki-a-sititi nakuanə ku lampaw
   [Pass-Real-beat 1S.FO Lampaw]
   'Lampaw is/was beaten by me'

5. To simplify, we will purposely ignore the morphological variations that divide these languages and will not explain in detail the semantic function of each of the verbal affixes. We may say briefly that in AF constructions, verbs are usually marked with -um-, m-, ϕ, etc., while in NAF constructions, they may be suffixed with -un (PF), -an (LF) or prefixed with s-, si-, ?is- (IF/BF).

(1) Atayal (Wulai), Huang (1993:10-11)

a. t〈m〉tu? tali? qhuniq
[crush〈AF〉 Tali? tree]
'The tree crushed Tali?

b. t?-an qhuniq tali?]
[crush-PF tree Tali?]
'A tree crushed Tali?'

These languages differ, however, in a number of respects: (1) some of these languages/dialects preserve a nominal case marking which has been lost in others (e.g., Mayrinax vs. Wulai in Atayal);[6] (2) while the nominal case marking of most of these languages (e.g., Atayal and Rukai) is based on the categorial nature of the referent NP, i.e., common nouns are marked differently from personal nouns and kinship terms, Tsou has developed a complex system in which the referent is localized in relation to the universe of discourse;[7] (3) some languages (e.g., Atayal and Tsou as opposed to Rukai or Bunun) have a system of auxiliary verbs which usually occur in clause-initial position. These auxiliary verbs are not syntactically required for a sentence to be well-formed in Atayal (Wulai), but they cannot be omitted in Tsou.

Before starting, we must make it clear that since we did not want to adopt a taxomonic analysis but because of limitations of both time and space, we will not present in detail the temporal/aspectual and modal systems of each of the languages/dialects being compared. Instead, we will raise some issues that will be discussed in a typological perspective. That is, we will try to show how these languages resemble each other and in what respects they differ from one another, by adopting a semantic/functional approach. More specifically, we will show that all these languages exhibit a basic distinction between non-future/realis and future/irrealis with various degrees of complexity, and argue that in order to under-

6. See Li (1994) and Huang (1994 and 1995).
7. See Zeitoun (1993).

stand their temporal/aspectual and modal systems, all the constituents of the sentence must be taken into consideration.

1. The Non-Future/Realis vs. Future/Irrealis Dichotomy

1.1. Against a tripartite dichotomy (Past, present and future)

Following a traditional current in general linguistics, Li (1973:157) analyzes the temporal/aspectual system of Tanan Rukai as based on a tripartite distinction between past, present and future. As illustrated in Table 1, he finds that these tenses are realized respectively by the affixation to the main verb of wa-, ϕ and ay-.

Table 1: Li's (1973:157) classification of tense and aspect in Rukai (Tanan)

Active voice

Aspect Tense	Plain	Completive	Continuative
Present	kanə	kanə-ŋa	kanə-kanə
Past	wa-kanə	wa-kanə-ŋa	wa-kanə-kanə
Future	ay-kanə	ay-kanə-ŋa	ay-kanə-kanə

Passive voice

Aspect Tense	Plain	Completive	Continuative
Present	ki-kanə	--	kanə-kanə
Past	ki-a-kanə	ki-a-kanə-ŋa	ki-a-kanə-kanə
Future	ay-ki-kanə	ay-ki-kanə-ŋa	ay-ki-kanə-kanə

Note, however, that his analysis cannot account for the ungrammaticality of (2) and the ambiguity of (3a).

(2) Rukai(Tanan)

*kanə	kuani	umas	sa	aga
[eat	that	man		rice]

(3) Rukai (Tanan)

a.

wakanə	kuani	umas	sa	aga
[eat	that	man		rice]

i. 'The man is eating the rice'

ii. 'The man ate the rice' (Li 1973:158)

b.

wakanə	kuani	umas	sa	aga	kuðaa
[eat	that	man		rice	yesterday]

'The man ate the rice yesterday'

c.

wakanə-ana	kuani	umas	sa	aga
[eat-still	that	man		rice]

'The man is eating the rice'

The ungrammaticality of (2) shows that the 'plain' form kanə is never used as such; it is a root form. On the other hand, a verb prefixed with wa-[8] does not refer to the past only, but may refer to either a past or a present event. In that respect, (3a) is ambiguous. The past/present interpretation of an utterance depends on the occurrence of (i) a temporal adverb as in (3b) or (ii) an aspectual affix as in (3c). Note, finally, that the notion of tense (past, present and future) does not account for the dichotomy (past/present vs. future) between (3) and (4).

(4) Rukai (Tanan)

a.

(a)y-ua-su	inu ?
[Fut-go-2S.BN	where]

'Where will you go ?'

8. We believe that wa- should be treated as w- + a-, where w- marks the active voice (in contrast with ki- which indicates passive) and -a- refers to a past/present situation. Arguments to justify this position are given in Zeitoun (1995).

b. ay-tumawlay-aku kyasa
[Fut-tell tale-1S.BN now]
'I shall tell a story now'

A comparison of these examples clearly shows that Tanan Rukai establishes a basic distinction between future and non-future. Though Tanan and the other Rukai dialects as a whole differ from the other Formosan languages in their voice system, all these languages pattern alike in that respect. In Zeitoun et al. (1996), we show more specifically that the non-future/future distinction may be reflected in some languages/dialects (e.g., Tsou, Atayal (Wulai), Saisiyat) as a realis/irrealis distinction. The term "irrealis" designates the fact that in some languages, future markers function in fact as modals. The main difference between languages exhibiting a non-future/future temporal system and those displaying a realis/irrealis dichotomy lies in the means they employ to mark tense, aspect and modality, either morphological (e.g., use of affixation and reduplication) or lexical (e.g., use of auxiliary verbs).

Below, we will show that (i) not all the Formosan languages exhibit a clear-cut distinction between focus and tense/aspect, and (ii) the non-future/realis vs. future/irrealis dichotomy is supported by a number of evidence. We will discuss these two points in turn.

1.2. Focus and tense/aspect distinctions

The Formosan languages, like the Philippine-type languages (see Reid, 1992), have a complex system of verbal morphology. It includes distinctions of voice (or focus), tense/aspect and modality. An important point to notice is that in the absence of temporal/aspectual or modal affixes/particles or auxiliaries, focus affixes carry temporal/aspectual or modal information. As illustrated in (5), when the temporal frame is left unspecified, the AF m-forms (realized as -um, -m-, m-, ϕ etc.) are found to refer to situations having either occurred or actually taking place (non-future/realis).[9]

9. The same could be said of NAF constructions, see Zeitoun et al. (1996).

(5) a. Atayal (Wulai)

m-qwas qutux knerin

[AF-sing one woman]

'A woman is singing/ sang' (Huang 1993:41)

b. Bunun (Isbukun)

ma-ɓaliv-ik tu tasa tu lumah

[AF-buy-1S.BN one house]

'I am buying/ bought a house'

In co-occurrence with temporal/aspectual or modal affixes, temporal adjuncts or auxiliary verbs, focus affixes retain their primary function; they indicate the semantic role of the NP selected as focus. In other words, whether (AF) m-forms are found in the realis as in (6) or in the irrealis as in (7), they do not carry any temporal/aspectual or modal information.

(6) Atayal (Wulai)

a. m-qinah tali? hira?

[AF-run Tali? yesterday]

'Tali? ran yesterday'

b. m-qinah tali? kryax

[AF-run Tali? every day]

'Tali? runs every day'

c. m<in>wah tali?

[AF<Prf>come Tali?]

'Tali? came'

(7) a. Atayal(Wulai)

musa? m-qwas qutux knerin

[Asp AF-sing one woman]

'A woman will sing'

b. Bunun (Isbukun)

na-ma-ɓaliv-ik tu tasa tu lumah

[Fut-AF-buy-1S.BN one house]

'I want to/will buy a house'

Conversely, in the absence of focus affixes on the verb, a temporal/aspectual affix may carry voice distinctions. In a number of languages (Atayal and Bunun among others), the aspectual infix ⟨in⟩, which indicates perfectivity, is used as a PF marker. Compare (8) and (9).

(8) Atayal (Wulai)

p⟨in⟩aŋa?=maku? laqi? qani

[⟨PF/Prf⟩carry=1S.BG child this]

'I (once) carried the child on my back'

(9) Bunun (Isbukun)

l⟨in⟩uɗah-ku? takna? hay minsum-aŋ

[⟨PF/Prf⟩beat-1S.BA yesterday Top come-still]

'The one beaten by me yesterday came again'

1.3. Arguments for a non-future/realis vs future/irrealis dichotomy

1.3.1. Morphological marking

Morphologically, different types of affixes/auxiliary verbs will be used in the realis and in the irrealis. In Atayal (Wulai), verbs occurring in AF constructions are usually prefixed with m- or infixed with ⟨m⟩ in the realis. They are marked with p- in the irrealis. This contrast is illustrated in (10a-b).

(10) Atayal (Wulai)

a. m-qwas=saku? (hira?/ *suxan)

[AF-sing=1S.BN (yesterday/ *tomorrow)]

'I sang (yesterday)'

b. Huang (1993:11)

p-qwas=saku? (suxan/ *hira?)

[AF-sing=1S.BN (tomorrow/ *yesterday)]

'I will sing (tomorrow)'

In Atayal, NAF (and more specifically in PF) constructions, verbs are marked with -an in the realis but with -un in the irrealis.[10] In Atayal (Wulai) and Bunun (Isbukun), the instrumental/benefactive foci (s- in Wulai and ?is- in Isbukun) occur in the realis and the irrealis because the NP selected as focus only involves a peripheral argument. Compare (11a-b).

(11) Atayal (Wulai)

a. βhiy-an= maku? tali? (hira?/ *suxan)
[beat-PF=1S.BG Tali? (yesterday/ *tomorrow)]
'Tali? was beaten by me (yesterday)'

b. βhiy-un =maku? tali? (suxan/ *hira?)
[beat-PF=1S.BG Tali? (tomorrow/ *yesterday)]
'Tali? will be beaten by me (tomorrow)'

In Tsou, auxiliary verbs are marked as AF or NAF in the realis (cf. mi- vs. i-; mo(h) vs. o(h)) but are invariable in the irrealis (cf. te, ta, tena, etc.). In both cases, however, the semantic role of the NP selected as subject is marked on the verb by means of an affix. Compare (12)-(13).

(12) Tsou

a. mo-?u	ɓ-aito	to	oko	nehucma
[AF-1S.BN	AF-see	Obl	child	yesterday]

'I saw the child yesterday'

b. o-?u	aiti	?o	oko	nehucma
[NAF-1S.BG	see-LF	Nom	child	yesterday]

'I saw the child yesterday'

10. In other languages (e.g., Bunun), -un and -an occur in contrast, both in the realis and in the irrealis depending on the semantics of the verb.

(13) Tsou

a. te-ʔo ɓ-aito to oko hohucma
[Irr-1S.BN AF-see Obl child tomorrow]
'I will see the child tomorrow'

b. te-ʔo aiti ʔo oko hohucma
[Irr-1S.BN see-LF Nom child tomorrow]
'I will see the child tomorrow'

1.3.2. Syntactic constraints

Syntactically, NAF constructions may be prohibited in the irrealis. Yeh (1991:71ff) argues quite convincingly that in Saisiyat, ʔam 'will' is used in co-occurrence with verbs marked as AF but not with those marked as NAF. A nominalized construction must be used instead in PF constructions to refer to the future. Compare the grammaticality of (14a-c).

(14) Saisiyat (Tungho) (Yeh, 1991:72)

a. ŋyaw ʔam s<om>iʔael ka ʔalaw
[cat will <AF>eat fish]
'The cat is going to eat the fish'

b.* ʔalaw ʔam siʔael-ən noka? ŋyaw
[fish will -PF Gen cat]

c. ʔalaw ka-siʔael-ən noka? ŋyaw
[fish Nom-eat-PF Gen cat]
'The fish is going to be eaten by the cat'
(Lit: 'The fish will be the cat's eating')

1.3.3. Semantic variations

Semantically, AF constructions are opposed to NAF constructions in the realis in terms of imperfectivity (15)-(16a)/perfectivity (15b)-(16b).[11]

11. This imperfective/perfective dichotomy illustrates the transitivity distinctions examined by Hopper and Thompson (1980).

(15) Atayal(Wulai) (Huang 1993:41)

a. m〈in〉qβaq=saku? ke? na? tayan
[AF〈Prf〉learn=1S.BN word na? Atayal]
'I learned Atayal'
(i.e., I may still be learning it; I still can't speak the language)

b. q〈in〉βaq-an=maku? ke? na? tayan
[〈Prf〉learn-PF=1S.BG word na? Atayal]
'I learned Atayal' (i.e., I can speak the language)

(16) Tsou

a. mi-ta m-imo ta emi
[AF-3S. BN AF-drink Obl wine]
'He is drinking wine'

b. i-ta im-a ?o emi
[NAF-3S.BG drink-PF Nom wine]
'He has drunk the wine'

If we accept Comrie's (1976) classification of aspectual oppositions (see Table 2), we can easily account for the fact that (in most languages) AF constructions are commonly used to describe habitual or continuous (progressive and nonprogressive) situations.[12]

12. This does not exclude the fact that in NAF constructions the occurrence of aspectual auxiliaries/particles may yield a progressive reading. Compare (i) and (ii).

(i) Tsou
i-ta ima ?e emi
[NAF-3S.BG drink Nom wine]
'He has drunk wine'

(ii) Tsou
i-ta -n?a ima ?e emi
[NAF-3S.BG -still drink Nom wine]
'He has been drinking wine'

Table 2: Comrie's (1976:25) classification of aspectual oppositions

```
                /          \
        Perfective     Imperfective
                          /\
                Habitual  Continuous
                             /\
                   Nonprogressive  Progressive
```

A comparison of (17b-c) and (18a-b) shows that (i) in the absence of aspectual auxiliaries/particles, there is no neat distinction between the progressive and the non-progressive and (ii) the situational context will determine whether the event referred to has already happened or is actually taking place.

(17) Atayal (Wulai) (Huang, 1993:61)

a. k〈m〉ayan=saku? squ? sunan kryax
[〈AF〉say-1S.BN Loc 2S.FL every day]
'I talk to you every day'

b. k〈m〉ayan=saku? squ? sunan ϕ
[〈AF〉say-1S.BN Loc 2S.FL ϕ]
i. 'I talked/ was talking to you'
ii. 'I am talking to you'

c. nyux=saku? k-m-ayan qu? sunan
Asp=1S.BN talk-AF-talk Loc 2S.FL
i.* 'I talked to you'
ii. 'I am talking to you'

(18) Tsou

a. mo eoβako to oko ?o amo
[AF beat-AF Obl child Nom father]
i. 'Father beat the child'
ii. 'Father is beating the child' (Both unseen at Speech Time)

b. mo -n?a eoβako to oko ?o amo
[AF -still beat-AF Obl child Nom father]
i.* 'Father beat the child'
ii. 'Father is (still) beating the child' (Both unseen at Speech Time)

In the irrealis, no such distinction is found. Compare (16)-(19) and (20a-b).

(19) Tsou
a. te-ta m-imo ta emi
[Irr-3S.BN AF-drink Obl wine]
'He will drink wine'
b. te-ta ima ?e emi
[Irr-3S.BG drink-PF Nom wine]
'He will drink wine'

(20) Tsou
a. mi-ta -n?a m-imo ta emi
[AF-3S.BN -still AF-drink Obl wine]
'He is (still) drinking wine'
b. te-ta -n?a m-imo ta emi
[Irr-3S.BN -still AF-drink Obl wine]
'He is going to drink wine again'

We have shown that all the Formosan languages under study exhibit a basic distinction between non-future/realis and future/irrealis. Below, we will suggest that they display various degrees of complexity.

2. Degrees of Complexity

2.1. Perfectivity/imperfectivity in Rukai

We have shown that in the realis, AF constructions are distinguished from NAF constructions in terms of perfectivity/imperfectivity. This is

true of most, but not all the Formosan languages. As shown in Li (1973) (cf. Table 1), Rukai expresses these concepts through two morphological means, affixation and reduplication (since it lacks the focus system found in the other Formosan languages). In Budai, the affixation (to the verb) of -ŋa 'already' on the one hand and -ana 'still' on the other hand are used to reflect the concepts of 'perfectivity' (or completive aspect) and 'imperfectivity' (or progressive aspect). As an illlustration, consider (21) below. The reduplication of part of the verb stem may either yield a habitual or a progressive interpretation, depending on the constituents occurring in the sentence (e.g., case markers in Budai). This contrast is exemplified in (22a-b).

(21) Rukai (Budai)

a. w-a-tubi-ŋa ka lulai
[Act-Real-cry-already child]
'The child has cried'

b. w-a-tubi-ana ka lulai
[Act-Real-cry-still child]
'The child is crying'

(22) Rukai (Budai)

a. w-a-kanə-kanə-su ka bələbələ
[Act-Real-Red-eat-2S.BN banana]
'You are eating that banana'

b. w-a-kanə-kanə-su ku bələbələ
[Act-Real-Red-eat-2S.BN banana]
'You usually eat bananas'

2.2. Habitual/generic meaning in Tsou

We have argued that in the realis, AF constructions are usually used to describe habitual or continuous situations. In Tsou, habitual and episodic readings are taken over by different auxiliary verbs. Compare the use of ɗa- in (23) to that of mi- in (24). ɗa yields an habitual meaning

while mi- refers to a present situation.

(23) Tsou

a. ɗa-ta ɓ-oni to taciṁi
[Hab-3S.BN AF-eat Obl banana]
i. 'He (usually) eats bananas'
ii.* 'He is eating a banana/bananas'

b. ɗa-ta huhucmasi ɓ-oni to taciṁi
[Hab-3S.BN every day-AF AF-eat Obl banana]
'He eats bananas every day'

(24) Tsou

a. mi-ta ɓoni ta taciṁi
[AF-3S.BN AF-eat Obl banana]
i. 'He is eating a banana/bananas'
ii.* 'He usually eats bananas'

b.* mi-ta huhucmasi-AF ɓ-oni ta taciṁi
[AF-3S.BN every day AF-eat Obl banana]

Note that ɗa- refers to an 'habitual present' so that reference to the past or to the future necessitates the use of an other auxiliary verb (e.g., mo(h) and tena) which determine the temporal frame of the utterance. This is exemplified in (25).

(25) Tsou

a. moh-ta ɗa huhucmasi ɓoni to taciṁi
[AF-3S.BN Hab every day-AF AF-eat Obl banana]
'(In the past), he would eat bananas every day'

b. tena ɗa-ta huhucmasi-AF ɓoni to taciṁi
[Irr Hab-3S.BN every day AF-eat Obl banana]
'(In the future), he will eat bananas every day'

In both examples, the habitual interpretation is yielded by the occurrence

of huhucmasi 'every day.' Its absence in (26a) below gives a different meaning from that of (25a) -- the utterance must be given an episodic interpretation -- while it renders the second ungrammatical. Compare (25a)-(26a) and (25b)-(26b) respectively.

(26) Tsou

a. moh-ta da ɓ-oni to tacimi
[AF-3S.BN Asp AF-eat Obl banana]
'He ate a banana/bananas'

b.* tena da-ta ɓ-oni to tacimi
[Irr Hab-3S.BN AF-eat Obl banana]

2.3. Grammaticalization of tense in Tsou

It was suggested that in the realis, AF constructions refer to present or past events, depending on the context. As illustrated in (27) below, in Atayal (Wulai), a verb marked as AF may appear in co-occurrence (i) with various adverbs (e.g., hira? 'yesterday,' soni 'today,' krryax 'every day') which determine the temporal frame of the utterance or (ii) with the aspectual infix -in-. Tsou differs from the other Formosan languages in that it has grammaticalized the notion of (absolute) tense. Only mo- but not mi- can co-occur with nehucma 'yesterday.' Compare the grammaticality of (28a-b). In the same vein, the aspectual particle da can co-occur with mo- (or moso, o(h)) but not with mi- (see (29)). A comparison of these examples clearly indicates that AF/NAF auxiliaries in Tsou carry not only aspectual but temporal information as well.

(27) Atayal (Huang 1993)

a. m〈in〉ima? sayun tali? soni (p.50)
[〈Prf〉wash Sayun Tali? today]
'Tali? washed Sayun just now'

b. m-ulu=sami lomwa hira? (p.58)
[-find=1PE.BN rascal yesterday]
'We found a rascal yesterday' (by accident)'

c. k〈m〉ayan=saku? squ? sunan kryax (p. 61)
[〈m〉say=1S.BN Loc 2S.FL every day]
'I talk to you every day'

d. m〈in〉wah=saku? (p.9)
[AF〈Prf〉come=1S.BN]
'I came'

(28) Tsou

a.* mi-ʔo ɓ-oni to taciɨmiɨ nehucma
[AF-1S.BN AF-eat Obl banana yesterday]

b. mo-ʔu ɓ-oni to taciɨmiɨ nehucma
[AF-1S.BN AF-eat Obl banana yesterday]
'I ate a banana yesterday'

(29) a.* mi-ta ɗa smovei ta oko
[AF-3S.BN Asp AF-carry Obl child]

b. moh-ta ɗa smovei ta oko
[AF-3S.BN Asp AF-carry Obl child]
'(In the past), s/he carried the child'

3. Co-occurrence Restrictions

Below, we argue that in order to understand the temporal/aspectual systems of the Formosan languages, all the constituents of the sentence must be taken into consideration to account for the possible and impossible co-occurrences of auxiliaries with pronominal clitics (e.g., Atayal) or with case markers (e.g., Tsou, Rukai).

3.1. The aspectual auxiliaries nyux and cyux in Atayal (Wulai) in co-occurrence with different pronouns

Atayal has grammaticalized the verbs of possession/location/ex-

istence nyux and cyux into aspectual auxiliaries. In that language, imperfectivity is rendered through the use of these two auxiliaries, which can (both) co-occur with verbs marked as AF or NAF. A comparison of (30) - (31) shows, however, that they cannot permute freely. As shown in Huang (1993:71), nyux designates "an action taking place close to the speaker," which explains why it can only co-occur with first person pronominal forms (singular or plural), (see (30a-b). Cyux, on the other hand, indicates that the action is "taking place away from the speaker." In co-occurrence with a first person pronoun, the event must be interpreted as occurring before Speech Time. In other words, nyux and cyux contrasts in terms of time or space. Compare (30a)-(30b) and (31a-b).

(30) Atayal (Wulai)

a. nyux=saku? m-aniq qulih
[Asp=1S.BN AF-eat fish]
'I am eating fish (now)'

b.* nyux m-aniq qulih hiya?
[Asp AF-eat fish 3S.FN]

(33) Atayal (Wulai)

a. cyux=saku? m-aniq qulih
[Asp=1S.BN AF-eat fish]
i.* 'I am eating fish (now)'
ii. 'I was eating fish' (when answering the phone)'

b. cyux m-aniq qulih hiya?
[Asp AF-eat fish 3S.FN]
'He is eating fish (now)'

3.2. Auxiliary verbs and case markers in Tsou

Tsou is characterized by the fact that it has developed a complex system of case markers divided into two classes, nominative and oblique. These do not (as in other Formosan languages) mark an NP according to its categorial nature, marking common nouns differently from person-

al nouns and kinship terms, but localize a referent in relation to the universe of discourse. Briefly, we may say that, on the basis of their syntactic distribution (see Zeitoun, 1993), we must distinguish between referential (ʔe, si, ta, ʔo and to) and non-referential case markers (na and no).[13] Furthermore, among referential case markers, ʔe, si and ta differ from ʔo and to in terms of identifiability. A referent marked by ʔe, si or ta is identifiable to the addressee because directly related to the universe of discourse, while a referent marked by ʔo and to may be either (i) identifiable but absent or invisible at Speech Time, or (ii) unidentifiable because newly introduced in the discourse.

There are some co-occurrence restrictions between case markers and auxiliary verbs. Consider first the following pairs of sentences.

(32) Tsou

a. ɗa-ta	huhucmasi	ɓ-onɨ	to	tacɨmɨ
[Hab-3S.BN	every day-AF	AF-eat	Obl	banana]

'He eats a banana every day'

b.* ɗa-ta	huhucmasi-AF	ɓ-onɨ	ta	tacɨmɨ
[Hab-3S.BN	every day	AF-eat	Obl	banana]

(33) Tsou

a. ɗa-ta	kaebɨ	ɓ-onɨ	to	huvʔo
[Hab-3S.BN	happy-AF	AF-eat	Obl	orange]

'He likes eating oranges'

b.* ɗa-ta	kaebɨ	ɓonɨ	ta	huvʔo
[Hab-3S.BN	happy-AF	AF-eat	Obl	orange]

13. Givón (1978:293) gives the following definition of referentiality: "It involves, roughly, the speaker's intent to 'refer to' or 'mean' a nominal expression to have non-empty reference -- i.e., to 'exist' -- within a particular universe of discourse. [...] If a nominal is 'non-referential' or 'generic' the speaker does not have a commitment to its existence within the relevant universe of discourse. Rather, in the latter case, the speaker is engaged in discussing the genus or its properties, but does not commit him/herself to the existence of any specific individual number of the genus."

(34) Tsou

a. oʔa moh-ta sʔa ɗa ahtu etamaku to tamaku
[Neg AF-3S.BN Adv Asp never-AF smoke-AF Obl cigarette]
'He never smoked cigarettes'

b.* oʔa moh-ta sʔa ɗa ahtu etamaku ta tamaku
Neg AF-3S.BN Adv Asp never-AF smoke-AF Obl cigarette

In (32)-(33), ɗa functions as an auxiliary verb, and in (34) as an aspectual marker.[14] Both ɗas indicate a rupture with Speech time; in the two first examples (see (32-33)), ɗa refers to the scanning of a class of occurrences and by implication to the characteristic of the agent of the given sentence. In the latter, ɗa locates an event in the past. As a consequence, in each example, to but not ta can co-occur with ɗa.

Conclusion

In this paper, we have tried to show that the Formosan languages under study:

(i) exhibit a complex system of verbal morphology which includes distinctions of voice, tense/aspect and modality. In the absence of temporal/aspectual affixes/particles determining the temporal frame of the utterance, focus affixes may take over temporal/aspectual information. Conversely, in the absence of focus affixes on the verb, temporal/aspectual affixes/particles may carry voice distinctions,

(ii) have a temporal/aspectual system based on a modal dichotomy between realis and irrealis (where AF and NAF constructions are subject to a number of morpho-syntactic as well as semantic constraints), but display various degrees of complexity.

In the course of the paper, we have also argued that in order to understand the temporal/aspectual and modal systems of these languages, all the constituents of the sentence must be taken into account.

14. See Zeitoun (1992:53-57) for the syntactic distribution of the two ɗa's in Tsou.

This research represents, however, a preliminary study. It involves only five Formosan languages and more data is needed to test the hypotheses proposed and to clarify various problems.[15]

15. Many aspects related to tense, aspect and modality that were not raised here are discussed in detail in Zeitoun et al. (1996).

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