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PREFACE

The 23rd North American Conference on Chinese Linguistics (NACCL-23) was organized and hosted by the University of Oregon on June 17-19, 2011.

A total of 153 abstracts were submitted to the conference organizing committee. The abstracts were reviewed and rated by the NACCL-23 Scientific Committee (Susan G. Anderson, Marjorie K.M. Chan, Ying Chen, Scott DeLancey, Agnes W.Y. He, Zhuo Jing-Schmidt, Vsevolod Kapatsinski, Lizhen Peng, Chaofen Sun, Hongyin Tao, Liang Tao, and Janet Xing), and a total of 98 proposals were selected for presentation, and 83 presentations were actually made at the conference. The presentations represented 102 scholars from China, France, Germany, Hong Kong, Korea, Singapore, Taiwan, and the United States. Topics ranged from psycholinguistics and neurolinguistics to discourse analysis and corpus linguistics, from historical linguistics and Buddhist text translation studies to sociolinguistics and dialectology, from phonetics and phonology, syntax, semantics, and pragmatics to second language acquisition and language pedagogy.

Five internationally renowned scholars gave keynote speeches at the conference. They were Prof. Walter Bisang (Johannes Gutenberg University), Prof. Ina Bornkessel-Schlesewsky (University of Marburg), Prof. Chu-Ren Huang (The Hong Kong Polytechnic University), Prof. Agnes He (SUNY Stony Brook), and Prof. Fu-xiang Wu (Chinese Academy of Social Sciences).

Included in the NACCL-23 Conference Proceedings are 38 of the presented papers, divided into two volumes. Volume 1 consists of five parts: Part I Corpus Linguistics, Part II Historical Linguistics, Part III Phonetics and Phonology, Part IV Psycholinguistics, and Part V Second Language Acquisition. Volume 2 consists of five parts: Part I Semantics and Pragmatics, Part II Sociolinguistics and Socio-pragmatics, Part III Studies on Regional Varieties of Chinese, Part IV Syntax, and Part V Translation Study of Buddhist Sutras.

Zhuo Jing-Schmidt, Ph.D.

October 2011, Eugene

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The conference would not have been successful without the help and hard work of many individuals. I am grateful to Marjorie K.M. Chan of Ohio State University, who was a great resource to me during the organizing process, sharing experience and patiently providing advice and encouragement.

I would like to thank colleagues on the NACCL-23 Scientific Committee who carefully reviewed abstracts despite their busy schedule. The committee members are Susan Guion Anderson (University of Oregon), Marjorie K.M. Chan (Ohio State University), Ying Chen (University of Oregon), Scott DeLancey (University of Oregon), Agnes Weiyun He (Stony Brook University), Zhuo Jing-Schmidt (University of Oregon), Vsevolod Kapatsinski (University of Oregon), Lizhen Peng (Zhejiang University), Chaofen Sun (Stanford University), Hongyin Tao (UCLA), Liang Tao (Ohio University), and Janet Zhiqun Xing (Western Washington University).

I owe a special *thank you* to Lori O'Hollaren, the assistant director of the Center of Asian and Pacific Studies at the University of Oregon, who managed the administration and logistics of the conference with great care and efficiency. Her professionalism, experience, attention to detail, and her positive energy are very much appreciated. I thank Yifang Zhang who joined Lori in the organizing process, working hard to ensure a successful conference. I also had a wonderful group of scholars and students volunteering for the conference. They are Dr. Lan Dai (Co-director of the UO Confucius Institute), Rong Hu, Galen Ettlin, Yingying Gu, Linda Konnerth, Ying Chen, Hideko Teruya, Katherine Thompson, and Tianqi Yang. Their hard work is very much appreciated.

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The Semantic Constraints on the VERB+*zhe*[3] Nouns in Mandarin Chinese

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The suffix *–zhe* can attach to a verb stem to form a VERB+*zhe* 'one who is/does X' noun. *Zhe* is compatible with different aktionsarts, but there is a distinct difference in productivity. The VERB+*zhe* nouns adhere to three constraints. First, the semantic completion is obligatory when the verb stems are transitive. Second, the referents of VERB+*zhe* nouns must be human. Third, the VERB+*zhe* nouns are episodically linked to their verb stems.

1. Introduction

The issue addressed here concerns the semantic constraints on the words formed by the combination of a verb stem and the suffix *–zhe* in Mandarin Chinese. The VERB+*zhe* nouns are used to refer to 'one who is/does X'. The *–zhe* nouns are used mostly in formal contexts. Colloquially, *de ren* 'person who…' can be used to replace *zhe*.

Zhe is regarded as a word formation suffix, not a bound root[1]. A bound root, *-yuan* 'person whose job is …' for example, is entailed by *–zhe*, which means *–zhe* has the more general meaning. The meanings of words formed with a bound root are more lexicalized, while the words formed with the suffix *–zhe* have a derivational meaning related to the stems. In brief, the suffix *-zhe* is more productive than a bound root. Packard (2000) claims that *–zhe* causes a shift in grammatical role to something like 'agent'. More specifically, *-zhe* can affix to nouns, adjectives, and verbs to indicate the characteristics of agency or property (Packard 2000)[2]. The examples are shown in (1). (1a) denotes someone who is a writer, (1b) refers to someone who has the property of being fat, and (1c) describes a runner.

[1] Whether *–zhe* is a suffix or a bound root remains controversial. Here I adopt the argument in Packard (2000) that *–zhe* is a word formation affix because there is a clear contrast between *–zhe* and the bound root, *-yuan*, which means 'person whose job is X'. Words formed with *–yuan* tend to have meanings which are more lexicalized and fixed, while words formed with *–zhe* carry more of a sense of being derivationally related to the stems to which *–zhe* is affixed.

[2] Packard (2000) defines *–zhe* as 'one who does/is X', but this interpretation cannot capture all the *–zhe* nouns. For instance, *san-zhe* three-zhe can mean either three people or three objects. This issue will be addressed in Section 4.

(1)

a. NOUN + *zhe*
bi *zhe*
pen *zhe* 'writer'

b. ADJECTIVE + *zhe*
feipang *zhe*
obese *zhe* 'one who is fat'

c. VERB + *zhe*
pao *zhe*
run *zhe* 'runner'

In this paper, my focus will be on the combination of verbs and *–zhe*, as in (1c). Noun/adjective-*zhe* will not be included in my discussion. In terms of verbs, the suffix *–zhe* can attach to (i) a verb on the lexical level, (ii) a verb with an aspect marker, and (iii) a verb plus a resultative verb complement (RVC), as in (2). (2a) is the most productive template for the VERB+*zhe* nouns.

(2) a. a verb on the lexical level + zhe
taopao-zhe
escape-zhe 'one who escaped'

b. a verb with an aspect marker +zhe
xue-guo-yuyanxue-zhe
learn-ASP[3]-linguistics-zhe 'one who has learned linguistics'

c. a verb with a resultative verb complement
xie-wan-kaojuan-zhe
write-RES. PHASE-test sheet-zhe 'one who has finished a test sheet'

The data here are collected from *Academia Sinica Balanced Corpus of Modern Chinese* and *Google* searches. The corpus contains 5,000 tokens of *–zhe* nouns. Unless otherwise specified, in the following sections the *–zhe* examples are those found in the corpus. The data from *Google* searches will be indicated.

There are three main semantic constraints on the VERB+*zhe* nouns. First, the specification of the direct objects for the transitive verbal stems is obligatory. Second, the VERB+*zhe* nouns must satisfy the requirement that the referents be human beings. Third, the VERB+*zhe* nouns are episodically linked to the denotation of their verbal stems.

In terms of aktionsarts, basically all five verb classes can appear in the VERB+*zhe* nouns. The verbal stem which is Activity is the most productive in the VERB+*zhe* nouns, and the one which is Accomplishment is the least productive.

The organization of this paper is as follows. I will begin by giving a brief introduction to the Mandarin verb classification in Section 2. Section 3 describes the restrictions of the combination of a transitive verb stem and *–zhe*. In Section 4, an

[3] Abbreviation ASP: aspect, RES. PHASE: resultative phase, RVC: resultative verb complement, CL: classifier, Vt: transitive verb, Vi: intransitive verb, PASS: passive

attempt is made to determine the compatibility of *–zhe* with the five verb classes in terms of aktionsarts. In Section 5, I claim that the VERB+*zhe* nouns must satisfy the requirement of referring to human beings. A discussion of the episodic link between the VERB+*zhe* nouns and their verb stems is presented in Section 6. Section 7 is the conclusion.

2. Situation Aspects in Mandarin Chinese

Since my focus is on the VERB+*zhe* nouns, I intend to figure out whether the aktionsart of verb stems could play a role. In this section, I will briefly introduce Mandarin verb classes discussed in Smith (1997).

Mandarin verbs are classified in neutral contexts, where everything that might change the aspectual value of a verb is excluded. That is, only the inherent features of verbs alone are taken into account. Xiao & McEnery (2004), based on Smith (1997), define five verb classes for Mandarin, as summarized in Table 1.

Verb class	**Feature**
Activities	[Atelic] [Durative]
Statives	[State]
Accomplishments	[Telic] [Durative]
Achievements	[Telic] [Instantaneous]
Semelfactives	[Atelic] [Instantaneous]

Table 1: Mandarin verb classes

A lexical level verb can be combined with aspectual markers and then be classified into different categories (Li & Thompson 1981).

Resultative Verb Complements (RVCs), including Resultative Phases and Resultative Completives, specify the resultative state of telic events. The RVC examples quoted from Smith (1997) include *jian* 'see', *dao* 'attainment', *hao* 'satisfaction', and *wan* 'finish'. The combinations of verbs and RVCs can change the verb classes of a lexical level verb. It is not uncommon that phase RVCs form Achievements from Activity verbs in Mandarin. The examples in (3) are quoted from Smith (1997: 283).

(3)

Activity	Achievement
kan 'see'	*kan-dao* 'see'
ting 'hear'	*ting-dao* 'hear'
zhao 'look for'	*zhao-dao* 'find'

Different combinations of verbs and RVCs fall into different classes. In Section 4, I will discuss what kind of lexical level verbs and verb constellations can be attached by *–zhe* to form a new word.

3. The restrictions of word formation of TRANSITIVE VERB+ *zhe* nouns

This section describes the restrictions of the word formation whereby the suffix *–zhe* is attached to a transitive verbal stem. One is the requirement of the specification of the object for transitive verbal stems. The other is about the number of syllables of the transitive verbal stems.

If the verbal stem is transitive, its direct object has to be specified. As in (4), where the verbs are all transitive, the direct objects of the verb stems have to be overtly realized or specified in the contexts. The VERB+*zhe* nouns are not acceptable when out of context.

(4)

	Verb [transitive]	Verb + *zhe*	[Vt, object]+ *zhe*
a.	*shiyong* 'use'	?*shiyong-zhe*	*shiyong-wanglu-zhe* use-Internet-zhe or *wanglu-shiyong-zhe* Internet-use-zhe 'one who uses Internet'
b.	*jingying* 'operate'	?*jingying-zhe*	*jingying-gongsi-zhe* operate-company-zhe or *gongsi-jingying-zhe* company-operate-zhe 'one who runs a company'
c.	*zeng* 'donate'	**zeng-zhe*	*zeng-shu-zhe* donate-book-zhe 'one who donates books' **shu-zeng-zhe* book-donate-zhe

In (4a) and (4b), the order of the verb and the object can be reversed, but not in (4c). This has to do with the number of syllables of the transitive verb. If a transitive verb stem has two syllables, the object can be fronted. Although both sequences are grammatical, the OBJECT-V-*zhe* form is the preferred one. If a transitive verb has only one syllable, there can only be one order, V-OBJECT-*zhe*. The syllable constraint decides the template of the VERB+*zhe* nouns.

For those verbal stems with two syllables, their direct objects do not have to be overtly incorporated into *–zhe* nouns if the objects can be specified in the context. For instance, *shiyong-zhe* 'user' is acceptable when its direct object is already known in the context. This generalization does not include the fossilized *–zhe* words, such as *zuozhe* compose-zhe 'writer', *zhizhe* know-zhe 'knower', and *xuezhe* learn-zhe 'learner'[4].

The specification of direct objects plays an important role in the *–zhe* word formation.

[4] *Xue-zhe* has a lexicalized meaning: a scholar. This meaning is not considered an example of VERB+*zhe* nouns because it cannot be rephrased as 'one who learns'. *Xuexi* is a synonym of *xue* 'learn'. *Xuexi-zhe* means 'one who learns'.

Besides transitivity, other factors, aktionsarts for example, may influence the word formation of *zhe*. In the next section, I will discuss whether all classes of verbs can form VERB+*zhe* nouns.

4. The compatibility of *-zhe* with five verb classes

In this section, I will discuss whether the five verb classes are compatible with *-zhe*. I adopt Smith's (1997) definitions for the five verb classes. In the corpus, there are 5,000 tokens of *–zhe* nouns. The percentages for each of the five verb classes are shown in Chart 1. The category *Others* includes Adj.+*zhe* nouns and Noun+*zhe* nouns.

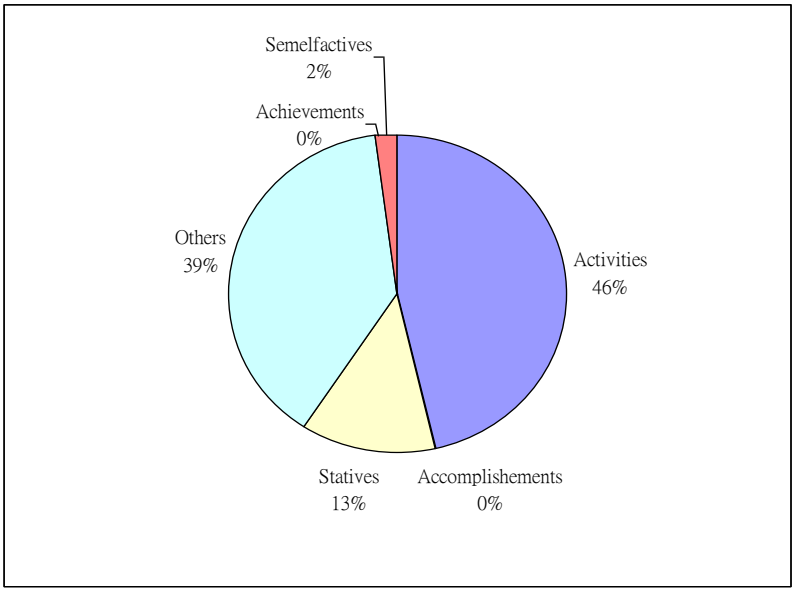

Chart 1: The percentages for the VERB+*zhe* nouns of the five verb classes

In the following sections, the instances for each case will be discussed in more detail.

4.1 Activities

In Mandarin, verbs with features [Atelic] and [Durative] form Activities, such as *xue* 'learn', *gai* 'build', *xie* 'write', *pao* 'run', *kan* 'see', *jian* 'see', *ting* 'listen', *zhao* 'look for' and *youyong* 'swim'[5]. If Activity verbs are combined with *–zhe* on the lexical level, the results are shown in (5).

[5] These examples, *zhao* 'look for', *xue* 'learn', *kan* 'see', *jian* 'see', *ting* 'listen' , are collected from Smith (1997: 283 & 285).

(5)

	Verb	Vt or Vi	Verb + zhe
a.	*xie* 'write'	Vt	*?xie-zhe* intended meaning: 'one who writes'
b.	*gai* 'build'	Vt	*?gai-zhe* intended meaning: 'one who builds'
c.	*xue* 'learn'	Vt	*?xue-zhe* intended meaning: 'one who learns'
d.	*kan* 'see'	Vt	*?kan-zhe* intended meaning: 'one who sees'
e.	*xiuli* 'fix'	Vt	*? xiuli-zhe* intended meaning: 'one who fixes…'
f.	*pao* 'run'	Vi	*pao-zhe* 'runner'
g.	*youyong* 'swim'	Vi	*youyong-zhe* 'swimmer'

If we take a closer look at (5a)-(5g), there is a clear cut in terms of transitivity. *Zhe* can attach to intransitive verbs to form words, as in (5f) and (5g). Nevertheless, the combination of transitive verb stems and *zhe* is awkward when used out of context. The ungrammaticality of (5a)-(5e) can be repaired if the objects of the transitive verbs are incorporated into (5a)-(5e), as shown in (6). If the objects are not overtly incorporated, they have to be identified in the context. It is worth our attention that the object must be uncountable and unspecified. If not, the verb phrases become Accomplishments.

(6)

	Verb	[Vt, object] + zhe
a.	*xie* 'write'	*xie-xin-zhe* write-letter-zhe 'one who writes letters'
b.	*gai* 'build'	*gai-wu-zhe* build-house-zhe 'one who builds houses'
c.	*xue* 'learn'	*xue-yingwen-zhe* learn-English-zhe 'one who learns English'
d.	*kan* 'see'	*kan-tu-zhe* see-picture-zhe 'one who looks at the pictures'
e.	*xiuli* 'fix'	*zixingche-xiuli-zhe* or *xiuli-zixingche-zhe* bike-fix-zhe 'one who fixes bikes'

In some cases, the transitive Activities can be combined with *zhe* to form new words without the overt objects, as in (7). The main difference between the instances in (6) and (7) lies in that the *–zhe* nouns in (7) are already lexicalized, whereas those in (6) are not. (7a)-(7c) are common in classical Chinese literature, so they can be viewed as fixed expressions.

(7)

	Verb	Vt or Vi	Verb + zhe
a.	*jian* 'see'	Vt	*jian-zhe* 'one who sees'
b.	*ting* 'listen'	Vt	*ting-zhe* 'one who listens'
c.	*shuo* 'speak'	Vt	*shuo-zhe* 'one who speaks'

In brief, Activities are compatible with *–zhe*. If the verbal stem is transitive, the direct object must be either overtly incorporated or specified in the contexts.

The *–zhe* nouns formed with Activity stems can be seen as the most productive type since they account for the largest portion of the *–zhe* nouns in the corpus.

4.2 Statives

As defined by Smith (1997), Mandarin verbs which intrinsically have the feature [State] are Statives. Moreover, states are homogenous situations with no dynamics, for example, *cunzai* 'exist', *qian* 'owe', *shuyu* 'belong', *xiang* 'resemble', etc. Mandarin emotional verbs, such as *ai* 'love', *xihuan* 'like', *taoyan* 'hate', and *hen* 'resent' are also Statives since they are [State] (Xiao & McEnery 2004). The realization of direct objects still plays a crucial role here. As shown in (8), if the Statives are transitive verbs, the *–zhe* formation is impeded due to lack of direct objects.

(8)

	Verb	Verb (Vt) +*zhe*		Verb	Verb (Vt) +*zhe*
a.	*yongyou* 'own'	**yongyou-zhe*	b.	*ai* 'love'	**ai-zhe*
c.	*qian* 'owe'	**qian-zhe*	d.	*xihuan* 'like'	**xihuan-zhe*
e.	*shuyu* 'belong'	**shuyu-zhe*	f.	*taoyan* 'dislike'	**taoyan-zhe*
g.	*xiang* 'resemble'	**xiang-zhe*	h.	*hen* 'hate'	**hen-zhe*
	Verb	Verb (Vi) +*zhe*			
i.	*cunzai* 'exist'	*cunzai-zhe*[6]			

If the objects are incorporated into the VERB+*zhe* nouns or specified in the context, these ungrammatical *–zhe* nouns can be repaired, as in (9).

[6] In Mandarin, *cunzai* 'exist' is an intransitive verb. There is only one token of *cunzai-zhe* 'one who exists' in the corpus.

(9)

	Verb	[Verb, Object]+*zhe*
a.	*yongyou* 'own'	*fangzi-yongyou-zhe* house-own-zhe 'one who owns a house'
b.	*qian* 'owe'	*qian-qian-zhe* own-money-zhe 'one who owes money'
c.	*ai* 'love'	*ai-mao-zhe* love-cat-zhe 'one who loves cats'
d.	*xiang* 'resemble'	*xiang-muqin-zhe*[7] resemble-mother-zhe 'one who resembles his/her mother'

These examples show that there is no problem for Mandarin Statives to combine with the suffix *–zhe* as long as the direct objects of the transitive verbs are specified.

4.3 Accomplishments

In Mandarin, verbs which have the features [Telic] and [Durative] form Accomplishments. Accomplishments are telic durative situations consisting of a process and an associated outcome (Smith 1997). No lexical-level verb in Mandarin can form Accomplishments. There are two common ways to form Accomplishments. One is by adding phase RVCs to Activity verbs to denote change of state. The other is by adding countable NPs or NPs with specific meanings.

No cases of the combination of Accomplishments and *–zhe* are attested in the corpus. However, such instances can be found in *Google* search. The examples in (10) are gathered from *Google*, and there is only one token for each. In (10a) and (10b), *chi* 'eat' and *xie* 'write' are Activities. With the RVCs, the verb constellations become Accomplishments. The verb constellation in (10c) is also an Accomplishment because the NP is countable and specific. Since the verb stems in (10b) and (10c) have only one syllable, the order of the verb and the object cannot be reversed.

(10)

	VERB+*zhe*
a.	*chi-bao-zhe* eat-RVC-zhe 'one who is full'
b.	*xie-wan-xin-zhe* write-RVC-letter-zhe 'one who has finished writing a letter'
c.	*gai-nei-zuo-qiao-zhe* build-that-CL-bridge-zhe 'one who built that bridge'

The examples in (10) sound awkward for native speakers. It is likely that *–zhe* is prone

[7] This example is from *Google*.

to be combined with lexical level verbs, but Mandarin Accomplishments are verb constellations.

4.4 Achievements

The Achievement verbs emphasize the successful achievement of the encoded result with or without profiling the process leading up to the result. Verbs with the intrinsic features [Telic] and [Instantaneous] form Achievements, such as *ying/sheng* 'win', *shu/bai* 'lose', *si* 'die' and '*daoda* 'arrive'. Besides, it is also possible to make verbs with the intrinsic feature [Atelic] into Achievements by adding directional complements (Smith 1997). For instance, *pa* 'climb' and *zhao* 'look for' are atelic, but in (11) the verb constellations are telic because there is a directional complement, *dao*.

(11) a. *pa-dao(-shanding)*
climb-RVC(-mountaintop) 'reach the summit'
b. *zhao-dao*
look for-dao 'find'

Mandarin Achievements are compatible with *–zhe* in forming new words, as shown in (12).

(12)

	Verb	*-zhe* nouns
a.	*si* 'die'	*si-zhe* 'one who died'
b.	*ying/sheng* 'win'	*ying-zhe sheng-zhe* 'one who won'
c.	*shu/bai* 'lose'	*shu-zhe bai-zhe* 'one who lost'
d.	*muji* 'witness'	*muji-zhe*[8] 'one who witnessed'
e.	*faxian* 'discover'	*faxian-zhe* 'one who discovered'
f.	*juewu* 'to become aware'	*juewu-zhe* 'one who became aware'
g.	*zhao-dao* look for-dao 'find'	*?zhao-dao-da'an-zhe* look for-dao-answer-zhe 'one who found the answer' **da'an-zhao-dao- zhe* answer-look for-dao-zhe
h.	*pa-dao* climb-RVC 'climb to'	*?pa-dao-shanding-zhe* climb-RVC-mountaintop-zhe 'one who reaches the summit' **shanding-pa-dao- zhe* mountaintop-climb-RVC-zhe

It is noteworthy that lexical level verbs are preferable in the word formation of *–zhe*, as reflected in (12a)-(12h). The Achievements which are formed by adding directional

[8] In the corpus, there are 19 tokens for this. All of the witnessing events are described in the context, so the direct objects of 'witnessing' are not incorporated.

complements to Activities are not attested in the corpus. (12g) and (12h) are unacceptable due to the conflict between the classical and literary sounding *-zhe* and the colloquial sounding verb stems.

4.5 Semelfactives

Semelfactives are formed by the verbs with intrinsic features [Atelic] and [Instantaneous]. *Ti* kick', *qiao* 'knock', *kesou* 'cough', and *dage* 'hiccup/burp' are instances of Semelfactives. In the corpus, no instance of SEMELFACTIVE+*zhe* is attested. The examples collected from *Google* are shown in (13).

(13)

	Verb	Vt or Vi	*-zhe* noun
a.	*ti* 'kick'	Vt	*ti-men-zhe* kick-door-zhe 'one who kicked the door'
b.	*qiao* 'knock'	Vt	*qiao-men-zhe* knock-door-zhe 'one who knocked the door'
c.	*kesou* 'cough'	Vi	*kesou-zhe* 'one who coughs'
d.	*dage* 'hiccup'	Vi	*dage-zhe* 'one who hiccups/burps'

The requirement of specifying the direct objects of the transitive verbs is observable in the *–zhe* nouns, as in (13a) and (13b). The *-zhe* nouns in (13a) and (13b) retain the instantaneous meaning, but the *–zhe* nouns in (13c) and (13d) have an additional frequentative reading.

4.6 The productivity of the five verb classes in the VERB+*zhe* nouns

The distribution of the *-zhe* nouns in the corpus shows that Activities, Statives, and Achievements can fit squarely into the *–zhe* nouns. They are productive in the word formation of *–zhe*. Although the *–zhe* nouns with Accomplishment and Semelfactive verbal stems are not attested in the corpus, some examples can still be found from *Google* searches.

Native speakers tend not to accept the ACCOMPLISHMENT+ *zhe* nouns. The reason may reside in that a lexical verb without complements or phase markers is the preferred verb stem for the VERB+ zhe nouns. In Mandarin, there are no verbs which are Accomplishments by themselves, so the ACCOMPLISHMENT + *zhe* nouns can barely be found. The data of ACHIEVEMENT+*zhe* nouns also support this observation.

5. The VERB+ *zhe* nouns refer to human beings

According to Packard (2000), the meaning of the suffix *–zhe* is 'one who does/is X'. However, this generalization cannot capture all the *–zhe* nouns. For the ADJECTIVE +*zhe* nouns, some of them can refer to inanimate objects, as in (14). For example, in the

corpus, *san-zhe* in (14a) refers to the three things, teaching, service, and research, not three people.

(14) ADJ.-*zhe*
a. *san-zhe*
three-zhe ‘three entities(people/objects/concepts)’
b. *qing-zhe*
light-zhe ‘light person/object’
c. *geng-zhongyao-zhe*
more-important-zhe ‘what is more important ’ or ‘the more important person’

Let’s come back to the VERB+*zhe* nouns. For all the VERB+*zhe* nouns, their referents must be human beings. It is impossible for a VERB+*zhe* noun to denote an inanimate entity. As shown in (15), all the VERB+*zhe* nouns refer to human beings. It is not entailed that the referent of the direct object of *zhuang*[9] ‘collide with’ and *ti* ‘kick’ must be sentient since inanimate entities can be collided with or kicked. However, there is no way to get a non-sentient referent in (15a) and (15b). Example (15c) can only refer to the person who was written about, not inanimate objects such as words, essays and paper. The only possible reading for (15d) is the person who was drawn/painted a picture of.

The examples without passive markers are shown in (15e) and (15f). Both animate and inanimate entities can be the subject of the intransitive verbs, *zhuiluo* ‘fall’ and *xuanzhuan* ‘revolve’, but (15e) and (15f) can only refer to human beings.

(15)

a. *bei-zhuang-zhe* PASS-collide with-zhe ‘one who got rammed into’	b. *bei-ti-zhe* PASS-kick-zhe ‘one who got kicked’
c. *bei-xie-zhe* PASS-write-zhe ‘one who was written about’	d. *bei-hua-zhe* PASS-draw/paint-zhe ‘one who was drawn/painted a picture of’
zhuiluo-zhe fall-zhe ‘one who fell down’	*xuanzhuan-zhe* revolve-zhe ‘one who revolved’

These examples show that when *-zhe* is combined with a verb to form a noun, it can only denote a human being. The VERB+*zhe* nouns do not merely pick up a specific argument associated with the verbal stem. Instead, they have their own characteristic semantic contribution.

The VERB+*zhe* nouns are related to their verb stems in terms of event structure.

[9] *Zhuang* is a transitive verb in Mandarin.

They can take the thematic roles such as Agent, Patient, Experiencer, and Recipient, but Theme and Location are ruled out.

The contrast between the ADJECTIVE +*zhe* nouns and the VERB+*zhe* nouns supports the fact that the VERB+*zhe* nouns have the unique semantic constraint of denoting human beings.

6. Episodic linking of the *verb+zhe* nouns

The focus of this section is on the episodic nature of VERB+*zhe* nouns. The referent of a *–zhe* noun must be involved in an event corresponding to a stem verb. For instance, to be qualified as the noun *diaocha-zhe* 'investigator', the referent of the noun must be involved in a certain role in an investigating event. The definition of episodic linking is adopted from Barker (1998), as cited in (16).

(16) A derived noun N is episodically linked to its stem S iff for every stage <x, e> in the stage set of N, *e* is a member of the set of events that characterize S. [x is an individual]

Mandarin VERB+*zhe* nouns share the same definition given in (16). That is, there is an episodic link between each *–zhe* noun and its stem. Let's examine the noun *diaocha-zhe* 'investigator'. There must be a qualifying event in which a person participates to get a person qualified as a *diaocha-zhe* ''investigator'. Therefore, every investigating event qualifies a certain individual as a *diaocha-zhe*, and for every *diaocha-zhe*, there is an investigating event. The derived nouns are associated with their verbal stems semantically. The episodic link with the verbal stem is a characteristic of the VERB+*zhe* nouns.

The semantic connections between the *–zhe* nouns and their verb stems can also be supported in the punctuality of the VERB+*zhe* nouns. The definition of punctuality is adapted from Barker (1998), as in (17).

(17) An individual *x* will be in the extension of a *–zhe* noun N when it is evaluated at time *t* just in case there is a stage <*x*, *e*> in the stage set of N and either (i) *e* is punctual and $t \geq \tau(e)$ or (ii) *e* is nonpunctual and $t \subseteq \tau(e)$.

As defined in (17), *x* is in the extension of the VERB+*zhe* noun from the moment when the qualifying event occurs onwards if the qualifying event is punctual. That is, if a verb stem characterizes an event that is naturally punctual, its associated VERB+*zhe* noun is also punctual. As shown in (18)[10], the actions described by the verbs are essentially punctual. The people described are in the extension of the VERB+*zhe* nouns from the time point at which the actions happen onwards. For instance, since the event of retiring denotes a permanent change of state, a person is qualified as *tuixiu-zhe* 'one who retired' from the moment he or she is retired until the description is no longer relevant.

[10] The verbal stems of examples (16c) and (16d) are transitive. Their direct objects are specified in the context.

(18)

a. *lihun-zhe* divorce-zhe ‘one who got divorced’	b. *tuixiu-zhe* retire-zhe ‘one who retired’
c. *mousha-zhe* murder-zhe ‘one who murdered…’	*chuangzao-zhe* create-zhe ‘one who created…’

For the verbs characterizing events which are nonpunctual, their associated VERB+*zhe* nouns are antipunctual. As defined in (17), *x* is in the extension of the VERB+*zhe* nouns only for the duration of the qualifying event. The examples are shown in (19). If the events described by the verbs are nonpunctual, an individual is in the extension of the VERB+*zhe* noun only for the duration of the qualifying event. For instance, a person is not described as *qian-qian-zhe* ‘one who owed money’ after the debt is paid off. Similarly, a person is in the extension of *yu-hui-zhe* ‘one who attended the conference’ only during the conference.

(19)

a. *qian-qian-zhe* owe-money-zhe ‘one who owed money’	b. *qian-yue-zhe* sign-contract-zhe ‘one who signed a contract’
c. *shou-pin-zhe* receive-employment-zhe ‘one who got employed’	*daikuan-zhe* loan-zhe ‘one who got a loan’
yu-hui-zhe attend-conference-zhe ‘one who attended the conference’	

So far the examples in this section show that the VERB+*zhe* nouns are episodically linked with their verbal stems. The denotation of some VERB+*zhe* nouns is qualified from a specific moment onwards, and some VERB+*zhe* nouns have individuals in their extension only for specific periods of time. The punctuality of the denotation of the VERB+*zhe* nouns is mainly determined by their verbal stems.

7. Conclusion

The combination of the suffix *–zhe* and a verb stem is a productive way of coining new words in Mandarin morphology. The VERB+*zhe* nouns systematically obey three semantic constraints.

First, the semantic completion is obligatory for the VERB+*zhe* nouns which have transitive verb stems. If a verb stem is transitive, its direct object must be either overtly incorporated with the VERB+*zhe* nouns or specified in the context.

The second one is that the referent of a VERB+*zhe* noun must be a human being.

This requirement cannot be predicted from their verb stems. It shows the VERB+*zhe* nouns have their own semantic features. If *zhe* is combined with an adjective or a noun, the referent is not restricted to human beings.

Third, a VERB+*zhe* noun is episodically linked to its verb stem. There must be a qualifying event to license the use of a VERB+*zhe* noun. The punctuality of the VERB+*zhe* nouns depends on their stems. It is entailed in the assumption of the episodic link.

As for the compatibility with different aktionsarts, *-zhe* basically can affix to all the five classes. However, there is a distinct difference in productivity. The stems which are Activities are the most productive. Statives and Achievements also fit nicely into the formation of the VERB+*zhe* nouns. The combination of Semelfactives and *-zhe* works well although no such case is attested in the corpus. It is hard to find an instance of ACCOMPLISHMENT+*zhe* noun. The reason lies in that the combination of a lexical verb and *–zhe* is the preferred template. It is better not to insert an aspectual marker between a lexical verb and *–zhe*, but Mandarin Accomplishments are formed by verb constellations.

Based on the examples we have gone through so far, it is notable that the VERB+*zhe* nouns adhere to the three semantic constraints. They can capture the possible meanings shared by the newly formed VERB+*zhe* nouns.

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On the Independence of Mandarin Aspectual and Contrastive Sentence-Final *ne*

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This paper argues for treating the Mandarin sentence-final particle *ne* as ambiguous between marking contrastive topic, in the sense of Büring 2003, and marking durative aspect. This account is novel is two ways. First, it rejects the widespread view that *ne* never marks aspect, representing a revival of Chan's (1980) classic aspectual analysis. Second, while topic-marking *ne* is known to mark contrastive topic (Lee 2003), I believe my account is the first to extend contrastive topic meaning to the sentence-final particle. The fact that aspectual *ne* and contrastive *ne* cannot co-occur is treated as the result of a haplology constraint, parallel to the more familiar haplology effects targeting the particle *le*.

1. Introduction

While Chao (1968) lists seven meanings for the Mandarin particle *ne*, more recent analyses either aim to reduce these to a single core meaning (Li and Thompson 1981, Lin 1984, Chu 2006, and many others), or else draw a binary distinction between topic-marking uses, as in (1), and sentence-final uses, as in (2) (Li 2006, Wu 2006).[1]

(1) Māma měi-tiān wǎnshàng hěn wǎn cái huí-jiā. (Shao 1989: 174)
mom every-day night very late only.then return-home
Bàba **ne**, gāncuì jiù bù huí-lái.
dad NE simply just not return-come
'Every day mom doesn't get home until late. *Dad* **NE**, doesn't even come back at all.'

(2) A: His family is poor, so you'd do better not to have dealings with him.
B: Tā jiā yǒu sān tiáo niú **ne**.
his family have three CL cow NE
'His family has three cows **NE**… (!)' (Isn't that proof that they're not poor?)
(Tsao 2000: 16, modified from Li and Thompson 1981: 301)

[1] Abbreviations are as follows: ACC = accusative, CL = classifier, DE = modifier-marking *de*, DISTR = distributive (*dōu*), DUR = durative (*-zhe*), EXP = experiential aspect (*-guò*), LE = sentence-final particle *le*, MA = polar question marker *ma*, NE = sentence-final particle *ne*, PFV = perfective (*-le*), POSS = possessive, PROG = progressive, Q = question particle, WA = contrastive topic *wa*

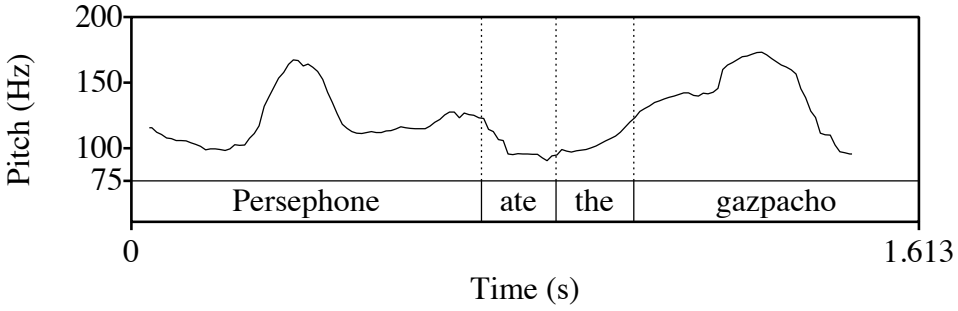
This paper provides evidence for a different division. I argue that sentence-final *ne* is ambiguous between the durative aspect marker ne_{ASP} and the contrastive topic (CT) operator ne_{CT}. This account is novel in two ways. First, it rejects the widespread view that *ne* never marks aspect (Li and Thompson 1981, Lin 1984, Wu 2005, Chu 2006, Li 2006), representing a revival of Chan's (1980) classic aspectual analysis. Second, while topic-marking *ne* is known to mark contrastive topic (Lee 2003), I believe my account is the first to associate CT meaning with the sentence-final particle.

The paper is organized as follows. In section §2, I review the basic properties of contrastive topic, using examples from English. In §3, I present evidence for the view that both Mandarin topic-marking and sentence-final *ne* convey CT meaning. Section §4 motivates the need for a second *ne* that marks durative aspect. I show that the examples that cannot be captured under the CT account are precisely those examples that are susceptible to Chan's (1980) aspectual account. Furthermore, we find that the two particles differ in syntactic distribution. Section §5 addresses the question of why ne_{CT} and ne_{ASP} never co-occur, and presents an account in terms of haplology. Finally, section §6 concludes.

2. Contrastive Topic

Contrastive topic marking signals an utterance as addressing a particular issue in the discourse, while leaving one or more contrasting issues unaddressed. For example, in (3), speaker B resolves the question of what Persephone ate, but does not address the salient question of what Antonio ate. Intuitively, *Persephone* is the topic of the implicit question that B directly answers, namely "What did Persephone eat?", and contrasts with the topic of the unanswered question "What did Antonio eat?".

(3) A: And what about Persephone and Antonio? What did *they* eat?
B: *Persephone* ate the *gazpacho*.
L+H* L-H% H* L-L%



In English, contrastive topic is associated with the intonation contour L+H* L-H% (Büring 2003), consisting of a rising pitch accent (L+H*) on a focalized element, and a subsequent low-rising boundary tone (L-H%). Other languages mark contrastive topic via a discourse particle, as in Japanese CT *wa* (Heycock 2008; Tomioka 2010b):

(4) (Who ate what?) (Tomioka 2010b)
Erika-**wa** *mame*-o tabe-ta (kedo…)
Erika-WA beans-ACC eat-PAST but
'*Erika* ate *beans* (but…)'

The question of how to formalize the meaning of contrastive topic in a compositional semantic framework is still under debate. For some recent approaches, see Wagner (2008), Tomioka (2010b) and Constant (to appear). For our purposes here, it will suffice to follow Büring's (2003) analysis of CT as implying a set of salient questions (the DISCOURSE STRATEGY of Roberts 1996). Furthermore, these questions must be contained within what Büring calls the CT-VALUE of the marked utterance, which is determined by its focal structure. Returning to our original example, if *Persephone* is marked as contrastive topic, and *the gazpacho* is marked as exhaustive focus, the CT-value of the utterance will be the set of questions: "What did Persephone eat?", "What did Antonio eat?", and so on. Consequently, Büring's system captures the fact that (5) can only be used in a discourse where more than one question from that set is salient.

(5) [*Persephone*]$_{CT}$ ate [the *gazpacho*]$_{F}$.
L+H* L-H% H* L-L%

We can expect CT marking to display particular behaviors based on the non-exhaustivity inherent in the meaning it conveys. One distinctive feature of contrastive topic marking is that it resists maximal elements, as observed by Büring (1997) and others. For example, the pair in (6) shows a CT accent is licensed on *most* but illicit on *all*.[2]

(6) a. [*Most* of them]$_{CT}$ took [the *early* train]$_{F}$.
L+H* L-H% H* L-L%
b. # [*All* of them]$_{CT}$ took [the *early* train]$_{F}$.
L+H* L-H% H* L-L%

Another basic fact about CT is that it cannot mark a direct and completely resolving answer to a question, as the contrast in (7) illustrates. Note that (7b) is an example of a

[2] As Büring (1997) observes, this restriction does not hold if *all* appears under the scope negation, giving rise to cases of scope inversion, where the use of CT intonation disambiguates to a low-scope reading of the quantifier.

"lone" contrastive topic, without any associated comment containing a second focalized element. These examples have been discussed under the name RISE-FALL-RISE by Ward and Hirschberg (1985) and Constant (2006), and are argued to be a sub-type of contrastive topic in Constant (to appear).

(7) a. (What color is his car?)
His car is [*orange*]$_{CT}$ …
L+H* L-H%
b. (Is his car some crazy color?)
His car is [*orange*]$_{CT}$ … (but is that really so crazy?)
L+H* L-H%

These two properties both fall out automatically under Büring's and other theories of CT meaning. A third property of CT is that it can mark contrasting sub-questions of a larger issue, but resists simple out-of-the-blue questions. This property does not fall out from Büring's model, but is needed to capture uses of CT in questions, as in the Japanese (8). These three diagnostics for CT are summarized in (9).

(8) … Zyaa *Erika*-**wa** doko-e itta-no? (Tomioka 2010a)
then Erika-WA where went-Q
'…, well then, where did *Erika* go?'

(9) Diagnostics for Contrastive Topic
a. CT marks non-maximal elements like *most*, but resists maximal elements like *all*.
b. CT marks partial answers, but resists direct and completely resolving answers.
c. CT marks contrasting sub-questions of a larger issue, but resists simple out-of-the-blue questions.

3. Mandarin *ne* as Contrastive Topic

There is a wide range of evidence for analyzing Mandarin *ne* as a contrastive topic marker on a par with English L+H* L-H% and Japanese *wa*. I present a subset of that evidence here, and refer the reader to Constant (to appear) for further discussion. First, we find that as with English CT constituents, *ne*-marked elements cannot be maximal:

(10) a. *Dàbùfen* de shìqing **ne** dōu hěn nán-bàn.
most DE matter NE DISTR very difficult-manage
'Most of these things are hard to deal with.'
b. *Suǒyǒu* de shìqing (#**ne**) dōu hěn nán-bàn.
all DE matter NE DISTR very difficult-manage
'All of these things are hard to deal with.'

Next, the contrast between (11) and (12) shows that *ne* can mark a partial answer, but not a complete answer.

(11) (Is Zhangsan going to the conference?)
Tā gēn wǒ *shuō* yào qù **ne**… (dànshì tā hái méi mǎi jī-piào.)
he with me say will go NE but he still have.not buy plane-ticket
'He *told* me he's going… (but he still hasn't bought a plane ticket.)'

(12) (How did you find out that Zhangsan is going to the conference?)
Tā gēn wǒ *shuō* yào qù (#**ne**).
he with me say will go NE
'He *told* me he's going.'

Finally, the dialogue in (13) shows that *ne* is illicit on an out-of-the-blue question, but licensed on a follow-up question that contrasts with an earlier question in the discourse.[3] Given this distribution, it is often natural to translate *ne* questions with an initial *so*, *then*, *and*, or *but*, and in fact many authors offer comparable translations. Li and Thompson (1981: 306) translate *ne* questions with 'in that case', and Chu (2006) cites Jin (1996) with the claim that *ne* implies a pre-existing condition or presupposition roughly translatable as *nàme* (*in that case*, *if so*, *then*).

[3] Some speakers report *ne* being acceptable on out-of-the-blue wh- questions, as in (i), while others find such uses marginal or affected. Speakers who accept these uses may have *ne* as a wh- "clause-typing" particle, in line with Cheng (1997). However even for these speakers, an account of ne_{CT} is needed as well, since Cheng's analysis cannot extend to uses of *ne* in declaratives and yes-no questions.

(i) Lǐsì dài shénme le (%**ne**)? (out of the blue)
Lisi bring what LE NE
'What did Lisi bring?'

If we replace the standard Mandarin *shénme* 'what' with the rough-sounding colloquial variant *shá* 'what', as in (ii), the possibility of *ne* out-of-the-blue is ruled out. This is evidence that, contra Cheng (1997), *ne* is not uniformly available as a wh- question particle. For more arguments against the view of *ne* as an wh- or interrogative particle, see Lin (1984), Shi (1997), Gasde (2004), Chu (2006) and Li (2006).

(ii) Lǐsì dài shá le (#**ne**)? (out of the blue)
Lisi bring what LE NE
'What did Lisi bring?'

(13) Context: A calls B on the phone out of the blue.
A: Nǐ xiǎng-bù-xiǎng jīntiān wǎnshàng chū-qù chī huǒguō (??**ne**)?
you want-not-want today night out-go eat hotpot NE
'Do you want to go out for hotpot tonight?'
B: Not really.
A: (Nà) nǐ xiǎng-bù-xiǎng chī *shuǐ-zhǔ-yú* **ne**?
then you want-not-want eat water-boil-fish NE
'Then do you want to have *boiled fish*?'

The analysis of *ne*-marked questions as being contrasting sub-questions within a larger strategy also fits perfectly with what Wu (2006) calls "thematic question" uses of *ne*, marking an isolated topical constituent, as in (14). By comparison, the context in (15) provides no salient contrasting question with a different topic, so *ne* is illicit and the polar question particle *ma* is used instead.

(14) Tā huì lā xiǎotíqín. *Nǐ* **ne**?
She can play violin you NE
'She can play violin. What about *you*?'

(15) Context: Someone knocks on the door. I yell from inside…
Lǐsì { **ma** | #**ne** }? Shì nǐ ma?
Lisi MA NE be you MA
'Lisi? Is that you?'

All of this evidence supports the idea that *ne* conveys CT meaning, like Japanese CT *wa*. However it is worth noting a difference between the two particles in their positioning. While Japanese *wa* marks the contrastive topic element itself, even in cases of "lone CT" (Tomioka 2010a), Mandarin sentence-final *ne* can occur at a distance from the focalized CT constituent. This highlights the need for a theory of where *ne* surfaces, and where CT markers surface more generally. I will not go into this for reasons of space, but one promising approach is to say that ne_{CT} is uniformly the realization of a fixed head in the left periphery. On this view, topic-marking *ne* would be derived by raising the topic to the specifier of *ne*, while sentence-final *ne* would be derived by raising the matrix IP to the same position. See Li (2006) for general discussion of this approach to sentence-final particles.

Up to this point, the account I've sketched follows in the spirit of Lin (1984) and Chu (2006), who treat *ne* as a marker of contrast. The difference is that I identify this type of meaning as contrastive topic, which displays known behaviors across languages. Connecting *ne* to CT is valuable in that it leads to robust predictions for where *ne* will be used. In the next section, we'll see that these predictions force us to abandon the idea that *ne* always conveys a unitary meaning.

4. The Return of *ne*$_{ASP}$

We saw in (12) that CT resists marking direct completely resolving answers. Given this fact, the appearance of *ne* in (16) poses a problem for the analysis of *ne* as always conveying CT meaning. The important point is that B's response in (16) can be taken as a direct answer to A's question, without implying any contrasting issue in the discourse.

(16) A: Nǐ zài jiā ma? B: Zài jiā **ne**.
you at home MA at home NE
'Are you home?' 'Yeah, I am.'

Similarly, counter to the pattern we saw in (13), the following question with *ne* does not require any contrasting question in the immediate discourse. That is, (17) is an unmarked, neutral way of asking if you have the keys. This discourse neutrality is unexpected if *ne* uniformly marks CT.

(17) Nǐ dài-zhe yàoshi **ne** ma?
you carry-DUR key NE MA
'Are you carrying the keys?'

More generally, examples like (16) and (17) are a challenge for any minimalist analysis that attributes a core meaning to all uses of sentence-final *ne*—whether that meaning is phrased in terms of contrast (e.g. Lin 1984 and Chu 2006) or "response to expectation" (Li and Thompson 1981). The crucial fact to observe about these examples, and indeed any uses of *ne* that fail diagnostics for CT meaning, is that they involve situations that are viewed as ongoing, and whose end-points are not relevant to the discussion. The occurrence of *ne* in these examples, which cannot be marking contrastive topic, is amenable to an analysis as a marker of durative aspect.

From early on, researchers have separated out "continuing state" uses of sentence-final *ne* (Chao 1968, Chu 1978, Marney 1980, Chan 1980), and I will argue that this is a successful characterization of the non-CT uses of *ne*. In Chan's (1980) words, *ne* "serves to intercept a situation between (not including) its inception and termination, without focusing on any particular part of the situation's actualization". The basic properties of aspectual *ne* are listed in (18).

(18) Properties of Aspectual *ne* (adapted from Chan 1980: 61)
a. can occur with permanent states (PREDICATE … *ne*)
b. can occur with temporary states (VERB-zhe … *ne*)
c. can occur with processes (*zài … ne*)
d. resists events lacking duration
e. resists situations which have terminated
f. resists complements denoting the frequency, extent, or duration of an action

Later work by Li and Thompson (1981), Lin (1984), Chu (1998, 2006), Wu (2005), Li (2006) and others[4] attempts either overtly or covertly to collapse these aspectual uses with other sentence-final uses (or all uses, in Lin's case). However such a collapse is not tenable for a number of reasons.

First, to the degree that associating *ne* with CT is attractive, examples like (16) and (17) which cannot be marking CT already speak against this collapse. But beyond this, the two particles can be shown to have different syntactic distributions. In tag questions, if *ne* intervenes between the declarative and tag, the particle must be interpreted as aspectual, whereas if *ne* appears post-tag, it always marks contrastive topic. This distribution, illustrated in (19–20) strongly suggests that ne_{ASP} is lower in the syntax than ne_{CT}.

(19) Yàoshi dài-zhe (**ne**) méi-yǒu (#**ne**)?
key carry-DUR NE not-have NE
'Do you have the keys?'
Literally: 'Are you carrying the keys (**NE**) or not?'

(20) Zhāngsān qù-guò Rìběn. Nǐ qù-guò (#**ne**) méi-yǒu (**ne**)?
Zhangsan go-EXP Japan you go-EXP NE not-have NE
'Zhangsan has been to Japan. Have you?'
Literally: 'Have you or not (**NE**)?'

As additional support for two *ne's*, contrary to the common claim[5], sentence-final *ne* can co-occur with the yes-no question particle *ma*, but only when there is a continuing state or progressive action, and never otherwise. These facts hold irrespective of whether the question fits the discourse conditions for contrastive topic use. Example (21) shows the absence of *ne* + *ma* in a context that we would expect to support CT. On the other hand, (22) demonstrates that this combination is possible when the verb is progressive. This contrast cannot be accounted for without drawing a formal distinction between ne_{CT} and ne_{ASP}.

(21) Zhāngsān qù-guò Rìběn. Nǐ qù-guò (***ne**) **ma**?
Zhangsan go-EXP Japan you go-EXP NE MA
'Zhangsan has been to Japan. Have you?'

[4] Beyond those mentioned above, Li (2006: 9) cites Hu (1981), Chu (1984, 1985ab), King (1986) and Shao (1989) as all advocating that there is only one *ne*.

[5] The possibility for co-occurrence is often overlooked in the literature on *ne*, where Li and Thompson (1981: 306) and Li (2006: 29) claim that *ne* + *ma* is impossible. Lin (1984: 218) notes that *ne* + *ma* was historically possible, but is rare in modern Chinese.

(22) Nà háizi hái huó-zhe **ne ma**?
that kid still live-DUR NE MA
'Is that kid still living?'
(from sitcom 我爱我家 'I Love My Family' ep. 54)

Acknowledging the existence of two independent *ne's* lets us avoid a number of problems with approaches that insist on a single core meaning for *ne*. In particular, I would like to now respond to two objections to the aspectual analysis of *ne* that have been brought up in the literature.

The first type of objection says that whenever *ne* appears to contribute an aspectual meaning, it is in fact other morphemes responsible for this meaning. The prevalence of *ne* with durative markers *zài*, *-zhe*, and *zhèng* has been observed by Wu (2005: 50) and others. Li and Thompson (1981: 302) suggest that when *-zhe* and *ne* co-occur, the aspectual meaning is carried entirely by *-zhe*, since this meaning persists in the absence of *ne*.[6] This argument, which builds off of the comparison of minimal pairs like (23) vs. (24) has been repeated in subsequent work by Lin (1984) and Li (2006), and is one of the main rationales for not formally distinguishing an aspectual use of *ne*.

(23) Tā ná-zhe huār.
She hold-DUR flower
'She is holding a flower.'

(24) Tā ná-zhe huār **ne**.
She hold-DUR flower NE
a. 'She is holding a flower.'
b. 'She is holding a flower, and this contrasts with our expectations.'

There are several ways we can respond to this standard argument. First, the argument seems to take on a troubling assumption about redundancy in language—the assumption that if one morpheme carries a certain meaning, other morphemes in the same sentence must be conveying something else. Logically, there is no reason why *-zhe* and *ne*$_{\text{ASP}}$ couldn't both have aspectual meanings, and work together redundantly, or even through some kind of agreement.

Returning to (24), it is important to recognize that this example with *ne* has not only the reading in (b) but also a reading that is essentially the same as the version without *ne*. It seems to be a challenge of eliciting judgments of ambiguous sentences that consultants may be tempted to disambiguate toward a preferred reading, especially if an alternative form that unambiguously conveys the other meaning has been made salient.

[6] Li and Thompson (1981: 222) separate out a use of *-zhe* + *ne* in construction as an intensifier, restricted to Northern dialects. I will not discuss these uses here.

This phenomenon could be seen as a further variation on the challenges Matthewson (2004: 404–408) and Meyer and Sauerland (2009) have already observed with regard to judging cases of ambiguity. In the case of (23) vs. (24), consultants and analysts struggle to identify the subtle difference between the two forms, and naturally focus on extra meaning that (24) may have as the locus of the difference between the two. However this can easily lead to the faulty conclusion that *ne* is (always) responsible for contributing the meaning in (b). In fact, this conclusion would be unavoidable if we came to these sentences with the assumption that *ne* had a single meaning. Under the present analysis, on the other hand, (a) is a case of ne_{ASP}, while (b) is a case of ne_{CT}.

A second objection to the aspectual analysis concerns the co-occurrence of *le* and *ne*. According to Chan (1980: 61), since *ne* marks durative aspect, it should not be able to mark events lacking duration, or situations that have already terminated. From this, Chan (1980: 71) reasons that *ne* is in diametric opposition to the perfective aspect marker *le*, which marks the termination of a situation. Nevertheless, we do find examples of *le* and *ne* together:

(25) Èr shàoye jīntiān zǎoshang hái wèn-**le** nǐ de bìng **ne**.
two young.master today morning also ask-PFV you POSS illness NE
'Also, the second young master asked about your health this morning.'
(Wu 2005: 61 ff. 6, from 雷雨 'The Thunderstorm' by 曹禺 Cao Yu)

(26) … zài gǎi tiān qù hǎohǎo xièxiè rénjiā, rénjiā jiù-**le** nǐ **ne**.
then change day go proper thank them they save-PFV you NE
'(You should have taken down their telephone number and) gone back on another day to properly thank them; after all they did save you.'

These examples show clearly that an aspectual analysis is not sufficient to cover all uses of *ne*. However, there is no reason that contrastive topic *ne* should be incompatible with perfective *le*, so their co-occurrence is unproblematic for the dual *ne* account. Showing formally that such examples abide by the discourse conditions on ne_{CT} is a complicated matter that will depend on our implementation of CT meaning. But at a first pass, this seems right. For example, the *ne*-marked (26) addresses the issue of whether they saved you, which is being treated as just one sub-issue of a larger strategy aimed at establishing what you should have done.

This type of example also highlights an important point for future investigations on *ne*. If we are interested in discovering the use conditions on ne_{CT}, we need to first rule out the possibility that we're looking at ne_{ASP}—for example by using perfective *le*. Similarly, anyone investigating the meaning of ne_{ASP} needs to control for ne_{CT} by specifying the context—for example by restricting to direct answers to questions.

Finally, while it is not my aim to provide a diachronic account of *ne*, it is worth pointing out that the two *ne's* discussed here may have distinct historical roots. According to Chao (1968: 802), the uses of *ne* that we have associated with CT all derive from one source, while the "continued state" use, and other potentially related uses, derive from a separate source, which was written as 哩 *li* in old novels. Furthermore, Chao states that some dialects have maintained a distinction between *ni* for the first uses and *li* for the second. With these historical developments in mind, it is less surprising that *ne* in modern Mandarin should have two fundamentally unrelated meanings. For more on the historical facts, see also Ōta (1987), Cao (1995) and Qi (2002).

5. Haplology

If ne_{CT} and ne_{ASP} are indeed distinct lexical items, we are faced with the question of why the two particles never co-occur. Here, I pursue an account in terms of haplology, following existing work on the particle *le*. Li and Thompson (1981: §6.1, §7.1) argue that when *le* cliticizes to a verb, it marks perfective aspect, whereas the sentence-final use (sometimes called INCHOATIVE *le*) marks a "currently relevant state". This analysis has been widely accepted, and in fact, given the clear difference in both the syntax and semantics of these uses, a truly minimalist analysis of *le* would be nothing short of radical.[7] Surprisingly, though, when a verb is sentence final and both the aspectual and the non-aspectual meanings are licensed, only one occurrence of *le* is ever pronounced:

(27) Huǒ miè-**le** (***le**). (Li and Thompson 1981: 299–300)
fire go.out-PFV LE
'The fire went out, and that's what I'm telling you.'

Rather than indicating that the two *le's* are the same at some abstract level, this fact is widely, and I believe correctly, understood as a surface phenomenon, reflecting a morpho-phonological haplology constraint against adjacent realization of the two distinct and interpretable morphemes *le* (Chan 1980). I propose that a constraint of the same form prevents more than one instance of *ne* from surfacing. Since unlike *le*, both *ne's* are sentence final, this constraint obscures the line between the two uses, so that we never see them together. It is likely for this reason that theorists of the "minimalist" persuasion have largely attempted to collapse the two.

One point in favor of treating both *le* and *ne* in terms of haplology is that violations of the constraints in question appear parallel in the type of infelicity judgment they give rise to. That is, while (28) and (29) are both clearly unnatural, the sentences are alike in that speakers may perceive them as logically correct, despite the awkwardness. In fact, even while disapproving of the sentence, speakers can reliably identify the first *ne* in

[7] For a few radical approaches in this vein, and the challenges they face, see Chan (1980: 44–61).

(29) as intuitively referring to an ongoing state of affairs, and the second *ne* as drawing a contrast, in line with the ordering facts we saw in section §4.[8]

(28) Tā yǐjīng chī-**le** (??**le**).
she already eat-PFV LE
'She has already eaten by now.'

(29) A: If he's awake, ask him to call me.
B: Nà rúguǒ tā hái zài *shuìjiào* **ne** (??**ne**)?
then if he still PROG sleep NE NE
'And if he's still *sleeping*?'

These "soft" judgments suggest that speakers are not only aware of the distinct roles among the two *le's* and the two *ne's*, but also perceive a difference between surface morpho-phonological infelicity and underlying semantic infelicity. Indeed, when one of the two *ne's* is ruled out on semantic grounds, a stronger judgment is rendered:

(30) A: Where is he?
B: Zài jiā **ne** (#**ne**).
at home NE NE
'He's at home.'

6. Conclusions

In this paper, I hope to have established two major facts about the Mandarin particle *ne*. First, sentence-final *ne* cannot be reduced to a single core meaning. I showed that the particles ne_{ASP} and ne_{CT} differ on a variety of counts, including their discourse function, syntactic position, and interaction with other particles. From the perspective of the "meaning minimalists", this first conclusion could be seen as a step backward. However we also took a step forward in collapsing two uses of *ne* that are often kept apart. In particular, my second finding is that non-aspectual uses of sentence-final *ne* convey one and the same meaning as topic-marking *ne*, so these two may be unified.

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[8] If the discussion in section §4 is on the right track, we actually predict that two *ne's* could surface non-adjacently in a tag-question, as in (i). However, the speakers I have consulted reject such examples. At present, I am not sure how to best account for this infelicity.

(i) A: Is Old Li still alive?
B: Yeah, he's still alive.
A: *Nà *Lǎo-Wáng* hái huó-zhe **ne** méi-yǒu **ne**?
then old-Wang still live-DUR NE not-have NE
'Then is *Old Wang* still alive?'

Treating *ne* as contrastive topic is appealing for a number of reasons. For one, it is a first step toward formalizing the meaning of *ne* in a compositional semantic framework, which is a project I pursue in more detail in Constant (to appear). This approach also has the virtue of placing *ne* within a larger class of CT markers across languages. Identifying *ne* with this class of elements allows for insightful comparisons that, with luck, will not only lead to a better understanding of *ne* itself, but also inform theories of CT meaning and realization cross-linguistically.

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Postverbal Constituents in Mandarin Chinese[1,2]

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This paper discusses some previous structural and non-structural accounts of postverbal constituents in Mandarin Chinese and argues for an approach that attaches importance to both structure and non-structural factors like iconicity and information structure, an approach that offers a rather neat and natural account of postverbal constituents in Chinese. The paper also argues that all sentences containing one and only one postverbal duration or frequency phrase should be analyzed as involving a clause that contains both the duration/frequency phrase and the relevant verb except when only the action expressed by the verb is negated. As for sentences that contain two or more postverbal duration/frequency phrases in a row, they involve at least two clauses.

1. Introduction

Many linguists working on Mandarin Chinese (e.g. Chao 1968; Fang 1993; Huang 1984, 1998/1982; Huang et al. 2009; LaPolla 1995; C. Li & Thompson 1975; X. Li 1980; Y. Li 1987, 1990; Shi 2006; D. Xu 1990; L. Xu 1995), directly or indirectly, have touched upon the question of what constituents can occur postverbally and/or what the ordering of postverbal objects and postverbal duration/frequency phrases is. As far as the studies on what constituents can occur postverbally are concerned, they can be classified into two types: structural descriptions or accounts (e.g. Huang 1984; Y. Li 1990) and non-structural descriptions or accounts (e.g. L. Xu 1995; LaPolla 1995).

The purposes of this study are three-fold. First, it aims to review some previous structural and non-structural descriptions or accounts of postverbal constituents and to point out their problems. Second, it intends to argue for an alternative structural-functional account that takes both structure and function into consideration. Third, it also intends to discuss the syntactic status of postverbal duration and frequency phrases, i.e. whether they are all nominal predicates, as claimed by Shi (2006). The following sections will address these three aspects in turn.

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[1] Abbreviations: CL=classifier; EXP=experiential; LOC=locative; MM=modifier marker; PERF=perfective; SFP=sentence-final particle.

[2] "Verbal(ly)" in "preverbal(ly)" and "postverbal(ly)" in this paper is intended to include both verbs and adjectives.

2. Previous accounts

In this section, I review some structural and non-structural descriptions or accounts that have touched upon the issue of postverbal constituents in Chinese. First, with respect to structural descriptions or accounts, what is prominent in the studies by Huang (1984: 54) and Y. Li (1990: 7, 17; see also 1987: 61, note 2) is that postverbal duration and frequency phrases are claimed to be unable to co-occur with a postverbal object, as shown in the contrast between (1a) and (1b), both of which are adapted from Y. Li (1990: 7). In fact, Huang's (and Li's) more general claim, though "oversimplified," is that "a verb in Chinese may be followed by at most one constituent" (Huang 1984: 54). However, as shown in (1c) and particularly (2), this claim or observation has turned out to be incorrect.[3] In (2a), for example, the object *ta* 'he' and the duration phrase *san-ge xiaoshi* 'three hours' co-occur with each other, and both appear in a postverbal position.

(1) a. Ta qi-le san tian/ san ci.
he ride-PERF three day three time
'He rode for three days/three times.'

b. *Ta qi ma san tian/ san ci.
he ride horse three day three time
Intended: 'He rode horses for three days/three times.'

c. Ta qi-le san tian(/ san ci) ma.
he ride-PERF three day three time horse
'He rode horses for three days/three times.'

(2) a. Wo deng-le ta san-ge xiaoshi.
I wait-PERF him three-CL hour
'I waited for him for three hours.'

b. Wo jian-guo na-ge ren san ci.
I see-EXP that-CL person three time
'I saw that person three times.'

[3] The incorrectness of this observation is also indirectly reflected by studies devoted to the ordering of postverbal objects and duration/frequency phrases, such as the studies by Fang (1993) and X. Li (1980). It is also worth pointing out that it is not so obvious whether the claim made by Huang (1984) and Y. Li (1990) has been abandoned in Huang et al. (2009). Although they cite examples like (i) below, which Huang (1984) and Y. Li (1990) may not take as true counterexamples to their claim, no examples analogous to (2), which clearly involves a definite "direct" object (e.g. pronominal object and demonstrative object), are given.

(i) Huang et al. 2009: 92
Wo shang-guo ta liang ci jinyinzhubao.
I award-EXP him two time money.jewelry
'I awarded him money and jewelry twice.'

As for non-structural accounts of postverbal constituents in Chinese, they can be further classified into definiteness accounts and information structure accounts. With respect to the first category, Chao (1968), C. Li & Thompson (1975), and L. Xu (1995) all attach much importance to the notion of definiteness to account for the distribution of NPs in Mandarin. According to C. Li & Thompson (1975: 170), for example, it generally holds that "[n]ouns preceding the verb tend to be definite, while those following the verb tend to be indefinite," although some refinements are needed and made. [4] Along a similar line, L. Xu (1995: 37) observes that "[t]here is a tendency for definite NPs to be preverbal and for indefinite ones to be postverbal, whether they are arguments or adjuncts." However, without refinements as those made by C. Li & Thompson (1975) and without a statistical study of definite and indefinite NP in a large corpus, it is not immediately clear whether Xu's claim really holds, particularly given the fact that postverbal definite NPs are not difficult to find ((3)).

(3) a. Ni weishenme mai zhexie shu?
you why buy these book
'Why did you buy these books?'

b. Women yinggai guanxin ta, aihu ta.
we should be.attentive.to him take.good.care.of him
'We should be attentive to and take good care of him.'

In any case, what is shared by C. Li & Thompson's study and Xu's is that the observation is just a tendency. Although, admittedly, studies of tendencies with respect to a specific language or crosslinguistically are of great importance, a characterization of postverbal constituents in firmer terms would be preferred. In addition, the definiteness accounts focus only on the distribution of nouns, and thus fail to account for postverbal PPs and other syntactic constituents, as shown in (4).

(4) a. Ta fang-le yi-feng xin zai zhuozi-shang.
he place-PERF one-CL letter LOC table-on
'He put a letter on the table.'

[4] Specifically, C. Li & Thompson (1975) make the following four refinements:

(i) "The noun in post-verbal position will be interpreted as indefinite unless it is morphologically [e.g. when modified by *zhe* 'this' or *na* 'that'] or inherently [e.g. when it is a proper name or a personal pronoun] or non-anaphorically [i.e. non-linguistically] definite." (p.173)

(ii) "A sentence-initial noun must be interpreted as definite, and may not be interpreted as indefinite even if it is preceded by the numeral *yi-* 'one.' (p.177)

(iii) "The noun following *bei*, although pre-verbal, is immune to Tendency A [i.e. the tendency cited above]." (p.179)

(iv) "Nouns in prepositional phrases are immune to Tendency A [i.e. the tendency cited above]." (p.182)

b. Ta shuo ta bu xiang chi kugua.
he say he not want eat balsam.pear
'He said that he did not want to eat balsam pear.'

Recently, LaPolla (1995) questions the definiteness account of the distribution of NPs and offers an alternative information structure account. He claims that "Chinese does not have a grammatical category of definiteness" (p.308), which can be seen from the fact that the bare noun *keren* 'guest' in (5) can have both a definite and indefinite interpretation without its form being changed or without anything being added. According to LaPolla, "verb medial word order has the function of distinguishing topical or non-focal NPs from focal or non-topical NPs, not 'definite' and 'indefinite' NPs (p.323)." Specifically, "*topical or non-focal NPs occur preverbally and focal or non-topical NPs occur post-verbally"* (LaPolla 1995: 310; emphasis original).

(5) a. **Keren** lai le.
guest come SFP
'The guest(s) are coming.'
b. Lai **keren** le.
come guest SFP
'There comes a guest.' or 'There come some guests.'

However, there are two problems with LaPolla's (1995) information structure account. First, contra LaPolla, focal NPs like *wo* 'I' can occur preverbally, as shown in (6b), which is intended here as an answer to (6a). Second, non-focal NPs can occur postverbally, as shown in (7b), which is intended here as a response to (7a). In (7b), *ta* is non-focal, but it occurs after the verb *jian* 'to see,' again contrary to LaPolla's prediction. One may argue that *ta* in (7b) is also non-topical and that its postverbal occurrence thus conforms to the second part of his claim, namely that focal or non-topical NPs occur after the verb. However, as an answer to (7a), *ta* in (7b) is clearly non-focal. This leads us to the conclusion that *ta* must be neither non-topical nor non-focal, a category that apparently has no place in LaPolla's proposal.

(6) a. Shei jian-guo ta?
who see-EXP he
'Who saw him before?
b. **Wo** jian-guo ta.
I see-EXP he
'I saw him before.'

(7) a. Ni jian-guo ta ji ci?
you see-EXP he how.many time
'How many times did you see him before?
b. Wo jian-guo ta san ci.
I see-EXP he three time
'I saw him three times before.'

Therefore, as far as postverbal constituents are concerned, it is not the case that only focal or non-topical elements can occur postverbally. In fact, just as both definite and indefinite NPs can occur postverbally, both focal and non-focal elements can occur in the postverbal position.

3. An alternative account of postverbal constituents

3.1 A structural-functional account

In this subsection, I argue that an alternative and a better approach to what constituents can occur postverbally in Mandarin Chinese is one that takes into consideration both syntactic factors and non-syntactic factors like iconicity and information structure.

First, the semantically patient or theme argument of an intransitive verb occurs in the postverbal position when conveying new information, as shown in (8-9). The postverbal constituent is the single argument of the intransitive verb in both (8) and (9). In (8), this constituent is a theme argument, which is an event participant that necessarily undergoes a change of location at the completion of the event. The underlined part in (9) is a patient argument, which necessarily undergoes a change of state. In both (8) and (9), the single argument of the verb conveys new information. As a result, this theme or patient argument occurs postverbally.

(8) Gangcai lai-le liang-ge jingcha.
a.moment.ago come-PERF two-CL policeman
'Two policemen came (here) a moment ago.'

(9) Na-xiang li lan-le qi-ba-ge.
that-box pear rot-PERF seven-eight-CL
'Seven or eight pears in that box got rotten.'

Second, all subcategorized NP or clause complements can occur postverbally in one context or another, as shown in (10-12), where all the relevant postverbal constituents are underlined. The two examples in (10) involve subcategorized complements of adjectives. In (10a) the complement is an NP and in (10b) it is a clause. The two examples in (11) involve subcategorized complements of the verb *xiangxin* 'believe.' The complement is an NP in (11a) and is a clause in (11b). As for (12), it involves a subcategorized NP of a

three-place predicate, whose location argument can occur both preverbally and postverbally, a fact that has immediate relevance to our discussion below.

(10) a. Ta hen manyi ziji-de gongzuo.
he very satisfied self-MM job
'He is very satisfied with his job.'
b. Wo hen gaoxing ni neng zhaodao ni-de xingfu.
I very happy you can find you-MM happiness
'I am glad that you can find your happiness.'

(11) a. Ta hen xiangxin wo-de hua.
he very believe I-MM word
'He very much believes my words.'
b. Wo xiangxin ta shi yi-ge hao ren.
I believe he be one-CL good person
'I believe that he is a good person.'

(12) a. Zhangsan zai zhuozi-shang fang-le yi-ben shu.
Zhangsan LOC table-on place-PERF one-CL book
Intended: 'Zhangsan put a book on the table.'
b. Zhangsan fang-le yi-ben shu zai zhuozi-shang.
Zhangsan place-PERF one-CL book LOC table-on
'Zhangsan put a book on the table.'

Third, subcategorized PP complements can occur preverbally ((12a), (13a), and (14a)), but they can also appear in the postverbal position when such an ordering conforms to the unfolding of the event in the real world, as shown by the contrast between (13b) and (14b). The goal *gei Lisi* 'to Lisi' in (13b) occurs after the verb *ji* 'to send,' and this conforms to the unfolding of the event of sending. As a result, (13b) is grammatical. As for (14b), however, what he did should go before my feeling good, if there is any temporal ordering of the two at all. As putting the PP after the head violates the temporal constraint, (14b) is predicted to be ungrammatical in Chinese and this prediction is borne out.

(13) a. Zhangsan gei Lisi ji-le yi-ben shu.
Zhangsan to Lisi send-PERF one-CL book
Intended: 'Zhangsan sent a book to Lisi.'
b. Zhangsan ji-le yi-ben shu gei Lisi.
Zhangsan send-PERF one-CL book to Lisi
Intended: 'Zhangsan sent a book to Lisi.'

(14) a. Wo zhen wei ta zihao.
I really for he proud
'I'm really proud of him.'
b. *Wo zhen zihao wei ta.
I really proud for he
Intended: 'I'm really proud of him.'

Finally, as for adjuncts, they can and generally must occur postverbally only when used (i) to provide new information about the degree or extent of a comparison or about the degree, extent, result, or goal that an eventuality expressed by a verb or an adjective has reached or will reach, or (ii) to offer new (evaluative) information about that eventuality in terms of quality or about (the state of completion of) that eventuality in terms of quantity, particularly numerical quantity. The following examples in (15) illustrate such postverbal adjuncts, which are all underlined.

(15) a. Zhangsan pao-de tui dou suan le. (degree/result)
Zhangsan run-MM leg EMPHASIS sore SFP
'Zhangsan ran so much so that his legs were sore.'
b. Ta like tiao-dao-le zhuozi-shang. (result: location)
He at.once jump-onto-PERF table-on
'He/She jumped onto the table at once.'
c. Zhangsan bi ta gege gao hen duo. (extent)
Zhangsan than he older.brother tall very much
'Zhangsan is a lot taller than his older brother.'
d. Zhangsan-de Putonghua shuo-de hen hao. (evaluation; quality)
Zhangsan-MM Mandarin speak-MM very well
'Zhangsan speaks Mandarin very well.'
e. Wo deng-le ta san-ge xiaoshi. (quantity; duration)
I wait-PERF he three-CL hour
'I waited for him for three hours.'
f. Wo deng-guo ta san ci. (quantity; frequency)
I wait-EXP he three time
'I waited for him three times.'
g. Zhangsan bi ta gege gao liang gongfen. (quantity)
Zhangsan than he older.brother tall two centimeter
'Zhangsan is two centimeters taller than his older brother.'

The adjuncts in (15a) and (15b) express the degree or result of the running action and the location of the jumper as a result of the jumping event, respectively. The adjunct in (15c) indicates the degree or extent of a comparison and the one in (15d) involves an evaluation in terms of quality. (15e) and (15f) involve adjuncts that express the numerical duration

and frequency of the waiting event. As for (15g), it also involves a numerical quantity, in this case a quantity of the degree or extent of a comparison.

As can be seen from the above discussions, the occurrence of postverbal constituents can be given a rather neat and natural account when we take into consideration not only the syntactic status but also the function of the different postverbal constituents in the event being described. While the occurrence of subcategorized NP or clausal complements in the postverbal position can be described with syntactic terms alone and can be said to follow the basic SVO order of Chinese, the same cannot be said about the single theme or patient argument of an intransitive verb. That is, the occurrence of the latter in the postverbal position cannot be accounted for without taking non-syntactic factors into consideration. Similarly, the occurrence of PP complements and adjuncts postverbally cannot be given a natural explanation by resorting to syntax alone.

Crucially, the postverbal occurrence of single theme/patient arguments of intransitive verbs, PP complements, and adjuncts is not a random phenomenon and is conditioned by iconicity and information structure factors. As we have seen, the single theme/patient argument of an intransitive verb can occur postverbally only when it conveys new information. PP complements can occur in the postverbal position only when such an ordering conforms to the unfolding of the event in the real world, i.e. only when this ordering conforms to the iconicity principle, which states that the order of syntactic constituents should reflect their function in a specific event.[5] As for adjuncts, their postverbal occurrence can also be reduced to iconicity and information structure considerations. Recall that adjuncts occur after the verb or adjective when they are used to provide new information about the degree, extent, result, or goal that an eventuality expressed by a verb or an adjective has reached or will reach, or to offer new (evaluative) information about that eventuality in terms of quality or quantity. Therefore, the occurrence of postverbal constituents is sensitive to information structure. Meanwhile, the fact that degree, extent, duration, frequency, and result adjuncts occur postverbally also conforms to the iconicity principle. Specifically, such predicate modifiers should occur after the predicate when presented as new information because only after an eventuality lasts for a while can one talk about its degree/extent, duration, frequency, and result.

The advantage of our structural-functional account is that it not only describes what constituents can occur postverbally but also offers natural explanations as to why. For example, the account can naturally capture the contrast between (16a) and (16b). Although *kuaisu* in (16a) and *hen kuai* in (16b) have a similar meaning, the former is used preverbally because it is used to express the manner of running. In contrast, to give

[5] Cf. Tai's Principle of Temporal Sequence, which says that "the relative order between two syntactic units is determined by the temporal order of the states which they represent in the conceptual world" (1985: 50, 1993: 59).

an evaluative comment about the running action, *hen kuai* in (16b) has to be used after the verb.

(16) a. Ta kuaisu de xiang wo pao guolai. (manner)
he quickly MM toward I run over
'He is running over to me quickly.'
b. Ta pao-de hen kuai. (evaluation)
he run-MM very fast
'He runs very fast.'

3.2 Apparent counterexamples

In this subsection, we examine some examples that appear to pose a problem for our structural-functional account of postverbal constituents in Chinese offered above. These examples are all concerned with noun phrases containing a quantity element.

First, let's see whether the use of quantificational noun phrases in the preverbal position in (17-18) is compatible with our structural-functional account. I argue that the use of *san ci* 'three times' in (17) and *san tian* 'three days' in (18) preverbally does not really pose a problem for our account. This is because *san ci* in (17), with the use of *dou* 'all,' does not convey new information, but given or old information. Therefore, it occurs preverbally instead of postverbally. As for *san tian* in (18), it does not express the duration of the book-writing event or the duration after the completion of the writing activity. In fact, it is about how soon the book is completed rather than how long the writing action lasts. This is also reflected by the fact that the English translation of *san tian* in this case is "in three days," not "for three days." As a result, it is not so surprising that *san tian* occurs in the preverbal position in (18).

(17) Ta san ci dou qu-le.
he three time all go-PERF
'He went all the three times.'

(18) Ta san tian xi-le yi-ben shu.
he three day write-PERF one-CL book
'He wrote a book **in three days**.'

Next, let's consider the interesting pair in (19). The two sentences here express the same meaning, but *yi ci* 'one time' can occur both preverbally and postverbally. However, I argue that both (19a) and (19b) are compatible with our account of postverbal constituents in Chinese.

(19) a. Ta yi ci ye mei qu-guo.
he one time also not go-EXP
'He did not go there once, let alone twice or more.' / 'He did not go there even once.'
b. Ta mei qu-guo yi ci.
he not go-EXP one time
Intended: 'He did not go there even once.'

Specifically, in (19a) *mei* negates *qu-guo* 'went.' In this case, *yi ci* cannot occur postverbally because it would give rise to a semantic conflict. Recall that on our proposal an adjunct that expresses new information about the frequency of an eventuality or about the duration of an eventuality or the duration after the completion of the eventuality should occur postverbally. As only such duration/frequency phrases and no other duration/frequency phrases can occur in the postverbal position and appear in the same clause as the verb or adjective, from a hearer's perspective our proposal also has bearing on how postverbal duration and frequency phrases should be interpreted. Namely, such phrases should be interpreted in the way stated in (20).

(20) Interpretation of postverbal duration/frequency phrases
Postverbal duration/frequency phrases should be interpreted as indicating the duration or frequency of the eventuality expressed by the verb or adjective in the same clause, or the duration after the completion of the eventuality expressed by that verb or adjective.

Given (20), a postverbal frequency phrase has to be interpreted as the frequency of the eventuality denoted by the verb or adjective. In other words, if *yi ci* 'one time' was used postverbally in (19a), it would be grouped with *qu-guo* 'went' and together they mean 'went once.' However, as shown in (21a), the semantic grouping of *mei* and *qu-guo* and that of *qu-guo* and *yi ci* create a semantic conflict. This is because the former grouping says that the "going" eventuality did not take place but the latter says that it took place once. Therefore, if there is the semantic grouping of *mei* and *qu-guo*, *yi ci* cannot be used postverbally. However, in this case it can be used preverbally and no semantic conflict arises, as its preverbal use prevents it from being semantically grouped with *qu-guo*.

(21) Semantic grouping
a. *<[**mei** {**qu**] yi ci}>
b. **<mei** [qu **yi** **ci**]>

If avoidance of semantic conflict can account for (19a), then the question is how to account for the use of *yi ci* 'one time' in the postverbal position in (19b). Recall that on our account the postverbal use of *yi ci* entails its semantic grouping with *qu-guo*. To

make sense of this semantic grouping in a negative sentence, what is negated cannot be taken to be the action alone, but both the action and the frequency phrase. In other words, to make any sense, the semantic grouping of (19b) should be (21b), not (21a). While "not going once" can mean "more than once" or "less than once," the latter interpretation can only mean that the relevant action did not take place, as "half a time," "one-third of a time," or similar expressions do not make any sense. As a result, the semantic grouping in (21b) can lead to the intended reading of (19b). In a word, the difference between (19a) and (19b) is that the semantic grouping of *mei* and *qu-guo* is entailed in the former, but not in the latter. This semantic grouping, when entailed, prevents the frequency phrase from occurring postverbally, as we have seen in (19a).

Let's end the discussion of (19) with Y. Li's (1987) general observation that the sentence must be in the negative form when a true duration/frequency phrase occurs before the verb, as can be seen from (19a) above and (22) below. Y. Li accounts for this by proposing that such sentences in fact involve the deletion of *you* 'to have, there be, achievedly.' On her analysis, (22) is derived from (23), which has *you* before the duration phrase. On Y. Li's reasoning, the ungrammaticality of (22) when without the negative maker is due to the same unknown factor that can account for the ungrammaticality of (23) when used in a positive context. If so, the *you*-deletion analysis of (22) does not really offer an explanation as to why the sentence would be bad when in the positive form, as she cannot account for why (23) would be ungrammatical when without the negative marker.

(22) Ta liang nian *(mei) lai Meiguo le.
he two years not come America SPF
'It has been two years that he did not come to the U.S.'

(23) Ta you liang nian *(mei) lai Meiguo le.
he achievedly two years not come America SPF
'It has been two years that he did not come to the U.S.'

I argue that the ill-formedness of the type of semantic grouping as seen in (21a) can also account for the general observation made by Y. Li (1987). On my account, this fact actually results from the impossibility of having both the semantic grouping of the negative marker and the verb and the semantic grouping of the verb and the duration/frequency phrase. As seen above, this is due to the fact that the former grouping gives rise to the interpretation that the action did not take place and that the latter brings forth the interpretation that the action did take place. The two interpretations lead to a semantic conflict. Note that the semantic conflict arises only when there is a negative marker that negates the verb or adjective AND when the duration/frequency phrase occurs postverbally because on our proposal the duration/frequency phrase in this syntactic environment needs to be interpreted as the duration/frequency of the eventuality

or the duration after the completion of the eventuality. Therefore, if what is intended to express is that the action did not take place, the duration/frequency phrase has to be used preverbally to avoid a semantic conflict.

In a word, our structural-functional account of postverbal constituents predicts that the duration/frequency phrase, when referring to the duration/frequency of the eventuality or the duration after the completion of the eventuality, should occur postverbally if the action itself is not negated. However, if only the action expressed by the verb is negated and if there is a true duration/frequency phrase in the same clause, the duration/frequency phrase can only occur preverbally to avoid a semantic conflict. These facts account for Y. Li's observation that the predicate can only be in a negative form when a true numerical duration/frequency phrase occurs preverbally.

Finally, let's consider whether our structural-functional account of postverbal constituents in Chinese can also account for the examples in (24). Note that in these two examples, the duration phrase does not refer to the duration of the eventuality denoted by the verb, but the duration after the completion of the eventuality. However, such examples are not true counterexamples to our proposal. In fact, our proposal predicts that duration phrases that are about the duration after the end of an eventuality should occur postverbally when presented as new information.

(24) a. Ta lai-le liang tian le.
he come-PERF two day SFP
'It has been two days since he came.'
b. Ta si-le san nian le.
he die-PERF three year SFP
Intended: 'It has been three years since he passed away.'

One may argue that the two examples in (24) are true counterexamples to the structural-functional account because they can be analyzed as involving two clauses, as proposed by Shi (2006). That is, (24a), for example, may have the structure in (25), in which the duration phrase is not part of the smaller clause, but the predicate of the larger clause. As on our account a duration phrase indicating the duration after the completion of an eventuality, like a duration phrase indicating the duration of the eventuality, should occur postverbally and be in the same clause as the verb or adjective that expresses that eventuality, the analysis of (24a) as (25) appears to be problematic for our proposal.

(25) [$_{S1}$ [$_{S2}$ Ta lai-le] liang tian le]

However, there is evidence that (25) may not be the right analysis for (24a). The evidence comes from the use of *yijing* 'already,' as seen in (26). If (24a) were said to have the structure in (25), (26) should have the structure in (27). However, the structure shown in (27) fails to account for the fact that *yijing* can have scope over the duration

phrase in (26) (see (28) for another example). This is because as shown in (29), *yijing* cannot have scope over a duration phrase when they do not occur in the same clause, even though they are in the same sentence.[6,7] This suggests that (27) is not the right analysis for (26). Rather, (26) should be analyzed as consisting of a single clause, not two clauses, as *yijing* in this sentence has scope over the duration phrase. As the single difference between (24a) and (26) is the use of *yijing* in the latter sentence and as there is no evidence that the addition of *yijing* leads to a difference in the general structure between these two sentences (cf. the English pair in (30)), we conclude that a two-clause analysis of (24a) does not hold and that sentences like (24) do not pose a problem for our structural-functional account of postverbal constituents in Chinese.

(26) Ta yijing lai-le liang tian le.
he already come-PERF two day SFP
'He has already been here for two days.'

(27) [$_{S1}$ [$_{S2}$ Ta yijing lai-le] liang tian le]

(28) Ta yijing likai na-ge chengshi san nian le.
he already leave that-CL city three year SFP
'It has already been three years since he left that city.'

(29) a. [$_{S1}$ Wo yijing zhidao [$_{S2}$ ta cengjing zai na-ge difang zhu-le
I already know he once LOC that-CL place live-PERF
shi nian] le.
ten year SFP
'I already know that he once lived in that place for ten years.'

b. Ta cengjing zai na-ge difang zhu-le shi nian (*le).
he once LOC that-CL place live-PERF ten year SFP
'He once lived in that place for ten years.'

c. *Ta yijing cengjing zai na-ge difang zhu-le shi nian.
he already once LOC that-CL place live-PERF ten year
'*He already once lived in that place for ten years.'

(30) a. He has lived here for three years.
b. He has already lived here for three years.

[6] A sentence may contain one or more clauses.

[7] (29b) shows that *le* is not part of the embedded clause in (29a), and (29c) shows that *yijing* cannot be used with that embedded clause.

In a word, the apparent counterexamples to our structural-functional account of postverbal constituents in Chinese are not true counterexamples upon closer examination. Among these sentences, the ones in (24) bear on the question of the syntactic status of postverbal duration/frequency phrases, a question that will be further discussed in the next section.

4. Syntactic status of postverbal duration/frequency phrases

In section 3.2, I have argued that sentences like (24), (26), and (28) should be given a single-clause analysis, on which the duration/frequency phrases in these sentences serve an adverbial function and do not count as the main predicate of the whole sentence. As mentioned above, this analysis differs from Shi's (2006) proposal, on which all sentences involving a postverbal duration/frequency phrase that is not the object of the verb should be given a multiple-clause analysis and all postverbal duration/frequency phrases should be analyzed as a main predicate.

Note that on Shi's proposal, sentences like (31) should also be given a two-clause analysis, just like the analysis for (24).[8] According to Shi, such an analysis is compatible with the fact that the duration phrase in (31) can be negated and can be used with adverbs like *yijing* and "modal verbs," as shown in (32).

(31) Shi 2006: 56
Nie Yunlong bing-le liang tian.
Nie Yunlong sick-PERF two day
'Nie Yunlong was sick for two days.'

(32) a. [Nie Yunlong bing-le hai **mei** liang tian], jiu qi-bu-lai-le.
Nie Yunlong sick-PERF yet not two days then rise-not-up-PERF
'Nie Yunlong could not get up after he was sick for less than two days.'
b. Nie Yunlong bing-le **yijing** liang tian le.
Nie Yunlong sick-PERF already two day SFP
'Nie Yunlong has been sick for already two days now.'
c. Nie Yunlong bing-le **yinggai** liang tian le ba.
Nie Yunlong sick-PERF probably two day SFP SFP
'Nie Yunlong has been sick for probably two days now, right?'

It should be first pointed out that although *yinggai* can be used as a modal verb, as in (33), it can also be used as an adverb. In (32c), *yinggai* is in fact an adverb, not a modal verb, as claimed by Shi (2006). As a result, Shi's argument can be rephrased as follows: (31) should be given a dual-clause analysis because the duration phrase can be negated and can be modified with adverbs like *yijing* 'already' and *yinggai* 'probably.'

[8] All the glosses and translations as to Shi's examples are mine.

(33) Ni yinggai qu.
you should go
'You should go.'

However, the fact that the duration phrase in (31) can be negated and can be used with *yijing* and *yinggai* cannot count as real evidence for a dual-clause analysis of the sentence. This is because the duration phrase in (31) is notionally an adverbial phrase, although syntactically it is a noun phrase. As a result, it is not surprising that they are compatible with *mei*, which arguably is also an adverb, *yijing*, *yinggai*, and other similar adverbs. Therefore, the fact that the duration phrase can be modified with such adverbs does not provide a convincing argument that sentences like (31) consist of two clauses and that the duration phrase is the main predicate of the whole sentence. Moreover, there is no clear evidence that sentences like (32b) and (32c) contain two clauses, thus also contrary to Y. Li's (1987) analysis of sentences containing a postverbal duration/frequency phrase modified with *yijing* as consisting of two clauses.

Having argued that sentences like those in (24), (26), (28), (31), and (32) involve a single clause, not two clauses,[9] I would like to point out that there are two types of sentences discussed in Shi (2006) that indeed should be analyzed as consisting as two clauses, as argued by Shi himself.

The first type is illustrated by (34), in which the verb is negated with *mei* 'not.' There are two pieces of evidence that (34) should be analyzed as involving two clauses and having the structure in (35).

(34) Shi 2006: 55
Wo mei chu-guo da men yijing san-ge yue le.
I not go.out-EXP big gate already three-CL month SFP
'I have not gone out a bit for already three months now.'

(35) [$_{S1}$ [$_{S2}$ Wo mei chu-guo da men] yijing san-ge yue le]

First, as pointed out by Shi (2006: 54-55), *mei(you)* 'not' and *le*, the perfective marker and sentence-final particle, cannot co-occur in the same clause when the verb is negated by *mei(you)*, as shown in (36). However, when the verb is negated by *mei(you)* and when *mei(you)* and *le* are not in the same clause, the sentence can be grammatical, as shown in (37). In this example, although *meiyou* and *le* appear in the same sentence, they do not occur in the same clause. As a result, the sentence is good. Given these observations, the fact that (34) is grammatical strongly suggests that the sentence involves not just one clause and that *mei* 'not' and *le* are not in the same clause.

[9] For (32a), we are only concerned with the part in the square brackets.

(36) a. Ta chi-le fan le.
he eat-PERF meal SFP
'He has already eaten'
b. Ta hai mei chi fan.
he still not eat meal
'He has not eaten yet.'
c. *Ta mei chi-le fan le.
d. *Ta mei chi-le fan.
e. *Ta mei chi fan le.

(37) Shi 2006: 55
[$_{S1}$ [$_{S2}$ Zhang xiaozhang **meiyou** nadao boshi xuewei] yijing shi
Zhang president not get doctor degree already be
zhongsuozhouzhi de shi **le**].
all.people.know MM matter SFP
'That President Zhang did not get his doctoral degree is a matter that everyone has known.'

The second piece of evidence for a dual-clause analysis of (34) comes from our analysis of postverbal constituents in Chinese. As discussed earlier, a postverbal duration/frequency phrase cannot occur with a negated verb in the same clause. Given this, the fact that (34) involves both a negated verb and a postverbal duration phrase and that the sentence is grammatical also suggests that the negated verb and the duration phrase are not in the same clause.

The other type of sentences discussed by Shi (2006) that should be given a dual-clause analysis are those that involve both a duration phrase and a frequency phrase or involves two duration phrases in a row, as shown in (38-39). What is special about these sentences is that the last duration/frequency phrase refers to a happening that includes the first duration/frequency phrase. In (38), for example, *henduo nian* 'for many years' does not refer to the duration of the waiting event or the duration after the completion of the waiting event, but the fact that it has been many years that I wait for him for two or three hours. This strongly suggests that sentences like (38) and (39) do not involve a single clause, particularly given our proposal that postverbal duration/frequency phrases can only be about the duration/frequency of the eventuality itself or the duration after the completion of the eventuality. Moreover, Shi (2006) cites Liu et al. (2001) in literally stating that there can only be one duration/frequency phrase in a single clause. This also suggests that (38) and (39) involve more than one clause, given that the former involves both a duration phrase and a frequency phrase and the latter involves two duration phrases in a row.

(38) Shi 2006: 54
Bingren mei tian bian xue liang-san ci yijing
patient every day defecate blood two-three time already
ban nian duo le.
half year more SFP
'It has been over half a year that the patient has blood in his/her stool for two or three times a day.'

(39) Wo zheyang deng ta liang-san-ge xiaoshi yijing henduo nian le.
I like.this wait he two-three-CL hour already many year SFP
'It has been many years that I wait for him like this for two or three hours.'

In sum, the use of *mei* 'not' and adverbs like *yijing* 'already' and *yinggai* 'probably' right before duration/frequency phrases does not count as true evidence for a dual-clause analysis of sentences containing a postverbal duration/frequency phrase that is not the object of the verb of the sentence. All the sentences in Shi (2006) that contain a postverbal duration/frequency phrase should be analyzed as having the duration/frequency phrase and the relevant verb in the same clause except when only the action expressed by the verb is negated or when there is more than one postverbal duration/frequency phrase in a row. As a result, only for these exceptions can we possibly analyze the postverbal duration/frequency phrase as the main predicate of the sentence. In all the other cases, the postverbal duration/frequency phrase is just an adjunct, not a main predicate.

5. Conclusion

In this paper I have discussed some previous structural and non-structural accounts of postverbal constituents in Mandarin Chinese, and pointed out their shortcomings. I have argued for an approach that pays enough attention to both structure and non-structural factors like iconicity and information structure. On our account, postverbal constituents are generally of two types: those that can be described with structural terms alone and those that cannot. The former group includes only subcategorized NP and clause complements. As for all the other postverbal constituents, they cannot be fully accounted for without taking iconicity or information structure or both into consideration.

With respect to postverbal duration and frequency phrases, on which most research on postverbal constituents tends to focus, I have argued that contra Y. Li (1987) and Shi (2006), all sentences containing one and only one postverbal duration or frequency phrase should be analyzed as involving a clause that contains both the duration/frequency phrase and the relevant verb except when only the action expressed by the verb is negated. As for sentences that contain two or more postverbal duration/frequency phrases in a row, they involve at least two clauses. When the duration/frequency phrase and the verb are in

the same clause, the duration/frequency phrase is just an adjunct. It can serve as the main predicate of a sentence only when the two are in two different clauses.

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Topic-comment and the Chinese Existential Construction

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0. Introduction

This paper examines the Chinese Existential Construction (EC) with Coda(s) (Locative)-V-NP-XP, as in (1). A Coda is defined as any constituent to the right of the post-verbal NP that is not part of it (Keenan 1987). The underlined phrase in (1) is the NP being asserted, and the bold face phrase is the Coda.[1]

(1) (zhuo-shang) you <u>yi-ben shu</u> **hen youqu**
table-up have one-CL book very interesting
"On the table there is a book, which is very interesting."

In section 1, I point out that Coda as an adjunct and Coda as an NP analyses are not possible for the Chinese EC, and that a V-complement analysis is more ideal. In section 2, three properties are discussed to clarify what the Chinese EC with Coda(s) is. First, the post-verbal NP and the Coda form a constituent, which serves as a complement of the existential verb (section 2.1). Second, the Coda must be predicative when the post-verbal NP is understood as its subject (section 2.2). Third, the EC with Coda(s) show movement effects (section 2.3). The three properties point to a solution, a topic-comment analysis, proposed in section 3. Section 4 uses the proposed structure to account for the absense and presence of Coda restriction in Chinese and English. That is, Chinese allows both I(ndividual)-level and S(tage)-level Coda (in the sense of Carlson 1977) while

[1] The abbreviation in this paper is as follows: CL= classifier, PFV=perfective aspect, EXP= experience aspect, PROG=progressive aspect.

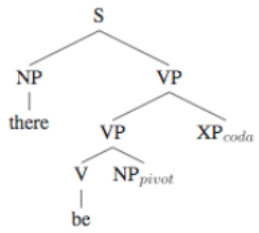
English only allows S-level Coda. Section 5 is the impliction and conclusion of the paper.

1. The structure of the EC with Coda

1.1. Coda as an adjunct

McNally (1992) argued for the Coda as an adjunct analysis (adjunct analysis for short), such as (2).

(2) a. There was a [$_{NP}$ chicken] [$_{AP}$ cooked] b.



Adjunct analysis has also been proposed in the Chinese literature (Huang 1987, Lin& Fang 2008.) Huang argued for an adjunct analysis for three types of Chinese EC[2] because 1) the verbs of these three types ECs generally subcategorize an NP, not a clause, and 2) Codas are optional in EC, as in (3).

(3) a. fasheng-le yi-jiang xiongshaan
here happen-ASP one-CL murder case
"A murder case happens here."
b. chang-shang tang-zhe bingren
bed-on lie-PROG patient
"On the bed lies/lie a patient/patients."
c. wo jiao-guo yisheng
I teach-EXP doctor
"I taught doctors before."

Lin and Fang (2008) further argued that the *you*-type existential (1) (fn. 2) also has an adjunct structure because the Coda exhibits CED. In particular, they showed that the *you*-type EC cannot be the complement of the passive verb *bei* in the Mandarin passive construction.

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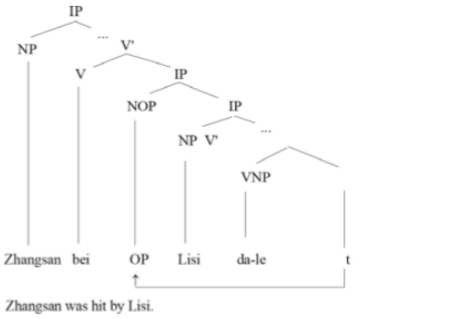
[2] Huang (1987) identified four types of ECs in Chinese. These are: (i) sentences with the existential verb *you* 'have' as in (1), (ii) those with a verb of appearance or disappearance like *lai* 'come', *fasheng* 'happen', *si* 'die', and *pao* 'escape' as in (3a), (iii) those with a locative verb like *zuo* 'sit', *tang* 'lie', *fang* 'put' as in (3b), and (iv) those with a verb expressing the existence of an event or experience and suffixed with the experiential morpheme *–guo* or the perfective morpheme *–le* as in (3c). According to Huang, type (ii)(iii) (iv) has an adjunct structure; type (i) has a small clause structure. In this paper, I did not discuss type (iv) because to my knowledge there is no other language that has this type of EC.

(4) *[na ben shu]$_i$ bei you san- ge ren mai t_i le.
That CL book BEI have three CL people buy LE
"That book was bought by three people."

Based on Huang's (1999) analysis that Mandarin passive sentences involve A'-movement of a null operator, as in (5), Lin and Fang argued that the ungrammaticality of (4) is due to the fact that the null operator, which is now part of the Coda in the adjunct, cannot be moved, otherwise an adjunct island violation.

(5)



(From Huang 1999: 45)

However, an adjunct analysis cannot be correct. First, the optionality of the Coda is not a valid arugment. There are cases where Codas cannot be omitted (Zhang 2008). (6) is semantically weird since *renqun* "crowd" implies more than one person, and a book usually has more than one page. Something must be said after the NP to provide subsequent descriptions/information.

(6) a. renqun dangzhong you yi-ge ren ??(shi mingxing)
crowd among have one-CL person COP movie star
"There is a person (who is a movie star) in the crowd."
b. zhe-ben shu you yi ye ??(bujian-le)
this-CL book have one page missing PFV
"There is a page (missing) in this book."

Second, elements in the Coda can be extracted, showing that no (adjunct) island effect is induced (contra Lin & Fang 2008).

(7) a. [zhe-zhong chou-tofu]$_{i,}$, you yi-ge laowai **hen ai chi t_i**
this-CL stinking tofu have one-CL foreigner very love eat
"This kind of stinking tofu$_i$, there is a foreigner, who likes to eat (it$_i$)."
b. [zhe-shou quzi]$_i$, you yi-ge xuesheng **hen hui tan t_i**

this-CL song have one-CL student very able play
"This song$_i$, there is a student, who is able to play (it$_i$) very well."

The reason why (4) is ungrammatical is simply that *you* is a verb, and *you*+NP as a verb phrase cannot occur in an argument position, such as the object position of a transitive verb (8a), after *ba* in *ba*-construction (8b), and after *bei* in passive construction (8c).

(8) a. ta xihuan [(*you) yi-ge ren].
he like have one-CL person
"He likes a student."
b. Lisi ba [(*you) yi-ge huaidan] sha-le.
Lisi BA have one-CL scoundrel kill-PFV
"Lisi killed a scoundrel."
c. tade mimi bei [(*you) liang-ge ren] faxian le
his secret BEI have two-CL person discover-PFV
"His secret is discovered by two people."

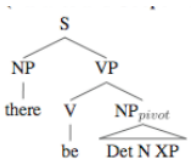
Third, binding tests show that the post-verbal NP must locally bind the Coda. According to Binding Principle A, the reflexive *taziji* needs a local antecedent. If the Coda were an adjunct, the matrix subject Zhangsan's group or the possesor Zhangsan would bind *taziji* 'itself/himself', and serve as its antecedent. However, this is contra to the fact. *Taziji* can only get reference from *yi-ge xuesheng* 'a student'[3].

(9) [Zhangsan$_i$ de shetuan-li]$_j$ you yi-ge xuesheng$_k$ **hen ai piping taziji**$_{*i/*j/k}$
Zhangsan DE group-in have one-CL student very love criticize himself
"In [Zhangsan's$_i$ group]$_j$ there is a student$_k$ who loves to criticize itself$_{*j}$/himself$_{*i/k}$."

1.2. Coda as a part of NP

Since Barwise and Copper (1981), many have argued that Coda is an NP-internal modifier.

(10) a. There was a [$_{NP}$ chicken cooked] b.



NP-internal modifier analysis is difficult to implement for the Chinese EC because Chinese nominal phrases are head-final, that is, the modifier always goes before the head

[3] I assume with (Lin 2001, 2008) that the locative expression is a subject originated in Spec *v*P.

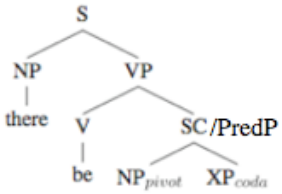
noun, as in (11). More ad hoc stipulations on word order have to be made for this analysis to work in Chinese (Huang 1987)[4].

(11) a. wo xiang chi [haochi] de dangao
I want eat delicious DE cake
"I want to eat [delicious] cake."
b. ta kanjian na ge [zuotian ma ta] de ren
he see that CL yesterday scold him DE person
"He saw the person [who scolded him] yesterday."

1.3. NP-XP as a V-complement

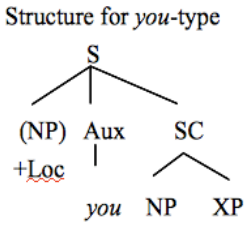
The main line of this analysis is the small clause (SC) analysis (Gu 1991, Stowell 1978, Chomsky 1981, Safir 1981, a.o.). The post-copular NP and the Coda hold a predicational relationship with the analogy to the copular sentences, as in (12).

(12) a. There was [$_{SC/PredP}$ [$_{NP}$ a chicken] [$_{AP}$ cooked]] b.



Huang (1987) also suggests that the *you*-type EC has a SC (fn. 2). Following Wang's analysis (1965) that *you* is in Aux and that Aux can subcategorize for all categories, Huang (1987) suggests that *you* can subcategorize a clause, another instance of XP .

(13)



The SC analysis naturally captures the relationship between the post-verbal NP and the Coda, that is, the former must dominate the latter as the binding example (9) shows. Alterntively, an E-type pronoun analysis seems possible for (9), repeated in (14), where the optional pronoun is referential to the post-verbal NP, and no c-command relation

[4] Zhang (2008) claimed that the Chinese EC with Coda(s) is an internally headed relative clause, and thus a DP. See Zhang (2008) for details. See Liu (2010 ms.) for a critical review.

between the antecedent and the pronoun is needed. The reference of the reflexive *taziji* 'himself' is satisfied by the pronoun *ta* 'he'.

(14) Zhangsan de shetuan-li you yi-ge xuesheng$_i$ (ta$_i$) **hen ai piping taziji$_i$**
Zhangsan DE group-in have one-CL student he very love criticize himself
"In Zhangsan's group there is a student$_i$ who loves to criticize himself$_i$."

However, (15) shows that there must be a dominant relationship between the matrix clause and the subordinate clause. Otherwise, the NPI *renhe* 'any' in the Coda would not be licensed by the negation quantifier *mei* 'not' in the matrix clasue. Furthermore, no E-type prounoun is allowed in (15). McCawley (1989) suggested that no pronoun can precede the Coda when the matrix verb is negated since the pronoun will be outside the scope of the quantifier. The necessary absense of the pronoun indicates that Coda is a complement of the matrix clause, and that the legal pronoun in (14) should not be analyzed as an E-type pronoun.

(15) ***mei*** you yi-ge laoshi **(*ta$_i$) hui ban wo (*renhe*) mang**
not have one-CL teacher will help me any favor
"There is no teacher, who will do me any favor."

In section 1, I argue that the V-complement analyses is a more ideal analysis for the Chinese EC with Coda(s) because it correctly captures the tight relationship between the matrix clause and the Coda.

2. Post-verbal NP and the Coda

In this section, I show three properties of the Chinese EC with Coda(s). First, the post-verbal NP and the Coda form a constituent according to the coordination and the VP-ellipsis tests. Second, the Coda is predicative when the post-verbal NP is understood as its subject. Finally, Chinese EC with Coda(s) show movement effects. The discussions point to the direction that Chinese EC with Coda(s) is functionally a topic-comment structure.

2.1. Constituency test

If the post-verbal NP and the Coda form a constituent, they should be able to coordinate. (16) shows that coordination is possible for the EC with Coad(s).

(16) a. you yi-ge nusheng **zai sao-di,** yi-ge nansheng **zai ca chuanghu**
have one-CL girl PROG sweep-floor one-CL boy PROG wipe window
"There is a girl sweeping the floor, a boy wiping the window."
b. gongsi xin lai-le yi-ge mishu **hen qinkuai**, yi-ge qingjieyuan **hen lan**
company new come-PFV one-CL secretary very diligent one-CL janitor very lazy

"In the company newly comes a secretary who is very diligent, a janitor who is very lazy"

A constituent can be pronominalized or elided when it is repeated in the second conjunct. The so-called null object constructions (NOC) (Hoji 1998) can be used to test the EC with Coda(s)[5]. If the Coda were not an internal argument of the existential verb (i.e. the coda is an adjunct), then one would expect that a different Coda could surface in the second conjunct in the NOCs. However, (17) show that a different coda in the second conjunct is illicit, suggesting that the post-verbal NP and the Coda must be a constituent.

(17) jiaoshi-li you yi-ge shizhong **hen da,** litang-li ye you (***hen xiao**)
classroom-in have one-CL clock very big auditorium-in also have very small
"There is a clock which is big in the classroom, and also (one which is big) in the auditorium."
"*There is a clock which is big in the classroom, and also (one) which is small in the auditorium."

2.2 The coda is predicative

The coda must be predicative when the post-verbal NP is understood as the subject of the Coda. In (18), the post-verbal NP *yi-zhi gou* 'one-CL dog', not the matrix clause subject *wo jia* 'my house', is what the Adjectival phrase (AP) *hen da* 'very big' is predicated on.

(18) wo jia you yi-zhi gou **hen da**
my house have one-CL dog very big
"In my house there is a dog, which is very big."

In Chinese, the morpheme *hen* 'very' is regarded as a predicative marker, which indicates the predicative status of an AP[6]. The degree meaning *hen* 'very' is absent

[5] NOC allows a different adverbial in the second conjunct like *do so* in English. For details of NOC, see Hoji (1998) and Xu (2003).
(i) John carefully brushed his teeth, and Paul did so sloppily.
(ii) Zhangsan zixide shua-le ya, Lisi ye suibiande shua-le
Zhangsan carefully brush-PFV teeth Lisi also sloppily brush-PFV
"Zhangsan carefully brushed his teeth, and Lisi also sloppily brushed (it)."

[6] Huang (2006) argued that adjectives in Mandarin denote individuals (<e>) and hence require *hen* as a type-lifter to be used as predicates. Liu (2009) observed that *hen* is not required with adjectives in negation, polar questions, contrastive focus, and certain kinds of embedded clauses. He adopted the view that positive semantic is provided by a null morpheme or type-shifter POS, and argues that Mandarin POS has a null version and its overt counterpart *hen*. *Hen* is required

unless stress is put on the morpheme.

(19) a. zhe-ge nuhai *(hen) piaoliang
this-Cl girl very beautiful
"This girl is (very) beautiful."
b. wo *(hen) e
I very hungry
"I am (very) hungry."

As observed in Zhang (2008), the AP Coda must have *hen* 'very', while the prenominal modifier counterpart does not necessarily require it.

(20) a. wode ban-shang you yi-ge nuhai ***(hen) keai**
my class-in have one-CL girl very cute
"In my class there is a girl, who is very cute."
b. wode ban-shang you yi-ge **(hen) keai** de nuhai
my class-in have one-CL girl very cute DE girl
"There is a (very) cute girl in my class."

Furthermore, the AP Coda can only be predicative adjectives, but the prenominal modifier does not have to be. For example, *gongtong* 'common' are non-predicative adjectives, and they cannot appear as a Coda in EC.

(21) a. zhe liang-ge buluo you yi-ge **gongtong** de yuyan
this two-CL tribe have one-CL common DE language
"There is a common language between the two tribes."
b. *zhe liang-ge buluo you yi-ge yuyan **gongtong**
this two-CL tribe have one-CL language common

2.3. The movment effects

The EC with Coda(s) show movment effects in that 1) it obeys Binding Principle; 2) idioms can be separated; 3) island effects are observed.

According to Binding Principle A, reflexives must be locally bound. In the EC examples in (22a), *taziji* 'himself' can be successfully bound by *Zhangsan* by reconstructing *yi-ben taziji de shu* 'a book of himself's' back to the object position of the

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whenever there is no predicate-accessible operator available to license covert POS. Finally, Gu (2008) analyzed the phenomenon not in terms of special properties of adjectival predication in Mandarin but rather as the manifestation of a more general phenomenon of tense-licensing. Specifically, Mandarin Tense has a [telicity] feature that must be checked by any of a variety of functional morphemes, and when the predicate is a gradable adjective, *hen* is one way of doing so.

Coda since *kan* 'read' is a two-place verb that takes an external and an internal argument. On the other hand, *shui-zhao* 'fall-asleep' in (22b) is a one-place verb which does not have an extra argument position for *yi-ben taziji de shu* 'a book of himself's' to reconstruct back to. *Taziji* 'himself' cannot be properly bound, and hence (22b) is ungrammatical. (See the *cf.* for the regular topic construction.)

(22) a. you [yi-ben taziji$_i$ de shu]$_j$ **Zhangsan$_i$ bu xiang kan t$_j$**
have one-Cl himself DE book Zhangsan not want read
Lit: "There is [a book of himself$_i$'s]$_j$ Zhangsan$_i$ does not want to read t$_j$"
"There is a book Zhangsan$_i$ wrote himself$_i$, which he$_i$ does not want to read."
cf. [Zhe-ben taziji$_i$ de shu]$_j$ Zhangsan$_i$ bu xiang kan t$_j$
this-Cl himself DE book Zhangsan not want read
"The book of himself$_i$, Zhangsan$_i$ does not want to read t$_j$."
b. *you [yi-ben taziji$_i$ de shu] **Zhangsan$_i$ dou shui-zhao le**.
Have one-CL himself DE book Zhangsan even fall-asleep LE
Lit: "There is a book of himself$_i$'s which even Zhangsan$_i$ fell asleep."
"There is a book Zhangsan$_i$ wrote himself$_i$, which even he$_i$ fell asleep."
cf. *[Zhe-ben taziji$_i$ de shu]$_j$ Zhangsan$_i$ dou shui-zhao le.
this-Cl himself DE book Zhangsan even fall-asleep LE
"The book of himself$_i$, Zhangsan$_i$ fell asleep."

The same point can be illustrated by (23). If we reconstruct "Zhangsan's picture" back to the object position of the verb *kan* 'see', Zhagnsan will be bound by the pronoun *ta* 'he', resulting in Principle C violation.

(23) *you yi-zhang [Zhangsan$_i$ de zhaopian]$_j$ **ta$_i$ bu xiang kan t$_j$**
have one-CL Zhangsan DE picture he not want see
"There is [a picture of Zhangsan's$_i$]$_j$ that he$_i$ does not want to see t$_j$"
cf. *[zhe-zhang Zhangsan$_i$ de zhaopian]$_j$ ta$_i$ bu xiang kan t$_j$
this-CL Zhangsan DE picture he not want see
"[The picture of Zhangsan's$_i$]$_j$, he$_i$ does not want to see t$_j$"

Reconstruction effect can also be observed from idiom expressions. It is generally accepted that an idiom is one unit in the lexicon. If some part of the idiom is separated from the rest of it, movement must have taken place. In (24), the two morphemes *kai dao* 'open knife', which means operating on (someone), are not adjacent. The fact that we can interpret them as idioms indicates that they are together at one point in the derivation, and movement takes place later.

(24) (jintian zaoshang) lai-le yi-ge *dao*$_i$ **wo bu gan *kai* t$_i$**
today morning come-PFV one-CL knife I not dare open

Lit: "This morning (here) comes a knife that I do not dare to open."
"This morning (here) comes a patient that I do not dare to operate on. "
cf. **zhe-ge dao**$_i$, wo bu gan **kai** t_i.
this-CL knife I not dare open
Lit: "This knife, I dare not open (it)."
"I do not dare to operate on this patient."

Extraction out of an island is generally not possible (Ross 1967). The only way to rescue island effect is to have a resumptive pronoun. The ECs with complex NP (25a) and adjunct (25b) are only acceptable when a resumptive pronoun is in the trace, showing that movement does take place[7].

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[7] It is observed that island effects in EC can be nullified just as in the regular topicalization sentences when a given island occur in a (pre)-subject position. The similarity further strengthens our analysis that the post-verbal NP and the coda hold a topic-comment relationship.

(i) **(Subject Condition)**
you yi-ge xuesheng$_i$ [[e$_i$ zhaogu zhe-tiao gou] zui heshi].
have this-CL student take-care this-CL dog most appropriate
'There is a student$_i$, for [him$_i$] to take care of the child is the most appropriate.'
cf. zhe-ge xuesheng$_i$, [[e$_i$ zhaogu zhe-tiao gou] zui heshi].
this-CL student take-care this-CL dog most appropriate
'This student$_i$, for [him$_i$] to take care of the dog is the most appropriate.'
(ii) **(Left Branch Condition)**
lai-le yi-ge xin tongshi [[e$_i$ mama] hen heshan].
come-ASP one-CL new colleague mother very nice
'(Here) comes a new colleague, whose mother is very nice.'
cf. Zhangsan$_i$, [[e$_i$ mama] hen heshan]
Zhangsan mother very nice
'Zhangsan$_i$, [his$_i$] mother is nice.'
(iii) **(Adjunct Condition)**
zhiye jieshaosuo waimian zhan-zhe yi-ge ren$_i$, yinwei e$_i$ dezui-le Zhangsan,
occupation center outside stand-PROG one-CL person because offend-PFV Zhangsan
(suoyi) dui-le gongzuo.
so lose-PFV job
'Outside the unemployment office stands a person$_i$, because [he$_i$] offended Zhangsan, he lost his job.'
cf. zhe-ge ren$_i$, yinwei e$_i$ dezui-le Zhangsan, (suoyi) dui-le gongzuo.
this-CL person because offend-PFV Zhangsan so lose-PFV job
'(As for) this person$_i$, because [he$_i$] offended Zhangsan, he lost his job.'

Huang (1984a and later works) shows that the topicalized sentences can be explained by Generalized Control Rule (GCR), an empty pronoun is coindexed with the closet potential

(25) a. you [yi-ge xuesheng]$_i$ [wo hen xihuan [[*(ta$_i$) changge de] shengyin]] (CNPC)
have one-CL student I very like he sing DE voice
"There is a student who I really like the voice with which *(he) sings."
cf. [zhe-ge xuesheng]$_i$ wo hen xihuan [[*(ta$_i$) changge de] shengyin]
this-CL student I very like he sing DE voice
"(As for) this student, I really like the voice with which *(he) sings."
b. you [yi-ge laoshi]$_i$ xiaozhang [yinwei *(ta$_i$) mei lai] hen shengqi (AC)
have one-CL teacher principal because he not come very angry
"There is a teacher who made the principal very angry because *(he) did not come."
cf. [zhe-ge laoshi]$_i$ xiaozhang [yinwei *(ta$_i$) mei lai] hen shengqi
this-CL teacher principal because he not come very angry
"(As for) this teacher, the principal is very angry because *(he) did not come."

3. The analysis

From the above discussions, we know that (i) the post-verbal NP and the Coda form a constituent, which serves as a complement of the existential verb (section 2.1); (ii) the Coda is predicative when the post-verbal NP serves as its subject (section 2.2); (iii) the EC with Coda(s) show movement effects (section 2.3). These properties point to the direction that the post-verbal NP+Coda has a topic-comment structure, which is subject to movement (Shi 1992, 2000).

Claiming the post-verbal NP is a topic seems to be contradictory to the general observation that a topic has to be definite or generic, since EC generally asserts an indefinite NP (i.e. the Definiteness Effect). However, (26) cited from Shi (2000) shows that the speaker or writer introduces the NP with the *you*-type EC, and the entity can then be discussed in the following comment as given information. This is indeed the basic intuition behind the Chinese EC with Coda(s). (26) fulfills the communicative function of a topic-comment construction in the sense that the first part of the sentence introduces the main issue and the second part elaborates on it.

(26) you yi-jian shi, wo xiang gen ni shuo (Shi 2000)
have one-Cl matter I want with you say
"There is one thing, which I want to talk to you about."

Following Shi (1992), I argue that Chinese EC with Coda(s) is a topic chain[8] -- the

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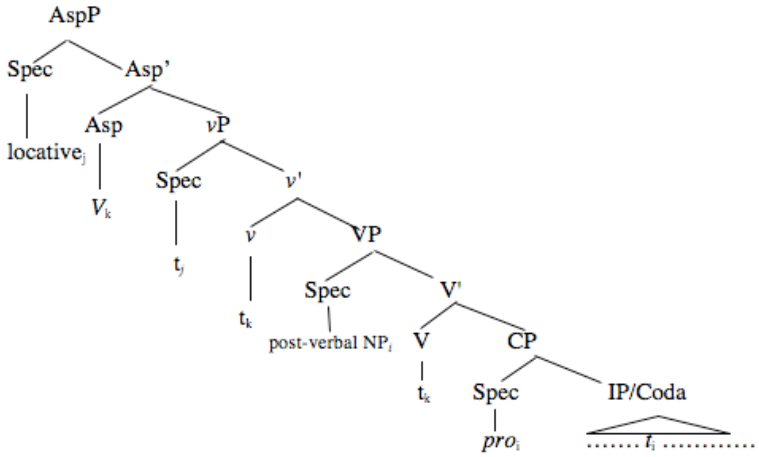
antecedent.
The EC examples can be explained in the same manner. What matters seems to be the nature of the empty category, specifically, whether it is a trace or pro (Huang et al. 2009).

[8] In Chinese the domain of the topic in the first sentence can be extended to cover the subsequent sentences, so that the topic can take the subsequent sentences as comments. Such a string is named a *topic chain*, and such a topic is called a *shared topic*.

existential verb first introduces the new entity to the discourse, and then the post-verbal NP serves as a shared topic for the Coda(s).

(27)



I assume that the functional projection AspP (aspectual phrase) occurs in Chinese (Cheng 1991, Shen 2001, and Lin 2004). Following Kratzer (1996) and Lin (2004), I assume V incorporates to *v* for the purpose of event identification[9]. After V incorporates to the light verb *v*, all arguments are tied up to the same event structure. The *v*P at this point denotes a property of events, and not yet a truth-value, which is the canonical denotation for a

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(i) ***zhe-zhi mao$_i$***, e_i mao hen chang, e_i hen keai, dajia dou xihuan e_i.
This-CL cat hair very long very cute everyone all like
"This cat, (its) hair is very long, (it) is very cute, (and) everyone likes (it)."

Shi (1992) claimed the notion of the topic chain can be extended to include chains with an *in-situ topic,* and that the extended notion of the topic chain allows an indefinite NP to be considered as a shared topic since being overtly topicalized to the sentence-initial position is no longer a necessary condition for being a shared topic.

(2) ta shou-li qiang-zhe ***yi-zhi gou$_i$***, e_i you shou you xiao, e_i quan-shen dou shitou le
he hand-in hold-PROG one-CL dog also thin also small whole-body all soak LE
"He is holding (the rein of) a dog, (it) is thin and small, (its) whole body is soaking wet. "

[9] Kratzer (1996) suggests that the external argument of a sentence is not selected by the verb, but a functional category Voice. To make sure that the argument selected by V and the argument selected by Voice fall within the same event, the head V has to move to Voice to substantiate event identification. Lin (2005) followed this proposal and assumed that V-to-*v* movement is triggered by the same event identification.

sentence within an extensional semantics. That is, the event argument is still open and needs to be closed off. One way to close off the event argument is to build existential quantification into the semantics of some higher inflectional head (in the spirit of Higginbotham 1985). In this case, this inflectional head is Aspect. When *v*-to-Asp movement takes place in LF presumably for checking the aspectual feature, the event is spatio-temporally defined and the post-verbal NP gets existential quantification from the V in Asp. The post-verbal NP being the shared topic and base-generated in Spec VP binds the *pro* in the argument position of the lower IP and assigns reference to it. The *pro* then moved up to the lower Spec CP, a topic position according to Shi (1992) and Kuroda (1992). A topic-comment relation is thus established directly in the lower CP level between the *pro* in the Spec CP and the Coda, and indirectly in the higher level between the post-verbal NP and the Coda through co-indexation. The former direct topic-comment relation in the lower CP level is the usual topicalization mechanism that occurs in English and many other languages. The latter indirect topic-comment relation is a property that only a topic-prominent language like Chinese has.

This proposal can explain the properties listed in section 2. The constituency facts are straightfowardly explained by the proposed structure.

(28) [$_{AspP}$ you [$_{VP}$yi-ge nusheng **zai sao-di**], [$_{VP}$yi-ge nansheng **zai ca chuanghu**]]
have one-CL girl PROG sweep-floor one-CL boy PROG wipe window
"There is a girl sweeping the floor, a boy wiping the window." (*cf.* 16a)

(29) [$_{AspP}$ jiaoshi-li you [$_{vP}$ [$_{VP}$yi-ge shizhong **hen da**]]], [$_{AspP}$ litang-li ye you [$_{vP}$ [$_{VP}$~~yi-ge shizhong **hen da**~~]]]
classroom-in have one-CL clock very big auditorium-in also have
"There is a clock which is big in the classroom, and also (one which is big) in the auditorium." (*cf.* 17)

The predicational relationship bewteen the post-verbal NP and the AP Coda can now be explained by the fact that a *pro,* which is co-indexed with the post-verbal NP, is base-generated in Spec IP.

(30) a. wode ban-shang you [yi-ge nuhai]$_i$ [$_{CP}$ *pro*$_i$ [$_{IP}$ t_i ***(hen) keai]]**
my class-in have one-CL girl very cute
"There is a girl who is very cute in my class." (*cf.* 20)

(31) *zhe liang-ge buluo you [yi-ge yuyan]$_i$ [$_{CP}$ *pro*$_i$ [$_{IP}$ t_i **gongtong]]**
this two-CL tribe have one-CL language common
"There is a common language between the two tribes." (*cf.* 21)

The movement effects are also predicted. In the reconstruction example such as (32), the phrase *taziji de shu* 'a book of himself's' gives reference to the *pro*, which is base-generated in the object position of the embedded IP. *Zhangsan*, which is in the subject position of the embedded IP, is the most local antecedent and thus gives reference to

taziji by way of co-indexation. In the island violation example such as (33), the *pro* is base-generated in a complex NP phrase inside the embedded IP. It cannot be moved out to serve as a topic because a complex NP is an island, and hence the ungrammaticality.

(32) you yi-ben [ta<u>ziji$_i$ de shu</u>]$_j$ [$_{CP}$ *pro*$_j$ [$_{IP}$ **Zhangsan$_i$ bu xiang kang t$_j$**]]
have one-Cl himself DE book Zhangsan not want read
Lit: "There is a [a book of himself$_i$' s]$_j$ Zhangsan$_i$ does not want to read t$_j$"
"There is a book Zhangsan$_i$ wrote himself$_i$, which he$_i$ does not want to read."
(33) *you [<u>yi-ge xuesheng</u>]$_i$ [$_{CP}$ *pro*$_i$ [$_{IP}$ **wo hen xihuan [$_{DP}$ [$_{IP}$ t$_i$ changge de] shengyin**]]]
have one-CL student I very like sing DE voice
"There is a student, who I really like the voice with which *(he) sings."

4. English EC vs. Chinese EC

4.1. The Coda Restriction

Since Milsark (1977), it has been observed that the English EC can take S(tage)-level Codas, but never I(ndividual)-level Codas. Chinese, on the other hand, can take both types.

(34) a. There is a dog **crossing the street**. (S-level)
b. *There is a dog **very smart in my house**. (I-level)
(35) a. wo ban-shang you <u>yi-ge nuhai</u> **zhengzai changge** (S-level)
my class-in have one-CL girl PROG sing
"In my class there is a girl, who is singing."
b. wo ban-shang you <u>yi-ge xuesheng</u> **hen congming** (I-level)
my class-in have one-CL student very smart
"In my class there is a student, who is very smart."

The Coda Restriction on the English EC has been discussed extensively (Milsark 1977, Barwise & Cooper 1981, Williams 1984, McNally 1992, Chierchia 1995, Francez 2007, a.o). For example, Chierchia (1995) argued that I-level predicates have a Gen operator, and that Gen needs two arguments: an NP (or a set of NPs) and a clause. When there is an I-level predicate in the Coda, Gen appears and binds both the I-level Coda and the post-copular NP, which leaves the existential quantifier nothing to bind, a case of vacuous quantification. McNally (1992) and Francez (2007) proposed that the Coda serves to restrict the spatio-temporal parameters of the instantiated referent of the postverbal NP. The I-level predicates are ruled out simply because they lack the ability to define the spatio-temporal restriction of the NP. None of the proposals can be applied to Chinese. In what follows, I will argue that the fact that Chinese does not have the Coda restriction follows from the topic-comment proposal.

4.2. Two types of judgments

Kuroda (1992), following the philosopher Brentano (1924), proposed two types of judgments[10], the categorical judgment and the thetic judgment. The former involves double judgments: the first act is to recognize the subject/topic, and the other act to affirm or deny what is expressed by the predicate/comment about the subject/topic. The latter involves a single judgment: an act that expresses recognition of the existence of a specific entity (or entities) or situation. Kuroda's most compelling argument comes from the distinction of the two Japanese morphemes, the topicalized marker *wa* and the subject marker *ga*.

(36) a. *neko ga* asoko de nemutte iru (Thetic)
cat GA there at sleeping is
"The/A cat is sleeping there."
b. *neko wa* asoko de nemutte iru (Categorical)
cat WA there at sleeping is
"The cat is sleeping there."

(36a) is a thetic judgment: it simply reports the perception of a situation (sleeping there) with participants (a/the cat). (36b) is a categorical judgment: it first recognizes the existence of an entity *neko* 'cat', and attributes to the cat the property perceived as the event of sleeping there. Notice that the bare noun marked by *wa* cannot be indefinite nonspecific, which follows from the presuppositional nature of the subject/topic. The differences between the two judgments correlate nicely with the differences between S-level and I-level predicates, such that I-level predicates must have strong NPs as the subject, and S-level predicates can have either weak and strong NPs (in the sense of Milsark 1974), as in (37).

(37) a. The man is sick (S-level; strong NP)
b. The man is tall (I-level; strong NP)
c. Sm men are sick. (S-level; weak NP)
d. *Sm men are tall (I-level; weak NP)

This correlation is expected since I-level predicates which express permanent properties

[10] A *judgment* is defined as follows:

"A judgment is meant to be a cognitive act. It is externalized by a speech act of stating…" A statement, as well as a judgment, a cognitive act externalized by it, is said to be expressed by an utterance of a sentence. An utterance of a sentence is said to represent the intentional object of the cognitive act it expresses." (Kuroda 1992:20)

must be able to be evaluated in relation to an entity whose existence within the discourse is presupposed. For S-level predicates, which describe transient properties, the existence of the subject is not as relevant since the predications can be understood as event(s).

However, it does not mean that the categorical judgment is equivalent to I-level predicate. (36b), for example, has a S-level predicate. The categorical/thetic distinction is at the macro-level, but the I-level/S-level distinction at the micro-level. While the sentences with the thetic judgment can only have S-level predicates, those with the categorical judgment can have either I-level and S-level predicates. The subject of the categorical judgment has to be definite or generic (i.e. the property of the subject in topic construction), whereas the subject of the thetic judgment does not have to be definite. This is summarized below:

	Thetic judgment	**Categorical judgment**
Predicate type	S-level	S-level, I-level
Subject	Definite/indefinite	Definite/Generic

Since only S-level Coda is allowed in English EC whether the post-verbal NP is indefinite or definite by exception (e.g. partitive, list reading, etc.), it has been concluded that English EC is thetic (Ladusaw 2000, Basilico 1997, Zucchi 1995, Walker 2009, a.o.). In the next section, I argue that Chinese EC, being a topic-comment construction, is categorical.

4.3. Why I-level Coda in Chinese

The fact that Chinese EC allows I-level Coda seems contradictory first, since on the one hand the I-level Coda requires a strong NP, and on the other hand the ECs generally do not allow strong NPs. However, I will show the current topic-comment analysis can account for the availability of the I-level Coda(s).

In section 3, we suggest that the discourse function of the Chinese EC is to introduce a new entity. This entity then assgins reference to the *pro* in the lower CP and serves as a shared topic for the Coda(s). For example, the sentence *you yi-ge xuesheng hen congming* "have one-CL student very smart" can be interpreted as "there exists a student$_i$, and this student$_i$ is very smart."

The topic-comment proposal corresponds to Kuroda's categorical judgment in that the existence of the entity is recognized first (because the *pro* is the second mention of the post-verbal NP), and the entity is attributed to the property in the comment clause, i.e. the Coda. The referential/presupposed requirement on the subject/topic in the categorical judgment is satisfied by the *pro*, which is referential in nature. The fact that Chinese EC is a topic-comment structure, explains why I-level Coda is available. S-level Coda, which can also be the predicate of the categorical judgment, is available in Chinese as well.

5. Conclusion

In this paper, I argue against the adjunct and NP analyses for the Coda in the Chinese EC. A V-complement analysis is adopted, and functionally it is a topic-comment construction. The proposed analysis has several advantages: (i) it conforms to the intuition that Chinese EC with Coda(s) first asserts the existence of an NP, and then provides subsequent comment on the NP being asserted; (ii) it can capture the predicational relationship between the post-verbal NP and the AP Coda; (iii) it can account for the relevant movement facts. The absence of the Coda restriction in Chinese (S-level vs. I-level) also follows from the proposed topic-comment structure. Instead of being thetic like English EC, Chinese EC is categorical, which has a lot to do with the fact that Chinese is a topic-prominent language (Tsao 1990). The referential requirement on the topic in the categorical judgment is satisfied by the *pro* in the lower Spec CP, a topic position according to Shi (2000) and Kuroda (1992).

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An Aspectual Approach to the Postverbal Locative Zai-Phrase

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In this study, I take an aspectual approach to the syntax and semantics of postverbal locative *zai*-phrases in Mandarin Chinese. Verb scalar properties are shown to determine verb co-occurrence with the postverbal locative *zai*-phrase, and to determine the interpretation of the *zai*-phrase. I address the question why postverbal locative zai-phrases sometimes have a directional meaning and sometimes do not using event structure. The *zai*-phrase has a locative reading when the location denoted by the *zai*-phrase and the event denoted by the verb are cotemporaneous, and thus homogeneous; it has a directional reading when they are not cotemporaneous, and thus not homogeneous. The non-homogeneity suggests that there are two subevents: one denoted by the predicate and one denoted by the *zai*-phrase. These two subevents are temporally independent. I posit that time lag indicates spatial path.

1. Introduction

Postverbal locative *zai*-phrases may be ambiguous between locative and directional meaning (cf. Li and Thompson 1981; Zhu 1982; Chirkova and Lamarre 2005; Liu 2009). As exemplified in (1a), adopted from Liu (2009), the *zai*-phrase obtains a directional reading because the sentence describes a situation that the referent of the subject undergoes a spatial change (i.e. path) from not being in the location to being in the location denoted by the object of the preposition *zai*. Fan (1982) and Liu (2009) point out that in (1b) the postverbal *zai*-phrase may also refer to the goal the activity reaches. Unlike (1a), in (1b), it is not the case that the referent of the subject being stuck onto the window, but rather it is the action of hitting the window. The directional reading is due to an assumption that there be an interval between the starting point and the endpoint of an activity, where the *zai*-phrase expresses the endpoint of the activity.

(1) a. yushui da zai chuanghu-shang
rain hit at window-on
'The raindrops hit the window.'

b. wo yixia da zai chuanghu-shang le

I one-Cl[1] hit at window-on Prt
'I made a hit and it got the window.'

Alternatively, the *zai*-phrase carries a locative reading when its containing sentence describes the state of the subject referent being in a location. Take (2) for example, the sentence in (2) does not describe any change of location. Instead, we may say that the event of their living and the event of their being in the disaster area are coextensive.

(2) tamen shenghuo zai zaiqu
they live in disaster area
'They live in a disaster area.'

In this paper, I argue that the lexical meaning of the postverbal preposition *zai* is locative, not directional. The inferred path emerges from the concept of change-of-location implied by the recognition of the final location, which is not involved in the beginning of the event. Thereafter, the source of the interpretation of the postverbal locative *zai*-phrase concerns event decomposition. I propose that if a *zai*-phrase is used to refer to the location of the whole event, it is interpreted as an attributive locative PP. On the other hand, if it is used to refer to the location where the consequent event holds, it is interpreted as a complementary directional PP. In the former case, the event-denoting predicate and the *zai*-phrase must be cotemporaneous. In the latter case, there is a temporal interval between them. From the perspective of Davidsonian semantics, the attributive locative *zai*-phrase "coordinates with" the event-denoting predicate, while the complementary directional *zai*-phrase should be in a way "subordinated to" the event-denoting predicate. The relationship of coordination can be justified by the homogeneity between the event denoted by the predicate and the locative modification encoded by the *zai*-phrase. The non-homogeneity between them indicates that they have a subordination relationship. Accordingly, both the interpretation and the distributional constraint of the postverbal locative *zai*-phrase can be accounted for in terms of the event structure.

This paper opens with an examination on the aspectual properties of verbs. My main diagnostics are adopted from Rappaport Hovav (2008). Subsequently, I will elaborate on the temporal relation between the predicate and the *zai*-phrase, arguing that the locative and directional readings of the *zai*-phrase depend on event structure. Section 4 concludes the paper.

2. The aspectually relevant lexical properties of verbs

[1] Abbreviations: Cl: classifier, Prt: particle.

To demonstrate that the lexical meaning of *zai* is locative and not directional, it is important to identify the aspectual properties of the verbs that *zai* associates with. Rappaport Hovav (2008) points out that verbs differ aspectually on whether the event they denote involves "change". Dynamic verbs involve change, but state verbs do not. State verbs such as *zhidao* 'know' and *xihuan* 'like' cannot combine with a postverbal *zai*- or *dao*-phrase.[2] This is illustrated by the example in (3).

(3) *zhe jian shi ta zhidao/xihuan zai/dao xuexiao
this-Cl thing he know/like at/to school
'he knows/likes it at school'

Dynamic verbs include scalar verbs and nonscalar verbs. According to Rappaport Hovav (2008), verbs denoting events of scalar change are called scalar verbs, and those denoting events of nonscalar change are called nonscalar verbs. I suggest that this distinction casts restrictions on verb co-occurrence with postverbal *zai*- and *dao*-phrases. For example, verbs like *shenghuo* 'live' are identified as nonscalar verbs because no scalar change occurs during the progression of the event. These verbs are compatible with postverbal *zai*-phrases, but incompatible with intrinsic directional *dao*-phrases, as demonstrated by the contrast in (4).

(4) tamen shenghuo zai/*dao zaiqu
they live in/to disaster area
'They live in a disaster area.'

Scalar verbs are more complicated, because they profile various aspectual features. Rappaport Hovav (2008) claims that "verbs that lexically specify a scale can have a telic interpretation even without an overt expression explicitly bounding the scale". As shown in (5a), the directional *dao*-phrase refers to a goal for the walking event and contributes to a resultative reading. But when the *zai*-phrase is associated with the verb *zou* 'walk', as shown in (5b), the sentence is neither directional nor resultative. Liu (2009) also points out that the *zai*-phrase in (5b) is non-directional, arguing that the combination of the atelic dynamic verb *zou* and the *zai*-phrase is telic. Since *zou* 'walk' can not have a telic interpretation without an expression explicitly bounding the scale, I conclude that it does not lexically specify a scale.

[2] In this paper, *dao* 'to; arrive' will be used as an (un)interchangeable alternative to *zai*. But we are not going to discuss any further issue that may concern *dao*-phrase.

(5) a. zhangsan zou dao lu-shang
Zhangsan walk to road-on
'Zhangsan walked to the road.'
b. zhangsan zou zai lu-shang
Zhangsan walk on road-on
'Zhangsan walked on the road.'

Unlike the sentence in (5b), the sentences in (6) (cf. Liu 2009) obtain exclusively a directional reading. In this case, *zai* can alternate with *dao*. To account for why postverbal *zai*-phrases can only carry directional meaning when associating with these verbs, I posit that these verbs lexically specify a scale. This scale can be represented by the postverbal *zai*-phrase under the constraint that it sets a boundary to the event.

(6) a. mao tiao zai/dao zhuo-shang
cat jump on/to table-on
'The cat jumped onto the table.'
b. xuduo yezi luo zai/dao di-shang
many leaves fall on/to ground-on
'Many leaves fell on the ground.'

Further, as exemplified in (7) (cf. Li and Thompson 1981) verbs of placement seem to be the only verb class which allows alternative positioning of *zai*-phrases which denote the location the object is placed.

(7) a. wo zai shujia-shang fang zazhi
I at bookcase-on place magazine
'I put the magazine on the bookcase.'
b. wo fang zazhi zai shujia-shang
I place magazine at bookcase-on
'I put the magazine on the bookcase.'

Based on the fact that *zai*-phrases in combination with verbs of placement are unambiguously directional, I postulate that these verbs lexically specify a scale. This scale has an explicit bound which is provided by the postverbal *zai*-phrase.

A special set of this kind of verbs involves directed motion verbs which do not

permit attachment with the *zai*-phrase, but allow the *dao*-phrase, evident in (8). (8b) is adopted from Liu (2009).

(8) a. ta jinru dao/*zai wuzi-li
he enter to/at house-in
'He enters the house.'

b. yuanyuande yueliang sheng dao/*zai touding-shang
round moon rise to/at head-to-on
'The round moon rose above my head.'

c. ta pao dao/*zai tushuguan
he run to/at library
'He ran to the library.'

Other verbs which can be considered as candidates for this class are resultative verb compounds. As pointed out in Liu (2009), resultative verb compounds are incompatible with the postverbal *zai*-phrase. Given that the postverbal *zai*-phrase is in essence locative, the answer is straightforward: it is because resultative verb compounds c-select a lexical directional phrase as complement, and at the same time exclude a functional one which embeds a locative *zai*-phrase. Examples are given below for illustrating. (9a) is adopted from Liu (2009).

(9) a. *zhangsan ba shu nacho zai zhuoshang
Zhangsan BA book take-out at table-on
'Zhangsan took out the book (and put it) on the table

b. *ta zhangda zai yi-ge fuyu-de jiating-li
he grow up at one-Cl wealthy-DE family-in
'He grew up in a wealthy family.'

Note that the above discussion does not indicate that all verbs, which lexically specify an explicit bound in a scale, can always be followed by a *dao*-phrase. Neither does it indicate that verbs which can be followed by a *dao*-phrase, but not by a *zai*-phrase, lexically specify a scale with an explicit bound. As shown in (10), citing Ma (2004), we can see that some volitional verbs are able to take a postverbal *dao*-phrase, but are unable to take a *zai*-phrase. Hence, I confine my discussion temporarily to motion verbs.

(10) shuo dao/*zai shi dian zuo dao/*zai tianhei deng dao/*zai fangjia
talk to/at ten o'clock do to/at dark wait to/at vacation
'talk till ten o'clock' 'work till it is dark' 'wait till the vacation'

In direct opposition to verbs in (8) and (9), change-of-state verbs and verbs of (dis)appearance can be attached with a *zai*-phrase, but not with a *dao*-phrase, as exemplified in (10), adopted from Liu (2009).

(11) a. xuduo daozi lan zai/*dao tian-li
many rice rot at/to fields
'Many rice plants rotted in the fields.'
b. zhangsan chuxian/xiaoshi zai/*dao yan-qian
Zhangsan appear/disappear at/to in-front
'Zhangsan appeared/disappeared in front of me for a while.'

Based on their denotation of a state of affairs, I posit that these verbs lexically specify a scale which does not have an explicit bound. Consistently, only locative *zai*-phrases will be selected, but not the intrinsic directional *dao*-phrase. This analysis is on first glance contradictory to the general view that change-of-state verbs and verbs of (dis)appearance are telic predicates. However, notice that these verbs lexically specify a scale and are consequently telic.

Not all verbs can be clearly classified as demonstrated above. In (12a), adopted from Liu (2009), the *zai*-phrase is locative by nature, not directional, whereas in (12b), *zai* can be replaced by *dao*, and share the directional meaning. I suggest that the different interpretations come from the two-sided specifications of the manner-of-motion verbs. I postulate that if the manner facet is depicted, the *zai*-phrase receives a locative interpretation. This is the case in (12a). But, if the motion facet is depicted, then the *zai*-phrase obtains a directional interpretation, as is the case in (12b). In the former usage, the manner-of-motion verbs do not lexically specify a scale, and in the latter usage, they are classed with scalar verbs encoding an explicit bound.

(12) a. daohangyan fei zai qianmian
guide wild-goose fly at front
'The guiding wild goose flew in front.'
b. yi-zhi hudie fei zai tade jianbang-shang

one-Cl butterfly fly at his shoulder-on
'A butterfly flew to his shoulder.'

Verbs of posture, as defined in Li and Thompson (1981), also depict both manner (the posture of an entity) and motion (physical dispositions of an entity at a location) facets. An example from Fan (1982) is adopted below in (13) for illustration (cf. also Chirkova and Lamarre 2005).

(13) a. ta an'an jing'jing de zuo zai shafa-shang
he quiet.quiet. DE sit on sofa-on
'He was quietly sitting on the sofa.'

b. ta yi pigu jiu zuo zai shafa-shang
he one buttocks just sit on sofa-on
'He sat down with all his weight on the sofa.'

In (13a), *zai* is locative and can not be replaced by *dao*. The sentence in (13a) describes no change of location. Instead, it describes a durative situation without marking an explicit bound. In opposition, in (13b) *zai* can be replaced by *dao*, obtaining a directional meaning. The sentence in (13b) describes an event which involves change of location (cf. also Chirkova and Lamarre 2005). In Guéron (2008), it is pointed out that position verbs can define a situation which is stative in space, because the location of the situation is unchanging but eventive in time. As can be seen from the English counterpart for (13a), the sentence takes a progressive form in English despite it being stative in space. In (13a), the *zai*-phrase adds information to the location where the event denoted by the verb holds. On the contrary, in (13b), the *zai*-phrase modifies the location where the resulting state holds.

An issue occurs when verbs which can be modified by a preverbal locative *zai*-phrase refuses to take it postverbally. Examples are given in (14), adopted from Zhu (1981). The counterpart of (14) is (15). As shown in (15), the verb *si* permits only a postverbal *zai*-phrase, not a preverbal one. I will return to this issue in the next section.

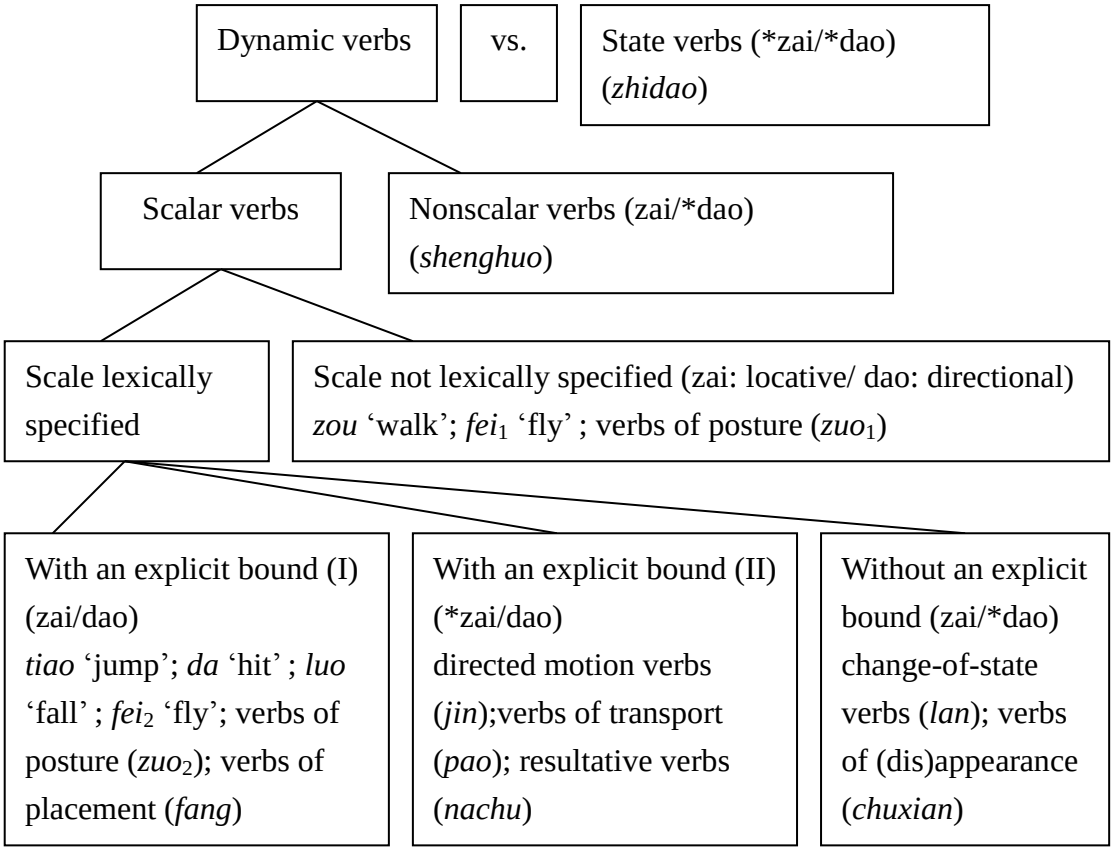
(14) a. ta zai pangbian ku/xiao/wan
he at aside cry/laugh/play
'He cries/laughs/plays aside.'

b. *ta ku/xiao/wan zai pangbian
he cry/laugh/play at aside

(15) a. *ta zai jiali si
he at home die
b. ta si zai jiali
he die at home
'He died at home.'

In conclusion, as the diagram in (16) below illustrates, with respect to the aspectually relevant lexical properties, verbs are firstly distinguished between dynamic verbs and state verbs. State verbs such as *zhidao* 'know' and *xihuan* 'like' cannot associate with a postverbal *zai/dao*-phrase. Dynamic verbs can be divided into scalar and nonscalar verbs. Nonscalar verbs like *shenghuo* 'live' can only be attached by a *zai*-phrase, but not a *dao*-phrase. Scalar verbs should further be distinguished depending on whether or not they lexically specify a scale, i.e. whether or not they are inherently telic. Manner-of-motion verbs and verbs of posture can be combined with both a postverbal *zai*-phrase and a postverbal *dao*-phrase. However, the two differ in meaning: while the *zai*-phrase is locative, the *dao*-phrase is directional. As a result, these verbs are identified as lexically not specified with a scale. I suppose it is the manner, not the motion that is prominent. Manner in this case is perceived as a property of the subject the predicate is predicated of. The property of the subject has a state like status. Lastly, among verbs that lexically specify a scale, they differ on whether or not they encode an explicit bound. Directed motion verbs such as *jinru* 'enter' and *sheng* 'rise' encode an explicit bound, and allow only directional *dao*-phrases to co-occur. Activity verbs like *tiao* 'jump' and *luo* 'fall' permit both *dao*- and *zai*-phrases, and both of them obtain a directional meaning because they serve to express the explicit bound encoded by the verb. Hence that although the verb alone may not be an accomplishment verb, but the VP consisting of the verb and a postverbal *zai/dao*-phrase denotes an accomplishment event. A special set of this class concerns verbs of placement, which are three-place predicates and describe typically accomplishment events. Further, when a *zai*-phrase following manner-of-motion verbs and verbs of posture obtain a directional reading, it indicates that the motion/action side is prominent, and in this regard these verbs encode an explicit bound on the scale. The postverbal *zai*-phrase is used to express the explicit bound. Lastly, change-of-state verbs and verbs of (dis)appearance such as *lan* 'rot' and *chuxian/xiaoshi* 'appear/disappear' do not encode an explicit bound, and thus allow only locative *zai*-phrases to co-occur.

(16)



3. The temporal relation between the predicate and the *zai*-phrase

In this section I will demonstrate that the meaning variances encoded by the postverbal *zai*-phrases result from different temporal relations between the denotations of the predicate and the *zai*-phrase. With locative reading, the event denoted by the verb and the state/location encoded by the *zai*-phrase are cotemporaneous and homogeneous, whereas with directional reading, they are not (cf. Rappaport Hovav and Levin 2001).

According to Lin (2008), "durative phrases impose an aspectual homogeneity requirement on the constituent that they modify" (cf. also Ma 2004). In what follows, I will use the durational time adverbial *yizhenzi* 'a while' to examine the aspectual homogeneity of the denotations of the predicate and the *zai*-phrase. In the sentences (a) of (17)-(18), the durational time adverbial describes both the duration of the activity denoted by the verb and the time of an entity being in the location referred to by the *zai*-phrase. In this regard, the denotations of the predicate and the *zai*-phrase are proven to be homogeneous. Take (17) for example. It follows that the event that they have been living and the event that they have been on the sofa are coextensive. The fact that they are

cotemporaneous is also attested by switching the word order. As shown in the sentences (b) of (17)-(18), the *zai*-phrases can take the preverbal position without causing change in meaning, providing support for their semantic coordination relationship to the event-denoting predicate. As expected, the *zai*-phrase has a locative reading.

(17)	a.	tamen	shenghuo	zai	zaiqu	yizhenzi	le
cf. (2)		they	live	in	disaster area	a while	Prt
		'They have been living in a disaster area for a while.'					
	b.	tamen	zai	zaiqu	shenghuo	yizhenzi	le
		they	in	disaster area	live	a while	Prt
		'They have been living in a disaster area for a while.'					

(18)	a.	zhangsan	zou	zai	lu-shang	yizhenzi	le
cf. (5b)		Zhangsan	walk	on	road-on	a while	Prt
		'Zhangsan have been walking on the road for a while.'					
	b.	zhangsan	zai	lu-shang	zou	yizhenzi	le
		Zhangsan	on	road-on	walk	a while	Prt
		'Zhangsan have been walking on the road for a while.'					

In contrast, the durational time adverbials in (19) modify only the time of an entity being in the location, not the duration of the action denoted by the verb. As can be seen from the paraphrase in (19), the sentences in (19) involve change of location, or completion of the event. According to Lin (2008), the durational time adverbial in this case measures the duration of the consequent state resulting from an event (cf. also Ma 2004; Chirkova and Lamarre 2005). Denotations of the predicate and the *zai*-phrase are thus proven to be not homogeneous. As a result, the *zai*-phrase receives a directional reading. In the case of verbs of placement as illustrated by the example of (7), it goes without saying that the denotations of the *zai*-phrase and the predicate are non-homogeneous, because the object will come to the location after the action has completed. Verbs of placement are thus characteristic of this class.

(19)	a.	mao	tiao	zai	zhuo-shang	yizhenzi	le
cf. (6a)		cat	jump	on	table-on	a while	Prt
		The cat jumped on the table and has been there for while now.'					
		(The cat jumped on the table and the cat has been on the table ever					

since it jumped on and the cat is still on the table.)

b.	yezi	luo	zai	di-shang	yizhenzi	le
cf. (6b)	leaves	fall	on	ground-on	a while	Prt

'Leaves fell on the ground and have been there for a while now.'
(Leaves fell on the ground and the leaves have been on the ground ever since they fell down and they are still on the ground.'

The sentence in (20) is ambiguous. The durational time adverbial has the potential to modify either the time span since the raindrops became to be on the window, or the duration of the repetitive hitting at the window. In the former case, the event described is perfective, whereas in the latter case, the event described is non-completed (on-going) and thus imperfective.

(20)	yushui	da	zai	chuanghu-shang	yizhenzi	le
cf. (1a)	rain	hit	at	window-on	a while	Prt

'Rain dropped on the window and has been there for a while now.' (perfective)
'Raindrops have been hitting the window for a while.' (imperfective)

If we switch the word order of the sentences in (19)-(20) to give (21a-c), we find a change in meaning: the actions denoted by the verbs in (21a) and (21c) become iterative, and both the *zai*-phrase and the predicate are in the scope of the durative phrase. It follows that the denotations of the *zai*-phrase and the predicate are homogeneous. Consequently, the *zai*-phrase obtains exclusively a locative reading.

(21)	a.	mao	zai	zhuo-shang	tiao	yizhenzi	le
		cat	on	table-on	jump	a while	Prt

'The cat has been jumping on the table for a while now.'

b.	*yezi	zai	di-shang	luo	yizhenzi	le
	leaves	on	ground-on	fall	a while	Prt

'Leaves have been falling on the ground for a while now.'

c.	yushui	zai	chuanghu-shang	da	yizhenzi	le
	rain	at	window-on	hit	a while	Prt

'The raindrops have been hitting the window for a while.'

(21b) is excluded with or without the durative phrase, which indicates that the event of being on the ground and the event of falling cannot be homogeneous. The ban on the *zai*-phrase from appearing in front of *luo* 'fall' reminds us of the case with the verb *si* 'die' mentioned above in (15), repeated together with other verbs in (22) below.

(22) a. *shu zai lu-bian dao/duan/si
tree at roadside fall/break/die
b. shu dao/duan/si zai lu-bian
tree fall/break/die at roadside
'The tree fell/broke/died at the roadside.'

According to Ma (2004), *si* 'die' and *luo* 'fall' are non-durative verbs. Non-durative verbs express activities whose starting point and endpoint are conceived as two adjacent points in a scale (cf. also Rappaport Hovav 2008). In this regard, they do not differ from verbs such as *tiao* 'jump' and *da* 'hit', and being punctual verbs, when they are modified by a durative phrase, the possible reading can only be a modification of the duration of the resultant state. Take (23) for example, though in reality he may be at home before he died, as pointed out in Fan (1982), but this sentence can only have the reading that "he was at home (dead) for three days long", but not "he was dying for three days long". Assuming that durative phrases impose an aspectual homogeneity requirement on the modifee, it turns out that the denotations of the predicate and the zai-phrase are not homogeneous.

(23) ta si zai jiali san-tian le
he die at home three days Prt
'He has been dead at home for three days.'

Notice that *si* 'die' and *dao* 'fall' can also refer to a state of "being dead" and "being fallen down". In this regard, I will point out that while *tiao* 'jump' and *da* 'hit' signal the beginning point of the actions, *luo* 'fall', *si* 'die', *dao* 'fall' and *duan* 'break' signal the endpoint, despite that these two points are adjacent in a scale as proposed generally for non-durative verbs. Further, assuming that this semantic specification affects the syntactic distribution of the *zai*-phrase, it follows that non-durative verbs which encode the initial point in a scale allow iterative interpretations, and can be modified by a preverbal *zai*-phrase. On the contrary, non-durative verbs which encode the endpoint in a scale deny iterative readings and can only take *zai*-phrases postverbally.

This analysis explains not only why in (22b) the *zai*-phrase can only appear postverbally, but also why it has a pseudo-directional meaning. It is well known that cases in (22b) challenge the view that the postverbal *zai*-phrase describes the final

position an affected entity arrives at (cf. e.g. Zhu 1982). As we can see, the sentence in (22b) does not mean the tree is affected by the event of falling/breaking/dying and as a result it becomes to be at the roadside. According to my analysis, verbs in (22b) signal the endpoint in a scale, it follows that the syntactic realization of the *zai*-phrase is designated to describe the endpoint of a scale encoded by the verb. In this regard, the *zai*-phrase does not introduce new locative information to the event denoted by the verb. Verbs which signal the initial point of a scale yield the counterpart. Take (6a) for example, the locative information introduced by the *zai*-phrase is new, because *tiao* 'jump' which signals the initial point of a scale does not involve the information of the endpoint location. Therefore, I propose that endpoint-denoting *zai*-phrases which add new locative information to the verb obtain a directional meaning, while endpoint-denoting *zai*-phrases which do not add new locative information to the verb obtain at most a pseudo-directional meaning. It is only in the former case that locative preposition *zai* can freely alternate with intrinsic directional preposition *dao*. In the latter case, the alternation is restricted. A pseudo-directional meaning is not raised by change of location, but by referring to the endpoint in a scale encoded by the verb. (19b) and (22b) are such the case.

Sentences in (22b) have posed problems to previous analyses, because they do not fit the traditional characterizations that the *zai*-phrase refers to the location the event takes place, or the location the activity reaches, or the location a sentence participant becomes to be situated (cf. e.g. Li and Thompson 1981; Zhu 1982; Fan 1982). My analysis casts a new light on this issue by postulating that the *zai*-phrase represents the endpoint in a scale which is encoded by the verb. Assuming that the associating verbs signal (highlight) the endpoint in a scale, which will be explicitly realized in the syntax by the *zai*-phrase, I posit that these sentences obtain a so-called pseudo-directional interpretation.

The next case we are going to discuss concerns change-of-state verbs such as (24). These verbs are assumed to be lexically specified without an explicit bound regarding their incompatibility with a postverbal *dao*-phrase. In (24), the durational time adverbial modifies the duration of the event denoted by the verb, but does not necessarily make reference to the time of the rice being in the fields. As pointed out in Liu (2009) "the rice is already in the fields before becoming rotten".

(24)	xuduo	daozi	lan	zai	tian-li	yizhenzi	le
cf. (11a)	many	rice	rot	at	fields	a while	Prt

'Many rice plants rotted in the fields for a while.'

Comparing (24) with the previous sentences as in (19) and (20), we find that they are in contrast depending on whether the location described by the *zai*-phrase participates at the end, or at the start of the event. So, for (24), even though I admit that the rice is already in the fields before becoming rotten, I argue that this reading is not syntactically encoded by

the *zai*-phrase, but an inference to the fact that the location denoted by the *zai*-phrase participates in the beginning of the event of rotting. Supporting evidences come from the aspectual homogeneity requirement of durative phrases. In (24), the durational time adverbial attributes to the duration of the event. This indicates that it also modifies the time associated with the denotation of the *zai*-phrase. As far as we have seen, either the durational time adverbial modifies solely the consequent state referred to by the *zai*-phrase, excluding the causing (i.e. preceding) event denoted by the verb, or it measures the event time, including the reference time of the *zai*-phrase. There is no case in which the durational time adverbial measures the duration of the event, but does not include the reference time of the *zai*-phrase. Therefore, given that the location denoted by the *zai*-phrase participates at the start of the event denoted by the verb, according to the aspectual homogeneity requirement of durative phrases, the interval of "many rice plants rotted", the interval of "many rice were in the fields", and the interval described by "a while", must be identical, otherwise the sentence would be ruled out. In the spirit of Lin (2008), I assume that the starting point of the event is the left boundary of the interval. Since no right boundary is specified, I suggest that this kind of verbs does not specify an explicit bound in a scale.

(25)	zhangsan	chuxian/xiaoshi	zai	yan-qian	yizhenzi	le
cf. (11b)	Zhangsan	appear/disappear	at	in-front	a while	Prt

'Zhangsan has appeared/disappeared in front of me for a while now.'

Verbs of (dis)appearance are also scalar verbs without an explicit bound. Upon initial inspection, it seems that the durational time adverbial in (25) does not modify the duration of the event of (dis)appearance, because the associating verbs are punctual. Instead, the durational time adverbial modifies the time of an entity being at the location. While this interpretation suits cases of appearance, it does not suit cases of disappearance, because if Zhangsan disappeared in front of me, he cannot be in front of me (for a while). Henceforth, I conclude that the *zai*-phrase expressing 'in front of me' does not describe the location the resulting state hold, which is modified by the durational time adverbial. Instead, the durational time adverbial in (25) modifies the time span since the beginning of the event including the reference time of the *zai*-phrase. Since the event denoted by the verb and the location denoted by the *zai*-phrase are homogeneous, the *zai*-phrase is predicted to have a locative interpretation. As expected, switching the word order, making the *zai*-phrase occur before the verb, as in (26) and (27), would not cause any change of meaning.

(26) xuduo daozi zai tian-li lan yizhenzi le

many rice at fields rot a while Prt
'Many rice plants rotted in the fields for a while.'

(27) zhangsan zai yan-qian chuxian/xiaoshi yizhenzi le
Zhangsan at in-front appear/disappear a while Prt
'Zhangsan appeared/disappeared in front of me for a while.'

In short, the interpretation of the postverbal *zai*-phrase depends on the temporal relation between the denotations of the predicate and the *zai*-phrase. If these two are homogeneous, the *zai*-phrase carries a locative reading, otherwise it carries a directional reading.

4. Summary and conclusion

This paper proposes that verbs may be classed by whether they co-occur with a postverbal locative *zai*-phrase. Verb classes proposed in works of Li and Thompson (1981), Zhu (1981, 1982), Fan (1982) and Liu (2009) are reviewed in light of this proposal. Instead of Vendlerian aspectual features such as telicity, dynamicity and duration, I focus on verb "scalar" property (cf. Rappaport Hovav 2008).

This proposal first distinguishes dynamic and state verbs. Dynamic verbs include scalar verbs and nonscalar verbs. Scalar verbs differ on how the scalar property is specialized: with or without an explicit bound in a scale. This lexical specification determines whether verbs co-occur with a postverbal *zai*-phrase, and the interpretation of the *zai*-phrase.

This paper argues that whether or not postverbal zai-phrases receive a directional meaning rests on event structure. The homogeneity test shows that the *zai*-phrase carries a locative reading if its denotation and the denotation of the predicate are homogeneous, and it carries a directional reading if not. The non-homogeneity suggests that there are two subevents: one denoted by the predicate and one denoted by the *zai*-phrase. These two subevents are temporally independent. This time lag indicates the spatial path between them.

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Non-Literal Use of "Jade": A Study on "玉" (*Yu*) in Chinese Idioms

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Among all common vehicles of Chinese metaphors, "jade" deserves some special attention. The concept of jade has vastly appeared in various contexts of Chinese poetry and idioms. The different references often correlate with specific jade-related characters and tend to appear in a set of jade-X combinations that are entrenched in four-word-idioms. I believe the correlations are not arbitrary. According to Lakoff and Johnson (1980), whenever we form a metaphorical concept, we automatically highlight some aspects of the experience while hiding others. Here I aim at exploring the semantic motivations of the "jade-X" combinations and how they highlight the characteristics of each different tenor. Are the connections naturally developed, which is to say, do the similarities between jade and different "good features" physically exist or are they solely cultural-based? This article will draw data from both literary texts and conventional idioms and analyze the data from a cultural and historical perspective.

1. Introduction

What is the definition of a metaphor and how it is applied in literary Chinese culture? There have been claims in the academia, remarkably proposed by Pauline Yu, that "metaphor," as understood in the West, does not exist in traditional Chinese literature, for unlike Western poetics that uses metaphor to construct a new relationship by asserting an affinity between previously unrelated things, the Chinese imagery operates along lines of categorical affinity and correspondence (Yu 1981: 205-224). This theory later received much refutation, being criticized as "sophistical" by Stephen Bokenkamp (1989) from University of Tennessee. Yu cited and defined metaphors in Western notions as "matter for much speculation and disagreement", while Bokenkamp quoted from Soskice that "Metaphor is that figure of speech whereby we speak about one thing in terms which are seen to be suggestive of another." (Preminger 1974: 490; Soskice 1985: 15-23) Soskice's definition has pretty much coherence with Raymond Gibbs's "understanding A in terms of B, where A and B come from different conceptual domains, but share similarity". According to the Soskice definition, metaphors flourish in Chinese literature as well as conventional expressions.

Among all common vehicles of Chinese metaphors, "jade" deserves some special

attention. It is said in the Book of Rites, one of the Chinese Five Classics of the Confucian canon, that "since ancient time, all gentlemen wear pendants of jade-stones," and that they should "never be without them unless there is sufficient reason" (禮記·玉藻). Jade has played a very important role in traditional Chinese culture. Beside the basic character 玉 itself, there are hundreds of jade-related characters that take the 王/玉 radical. Most of those characters have prototypical meanings of some specific kind of jade（瑾，瑜，琦，etc.）, while the rest get more extended concepts such as the knocking sound of, the color of or even the stains on a jade（瑽，璀，瑕 respectively）. The concept of jade has vastly appeared in various contexts of Chinese poetry and idioms, referring to luxury（象箸玉杯）, beauty（香溫玉軟）, talent（握瑜懷玉）, virtue（懷瑾握瑜）, fortune（瑞雪兆豐年）, peace（化干戈為玉帛）, uniqueness（瑰意琦行）, etc. Those different references often correlate with specific jade-related characters and tend to appear in a set of jade-X combinations that are entrenched in four-word-idioms. I believe the correlations are not arbitrary. Back to the Book of Rites, it was recorded that Confucius commented that a gentleman should behave like the jade, and therefore listed eleven virtues (humanity 仁, intelligence 智, justice 義, rite 禮, music 樂, loyalty 忠, sincerity 信, heaven 天, earth 地, chastity 德, and truth 道) of the jade, which was commonly used in rituals by his time. Many of the connections that jade bears with the abstract virtues might have come from this context, with extension, elaboration and highlighting. According to Lakoff and Johnson, whenever we form a metaphorical concept, we automatically highlight some aspects of the experience while hiding others. Here I aim at exploring the semantic motivations of the combination (which is previously described as "jade-X") and how the combinations highlight the characteristics of each different tenor. Are the connections naturally developed, which is to say, do the similarities between jade and different "good features" physically exist or are they solely cultural-based? How do people from different cultural and religious background perceive this connection? These are all questions to be further researched on and discussed.

This article will draw data from both literary texts and conventional idioms and analyze the data from a cultural and historical perspective. Regarding frequent combinations of jade's in conventionalized four-word-idioms, I picked gold/metal 金, pearl/bead 珠, scent 香, flower 花, and ice 冰. I will base on the prototypes of all these entities to elaborate how these words extend the core characteristic of "jade" 玉.

2. Database Description

TABLE 1 gives a chart for the data collected on common "jade-X" combination, as appeared in conventionalized idioms and their sources.

TABLE 1

Specific Vehicle	Tenor	Conventionalized idom	Source	
玉+帛 *Yu+bo* (jade silk)	Peace	化干戈為玉帛	“禹知天下之叛也，乃壞城平池，散財物，焚甲兵，施之以德，海外賓服，四夷納職，合諸侯于塗山，執玉帛者萬國。”	《淮南子·原道訓》
	Wealth	子女玉帛		
	Ritual	玉帛鐘鼓	“禮云禮云，玉帛云乎哉？”	《論語·陽貨》
玉+金 *Yu+jin* (jade gold/metal)	Unchangeability	金玉君子	“傅侍郎清直一節，終始不變，金玉君子也。”	《宋史·傅尧俞传》
		金科玉律	"懿律嘉量，金科玉條。"	漢·揚雄《劇秦美新》
	Fortune, physical property	金玉滿堂	“金玉滿堂，莫之能守。”	《老子·第九章》
	Perfection (of an article)	金相玉質	“所謂金相玉質，百世無匹，名垂罔極，永不刊滅者矣。”	漢·王逸《離騷序》
玉+珠 *Yu+zhu* (jade, pearl/bead)	Indirectness (as a writing technic)	珠圓玉潤	“珠圓玉潤，四面玲瓏”	周濟《司辯》
	People with virtue and talent	珠玉在側	“珠玉在側，自慚形穢”	宋·劉義慶《世說新語·容止》
玉+瓊 *Yu+qiong* (jade, red/white jade)	Wine	瓊漿玉液	“吮玉液兮止渴，齧芝華兮療饑。”	漢·王逸《九思·疾世》
	Magnificence (of a building)	瓊樓玉宇	“俄見瓊樓玉宇爛然。”	晉·王嘉《拾遺記》
玉+香 *Yu+xiang*	Beauty (of a woman)	憐香惜玉	“嘲風詠月，惜玉憐香，則參政不如學	《三國志·馬良傳》

(jade, scent/aroma)			士。”	
玉+花 *Yu+hua* (jade, flower)	Beauty (of a woman)	玉惨花愁	“玉惨花愁，追思傅粉，巾袖與枕頭都是淚痕。”	金·董解元《西廂記諸宮調》
玉+冰 *Yu+bing* (jade, ice)	Nobleness/rightousness (of a person)	冰清玉潔	“冰清玉潔；不以細行。”	漢·司馬遷《與摯伯陵書》
		N/A	“一片冰心在玉壺”	王昌齡《芙蓉樓送辛漸》

(Li 2001: 98-300)

3. Methods

Most part of the database I draw comes from Chinese *chengyu* idioms. Idioms are often described as “dead metaphors”, which are lexicalized and wouldn’t be comprehended in terms of individual parts. They are thought to have once been metaphorical because we can often “trace a phrase back to its fully metaphorical use in an earlier stage of the language” (Gibbs 1994). To be specific in approaching the data above, reconstructing the original attempted meaning from this “earlier stage” is needed. Approach: Present four types of non-literal uses: metaphor, metonymy, irony, and hyperbole. Let’s take a look at the definitions before moving on to further analysis.

1. Metaphor: understand oneself and the world through the conceptual mapping of knowledge from one domain onto another. (Gibbs 1994)
2. Metonymy: take one well-understood or easily perceived aspect of something to represent or stand for the thing as a whole.
3. Irony: say something but intend opposite meaning.
4. Hyperbole: use exaggeration to create emphasis or effect.

What I expect to present in this article is how these conventionalized idioms are relevant to the mutual prototype (jade), and how this prototype extend its semantic meaning into different fields, from a cultural and historical perspective.

4. Analysis and Results

4. 1. Metaphor

Metaphor is the most common use among all figurative languages in *chengyu* idioms. I identified 10 metaphorical matches of “jade" with tenors that are targeted in the actual meanings, from people to very abstract ideas. They are listed on TABLE 2, on

which I highlighted the common jade-combining characters as I mentioned in the introduction section.

TABLE 2

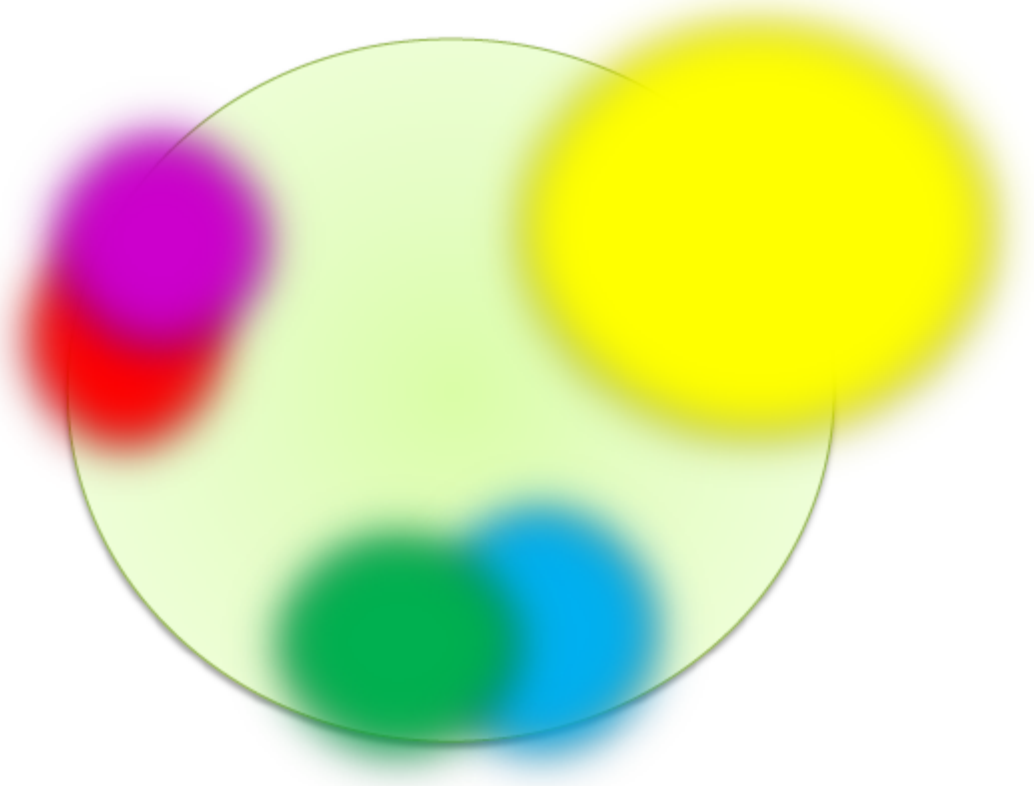
Tenor	Sample idom	Pin-yin	Literal meaning	Actual meaning
People with talent	珠玉在侧	Zhu-yu-zai-ce	Pearl and jades are beside/around	There are people with talents (above me) around
People with higher social status	兼葭倚玉	Jian-jia-yi-yu	Reeds depend on/lean on jade	People of lower status approaches those of higher status for benefit
Valuable opinions	抛砖引玉	Pao-zhuan-yin-yu	Casting a brick to attract jade	Offer a few commonplace remarks by way of introduction so that others may come up with valuable opinions
	不吝珠玉	Bu-lin-zhu-yu	Being not stint to give pearls and jade	Being generous to give valuable opinions
(Polished) writing	珠圆玉润	Zhu-yuan-yu-run	Round as pearls and smooth as jade	Excellent singing or polished writing
Talent	握瑜怀玉	Huai-yu-wo-yu	Holding jade	Having talents
Virtue	冰清玉润	Bing-qing-yu-run	As clear as ice, and as smooth as jade	Nobly virtuous
	怀瑾握瑜	Huai-jin-wo-yu	Holding jade	Having virtues
	金玉其质	Jin-yu-qi-zhi	Gold and jade is its quality	Having virtues
Beauty (of a woman)	怜香惜玉	Lian-xiang-xi-yu	Caring for scent and cherishing jade	Cherishing (a specific) beautiful woman
	冰肌玉骨	Bing-ji-yu-gu	Ice-like flesh and jade-like bones	A woman is fair-skinned and beautiful.
	玉碎珠沉	Yu-sui-zhu-chen	Jade being crashed and pearl sinking into bottom	A beautiful woman dies.
	玉惨花愁	Yu-can-hua-chou	Jade being miserable and flower distressed	A beautiful woman is unhappy.
Truth	覓山觅玉	Mi-shan-mi-yu	Going to the Mi Mountain to seek jade	Seeking persistently for truth

Unchangeable	金科玉律	Jin-ke-yu-lu	Law made of gold and jade	Unchangeable law and rules
Wine	琼浆玉液	Qiong-jiang-yu-ye	Syrup that looks like white jade and fluid that looks like jade	Wine
Moon	玉走金飞[1]	Yu-zou-jin-fei	Jade runs and gold flies*	Time passes very fast

Some characters, like 珠 *'pearl/bead'*, have rather broad distributions in targeting different tenors, while others, like 花 *'flower'*, have particular and specific targets. The combination of *pearl & jade* could be understood as talented people, valuable opinions, written articles, women, and so on. Moreover, since the basis of understanding of a metaphor is the perception of similarity, one specific metaphor based on *pearl & jade* should only activate some mutual aspects of the two objects that are relevant to the context. This explains why the combination of *pearl & jade* never refers to the moon, which is a metaphor activating the color of jade that is perceived as similar to that of the moon. The character 珠 which I refer as *'pearl'* (but described as *"pearl/bead"* more specifically in the introduction section) does little in revealing its color, but instead, tells more about its shape and gloss. According to Lakoff and Johnson, the use of metaphors highlights some aspect of an illustrated concept and hides others. Here we see the highlighting-hiding rule also applies the other way round. When referred as *talented people*, say, the aspect of *hardness* which reflects into *unchangeable* is hidden, and all our focus is drawn to those attributes that make us perceive jade as a 'spokesperson' of *talented people.* Therefore more mutual aspects between pearl and jade are perceived and activated, compared to those between flower and jade. Figure 1 provides a more straightforward illustration of the relationship.

[1] "玉走金飞" is not coherent with other "金-玉" (gold-jade) combinations. Here the jade is understood as jade-bunny which is a metonymy of the moon. However, I believe jade-bunny itself is a metaphor by activating the color of the jade as an essential similarity. "金" is short for "金乌" which is a metonymy of the sun.

FIGURE 1



The area of the main circle (light green) represents all aspects of jade, which could be elaborated by activating any point within the circle. In correspondence with the highlighted characters, yellow circle stands for all characteristics of a pearl/bead, and purple, red, green, blue for scent, flower, gold, ice respectively. The overlap of the main circle with each glowing circle represents the mutual attributes of the two that can be used to perceive similarity in a metaphor. Red and purple circle overlap almost the same area of the main circle which means the jade-flower and jade-scent metaphors target at almost the same attributes in the process of listeners perceiving similarity.

4. 2. Metonymy

Metonymy is another common non-literal use of jade in *chengyu* idioms. Most of them are the type of token-for-type with a few part-for-whole. TABLE 3 gives examples.

TABLE 3

Type	Sample idom	Pin-yin	Literal meaning (token)	Actual meaning
Ritual	玉帛钟鼓	Yu-bo-zhong-gu	Jade, silk, bell and drum	Ritual service

Peace	化干戈为玉帛	Hua-gan-ge-wei-yu-bo	Converting weapons into jade and silk	Turn war into peace
Wealth/ property	子女玉帛	Zi-nu-yu-bo	Son, daughter, jade and silk	One's family and property
Dynasty/ regime	改步改玉	Gai-bu-gai-yu	Change measurement and jade (seals)	The change of dynasty/regime
(The luxurious clothing of) a rich government official	鸣玉曳组	Ming-yu-ye-zu	Make sound of one's jade pendants and swing one's official seals	The image of a rich government official
	蟒袍玉带	Mang-pao-yu-dai	Cloak with snake skin and belt with jade	
	横金拖玉	Heng-jin-tuo-yu	Decorated with gold and jade (on one's body)	

These metonymic references are closely related to the functions of jade in ancient Chinese traditions. There are basically five common functions:

1. As ritual objects
2. As one of the most expensive gifts between nations
3. As ornaments worn by people of high social status
4. As carved sculptures found in rich families (Jones 2004: 3-5)
5. As material of seals of significant figures of a country (the empire and officials)

In the first three functions, silk often shows its appearance alongside jade, both of which were the utmost treasure of those days.

As we see from the chart, the common non-literal use of *jade & silk* combination often symbolizes ritual, wealth and peace.

The connection between *rituals* (or *wealth, peace*) and *jade+silk* is based on a token-for-type metonymy that attributes to the same conceptual domain. It is like to substitute *the crown* for *royal government*. As is explained above, jade and silk are two of the most common and important elements in ritual ceremonies (Jones 2004: 13-14). Because of the high price value of the two items, they become prototypical property of a family or individual of wealth.

Jade & silk for peace is not as salient as the other two, and requires more imagination for people who are unfamiliar with the culture. *Jade & silk* here plays a role as a token for "best gift" that are presented in international exchange (but mostly from less powerful nations to powerful nations) in showing friendliness to each other. In addition, it takes a further step in "non-literalness"—the concept gift-exchange or tribute is again used as a referential token, as a metonymy of peace, which could be understood as a result of such gifting.

The jade in idiom "改步改玉" (Change measurement and jade) symbolizes the seal of the emperor. "步" refers to the units of measurement, of which the change is often accompanied with the change of regime. These two tokens make up the most uncommon changes that could only happen after the shift into a new dynasty, and therefore symbolizes the type.

The last three metonymic idioms are part-for-whole. These are based on the third function of the jade. Jade ornament is part of the image of officials, and is one significant part that symbolizes their high social status and wealth.

4. 3. Irony

Most *chengyu* idoms could be used ironically, but there are a certain ones that tends to be ironic by nature, such as "贵人多忘事" (*Noble people are often forgetful*), which is more commonly used sarcastically in criticism (Norman 1988).

In my research, I find it very interesting that some *chengyu* idioms have lost their ironic nature as time goes by, but others gained sarcasm due to the changes of social structure which make the literal meaning no longer relevant. Here I picked one typical example for each.

"美如冠玉"—*as beautiful as jade on headdress*; the old-fashioned meaning of this idiom is to describe an evil-hearted man—who might look like a gentleman. However, this original meaning is gradually lost, and people now perceive and use it as a complement of a young man who— literally—looks good.

"金口玉言"—*golden mouth, jady speech*; it used to refer to the words of an emperor whose words and orders were unchangeable. However, in the modern society of China, there is no longer any emperor, and therefore this word becomes sarcastic to those who give assertive statements or those who do not keep their promises. Same changes happened to "金枝玉叶" (*golden braches, jady leaves*, which means offspring of the royal family), when there is no such people described.

4. 4. Hyperbole

Hyperbole in *chengyu* idioms is often accompanied by metaphor or metonymy. "鼎铛玉石" (*using luxurious containers as pots, jade as stone*), "堆金迭玉" (*piling gold and jade*), "食玉炊桂" (*eating jade (as food) and burning tea olives (as fuel)*), "象箸玉杯" (*chopsticks made of ivory, cups made of jade*). They often elaborate the high price value of jade and emphasize the luxury of life in a negative way.

5. Conclusion

Jade plays an important role in Chinese ritual and ceremonial events. The ownership of it makes up the upper class and it gradually becomes part of people's understanding of the world. This research paper looks at people's perceptive mapping of non-literal use of jade on a historical perceptive. In another word, it is to discover how

those words were understood before they became “near-dead". I find that metaphors and metonymies are far more common in jade-related idioms than irony, hyperbole, understatement and oxymora, of which the latter two show no evidence at all within my database. This might have correspondence with jade’s common connection with positive images, and will be further studied.

The analysis of the literal meaning, origin and background information shows that the use of jade in idioms is not arbitrary. Instead, the systemacity is witnessed from the more common Jade-X combinations to the less common semantic changes of idioms that are related to irony. Moreover, overlaps of non-literal types are overwhelming, and people’s way of understanding them may vary, particularly under the ambiguity of Chinese syntax and the nature of a conceptual continuum. This research didn’t cover or discuss the denominalization of the “nouny jade" into “verbal jade" and “adverbial jade", but they are interesting topics to be further discovered.

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The Imposition of Cantonese on Mandarin in the City of Guangzhou

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While many research studies have described Cantonese-Mandarin contact and the languages' mutual influence in Guangdong Province, few of them delve into the linguistic mechanism that triggers Cantonese's material (e.g. words, pronunciations, and/or grammar) transfer to Mandarin. This paper will work to explain this mechanism in Van Coetsem's (1988) framework of "Borrowing and Imposition". The Cantonese-to-Mandarin transfer is a case of imposition, with Cantonese as the linguistically dominant language and Cantonese L1 speakers as the agent of the transfer. Examples both from previous studies and from multimedia materials are used to illustrate that the seemingly discrete phenomena at all lexical, phonological, and syntactic levels can be analyzed through the same imposition framework. The imposition of materials from Cantonese on Mandarin is caused by and compensates for the source language (Cantonese) speakers' lack of proficiency in Mandarin, the recipient language.

1. Background

Guangzhou, also called Canton City, is the capital of Guangdong Province (Canton), China. Cantonese is widely spoken in Guangdong Province, and the Guangzhou accent is regarded as representing standard Cantonese. According to Norman (2008), Cantonese was derived from Late Middle Chinese in the late Tang Dynasty, i.e. approximately the 9th century. From that point forward, Cantonese has been developing as a distinctive and independent Sinitic language and has been unintelligible to speakers of other Sinitic languages.

Since the establishment of the People's Republic of China's in 1949, Mandarin, another daughter language of Middle Chinese which is used in North China, has been assigned as the official language of the nation. The standard Mandarin is also called *Putonghua*, literally meaning "common speech". In spite of its administrative promotion, from the 1950s to the early 1980s, in Guangzhou, Mandarin was used merely in government and a few other formal circumstances, and Cantonese speakers' Mandarin proficiency was "extremely limited" (Zhang (2001)).

From mid-1980s on, however, due to the Reformation and Opening Policy and

several newly-established economic zones in Guangdong, laborers, technology experts, and intellectuals started to emigrate to Guangzhou and other Cantonese cities. The majority of them were Mandarin speakers. Although to some extent their dialects might be different from each other's, their speech is mutually-intelligible. For the rest of them whose L1 is not Mandarin, they also need to use Mandarin in almost every aspect of daily life to communicate with other immigrants and with local Cantonese speakers.

Some of the latest data show that, by 2008, the demographic balance between immigrants (5.89 million) and local people (7.73 million) was "nearly 1:1" (*Guangzhou Daily*, July 6, 2009). With the immigrant population boom, Mandarin gradually became a more prevalent language. Nowadays, the use of Mandarin can be observed almost everywhere in Guangzhou, from outlying factories and street-corner convenience stores, to central business districts and five-star hotels. Mandarin has been a *lingua franca* in Guangzhou, not only among the immigrants but between them and Cantonese speakers as well.

Meanwhile, Mandarin is required to be taught and used from elementary school to college. Considering the importance of learning Mandarin at a younger age for future social communication and better employment opportunities, parents prefer to send their children to kindergartens where Mandarin is spoken besides Cantonese. Both the need to communicate effectively with immigrants and the mandatory use of Mandarin in education facilitate the bilingualism of Guangzhou's citizens. As Zhang and Lu (2008) put it, "The use of Mandarin as a language in official/business/social-communication and the use of Cantonese as a language in domestic-communication have been established. Guangzhou citizens' bilingualism and the Guangzhou bilingual community have been fairly conspicuous." The large scale of bilingualism also intensifies the contact between Mandarin and Cantonese. While the rapid growth of immigrants triggers the frequent Mandarin-Cantonese contact within communities, the increase of bilinguals also causes the contact to happen in the mental process of first language acquisition.

2. Relevant previous studies and the framework of this paper

The contact between Mandarin and Cantonese has been explored in several papers: Zhang (2001) describes the use and prestige of Mandarin in Guangdong from a psycho-socio-economic point of view. His main point is that large numbers of immigrant laborers cause Mandarin to prevail in Guangdong, and yet the laborers' low social status reduces the prestige of the language.

Zhang and Lu (2007), with an ample corpus, describe mutual word contact among Guangzhou Cantonese, Mandarin, and Hong Kong Cantonese (another variety of Standard Cantonese). The authors focus on the mechanisms of word contact: reasons, means, types, and adaptation. However, no specific discussion on the classification of different types of word contact is included in the paper. All the types are simply referred to as "borrowing".

Cheng (1998) also takes into consideration Mandarin's impact on Cantonese in Guangzhou, although he primarily conducts a comparative study on the discrepancies in phonology, semantics, pragmatics, and lexical use among Cantonese dialects. He notices that Mandarin, as a politically dominant language and a *lingua franca* in business, has been able to function on almost equal footing with Cantonese in Guangzhou. It is the impact of Mandarin that leads to the above-mentioned discrepancies between Guangzhou Cantonese and Hong Kong Cantonese, the latter of which is far from being fully exposed to Mandarin.

Jin (2010) investigates the so-called "Guangzhou-Style Mandarin (Cantonese–Style Mandarin)", which is caused by "interference of Cantonese on Mandarin". She fails, however, to give a clear definition to the term "interference". Besides, she does not distinguish two different types of interference, namely, the interference of Cantonese on Mandarin and vice versa.

To the best of my knowledge, to date, no study has been conducted on Mandarin-Cantonese contact with a particular focus on the agents and/or directions of material transfer in the contact. In the Mandarin-Cantonese case, specifically, there are four different types of transfer: Mandarin to Cantonese with Cantonese L1 speakers as the agents, Cantonese to Mandarin with Cantonese L1 speakers as the agents, Mandarin to Cantonese with Mandarin L1 speakers as the agents, and Cantonese to Mandarin with Mandarin L1 speakers as the agents. These types of transfer represent different factors that may bring about different phenomena and different results of contact-induced changes, even though some of those changes may appear to be similar. Failing to notice the crucial distinction among the four possible types of transfer, the above-mentioned researchers do not fully discuss the mechanisms by which mutual Mandarin-Cantonese transfer happens on a large scale in Guangzhou.

Consequently, in this paper, I intend to apply the framework of "Borrowing and Imposition" (Van Coetsem (1988)) to the analysis of existing data on Cantonese, Mandarin, and their contact. The framework, as Winford (2005) concludes, is that "in al1 cases of crosslinguistic influence, there is a source or donor language (SL) and a recipient language (RL). The direction of transfer of material is always from the SL to the RL, and the agent of the transfer is either the RL speaker (RL agentivity) or the SL speaker (SL agentivity). In the former case, we have borrowing, in the latter, imposition."

In this paper in particular, Cantonese speakers are the agents of transfer and Cantonese is the linguistically dominant language. I will focus on Cantonese's imposition on Mandarin, which implies that the transfer is from Cantonese to Mandarin when Cantonese speakers use Mandarin with some noticeable features specific to Cantonese. To do this, I will provide examples both from previously published academic literature and from multi-media materials in each section of the subsequent analysis.

I also wish to clarify that, as in Van Coetsem's framework and as Winford (2005) has pointed out, the term "transfer" in this paper is used in a neutral sense, referring to "any

kind of crosslinguistic influence" and any kind of shift of linguistic features.

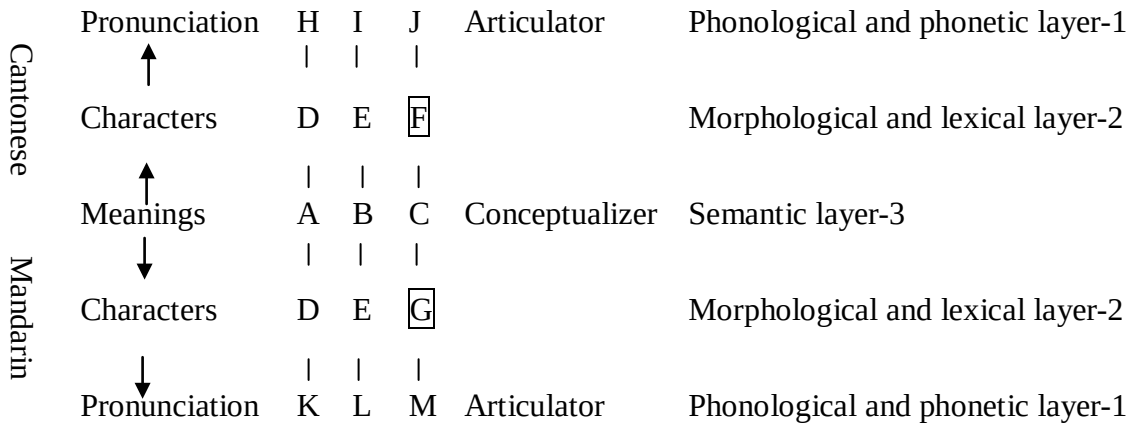
3. Imposition

Owing to the vast population of non-Cantonese speaking immigrants in Guangzhou, local residents need to speak Mandarin in many circumstances. Although the frequency with which they use Mandarin may vary according to their occupations and the communities where they live in, most of the Cantonese speakers, to various degrees, need to communicate with the immigrants in Mandarin. In this process, the locals' lack of proficiency in Mandarin needs to be compensated by imposing some features in Cantonese on Mandarin. Therefore, the direction of this kind of transfer is from Cantonese (SL) to Mandarin (RL), with Cantonese L1 speakers as the agents. In other words, the imposition is via SL agentivity.

There are three kinds of notable Cantonese-to-Mandarin impositions: lexical imposition, phonological imposition, and grammatical imposition. I will examine them in sequence.

3.1 Lexical imposition

When speaking Mandarin, Cantonese speakers often, to a greater or lesser degree, impose words from their L1 on their L2. The result is that, in their speech, while most words are from Mandarin, some Cantonese words will be inserted into an otherwise Mandarin sentence. These Cantonese words, however, are pronounced in Mandarin. To make this clear, the mechanism in which the sounds of Cantonese and Mandarin are produced needs to be illustrated, as shown in the diagram below.



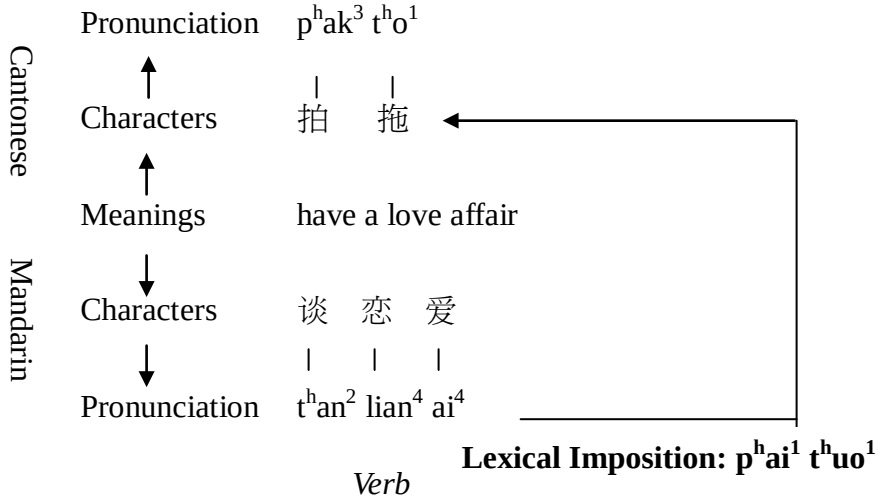
A simplified model of Cantonese/Mandarin meaning-writing-sound relationship

It is critical to know that, as layers 2 and 4 show, because Cantonese and Mandarin are based on the same writing system and share the same ancestor (Middle Chinese), the

two cognates also share a huge part of their morphological strategies, as well as lexicons (e.g. D and E in both languages are of the same written forms and referring to the same meaning A). Take the word D for instance, while the written forms in both Cantonese and Mandarin are the same, both languages have their own way of pronouncing it (H and K, respectively), according to their particular phonological systems. However, discrepancies[1] exist. For example, words F and G both refer to concept C, yet they are formed by different morphemes. With regard to the written forms, F and G use different characters. The corresponding pronunciation, needless to say, is not the same.

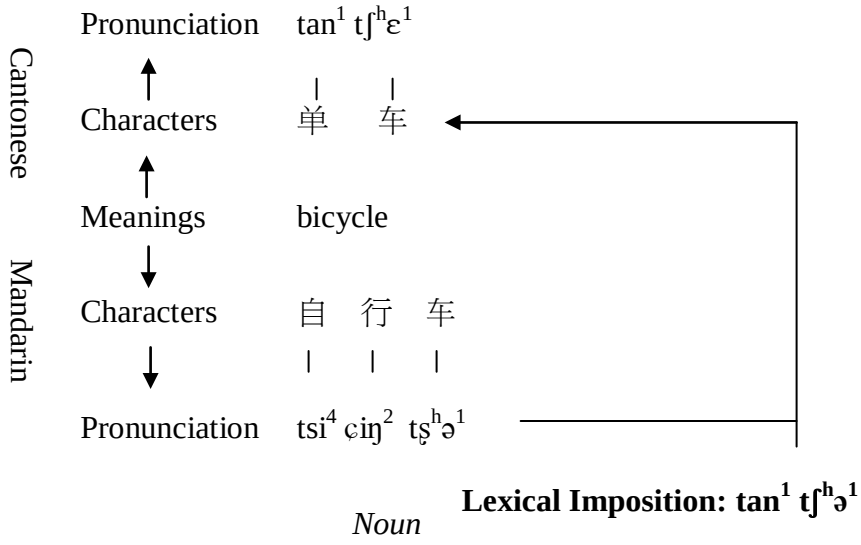
Based on the diagram, the lexical imposition of Cantonese on Mandarin can be explained as follows: To express the meaning or concept C, a Cantonese speaker pronounces the Cantonese word F in the method M. In other words, he or she will literally "read" the characters that construct the Cantonese word F using the Mandarin pronunciation. Despite its Mandarin pronunciation, F is still regarded as a Cantonese word. When the speaker brings it into his or her Mandarin speech, the word F is imposed on the Mandarin lexicon.

In the light of the mechanism, one can find many examples of this kind of lexical imposition. To name four of them (a verb, a noun, an adjective, and a measure word)[2]:

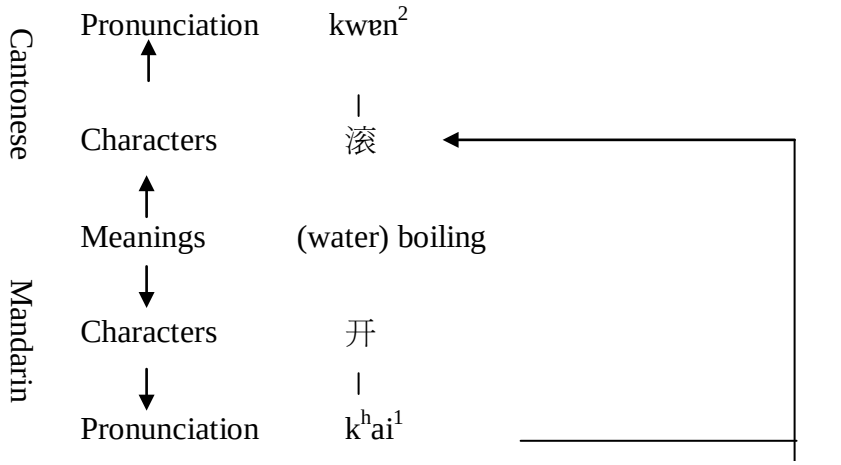


[1] These discrepancies may be caused both by language evolution and/or by the languages' respective historical contact with adjacent languages, e.g. Mandarin vs. Altaic or Tungus Languages, and Cantonese vs. Hmong-Mien or Kra-Dai languages. This paper will not discuss such historical contacts.

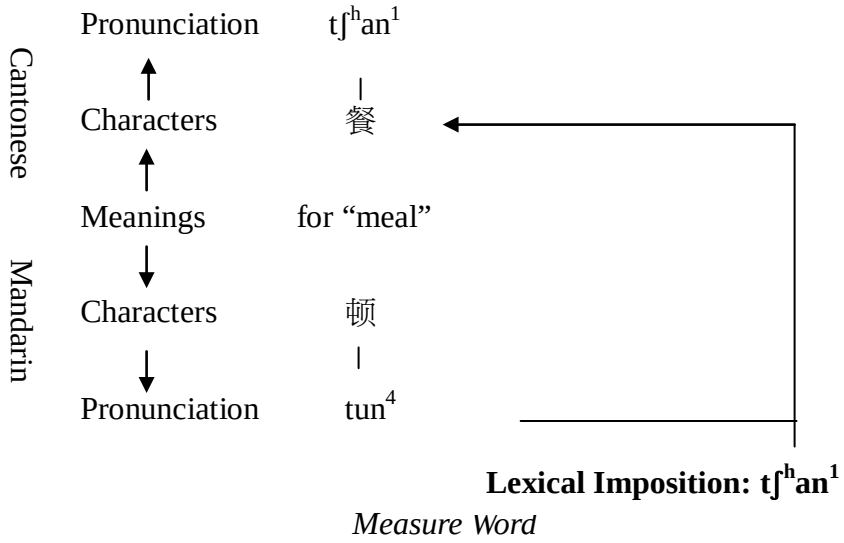
[2] The numbers following syllables mark the following tones: for Cantonese, 1-[55], 2-[35], 3-[33], 4-[21], 5-[13], 6-[22]; for Mandarin, 1-[55], 2-[35], 3-[214], 4-[51].



Noun **Lexical Imposition: tan^{1} tʃ^{h}ə^{1}**



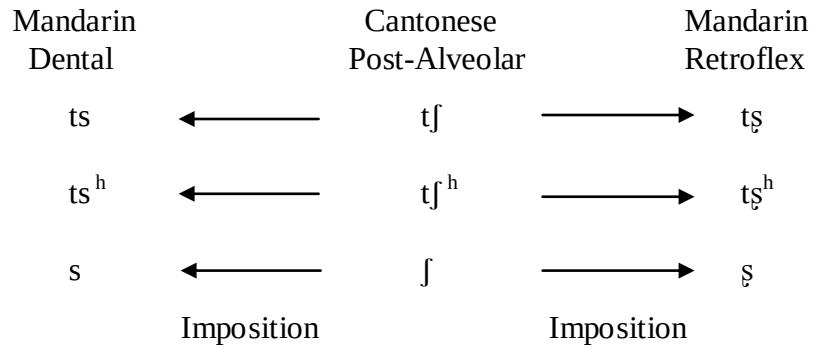
Adjective **Lexical Imposition: kun^{3}**



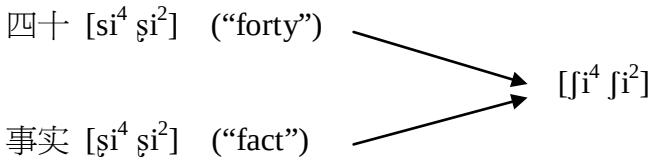
To sum up, in speaking Mandarin, Cantonese speakers usually say [pʰai¹ tʰuo¹] to express "have a love affair", [tan¹ tʃʰə¹] to express "bicycle", [kun³] to express "(a liquid is) boiling", and [tʃʰan¹] to express "a measure word of meal". This method of imposing Cantonese words on Mandarin speech is fairly productive and can be found in many other cases in Cantonese L1 speakers' use of Mandarin.

3.2 Phonological imposition

Compared to lexical imposition, the mechanism of Cantonese phonological imposition on Mandarin is simpler, since the writing system does not play any role here. When Cantonese speakers pronounce a sound in Mandarin that does not exist in their L1, they often try to match the sound with its phonetically closest Cantonese counterpart. The most prominent phenomenon is that many Cantonese speakers cannot correctly distinguish the two sets of consonants in standard Mandarin [ts/tsʰ/s] and [tʂ/tʂʰ/ʂ]. Instead, Cantonese has a set of post-alveolar consonants, [tʃ/tʃʰ/ʃ], which is not found in Mandarin. Therefore, Cantonese speakers tend to impose the post-alveolar consonants on their Mandarin speech to replace the other two sets of consonants. The mechanism is illustrated in the following diagram.



For instance, many Cantonese speakers have trouble in correctly pronouncing two particular words in Mandarin: 四十 [si^4 ʂi^2] ("forty") and 事实 [ʂi^4 ʂi^2] ("fact"). They will pronounce both as [ʃi^4 ʃi^2]. By changing both dental and retroflex fricatives into their post-alveolar counterparts, the two words that are distinguishable in Mandarin now sound exactly the same in Cantonese speakers' Mandarin speech.



I also conducted a random investigation of some television programs. I watched a talk show on the Phoenix Chinese Channel[3]. The program presenter is a well-known Cantonese writer who can speak fluent Mandarin. Yet even for him who has had a high proficiency in Mandarin, he cannot differentiate [ts/ts^h/s] and [tʂ/tʂ^h/ʂ] in his speech either. As many other Cantonese speakers do, he pronounces both as [tʃ/tʃ^h/ʃ].

In addition, it is noteworthy that the two types of imposition can work together. For example, in diagram (3), when Cantonese speakers want to express the concept "bicycle", it takes two steps for them to impose Cantonese features on Mandarin. First, as I mentioned, they pronounce the Cantonese word 单车 in Mandarin, which is [tan^1 tʂ^{h}ə^1]. Then, since in their L1 there is no retroflex sound, they choose the most similar consonant— [tʃ^h]—to replace [tʂ^{h}ə^1]. The ultimate lexical imposition, therefore, is [tan^1

[3] *Eight-Minute Book Review ("开卷八分钟").* November 30th, 2010. The Phoenix Television. Station is located in Hong Kong, and its Chinese Channel broadcasts in Mandarin.

$tʃ^{h}ə^{1}$]. The same process is also at work in the pronunciation of the measure word 餐, where [$tʃ^{h}an^{1}$] again replaces [$ts^{h}an^{1}$], the Mandarin pronunciation of this character.

3.3 Grammatical imposition

Since Cantonese grammar is very similar to Mandarin grammar; one can hardly find any radical distinctions that show grammatical imposition most clearly (for example, basic word orders SVO vs. SOV, or analytic features vs. synthetic features). Yet there are still some evidence concerning word order that sheds light on Cantonese grammatical imposition on Mandarin. To name a few instances of this:

First, while in Mandarin some adverbs precede verbs, in Cantonese their counterparts usually follow verbs. When a Cantonese speaker who lacks proficiency in Mandarin tries to construct a Mandarin sentence, it is highly possible that she or he will put this kind of adverb after the verb. An example is the use of the temporal adverb 先 [ʃin1], "first(ly)". Jin (2010) lists its uses in Cantonese, Mandarin, and Cantonese-style Mandarin (hereafter CsM), which is spoken by Cantonese L1 speakers:

Cantonese	我 行 **先**	[ŋɔ^{5} haŋ^{4} ʃin^{1}]
	I go **first**	
Mandarin	我 **先** 走	[wɔ^{3} ɕian^{1} dzou^{3}]
	I **first** go	
CsM	我 走 **先**	[wɔ^{3} dʒou^{3} ɕian^{1}]
	I go **first**	
Literally	*"I will go first"*	

Apparently, the CsM phrase takes all its words from Mandarin and yet keeps the Cantonese word order "S+VP+(temporal)PP".

The use of the quantitative adverb 多 [tɔ^{1}] ("more") serves as another example:

(8) Cantonese	食 **多**	一	碗	饭	[ʃɛk^{6} tɔ^{1} jɐk^{1} wun^{2} fan^{6}]
	eat **more**	one	(MW) bowl	rice	
Mandarin	**多** 吃	一	碗	饭	[tuo^{1} tʂ^{h}i^{1} ji^{4} wan^{3} fan^{4}]
	more eat	one	(MW) bowl	rice	

CsM	吃	多	一	碗	饭	[tʃʰi^{1} tuo^{1} ji^{4} wan^{3} fan^{4}]
	eat	**more**	one	(MW)	bowl	rice	
Literally	*"eat another bowl of rice"*						

Above, CsM also keeps the Cantonese word order "VP+(quantitative)PP+O".

Both examples demonstrate how Cantonese, with Cantonese L1 speakers as the agents, imposes the identifiable Cantonese structure "(S+)VP+(temporal/quantitative)PP (+O)" on Mandarin, while almost all the Cantonese phonological and morphological features have changed into their Mandarin counterparts.

Also, grammatical imposition can be detected via the sequence of double objects in a particular sentence. In Cantonese, the usual order is "VP+DO+IO". In Mandarin, it is "VP+IO+DO". The order of CsM, which Jin (2010) also explains, is described by the following diagram.

Cantonese	俾		本	书	我	[pei^{2} pun^{2} ʃy^{1} ŋɔ^{5}]
	give	(one)	(MW of books)	**book**	**me**	
Mandarin	给	我	一	本	书	[kei^{3} wɔ^{3} ji^{4} pen^{3} ʂu^{1}]
	give	**me**	one	(MW of books)	**book**	
CsM	给	Ø	本	书	我	[kei^{3} pen^{3} ʃu^{1} wɔ^{3}]
	give	(one)	(MW of books)	**book**	**me**	
Literally	*"give me a book"*					

In this example, CsM grammar is imposed from Cantonese on Mandarin in two senses: first, as in the two prior instances, CsM's structure is basically Cantonese. Second, as in Cantonese, the numeral "one" preceding a measure word is omitted, which is not allowed in Mandarin. Obviously, more than one kind of grammatical imposition can be exerted on Mandarin at the same time.

4. Conclusion

Because of the large-scale immigration of Non-Cantonese speakers to Guangzhou since mid 1980's, Mandarin has been flourishing there over the past decades, and is now the second *lingua franca* in Guangzhou. The frequent, extensive contact between Cantonese and Mandarin in Guangzhou, with the former as the linguistically dominant language and the latter as the politically dominant one, facilitates a mutual transfer between the two languages.

This paper has focused on transfers from Cantonese to Mandarin, which impose

Cantonese's features onto Mandarin. The transfer is conducted by Cantonese speakers and thus it takes place via SL agentivity. In other words, when Cantonese L1 speakers use Mandarin, they create an imposition on Mandarin. Evidence of this imposition can be found in different aspects of Cantonese L1 speakers' Mandarin speech: in lexicon, phonology, and grammar. This can be represented in a single sentence "give me a bicycle", as shown in the last example below.

Cantonese	俾		部	单车	我	[pei^{2} pəu^{6} tan^{1} tʃ^{h}ɛ^{1} ŋɔ^{5}]
	give	(one)	(MW of bicycle)	**bicycle**	**me**	
Mandarin	给	**我**	一	辆	自行车	[kei^{3} wɔ^{3} ji^{4} liaŋ^{3} tsi^{4} ɕiŋ^{2} **tʂ^{h}ə^{1}**]
	give	**me**	one	(MW of bicycle)	**bicycle**	
CsM	给	∅	部	单车	我	[kei^{3} pu^{4} tan^{1} **tʃ^{h}ə^{1}** wɔ^{3}]
	give	(one)	(MW of bicycle)	**bicycle**	**me**	
Literally	*"give me a bicycle"*					

Again, all three kinds of imposition can occur simultaneously in Cantonese-style Mandarin on different layers. On the lexical layer, the Cantonese noun for "bicycle" and its measure word are kept in the L2 Mandarin speech, even though they are pronounced in a Mandarin way. On the phonological layer, [tʂ^{h}] is replaced by [tʃ^{h}]. On the grammatical layer, likewise, the Cantonese speakers not only impose their L1 word order "VP+DO+IO" into the Mandarin speech while Mandarin L1 speakers will instead use "VP+IO+DO", but also omit the numeral "one" as it is sometimes permitted in Cantonese. In short, it is imposition that creates the so-called Cantonese-style Mandarin.

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Differences of tone realization between younger and older speakers of Nanjing dialect

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This article investigates differences of tone representation between younger and older speakers of Nanjing dialect, spoken in the city of Nanjing, China. Nineteen native speakers, divided into two groups according to their ages, were recruited and recorded reading monosyllabic and disyllabic words. After vowel segmentation and extraction of F0 points, statistical analysis was performed on the slope, maximum, minimum and mean values of tones to explore age differences. The result shows that for single tones, tone one and four have differences between these two groups. For disyllabic combinations, there are three combinations that have the most differences and nine other combinations that differ to some extent. The article also proves the loss of one tone sandhi process in the younger group, which may be due to the influence of standard Mandarin.

1. Introduction

Nanjing dialect is spoken in the city of Nanjing, located along the east coast of China. According to the Bureau of Statistics (2004), it has a population of 5.72 million. The Atlas of *Chinese Dialects* divides the dialects spoken in Jiangsu Province into three groups: Zhongyuan Mandarins, Jianghuai Dialects and Wu Dialects. Nanjing dialect belongs to the Hongchao subgroup within Jianghuai dialects. Liu (1995) defines the Nanjing dialect in a general and a specific sense. In the specific sense, Nanjing dialect refers to the dialect spoken in the Nanjing City, which consists of six districts (Qinhuai, Baixia, Jianye, Xuanwu, Gulou, Xiaguan) within the city and four districts in suburbs (Yuhuaitai, Qixia, Pukou, Dachang). The general definition of Nanjing dialect also includes the dialect spoken in Jiangning, Jiangpu and Luhe Counties.

Nanjing dialect has five basic tones and five tone sandhi rules, which are reported in Sun (2003). Using a scale for tone values of one (lowest) to five (highest), the basic tones

have the following values: T1(31), T2(13), T3(22), T4(44), T5(55). The tone value of T1 (31) is falling tone and T2 (13) is rising, while T3, T4, and T5 are level tones. The specific value of each tone varies according to different reports. For example T2 is recorded as 24 or 13, and T3 is recorded as 22, 212 and 11 in Liu (1995, 1997). Combining tones leads to tone sandhi rules, which according to Sun (2003) are as follows: T1→T4/_T1 (31→44/_31), T5→T4/_T5 (55→44/_55), T3→T2/_T1(22→13/_31), T3→T1/_T3(22→31/_22), T2→T3/_T5(13→22/_55). Both Song (2006) and Liu (1995) reported phonetic production differences among different ages. Liu (1995) provides a detailed description for different age groups, noting differences in both basic tone values and in tone sandhi rules. This present paper proves that there are differences in basic tone production within different age groups, in addition to the tone sandhi production mentioned in Song (2006).

Liu (1995) investigated the use of the dialect among residents in Nanjing and divided them into four groups based on their ages: the first group of age 0-25(now 15-40), the second group of age 22-55 (now 37-70), the third group of age 55-80 (now 70-95) and the fourth group of age 80 and above (now 95 and above, and rare). There are more differences between the first two and the last two groups. Liu proceeded to group the first two groups together as the new dialect group and the last two groups as the old dialect group. The differences he proposed are mainly about consonants and vowels. For example, the oldest (4th) group has diphthongs [ae], [□o], while the youngest (1st) group pronounces those two diphthongs as monophthongs [□], [□]. The third and fourth groups pronounce the consonants as [ts], [ts'], [s] before high vowels [i], [y], while the first and second groups pronounce them as [t□], [t□'],[□].

As for tone differences, Liu (1995) noticed a difference in the T1. The old dialect has the tone value 31 while the new dialect has the value 41. In addition, the sandhi rule for T1+T1 has the value of 33+31 for the old dialect and 44+41 for the new dialect. For the old dialect, Liu (1995) proposed slightly different tone values from Sun (2003). Liu also described the sandhi rules for the old (the third and fourth group) and new dialect (the first and second group) as in Table-1.The old dialect creates new tone values such as 33, 12 and 42 while the new dialect does not. The new dialect is also influenced by the standard dialect, namely, Mandarin.

In this paper, the goal is to investigate the tone differences between two age groups (24~29, 35~63), which are counted as speakers of the new dialect in Liu's research. With fifteen years of development of this dialect, there might be new differences between these two groups. It is also worth investigating the influence from standard Mandarin, to explain some phonetic differences such as the changes in sandhi rules.

Table-1 Liu's sandhi rules for older and newer Nanjing dialects

Old Dialect	New Dialect
T1(31)→33/_T1(31)	T1→T4/_T1 (41→44/_41)
T2(24)→T3(11)/_T5(5)	T2→T3/_T5(13→22/_55)
T3(11)→12/_T1(31)	T3→T2/_T1 (11→24/_41)
T3(11)→12/_T3(11)	T3→T2/_T3 (11→24/_11)
T4(44)→42/_T5(5)	T4→T1/_T5 (44→41/_55)
T5(5)→3/_T5(5)	T5(5)→T3/_T5(5)

The five monosyllabic tones in Nanjing dialect have a mapping relationship with four Mandarin tones, though some words have no correspondents in Mandarin Chinese. This mapping relationship, summarized in Table 2, is calculated using the dictionary by Liu (1995). The total number of tones represents monosyllabic vocabulary words which have a certain tone value. For example, for Nanjing T1, there are 401 monosyllabic words, within which 334 words have a mapping word of T1 in Mandarin. Tone values in brackets are cited from Sun (2003).

Table-2 Mapping relationship between Nanjing and Mandarin tones

Nanjing Tones	Mandarin Tones (number of mapping tones /total tones)
31 (T1)	55 334/401
13 (T2)	35 314/338
22 (T3)	214 260/290
44 (T4)	51 473/495
55 (T5)	55 96/289 35 81/289 214 24/289 51 93/289

This goal of the current paper is to explore differences in tone realization between two age groups. Specifically, single tones in isolation and disyllabic tone combinations will be examined, and the differences will be analyzed both phonetically and phonologically to reveal the development of tone realization within different age groups.

2. Methodology

Nineteen native speakers of Nanjing dialect were recruited and recorded reading monosyllables and disyllables (25 combinations of tones) in a sentence frame. The pitch was measured at twenty sample points from each segmented vowel. The participants are

divided into two groups according to their ages: the younger group (24~29) and the older group (35~63). The younger group consists of eight people and the older group consists of eleven people; all have lived in Nanjing for most of their lives.

Eleven samples of each monosyllabic tone and five samples of each disyllabic tone combination were segmented, and twenty F0 value points of each sample were extracted automatically by a Praat script[1]. In total, there are 5795 stimuli in this project, including 1045 monosyllabic tones (11 samples*5 tones*19 participants) and 4750 disyllabic tones (5 samples*2*25combinations*19 participants). The next step was to normalize the extracted data.

As for normalization, there are some common formulas adopted by researchers. In the article by Deng et al. (2008), they use the following formula to transfer F0 values to a tone value on the 1-5 scale: T=[(lgx-lgmin)/(lgmax-lgmin)]*5, in which x means F0 in the point that you want to transfer into the 5 scale tone value, Min means the minimum F0 value across the tone and Max means the maximum F0 value across the tone. Rose (1987) compared two normalization methods: Z-Score and Fraction of Range, and argued that the Z-Score method is more appropriate. He also proposed a Z-score normalization method using the long term F0 mean and standard deviation (Rose, 1991). All the data in this paper were normalized by Rose's Z score (Rose 1987), after deleting the first and last point of each sample. The mean value is calculated from all samples of a certain tone by each speaker. To lessen the influence of the initial consonants, 20% of the tone from the initial point is deleted, following Sarmah and Wiltshire (2010). The mean of the normalized sample points are calculated to represent each tone within the two groups. Regression analysis was applied to the data to evaluate the slope of the tone. The maximum point and mean of each tone by each speaker are also calculated in order to evaluate the frequency range. Statistic analysis compares the slope, mean values and maximum point values within the two age groups: younger (24~29) vs older (35~63).

3. Results of Monosyllabic Tones

For single tones, the mean value of slope, maximum and mean values are summarized in the Table-3. From the table, it appears that for the younger group, the height of the maximum point has the order T5, T1, T2, T4, T3 while the older group has the order T5, T2, T1, T4, T3. For the younger group, a t-test shows that T1 and T2 do not significantly differ while the maximum points of all other tones differ statistically ($p<.05$). For the older group, the maximum point of T1, T2 and T4 are not significantly different.

[1] This script was created by Byunggon Yang(http://fonetiks.info/bgyang). Jirapat Jangjamras added meanf0 and mean db on 9/11/09 and reorganize the printed line to be one line instead of two on 10/15/09.Jirapat edited some parts of the script 5/6/10 for Si Chen's analysis.

Table-3 Summary of single tone values for the two groups (younger/older)

Tone	Slope (younger/older)	Maximum (younger/older)	Mean (younger/older)	Min(younger/older)
1	-0.1093/-0.1006	0.9307/0.5458	0.1456/-0.1636	-0.6506/-0.9307
2	0.1162/0.1096	0.6347/0.6101	-0.3075/-0.1987	-0.9727/-0.9170
3	-0.0173/-0.0200	-0.9814/-1.1858	-1.3128/-1.3949	-1.5505/-1.5747
4	-0.0306/-0.0267	0.0727/0.3664	-0.1800/0.1969	-0.3997/-0.0676
5	0.0143/-0.0002	1.6242/1.6239	1.4810/1.4782	1.3258/1.2711

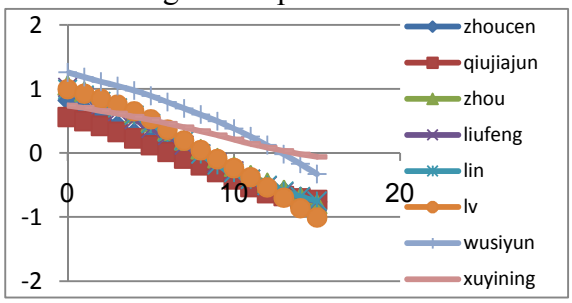
For the younger group, the height of the minimum point has the order T5, T4, T1, T2, T3, while the older group has T5, T4, T2, T1, T3. For the younger group, T4 and T1 have no significant difference and the minimum points of all other tones are statistically different. For the older group, T1, T2, T3 have the same minimum points. As for slope, both groups have the same slope for T3, T4, T5, which were reported to be level tones in previous research. Table 4 summarizes the points of similarity for each tone.

Table-4 Similarities between Younger/Older tone systems

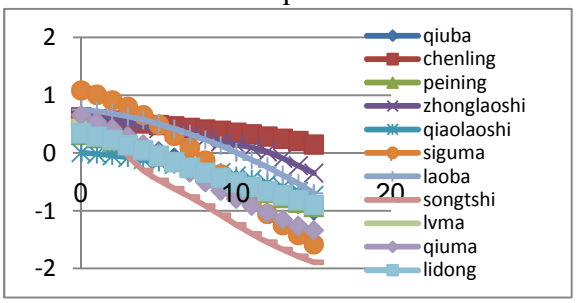
Category	Tones of the Younger Group	Tones of the Older Group
slope	T3,T4,T5	T3,T4,T5
max	T1,T2	T1,T2,T4
min	T1,T4	T1,T2,T3

The following graphs show monosyllabic tones pronounced by these two groups. The X-axis represents the sampled 15 points over time. The Y-axis represents normalized values of each sampled point. Each color represents a single speaker, whose names are written on the column to the right.

Tone 1 Younger Group

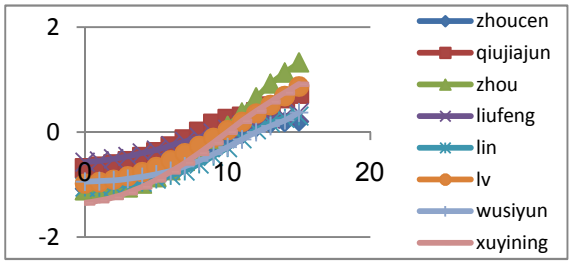


Tone 1 Older Group

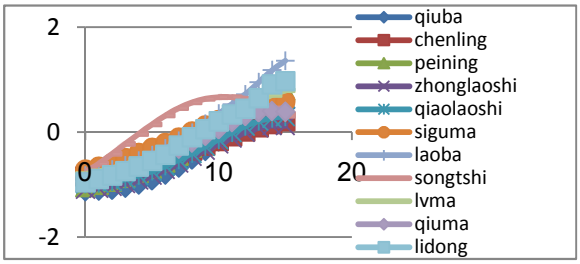


For tone one, both younger and older groups have a falling tone with similar shape. The t-test does not show a statistically significant result for the difference in the slope, although descriptively the slope of older group has a deeper slope with a difference of 0.0084 unit. The minimum point of the older group is 0.28 lower than the younger group, but it is also not statistically significant. However, there are two statistically significant differences: the younger group has a 0.309 unit higher mean than the older group, and the maximum point of the tone is higher for the younger group by 0.385 unit. These normalized differences mean that in the same scale, the younger group pronounces tone one in a higher frequency range.

Tone 2 Younger Group

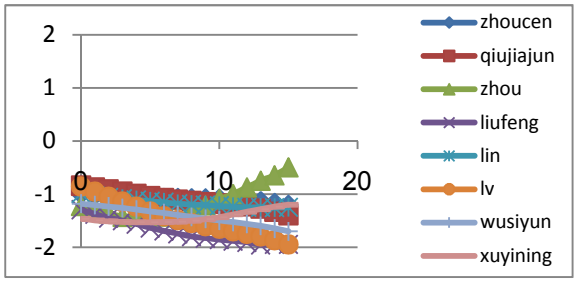


Tone 2 Older Group

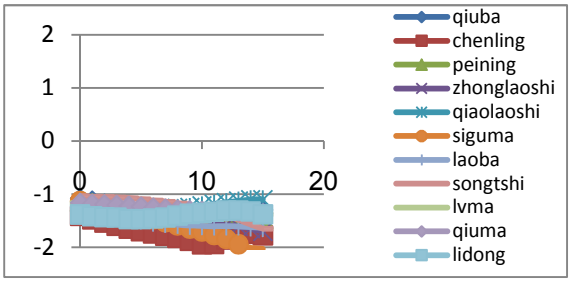


For tone two, both younger and older groups have a rising tone. The two groups do not have any statistically significant differences. Descriptively, the younger group averages a deeper slope, 0.0065 unit greater than the older group. The younger group also has a 0.024 unit lower mean, a 0.11 unit higher maximum point than older group, and a 0.05 unit higher minimum point for the younger group.

Tone 3 Younger Group



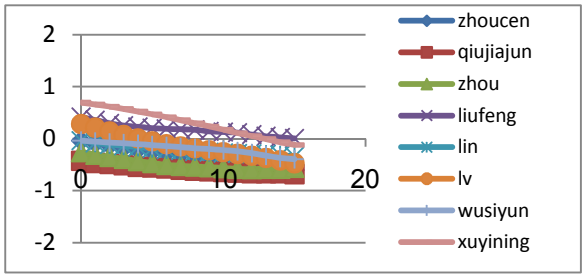
Tone 3 Older Group



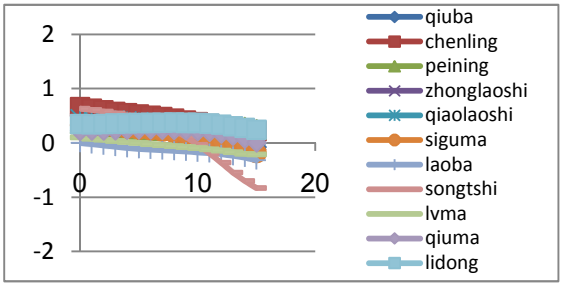
For tone three, both groups have some variation with regards to the shape of tone contours. Two out of eight speakers in the younger group, and five out of eleven speakers

in the older group, have a falling-rising tone. The remainder in both groups have a falling tone. The differences in slope, maximum and minimum points, as well as the mean, are not statistically significant. To measure the slope, we split the tone into two and measured the slope of first eight and last eight points. In the first half, the older group has a 0.0071 unit higher slope than the younger group. In the second half, younger group has a 0.01 unit higher slope. The older group has a 0.21 unit lower maximum point, 0.02 unit lower minimum point and 0.08 unit lower mean.

Tone 4 Younger Group

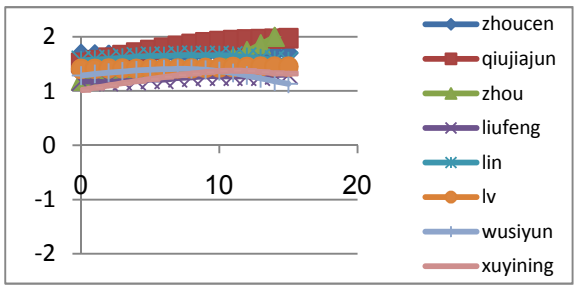


Tone 4 Older Group

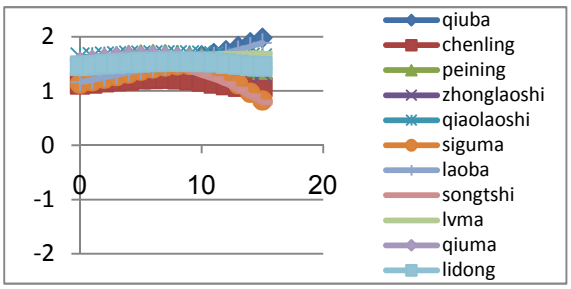


For tone four, both younger and older groups have a slightly falling tone with similar shape. There is no statistically significant result for the difference in slope, although descriptively, the slope of older group has a deeper slope with a difference of 0.0034 unit. Similarly, although the maximum point of the older group is higher than the younger group by 0.25 unit, the difference is not significant. There are two statistically significant differences, however; the younger group has a 0.38 unit lower mean than the older group, and the younger group has a .332 unit lower minimum point than the older group. These normalized differences mean that in the same scale, the younger group pronounces tone four in a lower frequency range.

Tone 5 Younger Group



Tone 5 Older Group



Similarly to tone three, tone five also varies within both groups. For the first half, all speakers have a slightly rising direction, while for the second half, three out of eight younger speakers and eight out of eleven older speakers have a falling direction; the rest of those speakers have a rising direction. This means that more speakers in the older group tend to fall in T5 than in the younger group. The comparison of the slope shows a statistically significant result, when the three speakers producing rising tone are excluded from the older group. The differences in maximum, minimum and mean value between the two groups are not statistically significant, although the maximum point of the older group is 0.0003 unit lower, the mean of the older group is 0.003 unit lower, and the minimum point of the older group is 0.06 unit lower than the younger group. The following table summarizes the differences between the two groups.

Table-5 Differences between Older/Younger speakers tones on phonetic measures (T-test significance marked by *)

Tones	Slope difference (Older vs Younger)	Max difference (Older vs Younger)	Mean difference (Older vs Younger)	Min difference (Older vs Younger)
1	deeper 0.0084	0.385 lower *	0.309 lower *	0.28 lower
2	shallower 0.0065	0.11 lower	0.024 higher	0.05 higher
3	0.0071 unit higher (first 8 points) 0.01 unit lower(last 8 points)	0.21 lower	0.08 lower	0.02 lower
4	0.0034 deeper	0.284 lower	0.38 unit higher*	0.332 higher*
5	negative/positive	0.0003 unit lower	0.003 unit lower	0.06 lower

Judging from the statistically significant differences, T1 and T4 display the most obvious differences between these two groups. For the older group, T1 has a lower maximum and mean value, while T4 has a higher mean and minimum value. The higher value of T1 for the younger group is in accordance with Liu's (1995) report.

4. Results of disyllabic Tones

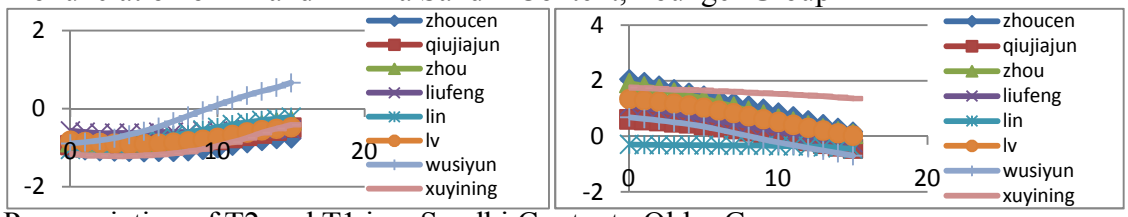
In order to test if there are any differences in disyllabic tones between these two groups, we measured the slope, the maximum and mean of tones in disyllables, and evaluated the differences with t-tests.

In 25 combinations of five basic monosyllabic tones, there are some tones showing statistically significant difference in slope, maximum and mean between the two groups. Three combinations have differences in maximum, slope and mean points. Since three combinations have so many differences, we conducted t-tests to examine the value with single tones produced by younger and older groups as well. Among the three

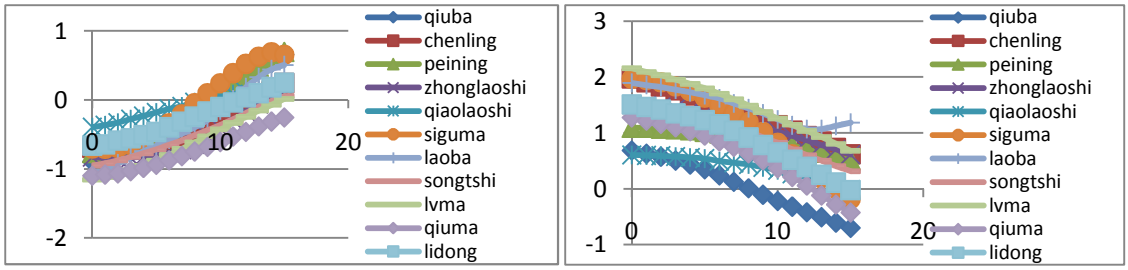
combinations, T3+T1 is mentioned in Liu's (1995) research. Liu did not find a difference between the new and old dialect with regards to this sandhi rule. There are differences now between the two groups in the current study, which both belonged to the "new" dialect according to Liu's research.

In the combination of T2+T1, the slope, maximum and mean values of T2 are all significantly different. The older group pronounces T2 with a deeper slope (0.04 unit), a higher maximum point (0.6 unit) and a higher mean value (0.35 unit). The older group has the same slope for T2 as the single tone while the younger group has a different slope with the single T2, but the same slope as the single T5. The mean value is also the same as the single T2 for the older group, but the younger group has a different mean from any single tone. The mean value for younger group is 0.41 unit lower than the single T2.

Pronunciation of T2 and T1 in a Sandhi Context, Younger Group

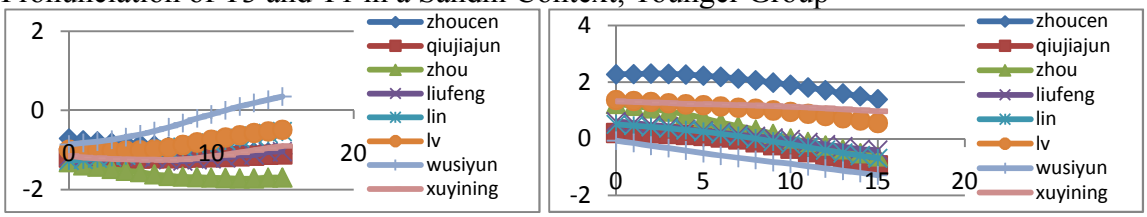


Pronunciation of T2 and T1 in a Sandhi Context , Older Group

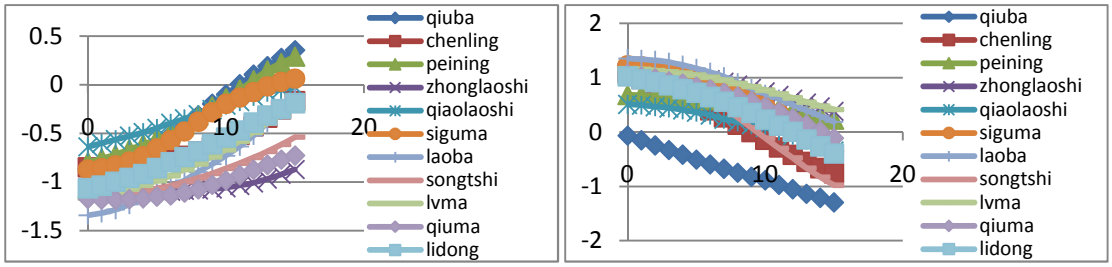


In the combination of T3+T1, the slope, maximum and mean value of T3 are all significantly different. The older group has a deeper rising slope (0.04 unit) and a higher maximum and mean value (max: 0.52 unit, mean: 0.34 unit).

Pronunciation of T3 and T1 in a Sandhi Context, Younger Group



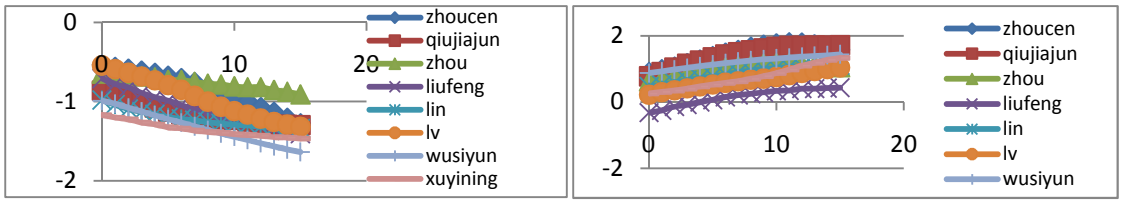
Pronunciation of T3 and T1 in a Sandhi Context, Older Group



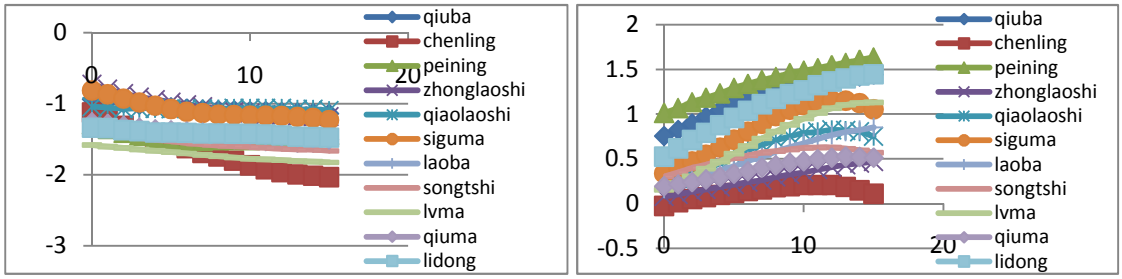
In this T3+T1combination, the younger group pronounces T3 with the same slope as the single T3, but the older group shows a difference from any single tone. The maximum and mean point of T3 pronounced by the younger speakers is statistically the same as that of the single T3. The maximum and mean point of the older group is different from any single tone (max:-0.2, mean:-0.66). Perceptually, the older group pronounces T3 in this combination similarly to T2. Since in Mandarin, there is no sandhi rule for the combination T3+T1, it is possible that the youngest group is influenced by the Mandarin dialect and has lost the sandhi rule.

In the combination of T3+T5, the slope, maximum and mean values of T3 are all significantly different. The slope of these two groups has a negative value and the older group's slope is 0.02 unit deeper than the younger group's. The younger group is 0.36 unit higher in the maximum point and 0.28 unit higher in the mean value. The slope, maximum point and the mean value of T3 are the same as the single T3 for both younger and older groups. The slopes for both groups are negative with a 0.01 unit difference.

Pronunciation of T3 and T5 in a Sandhi Context, Younger Group

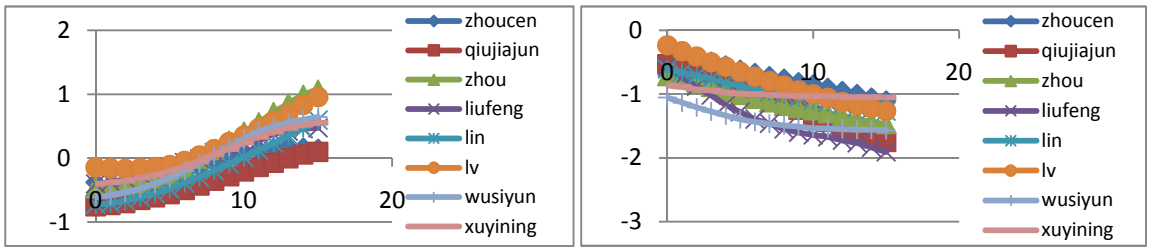


Pronunciation of T3 and T5 in a Sandhi Context, Older Group

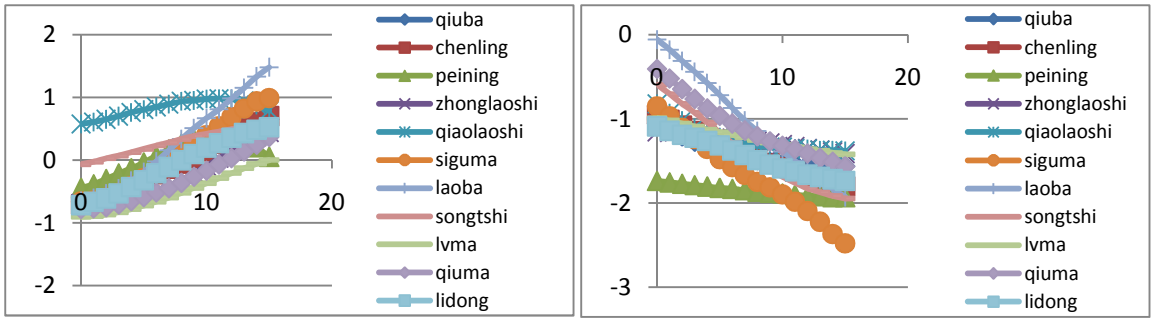


Within the four sandhi rules in Nanjing new dialect, there are two combinations which show some significant differences between the two groups in the study, namely T3+T3 and T4+T5. In T3+T3, the older group has a 0.31 lower mean value and a 0.32 lower minimum point for the second T3.

Pronunciation of T3 and T3 in a Sandhi Context, Younger Group

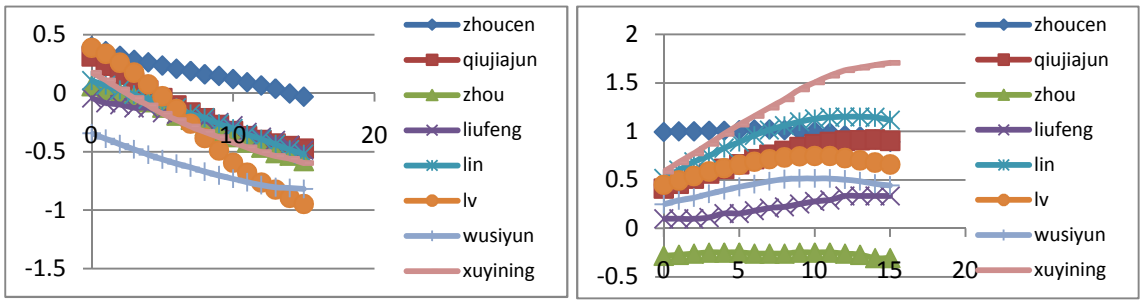


Pronunciation of T3 and T3 in a Sandhi Context, Older Group

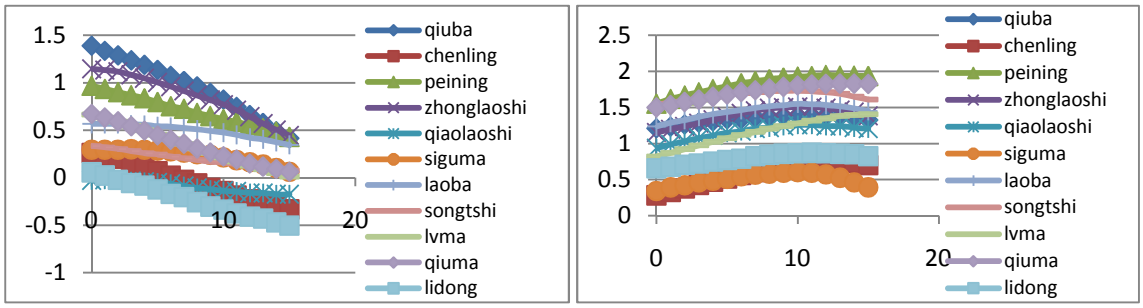


In T4+T5, both tones have significant difference in maximum and mean value. For T4, the older group has a 0.45 unit higher max point and 0.57 unit higher mean value. For T5, the older group has a 0.58 unit higher max point and 0.61 unit higher mean value.

Pronunciation of T4 and T5 in a Sandhi Context, Younger Group

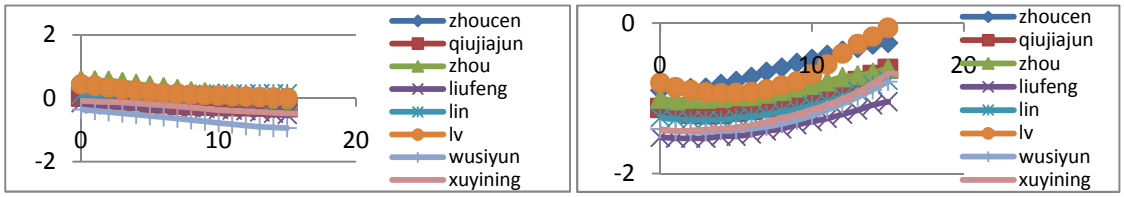


Pronunciation of T4 and T5 in a Sandhi Context, Older Group

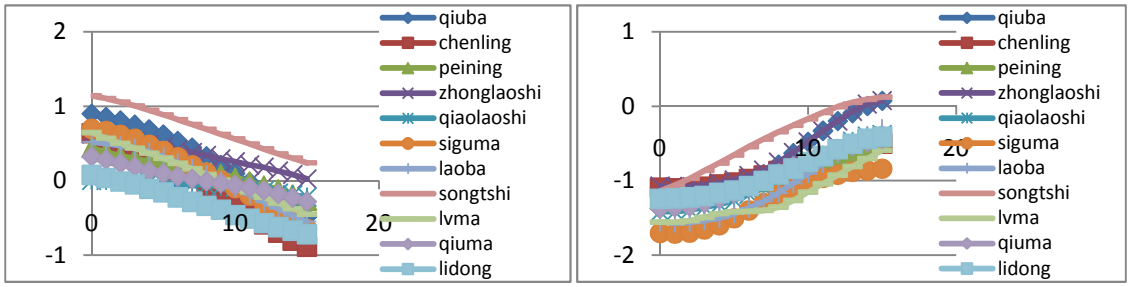


According to statistically significant results in different points, the combinations can be further divided into several categories: differences in slope and maximum, slope only, maximum and mean, minimum and mean, and also maximum and minimum. The differences of slope and maximum hold for the combination of T4+T2. Both groups have a negative slope for T4, and the older group is 0.03 unit deeper. Also, the older group has a significant higher maximum point (0.4 unit), though the older group's higher mean (0.22unit) is not significantly different.

Pronunciation of T4 and T2 in a Sandhi Context, Younger Group



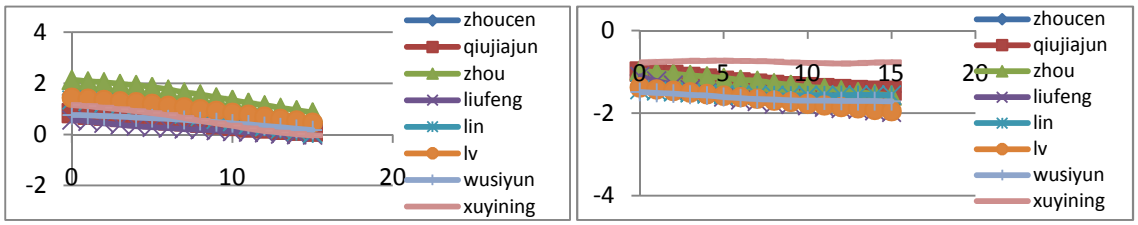
Pronunciation of T4 and T2 in a Sandhi Context, Older Group



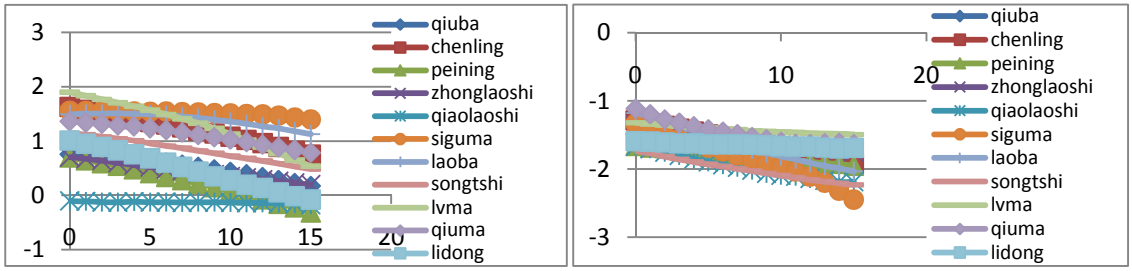
Many combinations have differences only in maximums and means: T1+T3, T2+T3, T3+T4, T4+T4, T4+T5, T5+T3. First, in T1+T3, the maximum and mean value of T3 is higher for the older group (max: 0.28 unit, mean: 0.3 unit). While the slope difference is

not statistically different, the older group pronounces T3 in this combination at a higher frequency.

Pronunciation of T1 and T3 in a Sandhi Context, Younger Group

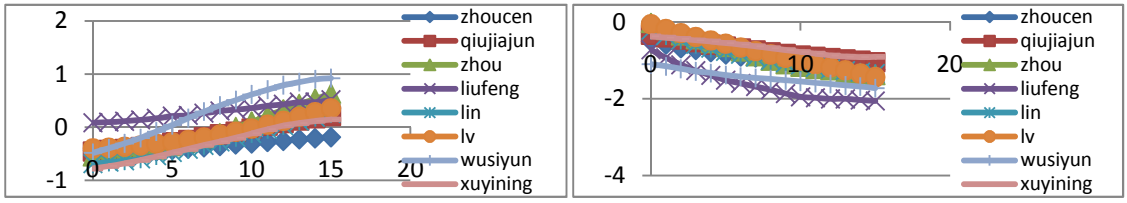


Pronunciation of T1 and T3 in a Sandhi Context, Older Group

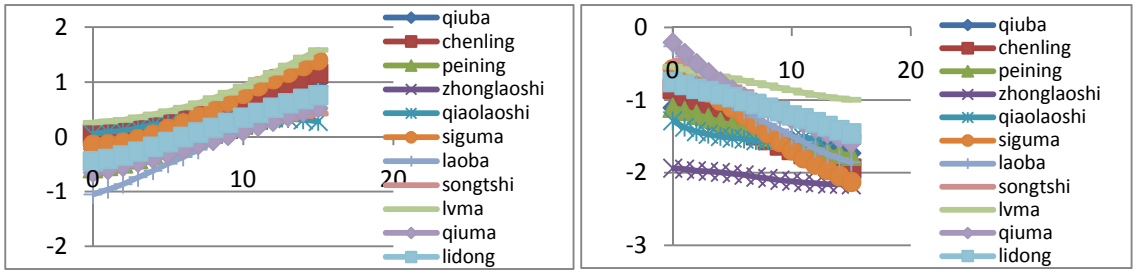


In T2+T3, the maximum and mean of T2 are significantly different between these groups, with the older group higher for both (0.48 unit higher max, 0.29 unit higher mean).

Pronunciation of T2 and T3 in a Sandhi Context, Younger Group

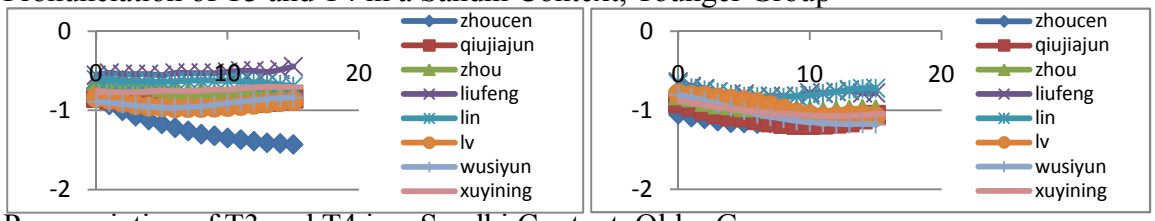


Pronunciation of T2 and T3 in a Sandhi Context, Older Group

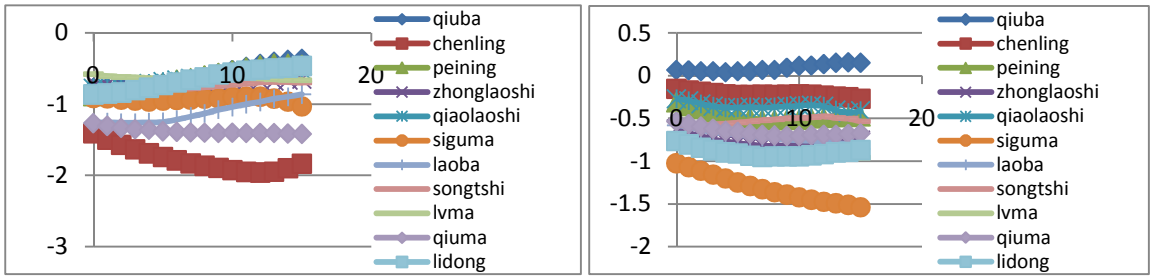


In the combination T3+T4, T4 differed between the two groups on maximum and mean value, with the older group higher for both (0.34 unit higher max, 0.36 unit higher mean).

Pronunciation of T3 and T4 in a Sandhi Context, Younger Group

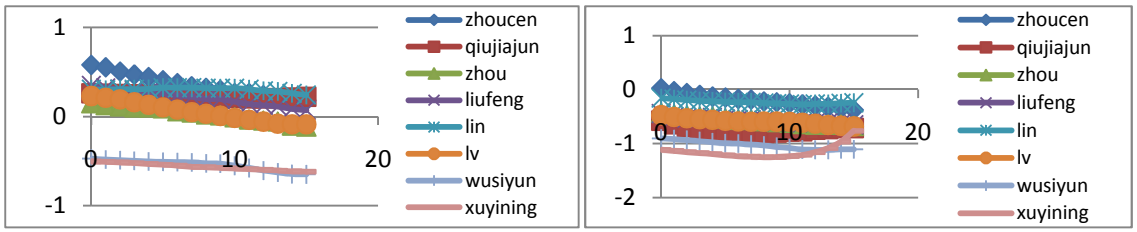


Pronunciation of T3 and T4 in a Sandhi Context, Older Group

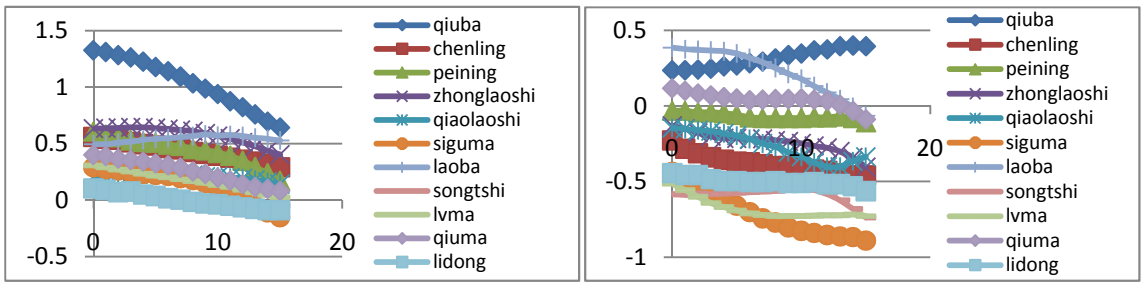


In the combination of T4+T4, the second T4 is statistically different in maximum and mean values, with the older group having higher values for both than the younger group (max: 0.33 unit, mean: 0.37 unit).

Pronunciation of T4 and T4 in a Sandhi Context, Younger Group

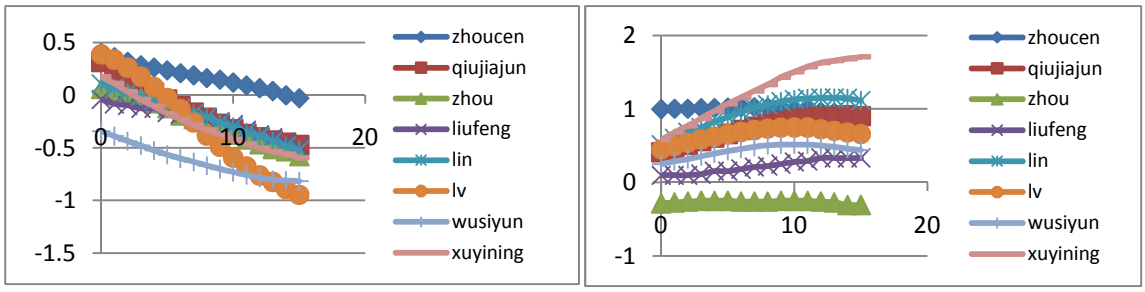


Pronunciation of T4 and T4 in a Sandhi Context, Older Group

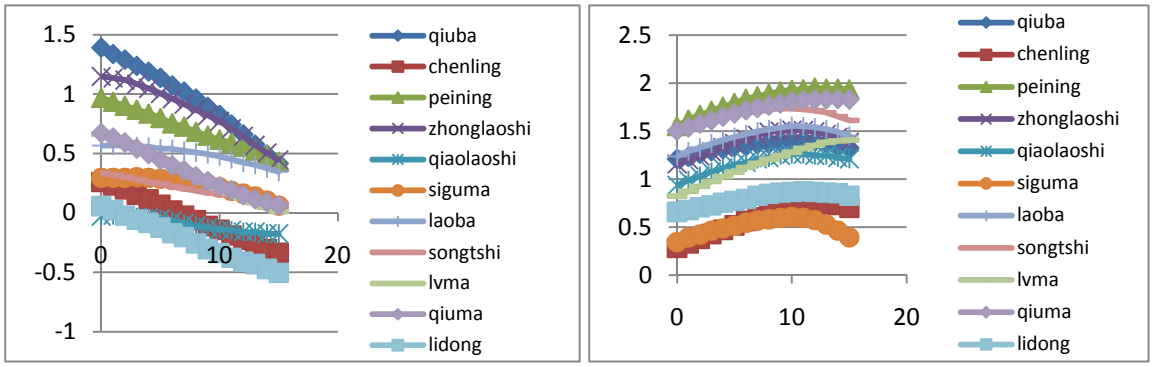


In T4+T5, both T4 and T5 are different within the two groups. The older group has a higher frequency range in general.

Pronunciation of T4 and T5 in a Sandhi Context, Younger Group

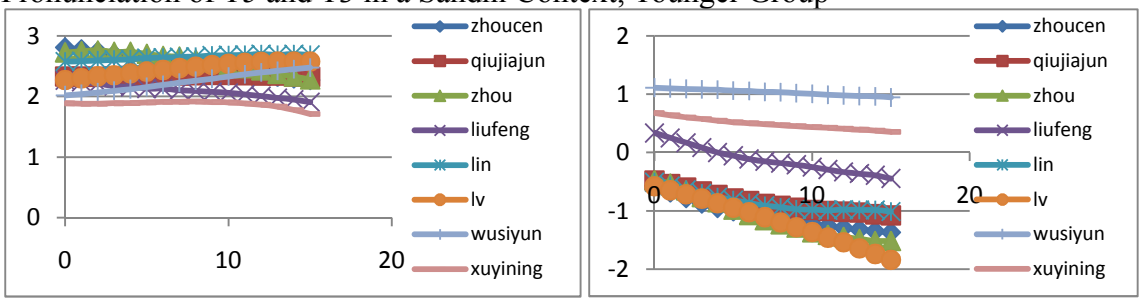


Pronunciation of T4 and T5 in a Sandhi Context, Older Group

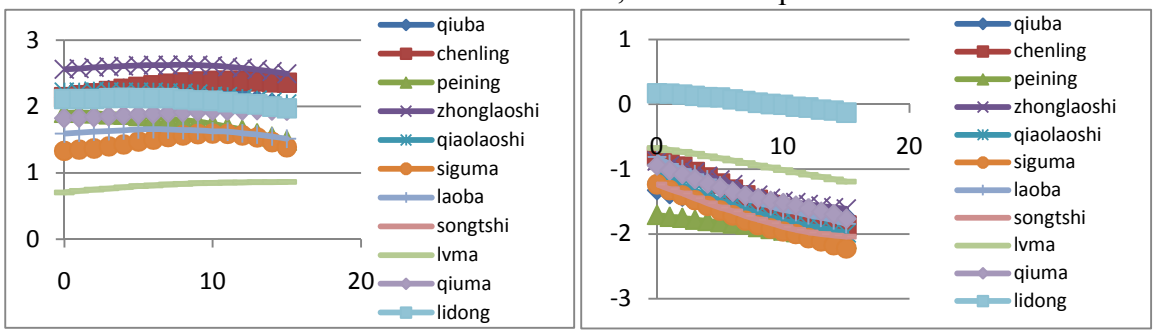


In T5+T3, T3 has a significant difference in the maximum and mean value. The younger group has a higher maximum and mean value than the older one (max: 0.89 mean: 0.9).

Pronunciation of T5 and T3 in a Sandhi Context, Younger Group

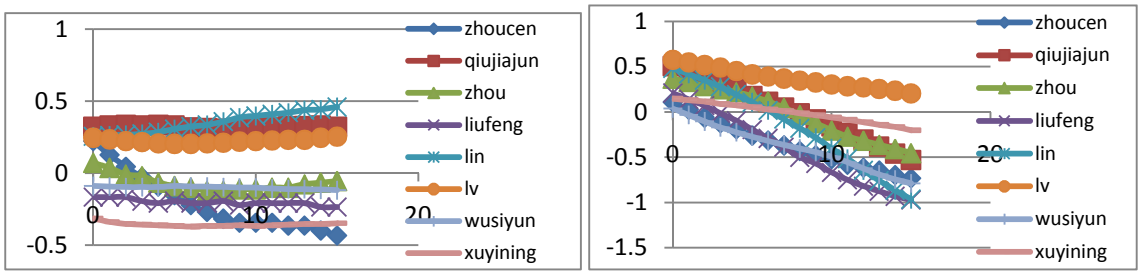


Pronunciation of T5 and T3 in a Sandhi Context, Older Group

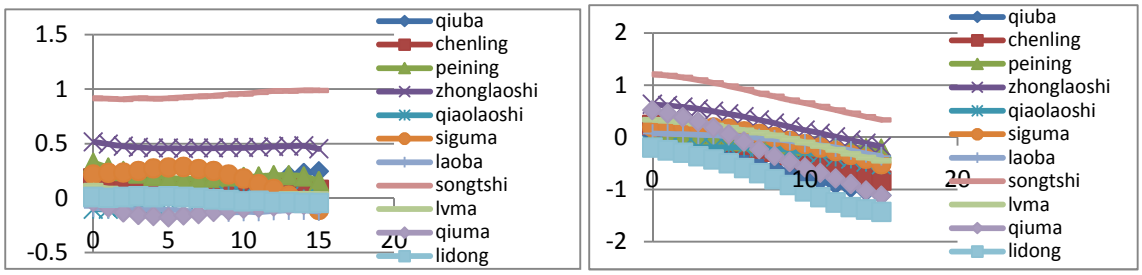


The slope of T4 is the only statistical difference for the two groups in the combination of T4+T1. They all have a positive slope and the younger group is 0.003 unit deeper, which is not a big difference in its value itself though it is statistically significant.

Pronunciation of T4 and T1 in a Sandhi Context, Younger Group



Pronunciation of T4 and T1 in a Sandhi Context, Older Group



Combinations of T1+T5, T3+T3 showed differences in minimum and mean points, while T5 + T4 differed in maximum and minimum points. The specific values are summarized in Table-6. However, since productions of T4 differed as a monotone, differences in combination are likely not due to sandhi rules, but rather to original monotonal differences.

Table-6 Differences found in tone combinations in Older/Younger speakers
(t-test significance marked by *; bold tones show a difference between groups)

	Combination	Slope difference (Older vs Younger)	Max difference (Older vs Younger)	Mean difference (Older vs Younger)	Min difference (Older vs Younger)
Slope, max & mean	**T2**+T1	positive 0.04 deeper*	0.6 higher*	0.35 higher*	0.12 higher
	T3+T1	positive 0.04 deeper*	0.52 higher*	0.34 higher*	0.30 higher
	T3+T5	negative .002 shallower*	0.36 lower*	0.28 lower*	0.14 lower
Slope & max	**T4**+T2	negative 0.03 deeper*	0.4 higher*	0.22 higher	0.08 lower
Slope only	**T4**+T1	positive 0.003 shallow*	0.135 higher	0.17 higher	0.17 higher
Max & mean	T1+**T3**	0.005 deeper	0.29 lower*	0.3 lower*	0.6 lower *
	T2+T3	0.03 deeper	0.48 higher*	0.29 higher*	0.12 higher
	T3+**T4**	0.0027shallower	0.34 higher*	0.36 higher*	0.354 higher*
	T4+**T4**	0.0023 deeper	0.33 higher*	0.37 higher*	0.35 higher*
	T4+**T5**	T4 0.014 shallower T5 0.009 shallower	T4 0.45 higher* T5 0.58 higher*	T4 0.57 higher* T5 0.61 higher*	T4 0.636 higher* T5 0.66 higher *
	T5+**T3**	T5 0.002 shallower T3 0.004 deeper	T5 0.5 lower* T3 0.89 lower*	T5 0.44 lower* T3 0.9 lower*	T5 0.4 lower* T3 0.93 lower*
Min & mean	T1+**T5**	0.002 deeper	0.42 higher	0.43 higher*	0.383 higher*
	T3+**T3**	0.004 deeper	(0.28 lower)	0.31 lower*	0.32 lower*
Max & min	**T5**+T4	0.005 deeper	0.38 lower*	0.38 lower	0.42 lower*

5. Conclusions

For monotones, there are two tones which show statistically significant differences between these two groups. For the older group, T1 has lower max and mean points and T4 has higher mean and minimal points. Other tones do have differences in max, mean, minimal points and slope, but they are not statistically different. For disyllabic tones, there are three tone combinations which show the most difference between the two groups. In these three combinations, only the first tone has some differences. In the combination T2+T1, the younger group creates a new value which has a shallower slope than the single T2, and the max point is lower than the single T2 as well. In contrast, the older group does not create a new value but remains the same. To compare the two groups, the older group has a deeper slope and higher mean and max points.

In the combination T3+T1, the younger group does not have a sandhi rule since the slope and all the points are similar to single T3. On the other hand, the older group has a sandhi rule which changes T3 to T2. To compare the two groups, the older group has a shallower slope and lower mean and max points. With the influence of the standard

Mandarin dialect, the two groups treat the sandhi rule differently. The T3 in this dialect is mapped to T3 in the standard Mandarin and the combination T3+T1 in Mandarin does not have a sandhi rule. The younger group may be more influenced by the Mandarin and has lost the sandhi rule that the older group has. In the combination T3+T5, neither of the two groups has a sandhi rule, but phonetically, the older group has a lower max and mean, and a shallower slope. The other nine combinations are also tested to be different to some extent. It is possible that the tone four in some combinations is different because the two groups have some difference for this single tone four in monosyllabic words.

Since some differences were suggestive but not significantly different, it would be productive to collect larger samples to determine if there are further real differences measured here. It is clear that the two age groups studied do have some differences in both monotones in isolation and tone combinations. In order to obtain a better statistical result, more data need to be collected for each group in the future.

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Children in arguments with peers: Young children's strategies as Opposer and Opposee

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The present study sought to extend Eisenberg's functional roles theory (i.e. Opposer and Opposer) by examining the strategies used by children when occupying different functional roles in verbal arguments with their peers in a mixed-gender group. The four participants of the study were between three and four years old, two female and two male. All were children brought up speaking Mandarin in Taiwan. Natural conversations were recorded during break time in their day care center. The results showed that both genders had equal likelihood of being Opposers or Opposees. While strategies varied depending on gender and functional role, "insistence and repetition" and "verbal support" were the most frequently used strategies for all combinations of functional role and gender. This indicated that children between three and four can use strategies in argument, but they have not yet completely departed from the "round-structure" form of series of assertion and counter-assertion.

1. Introduction

During the 1970s and 1980s, an increasing number of researchers began to examine acquisition of communicative competence, looking into how children learn to use language in a socially appropriate way. As stated by Cook-Gumperz and Kyratzis (2001), the approach of looking at children's communicative competence was "influenced by ethnography of communication, and involved theory of sociolinguistics, speech act usage, and conversational analysis." The ethnographic approach redirected the researchers' interest to language socialization, which is "how language learners are able to be participating members of a social group by acquiring social and linguistic skills" (Cook-Gumperz & Kyratzis 2001). By the mid-1980s, the focus was on children's discourse competence, in a search for answers to how children participate meaningfully in specific conversation contexts.

When studying children's naturally occurring speech in these specific contexts, some researchers have focused on children's arguments, because arguments are viewed as the ideal situation for children to learn to negotiate and form their self-identities. In arguments, children realize that they want different things than other people in the group. They begin to see the need for communication and negotiation

in order to achieve their goals.

The methods for studying child pragmatics and discourse changed in the later 1980s. Some researchers started to think of children as agents of constructing their own language and culture rather than simply learners. Children in peer interactions were analyzed in a new way, which treated the subjects as active members of their groups who could construct their own cultures, giving birth to the notion that children are active constructors of their identity, culture and social rules (Corsaro 1985, Goodwin & Kyratzis 2007).

Some research has been undertaken on the developmental perspective of children's argument. It was shown that three year old children would consider the "semantic context" of their opponent when forming their speech in response (Eisenberg & Garvey 1981). Dunn (1996) concluded that children increasingly use reasoning in their arguments at the age of four. Similarly, other studies have shown that young children between three and five could provide evidence and reasons in response to disagreement and conflicting statements from their opponents. Other skills, such as compromises, promises and alternative proposals were also found in young children around this age (Eisenberg 1987).

In addition to the developmental perspective, studies have also examined the content of children's argument. Some studies have commented on coherence in dispute exchange units, finding that children's verbal conflicts often start with repeatable exchanges of statements. As stated in Cook-Gumperz and Kyratzis (2001), young children often "engage in ritual cycles of assertion and counterassertion" in their arguments, and in argument this form is a series of rounds of "assertion, challenge, and counterchallenge." Young children's speech exchange in arguments is limited by this "round-structure" (Dunn & Munn 1987) while older children can introduce new elements into the conversations, such as addition of new information, providing justifications for the opponent's challenge, etc. (Brenneis & Lein 1977).

Eisenberg, in her 1987 study on children's conflict, focused on functional roles in children's conflicts. According to Eisenberg, there are two functional roles in an argument: Opposer, the person who makes the initial opposition, and Opposee, the person who is being opposed. She held that functional roles are significant to the study of children's conflict, because they reflect the strategies the children use. Children use different strategies depending on whether they are Opposer or Opposee. Along the same lines, Eisenberg and Garvey (1981) pointed out that Opposers, who make the initial opposition, need to use a wider variety of strategies, such as providing evidence or justifications, than the Opposees, who only need to stand their ground. Accordingly, information on how functional roles affect the result of arguments is an expected outcome of the present study.

Some research has analyzed children's communicative competence from the perspective of gender. Perhaps one of the most well-known studies is the theory of the Separate World (Maltz & Borker 1983). This theory assumes that "gender

segregation" is prevalent in early childhood, in which girls only play with girls and boys only play with boys. It is asserted that this segregation results in the great difference in speech development between females and males. However, this gender segregation in early childhood is not always the case. In children's arguments, there are studies stating that the most frequently occurring argument type was "possession and use of object," and it is not difficult to imagine that young boys and girls would share this same intention. The present study reexamined the theory of the Separate World by observing whether young boys and girls use differing strategies depending on the gender of their opponent.

The current paper examined the strategies children use when they occupy different functional roles in verbal arguments with peers in a mixed-gender group. We investigated whether young children between the ages of three and four have already departed from the "round-structure" in dispute (Dunn and Munn 1987), and if so, what strategies they used in verbal arguments. Additionally, the study was designed to determine whether young children have learned to use different strategies for different genders, with the intention of reexamining the theory of the Separate World proposed by Maltz and Borker (1983).

Studying peer interaction is especially relevant to teachers and parents in present-day Taiwan, because there are an increasing number of young children who spend most of their day in school, after-school centers and cram schools, where they interact mostly with peers at or around their own age. It may also contribute to understanding in other countries with similar social systems.

2. Methodology

This study was designed to investigate children's choice of strategies as Opposers and Opposees in verbal arguments in a mixed gender group. There were four participants in the study, two male and two female. According to previous studies (Dunn 1996, Eisenberg & Garvey 1981, Eisenberg 1987), children begin to apply strategies in conflicts between the ages of three and four. For this reason, children between three and four were chosen for the present study. Since the study was intended to analyze gender differences, children of both sexes were selected. Each of the subjects had known each of the others for around the same amount of time. The study was conducted at an after-school center that the subjects attended daily for English, mathematics, and art classes together. They often played with toys together during their break, and there was no obvious gender preference when choosing playmates. This situation differed from that described by the theory of the Separate World.

The children's natural interactions were observed and recorded during their break time. They often played with toys and role-played with each other. A digital camera was placed at the corner of the room to record the children's natural conversations. The children did not know that they were being recorded, so their

interactions were natural and not influenced by the camera. The researcher also recorded field notes to assist in coding the data later. The observation lasted for a period of one month, once to twice a week, around 15 minutes each time. The researcher was occasionally involved in the subjects' conversations, but only passively – for example, when one child told on another. The researcher also only gave passive response such as "hmm."

Only the verbal argument sequences were transcribed. Based on Eisenberg 1987, the definition of a verbal argument sequence is the verbal exchanges from the start of the initial opposition until an apparent topic change, cessation of involvement of one of the participants, or an obvious consensus was accomplished. Therefore, when there was a situation in which an argument with the same focus was partitioned by several intervals (i.e. other people's interruptions), it would be coded as multiple argument sequences because each section had an obvious end to the interaction.

After transcribing the argument sequences, they were coded by argument type, which is defined as the focus of the argument (Eisenberg 1987). The subject's functional roles (i.e. Opposer or Opposee) and strategies were also coded. In one argument sequence, there would only be one Opposer and Opposee. In other words, each Opposer and Opposee was only coded once in an argument sequence. In the argument, if there was one person opposing the rest of the people in the group, only the Opposer would be coded. For categorizing argument types, the following framework from Eisenberg 1987 was used:

Argument Types

1. Possession or use of objects
2. The child's action
3. The opponent's action
4. A statement of fact

Eisenberg's (1987) framework for argument strategies was also used. It is divided into verbal and nonverbal categories:

Children's Verbal Strategies in Arguments

1. Insistence and repetition – expressing rejections without any support, including direct counter-assertion; reiterating, including direct counterargument
2. Verbal support – providing justification for a position, alternative for rejections
3. Mitigation – increasing politeness or indirectness
4. Appealing to another individual – tattling to the teacher or peers
5. Verbal abuse – threatening, taunting, mocking, name-calling

6. Temporizing – putting off compliance
7. Offering to compromise

Children's Nonverbal Strategies in Arguments

1. Ignoring an opponent's move
2. Crying and whining
3. Physically aggressive behavior

Both verbal and nonverbal argument sequences were transcribed, because they were still frequently used in the arguments as responses to oppositions.

3. Results and discussion

The argument sequences in the children's interaction were identified and transcribed. There were 29 argument sequences identified in this study. Among all the argument sequences, we first determined the most frequently occurring argument type in the conflicts. Secondly, it was of the interest to our research to determine whether the young children between three and four had already started to use strategies in arguments. If they had, we were interested in what strategies they used in verbal arguments. Lastly, the argument strategies used by the young children were discussed and analyzed from a gender perspective. The video recording ran a total of 56 minutes and 39 seconds, and there were 29 argument sequences coded.

Table 1. Argument types among young children

Argument type	**Tokens**	**Percentage**
Possession or use of object	23	79%
The opponent's action	2	6%
The child's action	1	3%
The statement of fact	3	10%

As indicated in Table 1, "possession or use of object" was the most frequent argument type among the subjects. This was in accordance with the previous studies (Eisenberg 1987). The participants in this study were commonly engaged in role-plays involving toys, and they often fought over the possession toys in order to achieve their goals in the role-play. As discussed in Cook-Gumperz and Kyratzis (2001), young children are aware of the power of certain social roles (e.g. doctors, parents), and they will compete for those roles. This situation was often observed in the data collection. Subjects often argued with one another in order to obtain the

ideal toys for their roles in the pretend play. This situation was seen in males as well as females.

Table 2. Most frequently used strategies according to functional roles

Strategy	Functional roles	
	Opposer	Opposee
Verbal Strategies		
Insistence and Repetition	21	8
Verbal Support	13	10
Mitigation	1	2
Appealing to Another Individual	4	0
Verbal Abuse	2	1
Temporizing	5	0
Non-verbal Strategies		
Ignorance	2	7
Physically Aggressive	6	4
Crying and Whining	3	2

It had been predicted that the children would use different strategies depending on which functional role they occupied (i.e. Opposer or Opposee). However, this prediction was proven to be only partly true. “Insistence and repetition” and “verbal support” were the two most frequently used strategies no matter which functional roles the children occupied. Table 2 shows that Opposers used a bigger variety of strategies than did Opposees, which was in accordance to the previous study (Eisenberg 1987). Almost all the strategies were used more often by Opposers than did Opposees. Each strategy was used at least once in either Opposer role or Opposee role, with the exception of “appealing to another individual” and “temporizing.” The high number of instances of “insistence and repetition” suggests that children of this age have not fully grown out of the round-structure in dispute. In other words, they often used direct counter-assertions without any reasoning or verbal support to state their opposition, and were responded to in kind by their opponents. Nevertheless, children did use quite a few “verbal support” in the arguments, resulting in that strategy’s position as second most frequent in the data.

The most common kind of verbal support used by the Opposer role and Opposee role was "I got it first!" or another similar assertion. Among non-verbal strategies, "physically aggressive" was frequently used in the Opposer role, while "ignorance" was frequently used in the role of Opposee. This result shows that the children have not fully acquired the conventions of social interaction and communication.

In Table 2, the participants were observed to use some "temporizing" and "offering to compromise" when they were in the Opposer role. This was parallel to the previous studies which showed that young children between three and four would start to attend to the semantic context of their opponents and form their responses accordingly, such as an offer of alternatives or compromise (Eisenberg & Garvey 1981, Dunn 1996, Eisenberg 1987).

Table 3. Gender and functional roles

Gender match-up	Total interactions	Gender	Opposer (No. of tokens)	Opposee (No. of tokens)
F-M	17	F	8	9
		M	9	8
F-F	8			
M-M	5			

As shown in Table 3, the frequency of the mixed-gender interaction was higher than that of same gender-interaction. The frequencies of being an Opposer or Opposee respectively showed no significant gender difference in mixed-gender interaction; female and male children had almost equal chances of being Opposers or Opposees. Therefore, the Separate World theory was not supported by the results of the present study. Separate World also predicts that girls are more likely to maintain harmony in the group while the boys are more often engaged in rough conflicts. In the present study, girls were equally as likely to initiate oppositions as did boys. During the observation and data collection, it was clear that the intentions of the female subjects were more or less the same as those of the male subjects (e.g. wanting to possess or retain toys). Under these circumstances, the finding that girls and boys were equally likely to be Opposers was not surprising. Just as with boys, conflict between girls regarding the possession of an object could be prolonged and even involve physical aggression.

When in the Opposer role, girls in mixed-gender and single-gender arguments alike were observed to use the same strategies whether arguing with peers of the same gender or of the opposite gender They used the strategies like "insistence and

repetition," "verbal support," and sometimes became "physically aggressive." However, young boys in the Opposer role tended to use "verbal support" and "appealing to another individual" in arguments with peers of the same gender, but "insistence and repetition" and "temporizing" with the opposite gender. When playing the Opposee role, young girls still favored "insistence and repetition" and "verbal support" with playmates of both the same and the opposite gender. Male Opposees used more strategies with the opposite gender than with the same gender, such as "insistence and repetition," "verbal support," "mitigation," and "offering to compromise". On the other hand, they often just ignored opponents of the same gender.

4. Conclusion

Using Eisenberg's framework, the present paper examined young children's argument types and their usage of strategies in verbal conflicts. The results showed that children were most likely to argue over the possession or use of objects, and they would use various strategies when occupying the Opposer and Opposee roles. At ages from three to four, the children had not yet departed from the "round-structure" of argument, and they still frequently used "insistence and repetition" both when making initial oppositions and when being opposed. Some nonverbal strategies, such as "ignorance" and being "physically aggressive" were common as well. At the same time, they have learned to use "verbal support" and other strategies, such as "offering to compromise" and "temporizing."

In respect to gender, the results showed that young girls were equally as likely as young boys to make the initial opposition. Girls also showed a higher frequency of becoming physically aggressive than did boys, and their arguments oftentimes caused prolonged interruptions in their interactions with both boys and girls. The results did not support the Separate World theory, for they showed that young girls were not noticeably leaning toward maintaining harmony. Additionally, there were a great number of mixed-gender interactions than single-gender interactions.

The results of this study could be further examined and confirmed by utilizing a larger sample of subjects. Additionally, future studies can take into account the frequency of interaction between each participant in order to gain better insight into this topic. Despite its limitations, the current paper successfully extended Eisenberg's theory of functional roles in children's argument into the language setting of Chinese, and has provided supporting evidence for previous studies regarding arguments among children between three and five. Moreover, the findings can provide contributions to research on children's peer interaction, which can contribute significantly to a society in which children are increasingly spending more time in their day care cent than at home.

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Ideology in Address Forms– A Case Study of Two Political Talk Shows in Taiwan

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Political discourse should be informative and purposeful, because it is mainly used to influence an audience's political conception and judgment (Wilson, 1990). Since abundant forms of address are productively employed in such discourse, several studies propose functions of address forms (Brown & Gilman, 1960/1972; Jaworswi & Galasiniki, 2000). This study aims to discuss appellations with pragmatic functions, based on Levinson (1983) by analyzing discussions on two talk shows within opposite political stands. In discussing how the use of appellations reveals the ideology of the programs, this study will analyze the attitude of the participants in the discussions on the programs.

1. Introduction

Political language expresses information, announces policy and states facts, and it is organized in rhetoric and purposeful methods in order to influence hearers' conception and judgment toward politicians (Wilson 1990; Chang 1998). Thus, political talk shows on television have an effect on citizens' political beliefs; and, especially, in political discourse, linguistic forms are used to convey speakers' ideology. Manipulating forms of address is one of the standard ways to attract audience's attention in talk shows, and the evidence can be firstly found in the dictionary. A form of address is "an identifying appellation which signifies status or function, e.g. 'Mr.' or 'General'." Thus, the way you address a person will project the figure that you think within the social factors.

Studies indicate that forms of address show ideology in the projection of speakers' beliefs in political discourse, especially when presenting 'power' or 'solidarity' (Brown & Gilman, 1960/1966; Fasold, 1994; Bull and Fetzer, 2006; Chang, 1998; Kuo, 2003). Brown and Gillman (1960)[1] demonstrated that the dimension of solidarity has been more recognized over) the dimension of power. As a person has power over another person to a

[1] Brown and Gillman (1960), using various methods like informal interviews, the analysis of works of literature, and the results of a survey questionnaires, found that the second-person pronoun usage was governed by two semantics, including interlocutor's power and solidarity. People used reciprocal forms of address more often than non reciprocal forms.

degree, so he or she controls the other person's behavior during the conversation. Similarly, the principle of showing reciprocals of American English was set to address the first name between interlocutors. Fasold (1994) illustrated that the use of the power pronouns, which Chinese language has *ni* (你) and *nin* (您) for the second-person pronouns, to express respect for someone was nonreciprocal. The power relationship from the gap of the status was nonreciprocal, because the difference of power was involved in a meeting between two individuals.

For usage of pronouns in political discourse, Bull and Fetzer (2006) suggested that the conception of power and solidarity should affect the use of first names, surnames, titles, and indexical expressions like pronouns. In forms of address, the referential domain of pronouns can be vague, and they can be employed strategically in order to keep an opinion or persuasion diplomatically vague. 'The pronouns do not carry their own concept meaning, they get their meaning from the nouns, in whose stead they are used. This made it easy to hide behind the pronouns and to use 'we' as a central political force of influence' (Ritta Pyykko 2002). In the dynamic event of a political interview, the noun phrases for which a pronoun stands are not ambiguous, so noun phrases can directly indicate the referent. However, their pragmatic functions are varied. Moreover, address forms can create various patterns to match the political purposes.

In the literature on the political address forms in Mandarin Chinese, a study of personal pronouns in political discourse discussed the strategies in the use of marked forms which are altered by the view points of person and number (Chang, 1998). Eight strategies examine Chinese personal pronouns, and distancing from the self and extending the scope from singular to plural pronouns were used to examine the speakers' involvement and attention within the conversation. However, this study only focused on the change of pronouns in political discourse with **a** lack of other kinds of forms of address in political discourse. The other analysis is about the forms of address used in the debates before the Taipei mayoral election**,** and it discussed the usage of address forms by two debaters when candidates defended the questions from other candidates (Kuo, 2003). Thus, based on Kuo's study, the present study analyzes the discussions on two talk shows where the discussions take opposite political stances to discuss the use of address forms using pronouns, nouns and compounds. Also, the study examines the pragmatic functions of Strengthening, Weakening and Politeness. The main research question of this present study is how address forms reveal the ideology of the programs and how political intention is manipulated in linguistic forms with different pragmatic functions. Address forms and strategies of operating forms are main focuses.

In this study, data is transcribed from two political interviews which are in opposite political statuses. One talk show 'Dahwaxinwen' (hereinafter referred to as Da) 大話新聞 with people from the opposition party always queries the government's policies. The discussions on 'Quenminkaijiang' (hereinafter referred to as Quen) 全民開講 supports the governing party. In terms of ideology, the host and participants in the discussions in the programs purposefully chose particular linguistic forms to influence the beliefs of

their audiences. Thus, the present study hypothesizes that the referents which the speakers address would affect the usage of forms and that the political stances of the participants in the talk shows would also have an effect on the selection of appellations and strategies. Section 2 outlines the usage of address forms in Chinese, and the following classification of address forms in sections 4 and 5 will be based on this section. And then methods and procedures will be mentioned in section 3. Sections 4 and 5 will be presented in tables of numbers of address forms used in the discussions and a comparison between Da and Quen will also be discussed. Session 5 is a short discussions about the attitudes toward the government, the audience and President Ma**.** The last session is the conclusion.

2. Form of Address

A form of address is a marker which, by tradition or law, precedes a reference to a person who holds a title or post, or to the office itself. It shows an individual in a personal capacity. As being associated with monarchies, they are used by a female marital partner in the marriage. In society, they are also universally used for presidents in republics and for members of Parliament, judges and senior constitutional office holders.

Main usage in forms of address in Chinese is for honorific titles, such as Mr, Sir, Mrs, Ms, Miss, and Madam in English. Chinese titles, unlike in English, always follow the name of the person and can stand alone, for instance, *xiansheng* 先生 'Mr. or Sir.'[2] In general, Hu (1999) suggests that the normal form for two individuals who are not intimate should tend to be mutual exchange of their LN + title so that the level of politeness used in interaction will be appropriate. In regard to occupational titles, Chinese people often address professionals in formal situations by their occupational titles. These titles can either follow the surname or full name, or can stand alone. In the political field, the titles refer to government and politics to show the status in the occupational field, such as *weiyuan* 委員 'delegate' and *zhuxí* 主席 'chairperson.'

In regard to the forms which are used to analyze the forms of address in talk shows, firstly, nouns include bare nouns, proper nouns and names like Surface Name Last Name. Forms of address are connected with the expression of power and solidarity, and this holds for first names, surnames, titles, and indexical expressions, such as pronouns (Brown and Gilman 1960), for example, a full name like *mayingjiou* 馬英九, SN/LN with

[2] Hu (1999) proposes that to use Last Name + *xiansheng* is for politeness sake. People interchange this form with the title. *Lin xiansheng* 'Mr. Lin' who is a doctor can be addressed as *Lin yisheng* 'Doctor Lin.' LN + title and LN + *xiansheng* 'Mr. Lin' are equal in degree of the politeness. *nushi* 女士 'Ms.,' *taitai* 太太 'Madam,' and *xiaojie* 小姐 'Miss' are used for women. *nushi* 女士'Ms.' is used for a married woman, so this form is related to age and social status. Educators employ this title when addressing older women or women in a higher social position in a written or spoken form. The alternative common use for LN + *nushi* 'Ms.' is LN + *taitai* 'Mrs.' When addressing any young woman who is not likely to be married, the form used is LN + *xiaojie* 'Miss.'

a title, such as *Ma-zongtong* 馬總統 'President *Ma'* or *MaYingJiou-zongtong* 馬英九總統 'President *mayingjiou*,' and participants who indicate with location like *taiwanren* 台灣人 'Taiwan people.'

Secondly, personal pronouns, or called personal deixis are also discussed in the paper; their referents should depend on the context (Muhlhausler and Hare 1990). Personal pronouns index number and person features in speech events. They are the first-person, the second-person and the third–person pronouns with both singular and plural forms, which encode different participant roles in the speech event. The participants may include the speaker, the addressee (the hearer), and the others (audience or non-participants) (Levinson, 1983; Fillmore, 1971). The Mandarin pronoun system is listed in Table 1.

Table 1. The Pronoun **System** in Mandarin (Chao, 1968)

Personal pronouns	**Singular**	**Plural**
1st person	wo 我 'I'	women 我們 'we'
2nd person	ni 你 'you'	nimen 你們 'you'
3rd person	ta 他(她,它) 'he/she'	tamen 他們(她們,它們) 'they'

Moreover, in Mandarin Chinese, a further referential pronoun is *dajia* 大家 'everyone,' which indexes all participants. And, reflexive pronouns are *ziji* 自己 *'itself'* and *renjia* 人家 'myself' not only have canonical use which co-index subject but also non-canonical use which can occur in the subject position.

Lastly, the combination of nouns and pronouns shows a high redundancy of address forms, so it is also mentioned in this paper. For example, a noun can indicate a participant, like *zongtong* 總統 'president', but in compound form, the noun *zongtong* goes with the 1st person plural pronoun *women* 'we' or the 2nd person singular pronoun *ni* 'you,' so (1a) below shows high redundancy to realize particular pragmatic functions. In the present study, several patterns will be discussed: a pronoun followed by a noun in (1a), a noun followed by a pronoun in (1b), a pronoun followed by a reflexive pronoun in (1c) and a possessive pronoun by a noun in (1d). By analyzing the number of nouns, pronouns, and compounds, the present study will show how speakers utilize address forms to achieve their purposes in political discourse to influence the political stance of their audiences.

(1) a. pronoun + noun

ni-zongtong 'you president'	你總統
women-zongtong 'our president'	我們總統
nizhengfu 'you government'	你政府

b. noun + pronoun	*zongtong-ni* ‘president you’	總統你
c. pronoun + pronoun	*nimen-ziji* ‘yourselves’	你們自己
d. poss+ prono	*women-de-zhengfu* ‘our government’	我們的政府

3. Method

The data were transcribed from four Chinese political television interviews, Da and Quen[3], 20 minutes for each. Two topics were chosen. Both of the topics were discussed on each of the two programs on different dates. The first topic was that of a serious flood disaster which occurred on 8th August 2009. The second topic was that of a reported decline in people’s agreement with the signing of the ECFA with China.

The participants in the two programs discussed the topics from different points of view. For the flood disaster, the participants in the discussions on both Da and Quen queried the policy in behind the rescue operations. For the ECFA, the participants in the discussions on Da were in disagreement with the policy behind the signing of the ECFA and expressed that the fall in the rate of approval showed that the views of the citizens were opposite to those of the government. On the other hand, the participants in the discussions on Quen were in agreement with the policy, but they sometimes queried that President Ma should publicize the policy.

Address forms indicating the referents of *Government or Audience* did not refer to a particular person, but were collective nouns. In the discourse, the speakers used pronouns to refer the government or audience, and sometimes, they used bare nouns presenting a neutral attitude. Sometimes the nouns were attached to pronouns, particles, and location. *Government* or *Audience* is even informal nick-names and formally proper nouns. Address forms were classified in view of pragmatic functions and social functions. Three main pragmatic functions were politeness, strengthening, and weakening, and social functions were analyzed based on the context.

4. Number of Address Forms on Da and Quen

Based on the above classification, address forms in opinion-releasing context are divided into three categories, with the data for each category being shown in three tables, respectively. Generally, the figures in Table 2 shows that the most frequently used form of address is in the form of a pronoun (50.9 %); the second is most frequently used form of address is in the form of a noun (41.1 %). Also, the discussions on the talk shows present

[3]The author would like to thank You Hui-jun for transcribing the discussions on ‘Dahwaxinwen’ and ‘Quenminkaijiang’ on 13 August 2009. The discussions on ‘Dahwaxinwen’ 大話新聞 on 1st April 2010 and on ‘Quenminkaijiang’ 全民開講 on 31st March 2010 were transcribed from the website ‘TaiwanYes’ *http://taiwanyes.com/tvfilm_201004.php.*

different preferences in the use of types of address forms. In the discussions on Da, nouns are frequently used, and the frequency of pronouns is close to nouns. However, only pronouns are most frequently used in the discussions on Quen.

Table 2. Total number and percentage of address forms on Da and Quen

Address forms	Pronouns		Compounds		Nouns		Total
Da	106	40.3%	26	9.9%	131	49.8%	263
Quen	216	58.4%	25	6.7%	129	34.9%	370
Total	322	50.9%	51	8%	260	41.1%	633

In view of the correlation between the use of appellation forms and pragmatic functions, the figures in Table 3 and Table 4 show that the language used by the participants in the discussions on Da and Quen show the same distribution of pragmatic functions. Strengthening is the priority function, and weakening is on the second one. The participants in the discussions on Da and Quen use pronouns to show strengthening and compounds to show weakening. However, in the language used by the participants in the discussions on Da, the rate of strengthening function of pronouns and nouns are close; that is, those two forms are both frequently manipulated to emphasize the referents. Only pronouns frequently play this role in the language used by the participants in the discussions on Quen.

Table 3. Pragmatic Functions Used in the Discussions on the Two Topics on Da

PF	Strengthening		Weakening		Politeness	Total
Pronouns	82	45.30%	24	33.80%	0	106
Compounds	24	13.20%	2	2.80%	0	26
Nouns	75	41.50%	45	63.40%	11	131
Total	181	100%	71	100%	11	263
	68.80%		27%		4.20%	100%

The Tables 3 and 4 show the occupational title in the noun category can function as presenting politeness. Mostly, in positive content, it **is** regarded as showing politeness to the referents, so politeness becomes a method to emphasize the participants' status. By contrast, in negative content, the emphasis on the social status functions as strengthening the antagonism to the referents. For example, indicating the occupational title may imply that the participants are not responsible about their duty. 4.1, 4.2, and 4.3 below present types of nouns, pronouns, and compounds occurring in the shows.

Table 4. Pragmatic Functions Used in the Discussions on the Two Topics on Quen

PF	Strengthening		Weakening		Politeness	Total
Pronouns	166	67.00%	50	43.90%	0	216

Compounds	23	9.20%	2	1.80%	0	25
Nouns	59	23.80%	62	54.40%	8	129
Total	248	100%	114	100%	8	370
	67%		30.80%		2.20%	100%

4.1 Pronouns

The discussions on two talk shows show a high rate of utterances which use pronouns on strengthening the focus. The discussions on Da preferred to use four kinds of pronouns equally, and the discussions on Quen only used the 1st person singular pronoun to draw the audience's attention to present solidarity That is, their preference for pronouns and strategies are different: the discussions on Da alternates the forms of pronouns, but the discussions on Quen frequently uses the 1st person plural pronoun. The 3rd person singular pronoun appears to weaken the emphasis on the referents.

Table 5. Number of Pronouns Used in the Discussions on the Two Topics on Da

Pronouns	Strengthening		Weakening		Total
1st person Singular	15		1		16
2nd person Singular	14		3		17
3rd person Singular	18		17		35
1st person Plural	17		0		17
2nd person Plural	3		0		3
3rd person Plural	1		0		1
Dajia	11		3		14
Ziji	3		0		3
Total	82	77.3%	24	22.7%	106

In Table 5, most of the pronouns are used with a focus on strengthening, especially the 3rd person singular and the 1st person plural pronouns. Also, the number of utterances of the 1st person singular, 2nd person singular pronoun and '*dajia'* are close. '*Ziji'* which is used in the subject position is regarded as a way of emphasizing the referents, because *'ziji'* needs an antecedent and appears as a compound structure with a preceding pronoun. The 3rd person singular pronoun is used most frequently for both strengthening and weakening functions, and the difference in the use is influenced by the context. In a negative context, the 3rd person singular pronoun has the functions of strengthening or weakening opinions. In a positive context, it only has the function of weakening the focus, because to directly mention the name of the referent would be stronger than to use a pronoun. The rates of the utterance of the 1st, 2nd, 3rd personal singular and the 1st personal plural pronouns are close, but the 3rd personal singular pronoun is used most frequently in the discussion.

The speaker in (2) firstly refers *to* President Ma by using *zhege-mazongtong*, and then, he uses a noun of the name *MaYingJiou* and the 3rd person singular pronoun by repetition to highlight the referent. The pragmatic function is to strengthen the intonation, and the social function is to show antagonism between the president and the citizens. In the second step, the form of *citizen* is alternated from the 3rd into the 2nd person singular pronoun, because it is shifted by the number of referents. The emphasis is varied from the president to the president and citizens. At the end of the paragraph, a long compound of *Taiwan people* with location and a pronoun with a reflexive pronoun *ni-ziji* highlight the disagreement toward the government from the citizen, so it makes the distance between the president and citizen. Also, the language used in this extract shows that the participants on Da prefer to alternate the forms to highlight the focus.

(2)

H: zhexie huomai de ren, **zhege-mazongtong** jieshou waiguo meiti de fangwen. **ta(President Ma)** budan meiyou shuo ziji (President Ma) a youcuo. **Ta** guai shei? guai de shi zaimin. **Ta (President Ma)** shuo yinwei zhexieren a! Sishou jiayuan, buyuanyiche……

H: but these buried people. Ah, **President Ma** was questioned by the foreign media. **He (President Ma)** did not confess that **he (President Ma)** *is* wrong. **He** blamed the victims. **He (President Ma)** said because these people *would stay* in their homes rather than run away. ..

(Da 2009: 21-25)

And, the 3rd person singular pronoun was used to weaken the focus in (3), because it is the speaker's explanation to the speech from President Ma, but the speaker uses a determiner to highlight the disagreement to the opponent. Also, the name with the title is presented with a sarcastic intonation, which implied that President Ma was not as valuable as the title.

(3)

M7: Wo jintian yao qiangdiao de shi wuneng yejiusuan le danshi wuneng buneng wuchi a. Ni kan zhejitian mayingjiu gen liuzhaoxuan jiangdehua nengbuneng ting? Mayingjiu jiangshuo eh zhexie doushi yinwei nicunmin bu cheli.

?: luan jiang

M7: Qingwen zheyangdehua nengting ma? Dierge liuzhaoxuan jiangshuo sheme jiangshuo women jiuzaisudu henkuai le la. Tade yisi shi shuo xianzai hai kunzai limian de ren zhen de huogai la. Women jiuzai sudu yijing henkuai la women jiuzai sudu yijing bizhege 921 haiyao kuaijiuer yi renjia a budao bangexiao shi lianggezhong touzhinei jundui daoqianxian zhuzha. Qingwen ni jingran hai you houlianpi gan gen 921 bi

M7: Today, I want to emphasize that you government is incompetent and shameless. Ah, you can see that, in these days, whether the talk of Ma Ying-Jiou to Liu Zhao-Xuan made sense or not. Ma

Ying-Jiou said that it is all due to the reason that you villagers did not withdraw from their houses.

?: nonsense

M7: May I ask whether it made sense or not? The second thing is that Liu Zhao-Shuan said the speed of the rescue operation was fast. His meaning is that the victims who were trapped deserved it. Our speed in rescuing them was faster than the speed on 921. On 921, not in a half hour, in two hours, the rescue troops arrived at the frontline. How dare you compare it with the speed on 921?

(Da 2009: L198-199)

Then, *with regard to other* pronouns, (3) shows that the speaker shifts the point of view to use the 1st person plural pronoun to refer to *Liu Zhao-Shuan* and *to* the *Government*. Also, the referents of the 2nd person singular pronoun are various, because the speaker shifts point of views. *ni* in the first line is non-referential, but *ni* in the last line refers to *Liu Zhao-Shuan* and *to* the government.' The usage of *You government* is from the citizen's point of view, but the usage of *You citizen* is from government's point of view. And, the opposite point of view by using ni-men is another strategy. This dramatic use is to get the audience feel angry about the president.

When Da refers to the government, there are 14 types of address forms, and pronouns, such as 'you,' are used most frequently. The use of the projective *you* is another non-deictic use of personal pronouns, and The speaker expresses agreement with the viewpoint of the addressee. Chang (1998) also suggests that there is *a pronoun scale* in political discourse to show the strategy involved in the usage. The scale *shows* from *I* approaching self to *they* distancing from self in Fig 1.

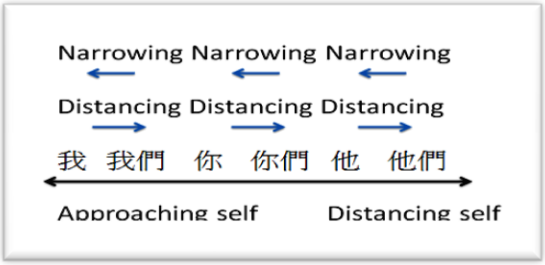

Fig 1. Contradictory uses of strategies (Chang, 1998)

And, Brown and Gillman (1960) proposed that the 2nd person pronoun usage was governed by two semantics, including interlocutor's power and solidarity. The use of the *You* strategy reflects the speaker's solidarity and close relationship with addressee. The second highest form of address is *We*, which shows solidarity with the addressee. However, as we see *our government* in (4), *we* is not a usage of solidarity but ironic to emphasize how badly the government has performed. In the last line of (4), *we* refers to the government but not the audience. It is used to present **a** sarcastic meaning, because the audience does not want to sign the ECFA.

(4)

M3:**mazhengfu** de niupi chuopo, suoyi **taiwanrenmin** wenjia bao yizhi zaishuo rangli, zheci tangwei youlaishuo bu shi hongshuimengshou ye bushi lingdan miaoyao, qi shi zhegehua yinggai shi **women-de-zhengfu** gen **women (referring to audience)** shuo, jieguo biancheng zhongguo de zhengfu dui **taiwanren** jiang, **taiwanren** tingdao xinli huiyou yigewenti, women de zhengfu gen **women (referring to audience)** shuo ECFA shi lingdanmiaoyao, danshi yao gen **women (referring to the government)** qian de guojia shuo bushi o!

M3: The Ma government is found bragging, so Taiwanese understand ECFA much better than before. The important reason is that China has been talking. Wen Jia-bao promoted the benefits of the ECFA. Tang Wei said ECFA is not a monster and it is not a medicine. In fact, this announcement should be conveyed by our government. As a result, the China government talked to us, so we got confused, our government told us that the ECFA was a panacea, but the other country said it was not.

(Da 2010-04-01)

The use of various address forms is a standard feature in the discussions of the participants on Da, and the purpose is to emphasize their antagonism to the policy of government, so the speakers pretend that they represent the audience's point of views. Therefore, there are pronouns for the 1st, 2nd, 3rd personal singular and 1st personal plural in the discussions on Da, because, in order to strengthen the opposition, shifting points views needed all kinds of pronouns.

In number of pronouns used in the discussions in Table 6, pronouns are used frequently to replace nouns in the discussions. Pronouns are used 216 times which is twice as high as the usage. The 1st person plural pronoun is used most frequently. The 2nd person singular pronoun is used second most frequently, and the 3rd singular pronoun the third percentages. However, some pronouns less appear in the discussions on Quen. '*Renjia*' is used only three times; the 2nd person plural is used only once.

Table 6. Number of Pronouns Used in the Discussions on the Two Topics on Quen

Pronouns	Strengthening	Weakening	Total
1st person Singular	20	2	22
2nd person Singular	50	1	51
3rd person Singular	11	28	39
1st person Plural	80	3	83
2nd person Plural	1	0	1
3rd person Plural	0	12	12
Dajia	4	1	5

Reflexive - renjia	0		3		3
Total	166	76.9%	50	23.1%	216

An example can be shown in (5). *Women* is used to refer to the speaker, the government or even the citizens. At the same time, the antagonism is between China, by using the 2nd pronoun with location, and whole of the Taiwanese people but not between the government and the citizens. Thus, the phenomenon that the 1st person plural pronoun is frequently used is because the members in the discussions on Quen intend to alleviate misunderstandings between the government and the citizens by emphasizing on the issue.

(5)

M5: **women** xiwang touguo zheyici ECFA de tanpan, buneng xiezai baizhiheizi, yebuneng you wangyi laijiang, yinwei zheshi yizhong dui **women** zhuQuen de shanghai, danshi danshi **women** xiwang bici zhijian, xiang **women** de waijiaoxiubing…

M5: We hope, through negotiation of the ECFA, announcement cannot be written in words. Also, it cannot be announced by Wang Yi, because this would destroy our sovereignty, but we hope our relationship can be as same as our diplomatic armistice…

(Quen 2010: 74-79)

The 2nd person pronoun shows highest frequency in the discussions on Quen, and it is also a dramatic use which is shifted from the 3rd person point of view. The different thing is address form the 1st person plural pronoun which is used both in referring to the government and to the audience, and the frequency is 32.73% in referring the government. However, in discussions on Da, although *We* is also used both in referring to two objects, it is only used total number plus percentage 12.50%, and it is as ironic address form addressing the government. Therefore, because *We* also conveys the speaker's wish to have an intimate relationship and solidarity with the referent by taking their side, as the discussions on Quen would regard themselves as members of the governing party.

4.2 Compounds

A possible compound structure used in address forms is that of reduplicated lexemes with the same referent. For example, *ta-ma-zongtong*, the pattern of 'a pronoun followed by a noun,' shows that *ta* and *ma-zongtong* both refer to President Ma. The way in which the same information appears redundantly in the discourse is used to draw the attention of the audience or to express a particular attitude toward the referents. When viewing the total number of compounds in Table 7 and Table 8, it can be seen that the participants in the discussions on Da and Quen produced almost the same number of compounds. The participants on Da produced 26 and those on Quen 25. And participants

on both programs use the pattern of ‘a pronoun followed by a noun’ which is an offensive way to query targets, especially the government and President.

Table 7. Number of Compounds Used in the Discussions on the Two Topics on Da

Compounds	Strengthening		Weakening		Total
Pronoun + Pronoun	1		0		1
Pronoun + Noun	9		1		10
Noun + Pronoun	2		1		3
Noun + Reflexive Pro	3		0		3
Pronoun + Reflexive Pro	4		0		4
Possessive + Noun	3		0		3
Noun + Pronoun + Reflexive	2		0		2
Total	24	92.3%	2	7.7%	26

Table 8. Number of compounds Used in the Discussions on the Two Topics on Quen

Compounds	Strengthening		Weakening		Total
Pronoun + Pronoun	0		0		0
Pronoun + Noun	14		0		14
Noun + Pronoun	2		1		3
Noun + Reflexive Pro	0		1		1
Pronoun + Reflexive Pro	1		0		1
Possessive + Noun	5		0		5
Noun + Pronoun + Reflexive	1		0		1
Total	23	92%	2	8%	25

Similarly to usage for pronouns, the compounds used by the discussions on Da are almost equally used to strengthen the focus, which shows that the discussions on Da like to alter the types of address forms to index the participants. In the discussions on Quen, ‘pronoun+noun’ is the most frequently used address form. Other types are only used once or a few times. The discussions on Quen do not alternate the forms of address.

4.3 Nouns

The discussions on Da contains 129 nouns, as shown in Table 9, and the discussions on Quen use 131 nouns, as shown in Table 10. They also have almost the same number of nouns. Bare nouns are frequently used to weaken the focus. Nouns with title are used for two opposite purposes. They are used in positive content to show the politeness of the speaker, and in negative content to add a sarcastic meaning to strengthen the focus.

In the discussions on Da, the number of nouns occurring on strengthening in a negative context is higher than the number in the discussions on Quen, so it likes to use nouns to get the hearer’s attention. Also, the frequency of the occurrence of nouns with

location is greater than that of the frequency of the occurrence of nouns with location in the discussions on Quen, so the discussions on Da like to focus on the location differences to get solidarity with the audience. Moreover, adding a determiner in front of nouns also is another favorite strategy.

Table 9. Number and Type of Nouns Used in the Discussions on Da

Nouns	Strengthening		Weakening		Total
Name	11		0		11
Bare noun	29		43		72
People with Location	13		0		13
D + noun	13		0		13
Title + noun	20		2		22
Total	86	65.6%	45	34.4%	131

Table 10. Number and Type of Nouns Used in the Discussions on Quen

Nouns	Strengthening		Weakening		Total
Name	22		0		22
Bare noun	23		61		84
People with Location	1		0		1
D + noun	2		1		3
Title + noun	19		0		19
Total	67	51.9%	62	48.1%	129

In discussions on Quen, the noun of "People with location" only appears once, and a noun with a determiner occurs three times. Those two forms are seldom used to strengthen the focus. The speakers only present *Government* to show disagreement, which is a way to query the government, but the attitude is not as aggressive as the attitude of the discussions on Da.

4.4 Comparison

With regard to forms of address, the participants in the discussions on Da and Quen prefer to use different forms of address. The participants in the discussions on Da like to use both noun and pronoun, while those in the discussions on Quen prefer to use pronouns. In regard to nouns, bare noun is the prior use to weaken the focus like in (1). As the speakers wanted to highlight one point, they reduced their use of other address forms. This strategy was used on both Da and Quen. However, the discussions on Quen did not like to direct to the target.

Then, Da and Quen have similar rate of using compound, 'pronoun + noun' is the most frequently occurring pattern; discussions on Da like to alternate the forms, but those on Quen do not like to alternate the forms. The discussions on Quen *only* used the pattern

of 'pronoun + noun' to criticize the target. In the discussions on Da, other types of compounds, such as *ni-men-zij*i and *zijirenming*, were used to raise the antagonism of the audience to the government.

In regard to the use of pragmatic functions, names with title can show politeness. Strengthening and weakening implies features strategies used in the discussions on Da and Quen. First, in the data, 66.2% of the discussions on Da focus on strengthening, which may imply the discussions on Da is aggressive in raising antagonism to the government and competition between China and Taiwan. Moreover, the discussions on Da are good at presenting dramatic use *ni* and shifting points of view in use of pronouns.

And, the participants in the discussions on Quen not only focus on strengthening but weakening, so they sometimes want to alleviate the conflict between the government and the citizens; they sometimes stood for government to show empathy; sometimes they explained the policy for the government. Meanwhile, the discussions on Quen still queried the policy of the government, especially in the discussions on the ECFA, but, even when the participants query the policy of the government, they did not alternate the forms to exaggerate their intonation, and they did not directly point out target points. The discussions on Quen used a vague and general term like *zhengfu* when the *government* was regarded to be a target of blame. At the same time, in data, the percentage of address forms of *name* are high, because when the discussions on Quen mention the antagonism between China and Taiwan, they directly used the noun of the name *Wangyi* to raise the opposite relationship.

5. Discussions of Strategies Toward Government, Audience and President Ma

In regard to address audience, the discussions on Da and Quen all would like to use the 1st person plural pronoun to show solidarity with the audience, so Da and Quen have same purpose to use the address forms. However, when address the government and the president, the discussions on Da and Quen show different strategies. The following table presents the types of address forms referring to Government and president in the discussions on Da and Quen

In Table 11, as addressing the government, the participants in the discussions on Da show antagonism towards government which is reflected in their use of compounds of nouns with pronoun. The participants on Da also use *women* to refer to the government, but it is an ironic usage. *Ma-ying* 馬營, *Ma-ge* 馬閣, and Ma-government are proper nouns used to address the government led by President Ma. Such usage emphasizes the status of President Ma, and President Ma becomes the target of blame. Therefore, for the discussion on Da, both the president and the government are blaming target. On the other hand, in the discussion on Quen, address forms like "this *mayingjiou*-government" and "*Ma*-government," point out President Ma as the target of the government. On addressing government in Quen, the types of pronouns are more than the types in Da. The reason is that using pronouns would also increase the degree of ambiguity in the discourse (Muhlhausler and Hare 1990), so they do not accurate to blame the governing party.

Table 11. The address forms referring to 'government' and 'President Ma' on Da and Quen (arranged by the Quentity from minor forms to major forms)

AF of Gov on Da	AF of President on Da	AF of Gov on Quen	AF of President on Quen
nimen 你們	*zheezongtong* 這 e 總統	*women-zhengfu* 我們政府	*ni-MaYingJiou* 你馬英九
zhemage 這馬閣	*zhege-Mazongtong* 這個馬總統	*zhegezhengfu* 這個政府	*zongtong-ni* 總統你
nizhengfu 你政府	*zhezhongzongtong* 這種總統	*zhegeMaYingJiou-zhengfu* 這個馬英九政府	*ni-guojia-lingdaoren* 你國家領導人
yizhengfu 伊政府	*huojialingdaoren* 國家領導人	*MaYingJiou-Mazhengfu-ziji* 馬英九馬政府自己	*Ma-zongtong-ta* 馬總統他
zhengfuta 政府他	*tazongtong* 他總統	*Zhizhengdang-ni* 執政黨你	*MaYingJiou-xiansheng* 馬英九先生
MaYingJiou-zhengfu 馬英九政府	*Maezongtong* 馬 e 總統	*Ma-zhengfu* 馬政府	*ta* 他
maying 馬營	*Malingdaoren* 馬領導人	*tamen* 他們	*na* 你
Zhegezhengfu 這個政府	*lingxiu* 領袖	*wo* 我	*MaYingJiou-zongtong* 馬英九總統
zhezhengfu 這政府	*MaYingJiou-zongtong* 馬英九馬總統	*ta* 他	*Ma-zongtong* 馬總統
Mazhengfu 馬政府	*women-MaYingJiou-zongtong* 我們馬英九馬總統	*MaYingJiouzhengfu* 馬英九政府	*MaYingJiou* 馬英九
women-de-zhengfu 我們的政府	*zane-zongtong* 咱 e 總統	*women* 我們	
ta/yi 他/伊	*ziji* 自己	*ni* 你	
women 我們	*ni* 你		
ni 你	*Mazongtong* 馬總統		
	MaYingJiou 馬英九		
	ta/yi 他/伊		

According to Kuo (2003), she proposes that an increase in the use of address forms in a debate would project increasing hostility and confrontation, it also correlation between choices of address forms and overt verbal opposition. Thus, the discussions on Da present antagonism to both the government and President Ma by using lots of redundant address forms. The discussions on Quen only show opposition to President Ma, but they still support the governing party, because it seems that the participants in the discussions on Quen try to vague pronouns to decrease the degree of judgment.

The use of the 1st person pronoun *women* in the discourse shows solidarity with the government. Therefore, the discussions on Quen separate the party with *President* Ma; that is, they not only argue the behavior of President Ma and also suggest proper ways for the government on the policy. However, the discussions on Da regard President Ma as a target of all bad things from the governing party, so President Ma is the core of the government domain. President Ma is the independent individual; sometimes, President Ma may stand for the whole government, and it becomes an abused target which is the use of metonym (Lakoff and Johnson, 2003). This relationship is presented in Figure 2.

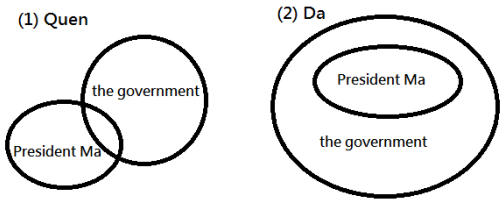

Fig 2. Two domains of the government and President Ma

In conclusion, the holding of different political ideologies is reflected in the use of address forms. The participants in the discussions on Da and Quen seek to get close to their audiences by using the solidarity word of the 1st person pronoun *women.* However, in addressing the government, participants in the discussions on Da show antagonism to the government by using compounds of pronouns and nouns. These participants also use *women* to refer to the government, but it is a ironic usage. In contrast, the participants in the discussions on Quen, use *women* to show solidarity with the government and the audience. When addressing the audience, the participants in the discussions on Da focus on location phrases with nouns, but the participants in the discussions on Quen use proper nouns to present a neutral tone. The notions of 'power' and 'solidarity' are universal (Brown etl, 1960), so participants in the discussions on Da and Quen both try to get close to the audience, and they use address forms to get the attention of the audience. Because the participants in the discussions on Da and those on Quen represent two opposing political stances, different strategies in the usage of address forms when referring to the government and President Ma are also shown.

6. Conclusion

Ideologies are sets of 'ideas,' that is, belief systems, so they need cognitive components. And, political cognition serves as the indispensable theoretical interface between the personal and the collective dimensions of politics and political discourse (Van Dijk, 2006). Thus, the Quentity and types of forms of address implies the television program's policy strategies. Above data which provided supporting information was from discussions on the political television talk shows, Quen and Da, which could influence

the political thinking of the audience and make the audience believe in the argument of the politicians (Wilson, 1990). Based on the transcriptions of the discussions on Quen and Da who had contrasting political positions, the study presented their distinguished patterns of address forms.

By analyzing three categories of address forms, pronouns, nouns and compounds, and three main pragmatic functions, strengthening, weakening and politeness, the study found that Quen and Da depended on different strategies to present forms. Da preferred to use pronouns and nouns, and the subcategories in three categories were alternated and equally distributed. Nouns with determiner, nouns of names, or nouns with location were added; pronouns were used most frequently through shifting points of views. Because of an individual's multiple social, discursive, and interactional roles, pronouns can refer to more than one identity and therefore can express multiple meanings (Bull & Fentzer). And, alternated forms could make the speech exaggerated and aggressive to emphasize the target of referents. Also, the pragmatic function of strengthening was almost conducted; weakening was less used, so raising antagonism, especially between the audience and the government, was the main purpose of the discussions on Da.

Otherwise, the favorite form of address used by the participants used in the discussions on Quen was pronouns, because the speakers focused on producing solidarity by approaching audience (Maitland &Wilson 1987). The participants, especially in using the first person plural pronoun, which represented the identification of the speakers with the audience, attempted to employ empathetic use toward the victims of the flooding and supporting use to the governing party (Levinson 1988). The alternation of address forms was less various, so speakers would not like to change form to emphasize the antagonism between the speaker and the government or between the audience and the government. In regard to the pragmatic functions, both strengthening and weakening were performed. The discussions on Quen tried to play the role to alleviate misunderstanding over the government *and* to create opposition to other *targets* like China other even the president, because the antagonism between China and Taiwan can produce solidarity with citizens or audience.

This study has taken a step in discussing ideology on forms of address in political television interview by analyzing types of forms of address. Function and meaning should be context-dependent; thus, even the same pronoun may indicate different referents. The strengthening of different referents is used to show antagonism to opponents or solidarity with an audience to get the approbation of the audience. The analysis of the use of pronouns used by participants in political discussions in this study supports the literature, and the research on compounds can also raise other issues.

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Cross-Anchoring of Tones in Hoiliuk Triplication

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This paper discusses the tone changes in Hoiliuk triplication, in which the prefix (the first syllable) receives a heavy stress and carries a high pitch. What is particularly of interest is that the tones in the base may be copied and undergo metathesis in the prefix, which may either be bimoraic or be lengthened as trimoraic. I posit two floating elements, a floating mora and a floating high tone, in the underlying representation of the prefix and propose a model of triplication correspondence, which considers the prefixal output as a result of the interaction between IO correspondence and OO correspondence, and of the interaction between faithfulness constraints and markedness constraints.

Keywords: tone, triplication, floating element, cross anchor, OT, Hoiliuk dialect

1. Introduction

This paper addresses the tone changes of the triplication in Hoiliuk, the second large Hakka dialect spoken in Taiwan, and takes a perspective from Optimality Theory (Prince and Smolensky 1993/2004, McCarthy and Prince 1995, Itô et al 1996, Inkelas and Zoll 2007, McCarthy 2008a), which considers constraint reranking a device to explain language-external and language-internal variations. A common pattern in Southern Min dialects is that adjectives are triplicated to highlight semantic contents. Due to close contact between Southern Min and Hakka dialects, the emphatic adjective triplications are developed among senior speakers of Hakka as well. Yip (1980) posits a floating high tone in the prefix (the first syllable) of the triplication, which allows the prefix to end in a high pitch. Hoiliuk triplication is expressly of interest in that the tones in the base may be copied and undergo metathesis in the prefix. The remainder of this paper is organized as follows. A description of tones and triplication tone changes of Hoiliuk is offered in §2, followed by a proposal for the underlying representation of the prefix in §3. An Optimality Theory analysis of the triplication is given in ξ4, and the conclusion follows in §5.

2. Tones and Tone Changes

Hoiliuk is the second largest Hakka dialect in Taiwan, chiefly spoken in the Counties of Sinchu and Taoyuan, situated in the Northwest of the Taiwan Island. There are seven base tones in Hoiliuk, including five smooth tones and two checked tones.[1] In particular,

[1] A checked tone is a short tone of a checked syllable, which ends in a voiceless stop, such as

Shang and Yin Ru are subject to tone sandh; the sandhi form of Shang is LL, and that of Yin Ru is M, as shown in (4).

(1) Hoiliuk tones

	Base Tones	Sandhi Tones
Ying Ping	HM	
Shang	LM	LL
Yin Qu	LL	
Yin Ru	H	M
Yang Ping	HH	
Yang Qu	MM	
Yang Ru	M	

Tone sandhi is a common phenomenon in Chinese dialects. In Hoiliuk, in any pair of adjacent Shang tones or Yin Ru tones, the first will surface as a sandhi tone. On the other hand, all the seven tones undergo changes in triplication. This paper is intended to analyze the tone patterns of the first syllable in the triplication. The following are some examples.

(2) Yin Ping triplication

	vu	*vu*	*vu*	
(a)	MH	HM	HM	'very dark'
(b)	MHH			'very very dark'

(3) Shang triplication

	lo	*lo*	*lo*	
(a)	LH	LL	LM	'very old'
(b)	LHH			'very very old'

(4) Yin Qu triplication

	gui	*gui*	*gui*	
(a)	LH	LL	LL	'very expensive'
(b)	LHH			'very very expensive'

(5) Yin Ru triplication

	sip	*sip*	*sip*	
(a)	MH	M	H	'very swet'
(b)	MHH			'very very swet'

(6) Yang Ping triplication

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[p], [t], [k], and [?].

	fung	*fung*	*fung*	
(a)	HH	HH	HH	‘very red’
(b)	HHH			‘very very red’

(7) Yang Qu triplication

	ngang	*ngang*	*ngang*	
(a)	MH	MM	MM	‘very hard’
(b)	MHH			‘very very hard’

(8) Yang Ru triplication

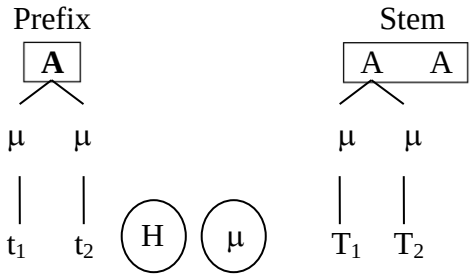
	phak	*phak*	*phak*	
(a)	MH	M	M	‘very white’
(b)	MHH			‘very very white’

We can summarize three types of tone pattern of the first syllable, as boldfaced. The first type shows mid-high contours, lengthened or not lengthened, as in (2), (5), (7) and (8). The second type is low-high, as in (3) and (4), and the third type is high level, as in (6).

2. Triplication Correspondence

Chiang (1992) proposes that disyllabic reduplication in Chinese dialects is composed of a monosyllabic stem and a reduplicated suffix. On the other hand, Lin (2011) considers that the second syllable of the disyllabic reduplication is the root, which the first syllable is prefixed to. As Lin indicates, the first syllable must undergo tone sandhi, but the second syllable retains its base tone. This is consistent with the universal ranking that FaithRoot dominates FaithAffix. Ou (1996) suggests then that the first syllable of the triplication in Southern Min is prefixed to the disyllabic reduplication. Similar observations are found in Shih (1997) and Hsiao (1999). Like Southern Min, the first syllable in Hoiliuk triplication serves to highlight semantic content, and, as discussed in §2, it has three surface patterns: it may carry a mid-high contour, a low-high contour or a high level, with or without syllable lengthening. Accordingly, I posit here a floating high tone (as proposed by Yip 1980) and a floating mora in the underlying representation of the prefix, as in (9).

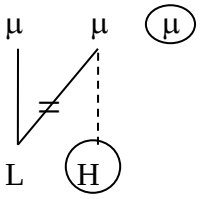
(9) Prefixal reduplication



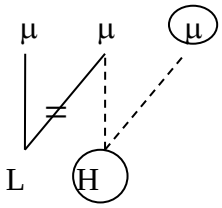
The circled μ indicates the floating mora, and the circled H indicates the floating high tone. T_1 and T_2 are tones in the first syllable of the stem, while t_1 and t_2 are the copied tones. The idea is that the prefix copies the morae and tones from the first syllable of the disyllabic stem, and recruits the floating high and the floating mora. The association between the tones and the morae then yields the two tonal variants of the prefix. In a triplication like ***lo*** *lo lo* 'very (very) old', the prefix, as boldfaced, may surface as LH or LHH. In terms of syllable length, there are three morae available for the prefix, including the head mora, the nonhead mora,[2] and the floating mora. When the floating high tone docks only onto the nonhead mora (the second mora), the floating mora will be stray-erased, and an LH can be derived without being lengthened, as in (10a). When the floating high spreads to the floating mora, the syllable is lengthened and carries an LHH, as in (10b).

(10) Tonal variants of the prefix

a. Prefix = LH



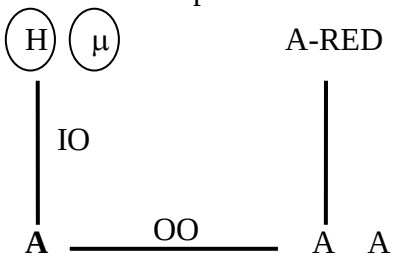
b. Prefix = LHH



The Optimality Theory (Prince and Smolensky 1993/2004), hereafter OT, characterizes the universal grammar as consisting of universal constraints, which are ranked differently among languages. The Correspondence Theory (McCarthy and Prince 1995) extends faithfulness to the identity between the output base and the reduplication. Hoiliuk triplication, AAA, instantiates an interesting case of the output-to-output correspondence. I propose a model of triplication correspondence in (11), which contends that the stressed and lengthened RED_1, **A**-, is prefixed to the disyllabic AA stem.

[2] The first mora is typically the most sonorous mora in a syllable, and is conventionally referred to as the head mora, and the second mora is a nonhead mora (Archangeli and Pulleyblank 1994; Zec 1995, among others).

(11) A Model of Triplication Correspondence



In terms of Correspondence Theory, the first syllable of the disyllabic AA stem serves as the corresponding base. The tones and morae in the corresponding base are preserved in the prefix. The prosodic association is basically achieved by way of interactions between a set of faithfulness constraints and markedness constraints, as will be discussed in ξ4. The association of the floating mora contributes to the syllable lengthening of the prefix, and the association of the floating high tone allows the prefix to carry in a high pitch. From the perspective of OT, three questions are in order. First, what constraints govern the lengthening of the prefix? Second, what constraints govern the tonal mapping in the prefix? Finally, how are the tonal variants accounted for through distinct constraint rankings?

4. An OT Analysis

I have shown in §2 that Hoiliuk has three types of prefix tone pattern. The first type is mid-high, lengthened or not lengthened, as in (2), (5), (7) and (8). The second type is low-high, as in (3) and (4), and the third type is high level, as in (6). The present analysis argues that the input of the prefix contains a floating mora, which may be linked in the output and result in syllable lengthening. I posit four constraints to govern the moraic operations, as in (12-15).

(12) MaxFloatμ-IO
Assign one violation mark for every unlinked mora in the input that is not linked to the prefix in the output.

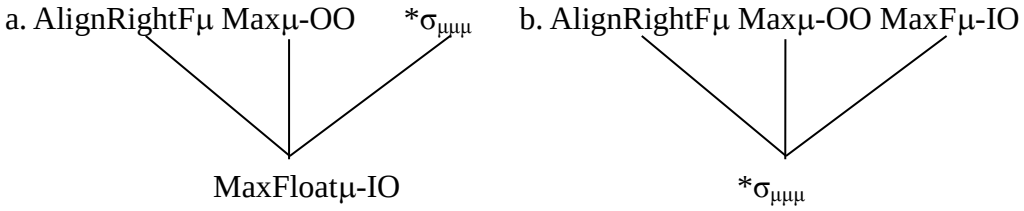
(13) AlignFloatμ-R
Assign one violation mark for every mora that intervenes between the right edge of the floating mora and the right edge of the prefix.

(14) Maxμ-OO
Assign one violation mark for every mora in the base that does not have a correspondent in the prefix.

(15) *$\sigma_{\mu\mu\mu}$
Assign one violation mark for every additional mora that is linked to a bimoraic syllable.

The interactions between MaxFloatμ-IO and *$\sigma_{\mu\mu\mu}$ determine the lengthening of the prefix. When MaxFμIO dominates *$\sigma_{\mu\mu\mu}$, the prefix is lengthened with the addition of the floating mora. In contrast, when *$\sigma_{\mu\mu\mu}$ dominates MaxFμIO, the floating mora can not surface and the prefix is not lengthened. The MaxFloat constraints have traditionally entailed the correspondence between input floating autosegments and output bearing units (McCarthy and Prince 1995, Myers 1997). Wolf (2007) disagrees with this assumption and indicates that a fully faithful candidate for a MaxFloat constraint should be an input floating autosegment that remains floating in the output. He thus suggests the existence of the markedmess constraint *Float, which bans any unlinked element in the output. In this paper, I have assumed stray-erasure and omit constraints like *Float. The constraint AlignRightFloatμ is undominated and it requires the floating mora to be adjoined to the right side of the prefix, making possible the lengthening of the prefix. On the other hand, Maxμ-OO, also a top-ranked constraint, preserves the morae of the base. The Hasse diagram in (16) illustrates the alternative rankings governing this lengthening discrepancy.

(16) Moraic Constraint rankings of the prefix



The moraic constraints are reranked in (16a,b), and the tableaux in (17) and (18) show how the lengthening alternatives are selected.

(17) ***vu*** *vu vu* 'very black'
Prefix input: μ Base: μμ Prefix output: μμ

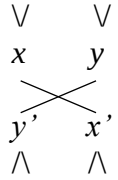
		*$\sigma_{\mu\mu\mu}$	Maxμ-OO	AR-Fμ	MaxFμIO
☞	a. μμ				*
	b. μμμ	*W			L

(18) ***vu*** *vu vu* 'very black'
Prefix input: μ Base: μμ Prefix output: μμμ

		MaxFμIO	Maxμ-OO	AR-Fμ	*$\sigma_{\mu\mu\mu}$
	a. μμ	*W			L
☞	b. μμμ				*

In terms of tonal operation, this analysis employs the notion of cross-anchoring introduced by Itô et al (1996). In their observations of Japanese argot, Itô et al (1996) propose that the prosodic elements in two related structures, S_1 and S_2, correspond to each other in a crosswise way. Precisely, given that *x* pertains to the beginnings and *y* the endings of S_1, while *x'* pertains to the endings and *y'* the beginnings of S_2, then *x* corresponds to *x'*, and *y* corresponds to *y'*, as illustrated in (19).

(19) Cross-Anchoring



In Hoiliuk triplication, the tone correspondence between the prefix and the base is crosswise. As shown in (2), HM in the base is cross-anchored in the prefix as MH. I posit two constraints, as in (20) and (21), to govern this tonal operation.

(20) CrossAnchor-OO (CroAcOO)
Let t_1t_2 = tone string; $t_1t_2 \in$ base, and $t_1't_2' \in$ prefix; $t_1 \Re\ t_1'$ and $t_2 \Re\ t_2'$
Assign one violation mark for every t_2 that does not have a correspondent t_2' that precedes t_1'.

(21) Linearity-OO (LinOO)
Let t_1t_2 = tone string; $t_1t_2 \in$ base, and $t_1't_2' \in$ prefix; $t_1 \Re\ t_1'$ and $t_2 \Re\ t_2'$
Assign one violation mark for every t_2 that has a correspondent t_2' that precedes t_1'.

The constraint CrossAnchor-OO requires the edge-strings between structures to correspond to each other in a crosswise fashion. On the contrary, Linearity-OO prohibits metathesis. The latter must be dominated by the former, as in (22).

(22) Tonal constraint ranking of the prefix (preliminary)

CrossAnchor-OO
|
Linearity-OO

This ranking ensures that a HM in the base emerges as a MH in the prefix, as shown in (23). The W symbol represent the winner, and the L symbol represents the loser; in McCarthy's (2008a)'s terms, they are restricted to the loser rows, and they indicate how a loser is compared with the winner on each constraint.

(23) ***vu*** *vu vu* 'very black'

Prefix input: H μ Base: HM HM Prefix output: MH

		CroAcOO	LinOO
☞	a. MH		*
	b. HM	*W	L

The fact that the prefix is heavily stressed and terminates in a high pitch indicates the existence of a floating high tone. I posit two constraints to govern the parsing of this floating high, as in (24) and (25).

(24) MaxFloatHigh-IO (MaxFHIO)
Assign one violation mark for every unlinked tone in the input that is not linked to the prefix in the output.

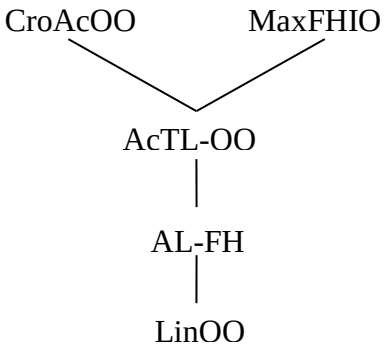
(25) AlignLeftFloatHigh (AL-FH)
Assign one violation mark for every mora that intervenes between the left edge of the floating high tone and the left edge of the head mora.

MaxFloatH-IO requires the floating high to surface. It should be top-ranked to ensure that the prefix carries a high pitch. AlignFloatH-L requires the left edges of the floating high and the head mora to coincide; it reflects the idea that higher tone is less marked than lower tone in a prosodically prominent position (de Lacy 1999), such as the head mora of the prefix. This constraint is often dominated, as the leftmost tone of the prefix is usually governed by the anchoring constraints. I posit the constraint in (26) to govern the correspondence between the prefix and the base.

(26) AnchorT-L-OO (AcTL-OO)
Assign one violation mark for every tone in the leftmost mora of the base that does not have a correspondent in the leftmost mora of the prefix.

The constraint AnchorT-L-OO dictates positional faithfulness; the privilege position lies at the left edge. Precisely, this constraint requires tone identity between the head mora in the prefix and that in its corresponding base. Tonal constraint ranking can be enriched as followed.

(27) Tonal constraint ranking of the prefix (enriched)



The tableaux in (28) and (29) show how this ranking selects the first type of prefix tone pattern, bimoraic and trimoraic.

(28) ***vu*** *vu vu* 'very black'
Prefix input: H Base: HL Prefix output: LH (bimoraic)

		CroAcOO	MaxFHIO	AcTL-OO	AL-FH	LinOO
☞	a. LH			*	*	*
	b. LL		*W	*	*	L
	c. HL	*W		L	L	L
	d. HH	*W		L	L	L

(29) ***vu*** *vu vu* 'very very black'
Prefix input: H Base: HL Prefix output: LHH (trimoraic)

		CroAcOO	MaxFHIO	AcTL-OO	AL-FH	LinOO
☞	a. LHH			*	*	*
	b. LLL		*W	*	L	L
	c. LLH			*	**W	*
	d. HHH	*W		L	L	L
	e. HLL	*W		L	L	L
	f. HHL	*W		L	L	L

Candidates (c-d) in (28) and candidates (d-f) in (29), where metathesis does not occur, are favored by AlignLeftFloatHigh but violate CrossAnchor-OO. Candidates (b) are ruled out by MaxFloatHigh-IO, as the floating high tones are deleted. In (28), candidate (a), the bimoraic MH, is selected as the optimal output. In (29), AlignLeftFloatHigh then favors candidate (a) over candidate (c), as the latter incurs two violations of it, and eventually candidate (a), the trimoraic MHH, is the optimal output.

The second type of the prefix tone pattern is low-high, which can be obtained in the same way, as in (30) and (31).

(30) ***gui*** *gui gui* 'very black'
Prefix input: H Base: HM Prefix output: MH (bimoraic)

		CroAcOO	MaxFHIO	AcTL-OO	AL-FH	LinOO
☞	a. MH			*	*	*
	b. MM		*W	*	*	L
	c. HM	*W		L	L	L
	d. HH	*W		L	L	L

(31) ***gui*** *gui gui* 'very very black'
Prefix input: H Base: HM Prefix output: MHH (trimoraic)

		CroAcOO	MaxFHIO	AcTL-OO	AL-FH	LinOO
☞	a. MHH			*	*	*
	b. MMM		*W	*	L	L
	c. MMH			*	**W	*
	d. HHH	*W		L	L	L
	e. HMM	*W		L	L	L
	f. HHM	*W		L	L	L

The third type of the prefix tone pattern is high-level, as seen earlier in (6). I propose two markedness constraints in (32) and (33) to govern this pattern.

(32) Share[H]
Assign one violation mark for every pair of adjacent mora that are not linked to the same token of H.

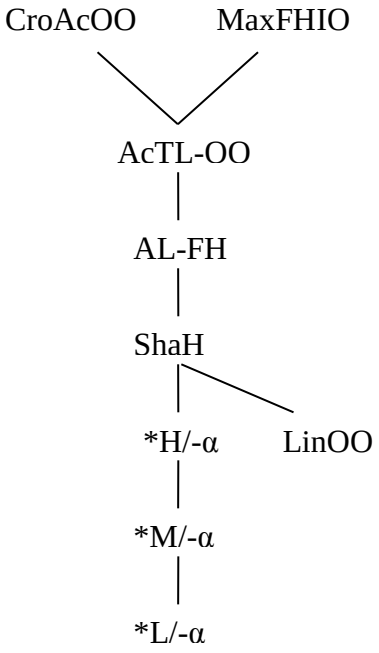
(33) Tone Markedness Hierarchy
*H/-α >> *M/-α>> *L/-α where α = prosodic head

The constraint Share(H) requires adjacent units to share the same high tone, setting forth a tonal version of McCarthy's (2008b) Share(F). The Tone Markedness Hierachy in (33) consists of three constraints, *H/-α, *M/-α and *L/-α. The dominance relation *H/-α >> *M/-α>> *L/-α regards low tone as the least marked in a prosodic nonhead position (-α), which in the case of the triplication prefix is a nonhead mora. Similar ideas are developed in de Lacy (1999), Zhang (2001), Yip (2002) and Lin (2007).[3] The ranking of

[3] de Lacy (1999) suggest that high tone is more prominent than low tone, and thus a prosodic head is more likely to be associated with a high tone. Lin (2007) also posits that lower pitch is preferred in a neutral tone position (i.e., a metrically weak position). Zhang (2001) and Yip (2002)

Share(H) over *H/-α ensures that the prefix ends in a high. The tonal constraint ranking can be enriched as in (34).

(34) Tonal Constraint rankings of the prefix (further enriched)



The tableaux in (35) and (36) show how this ranking selects the third type of prefix tone pattern, bimoraic and trimoraic.

(35) ***fung*** *fung fung* 'very red'
Prefix input: H Base: HH Prefix output: HH (bimoraic)

		CroAcOO	MaxFHIO	AcTL-OO	AL-FH	ShaH	*H/-α	LinOO
☞	a. HH						*	
	b. HL					*W	L	

propose a more general marking relation of tone, i.e., contour is more marked than high level, which is in turns more marked than low level.

(36) ***fung*** *fung fung* 'very very red'
Prefix input: H Base: HH Prefix output: HHH (trimoraic)

		CroAcOO	MaxFHIO	AcTL-OO	AL-FH	ShaH	*H/-α	LinOO
☞	a. HHH						**	
	b. HHL					*W	L	

High tone is not preferred on a nonhead mora, as candidates (a) in (35) and (36) violate *H/-α. However, the effect of Share[H] forces the prefix to terminate in a high pitch, and thus candidates (a) are selected as the optimal outputs.

5. Conclusion

To briefly summarize, this paper has made several arguments. First, based on several previous studies, I have considered that the triplication consists of a prefix and a disyllabic reduplication. Second, I have proposed that there is not only a floating tone but also a floating mora in the triplication. Third, I propose a model of triplication correspondence. The first syllable of the disyllabic AA stem serves the base. The tones and moras in the base are preserved in the prefix. The mapping of tones and moras are governed through interactions between IO correspondence and OO correspondence, and through interactions between correspondence constraints and markedness constraints. Fourth, the prefixal lengthening is determined by the interaction between two moraic constraints, MaxFloatμ-IO and $*\sigma_{\mu\mu\mu}$. Fifth, the top-ranking of CrossAnchorOO allows tonal metathesis to occur in the prefix. Finally, the end pitch of the prefix is determined by the interaction between two tonal constraints, Share[H] and *H/-α.

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Superlatives in Taiwanese

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Superlatives are used to reveal the extreme degree of a state or of an activity. However, in Taiwanese, superlatives revealed inconsistently in the syntactic representations; there are mainly two types of superlatives: (1) superlatives with *-kah4* in connecting with the state (e.g., *khun3 kah4 m7-chai1 lang5* 'sleep-KAH-cannot recognize people'), (2) superlatives without combination phrase (e.g., *khi3-si2* 'angry-die'). This paper aims to analyze the superlatives in Taiwanese by employing aspectual approach which classifies verbs according to their temporal properties (Vendler 1957:157, Dowty 1979:37). Data based on corpus make the taxonomy of superlatives being established according to their similarities in syntactic representations. The result shows that superlatives in different subcategories of superlative construction fall into distinct temporal classes.

1. Introduction

Superlatives are used to convey the extreme degree of a state or of an activity. For example, in Mandarin, *zui* 'most' is usually used to form a superlative (e.g., *zui kao* 'tallest') In Taiwanese, superlatives are usually revealed in extent (e.g., *khun3-kah4 m7-chai1 lang5* 'sleep-KAH-cannot recognize anyone') and resultative constructions (e.g., *pe^{n}7-kah4 khia7-be7-khi2-lai5* 'sick-KAH- cannot stand up'). Resultative and extent construction are two of the postverbal secondary predicates in Taiwanese which usually involves the use of *–kah* on the surface (Lin, 2003:65). Also, according to Wang (2002:298), to form a completed adjective term describing 'extent' in Mandarin, the adverbial predicate *heng* 'very', *cin* 'really' or *zui* 'most' is necessary (e.g.,*hua heng hing* 'flower-very-red' vs. **hua hong*). However, based on the corpus of 'Taiwen/Huawen Ding Xiang Cidian' (台文/華文頂線辭典), it is found superlatives in the syntactic representations revealed inconsistently; superlatives without adverbial predicate as combination also exist in Taiwanese (e.g., *khi3-si2* 'angry-die'). Few of previous investigations on Taiwanese deal with the inconsistency between the two Taiwanese superlatives. Thus, the present study intends to explore the two types of superlatives: (1)

superlatives with *-kah4* in connecting with the state (e.g., *khun3 kah4 m7-chai1 lang5* 'sleep-KAH-cannot recognize anyone'), (2) superlatives without adverbial predicates as combination (e.g., *khi3-si2* 'angry-die').

The organization of this paper is as follows. Section 2 deals with V-*kah*-superlative construction. Section 3 focuses on the second type of superlative, that is, V-superlatives. In section 4, we offer accounts on the divergent distribution of superlatives. The last section is the discussion of this paper.

2. V-*kah*-superlative

This section explores V-*kah*-superlative configuration. Following observations made from corpus, V-*kah*-superlatives fall into two construction: resultative and extent constructions (2.1). Besides, phrasal negation is found to exist consistently in V-*kah*-superlative construction (2.2).

2.1. V-*kah*-superlative in extent and resultative constructions

There are two types of V-*kah*-superlative constructions. In the resultative construction, resultatives follow the main verb. Instead of purely denoting the extent reading '… to the extent that…', V-*kah*-superlative classified as resultative construction involves result state in sentences. The resultative complement is usually present in an adjective form. As in examples (1)-(3), the adjectives *ang5-ki3-ki3* 'red to a degree', *pa2-tiu^{n}3-tiu^{n}3* 'very full' and chhui3-ko5-ko5 'fragmented' are resultative complements of the main verb *khau3* 'cry', *chiah8* 'eat' and *thiah4* 'take apart'.

(1) Bak8-chiu1 khau3-kah4 ang5-ki3-ki3
eyes cry-KAH very red
'(Someone) cried so heavily that (her/his) eyes become red.'

(2) Chiah8-kah4 pa2-tiu^{n}3-tiu^{n}3
eat-KAH full-distend-distend
'(Someone) eat too much so that stomach become distend'

(3) Ka1 A7-min5 sin1 chiun7 e5 tiun1-a2-san1 thiah4-kah4
KA A-min body up E silk-fabric take apart-KAH
chhui3-ko5-ko5
fragmented

However, when applying to describing the extreme state, the complements in resultative V-*kah*-superlative constructions turn from adjectives to phrase. For example, in (4)-(6), the phrase *khia7-be7-khi2-lai5* 'cannot stand up', bo5-sia^{n}1 'lose voice' and *be7-kong2-oe7* 'unable to speak' serve as the complements to *pe^{n}7* 'sick', *khau3* 'cry' and

kia^{n}1 ‘frighten’.

(4) I1 pe^{n}7-kah4 khia7-be7-khi2-lai5.
3SG sick-KAH stand-NEG-up-go
‘He was so sick that he could not stand up.’

(5) Na5-au5 khau3-kah4 bo5-sia^{n}1
Throat cry-KAH NEG-voice
‘(Someone) cry so heavily that (s/he) lost voice.’

(6) I1 hoo7 kia^{n}1-kah4 be7-kong2-oe7
3SG HOO frighten-KAH NEG-speak-word
‘He was so frightened that he could not speak.’

The resultative construction is complex event composed of two subevents: the causing event and the changing of the state it generates. Dowty in 1979:37 suggested that the notion of ‘endpoint’ denotes the result state which can determine the telicity of verbs. Whether in the pure resultative construction or in the resultative construction conveying the extent, result states modify the predicates of subject or object. According to Rappaport Hovav and Levin (2005:89), resultatives place restrict constraints on their constituent subevent, that is, the second subevent in resultative’s event structure must be telic. However, in Taiwanese, pure resultatives such as (1) and the resultative V-*kah*-superlative construction such as (4) differ in their temporal representation. According to the notion of ‘telicity’ proposed by Vendler (1957:157), sentence (1) *Bak8-chiu1 khau3-kah4 ang5-ki3-ki3* ‘(Someone) cried so heavily that (her/his) eyes become red’ can be interpreted as an accomplishment event. Basically, sentence (1) has a telic construal. Sentence (4) *I1 pe^{n}7-kah4 khia7-be7-khi2-lai5* ‘He was so sick that he could not stand up’ cannot be modified by a durative time adverbial which describes the duration of an event.

In addition to the resultative V-*kah*-superlative construction, there is another postverbal secondary predicate revealing the extreme state of an activity or an event. For example:

(7) I1 khun3-kah4 m7-chai1-lang5.
3SG sleep-KAH NEG-know-people
‘He sleep so well that he couldn’t recognize anyone.’

(8) Boe2-a2 siu^{n}7-kah4 bo5-po7, khi3 chheng2-kau3 pat8-lang5
finally think- KAH NEG-step go consult other-people

'Finally, (someone) couldn't figure out solutions, (s/he) then consulted others.'

(9) In1 pheh4-pheh4-chhoan2, che7 ti7 chioh8-thau5 teng2 thiam2-kah4
3PL PHEH-PHEH -puff sit at stone top tired-KAH
bo5-oe7-kong2
NEG-word-speak
'They were out of breath so that they sat at the stone and without saying any word.'

Unlike resultative V-*kah*-superlative construction, the extent construction purely describes the extreme degree of a certain state. The extent clause cannot be construed as the result, but just the extent as in (7), where *m7-chai1-lang5* 'cannot recognize people' cannot be said to be the result of sleeping but just is the extent to which the person slept. Also, extent clause in (8) *bo5-po7* 'no solution' and in (9) *bo5-oe7 -kong2* 'no words to speak' only function as the adverbials describing the state *siu^{n}7* 'think' and *thiam2* 'tire'. In extent V-*kah*-superlative constructions, the sentences also have telic construal.

It is founded that resultative constructions often have an extent reading, though, the opposite does not hold; that is, extent constructions do not necessarily have a result reading. Both resultative and extent V-*kah*-superlative constructions denote the extreme degree of an activity or a state, though, they differ in the syntactic behavior (Lin, 2003:70). Resultative constructions are complements subcategorized for by V-*kah*. In most cases, resultative clauses are predicated of either the subject or the object of the main verb. On the other hand, extent construction forms the structure of a clause attached to VP.

2.2. Phrasal negation

Although the two subtypes of V-*kah*-superlative constructions denote variant syntactic behaviors, the components of 'superlative' reveal an agreement on their selections. Firstly, superlative in both resultative and extent constructions is constructed as a phrase.

(10) I1 cho3-kah4 chin1 thiam2
3SG work-KAH really tired
'He worked so hard that he felt tired.'

(11) I1 khun3-kah4 m7-chai1-chhe^{n}2
3SG sleep-KAH NEG-know-wake
'He sleep so well that he did not wake up.'

(12) Niau1-a1 ka1 chhai3-na5 ka7-kah4 chhui3- chhui3
cat-A KA basket bite-KAH fragmented

'The cat beat the basket and let it became fragmented.'

(13) I1 hoo7 thau5-ke1 ap4-pek4-kah4 be7-chhoan2-khui3
3SGL HOO boss press-KAH NEG-breathe
'He was pressed by his boss.'

Examples (10)-(11) are extent constructions and (12)-(13) resultatives. When simply describing the state, the complements followed by V-*kah* revealed as adjectives, such as (10) *chin1-thiam2* 'tire' and (12) *chhui3- chhui3* 'fragmented'. On the other hand, extent and resultatives applied to convey an extreme state such as in (11) and (13) present as sentences in which superlatives are phrases *m7-chai1-chhe^{n}2* 'not knowing wake' and *be7-chhoan2-khui3* 'cannot breathe'.

Besides, in the V-*kah*-superlative constructions, the feature [+negative] in included is in sentence. For example, we repeated the example (10) (represented as (14))and (12) (represented as (15))and insert the [+negative] feature into those sentences, finding an ungrammatical constructions:

(14) I1 cho3-kah4 *be7/ bo5/m7-chin1 thiam2
3SG work- KAH * NEG-really- tired
'He worked so hard that he felt not tired.'

(15) Niau1-a1 ka1 chhai3-na5 ka7-kah4 *be7/ bo5/m7-chhui3- chhui3
cat-A KA basket beat-KAH *NEG-fragmented
'The cat beat the basket and let it became not fragmented.'

In Taiwanese, the negative adverbial involves: *be5, m7, bo5,* etc. and each of them fall into distinct categorization or perform different syntactic representations which have been explored by some studies (e.g., Lu 2003 cited from Zhang, Liao & Huang 2006: 3). With these adverbials *be5, m7, bo5*, the whole complement becomes negative one.

As demonstrated in this section, V-*kah*-superlative conveys specific syntactic and semantic representations. According to the constructional view proposed by Goldberg (1995:25), construction with similar components needs to be resided in the syntactic context. In resultative V-*kah*-superlative construction, the result is denoted while in extent V-*kah*-superlative configuration, the clause purely conveys the degree of certain state. The similarities in the two structures are: (1) they have atelic construal and (2) the phrasal negation is required in the complement.

3. V-superlatives

The previous section presents findings from an examination of the V-*kah*-superlative data.

In expressing the extreme situations, there is another construction existed in Taiwanese. In this section, we explore the second type of superlatives. In the following examples (16)-(18), the superlatives *si2* 'dead', *pho3* 'break' and *soa^{n}3* 'spread' followed directly by the main verb *khi3* 'angry', siu^{n}7 'think' and *chhoe1* 'blow'.

(16) Ka7 i1 khi3 si2
KA 3SG angry dead
'(Someone) has irritated him to death.'

(17) I1 siu^{n}7 pho3 thau5 ma7 siu^{n}7-bo5
3SG think break head still think-NEG
'He couldn't think out of any solution even though he tried his best.'

(18) Choa2 hoo7 chhoe1 soa^{n}3
paper HOO blow spread
'The paper was blew and spread to everywhere.'

If we inserted *–kah* into these constructions, the sentences then become ungrammatical as in (19).

(19) Phoa4-pen7 hoo7 i1 thia^{n}3-*kah4 si2
Sick HOO 3SG hurt-*KAH dead
'He was so sick that he felt hurt to death.'

In V-superlative construction, the complement such as si2 'dead' in
(16) has the properties of telic eventuality. Most of the time, superlatives in the construction with zero combination denote the result of the main verb.

However, as having been proposed by Wang (2002:298), to form a grammatical expression in Mandarin, adjective predicates must be combined with the adverbs such as *hen* 'very', *zhen* 'really' *and ji* 'utmost' in the following examples:

(20) Hua hen hong
flower very red
'The flower is very red.'

(21) Tian-qi zhen cha
weather really bad

'The weather is really bad.'

(22) zhe-lie-de feng-jing ji mei
here-DE scene utmost beautiful
'The scene here is very beautiful.'

Without the adverbial connection, the sentences then become ungrammatical as in (23)-(24).

(23) *Yezi Ø lu
*leaves Ø green
'The leaves are green.'

(24) *Ta Ø mei
*3SG Ø pretty
'She is very beautiful.'

In Taiwanese, the s-command also requires an adverb to connect the complement with its main verb in a sentence; thus, the adverb *–kah* should exist as it is in the first type V-*kah*-superlative construction. However, it is found that in modern Mandarin there is an ellipsis of the adverbs, for example:

(25) Ta qi-feng le
3SG angry-crazy PERF
'He was so angry that he became crazy.'

(26) Shu-gui sai-bao le shu
bookcase stuff-explode PERF book
'The bookcase was full of books.'

In example (25) and (26), the phrases *qi-feng* 'angry-die' and *sai-bao* 'stuff-explode' are lexicalized as compounds. The insertion of adverb *-hen-* will cause the sentence ungrammatical. Huang (2007:9) explored the Mandarin superlative *bao* 'explode'. In his study, *bao* 'explode' functions as complement and extent adverbials followed by the main verb after the language contact with Cantonese. Since both Mandarin Chinese and Taiwanese belong to Han language(Lin, 2003:68), the contact of Mandarin Chinese and Taiwanese may influences Taiwanese superlatives on their syntactic representations.

Compared with Mandarin Chinese, there is less number of extent adverbs in Taiwanese. Also, Taiwanese set more restraints on the function and distributions of extent adverbs. After all, it is suggested that the syntactic behavior of the Taiwanese adverbs *–kah* has been affected along with the diachronic language development.

4. V-superlative vs. V-*kah*-superlatives

In section 2, we explore V-*kah*-superlative constructions and in section3 the V-*kah* configurations. The specific characteristics that distinguish these two types of superlative constructions are explored in-depth in this section. Firstly, they differ in the telicity denoting (4.1). Further, the complements in those two types are of distinct construal, the phrasal negation only exist in V-*kah*-superlative configuration (4.2).

4.1. Telicity in V-superlative and in V-*kah*-superlative

Observing the data from the corpus, it is found that V-superlative and V-*kah*-superlative are temporally distinct. According to the verb types proposed by Dowty (1979:37), verb serves as complement in V-*kah*-superlative can either be activity verb as in (27) or state verb as in (28). On the contrary, verb acts as complement in V-superlative construction fall into the group of achievement as in (29).

(27) I1 thia^{n}3-kah4 khia7-be7-khi2-lai5
3 SG hurt- KAH stand- NEG -up-come
'He was so hurt that he couldn't stand up.'

(28) Sim1-koa^{n}1-thau5 kia^{n}1-kah4 m7-chai1 beh4 an2-choa^{n}2
heart frighten-KAH NEG-know BEH how-do
'(Someone) was so frightened that he didn't know how to do.'

(29) I1 e5 chhiu2 thia^{n}3-si2 a2
3SG GEN hand hurt-dead PART
'His hand was hurt to death.'

The activity verb *khia7* 'stand' and the state verb *chai1* 'know' fall into the groups that have atelic interpretations. In contrast, the achievement verb *si2* 'dead' has the property of telicity. It is found that some of the V-superlative construction can be inserted into the adverbial connection *–kah* while co-occur with the model *beh4* 'will/ want'. For example:

(30) I1 pa2-kah4 beh4 si2
3SG full-KAH will dead
'He was extremely full.'

(31) I1 e5 thau5 siu^{n}7-kah4 beh4 phoa3 khi3
3SG GEN head think-KAH will break go
'He tried hard thinking of the solution with his head being about to break.'

When inserting the model *beh4* 'will/ want', the degree of a certain state or an activity is decreased. Compared with the superlative *si2* 'dead', the superlative clause *beh4-si2* 'be going to die' in (30) does not denoting the extremeness. Similarly, *phoa3* 'break' and *beh4-phoa3* 'be going to break' differ in their power of modifying the degree. This finding again supports that V-superlative has a telic reading.

In addition the model *beh4*, V-superlative is found to co-occur with *–kah4* when the locomotive *khi3* 'go' exist as complete marker. For example,

(32) San1 kin2-kah4 phoa3-khi3
clothe tight-KAH break-go
'The clothe was so tight that it broke.'

As been proposed by Cheng (2005:89), *khi3* 'go' acts as completive phase. This again suggested V-superlative should fall in telic reading.

4.2. Superlatives in V-*kah*-superlative and V-superlative

It is found that complements in the two types of superlative constructions behave differently. In V-*kah*-superlative construction, phrasal negation is required; however, in V-superlative construction, phrasal negation is blocked.

(34) *I1 siu^{n}7 khun3 be7 loh8-bin5
*3SG think sleep NEG-fall-asleep
'He thought too much to sleep.'

(35) *thak8-chu1 thak8 boe7-ki1 si5-kan1
*study-book study NEG-remember time
'(Someone) studied so hard that (he) forgot the time.'

In summary, in Taiwanese, the two types of superlatives show inconsistency in their syntactic representations as well as in their semantic features. Telicity decides their classification. In addition, phrasal use exists only in V-*kah*-superlative.

5. Discussion

Based on the corpora data, there are two categories of superlative constructions in Taiwanese: V-superlative and V-*kah*-superlative. The two types of superlative constructions reveal varied syntactic and semantic behavior.

Within the V-*kah*-superlative construction, there are two sub-types: resultative and extent constructions. They are both postverbal complements, though, they differ in some aspects. For one, resultative V-*kah*-superlative construction denotes the result state while extent construction only has adjective reading. Besides, in most cases, resultative clauses are predicated of either the subject or the object of the main verb. On the other hand, extent construction forms the structure of a clause attached to VP.

As for V-superlative configuration, the language contact influences the adverbial connections and thus *–kah4* be took out.

Compared V-*kah*-superlative with V-superlative constructions, they act quite differently in syntactic and semantic representation. Firstly, the temporal aspect—telicity— distinguished the two constructions. Complements of V-superlative construction is telic property while in V-*kah*-superlative is an atelic expression. Besides, the use of negative phrase represents grammaticality only in V-*kah*-superlative construction.

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Neutralization of T3 and T5 Sandhi in Suzhou Chinese*

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This paper examines the two sandhi patterns of disyllabic compound whose initial tone is either a high falling tone (T3) or a dipping tone (T5) in Suzhou in the framework of Optimality Theory. The idea of different levels of tone melody in (Shih, 1986) is adopted in this paper. Namely, the syllable level tone melody changes to word level which lead to the neutralization of T3 and T5 sandhi. Left-headed metrical structure, foot formation and stress assignment are the main factors for the positional tone retention and deletion, while tone-syllable association and tonal sonority hierarchy help to evaluate the optimal output of the tone sandhi pattern ([HL.L] or [H.L]). The two sandhi patterns are argued to be outputs of different constraint ranking instead of syllable weight change.

1. Introduction

In Suzhou Chinese, when the citation tone on the initial syllable is either the high falling (T3, [HL]) or the dipping (T5, [HLM]) in a disyllabic word, the sandhi form of it can be either high level or high falling. The sandhi pattern of these disyllabic words is either [HL.L] (e.g. [tɕin^{HL}voŋ^{L}] "to believe") or [H.L] (e.g. [tɕin^{H}foŋ^{L}] "the envelope") in natural speech. For [HL.L], there is an alternating pattern whose second tone is a low rising tone ([HL.LM]) in deliberate speech. For [H.L], there is no perceptual difference in natural and deliberate speech. These phenomena are considered as tone sandhi neutralization of the two tones and analyzed in the framework of Optimality Theory in this paper.

The organization of the paper is as follows. In section 2, I generalize the sandhi patterns of disyllabic words whose initial tone is T3 or T5. In section 3, I review two issues referring to tone sandhi in Chinese dialects, pointing out the questions relating to these issues when it comes to the tone sandhi in Suzhou. In section 4, I provide my

* I am greatly indebted to Prof. Jiang-King Ping who gave me valuable guidance and Prof. Duanmu San who suggested me to consider the diachronic tone melody change. The present work requires more empirical and acoustic data. Deep investigation will be taken in my future study.

proposal and analysis, answering the questions raised in the previous section. Section 5 is the conclusion part.

2. Generalization on T3 and T5 Sandhi

There are five smooth tones and two entering tones in Suzhou. The tonal system mentioned in Li (1998) is summarized in (1).

(1) Tonal system in Suzhou Chinese

	high register		low register	
long	T1	H	T2	LM
	T3	HL		
	T5	HLM	T6	LML
short	T7	H	T8	LM

In this paper, due to the special property of the two entering tones, I discuss smooth tones only. The five smooth tones are divided into two groups in terms of register. There is a simple contour tone (/HL/ or /LM/) and a complex contour tone (/HLM/ or /LML/) in each register. The T3 and T5 sandhi discussed in this paper refers to the simple contour tone /HL/ and the complex contour tone /HLM/ in high register.

Based on the descriptive data in previous studies (Xie, 1982; Wang, 1983; Wang, 1996; Li, 1998), I draw generalizations on T3 and T5 in terms of speech tempo.

Speech tempo refers to the speech rate in which people speak the words out. In this paper, I regard the situation in which the first syllable is obviously longer than the second as natural speech, and the situation in which the durations of the two syllables are similarly long as deliberate speech. For the sandhi patterns containing a high falling tone on the first syllable, the former situation is represented as [HL.L], indicating a low tone follows a high falling tone. The latter situation is represented as [HL.LM], indicating a low rising tone follows a high falling tone. Since there is no perceptual difference between the pattern [H.L] in natural and deliberate speech, both situations are represented as [H.L]. Tone sandhi patterns of each type are summarized in (2) and (3).

(2) T3 and T5 sandhi compound I

1st morph.	2nd morph.	Combination		Gloss
[tɕi^{HL}]	[tɛ^{HH}]	[tɕi^{HL} tɛ^{L}]	[tɕi^{HL} tɛ^{LM}]	‘scissors’

[tsɿ^{HL}]	[dei^{LM}]	[tsɿ^{HL} dei^{L}]	[tsɿ^{HL} dei^{LM}]	‘paper’
[tsɥ^{HL}]	[t^{h}ɳ^{HL}]	[tsɥ^{HL} t^{h}ɳ^{L}]	[tsɥ^{HL} t^{h}ɳ^{LM}]	‘main body’
[tsø^{HL}]	[tɕ^{h}ɳ^{HLM}]	[tsø^{HL} tɕ^{h}ɳ^{L}]	[tsø^{HL} tɕ^{h}ɳ^{LM}]	‘go back’
[kɛ^{HL}]	[lɛ^{LML}]	[kɛ^{HL} lɛ^{L}]	[kɛ^{HL} lɛ^{LM}]	‘olives’
[tɕjɛ^{HLM}]	[sɿ^{HH}]	[tɕjɛ^{HL} sɿ^{L}]	[tɕjɛ^{HL} sɿ^{LM}]	‘teacher’
[jɿ^{HLM}]	[dəʊ^{LM}]	[jɿ^{HL} dəʊ^{L}]	[jɿ^{HL} dəʊ^{LM}]	‘purpose’
[tsɿ^{HLM}]	[səʊ^{HL}]	[tsɿ^{HL} səʊ^{L}]	[tsɿ^{HL} səʊ^{LM}]	‘toilet’
[pu^{HLM}]	[tsɿ^{HLM}]	[pu^{HL} tsɿ^{L}]	[pu^{HL} tsɿ^{LM}]	‘arrange’
[tø^{HLM}]	[li^{LML}]	[tø^{HL} li^{L}]	[tø^{HL} li^{LM}]	‘practice’

(3) T3 and T5 sandhi compound II

1st morph.	2nd morph.	Combination	Gloss
[k^{h}ɔ^{HL}]	[ts^{h}u^{HH}]	[k^{h}ɔ^{H} ts^{h}u^{L}]	‘track’
[tɕ^{h}ɳ^{HL}]	[le^{LM}]	[tɕ^{h}ɳ^{H} le^{L}]	‘to get up’
[tsø^{HL}]	[jɿ^{HL}]	[tsø^{H} jɿ^{L}]	‘swivel chair’
[k^{h}ɔ^{HL}]	[p^{h}i^{HLM}]	[k^{h}ɔ^{H} p^{h}i^{L}]	‘card’
[tsɛ^{HL}]	[vɛ^{LML}]	[tsɛ^{H} vɛ^{L}]	‘breakfast’

[tɕɿ^{HLM}]	[ts^{h}u^{HH}]	[tɕɿ^{H} ts^{h}u^{L}]	‘car’
[kwø^{HLM}]	[dei^{LM}]	[kwø^{H} dei^{L}]	‘can’
[t^{h}əʊ^{HLM}]	[tsɿ^{HL}]	[t^{h}əʊ^{H} tsɿ^{L}]	‘rabbit’
[səʊ^{HLM}]	[ts^{h}e^{HLM}]	[səʊ^{H} ts^{h}e^{L}]	‘vegetable’
[jɔ^{HLM}]	[lɳ^{LML}]	[jɔ^{H} lɳ^{L}]	‘night’

From (2) and (3), we can see there are two different patterns for T3 and T5 sandhi compound, which are summarized in (4).

(4) T3 and T5 sandhi in compound

a. When the original initial tone is a high falling tone, it will keep the same or become a high level tone after sandhi which are not free variations;
b. When the original initial tone is a dipping tone, it will become either a high falling tone, which is identical to the falling tone in the tonal system, or a high level tone after sandhi which are not free variations;
c. All the tones on the second syllable become a low tone after sandhi in natural speech;
d. In deliberate speech, tones on the second syllable become a low rising tone after a sandhi high falling tone;
e. [H.L] has no perceptual difference in natural and deliberate speech;
f. The tone shape of the disyllabic compound in natural speech is high falling.

(4c) and (4d) show that speech tempo can be used to explain why people cannot distinguish [HL.L] and [HL.LM] ([52.21] and [52.23] in previous descriptions). In this paper, I focus on the two patterns of compound in natural speech.

3. Problems

There are two sets of questions based on the analyses of tone sandhi in other Chinese dialects.

First, Yip (1995) mentioned that there are two types of tone sandhi. One is caused by pure tonal environment, like the third tone sandhi in Mandarin. The other type is caused by positional factors, in which tone on certain special position is preserved. A typical example of the second type is Shanghainese, in which the initial stressed tone retains and

re-associates to the syllables within the word. I accept that tone sandhi in Suzhou also belongs to the second type. Then the question is how to determine the position where tone is preserved. Moreover, what is the tone sandhi domain?

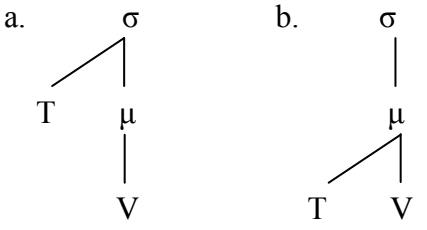
Second, Wright (1983), Chan (1991) and Wang (1996) propose a similar notion about the basic tones and tone sequence that occur in sandhi context in the dialect. I adopt the term "tone melody" in Shih (1986) and Chan (1991) here. Moreover, Shih (1986) mentions the tendency that tone melody is changing from syllable level to word level. If we adopt this word level tone melody, the tone shapes of the two patterns in natural speech are the same, from high to low. The question is whether they belong to one tone melody (/HL/)? If yes, how come this tone melody has two patterns ([HL.L] and [H.L])?

By answering these two sets of questions, I provide an analysis on the neutralization of T3 and T5 sandhi sandhi in Suzhou in the constraint-based approach.

4. Analysis

Before analyzing, the tone bearing unit (TBU) should be clarified first. Two possible structures in (5) show the relation between tone, segment, mora and syllable. Syllable types and tonal types provide evidence to support that (5a) is the right structure.

(5)



Unlike Northern Min in Jiang-King (1996), any type of syllable can occur with any kind of tone on one syllable in Suzhou, as shown in (6). Therefore, mora and syllable serve as different prosodic anchors. Data in (6) are provided by a native speaker.

(6) Syllable type and tonal type

	level	simple contour	complex contour
light	[sɿ^{H}]"silk"	[sɿ^{HL}]"dead"	[sɿ^{HLM}]"four"

heavy	[kəu^{H}] “brother”	[səu^{HL}]“count”	[səu^{HLM}]“vegetable”

Based on the two patterns in natural speech ([HL.L] and [H.L]) and their identical corresponding tone shape on disyllabic word, I propose this is related to the metrical structure in Suzhou and the disyllabic word is a prosodic word which forms the tone sandhi domain.

In section 4.1, the metrical structure of disyllabic word is proved to be left-headed first, followed by the definition of prosodic word. Then the investigation on tone melody related to T3 and T5 is shown. An OT account is provided in section 4.2, focusing on the two sandhi patterns which cannot be treated as free variations in natural speech.

4.1 Three related issues in Suzhou Chinese

First, the metrical structure is left-headed. Evidence from the different durations of the two syllables in disyllabic words supports that the initial syllable is stressed. Wright (1983) shows that stressed syllables have longer durations than unstressed syllables. I accept the relationship between syllable duration and stress, by measuring the recording from a native speaker of Suzhou Chinese. The average duration of each syllable in natural speech is listed in (7). “1stσ” indicates the citation tone on the first syllable and “shape” indicates the tone shape of the whole disyllabic word.

(7)

1stσ	shape	D1	D2	D1/D2	pattern	1stσ	shape	D1	D2	D1/D2	pattern
HL	H-L	180	78	2.31	HL.L	HLM	H-L	224	87	2.57	HL.L
	H-L	174	84	2.07	H.L		H-L	210	105	2.00	H.L

As pointed out in Zhu (2005), the absolute durations cannot reflect the stress difference, but the ratio of the durations can. If we assume that mora indicates syllable length, then the durational shows that the first syllable is bimoraic and the second syllable is monomoraic. In accordance with the Prominence Reduction constraint proposed in Jiang-King (1996), this phenomenon reflects that an unstressed syllable tends to be monomoraic.

Smith (2000) mentions that an initial or a stressed position is a prominent position which is more likely to retain its original properties, including the citation tone. Moreover, Wright (1983) also mentions that unstressed syllable tends to lose the original distinctive tone. Therefore, tone in the initial stressed position is preserved.

Second, the tone sandhi domain is a prosodic word which is defined in terms of stress. Selkirk and Shen (1990) regards that a prosodic word starts from the left edge of every lexical word. Duanmu (1993) uses loan words to argue that the tone sandhi domain is an association domain rather than a prosodic word in Selkirk and Shen (1990). He argues that an item which is not a lexical word can also form a tone sandhi domain. Therefore the prosodic word in Selkirk and Shen (1990) is not convincing enough. In Duanmu (1993), the association domain is defined purely by stress, which starts from a stressed syllable and ends before the next stressed syllable.

In this paper, I propose the tone sandhi in Suzhou is a prosodic word. The term "prosodic word" here belongs to the hierarchical categories in metrical theory, which consists at least one foot. The boundedness of the foot can be ignored here, because there are two syllables in a disyllabic word and they can form a binary foot which contains a stressed syllable and an unstressed syllable. That is to say, the tone sandhi domain here is a disyllabic prosodic word containing a stressed syllable and an unstressed syllable.

Third, there is only one word level tone melody for these two patterns, which is /HL/. Evidences come from the citation forms of T2 and T6 and their corresponding tone sandhi patterns. They are shown in (8), which is mentioned in Li (1998) and verified by a native speaker.

(8) Citation tones and their corresponding tone sandhi patterns

pattern	σ		σ σ	σ σ σ	σ σ σ σ
a.	44		44.21	44.44.21	44.44.33.21
b.	52	523	44.21	44.44.21	44.44.33.21
c.	52	523	52.21	52.22.21	52.22.22.21
d.	23	231	22.44	22.44.21	22.44.33.21
e.	23	231	23.21	23.33.21	23.33.22.21

The table indicates that there are two sets of sandhi patterns ((8d) and (8e)) for the low rising tone and rising-falling tone. This is similar to T3 and T5 sandhi patterns in (8b) and (8c). I propose there is a correspondent relation between citation tone, tone melody and sandhi patterns of disyllabic words, which can be summarized in (9) and generalized in (10).

(9) Correspondent relation between citation tone, tone melody and sandhi patterns

sandhi pattern	tone melody	citation tone

H.L	/H/	H	
H.L	/HL/	HL	HLM
HL.L			
L.M	/LM/	LM	LML
LM.L			

(10) Correspondent relation between citation tone, tone melody and sandhi patterns

a. There are three word level tone melody, /H/, /HL/ and /LM/. Level and simple contour tones correspond to the tone melody identical to themselves, while the complex contour tones correspond to the tone melody identical to their first two tonal elements;
b. /H/ has one corresponding tonal pattern which consists of a high tone and a low tone;
c. Both /HL/ and /LM/ have two corresponding tonal patterns, one consists of two level tones coming from the tone melody, and the other consists of a contour tone which is identical to the tone melody and a low tone;

(9a), (9c) and (9e) are grouped together as they all contain an inserted low tone, while (9b) and (9d) are grouped together as they consists of two level tones coming from the tone melody. From (8a) and (8b) we can see, Pattern b is completely neutralized to Pattern a.

The word level tone melody associates to the syllables within the prosodic word. Whether the TBU can bear contour tones determines the sandhi pattern. This is considered as the interaction between two constraints, one requires the stressed syllable must retain its input tone contour and the other requires single correspondent between TBU and tone.

Duanmu (1993) proposes a syllable weight distinction and argues that a light syllable cannot carry a contour tone while a heavy syllable can. He also argues that this distinction reflects a historical change from heavy syllable to light one and tone sandhi in Suzhou can reflect the intermediate stage of this change. But this historical change of syllable weight lacks evidence now. Comparing to the syllable weight change, level of tone melody change (Shih, 1986) is more possible and problems on different patterns can be solved by different tone-syllable association. Therefore, I attribute the occurrence of [HL.L] and [H.L] to the interaction between the two constraints rather than syllable weight change.

So far, the three issues answer the questions in section 3. Within a prosodic word, tone on the initial stressed position is retained (the dipping tone loses its rising tail) while tone on the non-initial unstressed position is deleted. The third issue shows the corresponding relationship between the preserved tone and the tone shape of the prosodic word, which is generalized in (4f). Moreover, it also shows there is only one tone melody

/HL/. This word level tone melody associates to each syllable and forms two tone sandhi patterns.

4.2 An OT account

In this part, a set of faithfulness constraints on tonal distributions is introduced first in (11). Word level tone melody is discussed and fixed in section 4.2.1, followed by tone-syllable association in section 4.2.2.

The Well-Formedness Conditions in Goldsmith (1967) are incorporated as a set of faithfulness constraints on tonal distributions (Jiang-King, 1996). They are listed as in (11) with a little change on TBU.

(11) Faithfulness constraints on tonal distributions

a. $P_{ARSE}T_{ONE}$: A tone must be incorporated into prosodic structure.
b. $S_{PEC}T_{ONE}$: A TBU must be filled by a tone.
c. $L_{INEARIRY}$: $String_1$ reflects the precedence structure of $String_2$, and vice versa.
d. $U_{NIFORMITY}$: No element of $String_2$ has multiple correspondents in $String_1$.
e. $L_{EX}T_{ONE}$: A tone that is present in an input must be present in an output.

(11a) and (11b) require every tone must be dominated by a TBU, and vice versa. (11c) reflects the condition that prohibits association lines crossing. (11d) requires one-to-one association between tones and TBUs, i.e. one level tone corresponds to one TBU. (11e) requires every tonal element in the input has a correspondent in the output.

4.2.1 Word level tone melody

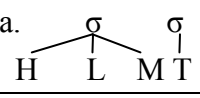
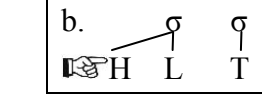
The input of the positional tone sandhi is determined first, followed by the constraints responsible for foot formation and stress assignment in (14) and those for positional tone retention and deletion in (16).

The word level tone melody will be determined according to the tone in the stressed position which is restricted to complex contour tone. *$C_{OMPLEX}C_{ONTOUR}/I_{NITIAL}\sigma$ indicates this restriction. The candidate competition can be shown in (13).

(12) *$C_{OMPLEX}C_{ONTOUR}/I_{NITIAL}\sigma$: A complex contour tone cannot occur on the initial syllable in a multisyllabic word.

(13) Initial complex contour tone restriction

Input σ σ H L M T	$P_{ARSE}T_{ONE}$	$S_{PEC}T_{ONE}$	$L_{INEARIRY}$	*$C_{OMPLEX}C_{ONTOUR}/I_{NITIAL}$ σ	$L_{EX}T_{ONE}$

a. 				*!	
b. 					*

From the tableau we can see that the dipping tone [HLM] is simplified as [HL] in the initial position and there is no change on the second tone. "T" stands for any smooth tone on the second syllable.

In accordance with Li (1998), the current tone sandhi pattern originates from purl tonal combination, where two tones keep their citation forms in disyllabic word. Only tonal simplification takes place at this stage as in (13) and it may due to articulatory reason and speech rate. (13b) works as the input of the positional tone sandhi later.

After determining the input of the positional tone sandhi, a set of constraints are responsible for the left-headed metrical structure. (14a) is satisfied by parsing every syllable by foot. (14b) requires the alignment of a foot and a prosodic word. (14c) requires the stressed position to be on the left edge of a foot.

(14) Stress assignment constraints

a. $P_{ARSE}S_{YL}$: Syllables are parsed by feet.

b. $A_{LL}F_{T}L$: The left edge of a foot must be aligned with the left edge of a prosodic word.

c. T_{ROCHEE}: The head of a foot must be aligned with the left edge of the foot.

The tableau in (15) shows the optimal foot structure within a prosodic word. (15b) and (15d) are first ruled out by violating $P_{ARSE}S_{YL}$. (15c) is ruled out due to the position of the head, which is not initial and violating T_{ROCHEE}. Without violating any of these constraints, (15a) is the optimal output.

(15) Foot formation and stress assignment

Input $[\sigma\square\sigma]_{P_RW_D}$	$P_{ARSE}S_{YL}$	$A_{LL}F_{T}L$	T_{ROCHEE}
☞ a. $[(\sigma\square\sigma)]_{P_RW_D}$			
b. $[\sigma\square\sigma]_{P_RW_D}$	*!*		
c. $[(\sigma\sigma\square)]_{P_RW_D}$			*!
d. $[\sigma(\sigma\square)]_{P_RW_D}$	*!	*	

Finally, the word level tone melody will be determined according to the preserved tone in the stressed position which is restricted to complex contour tone. Constraints in (16) determine the positional tone retention and deletion (Li, 2003).

(16) Positional tone retention and deletion

a. $M_{AX}(T_{ONE})/\sigma$□: T must have a correspondence in the output if T is a tone on the stressed syllable in the input.

b. $*T_{ONE}$: Any TBU with a tone in the output is banned.

In Suzhou, the initial stressed syllable retains its input tone while the non-initial unstressed syllable loses its citation tone. This phenomenon can be captured by ranking $M_{AX}(T_{ONE})/\sigma$□ over $*T_{ONE}$, as show in the following tableau. $M_{AX}(T_{ONE})/\sigma$□ does not concern on the association between TBU and tones, therefore, both (17c) and (17d) satisfy $M_{AX}(T_{ONE})/\sigma$□. $*T_{ONE}$ makes (17d) to be the optimal output, which indicates that a syllable level tone becomes a word level tone melody.

(17) Positional tone retention and deletion

Input σ□ σ T_1 T_2 T_3 T_4	$M_{AX}(T_{ONE})/\sigma$□	$*T_{ONE}$
σ□ σ T_1 T_2 T_3 T_4		**!
σ□ σ T_3 T_4	*!	*
σ□ σ T_1 T_2		*!
☞ σ□ σ T_1 T_2		

Till now, the word level tone melody is determined by ranking the constraints responsible for stress assignment and positional tone preservation and deletion. The ranking must be as follows.

(18) $P_{ARSE}S_{YL}$ >> $A_{LL}F_{T}L$ >> T_{ROCHEE}
>>
$M_{AX}(T_{ONE})/\sigma$□ >> $*T_{ONE}$

4.2.2 Tonal assignment

Due to $P_{ARSE}T_{ONE}$ and $S_{PEC}T_{ONE}$, tones must be associated to syllables. The tone-syllable association and optimal tone sandhi pattern evaluation will be discussed one by one.

First, the ranking of $U_{NIFORMITY}$ determines the allowance of contour tone (Jiang-King, 1996). Assuming a contour tone consists of two level tones (Odden, 1995), $U_{NIFORMITY}$ prohibits the stressed syllable to bear a contour tone, while $I_{DENT}(T_{ONE})/\sigma$□ requires the stressed syllable to retain its input tonal specification (Li, 2003). This constraints competition is illustrate in (20).

(19)$I_{DENT}(T_{ONE})/\sigma$□: A tonal specification on a stressed syllable in the input must have a correspondence with an identical specification in the output.

(20) Constraint ranking determines the allowance of contour tone

Input	$M_{AX}(T_{ONE})/\sigma$□	$U_{NIFORMITY}$	$I_{DENT}(T_{ONE})/\sigma$□	Remarks
σ□ σ T_1 T_2				
a. σ□ σ T_1 T_2	√	√	*	Level tone allowed
b. σ□ σ T_1 T_2	√	*	√	Contour tone allowed

From (20) we can see that both (20a) and (20b) satisfy $M_{AX}(T_{ONE})/\sigma$□, since both of them retain the tone on the stressed syllable in the input. When $I_{DENT}(T_{ONE})/\sigma$□ is ranked over $U_{NIFORMITY}$, then contour tone can be retained on the stressed syllable. When $U_{NIFORMITY}$ is ranked over $I_{DENT}(T_{ONE})/\sigma$□, only level tone is allowed on the stressed syllable. Therefore, the two sandhi patterns of the high falling tone or the dipping tone can be captured by the interaction of these two constraints.

Second, tonal sonority hierarchy proposed in Jiang-King (1996) and de Lacy (2002) determines the optimal output of the sandhi pattern. This tonal sonority hierarchy plays an essential role when there is a position without a specified tone (20b) and a low tone is the optimal tone to be assigned to the vacant position.

(21) Tonal sonority hierarchy

$*N_{ON}H_D/H >> *N_{ON}H_D/M >> *N_{ON}H_D/L$: A low tone is the most unmarked tone on the unstressed syllable.

A violation marked is assigned when there is a low tone on the unstressed syllable. If there is a mid tone on this syllable, then two violation marks are assigned. Similarly, assign three violation marks if there is a high tone. Therefore, a low tone is better than a mid tone (22b) or a high tone (22c), and a simple level tone is better than a contour tone (22d).

(22) Tonal preference on the unstressed syllable

Input (σ□ σ) H L	*$N_{ON}H_D$/H>> *$N_{ON}H_D$/M>> *$N_{ON}H_D$/L
a. (σ□ σ) ☞H L L	*
b. (σ´ σ) H L M	**!
c. (σ□ σ) H L H	**!*
d. (σ□ σ) H L L M	**!*

From (20) and (22), we can also find out that *T_{ONE} can be ignored. On the one hand, candidate that satisfies *T_{ONE} must be ruled out due to the two high ranked constraints, $P_{ARSE}T_{ONE}$ and $S_{PEC}T_{ONE}$. On the other hand, tone on the second syllable is fixed due to the constraints interaction in (20) and (22). If the output satisfies $M_{AX}(T_{ONE})/\sigma$□ and $U_{NIFORMITY}$, the first and second syllable both bear a level tone. If the out put satisfies $M_{AX}(T_{ONE})/\sigma$□ and $I_{DENT}(T_{ONE})/\sigma$□, the tonal sonority hierarchy works and tone on the second syllable is assigned with a low tone.

By ignoring *T_{ONE}, there are two set of constraint ranking according to the sandhi pattern. The ranking for each optimal output is summarized in (23) and (24).

(23) [HL.L] as the optimal output

$M_{AX}(T_{ONE})/\sigma$□

>>

$I_{DENT}(T_{ONE})/\sigma$□ >> $U_{NIFORMITY}$

>>

$*N_{ON}H_D/H >> *N_{ON}H_D/M >> *N_{ON}H_D/L$

(24) [H.L] as the optimal output

$M_{AX}(T_{ONE})/\sigma$

>>

$U_{NIFORMITY} >> I_{DENT}(T_{ONE})/\sigma$

>>

$*N_{ON}H_D/H >> *N_{ON}H_D/M >> *N_{ON}H_D/L$

5. Conclusion

The neutralization of T3 and T5 sandhi in Suzhou Chinese shows the positional tone sandhi which is significantly related to the tone in stressed position. I propose there is only one word level tone melody (/HL/) for the disyllabic words whose initial tone is high falling or dipping.

$*C_{OMPLEX}C_{ONTOUR}/I_{NITIAL}\sigma$ is an essential constraints that provide the input of the positional sandhi. Constraints $P_{ARSE}S_{YL}$, $A_{LL}F_{T}L$ and T_{ROCHEE} determine the left-headed metrical structure in Suzhou, while $M_{AX}(T_{ONE})/\sigma$ and $*T_{ONE}$ determine the positional tone retention and deletion. The retained syllable level tone on the stressed syllable behaves as the word level tone in the remaining tone sandhi process.

The interaction between $U_{NIFORMITY}$ and $I_{DENT}(T_{ONE})/\sigma$ determines the allowance of contour tone on the stressed syllable. Contour tone is allowed when $I_{DENT}(T_{ONE})/\sigma$ is over ranked $U_{NIFORMITY}$. $*N_{ON}H_D/H >> *N_{ON}H_D/M >> *N_{ON}H_D/L$ requires a low tone to be associated to unstressed syllable. When $U_{NIFORMITY}$ is ranked over $I_{DENT}(T_{ONE})/\sigma$, only level tone is allowed. The first syllable is assigned with the first part of the tone melody, and the second syllable is assigned with the second part of the tone melody. I assume this constraint competition causes the two possible sandhi patterns of the prosodic words initial with a high falling tone or a dipping tone, instead of the historical syllable weight change.

A deep investigation of the tone melody needs to be taken in further study, as well as an exploration of the patterns in deliberate speech.

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The Origin and Nature of High Rising Diminutive Tone Change in Siyi Dialect

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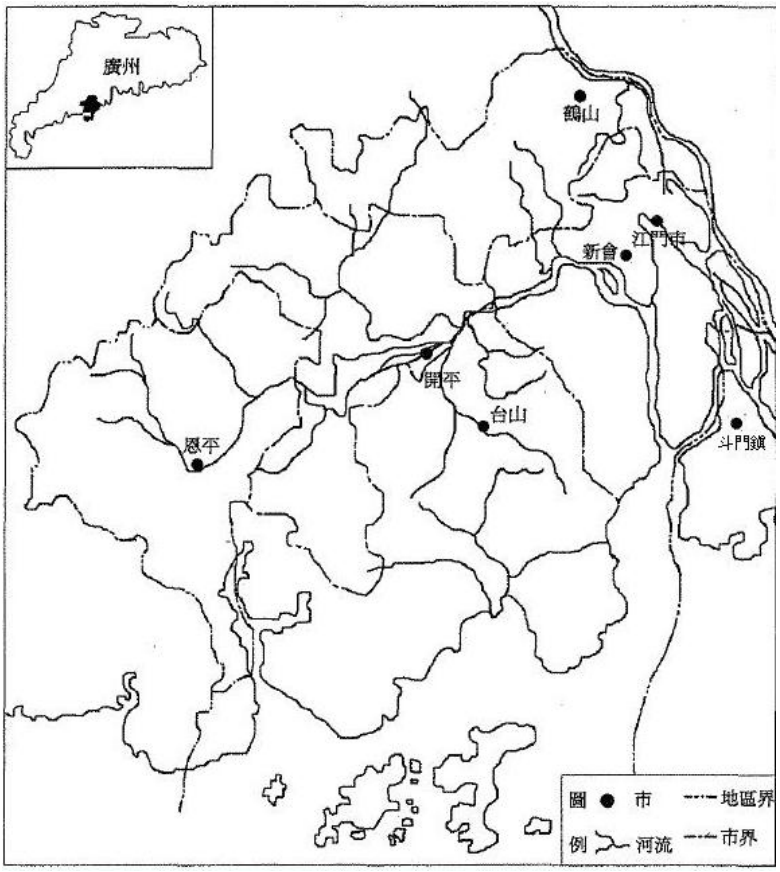
The Siyi area lies in the southwest of the Pearl River Delta, Guangdong Province in China. Occupying an intermediate position, the Siyi dialect links the Guangfu 廣府 Yue 粵 and the Western Yue in Guangdong and Guangxi, in both geographical and linguistic terms. This paper justifies that the origin and nature of high rising diminutive tone change in Siyi dialect could be traced to a diminutive suffix, though on the surface it only involves a tonal alternation. By means of discussing synchronic and diachronic references and documentations, we establish the hypothesis that the high rising *bianyin* in Siyi dialect is the debris fusion of the root word and the *er* 兒 suffix in an earlier stage. This is in line with diminutive forms in Western Yue, and also of great significance in considering all subgroups of Yue and picturing the Proto-Yue as a whole.

1. Introduction

1.1. Siyi Dialect

The Siyi 四邑 area lies in the southwest of the Pearl River Delta, Guangdong Province, and the term "Siyi" (literally 'four counties', also spelt as Sze Yup, Sze Yap, or Seiyap in English), is a historical concept, collectively referring to the four districts of Taishan 台山, Kaiping 開平, Xinhui 新會 and Enping 恩平. In addition to these four counties, the Siyi dialect, as a distinct variant of Yue 粵, is widely spoken in Jiangmen 江門, Doumen 斗門 and in some areas of Heshan 鶴山 as well. Siyi is nationally well known as the hometown of early overseas Chinese laborers, who spread all over the world, including Southeast Asia, Australia, New Zealand, and North America.

Map 1. The Siyi Area in Guangdong Province



1.2. Diminutive Tone Change

Diminutives (known as *xiaocheng* 小稱 in Chinese), as typically understood, are words formed by a morphological device that adds a semantic element of *smallness* to the meaning of the stem. Since tiny items can easily gain our affection, diminutives are often used for expressing intimacy and endearment. In Chinese, diminutives generally occur with nouns and classifiers, both of which are nominal in nature, since objects are the very things people think of in terms of size, and almost all classifiers are derived from nouns. As a result, diminutive forms are commonly applied to words in their colloquial readings (known as *baidu* 白讀 in Chinese) referring to daily-life items, everyday tools, colloquial address, familiar animals, vegetables, and places, and so forth.

In world languages, a variety of morphological devices can be employed to form diminutives, including affixation, reduplication, changes of noun-class or gender, and shift of consonant, vowel, or tone (Jurafsky 1996: 534). Among them, affixation is the most commonly used device (Dahl 2006). For example, in English the suffixes *-ette*, *-ling* and *-let* can be added to the nouns *kitchen*, *duck*, and *pig*, yielding diminutives *kitchenette* 'small kitchen', *duckling* 'young duck', and *piglet* 'young pig'. Diminutive suffixes used

in Chinese dialects include *er* 兒, *zai* 仔, and *jian* 囝 etc., all meaning 'son', with *er* 兒 as the most widespread one, found in both Northern and Southern dialects. In Pekinese, the suffixation of *er* 兒 takes the form of rhotacization, in which the syllable *er* 兒 [ər] loses its syllabicity, and [-r] as a sub-syllabic suffix is attached to the final of the root, resulting in a series of rhotacized (or, retroflex) rimes. Loss of syllabicity of the diminutive suffix *er* 兒 is also attested in Southern dialects such as Western Yue 西部粵語 and Southern Wu 南部吳語, where the root rime is affixed either with the nasal initial ([n], [ɳ] or [ŋ]) of *er* 兒 or with a [+nasal] feature. In some dialects the *er* 兒 affixation is coupled by a diminutive tone change. Below are some examples from Southern Wu (Shao 1997a):

Table 1.1. Diminutives in Southern Wu

Type	Example	Root	Diminutive	Dialect	Meaning	Note
Er 兒 Suffixation	牛兒	ȵiə^{44}	ȵiə^{44} nə^{03}	Lanxi 蘭溪	calf	
Bianyun 變韻[1]	蓋（兒）	ke^{55}	ke:n^{55}	YiwuShangyi 義烏尚經	cover	The main vowel of the root prolongs, and the initial of *er* 兒 becomes the coda of the root syllable.
	白果（兒）	ko^{31}	koŋ^{31}	Tongjiaqiao 童家橋	gingko seed	The initial of *er* 兒 becomes the coda of the root syllable.
Bianyun 變韻 + *Bianyin* 變音[2]	蓋（兒）	kɛ^{52}	keŋ^{534}	Tangxi 湯溪	cover	The initial of *er* 兒 becomes the coda of the root syllable, and the tone changes from [52] to [534].

In contrast, the Siyi dialect aligns with Cantonese and some other Wu dialects in that the diminutive formation processes only involves *bianyin*, as illustrated by the examples in Table 1.2 (Shao 1997b, Mai 1995, Gan 2002):

Table 1.2. *Bianyin* in Wu and Yue

Type	Word	Original			*Bianyin*			Locality	Dialect
		Context	Syllable	Meaning	Context	Syllable	Meaning		
Bianyin 變音	樹	樹	ʑy^{24}	tree	樹	ʑy^{22}	small tree	Yongkang 永康	Southern Wu
	鵝	雞鴨鵝	ŋɔ^{21}	chicken, duck and goose	燒鵝	ŋɔ^{35}	grilled goose	Guangzhou 廣州	Cantonese
	車	車貨	ʧhɛ^{53}	to convey	單車	ʧhɛ^{55}	bicycle		

[1] *Bianyun* in this paper refers to *diminutive rime change*.
[2] *Bianyin* in this paper refers to *diminutive tone change*.

	房	房屋	fɔŋ^{22}	house	一間房	fɔŋ^{11}	one room	Huicheng 會城	Siyi
	金	金色	kim^{33}	golden	金子	kim^{35}	gold	Taicheng 台城	

1.3. Significance

The present study is meaningful for a number of reasons.

First of all, previous studies on diminutives in Yue have been largely devoted to Cantonese, as well as, to a lesser extent, some other Yue varieties, particularly those spoken in Western Guangdong and Southeastern Guangxi, and our knowledge of diminutives in Siyi is very limited. With the exception of Yue-Hashimoto (2002), there has been as yet no systematic examination of diminutives in a particular Siyi variant, let alone comprehensive comparative studies among different variants of the Siyi dialect. A number of aspects of the subject matter merit further investigation.

Furthermore, earlier work on diminutives of Southern Wu and Western Yue has revealed an intimate relation of *bianyin* with the *er* 兒 'son' suffixation. The diminutive devices in such dialects, particularly in Southern Wu, form a continuum from the simple *er* 兒-suffixation, *bianyun* (usually in the form of a fusion between the rime of the root with the nasal initial of the syllable *er* 兒), *bianyin* + *bianyun*, and *bianyin* alone, suggesting that the genesis of *bianyin* might be traceable to the *er* 兒-suffixation and some accompanying features. The origin of diminutive forms in Yue is less transparent, and whether *bianyin* has anything to do with the *er* 兒-suffixation is still controversial, largely due to insufficiency of available data, particularly the missing intermediate link in the possible path of development from the *er* 兒-suffixation to *bianyin*. Since the Siyi dialect occupies just such an intermediate position, in both geographical and linguistic terms, linking the Guangfu 廣府 Yue and the Western Yue in Guangdong and Guangxi, a more careful investigation of the Siyi dialect may be expected to shed new light on the historical development of diminutive devices in Yue as a whole.

1.4. My Fieldwork

The corpus of the current research comes from various sources. The data of the Xinhui 新會 dialect, including Huicheng 會城, Siqian 司前, Hetang 荷塘, Tangxia 棠下 and Liyue 禮樂, are primarily collected from my own fieldwork, and those of Taishan, Kaiping and Enping mainly come from previous studies. What follows is a summary.

Map 2. The Principal Dialectal Spots

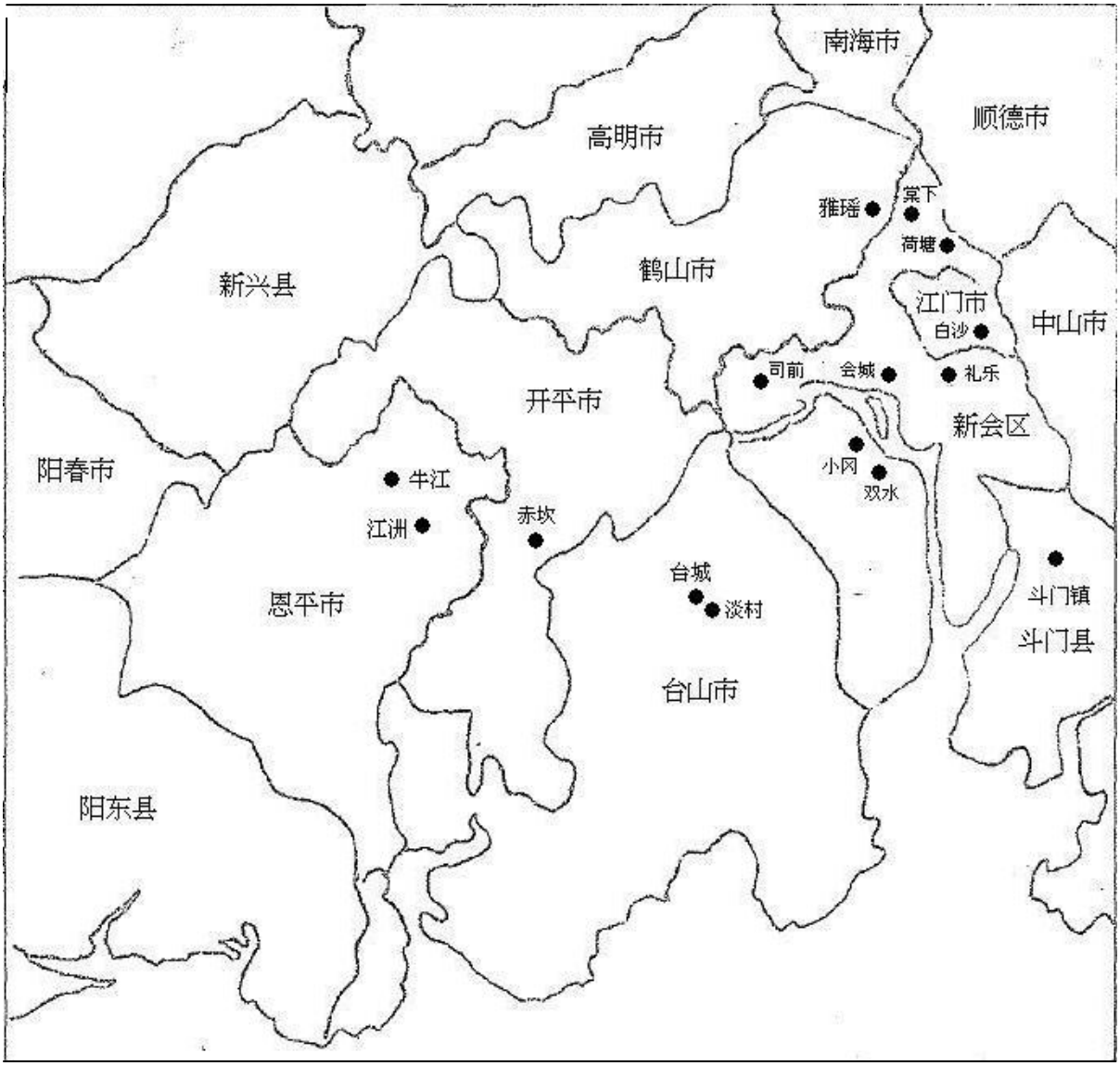


Table 1.3. The Sources of Data

Dialect	District	Source
Huicheng 會城	Xinhui 新會	my own fieldwork
Tangxia 棠下		
Liyue 禮樂		
Hetang 荷塘		my own fieldwork, Xin (2002), Chow & Shum (2007)
Siqian 司前		my own fieldwork, Tong (2004)
Taicheng 台城	Taishan 台	Chen (1966), Zhan & Cheung (1987), Huang & Ye

	山	(1990)
Dancun 淡村		Yue-Hashimoto (2002, 2005)
Chikan 赤坎	Kaiping 開平	Zhan & Cheung (1987), Deng (2000)
Jiangzhou 江洲	Enping 恩平	Shum (2003)
Niujiang 牛江		Zhan & Cheung (1987)

I recorded the corpus of Xinhui in a secondary school in Huicheng, and my informants were local teachers from the following four towns: Tangxia, Hetang, Liyue and Siqian. Huicheng is the county seat of Xinhui, and my father served as my informant for this diapoint. The table below provides some background information of my informants.

Table 1.4. Background Information of the Informants

Name	Age	Gender	Dialect	Language Background
TXQ	54	Male	Huicheng 會城	born, raised, and living in Huicheng all the life
LWW	39	Female	Tangxia 棠下	born and raised in Tangxia, currently working in Huicheng
ZQS	35	Male	Hetang 荷塘	born and raised in Hetang, currently working in Huicheng
TZH	38	Male	Liyue 禮樂	born and raised in Liyue, currently working in Huicheng
TQN	38	Female	Siqian 司前	born and raised in Siqian, currently working in Huicheng

2. Diminutive Tone Changes in Siyi Dialect

It is widely accepted that there are three major diminutive tone change forms in Siyi dialects, all adopting the *bianyin* device, i.e., Low Falling *Bianyin*, High Rising *Bianyin* and High Level *Bianyin*.

2.1. Low Falling *Bianyin*

Most Siyi varieties have a low falling diminutive tone [11]/[11] or [21]/[21], which is identical to Yangshang Category in value and contour. The following table provides some examples in the Huicheng dialect.

Table 2.1. The Low Falling *Bianyin* Syllables in Huicheng

Initial Syllable with Low Falling *Bianyin*			Final Syllable with Low Falling *Bianyin*		
Word	Syllable	Meaning	Word	Syllable	Meaning

蝦米	**ha^{11}** mai^{45}	dried shrimp	香蕉	hiɔŋ^{33} **tsiu^{11}**	banana
褲腳	**fu^{11}** kiɔk$^{\underline{33}}$	trouser legs	洗衫	sai^{45} **sam^{11}**	to wash clothes
鑊鏟	**vɔk$^{\underline{11}}$** tshan^{45}	rice ladle	頭殼	hau^{22} **hɔk$^{\underline{11}}$**	head
魚骨	**ŋi$^{22\text{-}11}$** kwət$^{\underline{55}}$	small fish bones	田基	hin^{22} **kei$^{33\text{-}11}$**	paths between fields
婆嫲	**phɔ$^{22\text{-}11}$** na^{45}	woman	狗竇	kau^{45} **tau$^{21\text{-}11}$**	kennel
尺寸	**tshiak$^{\underline{33}\text{-}\underline{11}}$** tshən^{33}	measurement	吃藥	hiak^{33} **jiɔk$^{\underline{21}\text{-}\underline{11}}$**	to take medicine

2.2. High Rising *Bianyin*

Generally speaking, the high rising *bianyin* in the Siyi dialect is formed by attaching a highest pitch [5] to the end of the target syllable, the actual shape hinging on its original value and contour. Moreover, the highest pitch [5] can be added after a low falling [21]/[$\underline{21}$] or [11]/[$\underline{11}$], indicating that the high rising *bianyin* can also occur in syllables that have already undergone the low falling *bianyin*. Hence, we can detect ample examples in which one root carries more than one -- three at most -- changed tone simultaneously to denote diminutives:

$\underline{\text{Taicheng:}}$[3]

包動作	**pau^{33}**	‘to wrap’
包量詞	**pau^{11}**	‘classifier’
包名詞	**pau^{35}**	‘round dumpling’
梳動作	**sɔ^{33}**	‘to comb’
梳名詞	**sɔ^{35}**	‘comb’

$\underline{\text{Dancun:}}$

帶動作	**ʔai^{33}**	‘to lead’
褲帶	fu^{21} **ʔai^{21}**	‘waist belt’
鞋帶	hai^{22} **ʔai^{35}**	‘shoe lace’

$\underline{\text{Chikan:}}$[4]

蓋動作	**kɔi^{33}**	‘to cover’
蓋名詞	**kɔi^{11}**	‘cover’

[3] [35] is the short form of [335].
[4] [25] is the short form of [225].

	筆**蓋**	vet^{55} **kɔi^{115}**	‘pen lid’
	船	**suɔn^{22}**	‘ship’
	行**船**	haŋ^{22} **suɔn^{25}**	‘to work as a sailor’
Jiangzhou:			
	長沙	ʦhiɔŋ^{22} **sa^{33}**	‘place name’
	沙石	**sa^{21}** siak^{21}	‘sand and stone’
	沙	**sa^{215}**	‘sand’
	金銀	**kiam^{33}** ŋan^{22}	‘gold and silver’
	黃金	vɔŋ^{22} **kiam^{35}**	‘gold’
	芥**菜**	kai^{33} **tshuai^{33}**	‘mustard green’
	芍**菜**	siɔk$^{5\text{-}215}$ **tshuai^{21}**	‘chard’
	芥勒**菜**	kai^{33} lak^{5} **tshuai^{215}**	‘one type of edible wild herbs’
	鹹**菜**	ham^{22} **tshuai^{35}**	‘preserved vegetable’

2.3. High Level *Bianyin*

The high level *bianyin* in Siyi, which takes a highest pitch [45]/[55]/[55], is identical to Yinshang and Upper Yinru in tone value. It constitutes a rather small proportion of all diminutives, compared with the low falling and the high rising *bianyin*. Below are examples in Taishan, Kaiping, Enping from Deng (2000) and Gan (2003):

Table 2.2. High Level *Bianyin* Words in Siyi and Their Counterparts in Cantonese

Word	Meaning	Taicheng	Chikan	Jiangzhou	Huicheng	Cantonese
阿**姨**	young lady	a^{33} **ji^{55}**			a^{33} **ji^{45}**	a^{33} **ji^{55}**
阿**姨**	mother’s younger sister		a^{33} **ji^{55}**			a^{33} **ji^{55}**

公	old man		vak^{5} jɛ^{55} **kuŋ^{55}** (伯爺公)	lɔu^{55} mian^{55} **koŋ^{55}** (老抿公)		pak^{33} jɛ^{55} **kuŋ^{55}** (伯爺公)
伯爺公	old man	**pak^{5}** jɛ^{55} kɵŋ^{15}	**vak^{5}** jɛ^{55} kuŋ^{55}		**pak^{5}** tia^{35} (伯爹)	**pak^{33}** jɛ^{55} kuŋ^{55}
笠衫		lep^{5} **sam^{55}**		liap^{5} **sam^{55}**		lɐp^{5} **sam^{55}**
麻雀	mah-jong	ma^{22} **tiak^{5}**	ma^{22} **tiɛk^{5}**	ma^{22} **tsiɔk$^{\underline{55}}$**		ma^{11} **tsiɔk^{35}**
雀	bird	ma^{22} **tiak^{5}** (麻雀)	vɔ^{22} **tiɛk^{5}** (禾雀)		**tsiɔk^{55}**	**tsiɔk^{35}**
瓦渣	debris	ŋa^{55} **tsa^{55}**	ŋa^{55} **tsa^{55}**			**tsa^{55}**
水腳	travelling expenses	sui^{55} **kiak^{5}**	sui^{55} **kiɛk^{5}**			
上高	above		siɛŋ^{32} **kɔ^{55}**			siɔŋ^{22} **kou^{55}**

3. The Nature and Origin of High Rising *Bianyin*

This paper focuses on the second type of diminutive tone changes, that is, the high rising *bianyin*. To better understand its origin and nature, in this section we firstly conduct a brief comparison of diminutive forms employed by different Yue varieties, particularly those spoken in Western Guangdong and Guangxi such as Yulin 玉林, Rongxian 容縣, Xinyi 信宜, Gaozhou 高州, Huazhou 化州, etc, which lie to the west of the Siyi district, forming a geographically contiguous region and a linguistic continuum.

3.1. A Typology of Diminutive Forms in Yue Dialects

Previous studies have convincingly demonstrated that diminutive forms in many Yue varieties in Western Guangdong and Southwestern Guangxi region are intimately related to the well-known *er* 兒-suffixization, attested as the major diminutive device in Northern Chinese dialects and some of the Southern dialects such as Wu, but rarely found in present-day Cantonese and the majority of Yue varieties of the Guangfu subgroup. In connection with this, an interesting question naturally arises: Do Siyi diminutive forms have anything to do with the *er* 兒-suffixization? To answer the question, a brief typological overview of diminutive forms across Yue varieties is needed.

3.1.1. *Bianyin* 變音 + *Bianyun* 變韻

Simultaneous employment of *bianyin* and *bianyun* is characteristic of diminutive forms in a considerable number of Yue varieties distributed in Western Guangdong and Southeastern Guangxi. This type can be further divided into two sub-types, with Xinyi in Guangdong and Yulin in Guangxi as representatives.

3.1.1.1. The Xinyi 信宜 Type

There is only one changed tone for diminutives in Xinyi, which possesses a high

rising pitch identical to none of the lexical tones. The pitch, designated by a rising signal "↗" in the literature, may involve the use of a very special type of vocal phonation known as falsetto, and thus is extremely high, well exceeding what the highest point [5] in the standard 5-degree tone-letter system could capture.

The *bianyun* for finals in Xinyi follows three rules as shown below:

1) For coda-less open syllables, an [n] is added to the ending: C V → C V n
2) For syllables with a stop coda, the stop changes to a homorganic nasal:
   C V C_S → C V N (C_S = [p t k] N = [m n ŋ])
3) For syllables with a nasal or vowel coda, the ending remains unchanged:
   C V_1 V_2 → C V_1 V_2; C V N → C V N (N = [m n ŋ])

Rongxian is similar to Xinyi, except that a high rising [35] serves as the *bianyin* and its *bianyun* merely occurs in Rusheng syllables with a stop coda. In other words, coda-less syllables remain unchanged in Rongxian, just as those with nasal or vowel endings do. Some examples from these two dialects are listed in the following table (Ye & Tang 1982, Zhou 1987).

Table 3.1. Diminutives in Xinyi and Rongxian

Dialect	Word	Origin	Diminutive	Meaning	Word	Origin	Diminutive	Meaning
Xinyi 信宜	試	ʃi^{33}	ʃin↗	test	姑	ku^{53}	kun↗	aunt
	鴨	ap^{33}	am↗	duck	屋	ʔuk^{55}	ʔuŋ↗	house
	頭	thɐu^{11}	thɐu↗	head	深	ʃɐm^{53}	ʃɐm↗	deep
Rongxian 容縣	魚	ŋy^{31}	ŋy^{35}	fish	鎖	θø^{33}	θø^{35}	lock
	菜	thoi^{22}	thoi^{35}	vegetable	扇	sin^{22}	sin^{35}	fan
	碟	tep^{1}	tem^{35}	dish	腳	kek^{3}	keŋ^{35}	foot

3.1.1.2. The Yulin 玉林 Type

Similar to Rongxian, the Yulin dialect only allows *bianyun* to occur in Rusheng syllables, where a homorganic nasal will take the place of the original plosive consonant, serving as a new coda. Nonetheless, Yulin distinguishes itself from the aforementioned two dialects in its *bianyin* rules. Instead of adopting a single, unified tone, the *bianyin* in Yulin takes different values, hinging on the contour of the target syllable's lexical tone (Zhang & Zhou 1993):

1) [+high] / [+mid] / [+level] (Yin) + 兒 [55] → high level [44] or mid rising [34]
2) [+low] / [+falling] (Yang) + 兒 [55] → low rising [24]

It is evident that the three *bianyin* variants result from a tonal fusion between the tone of the target syllable and that of the already vanished *er* 兒 suffix.

3.1.2. *Bianyin* 變音 Alone

This type is rarely found in Western Guangdong and Southeastern Guangxi Yue varieties. In other words, diminutive forms in such dialects retain more or less certain residues of the *er* 兒 suffix in the rime, particularly in Rusheng syllables.

On the other hand, this type prevails in Cantonese and other Yue varieties of the Guangfu subgroup, where *bianyin* is used as the only diminutive device, involving no change in the rime. Therefore, whether the high level [55] and high rising [35] *bianyin* forms in Cantonese have anything to do with the *er* 兒-suffixization remains a controversial issue. On the basis of available data, it is difficult to reject either of the following two hypotheses. (1) The *bianyin* is autogenous, independent of any kind of diminutive suffixization such as the *er* 兒-suffixization. (2) The *bianyin* in the Guangfu Yue dialects is the remnant of a high-pitched *er* 兒 suffix which might have existed in Common Yue at an earlier stage but is lost in the majority of its modern varieties, even in the most conservative Rusheng syllables. The two *bianyin* forms can be plausibly derived via a single process of tonal fusion between the lexical tones and the postulated high-pitched *er* 兒 suffix: the fusion between the Yinping [53] and the tone of *er* 兒 [55] results in the high level *bianyin* [55], and that between the relatively low-pitched non-Yinping tones (i.e., [11], [35], [13], [33], [22], etc.) and [55] results in the high rising *bianyin* [35].

3.2. The Origin of Siyi High Rising *Bianyin*

On the surface, the high rising *bianyin* in Siyi only involves tonal alternation and it seems to be an independent diminutive device. But several pieces of evidence lead us to the hypothesis that its origin could be traced to a diminutive suffix.

First of all, the contour configuration of the high rising *bianyin* in Siyi dialect strongly suggests that it is the result of a tonal fusion, i.e., the fusion between the original lexical tone and a high-pitched tone [5]. In other words, it patterns with the Yulin type, and it is likely that this high-pitched tone could be ascribed to a certain diminutive suffix with the highest pitch [5]. Chances are that this diminutive suffix is lost in history, leaving its tonal residue attached to the preceding target morpheme.

Moreover, besides the high rising *bianyin*, diminutives in Huicheng can also be expressed by adding an extra high-pitched syllable [ə^{45}] to the target words, especially when in slower speech. According to Deng's (2000) report, a similar syllable [e^{55}] is also found in the Chikan dialect of Kaiping. In terms of distribution it is more constrained than its Huicheng counterpart, as it can only be attached to Rusheng syllables, while the syllable [ə^{45}] in Huicheng is not subject to this constraint. Below are some examples from the two dialects:

Huicheng:			
有時	jəu^{11} **si^{225}**	jəu^{11} **si^{22} ə^{45}**	‘sometimes’
khui^{11}排	khui^{11} **phai^{225}**	khui^{11} **phai^{22} ə^{45}**	‘recently’
Chikan:			
白鶴		vak^{32} **hɔk^{21} e^{55}**	‘white crane’

The extra syllables [ə^{45}] and [e^{55}] are transparently identical given their clear similarity in phonetic form and the close affinity between the two dialects, and can be regarded as a kind of diminutive suffix possibly traceable to the stage of Common Siyi. In tracing its history, there are two possibilities to consider:

1) At an earlier stage, the extra syllable could only occur with Rusheng syllables, as is the case of the present-day Chikan dialect;
2) At an earlier stage, the extra syllable could occur with syllables in all tonal categories, as is the case of the present-day Huicheng dialect.

The second scenario becomes apparently more plausible when the situation of other Yue varieties, particularly those spoken in Western Guangdong and Southeastern Guangxi, is taken into comparison. The *bianyun* forms resulted from the *er* 兒-suffixization in Rongxian and Yulin clearly indicate that Rusheng syllables with a plosive coda are more conservative in retaining remnant features of the diminutive suffix than those with a nasal, vowel or zero coda. Likewise, it is better to regard the Chikan [e^{55}] after Rusheng syllables as a residue, reminiscent of a wider distribution at an earlier historical stage. In other words, there is a striking parallel between the syllable [e^{55}] in Chikan and the [+nasal] feature in Rongxian and Yulin, where the diminutive suffix or its remnant feature can only occur with Rusheng syllables, and Huicheng is more like Xinyin in that the distribution of the diminutive suffix or its remnant feature is less constrained.

Of course, one may raise the objection that [e^{55}]/[ə^{45}] could be nothing but an autogenously generated dummy syllable rather than a diminutive suffix. It is reasonable if one only takes the case of Chikan into consideration, as Rusheng (checked) syllables are hardly suitable to be a TBU (tone bearing unit) for high and long pitch since they are short and abrupt. But when it comes to the Huicheng dialect, where words in all tonal categories can be appended with an [ə^{45}], such an opinion becomes difficult to hold.

Admittedly, it is fairly difficult to ascertain the etymology of this [ə^{45}]/[e^{55}]. It could be a diminutive suffix that was extensively used in Guangdong but ultimately lost without any trace in most contemporary Yue varieties, or it might even be a substratum suffix inherited from Baiyue 百越 languages, which have a long history of interaction with Southern Chinese dialects. But there exists no concrete evidence that could either

verify or falsify such an assumption. Nonetheless, it is not implausible, if not entirely satisfactory, to hypothesize that the suffix could be identified as exactly the diminutive suffix *er* 兒, which is not only used in Mandarin and Southern Wu, but also widely distributed in Western Yue.

To begin with, although *er* 兒 is no longer used in colloquial speech of today's Siyi dialects, and its typical pronunciation (such as [ŋi^{22}] in Huicheng, Jiangzhou and Niujiang) departs drastically from [ə^{45}]/[e^{55}] in terms of initial, final, as well as tone, our assumption can nonetheless find some support in the pronunciation data of the morpheme *er* 兒 provided by previous studies.

Table 3.2. The Pronunciation of *Er* 兒 in Siyi Varieties

	Huicheng	Shuangshui[5]	Taicheng	Chikan	Haixin[6]	Jiangzhou	Niujiang
The Author's Observation	ŋi	ŋi					
McCoy (1966)			**ŋei**		**ŋei**		
Zhan & Cheung (1987)	ŋi		ŋi	**ŋei**			ŋi
Huang & Ye (1990)			**ŋei**				
Deng (2000)				**ŋei**			
Shum (2003)						ŋi	

The table shows that *er* 兒 is pronounced as either [ŋi] or [ŋei] in different Siyi varieties. Many other words that have the same MC phonological status (i.e. Grade III of Category *Zhi* 止攝三等), such as *er* 耳 'ear' and *er* 二 'two', are read as [ŋei] in most Siyi varieties, as shown in the following table.

Table 3.3. The Pronunciation of *Er* 耳二 in Siyi Varieties

	Huicheng	Shuangshui	Taicheng	Chikan	Haixin	Niujiang
The Author's Observation	ŋi	**ŋei**				
McCoy (1966)			**ŋei**		**ŋei**	
Zhan & Cheung (1987)	ŋi		**ŋei**	**ŋei**		ŋi
Huang & Ye (1990)			**ŋei**			
Deng (2000)				**ŋei**		

It is fairly explicit that the alternate pronunciations of syllables in Grade III of Category *Zhi* should be attributed to two different strata in Siyi, with [i] as the literal

[5] Shuangshui 雙水 is a town in Xinhui. Compared with Huicheng, the county seat, Shuangshui receives much less influence from Standard Cantonese.
[6] Haixin 海心 is a town in Kaiping.

reading and [ei] as the colloquial one. The literal-colloquial distinction can easily account for the difference in pronunciation between *er* 耳二 and *er* 兒 in today's Siyi varieties: 耳 and 二 are frequently used as colloquial words in everyday speech, and consequently the colloquial reading [ŋei] prevails in Siyi; whereas 兒 is no longer used as a colloquial word, and thus only the literal reading [ŋi] is available to most Siyi varieties. We may further hypothesize that, at an earlier historical stage when 兒 was used in the colloquial speech of Siyi (as it is in many Western Yue varieties), it was read as [ŋei].

Therefore, it is not impossible for [ŋei] to evolve into something like [ə] or [e] at the 'weak' position of a suffix. The schwa [ə] occupies the central place in the vowel space, which nearly all vowels could easily change into when weakened. As for the origin of the syllable [e] in Chikan, it could be reasonably conceived as a result of erosion of the original [ŋei], with its initial and coda lost.

A potentially vulnerable point in our claim is that in nearly all southern Chinese dialects where the *er* 兒-suffixation is used as a productive diminutive device (i.e., Yue varieties spoken in Western Guangdong and Southeastern Guangxi, and Southern Wu), reduction of the pronunciation of the suffix often results in the loss of its rime, with its nasal initial fused into the preceding syllable, but in the Siyi dialect it is the main vowel rather than the nasal initial that is preserved as a residue of the whole syllable after reduction. Nevertheless, the postulated sound change is articulatorily possible; and moreover, a similar change can be found in today's Siyi dialects.

The syllabic reduction we postulated for the diminutive suffix finds a parallel case in the perfective aspect suffix in a number of Siyi varieties. According to Gan & Shao (2001), the etymology for the perfective aspect marker in Siyi is *dao* 到/倒, which is also found in quite a few southern dialects. The following table compares pronunciations of the character *dao* 到/倒 and the perfective aspect marker in several Siyi diapoints.

Table 3.4. The Pronunciation of *Dao* 到/倒 and Perfective Aspect Markers in Siyi Varieties

	Taicheng	Huicheng[7]	Chikan	Jiangzhou	Niujiang	Yayao
dao 到/倒	au	tou	ɔ	tɔu	tau	ɛ
Perfective Aspect Marker	ə	tæu	e	a	a	e

The syllabic reduction of the perfective aspect marker *dao* 到/倒 is strikingly parallel to that of *er* 兒. Compare:

1) Vowel reduction to schwa [ə]:

[7] According to the author's observation, the perfective aspect marker in Huicheng is read as [ə^{33}] instead of [tæu].

[ŋei] → [ə] [au] → [ə]
2) Lose of initial and coda:
[ŋei] → [e] [tau] → [a]

Furthermore, though the tone of *er* 兒 is consistently Yangping in its literal reading in most Yue varieties, when used as a suffix, its tone in the colloquial reading is predominantly a high level [55] in a significant number of Western Yue varieties, which is in general not identical to the lexical tone of Yangping (Chen, Xiaojin 2007; Xie 2007; Chen Xiaoming 2007; Liang 2007).

Table 3.5. The Colloquial Reading of *Er* 兒 as a Diminutive Suffix

Dialect	Example			Yangping Tone	Tone Category for [55]
	Word	Syllable	Meaning		
Nankang 南康	仔兒	tsɐi^{35} **ŋi^{55}**	young man	21	Yinping
Bobai 博白	鴨兒	ap^{33} **ɲi^{55}**	little duck	232	
Daxin 大新	桌兒	**ɲi^{55}**	small table	33	
Xiaojiang 小江	雞兒	kɐi^{55} **ɲi^{55}**	chicken	22	
Cantonese	乞兒	hɐk^{5} **ji^{55}**	bagger	11	

It is clear that *er* 兒 tends to adopt the high level tone [55] when serving as a suffix, that is, in its colloquial reading. The regular Yangping tone of *er* 兒 in various Yue varieties is associated with its literal reading rather than colloquial reading, and we believe that the colloquial reading of *er* 兒 in Siyi at an earlier stage could be reconstructed as [ŋei^{45}] or [ŋei^{55}], from which [ə^{45}]/[e^{55}] could be easily derived.

In summary, it is rather conclusive that the high rising *bianyin* in Siyi belongs to the Yulin type of diminutive forms, except that the origin of its diminutive suffix [ə^{45}]/[e^{55}] is not as transparent as its Yulin counterpart. Nevertheless, in absence of a better candidate, *er* 兒 could be considered as the most plausible origin of the suffix [ə^{45}]/[e^{55}], which is in turn held responsible for the rise of the high rising *bianyin* in Siyi.

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Is Chinese a Negative Concord Language?

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This study attempts to account for the apparent negative concord phenomena in Southern Min where two negatives (*m* and *bian*) co-occur without canceling each other out. I argue that this is not an instance of NEGATIVE CONCORD.

1. Introduction

Like Standard English, Chinese[1] is well known as a DOUBLE NEGATIVE language, yet there are occasions where two negatives co-occur such as in (1). The two negatives in Southern Min, namely *m* and *bian*, do not yield a positive reading, however.

(1) tsit.si sit tsi **m** **bian** uan.than[2]
temporarily lose hope M need.not sadden
'You need not feel saddened due to your temporary loss of hope.'

Lien (2008) briefly notes cases like this as an instance of NEGATIVE CONCORD. This is linguistically marked as Southern Min mirrors Mandarin Chinese in terms of its syntactic behaviors. Is the negation in (1) by definition negative concord? A basic inquiry of this study is: Does the Chinese language permit negative concord at all?

This paper is organized as follows. In Section Two, I compare double negation with negative concord before diagnosing Southern Min data in Section Three. Section Four provides further evidence from contemporary corpora, followed by possible accounts in Section Five for the particular phenomenon summarized in 1. Section Six is the conclusion.

2. Double Negation vs. Negative Concord

This section characterizes double negation (DN) vs. negative concord (NC), particularly focusing on the latter type of negation. The discussion is for a later section where I argue that Southern Min does not exhibit negative concord.

2.1 Double Negation

[1] Chinese is used here in a more general sense.
[2] 一時失志毋免怨嘆, a line taken from a Taiwanese Southern Min popular song

DOUBLE NEGATION (DN) is by definition when two negatives cancel each other out (Haegeman 1995: 78). Modern Standard English and Mandarin are typical double negative languages; see examples (2)-(4) and (5)-(7), respectively for each language.

(2) I ca**n't not** invite a colleague of whom I'm not a big fan.
(3) I did**n't** eat **nothing**.
(4) She ca**n't** believe that there is **nothing** he can do about it.

The English examples illustrate that negative constituents are not necessarily of the same type or form. For instance, the contraction *n't* in (2) is often considered a clitic; *nothing* in (3) is an indefinite pronoun, and the two negatives in 4 are in different clauses.

(5)	**mei**.you	ren	**bu**	ai	qian	de.	Mandarin	
	NEG.have	person	NEG	love	money	DE		
	'We all love money.'							
(6)	ta	**bu**.hui	**mei(you)**	dai	qian	lai.	Mandarin	
	3sg	NEG.will	NEG	carry	money	come		
	'He will bring money with him.'							
(7)	ni	**bu**.yinggai	**bu**	qu.	Mandarin			
	2sg	NEG.should	NEG	go				
	'It is obligatory that you go.'							
(8)	ni	**fei**	qu	(**bu**	ke).	Mandarin		
	2sg	NEG	go	NEG	allow			
	'You must go.'							

Sentences (5) and (6) exhibit the two commonly used negatives, *bu* and *mei*, in one sentence with different word order. *bu* is used twice in (7); (8) is a strong demand and in some cases, *bu ke* may be omitted, leaving the double negative sentence with one negative marker *fei*.

2.2 Negative Concord

NEGATIVE CONCORD (NC), on the other hand, represents cases where only a single negation out of multiple negative constituents gets interpreted (Crystal 2003: 94). As such, negative concord is also known as multiple negation. Languages documented as NC include the so-called "non-standard" English, French, Spanish, Greek, Arabic, Romanian, Polish, and so on.

Two concepts are essential in defining NC: the N-ELEMENTS and N-WORDS (e.g., Hergurger 2001). For example, *n-* in (9) is the N-element that licenses the N-words following it—*rien* and *personne*, the two of which express negation in independent contexts, as shown in the word-by-word transcription.

(9) Personne **n**'a rien dit à **personne**. French
No one NEG-has nothing said to nobody
'No one said anything to anyone.' (Déprez 1997: 107)

The so-call N-words[3] (Laka 1990) are typically negative indefinite items in NC languages, such as 'nobody' and 'nothing' in English. However, the equivalent 'nobody' in concord constructions cannot be interpreted as 'nobody'. For example, the second *personne* in (9) can't read as 'nobody'. Briefly, the negation in *rien* and *personne* is overridden due to the concordance effect (Déprez 1997: 106).

Nonetheless, English also has negative concord to verbs, aside from indefinites; see (10). Again, an indefinite such as *none* participates in such a sentence.

(10) None of 'em ca**n't** fight. (Labov 1972: 786)
'None of them can fight.'

There are two types of NC, namely negative doubling and negative spread (Ionescu 1999: 25). (11a) exemplifies the former and (11b) the latter (Ionescu 1999: 25-26).

(11) a. Ion *(**nu**) mai vizitează pe **nimeni**. Romanian
John **not** any more visits PE **nobody**
'John visits nobody anymore.'
b. Ion *(**n**)-a călătorit **nicăieri**, **niciodată**. Romanian
John **not** -has travelled **nowhere** **never**
'John has never travelled anywhere.'

As shown in (11a), negative doubling involves one instance of N-element and N-word each, whereas there is one N-element n- together with two occurrences of N-words in negative spread, as in (11b). Either type expresses one semantic negation only. As seen in 11, two or more negative words do not cancel each other out.

Note that one language may utilize both types of negation, such as English and French; see examples (12) and (13). Therefore, to discuss whether or not Chinese uses negative concord does not dismiss the fact that it has a system of double negation, as demonstrated in sentences (5)-(8).

(12) I did**n't** eat **nothing**. English
a. 'I did eat something.' DN reading
b. 'I didn't eat anything.' NC reading

[3] Other similar terms are negative words or negative concord items, as opposed to negative polarity items (NPIs).

(13) **Personne** (**n**')a **rien** fait. French
No one NEG-has nothing done
a. 'No one has done nothing.' DN reading
b. 'No one has done anything.' NC reading (de Swart & Sag 2002: 373)

Negative concord is nothing new in English as Chaucer in Middle English had made use of it; see (14).

(14) **Nolde** **nevere** write in **none** of his sermons…(Chaucer)
'He wouldn't ever want to write any of his sermons.' (Barry 2002: 178)

In fact, scholars such as Herburger (2001) have associated the co-existence of DN and NC in the same language with its historical development, known as the Jespersen Cycle. This shows that a language can change from NC to DN, or vice versa.

The mechanism behind double negation and negative concord is complex, which has caught intensive attention in the literature, particularly for Romance and Slavic languages (e.g., de Swart & Sag 2002 and Tsuska 2010). I leave this for future research.

3. Southern Min as a NC language?

Based on the criteria addressed in the previous section, I then diagnose Southern Min sentences to see if this language is qualified as a NC language.

Scholars such as Lien (2008) have observed apparent negative concord in Southern Min although he does not provide any account for such as phenomenon, however. An example is 1, repeated below as (15), where two negatives *m* and *bian* co-occur.

(15) tsit.si sit tsi **m-bian** uan.than.
temporarily lose hope M-need.not sadden
'You need not feel sadden due to your temporary loss of hope.'

Interestingly, the negative morpheme *m* and *bian* 'need.not' are used together without canceling each other out in semantics[4]. This may have led Lien to conclude that Southern Min has NC.

This conclusion, however, cannot be held true. Southern Min does not have equivalent N-words/negative indefinites nor does it utilize the N-element. My first point here is that there is no negative indefinite; see (16), which is ungrammatical[5].

(16) *li m-bian tso **bo.tai.tsi**.

[4] I do not transcribe *m* as NEG in that it does not contribute to negation in (15). It is underspecified here.
[5] Southern Min negative *bo* is not a D(eterminer); see Gillon & Yang (2010).

2sg M -need.not do nothing.
Intended: 'you don't need to do anything.'

3.1 The N-word diagnostic

A skeptical reader may argue that Chinese does utilize *WH*-INDEFINITES. This still does not provide evidence that Southern Min has negative indefinites. For instance, *siann-mih* 'anything' is a typical indefinite in Southern Min. The *wh*-indefinite pronoun *siann-mi* is, however, restricted in its use.

With appropriate contexts, (17) can be read in two ways, depending on how *siann-mih* is interpreted: (17a) shows that it is an indefinite, whereas it is an interrogative pronoun 'what' in (17b). As a matter of fact, when the wh-word *siann-mih* stays-in-situ, the interrogative reading is preferred over the indefinite one.

(17) i m-bian tso **siann-mih**.
3sg M -not.need do what-thing
a. 'He doesn't have to do anything.'
b. 'What does he not have to do?'

In (18), the indefinite reading assures when the same element *siann-mih* is fronted, and, meanwhile, bounded by the operator *long*. The object raising of *siann-mi* together with the occurrence of the operator *long* such as in (18) prevents the ambiguity. This is how *wh*-indefinites function in Southern Min.

(18) li **siann-mih** **long** m-bian tso.
2sg what-thing LONG M-not.need do
'You don't have to do anything.'

One may argue that the *wh*-indefinite *siann-mih* in (17) appears c-commanded by *m* or *bian*. However, this *wh*-word is by no means a negative indefinite, thus not an N-word. On one hand, *siann-mih* cannot be an answer to a question like (19), which is an resemblance of the French sentence (20).

(19) li khuann tioh **siann-mih**? Southern Min
2sg see attach what
'What have you seen?'
*__Siann-mih__./ Bo siann(-mih).
what not.have what
'Nothing.'

(20) Qu'est-ce que tu as vu? French
What-is-it that you have seen
'What have you seen?'

Rien.
'Nothing.' (de Swart & Sag 2002: 375)

On the other hand, *bo* in the answer in (19) indicates that *siann-mih* carries no negation and that it is by definition not equivalent to an N-word like French *rien* in 20.

A possible counterexample may be (21), where there appear multiple occurrences of negation and *siann-mih* is interpreted as 'anything'.

(21)	i	**m**-si	**siann-mih**	long	**m-bian**	tso.
	3sg	M-COP	what	LONG	M-need.not	do

'It's not the case that he didn't need to do anything.'

However, *siann-mih* can appear in affirmative environments too; see (22).

(22)	i	**m**-si	**siann-mih**	long	**tioh(**-ai)	tso.
	3sg	M-COP	what	LONG	need	do

'It's not the case that he needed to do everything.'

In brief, *siann-mih* is never a negative indefinite[6]. Examples (21) and (22) show that *siann-mih* may be merely a variable. It sometimes gets interpreted as 'anything' (INDEFINITE PRONOUN) and other times 'everything' (UNIVERSAL PRONOUN).

3.2 The N-element diagnostic

Turning to the second major point: there is no N-element in Southern Min. As previously stated, an additional N-element is required for a language to be characterized as an NC language. One may then suspect that *m* is "that N-element" since the (modal) verb *bian* denotes 'need not'.

To be qualified as an N-element, the negative particle *m* would have to appear with all negatives in Southern Min. As seen, none of the combinations in (23) is possible, except for the combination of *m* and *bian*; one such example is (15).

(23)	M +NEG	intended reading
	**m bo*	'not have'
	*m *be*	'not able'
	**m m*	'not want'
	**m bue*	'not yet'
	m bian	'not need'

[6] The Japanese *nani-mo* 'what thing' is a negative indefinite, however (see Watanabe 2004).

To conclude, with the data in sections 3.1 and 3.2, it is evident that Southern Min does not meet the criteria of NC.

3.3 An exceptional case

Let's now examine an exceptional case with an occurrence of *m* together with *tioh*.

Not only is *m* disqualified for an N-element, but it may not carry any concrete semantics at all. Consider the following sentence.

(24)	li	**(m)**	tioh	tshing	khah	kau	e.
	2sg	M	need	wear	more	heavy	PAR

'You need to dress warm.'

Despite the fact that the negative *m* can be absent, the presence of *m* does not give rise to a negative reading in (24). This is relevant to this study on *m* and *bian*, in that *tioh* is the affirmative counterpart of *bian*. We may conclude that *m* is not a negative in (24) and (25).

(25)	li	**(m)**	bian	tshing	siunn	kau.
	2sg	M	not.need	wear	too	heavy

'You need not dress too much.'

Again, the phenomenon only exists in the affirmative *tioh*; it does not spread to other SM negatives and form a paradigm; see (26).

(26)	M + AFFIRMATIVE	intended reading
	**m-u*	'have'
	*m-*e*	'able'
	**m-beh*	'want'
	m-tioh	'need'

To conclude, the example in (25) is atypical for Chinese, which is well-known to characterize double negation. Scholars have noticed such phenomena but with no further explanation provided. On the other hand, no research has pointed out the incident as in 24. Are these two instances related? The issue at hand is how to account for the non-negative reading of *m* in the two sentences. The puzzle may be whether there is a paradigm within the necessity *tioh-bian* (modal) verb pair. The following section examines contemporary Southern Min corpus data, attempting to find some patterned syntactic distributions between *tioh* and *bian*.

4. The *tioh-bian* paradigm

Data under investigation are from the conversational lines of two Taiwanese Southern Min soap operas and story series[7]. I first show instances of two negatives: *m and bian* 'not.need' with one negation getting interpreted[8]. I then examine corpus data for the occurrences of *m* 'not' and *tioh* 'need' that does not yield a negative reading.

4.1 *m* and *bian*

Corpus data show that cases where *m* and *bian* co-occur with a verb are usually for persuasive and deontic purposes; see (27)-(29), respectively. The negative *bian* is a modal verb in such cases.

(27) 你毋免煩惱啦！

Li	**m-bian**	huan.lo	la.
2sg	M-not.need	worry	PAR

'You don't have to worry about it.'

(28) 叫阮阿兄毋免去趁錢囉

Kio	guan	a.hiann	**m-bian**	khi	than	tsinn	lo.
ask	my	brother	M-not.need	go	make	money	PAR

'telling my brother that there is no need to make money.'

(29) 你安怎樣仔煮飯毋免煮菜湯

li	an.tsuann-iunn-a	tsu	png	**m-bian**	tsu	tshai-thng.
2sg	why	cook	rice	M-not.need	cook	soup

'Why did you cook rice without having to make soup?'

The other occasion with the co-occurrence of *m* and *bian* in the corpora is when both proceed a nominal phrase; see (30), where *bian* serves as a verb.

(30) 我食麵麼毋免錢啊

gua	tsiah	mi	ma	**m-bian**	tsinn	a.
1sg	eat	noodle	also	M-need	money	PAR

'I can have noodles without having to pay.'

4.2 *m* and *tioh*

Corpus analysis reveals that the appearance of *m* together and *tioh* shows impatience, as in (31). The English *why-not* transliteration may also provide us with a hint that negative morphemes may not yield negation.

[7] Sentences are modern Southern Min from the corpora (The Collection of Taiwanese Southern Min Stories, edited by Wan-chuan Hu), except when the source is mentioned.

[8]

(31) u siann-mih tai.tsi **m** **tioh** kin kong. SM soap opera
have what-thing matter M need quicklysay
'You need to spit it out if you have something in mind.'/
'Why don't you speak up?'

What is more interesting is that most cases of *m-tioh* are in CONDITIONALS, as in (32).

(32) na an.ne gua **m** **tioh** ai tan paipai
if so 1sg M need need wait god.worship
tsiah e-tang kah (…)-in sng.
then can with (people)-PL play
'If this is so, I would have to wait until god-worshiping when I can play with them.' SM soap opera

Examples (31) and (32) demonstrate that the previously negative morpheme *m* is used to denote IRREALIS rather than negation.

5. Possible Accounts

A skeptical reader may argue for de-nasalization in *m*, thus leading to *bian* appearing alone in some cases. Then, this hypothesizes that *m* and *bian* occurred before the stage where there was only single negative word *bian*. This needs further research on how the morpheme 免 is used in historical texts. If this is the case, the phenomenon where *m* co-occurs with *tioh* will be viewed as an independent case. We then need to account for the *m-tioh* instance described in section 4.2, where *m* that does not participate in semantics.

Below I provide one of the possible theoretical accounts.

5.1 Negation cycles

This subsection discusses a cyclical change in negation, with a focus on Mandarin and Southern Min. It is to show that a lexical negative can lose its semantic features, thus becoming reanalyzed as a functional head in another position.

The literature has intensively addressed the issue of NEGATION CYCLES across languages (e.g., van Gelderen 2008 & 2011, among others). Two grammaticalization paths are often identified in the negation cycle: one is concerned with an indefinite phrase, such as English, and the other has to do with a verbal head, such as Chinese (van Gelderen 2011: 292, 299). According to van Gelderen, a loss of semantic features as shown in (33) accounts for the reanalysis of a lexical head to a higher head (to another higher head and to disappearance, when a RENEWAL[9] is observed).

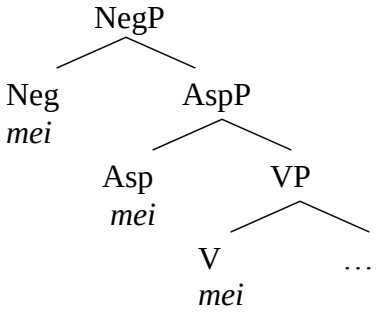
(33) lexical head > (higher) head > (higher head) > zero

[9] A renewal doubling may not exist in Chinese, however.

[NEG] [i- NEG]/[u-F] [u-F]/[u-F]

The mechanism for the latter path is illustrated in (34).

(34) The negative head cycle (van Gelderen 2011: 298)



The Chinese case involves a grammaticalization path: V> T > C; see van Gelderen (2011) for a discussion of Mandarin data. In other words, a negative derives from a full-fledged verb, gets reanalyzed as in T (as an aspect or modality marker), and/or in C (as an interrogative or discourse marker)[10].

Southern Min also demonstrates such a grammaticalization path (Yang 2009). Take *bo* as an example. One observes such a path from the synchronic Southern Min data (35)-(38).

(35) gua **bo** tsinn. (*bo* as a verb)
1sg not.have money
'I have no money.'

(36) gua **bo** khi hakhau. (*bo* as negative aspect)
1sg NEG. ASP go school
'I didn't go to school.'

(37) gua **bo** beh khi hakhau. (*bo* as an negative)
1sg NEG will go school
'I won't go to school.'

(38) li u khi hakhau **bo**? (*bo* as an interrogative)
2sg U go school Q
'Did you go to school?'

5.2 Loss of semantic features

The verbal head grammaticalization discussed in 5.1 also applies to *m*; see (39)-(41)[11].

[10] T is where tense, aspect, and modality are accommodated. Some may argue that Chinese is a tenseless language; I used T only for conventions. I adopt Kayne (1994) for the interrogative C where anything below TP moves to the spec of CP. Note that some scholars may use IP for TP.

[11] The other negatives (*m*, *be*, *bue*) also follow a similar path (for details see Yang 2009).

(39) i **m** tsiah png. (*m* as a modal verb)
3sg not.want eat rice
'He doesn't want to eat.'

(40) gua **m** si gua.kok.lang. (*m* as a negative)
1sg NEG be foreigner
'I am not a foreigner.'

(41) 伊有講啥話毋? (example from corpus)
I **u** kong siann ue **m**? (*m* as an interrogative)
He U say what words Q
'Did you say any words?'

Although *m* is used across categories in synchronic data, *m* is more productive in its functional than its lexical usage. For instance, in my previous work, I concluded that *m* as a verb, meaning 'want', is rarely in use in modern Taiwanese Southern Min any longer (Yang 2009). Additionally, the same morpheme *m* is reanalyzed as an interrogative marker sitting in the C despite the fact that *m* as a question marker is decreasing in its use. According to my recent fieldwork, *m* has also become the least preferred interrogative marker. It also poses more restrictions on such usage. In most cases, *m* appears in tag questions; the verbs are limited to some, as shown in (42)-(46). A shift of category in *m* is undergoing.

(42) li beh khi khuann i, **si** **m?** 是毋
You want go see he, be Q
'You want to see him, don't you?'

(43) lan **mai** koh sio.tsenn, **ho** **m**? 好毋
We not-want again flight all-right Q
'Let's not flight any more, all right?'

(44) li si tiam tsia tua.han e, **tioh** **m**? 著毋
You be at here grow-up PRT right Q
'You grew up here, right?'

(45) li **ai** lai, **tsai** **m**? 知毋
You must come know Q
'You must come. Do you understand?'

(46) *i beh lai, **lai** **m**? *來毋
He want come, come Q
'He wants to come, doesn't he?'

With a better understanding of negative cycles in general and Chinese negation in particular, we now proceed to the use of *m* in non-negative contexts.

5.3 Irrealis marking

I tentatively analyze the morpheme *m* as marking irrealis mood. Negation, interrogative and subjunctives are irrealis. Let's look into three sets of data below.

First, like *bian* 'need.not', *tioh* 'need' is compatible with the *wh*-indefinite *siann-mi*; compare (47) and (48). It is likely that *m* is to mark mood onto *tioh* or *bian*.

(47)	li	(m)-**tioh**	siann-mih	long	ai	kong	tsut	lai.
	2sg	M-need	what-indef	LONG	need	say	out	come
	'It is mandatory that you say everything/spill the beans.'							
(48)	li	(m)-**bian**	siann-mih	long	ka	i	kong.	
	2sg	M-need.not	what-indef	LONG	KA	3sg	say	
	'It is essential that not tell him everything.'							

Next, I show that a clause is apparently an island for mood *m*; compare (49) and (50).

(49)	li	(**m-)tioh**	ai[12]	khi.	
	2sg	M-need	need	go	
	'You should go.'				
(50)	gua	kio i	(***m-)tioh**	ai	khi.
	1sg	ask 3sg	M-need	need	go
	'I ask that he should go.'				

The last case is when the double modals, *m-tioh* and *bian*, appear in one sentence, as in (51). The speaker utters this sentence with a doubt but possibly assumes, in the embeded clause, someone not having to pay. Again, *m* expresses irrealis mood.

(51)	li	**m-tioh**	(m-)**bian**	lap	tsinn	(a)?
	2sg	M-need	M-not.need	pay	money	PAR
	'Is it the case that you don't have to pay?'					

When we switch the order of the modal verbs, the sentence (52) becomes ungrammatical. Again, *m-tioh* can only be in a matrix clause.

(52)	*li	(**m-)bian**	m-tioh	lap	tsinn	(a)?
	2sg	M-not.need	M-need	pay	money	PAR
	Intended: 'Isn't it the case that you need pay?'					

[12] The extra word *ai* is the doubling of *tioh*; this is not unusual in grammaticalization, as *tioh* 'need' has gradually lost its semantic features.

When *bian* and *tioh* appears independently with *m* as in (53) and (54), the sentences are grammatical; see below.

(53) li (**m-)bian** lap tsinn.
2sg M-not.need pay money
'You need not pay.'
(54) li **(m-)tioh** ai lap tsinn.
2sg M-not.need need pay money
'You need to pay.'

6. Conclusion

This study begins with two sentences with *m* where *m* does not participate in semantics; 1 and (24) are repeated as (55) and (56) below.

(55) tsit.si sit tsi **m-bian** uan.than
temporarily lose hope M-need.not sadden
'You need not feel saddened due to your temporary loss of hope.'
(56) li (**m**)-**tioh** tshing khah kau e.
2sg M-need wear more heavy PAR
'You need to dress warm.'

Scholars analyze this construction in Southern Min as negative concord. I however argue that there is only one negative at work in these sentences. Based on the corpus data in this study, my tentative analysis is to treat *m* as marking the speaker's mood.

The advantage of this analysis is that it accounts for the interpretations of both (57) and (58). In (57), two negatives co-occur with only one semantic negation. In (58), when *m* 'not' stands alone, there is however no negative interpretation. Examples (57) and (58) further show that *m* is mood sensitive.

(57) **m**-tioh kin seh to.sia.
M-tioh hurry express thank
'Why don't you express your gratitude now?'
(58) a **m** kin seh to.sia.
or M hurry express thank
'You should express your gratitude now.'

Along the same lines, the other negatives in Southern Min, such as *bo* 'not.have' in (59) and *be* 'cannot' in (60), also serves a discourse function. Future research may also include these negative markers.

(59) a **bo** gua lai khi a.

or BO 1sg come go PAR
'Otherwise, see you later then.'

(60) **be** tshin tshiunn huat.sing siann.mih tua tai.tsi le.
BE like like happen what big matter PAR
'It looks like something big really happened.'

This study is not yet prepared to supply a thorough theoretical account. A better postulation for now is to analyze *m* as mood. Further research certainly needs to continue.

ABBREVIATIONS

1sg	first person singular
ASP	aspect marker
COP	copula verb
NC	negative concord
DN	double negation
NEG	negative
PAR	final particle
PL	plural
Q	question marker
SM	Southern Min

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Argument Ellipsis in Mandarin Chinese

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Abstract: In recent literature, it has been argued that Argument Ellipsis (AE) is a special type of null argument construction that should be distinguished from null pronoun analysis and VP ellipsis analysis. While AE has been argued to be available in Japanese and Korean, previous analysis predicts that Mandarin Chinese (MC) should NOT allow such construction. In this paper, contrary to previous claims, I give evidence that AE is also an operation that is independently attested in MC. This thus broadens the linguistic typology of the AE paradigm and sheds some light on the proper analysis of AE.

1. Introduction

It is well known that languages differ in whether they allow (relatively) free omission of their arguments. For example, while Spanish allows null subjects in tensed clauses, English does not, as shown in (1). This has been termed the Pro-Drop parameter or the Null Subject Parameter (see Perlmuetter (1971), Borer (1983), Chomsky (1981), Chomsky and Lasnik (1977), Jaeggli (1982), Taraldsen)1978), among others). In other words, some languages allow subjects in tensed clauses to appear in null pronominal forms, while others do not.

(1) a. José sabe [$_{CP}$ que él / *e* ha sido visto por Maria].
Jose know that he / e has been seen by Maria
'José knows that he/*e* has been seen by Maria.'
b. John knows [$_{CP}$ that *(he) has been seen by Mary]

Moreover, it is observed that even within a language, there is asymmetry between subjects and objects with respect to their possibility of omission, as in (2).

(2) a. José sabe [$_{CP}$ que él / *e* ha sido visto por Maria]. = (1a)
Jose know that he / e has been seen by Maria
'José knows that he/*e* has been seen by Maria.'

b. José sabe [$_{CP}$ que Maria *(lo) ha visto]
José know that Maria he has seen
'José knows that Maria has seen *(him).'

While subjects in Spanish may appear in null pronominal forms, objects in Spanish cannot. This omission of pronouns has sometimes been attributed to the rich agreement paradigm in Spanish (and Italian), the so-called Recoverability Condition. In other words, since there is a rich subject agreement paradigm in Spanish or Italian, subjects may appear in zero forms and their contents can still be recovered and identified form the agreement. On the other hand, since there is no object agreement in Spanish or Italian, such null pronominal form cannot appear in object positions, since their contents cannot be recovered, violating the Recoverability Condition.

It has long been observed (cf. Huang (1984)) that the licensing of null arguments cannot be solely tied to the presence of rich agreement paradigm. Mandarin Chinese (MC), for example, does not have agreement (at all), and, yet, it allows even freer omission of its arguments, including objects, as shown in (3) – (5).

(3) Zhangsan kanjian Lisi le ma? (Huang 1984: 533, (7))
Zhangsan see Lisi LE Q
'Did Zhangsan see Lisi?'

(4) a. Ta kanjian ta le.
He see him LE
'He saw him.'
b. *e* kanjian ta le
'[He] saw him.'
c. ta kanjian *e* le
'He saw [him]'
d. *e* kanjian *e* le
'[He] saw [him]'

(5) a. Zhangsan xihuan Lisi$_1$, danshi Mali bu xihuan e_1 .
Zhangsan like Lisi but Mary not like
'Zhangsan likes Lisi$_1$, but Mary does not like e_1 '
b. Zhangsan$_1$ xihuan Lisi, danshi e_1 bu xihuan Mali.
Zhangsan like Lisi but not like Mary
'Zhangsan$_1$ likes Lisi, but e_1 does not like Mary.'

The question to be asked is "what is the best/correct characterization of null arguments in MC?" In the literature there have been many analyses on the omission of objects in MC, such as Huang's (1984) topic-variable analysis and Huang's (1988, 1991) VP-ellipsis-in-disguise analysis. In this paper, I am not arguing against these analyses. Rather, I am arguing that there exists some null arguments constructions that cannot be readily handled by previous analysis. I claim that these constructions

are easily captured under the assumption that Argument Ellipsis (AE) is also attested in MC.

The organization of the paper is as follows. In section 2, I review two previous analyses of null arguments in MC, including Huang's (1984) topic-variable analysis and Huang's (1988, 1991) VP ellipsis analysis. In section 3, I examine some of the arguments that have been proposed in the literature for the existence of AE in Japanese and Korean. In section 4, I claim that some of these arguments can be directly applied to MC. Moreover, there exists some constructions specific in MC that can only be captured under the AE analysis. This thus shows that, in addition to Japanese, Korean and Turkish, AE is also an independently attested operation in MC. In section 5, I discuss some of the theoretical consequences of the existence of AE in MC. And section 6 concludes the whole paper.

2. **Previous Analysis of Null Arguments in MC**

As shown above in (4) and (5), MC allows both subjects and objects to be null, but what is the nature of these null arguments? In the literature, there have been at least 2 analyses, the topic-variable analysis and the VP-ellipsis (in disguise) analysis. I will summarize the basic idea of these 2 approaches below.

2.1 The topic variable analysis

Huang (1984) argues that null objects in MC are not null pronominals (*pro*), building the arguments based on the referential possibilities for null arguments in Chinese. Huang (1984) contends that null subjects in MC could in principle be empty referential pronouns, which do not have to be bound, but null objects cannot be. Rather, in Huang's analysis, null objects in MC can only be variables (bound by a potentially empty topic operator). Consider the sentences in (6) and (7) below.

(6) a. Zhangsan$_1$ shuo [$e_{1/2}$ bu renshi Lisi]
Zhangsan say not know Lisi
'Zhangsan said that [he] did not know Lisi.'
b. Zhangsan$_1$ shuo [Lisi bu renshi $e_{*1/2}$]
Zhangsan say Lisi not know
'Zhangsan said that Lisi does not know [him].'

(7) a. John$_1$ said that he$_{1/2}$ didn't know Bill.
b. John$_1$ said that Bill didn't know him$_{1/2}$.

In (6a) and (7a), null subjects in MC and their overt counterparts in English behave similarly in that they can either be co-indexed with the matrix subject or someone salient in the discourse. On the other hand, Huang (1984) notices that null objects in

MC in (6b) do not have the same behavior as overt pronouns in English in (7b). Object pronouns in English can be co-indexed either with the matrix subject or someone salient in the discourse, but null objects in MC can only be co-indexed with someone salient in the discourse, not with the matrix subject, as shown in (6b).

The asymmetry between null subjects and null objects in MC led Huang to conclude that empty pronoun is an option only for null subjects in MC, but not an option for null objects. In other words, null objects in MC are not empty pronominals. If empty pronoun is an option for null objects, there should be no reason why this empty pronoun could not refer to the matrix subject[1]. Huang (1984) suggests that null objects in MC are variables bound to a (potentially empty) topic. The representation of (6b) will thus look like the one in (8).

(8) Topic … Zhangsan say [Lisi not know *e*]

Note that if the null arguments are bound to a topic, this topic cannot be co-referential with the matrix subject, since that will be a case of 'strong crossover' violation (cf. Postal (1971)), as shown in (9) and (10). Therefore, the null arguments in (9) and (10) cannot be co-referential with the matrix subject, even indirectly through the null topic. This thus further strengthens the claim that null objects in MC cannot be co-referential with the matrix subject.

(9) a. *John$_1$, he$_1$ said t_1 saw Bill.
b. *John$_1$, he$_1$ said Bill saw t_1 .

(10) a. *Zhangsan$_1$, ta$_1$ shuo t_1 kanjian-le Lisi.
Z.S. he say see-asp Lisi
'Zhangsan, he said that [he] saw Lisi.'
b. *Zhangsan$_1$, ta$_1$ shuo Lisi kanjian-le t_1
Z.S. he say Lisi see-asp
'Zhangsan, he said that Lisi saw [him].'

2.1 The VP ellipsis analysis

Huang (1988, 1991) further noted that null objects in MC have one interesting property that cannot be readily handled by the topic-variable analysis. He notes that

[1] Huang's (1984) theory is based on two important assumptions of his: (a) Disjoint Reference (DJR) = Binding Principle B and (b) Generalized Control Rule (GCR), as in (i).
(i) a. **Disjoint Reference**: a pronoun must be free in its governing category.
b. **Generalized Control Rule**: co-index an empty pronominal with the closest nominal element.
For space reasons, I will not go into the details of his analysis. The interested readers are referred to Huang (1984) for the specifics of his analysis.

null object in Chinese often occur in a situation where, for a language like English, one would find a VP gap, as shown in (11)-(12) below

(11) Zhangsan kanjian-le ziji-de mama. Lisi ye kanjian-le e
Zhangsan see-asp self-gen mother Lisi also see-asp
'Zhangsan saw his mother. Lisi did, too.' (^{OK}strict, ^{OK}sloppy)

(12) John saw his mother, and Bill did [$_{VP}$ *e*], too. (^{OK}strict, ^{OK}sloppy)

Note that (11) and (12) have both the strict reading (*John saw John's mother and Bill also saw John's mother*) and the sloppy reading (*John saw John's mother and Bill also saw Bill's mother*). While the topic variable analysis may capture the strict reading, it cannot readily handle the sloppy interpretation. Huang (1988, 1991) thus proposed that (11) also involves VP-ellipsis. Under his analysis, the verb in (11) is moving to some abstract INFL to lexicalize the INFL, followed by deletion of the VP, as shown in (13).

(13) Zhangsan kanjian-le ziji-de mama.
Lisi ye kanjian-le$_V$+INFL [~~$_{VP}$ t$_V$ ziji-de mama~~]

Huang's (1988, 1991) theory nicely captures two facts: (A) the MC example in (11) patterns alike with the English example in (12) in allowing both the strict and the sloppy reading since both involve VP ellipsis now. (B) (11) and (12) have different interpretation from (14) and (15), which have overt pronouns[2]. The difference in interpretation between (11) and (14) (and also between (12) and (15)) is one of the motivations for the claim that the null arguments in (11) is not an empty pronominal

(14) Zhangsan xihuan ziji-de mama. Lisi ye xihuna **ta** (^{OK}strict, ^{X}sloppy)
Zhangsan like self-gen mother Lisi also like she
'Zhangsan likes his mother. Lisi also likes her.'

(15) John likes his mother. Bill likes **her**, too. (^{OK}strict, ^{X}sloppy)

The analyses reviewed above are the two dominant approaches to null objects in MC. In the next section, I will argue that, just like Japanese and Korean, there also exists a special type of operation called Argument Ellipsis (AE) in MC, in which arguments, but not adjuncts, are simply deleted in the PF component. This will put MC together on the same table as Japanese, Korean, and Turkish in that they all allow AE.

[2] Otani and Whitman (1991), following Huang (1988, 1991), assumes that the VP ellipsis (in disguise) analysis is also responsible for the null arguments paradigm in Japanese.

3. Argument Ellipsis in Japanese and Korean

The operation of Argument Ellipsis (AE) has been argued to be independently available in Japanese (Oku (1998), Saito (2007), Takahashi (2007, 2008), among others), Korean (Kim (1999)), and Turkish (Şener and Takahashi. (2009)). In this section, I will review some of the arguments that have been used as arguments for the existence of AE in Japanese and Korean.

It has been observed that Japanese and Korean pattern alike with MC in that they also freely allow the omission of arguments in the absence of agreement paradigms, a phenomenon which has been termed Radical Pro-Drop in the literature. Some examples are given in (16) – (18) below[3].

(16) a. Taroo-wa doo simasita ka?
Taroo-top how did Q
'What happened to Taroo?'

b. *e* ie-ni kaerimasita
he home-to returned
'[He] returned home.'

c. Sensei-ga *e* sikarimasita.
teacher-nom him scolded
'The teacher scolded [him].'

(17) Taroo-ga Hanako-ni [$_{CP}$ *e* *e* kekkonsuru to] yakusokusita
Taroo-nom Hanako-dat he her marry that promised
'Taroo promised Hanako that [he] would marry [her].'

(18) a. Chelswu-eykey mwusun il-i iss-ess-ni?
Chelswu-dat what happen be-past-Q
'What happened to Chelswu?'

b. Ani, *e* cip-ey kasse, kunyang
No, home-loc went, just
'No, [he] just went home.'

c. *e* sensayngnim-hanthey honnasse.
teacher-dat be-scolded
'[He] is scolded by the teacher.'

Again, just like the null argument paradigm in MC, the question to be asked is "what is the best characterization of the null arguments paradigm in Japanese and Korean?" It has been proposed in the literature that the operation of Argument Ellipsis (AE), which is different from VP ellipsis, should exist independently. I will summarize some (but not all) of the arguments in the literature below.

The first argument of AE comes from the whole-part construction in Korean, as illustrated in the example in (19) below.

[3] The Japanese examples in (16) and (17) are taken from Takahashi (2008), and the Korean example in (18) is from Jungmin Kang (personal communication).

(19) a. Jerry-nun [$_{NP}$ caki-uy ai]-lul phal-ul ttayli-ess-ta
Jerry-top self-gen child-acc arm-acc hit-past-indicative
'Jerry his his child on the arm.'
b. Kulena Sally-nun [$_{NP}$ *e*] tali-lul ttayli-ess-ta
but Sarlly-top leg-acc hit-past-indicative
'lit. But Sally hit *e* on the leg.' (^{OK}strict, ^{OK}sloppy)
c. Kulena Sally-nun tali$_1$-lul [$_{NP}$ *e*] t$_1$ ttayli-ess-ta
but Sarlly-top leg-acc hit-past-indicative
d. *Kulena Sally-nun tali-lul [caki-uy ai-lul] ttayli-ess-ta
but Sarlly-top leg-acc self-gen son-acc hit-past-indicative
'But Sally hit her son on the leg.'

As shown in (19a,b), the sloppy interpretation is available. It is not clear how the VP ellipsis analysis can just elide some small part of VP and leave other parts unaffected, under the assumption that VP ellipsis should apply to the whole VP. One potential derivation is to move the part (*leg*) to a position outside of VP and higher than the whole (self's child), as depicted in the structure in (19c). (19c) can thus be the structure to feed VP ellipsis, giving rise to the desired interpretation. However, (19d) shows that this movement is impossible, and the part (leg) must be c-commanded by the whole (self's child), as in (19a). The availability of the sloppy reading in (19b) and the impossibility of the structure in (19d) thus poses a challenge to the VP ellipsis analysis. Of course, under the AE analysis, the possibility of (19b) is directly captured, since the argument is simply deleted in the PF component[4].

The second argument comes from antecedents that are clearly outside VP. The relevant example is given in (20) and (21) below.

(20) a. Mike-ka [caki-uy ai]-lul ttayli-ess-ta (Kim (1999), p.265)
Mike-nom self-gen child-acc hit-past-indicative
'Mike hit his child.'
b. Kuleca Jeanne-to ttohan [$_{NP}$ e] ttayli-ess-ta
then Jeanne-also too hit-past-indicative
'And then, Jeanne hit her (Jeanne's) child, too.' (sloppy interpretation)
'And then, Jeanne hit his (Mike's) child, too.' (strict interpretation)
'And then, Jeanne hit Mike, too.' (discourse interpretation)

(21) Mike hit his son, and Jeanne did [$_{VP}$ e], too.
≠ Mike hit his son, and Jeanne hit Mike, too.

[4] Here I am assuming the PF deletion approach to AE for expository reasons. The debate between the LF copying and the PF deletion approach is beyond the scope of this paper, so I will abstract away from discussing the differences between the two approaches.

In addition to the strict reading (*Jeanne hit Mike's child, too*) and the sloppy reading (*Jeanne hit Jeanne's child, too*), the sentence in (20) in Korean has a third reading in which the null argument can take the subject in the first clause as its antecedent and give rise to the third reading (*Jeanne hit Mike, too*). I will call this the discourse reading, as shown in (20b) above. The traditional VP ellipsis construction, on the other hand, is not able to produce such reading, as shown in (21). Again, this poses a challenge to analyze (20) as involving VP ellipsis.

The third argument comes from the exclusion of adjuncts, as discussed in Oku (1998), and shown in (22) and (23) below

(22) a. Taroo-wa kono riyuu de sinda.
Taroo-top this reason for died
'Taroo died for this reason.'

b. Hanako-mo e sinda.
Hanako-also died
'Hanako also died.'
≠ 'Hanako also died for this reason.'

(23) John fixed the house with a hammer, and Mary did, too.

As pointed out in Oku (1998), if VP ellipsis (via VP copying) is the source for the sloppy interpretation, then VP copying should copy the whole VP and the adjuncts should be included in the interpretation in elliptic constructions, under the assumption that (lower) adjuncts are adjoined to VPs. This prediction, however, is not borne out. Just like (20) and (21), the discrepancy between the null argument paradigm in (22) and the VP ellipsis construction in (23) suggests that (22) may not be analyzed as involving VP ellipsis.

The fourth argument comes from null subjects, as shown in (24).

(24) a. Taroo-wa [zibun-no teian-ga Hanako-o odorokasu to] omotteiru
Taroo-top self-gen proposal-nom Hanako-acc surprise that think
'Taroo thinks that his proposal will surprise Hanako.' (Takahashi (2008))

b. Ken-wa [*e* Yumiko-o odorokasu to] omotteiru
Ken-top Yumiko-o surprise that think
'lit. Ken thinks that *e* will surprise Yumiko.' (^{OK}strict, ^{OK}sloppy)

If VP ellipsis is the source for the sloppy interpretation, then such interpretation should not be available in (24b), which involves null subjects, contrary to facts. The hidden assumption here is that subjects are outside of the VP and therefore are immune to VP ellipsis (via VP copying). VP ellipsis/VP copying therefore cannot affect subjects. In fact, there is indeed evidence that subjects in Japanese are outside of VP, as argued in Miyagawa (2001). The relevant examples are given in (25) below.

(25) a. Zen-in-ga sono tesuto-o uke-nakat-ta
All-CL-nom that test-acc take-neg-past
'All did not take that test.' (^{OK}all>negation, ^{X}negation>all)
b. Taroo-ga zen-in-o home-nakat-ta
Taroo-nom all-CL-acc praise-neg-past
'Taroo did not praise all.' (^{X}all>negation, ^{OK}negation>all)

As shown in (25a), the subject is outside of VP and higher than negation. Therefore, the only reading available is the all > negation reading. On the other hand, the object in (25b) is still within VP (at least lower than negation), so it only has the negation > all reading. The reading in (25a) plus the paradigm in (24) poses a potential challenge to the VP ellipsis analysis for null arguments. It is not clear how the VP ellipsis analysis may capture the null subject and the sloppy reading in (24b). Of course, under the AE analysis, (24b) is straightforwardly captured.

It should be noted that the arguments presented in this section are not intended to show that Argument Ellipsis is the only way to derive null arguments. In fact, it has been shown in many literatures (cf. Saito (1985)) that null arguments in Japanese can be a null pronominal. The arguments are presented to show that the operation of AE is independently motivated (in addition to other elliptic construction and null elements) in Japanese and Korean.

4. **Argument Ellipsis in Mandarin Chinese**

In this section, I will argue that, just like Japanese and Korean, MC also has AE as an operation independent from other elliptic constructions. The arguments will be based on two parts: (1) MC has constructions that display some similar behavior as those in Japanese and Korean (2) MC has constructions that cannot be readily accounted for under other elliptic constructions. To the extent that this is successful, it will provide evidence that AE is also present in MC.

4.1 Similar behavior with Japanese and Korean

While not all the arguments discussed in section 3 may be applied to MC, some of them can. These include, among others, discourse antecedents and the exclusion of adjuncts. Consider the example in (26) below.

(26) a. Zhangsan da-le [$_{NP}$ ziji-de xiaohai] zhidao…
Z.S. hit-asp self-gen child after
'After Zhangsan hit his child…'
b. Lisi haishi bu-gan da [$_{NP}$ e]
Lisi still not-dare hit
'Lisi still does not dare to hit his (Zhangsan's) child.' (strict reading)

'Lisi still does not dare to hit his (Lisi's) child.' (sloppy reading)
'Lisi still does not dare to hit Zhangsan.' (discourse reading)[5]

The example in (26) patterns alike with the Korean example in (20) in that, in addition to the strict and the sloppy reading, it can take the subject in the first clause as the antecedent and has the third reading "Lisi still does not dare to hit Zhangsan." This discourse reading, as discussed above, is not compatible with VP ellipsis.

The second similarity between MC and Japanese/Korean involves exclusion of adjuncts, as shown in (27) below.

(27) a. Zhangsan henkuaide chi-wan-le fan.
Z.S. quickly eat-finish-asp rice
'Zhangsan finished the rice quickly.'
b. Lisi ye chi-wan-le [$_{NP}$ *e*]
Lisi also eat-finish-asp
'lit. Lisi also finished [*e*] = rice'
≠ 'Lisi also finished the rice quickly.'

As indicated in the reading, (27b), which involves the null argument, does not include the adjuncts in interpretation. This is similar to the Japanese example in (22) above. The two examples of same behavior with Japanese and Korean thus add supporting evidence that AE is also available in MC.

4.2 Additional Evidence from Mandarin Chinese

In addition to the similar behavior with Japanese and Korean, MC also has some other constructions to show that the operation of AE is indeed available in MC. These include post-verbal duration/frequency phrases as well as double object/dative constructions, as shown in (28).

4.2.1 Post-verbal duration/frequency phrases

[5] While this reading is possible, it is not as salient as the strict and the sloppy interpretation. However, some background information or pragmatic factors can be added to make this reading stronger, as in (i) and (ii).
(i) [Zhangsan has always been really mean to his kids and Lisi really hates that. Lisi wanted to hit Zhangsan to show his anger. The more he saw how mean Zhangsan is to his kids, the more he wanted to hit Zhangsan. However, he does not dare to do that because Zhangsan is big and strong.]
(ii) a. Zhangsan da-le ziji-de haizi zhidao = (26)
Z.S. hit-asp self-gen child after
'After Zhangsan hit his child…'
b. Lisi haishi bu gan da [$_{NP}$ *e*]
Lisi still not dare hit
'lit. Lisi still does not dare to hit [*e*]=Zhangsan.'
With (i) as background information, it is much easier to get the third reading in (iib).

In addition to canonical objects, MC allows duration and frequency phrases (DFP) to appear post-verbally, as shown in (28).

(28) a. Zhangsan da-le ziji-de xiaohai san-ci
Zhangsan hit-asp self-gen child three-time
'Zhangsan hit his child three times.'
b. Lisi zeshi da-le *e* liang-ci
Lisi whereas hit-asp two-time
'Where as Lisi hit *e* two times.' (^{OK}strict, ^{OK}sloppy)

As indicated, (28) also allows the sloppy reading. Since the DFP is post-verbal, it is not clear how VP ellipsis can only elide the internal argument and leave the DFP intact. One possibility, of course, is to assume that the DFP is in fact right-adjoined to some higher projection higher than the VP, probably right-adjoined to *v*P. Therefore, verb-raising followed by VP ellipsis will only affect the internal argument but not the DFP, as shown in the structure in (29).

(29) Lisi zeshi [$_{vP}$ da$_{v+V}$-le ~~[$_{vP}$ t$_V$ ziji-de xiaohai]~~ liang-ci]

However, Soh (1998) has argued that the DFP is indeed inside VP, thus excluding the possibility of the structure in (29). The relevant examples are given in (30) below, modified from Soh (1998, pp. 36-40).

(30) a. Zhangsan qing-guo mei-ge xuesheng liang-ci
Zhangsan invite-asp every-cl student 2-time
'Zhangsan invited every student twice.' *every>2, 2>every*
b. Zhangsan qing-guo liang-ci mei-ge xuesheng
Zhangsan invite-asp 2-time every-cl student
'Zhangsan invited every student twice.' **every>2, 2>every*

Soh (1998) observes that there is a contrast in (48a,b) with respect to the possible scope interpretations. When the object precedes the DFP, as in (30a), both scope readings (2>every, every>2) are possible. However, when the DFP precedes the direct object, only the surface scope (2>every) is available.

Along the lines of Aoun and Li's (1993) Scope Principle, Soh (1998) proposes that the ambiguity of (30a) comes from the movement of *mei-ge xuesheng* 'every student' from a lower position to some higher position c-commanding the DFP, as shown in the structure in (31a). The ambiguity is thus derived. The direct object c-commands DFP and DFP also c-commands the trace of the direct object. (30a) is therefore predicted to be ambiguous by the Scope Principle. (30b), on the other hand, does not involve movement of the object, as shown in the structure in (31b). The DFP always

c-commands the direct object, which will only give rise to the 2>every reading. Therefore, only the surface scope is available.

(31) a. [$_{vP}$ $DP_{subject}$ v_{V+F+v} [$_{FP}$ $DP_{1\text{-}object}$ t_{V+F} [$_{VP}$ DFP [$_{VP}$ t_V t_1]]]]

b. [$_{vP}$ $DP_{subject}$ v_{V+F+v} [$_{FP}$ t_{V+F} [$_{VP}$ DFP [$_{VP}$ t_V DP_{object}]]]]

If Soh (1998) is correct, then this shows that the DFP is indeed inside the VP (cf. the structure in (31a)). By assumption VP ellipsis should elide the whole VP, including DFP. The availability of the sloppy reading in (28b) will be a mystery for the VP ellipsis analysis of null arguments. This thus adds supporting evidence that the operation of AE is independently available in MC. Under AE, (28b) is derived simply by eliding the internal argument (the object).

4.2.2 Double object/dative constructions

The second piece of additional evidence for the existence of AE in MC comes from double object and dative constructions, as shown in (32) and (33) below.

(32) a. Zhangsan song ziji-de xiaohai Mali-de zhaopian
Zhangsan send self-gen child Mary-gen picture
'Zhangsan sent his child Mary's picture.'
b. Lisi zeshi song *e* Xiaomei-de zhaopian[6] (^{OK}strict, ^{OK}sloppy)
Lisi whereas send Xiaomei-gen picture
'lit. Whereas Lisi sent *e* Xiaomei's picture.'

(33) a. Zhangsan song ziji-de zhaopian gei Mali
Zhangsan send self-gen picture to Mary
'Zhangsan sent his picture to Mary.'
b. Lisi zeshi song *e* gei Xiaomei (^{OK}strict, ^{OK}sloppy[7])
Lisi whereas send to Xiaomei
'lit. Whereas Lisi sent *e* to Xiaomei'

[6] The presence of *zeshi* 'whereas' is intended to create a contrast between (32a,b) and make the sentence sound more natural. This is consistent with Merchant's (2001) claim that the existence of focus and contrast is crucial for elliptic structures.

[7] The sloppy reading is more prominent. For pragmatic reasons, it is odd to send other people's picture to another person (the strict reading). But if the context is carefully constructed, both readings are available.

In both (32) and (33), since both arguments are VP-internal, it is not clear how the VP ellipsis analysis can capture the sloppy interpretation in (32) and (33). This is because VP ellipsis should target the whole VP and affect both arguments. One possibility, of course, is to assume that the lower argument has moved out of VP prior to VP ellipsis. This is shown in the structure in (34).

(34) a. [$_{TP}$ Lisi zeshi [$_{vP}$ song$_{v+V}$ [~~$_{vP}$ t$_{V}$ ziji-de xiaohai t$_{j}$~~] [Xiaomei-de zhaopian]$_{j}$]]
Lisi whereas send self-gen child Xiaomei-gen picture
b. [$_{TP}$ Lisi zeshi [$_{vP}$ song$_{v+V}$ [~~$_{vP}$ t$_{V}$ ziji-de zhaopian t$_{j}$~~] [gei Xiaomei]$_{j}$]]
Lisi whereas send self-gen picture to Xiaomei

Under this possibility, VP ellipsis is still possible to derive (32b) and (33). Therefore, to rule out the possibility of VP ellipsis, we should construct sentences in which movement of the second argument out of VP is prohibited, as in the structure in (35) below, in which XP is immobile due to some other independent reasons.

(35) a. Subject1 V1 Object1 XP1
b. Subject2 V2 [e] XP2

One potential candidate is secondary predicates (SP). Following Kayne (1985) and Huang (1982, 1988), I assume that the relevant examples of SPs in English and Chinese have the structure as in (36), in which the small clause is generated inside the VP. The relevant examples are given in (37) and (38). As shown from the ungrammaticality of (37b) and (38b), SPs cannot be moved.

(36) subject [$_{VP}$ verb [$_{SC}$ NP SP]]

(37) a. John hammered the metal flat.
b. *Flat, John hammered the metal.

(38) a. Zhangsan da-de ziji-de xiaohai bi-qing-lian-zhong
Zhangsan hit-DE self-gen child nose-green-face-swollen
'Zhangsan hit his child (to the degree that he is) wounded.'

b. *[Bi-qing-lian-zhong]$_{1}$, Zhangsan da-de ziji-de xiaohai t$_{1}$
nose-green-face-swollen Zhangsan hit-DE self-gen child
'lit. Wounded, Zhangsan hit his child.'

c. Lisi zeshi da-de *e* wawadajiao (^{OK}strict, ^{OK}sloppy)
Lisi whereas hit-DE screaming
'lit. Whereas Lisi hit *e* screaming.'

The existence of sloppy interpretation in (38b) and the property of SP thus serve as evidence against the VP ellipsis analysis of null arguments. For the VP ellipsis analysis to work, the secondary predicates must move out of VP prior to VP ellipsis. However, we have known that secondary predicates cannot be moved, as shown independently from (37b) and (38b). On the other hand, under the AE analysis, the availability of sloppy interpretation is expected, since the argument in (38c) is simply deleted.

In this section, I have given some arguments above to show that the operation of AE is independently attested in MC. Therefore, AE is an available operation in MC, just like Japanese and Korean.

5. **Theoretical Implications**

Having given arguments for the independent existence of AE in MC (just like in Japanese, Korean and Turkish), I will discuss some of the theoretical implications in this section.

The existence of AE in Japanese and Korean is a relatively new theoretical advancement and is limited to these two languages (and possibly Turkish (cf. Şener and Takahashi (2009)). The three languages Japanese, Korean, and Turkish have many properties in common, which might lead one to suspect whether the existence of AE is linked to one of these properties. Specifically, Japanese, Korean, and Turkish all (A) have (Japanese style) scrambling, (B) have SOV order, and (C) belong to the Altaic language family. It is natural to assume that one of these properties might be the driving force for the existence of AE.

Therefore, the claim that MC also has AE will have direct theoretical implication on the above claim since MC does not have scrambling, does not have SOV order, and does not belong to the Altaic family, either. If AE exists in MC, then the three properties shared by Japanese, Korean, and Turkish cannot be the determining factor for the availability of AE. The comparison of the four languages is given in the table in (39) below.

(39)

	Japanese	Korean	Turkish	Chinese (MC)
claimed/argued to have AE	√	√	√	√
The existence of **scrambling**	√	√	√	×
SOV order	√	√	√	×
Belong to the **Altaic Family**	√	√	√	×

In fact, Oku (1998) argues that the operation of AE is tied to the availability of (Japanese-type) scrambling, a two-way correlation depicted in (40) below. The evidence provided in this paper thus argues against such correlation, because MC has AE but does not have Japanese-style scrambling. (40b) thus does not hold[8].

(40) a. If a language L has (Japanese-style) scrambling → L has AE.
b. If a language L has AE → L has (Japanese-style) scrambling.

The existence of AE in MC thus sheds lights on the theory of AE, which cannot be tied to (A) scrambling, (B) SOV order, or (C) being a member in the Altaic family. Of course, the theory of AE is definitely beyond the scope of this paper. The interested readers are referred to Cheng (in progress) for discussions on the theory of AE, in which the theory of AE is tied to the notion of phase.

6. Conclusion

In this paper, I have argued for the following claims.

(A) There are constructions of null arguments in MC that cannot be readily accounted for under the topic-variable analysis or the VP ellipsis analysis.
(B) MC shares some similar behavior with Japanese and Korean in which the relevant null argument constructions may be best characterized as Argument Ellipsis (AE).
(C) AE is also an independently available operation in MC, drawing evidence from post-verbal duration/frequency phrases and double object/dative constructions.

The existence of AE in MC thus argues against Oku's (1998) scrambling theory of AE and shed some lights on the proper characterization of AE.

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[8] It is easy to tell that MC does not have Japanese style scrambling. For one thing, overt movement in MC always has semantics effect, unlike Japanese style scrambling, which is claimed to be semantically vacuous (cf. Saito (1985)). For another thing, it is possible to scramble a wh-element out of the scope of its licensor (e.g. an interrogative C). This option is not possible in MC. For space reasons, I will skip the discussions on the absence of scrambling in MC. The interested readers are referred to Cheng (in progress) for other related discussions.

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The *YUE*-Construction in Mandarin Chinese[1]

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The *yue*-construction in Mandarin Chinese contains an antecedent and a consequent constituent, with the morpheme *yue* [越] embedded in both clauses. By referring to a previous analysis proposed by Tsao and Hsiao (2002), I discuss the syntactic and semantic interdependence between the two *yue*-constituents. After arguing against the approach treating the antecedent *yue* clause as an adjunct to the second *yue* clause, I propose an alternative analysis in which the Correl(ative)P selects for two IPs, each containing a *yue* constituent. Structurally, the degree-denoting morpheme *yue* is the head of Deg(ree)P preceding the predicate it modifies. Moreover, certain example sentences featuring topicalization lead to discussion of the interaction between the *yue*-construction and the topic-comment structure in Mandarin grammar.

1. Introduction

The comparative correlative construction exists crosslinguistically (McCawley, 1988; Beck, 1997; Culicover and Jackendoff, 1999; Abeillé and Borsley, 2008; den Dikken, 2005, 2009; Lin, 2007). An English example is given in (1):

(1) The more you want, the busier you will be.

Structurally, this construction consists of two clauses, with the comparative constituents *more/er* fronted to the clause-initial position following the determiner *the*. In addition to the specific syntactic structure, there is semantic interdependence between the two clauses. Mandarin Chinese exhibits similar syntactic and semantic properties in its comparative correlative construction. The morpheme *yue* 'the more' is contained in the antecedent and the consequent constituent, as shown in (2):

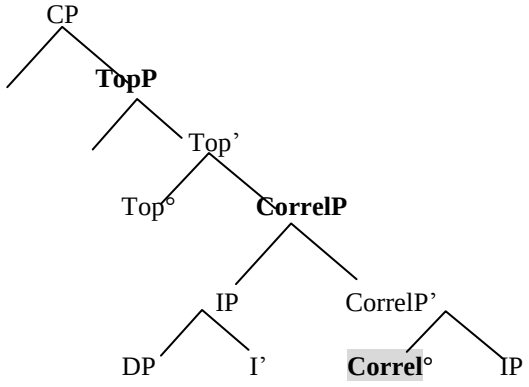
[1] I would like to thank Prof. Heidi Harley, for her constant support and advice. She supportively led me throughout the process of working on this paper and has been a role model in my academic training as a syntactician. I also appreciate Prof. Andrew Carnie's and Prof. Simin Karimi's feedback. Their professional knowledge and suggestions are beneficial to the argumentation of this paper. And many thanks are given to the participants in NACCL 23 for their questions and feedback. Any remaining errors are entirely my responsibility.

(2) 天氣越熱, 他越想吃冰
tienqi **yue** re, ta **yue** xiang chi bing
weather the.more hot, he the.more feel.like eat ice cream
'The hotter the weather is, the more he feels like eating ice cream.'

This paper has three goals. The first concerns the distribution of the degree-denoting morpheme *yue* in the Chinese comparative correlative construction (in the following discussion, the term '*yue*-construction' is used for short). Broadly speaking, the position of *yue* is right before predicates; it can modify verbal phrases, negation, adjectives, and adverbs. The second goal is to propose a syntactic structure of the *yue*-construction, which takes into consideration the semantic and syntactic interdependence of the two *yue*-constituents. Moreover, in addressing the problem that some example sentences of the *yue*-construction show a weird word order, I discuss the interaction of the *yue*-construction with the topic-comment structure in Mandarin grammar.

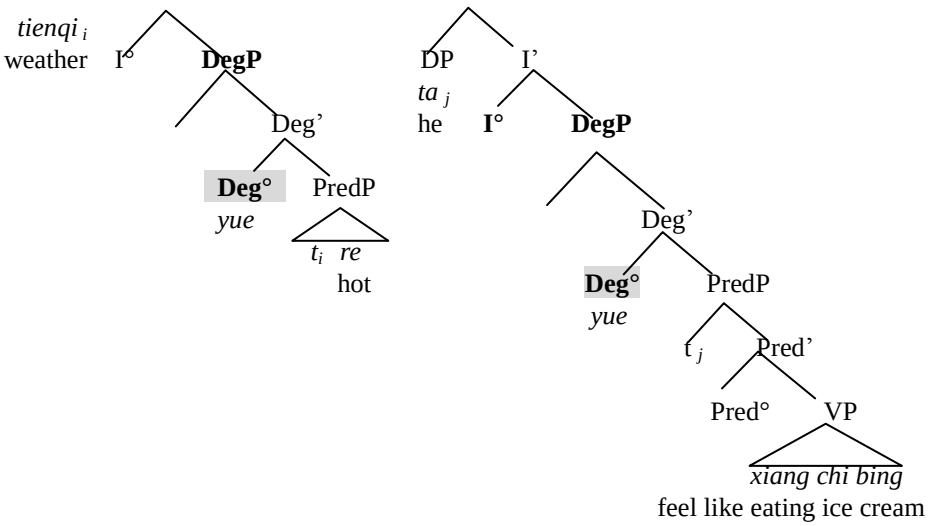
In my analysis, I borrow Beck's (1997) idea of Deg(ree)P, and propose that its head is realized by *yue*[2]. The antecedent DegP and the consequent DegP are selected together under the functional category Correl(ative)P, and there exists syntactic and semantic interdependency between the two Deg phrases. The structure I propose for the example of (2) is illustrated in (3) in next page. In this proposed structure, the CorrelP selects for two IPs, and each IP contains a *yue* phrase. The degree-denoting *yue*, preceding the predicate, is the head of DegP. Furthermore, instead of little *v*P, I assume PredP (i.e. Predicate Phrase), a more general version of little *v*P from Bowers (1993)[3]. The reason lies in the fact that the morpheme *yue* can modify all kinds of predicates, not just verbal ones.

(3)



[2] In dealing with English comparative correlative constructions, Beck (1997) proposes the head of DegP is the comparative morpheme er/more while for den Dikken (2005), DegP is headed by '*the*'.

3 Bowers (personal conversation) states that the category Pred shares many properties with little v. The main difference is that Pred projects a small clause when it selects AP, PP or DP. In his article (2001), he proposed to clarify this by treating little v as a particular lexical instantiation of the category Pred.



In addition, another functional category Top(ic)P is included. The main function of TopP is to host a topic in its specifier position, and the head of this category may be empty or realized by topic-particles such as *dehua, ne, a,*etc. The Top(ic)P is optional and can be recursive; in later discussion, we will see that the TopP can help account for some word-order problems like the example in (4), which involves a topicalized NP *ta* 'he'. A more complicated example in (5) involves two topicalized elements: the NP *ta* 'he' and the clause *tienqi yue re* '(if) the weather is hotter'.

(4) 他天氣越熱,越想吃冰
ta tienqi yue re, yue xiang chi bing
he weather the.more hot, the.more feel.like eat ice cream
'For him, the hotter the weather is, the more he feels like eating ice cream.'

(5) 他啊/呢, 天氣越熱,越想吃冰
ta (a/ne), tienqi **yue** re (dehua), **yue** xiang chi bing
he PART weather the.more hot PART the.more feel.like eat ice cream
'For him, the hotter the weather is, the more he feels like eating ice cream.'

To account for sentences like (4) and (5), where there is interaction between the *yue*-construction and topicalization, the topic-comment approach is considered significant in the analysis. I propose that the example in (5) has a structure in which_the first *yue*-clause is the topic and the second *yue*-clause is the comment.

2. The *yue*-constructions

2.1. yue as a degree-denoting modifier

In the *yue*-construction, both the antecedent and the consequent constituent contains

the morpheme *yue* 'the more' as a modifier of the predicate. In the following discussion, I refer to the antecedent unit as the "yue_1-constituent" and the consequent unit as the "yue_2-constituent." The examples in (6a) and (6b) illustrate that the degree-denoting morpheme *yue* precedes the predicate it modifies. Another crucial point is that fronting of the comparative constituents is obligatory in English, but prohibited in Mandarin[4], as demonstrated by the ungrammatical sentence in (6c).

(6) a. 蘋果越甜越好吃
[$_{CP}$[$_{IP}$ pingguo [$_{DegP}$ **yue** tian]] [*pro* $_{IP}$[$_{DegP}$ **yue** haochi]]]
apple the more sweet the more delicious
'The sweeter an apple is, the tastier it is'.

b. 你越逼我, 我越不說實話
[$_{CP}$[$_{IP}$ ni [$_{DegP}$ **yue** bi wo]], [$_{IP}$ wo [$_{DegP}$ **yue** bu shuo shihua]]]
you the more force me, I the more NEG tell truth
'The more you force me, the less willing I will be to tell the truth'.

c. * **越**逼我你, **越**不說實話我
* [$_{CP}$ **yue** $_i$ [$_{IP}$ ni t_i bi wo], **yue** $_j$ [$_{IP}$ wo t_j bu shuo shihua]]
the more you force me , the more I NEG tell truth
'The more you force me, the less willing I will be to tell the truth'.

The degree-denoting *yue* can also modify negated predicates by preceding it. For instance, in (7a) and (7b), *bu* is a negation marker and modifies the predicate following it while *yue* modifies the whole negated predicate phrase. This suggests that *yue* needs to be in a higher position than NegP so as to have a scope over the whole negated predicate phrase:

(7) a. 蘋果越不甜, 越不好吃
[$_{CP}$[$_{IP}$ pingguo [$_{DegP}$ **yue** **bu** tian]], [$_{IP}$ [$_{DegP}$ **yue** **bu** hauchi]]]
apple the.more NEG sweet the.more NEG tasty
'The less sweet an apple is, the less tasty it is.'

b. 你越不喜歡我去跳舞, 我越要去跳(舞)
[$_{CP}$ [$_{IP}$ ni [$_{DegP}$ **yue** **bu** [$_{PrP}$ xihuan wo qu tiaowu]]], [$_{IP}$ wo [$_{DegP}$ **yue** iao qu tiao(wu)]]]

[4] A potential topic for future research is to discuss whether this has to do with the wh-in-situ nature of Mandarin. One point that deserves notice concerns the crosslinguistic variation in fronting of the correlative constituent in both clauses (e.g. *the*-phrases in English). Abeillé and Borsley (2008) point out that in both English and French, fronting is obligatory in both clauses. They propose an account within P&P which claims that the C^0 which heads the clauses has certain features which requires its specifier position to be filled by a correlative phrase.

you the more NEG. like I go dance, I the more want go dance
'The more you dislike that I go dancing, the more I would like to go (dancing).'

What needs to be noted is the position of *yue* 'the more' and *bu* 'not' when the modal *huei* 'will, may' is present in the same clause. The following examples (8a) and (8b) show that in an IP structure, *yue* appears in a lower position than the modal but precedes the negated/assertive predicate *bu hao/hao* respectively. That is, in both (8a) and (8b), the modal *huei*, which indicates future tense, is in a higher position.

(8)

a. 你越不用功, 成績會越不好
[$_{CP}$ [$_{IP}$ ni [$_{DegP}$ yue bu yonggong]], [$_{IP}$ chengji [**huei** [$_{DegP}$ yue [bu hao]]]]
you the.more NEG study.hard, grade MOD the.more NEG good
''The less hard you study, the worse your grade will/may be.'

b. 你越用功, 成績會越好
[$_{CP}$ [$_{IP}$ ni [$_{DegP}$ yue yonggong]], [$_{IP}$ chengji [**huei** [$_{DegP}$ yue [hao]]]]
you the.more study.hard, grade MOD the.more good
''The harder you study, the better your grade will/may be.'

From the above description, we have seen that, *yue* can modify both negated and asserted predicates. Nevertheless, there is restriction on the type of predicates that it can modify in terms of *telicity*. In the example in (9), the two verbs *xiang* 'think' and *danxin* 'worry' can be interpreted as both present or past tense, depending on the prior discourse. However, when aspectual particles[5] such as *le* (indicating perfectiveness) and *guo* (indicating experience) and *wan* (indicating completion) are attached to the verbs, the sentence becomes unacceptable, as illustrated in the following:

(9) 我越想*了/*過, 越擔心*了/*過
wo yue xiang ***le/*guo/*wan**, *pro* yue danxin ***le/*guo/*wan**.
I the more think, PART the more worry PART
'The more I thought about it, the more I worried about it.'

I assume that semantically *yue* requires an unbounded scale to operate on, so its complement needs to be interpreted atelically. The bounded aspectual particles *le/guo/wan* impede this and thus cause uninterpretability[6]. In other words, (9) is ruled out

[5] I would like to thank Prof. Andrew Carnie for raising this interesting question about the aspect marker.

[6] I am indebted to Heidi Harley for her elucidation for the telicity problem in the example (9). She further point out the difference between English and Mandarin with respect to telic interpretation in comparative correlative construction. Unlike its Mandarin equivalent sentence, the English sentence, as shown below in (i), is entirely acceptable; the past tense doesn't prevent atelic reading with predicates like *think* or *worry*, which are regarded as atelic verbs:

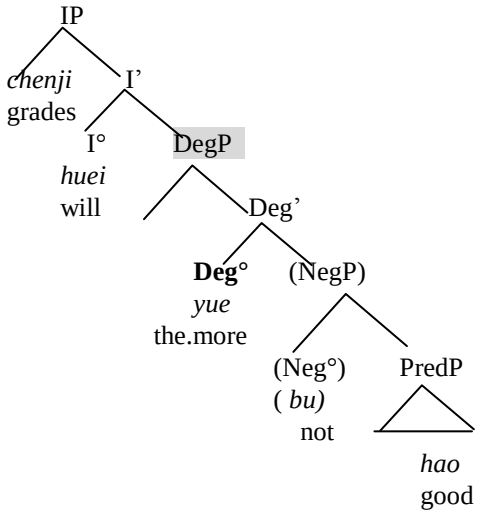
(i) The more I thought about it, the more I worried about it.

However, both English and Mandarin get a similar effect with telic predicates such as *break* or *notice*—it's not that it's ungrammatical exactly, but we need to understand the predicate as happening repeatedly:

because the *yue*-construction entails an atelic interpretation.

Based on the above discussion about the distribution of *yue*, the structure in (10) in the next page demonstrates the position of *yue* in the IP. One might consider the DegP an adjunct, having an adjacency relationship with the predicate it modifies. However, I argue against taking the DegP as an adjunct. My argument is based on an observation: adjuncts are optional constituents whereas the occurrence of the DegP, headed by the morpheme *yue*, is conditioned by the co-occurrence of another DegP within the same CP. In the following section, it is further discussed why the DegP is not an adjunct.

(10)



2.2 The interdependence of yue$_1$ and yue$_2$

2.2.1. A previous analysis

To argue against taking DegP as an adjunct, I would like to refer to Tsao and Hsiao's analysis (2002), in which they apply the topic-comment approach to the *yue*- construction. They argue that the *yue*$_1$-clause functions as topic and the *yue*$_2$-clause as comment, as illustrated by the two ovals in (11). In other words, the *yue*$_1$-clause is the topic of the yue$_2$-clause and is realized as an IP-adjunct. Moreover, there can be another higher topic, as produced in (11a). They argue that for a sentence like (11a), the NP *ta* 'he', as the topic of the whole CP, is base-generated in [Spec, CP] and co-indexed with the empty category *pro* in [Spec, IP] while the lower topic, i.e. the *yue*$_1$-clause, is an IP adjunct to the comment-IP. The structure proposed by Tsao and Hsiao (ibid.) is illustrated in (11b):

(11) a. 他天氣越熱越吃不下

ta tianqui yue re, yue chi bu xia

(ii) #The more I broke the glass, the more I laughed.

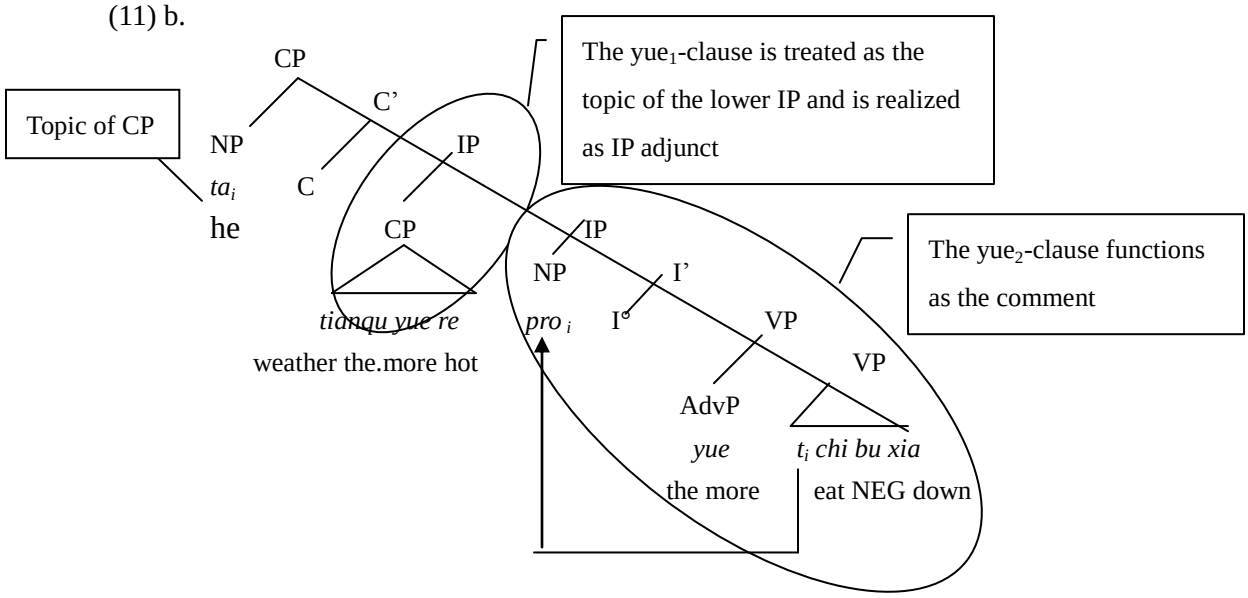
Similarly

(iii) #The more I noticed the difference, the more surprised I got.

But the repetition coercion still cannot save a sentence like the example of (9).

he weather the more hot the more eat NEG down
'For him, the hotter the weather is, the less he would like to eat.'

(11) b.



2.2.2.The yue_1-clause as an IP-adjunct?

In fact, the above structure in (11b) fails to capture a major trait of the *yue*-constructions: the interdependence between the yue_1 and yue_2-constituent. It is problematic to treat the yue_1-constituent as an adjunct. If the yue_1-clause, based on the structure in (11b), were an IP adjunct to the yue_2-clause, then we would expect the yue_1-clause would be optional and the yue_2-clause could be an independent clause. Nevertheless, it is not the fact. It is observed that yue_1-constituent and yue_2-constituent appear in two separate non-coordinated clauses, as shown in (12). However, unlike coordinate clauses, the two *yue* clauses in Mandarin cannot be switched in order; otherwise the meaning will be changed or cannot be interpreted, e.g. (13a). Moreover, neither of the two clauses can be interpreted without co-occurrence of the other, e.g. (13b) and (13c):

(12) Two non-coordinate clauses:
你越緊張，他越不能專心
ni yue jinzhang, ta yue bu neng zhuanxin
you the.more nervous, he the.more not can concentrate
'The more nervous you are, the less he can concentrate.'

(13) a. *他越不能專心，你越緊張
ta yue bu neng zhuanxi, ni yue jinzhang.
he the.more not can concentrate, you the.more nervous
'The less he can't concentrate, the more nervous you are'.
(The meaning is different from that of the original sequence in (12).)
b. *你越緊張
ni yue jinzhang.
you the.more nervous
c. *他越不能專心，
ta yue bu neng zhuanxi.
he the more not can concentrate

The examples in (12) and (13) provide evidence showing that the two *yue* clauses are mutually interdependent syntactically and semantically. Moreover, a typical adjunct does not select for specific types of clauses which it adjoins to; by contrast, there is restriction on the selection of the component clause in the *yue*- constructions. For instance, in the examples in (14), the *yue*-clause combines with an independent clause instead of a *yue* contained, and this results in ungrammaticality (Tsao and Hsiao 2002; Abeillé and Borsley 2008).

(14) a. *蘋果越甜，我喜歡吃蘋果
pingguo **yue** tian, wo xihuan chi pingguo
apple the more sweet, I like eat apple
'* The sweeter an apple is, I like eating apples.'
b. * 他很擔心，我越隱瞞事實
ta hen danxin, wo **yue** yingman shishi
he very.much worry, I the more conceal truth
'* He is worried, the more I conceal the truth.'

The above examples demonstrate the interdependence between the two *yue*-clauses in the syntactic structure; the first one relies on the second one and vice versa. Therefore, the adjunct approach as demonstrated in (11b) is not proper.

3. An alternative analysis

3.1 The Correl(ative)P

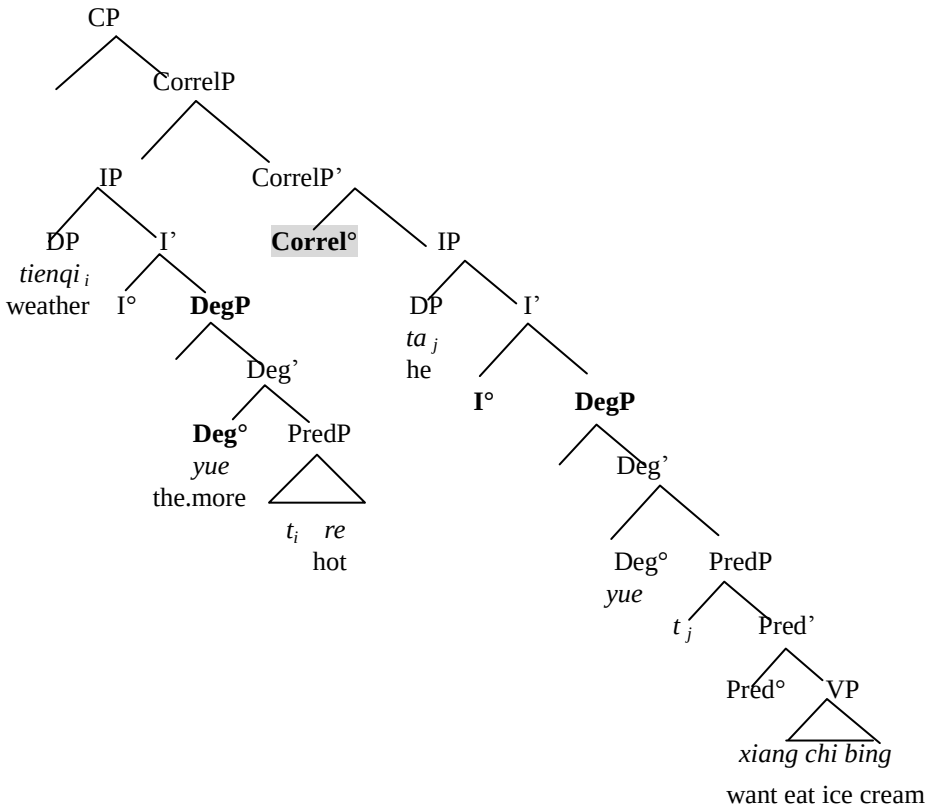
Since the two *yue*-clauses rely on each other and since the adjunct approach fails to demonstrate this absolute co-occurrence, an alternative analysis is needed to account for the syntactic and semantic bond between the antecedent and the consequent clause. In the following discussion and presentation, I propose Corrl(ative)P, a functional category. The CorrelP is stipulated to select for two IPs: One is in the specifier position and contains the yue_1-constituent, and the other is in the complement position and contains the yue_2-constituent. It needs to be noted that the two IPs, by virtue of containing a predicate

modified by the DegP, denote a degree while CorrelP denotes a truth value. That is, the CorrelP is 'true' if the degree of *yue*$_1$-constituent is correlated with the degree of *yue*$_2$-constituent. I propose that sentences of the *yue*-construction, like the example in (2), repeated here in (15a), has the structure shown in (15b).

(15) a. 天氣越熱, 他越想吃冰

tienqi yue re, ta yue xinag chi bing
weather the.more hot he the.more want eat ice.cream
'The hotter the weather is, the more he feels like eating ice cream.'

(15) b.



3.2 Topicalization and the yue-constructions

After proposing the CorrelP to analyze the *yue*-construction, I would like to draw attention to a variant of the *yue*-construction. In addition to the basic sentence structure like (15b), there are such sentences with unusual word orders like the examples in (16), where the topic particles *dehua/ne/a* [的話/呢/啊] are optional. In (16a) and (16b), arguments in the second clause are topicalized and appear in the sentence-initial position, preceding an optional pakkrticle like *dehua, ne*, and *a*[7]. Either via movement or via

[7] The three particles listed here are taken as markers of topichood. They can appear in general

base-generation, both the topicalized element and the particle are in a position in the left periphery.

(16) a. 他的話/呢/啊, 天氣越熱, 越想吃冰

ta$_i$ (dehua/ ne/ a) tienqi yue re, ***pro***$_i$ yue xiang chi bing
he PART weather the.more hot, the.more want eat ice.cream
'For him, the hotter the weather is, the more he feels like eating ice cream.'

b. 冰的話/呢/啊, 天氣越熱, 他越想吃

bing$_i$ (dehua/ ne/ a), tienqi yue re, ta yue xiang chi ***pro***$_i$
ice.cream PART, weather the.more hot, he the.more want eat
'As for ice cream, the hotter the weather is, the more he feels like eating it.'

A possible account for the problem of word order in (16) is that there is an XP, higher than IP and lower than CP . The position [Spec, XP] can help host the topicalized NP. For this functional XP, I will borrow the idea of the functional category TopicP (Gasde and Paul,1996; Rizzi, 1997) and Gasde and Paul's (1996) assumption that the topic-particle *dehua, ne,* and *a* in Mandarin is realized as the head of the TopP . In an ordinary subject-predicate sentence, the TopP is absent, but when there is a topicalized element, the TopP is the complement of C^o, and the topic will be in the position of [Spec, TopP] with the head realized by a topic particle or being empty. In the following example (17a), the second part of the utterance illustrates the usage of the topic-particle *dehua*, *ne*, or *a*. The structure of the second clause is presented below in (17b) (cf. Gasde and Paul, 1996):

(17) a. 我自己很喜歡運動,

wo ziji hen xihuan yundong;
I self very like exercising;
我老公的話/呢/啊, 完全不愛運動
wo laogong$_i$ *dehua/ne/a*, p*ro*$_i$ wanquan bu ai yundong
my husband PART entirely NEG love exercising

---

sentences, not just in comparative correlative constructions, and their presence is optional. When present, they can be attached to nominal, phrasal and clausal constituents, as illustrated in (i),(ii), and (iii):

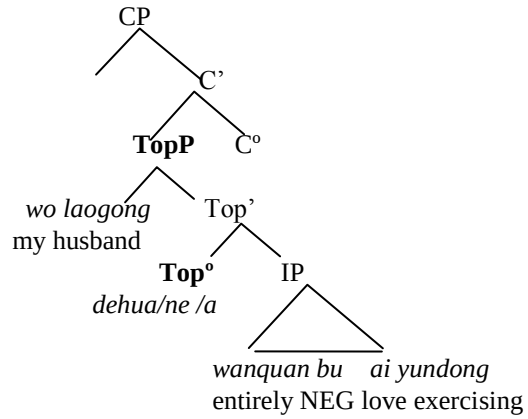
(i) qian (dehua/ne/a), wo hui xiang banfa
money PART, I will figure.out solution
'As for money, I will figure out a solution.'

(ii) qian han fanzi (dehua/ne/a), wo hui xiang banfa
money and house PART, I will figure.out solution
'As for money and the house, I will deal with them.'

(iii) ruguo ni xiuiao zhe bi qian (dehua), wo hui jie ge ni.
If you need this CL money PART, I will lend to you
'If you need the money, I will lend it to you.'

'I like exercising very much. As for my husband, he entirely doesn't like exercising.'

(17) b.



In the above structure (17b), I assume the hierarchy of functional categories CP>TopP>IP (Gasde and Paul, 1996: 270 ff.; Rizzi, 1997). CP and IP are both obligatory. By contrast, Topic°, only projects a TopP when its specifier is filled with a topic no matter whether its head is empty or overtly filled by a topic-particle *dehua/ne/a*; otherwise, TopP will be absent. In addition, TopP can be reiterated if there is more than one topic in the sentence, as shown in (18):

(18) 他**呢**, 如果心情不好**的話,** 就抽菸

ta$_i$ (ne), ruguo xinqing bu hao (dehua), ***pro***$_i$ jiu chouian

he PART if mood not good PART , then smoke.cigarette

'For him, if he is in a bad mood, he smokes.'

If the specifier of CP were the topic-position, a sentence with more than one topic in the sentence-initial position, like (18), could not be accounted for. Moreover, as we can see in (18), not only arguments may be topicalized, but a clause can also be realized as a topic when a topic-particle is attached to the end of it. Similarly, the yue$_1$-clause is also likely to be topicalized if a topic-particle is present in the end of it, as illustrated in (19):

(19) a. 他的話/呢/啊, 天氣越熱, 越想吃冰

ta$_i$ (dehua/ ne), tienqi yue re (ne/dehua), ***pro***$_i$ yue xinag chi bing

he PART weather the.more hot PART the.more want eat ice.cream

'For him, the hotter the weather is, the more he feels like eating ice cream.'

Now we need to figure out how topicalization can fit into the *yue*-construction. Before we move on to further discuss the interaction between the topicalization and the *yue*-construction, we need to take a look at the syntactic traits of topic in Mandarin. This has bearing on the proposed analysis of the *yue*$_1$-clause's position in the structure. In the

following section, whether topic is moved or base generated is discussed.

3.3 Base-generated Topic

Chao (1968:69) claimed that "the grammatical meaning of subject and predicate in a Chinese sentence is topic and comment, rather than actor and action" (cf. Li and Thompson, 1989; Huang, 1984; Tsao 1987, 1990; and Shi, 2000, for more detailed discussion about topic-comment constructions in Chinese syntax). In Chinese linguistics, topic is treated with two approaches: the movement approach and the base-generation approach. In my analysis, I adopt the assumption that topic in Mandarin is base generated[8] (Huang, 1984; Gasde and Paul, 1996). In a normal topic-chain sentence like (20a), the topic *zhe ben xiaoshuo* 'this novel' is co-indexed with the object *pro* in the two consequent comment clauses. In a sentence of the *yue*-construction like (22b)[9], in addition to the object *pro* in the third and the fourth comment clause, the topic is also co-indexed with a subject *pro* in the first comment clause (Huang 1984, for more discussion about *pro* and base-generated topic).

(20)a. 這本小說，我很喜歡，讀了很多次

[8]In a sentence like (i), the NP *zhe ben shu 'this book'* may be considered to be moved from the object position following the verb *kan 'read'*, as indicated by the trace in (ii). An alternative approach is that the topic is considered to be base generated and coindexed with the *pro* in the object position, as shown in (iii):

(i) zhe ben shu_i, wo kan le
this CL book, I read perfect.tense.marker
'This book, I have read it.'

(ii) zhe ben shu_i, wo kan t_i le

(iii) zhe ben shu_i, wo kan pro_i le

In fact, there exists another type of topics which "bear no anaphoric relationship to a constituent in the comment sentence" (Gasde and Paul, 1996: 267). The existence of these types of topics calls the movement analysis of gapped topics into question. An example is presented by Li and Thompson (1989: 462):

(iv) na-chang huo, xinkui xiaofangdui lai de kuai
That-CL fire fortunately fire-brigade come adv.PART quick
''That fire (topic), fortunately the fire-brigade came quickly.

In addition, as a discourse-oriented language, Mandarin has 'zero topic', that is, a discourse topic which is not overtly indicated. The example in (ii) shows that in object-drop constructions, an empty category can be licensed by a zero topic, which refers to an element in previous discourse (Huang, 1984.)

(v) [$_{Top}$ e_i], [Zhangsan shuo [Lisi bu renshi e_i]]
Zhangsan say Lisi NEG know '
'*[Him_i], Zhangsan say Lisi didn't know e_i.'

[9] For most native speakers, when the topic *zhe ban xiaoshuo* 'this novel' appears in the sentence initial position, the redundant pronounced pronoun *ta* 'it' in the *pro* positions makes both sentences at least weird, if not entirely unacceptable.

zhe ben xiaoshou$_i$, wo$_j$ hen xihuan *pro*$_{i,,}$ *pro*$_j$ *du le* *pro*$_i$ *henduo ci*
this CL novel I very like read PART[10] many times
'As for this novel, I like it very much and have read it many times.'

b. 這本小說, 很有趣, 我閱讀越喜歡
zhe ban xiaoshuo$_i$, pro$_i$ hen youqu, wo$_j$ yue du pro$_i$ pro$_j$ yue xihuan pro$_i$
this CL novel very interestingI the.more read the.more like
'As for this novel, it's interesting; the more I read it, the more I like it.'

If we adopted the movement approach, we would need to explain how a NP could be moved across clauses, from an object position, stopping by another object position and then a subject position, and finally to the sentence-initial topic position. It would be costly theoretically! Therefore, the base generation approach is favored. Now with the assumption that topic in Mandarin is base generated, we can move on to the following section to explore how the *yue*-construction can interact with base generated topics in the topic-comment structure.

3.4 Interaction of the yue- construction and the topic-comment structure

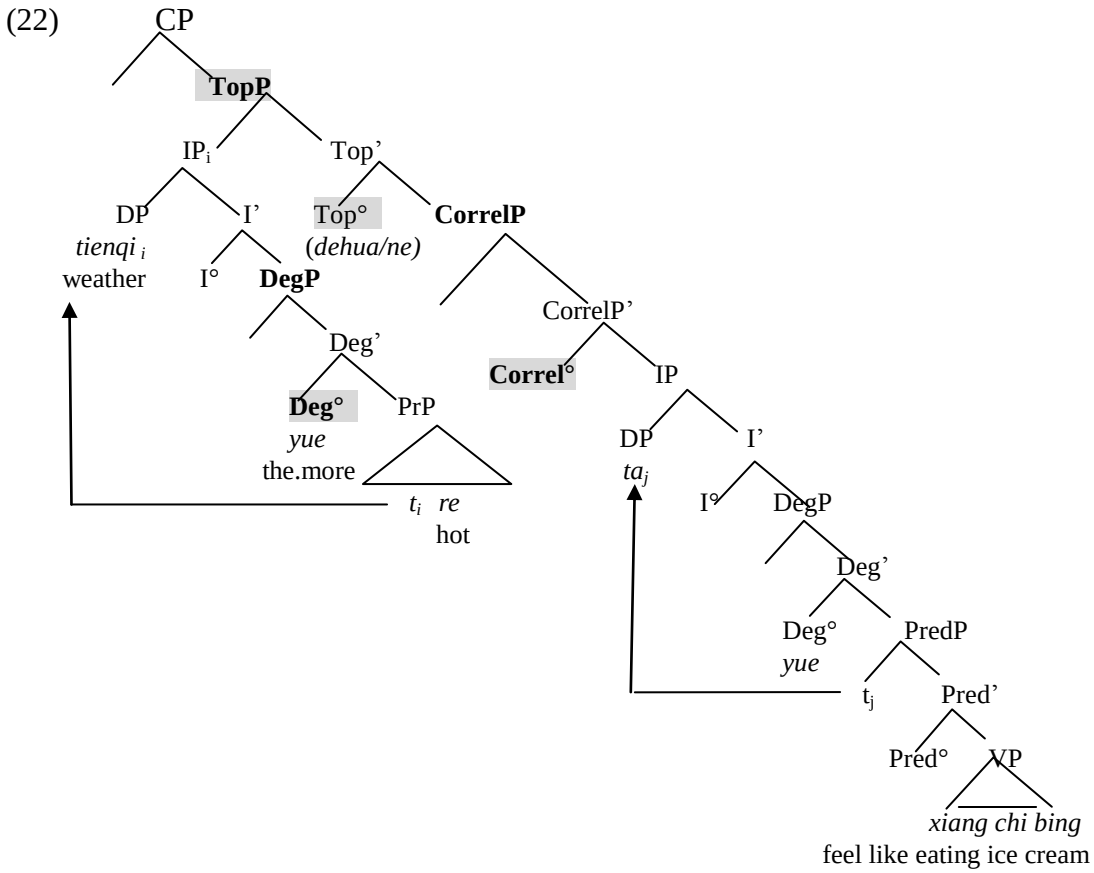
As a "topic prominent" language (Li and Thompson, 1989:15), Mandarin grammar has much to do with the topic-comment structure. When a sentence of the *yue*-construction is in the topic-comment structure, like the example in (21), the *yue*$_1$-clause is treated as the topic of the *yue*$_2$-clause and is based generated in [Spec, TopP].

(21) tienqi yue re ***(dehua/ ne/ a)***, *ta* yue xiang chi bing
weather the.more hot PART , he the.more want eat ice.cream
'The hotter the weather is, the more he feels more like eating ice cream.'

In the present analysis, when the topic particle is not present, the *yue*$_1$-clause is proposed to be in the position of [Spec, CorrelP], as proposed in the structure in (15b). However, when the *yue*$_1$-clause is stressed with a topic-particle or interpreted as a topic of the discourse, it is base-generated in the specifier position of the TopP while *yue*$_2$-clause remains in the complement of Correl^0, as illustrated in (22):

[10] The particle *le* is attached after verbs and indicates the perfective tense.

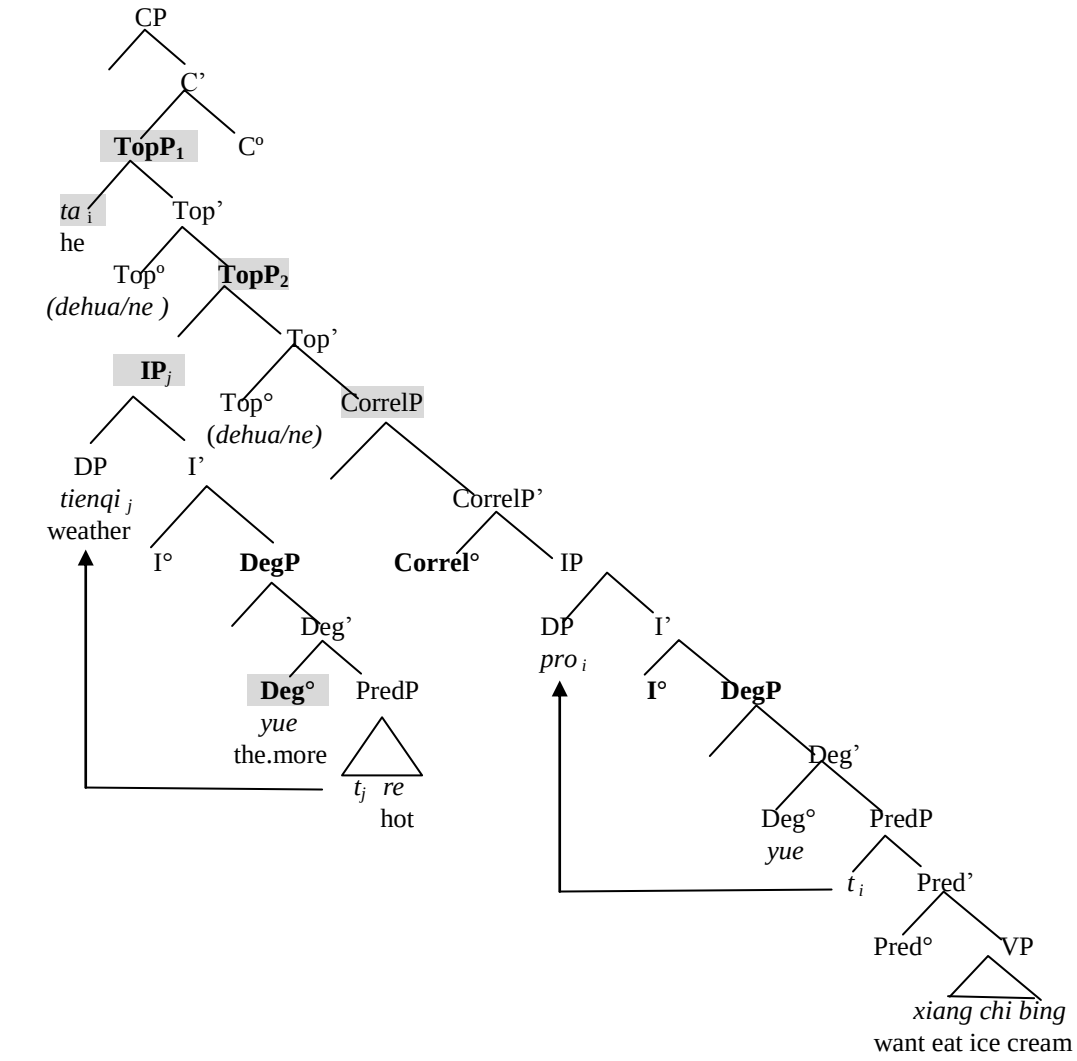
(22)



In a more complicated structure, TopP is assumed to be recursive when there are multiple topics in a sentence, like the example in (23a) in the following, which is identical to (21) except that in addition to the clausal topic *tienqi yue re* 'the hotter the weather is', there is a higher nominal topic, i.e. *ta* 'he', coindexed with the *pro* in the subject position of the *yue*$_2$-clause. This higher NP topic is proposed to be base generated in [Spec, TopP$_1$], and the lower clausal topic is base generated in [Spec, TopP$_2$], as illustrated in (23b):

(23)a. ***ta***$_i$(dehua/ne), tienqi yue re (dehua/ ne), ***pro***$_i$ yue xinag chi bing
he PART weather the.more hot PART, the.more want eat ice.cream
'As for him, the hotter the weather is, the more he feels like eating ice cream.'

(23) b.



4. Summary

In this paper, through examining the distribution of the degree-denoting morpheme *yue* and also through examining a previous analysis proposed by Tsao and Hsaio (2002) with respect to the comparative correlative constructions in Mandarin, I propose an alternative structure for the *yue*-constructions. Unlike Tsao and Hsiao's analysis, the proposed analysis in this paper does not treat the antecedent IP containing the *yue*$_1$-constituent as an adjunct of the consequent IP where the *yue*$_2$-constituent is embedded. I argue that the adjunct approach cannot explain the syntactic and semantic interdependence. With respect to this point, my main argument is that adjuncts are optional while the presence of the *yue*$_1$-constituent is obligatory for the syntactic presence and semantic interpretation of the *yue*$_2$-constituent. To account for this problem, I propose

a head-empty functional category Correl(ative)P. Its function is to select for an antecedent IP in the specifier position and a consequent IP in the complement position. Both of them contain a predicate modified by *yue*, head of the DegP.

In addition, it is observed that some examples of the *yue*-construction involve topicalization. The proposed analysis here draws on another functional category TopP, which is hierarchically under CP and above IP (Gasde and Paul, 1996; Rizz, 1997). I argue against the structure in which topic is hosted in the position of [Spec, CP]. Alternatively, [Spec, TopP] is the position for topic, and Top^0 may be empty or be realized by particles such as *dehua, ne, a,* etc. For sentences which contain more than one topic, TopP can be recursive. One thing to note about topic in Mandarin is that we adopt the base-generation approach, instead of movement, to address topic, and the main evidence is from the existence of non-gap topics and zero topics (Li and Thompson, 1989; Huang, 1984; Gasde and Paul, 1996).

In the *yue*-constructions, the topic-comment approach helps account for not only the semantic relation between the antecedent and the consequent *yue*-clause but also the pro-drop phenomenon. As I proposed above, the position of [Spec, CorrelP] is the default position for the yue_1-clause. On the other hand, the yue_1-clause is also likely to be interpreted as topic, and in that case, it is base-generated in the position of [Spec, TopP] and the optional particle *dehua/ne/a,* is realized as the head of TopP. These have been illustrated in the structure of (22) with one topic and (23b) with two topics.

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Passives and Anti-Passives in Chinese: A Pedagogical Consideration

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Abstract: In this paper, ba-construction is analyzed as an anti-passive structure within the framework of relational grammar. Unlike English, where passivization and anti-passivization are all based on pure syntactic operations, sets of semantic constraints are suggested for generating well formed passive and anti-passive sentences in Chinese. Based on the successful stories of teaching Chinese passives, constructive suggestions from the pedagogical perspectives are made to make the teaching of the notorious ba-construction a much easier job for Chinese instructors.

1. The Issue

Chinese is notoriously known in the Chinese learners for its unique BA-construction. In the literature, many ba-constructions can have non-ba counterpart, showing there must be some grammatical relations between the two, as are shown in (1) and (2)

(1) a. 张三把玻璃打破了。
'Zhangsan broke the glass.'
b. 张三打破了玻璃。
'Zhangsan broke the glass.'

(2) a. 刘参谋从地上捡起来一张小纸条。
'Staff Officer Liu picked up a small piece of paper from the ground.'
b. 刘参谋把一张小纸条从地上捡了起来。
'Staff Officer Liu picked up a small piece of paper from the ground.'

(3) a. *刘师傅把饭吃饱了。
Intended: 'Master Liu is full eating his meal.'
b. 刘老傅吃饱了饭。
Master Liu is full eating his meal.'

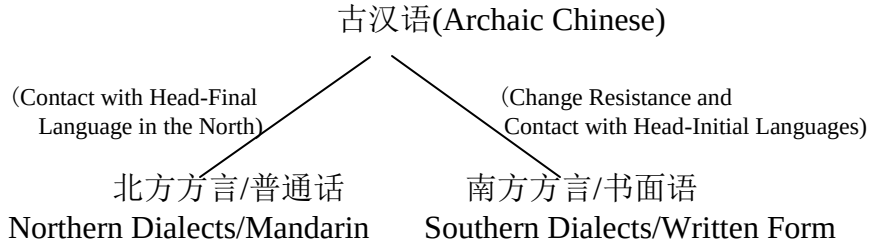
(4) a. 王老师把书放在讲桌上了。
'Teacher Wang has put down his books on the platform table."
b. *王老师放书在讲桌上了。
Intended: 'Teacher Wang has put down his books on the platform table."

However, as noted in (3) and (4) above, not all ba-construction may have non-ba counterpart or the vice versa. Thus some very careful studies were carried out to explore the relations in the past decades. The most notable are the following three analyses: In Li and Thompson (1981) and Gao (1992) *ba* is analyzed as a preposition (or a coverb). In Huang (1991) and Yang (1995) it is treated as a verb. In Gao (1997) and (2000) it is argued to be a marker. However, in this paper, I am going to put emphasis on the relations between ba-construction and non-ba construction as well as with other constructions such as passives in order to find a better way to explain the ba-construction for Chinese learners.

This paper is organized as follows: In Section 2, I discuss the current analysis within the framework of relational grammar. In section 3, I discuss the passives with a proposal of various restrictions in the forming of Chinese passive sentences. In Section 4, I show that Chinese ba-construction can be analyzed as an anti-passive construction. I will also propose a set of restrictions on the formation of the ba-construction. In Section 5, I will discuss other anti-passives in Chinese. In the final section I will discuss the advantages of current analysis in teaching Chinese as a second/foreign language.

Data used in this paper are mainly from Gao (2008), where he has successfully argued that a systematic difference exists between the grammatical rules in the spoken form and the written form. The difference is so significant that he calls for a split of the language shown in the following diagram:

(5) Word Order Variation



If we believe the spoken form represent the direction of language change, then the claim made in this paper will not challenge any previous claim that Chinese is still an SVO language if their data were mainly drawn from written materials.

2. Theoretic Background

In relational grammar (Lyons 1977, Matthews 1981, Pollard and Sag 1994, Gao and Pollard 2003), passives are defined as a set of sentences that can hold the following relations with another set of sentences. Examples are given in (7).

(6) a. $[[NP1]_{SUBJ}\ V_{tr}\ [NP2]_{OBJ}\ ]_{ACTIVE}$ < = > $[[NP2]_{SUBJ}\ V_{passive}\ [by\ NP1]_{OBL}\ ]_{PASSIVE}$
b. $[[NP1]_{SUBJ}\ V_{tr}\ [NP2]_{OBJ}\ ]_{ACTIVE}$ < = > $[[NP2]_{SUBJ}\ [by\ NP1]_{OBL}\ V_{passive}\ ]_{PASSIVE}$
(7) John broke **the glass**. < = > **The glass** was broken by John

As (6) shows, the relations between a passive sentence and an active one are that the grammatical relations of the NPs are different. That is, in order to change an active sentence to a passive one, the NP2 in the object position needs to be promoted to the subject position, triggered by the change of transitivity in the verb. To open up the subject position for the promotion, the original NP1 in the subject position needs to be demoted to an oblique position. In the English example of (6), the NP1 John is the subject in the active sentence, but is demoted to an oblique phrase headed by 'by' while the NP2 'the glass', on the other hand, is promoted from the object position in the active sentence to the subject position in the passive structure.

For an anti-passive structure, the grammatical relations would be a little different. Instead of promotion, the object NP2 is demoted to an oblique position, as (7) shows below.

(8) a. $[[NP1]_{SUBJ}\ V_{tr}\ [NP2]_{OBJ}\ ]_{ACTIVE}$ < = > $[[NP1]_{SUBJ}\ V_{intr}\ [NP2]_{OBL}\ ]_{ANTI\text{-}PASSIVE}$
b. $[[NP1]_{SUBJ}\ V_{tr}\ [NP2]_{OBJ}\ ]_{ACTIVE}$ < = > $[[NP1]_{SUBJ}\ [NP2]_{OBL}\ V_{intr}\ ]_{ANTI\text{-}PASSIVE}$

In natural languages, anti-passive is not a wide-spread phenomenon, but it is discussed in literature in Nes Perce (Noel Rude, 1988), Chamorro (Ann Cooreman, 1988), and Warrungu (Tasaku Tsunoda, 1988)[1]. However, the Heavy NP Shift seems to create a very close example in (9).

(9) Tim gave **John** a book. < = > Tim gave a book **to John**

Thus, the change of grammatical relations of John in (9) from the object position to the oblique phrase headed by 'to' shows the anti-passivization phenomenon in English.

3. The Passives

However, unlike the English passivization where only syntactic operations apply, a set of semantic restrictions must be considered when the passive sentences are created in

[1] It is pointed out by the audience when this paper was presented that most languages that allow anti-passivization generally show a loose relation between the object and the verb. However, in Chinese ba-construction, the fronted object usually has very a very close relation with the verb. More time and research may be needed to find out the true characteristics behind the anti-passivization..

Chinese. For example, the Chinese passive sentences must denote an aversive event[2]. This will help ruling out the unacceptable sentences in (12) and (13).

(10) 张三打破了玻璃。 < = > 玻璃被张三打破了。
'Zhangsan broke the glass.' 'The glass was broken by Zhangsan .'
(11) 李四把王五受贿的事告到了法院。< = > 王五受贿的事被李四告到了法院。
'Lisi has filed the case of Wangwu taking bribery with the court.'
(12) 老师表扬了赵大大。 < = > #赵大大被老师表扬了。
'The teacher has praised Zhao Dada.' 'Zhao Dada was praised by the teacher.'
(13) 老大给了老三一本书。 < = > *老三被老大给了一本书。
'The oldest son gave a book to the third son.'

After explaining these restrictions, learners of Chinese seem to have very little difficulties in understanding and producing passive sentences in Chinese.

4. BA-Construction as Anti-Passives

Based on the successful story of teaching passives, now let's take a similar path in analyzing the ba-construction. As has been well noted in the literature, the Chinese ba-construction does not always have a non-ba counterpart. Various analyses have been proposed to account for the asymmetry. I this paper I will assume with Gao 1997 and 2000 that the word ba should be treated as a case marker/preposition heading a marked complement or prepositional phrase, thus the ba-construction could be treated as a anti-passive construction. Please note that , unlike in the head initial languages where the PP could be after the VP, in a head final language such as spoken Mandarin Chinese, the oblique phrase must go before the verb. Therefore we always find the ba-phrase in a pre-verbal position.

(14) 张三打破了玻璃。 < = > 张三把玻璃打破了。
'Zhang broke the glass'
(15) 李四借走了那本书。 < = > 李四把那本书借走了。
'Lisi borrowed (away) that book.'

[2] Professor Zhang Wanhe (personal communication) points out that aversiveness may not be the best explanation for the acceptance of passive sentences in Chinese. His recent research shows that dislike/ disapproval of (the consequences of) the event on the part of the speaker or unwillingness or even unawareness of the action on the part of the subject NP may be the underline reason for passives. The pseudo-passives that appeared in recent years in China are cited to support his claim. Some examples are given below.

(i) 他被毕业了。 （He was graduated (from college).）
(ii) 小牛才下岗没几天，很快又被上岗了。(Little Niu was found a job only a few days after he lost one.)

(16) 约翰看见了马丽。 < = > *约翰把马丽看见了。
'John saw Mary'
(17) 老王很喜欢小刘的工作作风。 < = > *老王把小刘的工作作风很喜欢。
'Old Wang likes Little Liu's working style.'

To account for the unacceptable ba-constructions in (16) and (17), we need just propose a set of semantic restrictions. Following Gao 2000, where it has been argued convincingly that the ba-NP must denote an affected theme, we propose one of the restrictions to be that in order to have a ba-construction, the object denoted by the ba-NP must be in a different/changed shape, state, or location after the action denoted by the verb. According to the restriction, (14) is acceptable because the glass went from 'whole' before the 'break' action to 'pieces' after the action; (15) is good because the book is now in the hands of Lisi after the 'borrowing' action. (16) and (17) are both unacceptable because neither the event of 'see' nor the event of 'like' could change anything in Mali or the working style of 'Little Liu'.

As long as the requirement of forming ba-construction is satisfied, we can even create a ba-construction without having the non-ba counterpart.

(18) 小红剥了桔子的皮。 < = > 小红把桔子剥了皮。
'Xiaohong peeled the orange.'
(19) *他放书在桌子上。 < = > 他把书放在桌子上。
'He put his book on the table.'

5. Other Anti-Passive Constructions

Having explained the ba-construction, let's turn to other anti-passive sentences as the following show.

(20) 李四离开了学校。 < = > 张三从学校离开了。
'Lisi left the school.'
(21) 大王去了北京。 < = > 大王到北京去了。
'Big Wang went to Beijing.'
(22) 我们要学习雷锋。 < = > 我们要向雷锋学习。
'We must learn from Lei Feng.'
(23) （我们的宗旨是）服务民众。 < = > （我们的工作就是）为人民服务。
'(Our objective/job is to) serve the people.'
(24) 联系我们 (网络用语) < = > (到了北京请马上)和/跟我们联系。
'(when you arrive in Beijing, please immediately) contact us.'

The restrictions on these anti-passives could be that any source-denoting object can be demoted to an oblique phrase headed by 'cong', any goal/destination-denoting object should be demoted to an oblique phrase headed by 'dao', any goal/target-denoting object may be demoted to an oblique phrase headed by 'xiang', and the beneficiary should be headed by 'wei' if demoted, etc.

6. The Pedagogical Consideration

Chinese syntax is a very complicated issue. This paper tries to deal with a very common phenomenon – object fronting. As we have all noted, Chinese seems to be undergoing an fundamental change from head initial to head final that require the object to be repositioned pre-verbally. Current analysis could lead to a better understanding of this phenomenon by the Chinese students even if it may not be consistent with many current theoretical frameworks.

In current analysis, object-fronting can be of two types, passive or anti-passive, depending on whether the subject is affected. If the object needs to replace the subject, known as object promotion, then a passive structure is created, a set of semantic restrictions will determine whether the newly created passive sentences are acceptable or not. If we don't have any changes on the subject position when the object is fronted, known as the object demotion, then an anti-passive structure is created. At the same time, a set of semantic/thematic restrictions is employed to determine whether the newly created structure is acceptable, and further more, what oblique phrase, if acceptable, should be used.

The current study has also simplified the grammar teaching in CFL. In the past, ba-construction has been singled out as one of the most difficult grammar points and teachers of Chinese usually have to spent hours to explain to the Chinese learners how to recognize the correct ways ba-construction should be used. However, according to current analysis, the ba-construction, together with other anti-passive sentences, becomes a very common type of sentence pattern in the spoken form of Mandarin Chinese.

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Rule Conspiracy in Chinese Time Expressions

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The paper attempts to explain Chinese time expressions such as *guòqù shíwǔ nián lái* (过去十五年来, over the past fifteen years), in which moving-time (*guòqù shíwǔ nián*, 过去十五年, the past fifteen years) and moving-ego (*guòqù shíwǔ nián lái*, 十五年来, over the past fifteen years) as two metaphor types oddly coexist in a single phrase. A notion of rule conspiracy is used to explain this oddity. I make a distinction between a Kiparsky-type conspiracy, or K-conspiracy, and an extended Kiparsky-type conspiracy, or EK conspiracy. Given two rules, Rule A and Rule B, if A first applies to D and turns it to D-a, and then B applies to D-a, and turns it to D-b, then Rule A and Rule B are in K-conspiracy. We cannot see the D-a step, but only the D-b step. However, in an EK conspiracy, two outputs from two inputs can coexist in a single domain. Let Rule A and Rule B be two rules in interaction. Let $D = D_1 + D_2$ be the domain of their interaction. If A applies to D_1 and turns it into D_1-a, and B applies to D_2 and turns it into D_2-b, then Rule A and Rule B are in EK conspiracy. In an EK conspiracy, two outputs of the two rules oddly coexist in one domain. Three threads, moving entity, moving orientation and reference point, scheme the EK conspiracy. The EK conspiracy functions at various levels, within one phrase, among phrases within one sentence, and even in different sentences.

1. Introduction

If time is the mind of space, then space is the body of time. (Alexander, 1920) To construct abstract ideas by tangible concepts, metaphors are there to map the terms from the domain of time onto the domain of space. Time is conceptualized in terms of space. Time can be long or short. There are times lying in front of us, as in *a bright future ahead*; or behind us, as in *leave all the days behind*. In Chinese, there are even times above us, as in *shàng gè xīngqī* (上个星期, last week); or below us, as in *xià gè yuè* (下个月, next month).

2. Time as space metaphor

2.1 Time as space metaphor in English

The metaphor of *time as space* has a long history of discussion. Moving-Time and Moving-ego are the two branches of this metaphor. (Clark, 1973; Gentner, 2001; Evans, 2004; Lakoff & Johnson, 1980; Lakoff, 1993; Traugott, 1978) Lakoff (1993) has

constructed his model of time by space metaphor in English with one general metaphor subsuming two special cases. The general metaphor is that time passing is taken as motion. Time is understood in terms of things or entities with locations and motions. The present time is at the same location as a canonical observer. The passing of time is motion. Future times are in front of the observer; past times are behind the observer. Of the time and observer, one thing is in motion, whereas the other is stationary. The stationary entity is the deictic center. Since motion is continuous and one-dimensional, the passage of time is continuous and one-dimensional.

In accordance with the choice of deictic center as the time or as the observer, two special cases are derived under the general metaphor, as is shown in Figure 1 and Figure 2 (Yu, 1998). In Special Case One, time passing is motion of an object while the observer is fixed. Time is moving to the fixed observer with its front in its direction of motion. The observer faces the moving time until the time passes the observer and gets to the back of the observer. In Special Case Two, time passing is motion over a landscape. Time has fixed extension that can be measured. Observer is moving with respect to time. The starting point of the observer can be either away from the time passage or within the extension of the time passage. But the direction of moving is always toward the future. These two special cases under the general metaphor are proved to have covered a wide range of data in English. When it comes to Chinese, Yu (1998) has argued with ample illustration and comparison that these two special cases are also good to view Chinese time expressions.

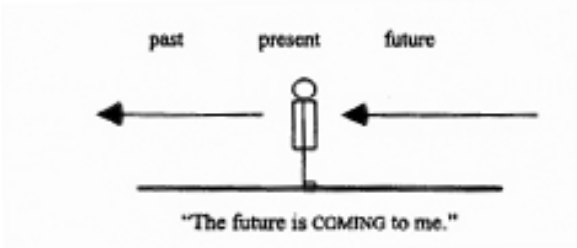

Figure 1: Case 1--Time as a moving object

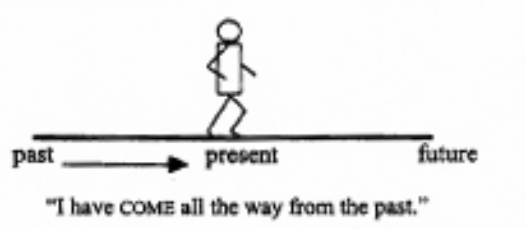

Figure 2: Case 2--Time as stationary landscape

2.2 Time as space in Chinese

Among the great amount of Chinese time expressions, two categories are frequently used and will be focused for discussion in this paper. One category of expressions can be called Category COME-and-GO, involving time expressions with the key word verb *lái* (来, come), or *qù/ wǎng* (去/往, go, leave); the other can be called Category FRONT-and-BACK, involving those time expressions with the key word locative-adverb *q*ián (前, front) or *hòu* (后, back). (Shi, 2004) These four key words can compose with morpheme or words to form time expressions.

As for *lái* (来, come), *qù*/*wǎng* (去/往, go, leave), *q*ián (前, front), and *hòu* (后, back), time expressions with them can refer to either future or the past. However, the metaphors behind them are not necessarily the same. *Lái* (来, come) can compose with

morphemes or words to refer to the future, as in *wèilái* (未来, future), *láirì* (来日, the coming days). In the time expressions with *lái* (来, come) referring to the future time, Special Case One, moving time and stationary observer, is the intended metaphor. *Lái* (来, come) can also compose with morphemes or words to refer to the past time, as in *shíwǔ niánlái* (十五年来, over the past fifteen years). But it is the Special Case Two, involving moving observer and stationary time, that is the utilized metaphor using *lái* (来, come) to refer to the past. Asymmetrically, words or phrases composed with *qù/wǎng* (去/往, go, leave) can only refer to past but not future. Time expressions like *guòqù* (过去, the past), *qùnián* (去年, last year), and *yǐwǎng* (以往, the past), etc., all refer to the past time. The metaphor for these time expressions is Special Case One, which makes use of moving time and stationary observer. Special Case Two, which utilizes moving observer and stationary time, does not apply to the time expressions of future marked by *qù* (去, go).

The same asymmetry was claimed for the time expressions of Category FRONT-and-BACK. According to Lv (1984), in modern Chinese, time expressions with *q*ián (前, front) can refer to either past or future time, while *hòu* (后, back) can only refer to the future but not the past. Shi (2004) echoed this opinion and offered the time as space metaphor for support. However, this paper finds that *hòu* (后, back) can refer to the past time as well. In the time expressions with *q*ián (前, front), both the two special cases can be used. Following Special Case One, *qiántiān* (前天, the day before yesterday), *yǐqián* (以前, before), and *jiànguó qián* (建国前, before the founding of the country) are viewed as referring to the past. Also under Special Case One, *2020 nián qián* (2020 年前, before 2020) refers to the future time since 2020 has not yet arrived. When we set the timetable to achieve some goal in the future, we may set it to be realized before 2020. *Sān diǎn qián* (三点前, before three o'clock) can be referring to the past when the speaking moment has already passed three o'clock. However, it can also refer to the future time if the speaking moment is not three o'clock yet. Time expressions with *q*ián (前, front) can also be mapped from Special Case Two, but only for future time, as in *qiántú* (前途, future; a way ahead), *qiánjǐng* (前景, prospect). As Lv (1984) said, *hòu* (后, back) can refer to the future time, as in *hòutiān* (后天, the day after tomorrow), *jīnhòu* (今后, the days to come; from now on). However, this paper finds that *hòu* (后, back) can also construct time expressions referring to the past following Special Case One. *Jiànguó hòu* (建国后, after the founding of the country) refers to the time from 1949, when P. R. China was found, up to the speaking moment. With a point of time in the past as the reference point, the time expression constructed with *hòu* (后, back) can refer to the time in the past. Also in the phrase *liǎng nián hòu* (两年后, after two years), if the reference point is set somewhere in the past, say 1980, two years after which is still in the past. So whether or not *hòu* (后, back) can refer to the past time expressions depends on the choice of reference point.

In Table 1, some examples of time expressions with *lái* (来, come), *qù*/*wǎng* (去/往, go, leave), *q*ián (前, front) and *hòu* (后, back) are collected and classified by their reference to the future or past, based on two special cases of the time as space metaphor. Notice that "—" stands for a null collection.

Table 1. Category COME-and-GO and Category FRONT-and-BACK

		lái	***qù*/*wǎng***	***qián***	***hòu***
Moving time	past	—	*guòqù, qùnián, yǐwǎng*	*qiántiān, yǐqián, jiànguó qián*	*jiànguó hòu, liǎng nián hòu*
	future	*wèilái, láirì*	—	*2020 nián qián, sān diǎn qián*	*hòutiān, jīnhòu*
Moving ego	past	*shíwǔ nián lái*	—	—	—
	future	—	—	*qiántú, qiánjǐng*	—

3. Rule Conspiracy

3.1 Kiparsky-type conspiracy (K-conspiracy)

Kiparsky (1968) has originally proposed concepts of feeding and bleeding to characterize rule relations in diachronic phonological change. Hsieh (1989a, 1989b, 1992) proposed the theory of interaction as a framework for the reconciliation between formalism and functionalism. From Hsieh's theory, Her (1994) adopted and developed the groups of concepts of feeding, counter-feeding, bleeding, and counter-bleeding. According to his illustration of the taxonomy of interaction (Her, 1997), conspiracy (or counter-bleeding) is defined as follows:

> Given two competing rules, R1 and R2, if the same input always yields a unique result, then R1 and R2 are in conspiracy (or in a counter-bleeding relationship) .

The sound change in the Chinese word *jiàn* (见, see, catch sight of) makes a good example of such conspiracy. Assume that D the domain of the interaction of the rules. D-a is what we get after applying Rule A, while D-b is what we get after applying Rule B. Make [j] insertion Rule A. Insert a [j] between the initial [k] and the nuclear vowel [a], so that [k *ϕ*an] becomes [k*j*an], which is the phonological shape of 见 in Middle Chinese. Rule B is palatalization. Turn the [k] before [j] into [tɕ], resulting in [tɕ*j*an], the sound shape of 见 in Modern Chinese. We cannot see the D-a step, or the [k*j*an] step. We can only see the D-b step, or the [tɕ*j*an] step.

3.2 Extended Kiparsky-type conspiracy (EK conspiracy)

Assuming that the above conspiracy is the Kiparsky-type conspiracy, we have the distinction between a Kiparsky-type conspiracy, or K-conspiracy, and an extended Kiparsky-type conspiracy, or EK conspiracy, as we are proposing in this paper.

> Given Rule A and Rule B which are in interaction. Let D = D_1 + D_2 be the domain of their interaction. If A applies to D_1 and turns it into D_1-a, and B applies to D_2 and turns it into D_2-b, then A and B are in EK conspiracy.

There is a Chinese time expression pattern, *guòqù* + time period + *lái*. For example, *guòqù shíwǔ nián lái* (过去十五年来, over the past fifteen years), which refers to the past fifteen years. Such time expressions are also covered by the above-mentioned general metaphor. However, neither of the two special cases is able to fully explain it. In the part of *guòqù shíwǔ nián* (过去十五年, the past fifteen years), the time is moving past the stationary observer, which embodies the Special Case One; while in the part of *shíwǔ niánlái* (十五年来, over the past fifteen years), it is the observer who came along all the way through the past fifteen years, which is the Special Case Two. As we can see, the two special cases, moving-time and moving-ego, are oddly coexisting within this one phrase. In the same phrase, it is the different entities that are moving at their respective domains. In the example here, the past fifteen years of time is the domain where Rule A and Rule B are applied. Rule A, moving time and stationary observer, is applied in part of D, which is D_1, and turns D_1 into D_1-a, in the form of *guòqù shíwǔ nián* (过去十五年, the past fifteen years), for instance. Rule B, moving observer and stationary time, is applied in the other part of D, which is D_2, and turns D_2 into D_1-b, in the form of *shíwǔ niánlái* (十五年来, over the past fifteen years). It is really interesting that these three type of time expressions, *guòqù* + time period, time period + *lái*, and *guòqù* + time period + *lái*, can all be used independently in daily conversation. (Center for Chinese Linguistics Corpus, PKU) The conspiracy is thus evident that two counteracting rules are applied in two parts of a single domain, and their outputs coexist in the one phrase.

4. Rule Conspiracy in Chinese time expressions

4.1 Rule conspiracy schemes

To scrutinize the rule conspiracy in Chinese time expressions, three threads that scheme the conspiracy are: 1) moving entity; 2) moving orientation; and 3) reference point. Let us explain these three strings.

Moving entity: *time vs. observer*

As it is stated in the general metaphor, of the time and observer, one thing is in motion, and the other is stationary, while the stationary entity is the deictic center. Different moving entities reflect the different special cases of the time as space metaphor. Moving time and stationary observer unveils the Special Case One, whereas moving observer and stationary time shows the Special Case Two. The idea has been generally

agreed that for one time expression, either Special Case One or Special Case Two is utilized. In each expression, either the time or the observer is set in motion, while the other is kept stationary.

However, as the case of EK conspiracy above has shown, even within one time expression, not only one special case but both Special Case One and Special Case Two are in interaction. That is to say, in one time expression, both time and observer can be in motion. Two rules of cases interact in one domain following the EK conspiracy, resulted in time expressions like *guòqù shíwǔ nián lái* (过去十五年来, over the past fifteen years).

Moving orientation: *past vs. future*

The moving orientations are a converse for the moving time and moving ego in two special cases. As it is stated in the general metaphor of time as space, where the canonical observer is located is the present. Future times are in front of the observer and past times are behind the observer. In Special Case One, time moving is directing to the past. The front of the moving time is in its direction of motion, that is, the past. Time may backflow, but that is still taken as a wish which cannot be realized within the limit current technology. When the observer recalls the past time, the passage of time may wash back in the imagination. In Special Case Two, observer is moving with respect to the time ahead of the observer. Time is moving toward the future. The observer can turn around and look back at the past days. In such case, the observer is facing the past. In some expressions, the observer can even go back to the time that s/he has come through. Unfortunately, this, too, can only happen in mind.

With the unidirectional moving for either time or observer in each special case, however, it has seldom been indicated whether the observer is facing the future or the past. Alverson (1994) argued that in Chinese the speaker/experiencer is always stationary, facing the past with the future behind. In contrast, after analyzing rich data, Yu (1998) claimed that the observer in Chinese always faces the future and has the past behind, which is consistent with the observer in English time expressions. However, from Yu's (1998) data, we find exceptions involving words like *huígù* (回顾, look back), *huíshǒu* (回首, turn around), and *huímóu* (回眸, glance rearward), where the observer turns around from the future and faces to the past. In the phrase *huí dào guòqù* (回到过去, get back to the past), the observer is imagined to get back to the past. The observer is always facing the future but may look back as well. In the imagination, the observer can even run back to the past and this actually well match the time backflow in the imagination.

Reference point: *location of the observer vs. the time passage*

When talking about verb COME and GO, it is widely accepted that COME refers to motions to(ward) the deictic center, whereas GO describes motion from the deictic center. (Talmy, 1975, 2000; Oe, 1975) However, the speaker is not the only reference point. Take the sentence "*Can I come visit you?*" as an example, in which COME is used instead of GO when the motion VISIT is leading away from the speaker. So in this

approach, the deictic center is explained normally as the speaker, yet can be shifted to some other entity. The confusion of shifting restriction and varied situation in different languages has given the analysis questions that could not be easily answered. Fillmore (1997) thereafter proposed person-based approach. COME indicates motions towards the location at the utterance time, the location at the event time, or the "home base" of the speaker or the addressee. GO indicates motion toward a location distinct from the speaker's location at the utterance time.

Based on the above mentioned approaches, Oshima (forthcoming) proposed a set of individuals as the reference points, to be chosen in accordance with two implicational hierarchies. The person hierarchy for reference (RP) inclusion follows the ascending ranking: 1st < 2nd < 3rd. Deictic verbs follow the ascending hierarchy: RP member's location at the utterance time < an RP member's location at the event time < an RP member's "home base" (at event time).

For the above-mentioned two categories of Chinese time expressions, in different special cases, the reference points may differ. For Category COME-and-GO, in the case of moving-time, the present location of the observer, or the RP member's location at the utterance time, is taken as the reference point. *Lái* (来, come), and *qù/ wǎng* (去/往, go, leave) in Special Case One, like *wèilái* (未来, future), *guòqù/wǎng* (过去/往, the past), the reference point is the location of the observer, resulting in the present. There is no time expressions constructed by *qù/wǎng* (去/往, go, leave) in Special Case Two. For time expressions with *lái* (来, come) under Special Case Two, like *shíwǔ nián lái* (十五年来, over the past fifteen years), the observer came through the passage of the past fifteen years and is now standing at the point of the present. An RP member's location at the event time is taken as the reference point, which happened to be the present. So in both Case Moving-time and Case Moving-ego, the reference points are shown to be the point of present.

The case is different for Category FRONT-and-BACK. Under Special Case One, moving time and stationary observer, the reference points for Category FRONT-and-BACK time expressions are located within the time passage itself, whereas the location of the observer does not matter. Front or back is now relatively within the passage of the time, but not in front of the observer or behind the observer. The front of the time passage is still the front of the time passage even when it passed the observer. There is exception only when the location of the observer happens to be the present time, as in *qiántiān* (前天, the day before yesterday), *hòutiān* (后天，the day after tomorrow), *qiánnián* (前年, the year before last year), and *hòunián* (后年，the year after next year). Conceiving the time passage as a train with several coaches, *qián* is the part which is comparatively closer to the front coach of the train, while *hòu* refers to the part which is comparatively closer to the rear coach of the train. When it comes to the expressions like *jiànguó qián* (建国前, before the founding of the country), *2020 nián hòu* (2020 年后, after 2020), a particular point of time is taken as the reference point. In *jiànguó qián* (建国前, before

the founding of the country), the time when the country was founded is taken as the reference point. *Jiànguó qián* (建国前, before the founding of the country) refers to the time prior to this reference point, and this time period is just like all the coaches representing the years before 1949. The reference point in *jiànguó qián* is located in the past. In *2020 nián hòu*, the year of 2020 is taken as the reference point. *2020 hòu* refers to the time running after 2020, just like all the coaches running behind the coach marked 2020. The reference point here is in the future. Given that the reference points here fall within the time passage, one cannot even tell where the observer is located because it does not matter here. However, in Category FRONT-and-BACK expressions under the Special Case Two, like *qiántú* (前途, future, the way in front), *qiánjǐng* (前景, prospect), the reference point is the location of the observer who stands at the present while facing the future.

Under the rule conspiracy, for moving entity, moving orientation, or reference point, there might have been two rules applied in one domain. Take *guòqù shíwǔ nián lái* (过去十五年来, over the past fifteen years) as an example. Within this single phrase, two moving entities coexist with converse moving orientations. As it is shown in Table 2, *guòqù shíwǔ nián* (过去十五年, the past fifteen years) refers to the past fifteen years. In this part, as in the Special Case One, the time passage is moving toward and passed the stationary observer. Where the observer stands, the present is taken as the reference point. However, the latter part *shíwǔ nián lái* (十五年来, over the fifteen years) means over the past fifteen years, where it is the Special Case Two of moving-ego. The observer is moving toward the future. However, the reference point here is still where the observer is located now, or the present time.

Table 2. *Guòqù shíwǔ nián lái* (过去十五年来, over the past fifteen years)

	guòqù shíwǔ nián	*shíwǔ nián lái*
Moving entity	time	observer
Moving orientation	past	future
Reference point	Observer (present)	Observer (present)

4.2 Rule conspiracy on different levels

Schemed by three threads, rule conspiracy takes effect at different levels. As it is shown in the example *guòqù shíwǔ niánlái* (过去十五年来, over the past fifteen years), rule conspiracy functions within one phrase. Besides within one phrase, it works at different syntactic levels. The following tables are going to unfold a closer picture regarding this.

Within one phrase

Table 3. *Wèilái shí nián hòu* (未来十年后, after the next decade)

	wèilái shí nián	*shí nián hòu*
Moving entity	time	time
Moving orientation	past	past
Reference point	observer (present)	time (future)

As it is shown in Table 3, within the phrase *wèilái shí nián hòu* (未来十年后, after the next decade), in the part of *wèilái shí nián* (未来十年, the next decade), time is moving toward the past with its front facing the observer. The present location of the observer is taken as the RP. While in the part of *shí nián hòu* (十年后, after ten years), it is the observer moving toward the future. The observer came through the bounded ten years and is getting to a position behind the extension of the ten years. The reference point here is the period of ten years, which is within the time passage.

Table 4. *Jīnhòu huí xiǎng qǐlái* (今后回想起来, to look back in the future)

	jīnhòu	*huí xiǎng*	*qǐlái*
Moving entity	time	observer	time
Moving orientation	past	still, facing the past	future
Reference point	time (present)	observer (future)	observer (future)

Here in *Jīnhòu huí xiǎng qǐlái* (今后回想起来, to look back in the future), the observer is supposed to get to some point in the future, and look back from that point of time. What the observer is standing in the future recalling the past which has actually not happened yet. So the future for now is the past for the observer in the future. The widely accepted understanding of the past and future is based on the reference point of the present. What has passed the point of present is called past, while what has not come to the point of present yet is called future. However, here the terms of future and past are relative and are not based on the reference point of present, but some point in the future. When the observer passes that point in the future, s/he can start to recall what is past for him/her at that time.

In *jīnhòu* (今后, from now on), time is moving toward the past with its front facing the observer. A point of the time passage, which happens to be the present, is taken as the reference point. In the metaphor of train, the coaches behind the coach where the present is located are *jīnhòu* (今后, from now on). In *huí xiǎng* (回想, recall), the observer has got to some imaginary point in the future. S/he turns around and looks back to the past; the imaginary future location of the observer is taken as the reference point. *Qǐlái* (起来, to mark the beginning of an action) in modern Chinese has been abstracted

as standing for the beginning of some action. However, the original meaning of *qǐlái* implies the past time passage flow back toward the observer in the future. The imaginary future location of the observer is here taken as the reference point of recalling.

Phrases within one sentence

Table 5. *1979 nián hòu, gǎigé kāifàng yǐlái, chūxiàn le jìndài lìshǐ shàng qiánsuǒwèiyǒu de xīn yímín cháo.* (1979年后，改革开放以来，出现了近代历史上前所未有的新移民潮。*After 1979, since Opening-up, there merged a migration such as never previously existed in modern times*)

	1979 nián hòu	*gǎigé kāifàng yǐlái*
Moving entity	time	observer
Moving orientation	past	future
Reference point	time (past)	observer (present)

In *1979 nián hòu*, it is the time that is moving toward the past and the observer is in station. A point in the time passage, the year of 1979 is taken as the reference point. *1979 nián hòu* (1979年后, after 1979) refers to the coaches behind the coach where 1979 is located. In *gǎigé kāifàng yǐlái* (改革开放以来, since the Opening-up), the observer has moved from the past point where Opening-up took place, and arrived at the present point. The present location of the observer is taken as the reference point. So in these two phrases within one sentence, there are two moving entities, two converse moving orientations, and two different reference points.

Phrases in different sentences

The EK rule conspiracy is also applied beyond phrase level but in different sentences. Here is an example from classical Chinese.

a. Wú zì jīn yǐlái zhīxíng fǎ yǐ. (吾自今以来知行法矣。I from now on know how to enforce regulations.) ——*Hánfēi zi*《韩非子・外储说左上》

b. Zì jīn yǐwǎng, bīng qí shǎo mǐ yǐ. (自今以往，兵其少弭矣。 From now on, warfare is going to end.) ——*Chronicle of Zuo*《左传・襄公二十五年》

c. Cóng jīn yǐqù, liù shí nián zhī wài, chē tóng guǐ, shū tóngwén, hèn bu jí jiàn yě. (从今以去，六十年之外，车同轨，书同文，恨不及见也。 From now on, after 60 years, the vehicles will be in a standardized size, and the writing systems will be unified. I am sorry that I will not be able to see it.)

——*Three Kingdoms Narration* 《三国志・吴书》

These three sentences are all dated back to before B. C. 300, which is the period of Old Chinese. In these three sentences, the reference points are all where the observer

stands, the present for the speakers. It doesn't matter whether the motion is from or toward the reference point, since the verbs used are *lái* or *qù/wǎng*. Intriguingly, they all refer to the time from now on.

Table 6. *Zì jīn yǐlái, zì jīn yǐwǎng,* and *cóng jīn yǐqù* (自今以来, 自今以往, 从今以去; from now on)

	zì jīn yǐlái	*zì jīn yǐwǎng*	*cóng jīn yǐqù*
Moving entity	time	observer	observer
Moving orientation	past	future	future
Reference point	observer (present)	observer (present)	observer (present)

In *zì jīn yǐlái* (自今以来，from now on), the future time is coming toward the observer who is standing at the present location. In *zì jīn yǐwǎng* (自今以往, from now on), the observer is moving toward the future, the present location of the observer is taken as the reference point. In *cóng jīn yǐ qù* (从今以去, from now on), it is the same as in *zì jīn yǐwǎng* (自今以往, from now on) the observer moving toward the future, starting from the where s/he is standing at present.

5. Conclusion

We have tried to explain Chinese time expressions such as *guòqù shíwǔ nián lái* (过去十五年来, over the past fifteen years), in which the metaphor of moving-time (*guòqù shíwǔ nián*, 过去十五年, the past fifteen years) and the metaphor of moving-ego (*guòqù shíwǔ nián lái*, 十五年来, over the past fifteen years) interacted in a conspiracy and resulted in two oddly coexisting comparisons in a single phrase. To explain this oddity, we adopted Kiparsky's idea of conspiracy, or K-conspiracy, and we proposed an extended K-conspiracy as an EK-conspiracy. Three threads, involving moving entity, moving orientation and reference point, scheme the EK conspiracy. The EK conspiracy functions at various levels: within one phrase, among phrases within one sentence, and even in different sentences.

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A Study of Some Punctuation Errors Found in the Taisho and CBETA *Diamond Sutra* Based on Sanskrit-Chinese Comparative Studies

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Many scholars are aware that the *Taishō Tripitaka* contains many errors: attribution, dating of the sutras, typography, punctuations, textual errors, etc. The correct punctuation of a sutra is not a luxury; instead it is a basic requirement. A wrong punctuation alters gravely our understanding of the text and is the origin of many misinterpretations. Even the modern electronic version of *Taishō Tripitaka*, namely, Chinese Buddhist Electronic Text Association (CBETA) version also contains some punctuation errors. In this study, we will compare Xuan-Zang's Chinese translation of *Diamond Sutra* with Gomez & Silk's (1989) and Harrison & Watanabe's (2006) Sanskrit texts. We aim to bring to light the problems of punctuations of the Chinese versions and to propose useful solutions to the Buddhist community and the other scholars in the field.

0. Introduction

The Chinese Buddhist Canon is an inexhaustible treasure which contains a lot of Middle Chinese data for linguists as well as many important religious and philosophical treatises. Millions of Buddhists and scholars are reading the Chinese Buddhist scriptures, or the translation of them to understand Mahayana Buddhism since most Sanskrit Buddhist scriptures have been lost. However, the earlier Buddhist scriptures are not punctuated. For example, a woodblock printed copy of the *Diamond Sutra* dated in 868 C.E., now preserved in the British Library, is "the earliest complete survival of a dated printed book"[1] which does not contain any punctuation as shown in Figure 1.

[1] Cited from http://www.bl.uk/onlinegallery/sacredtexts/diamondsutra.html (July 22, 2011).

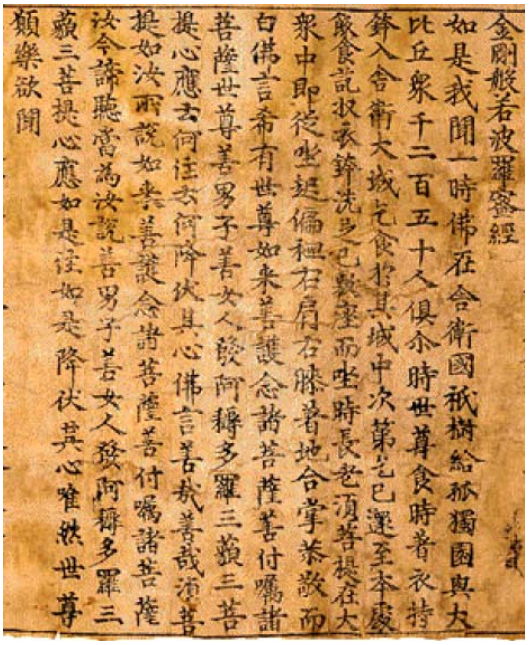

金剛般若波羅蜜經
如是我聞一時佛在舍衛國祇樹給孤獨園與大
比丘衆千二百五十人俱尒時世尊食時著衣持
鉢入舍衛大城乞食於其城中次第乞已還至本處
飯食訖收衣鉢洗足已敷座而坐時長老須菩提在大
衆中即從坐起偏袒右肩右膝著地合掌恭敬而
白佛言希有世尊如來善護念諸菩薩善付囑諸
菩薩世尊善男子善女人發阿耨多羅三藐三菩
提心應云何住云何降伏其心佛言善哉善哉
提如汝所說如來善護念諸菩薩善付囑諸菩薩
汝今諦聽當為汝說善男子善女人發阿耨多羅三
藐三菩提心應如是住如是降伏其心唯然世尊
願樂欲聞

Figure 1: The first paragraph in the Diamond Sutra printed in 868 C.E.

Moreover, all earlier Buddhist Tripitakas are not punctuated. The first page of the same *Diamond Sutra* in *Long Zang* 《龍藏》published between 1735 C.E. and 1738 C.E. is shown in Figure 2.

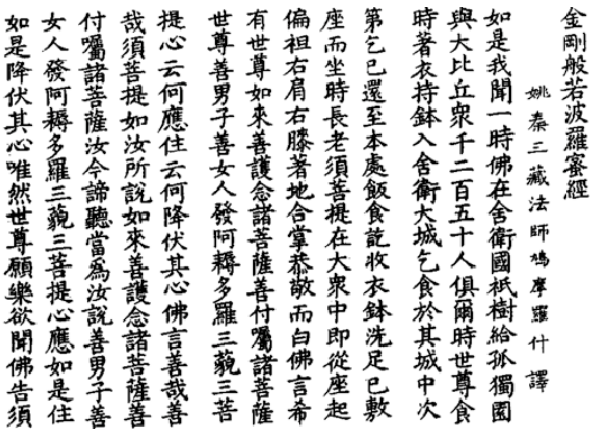
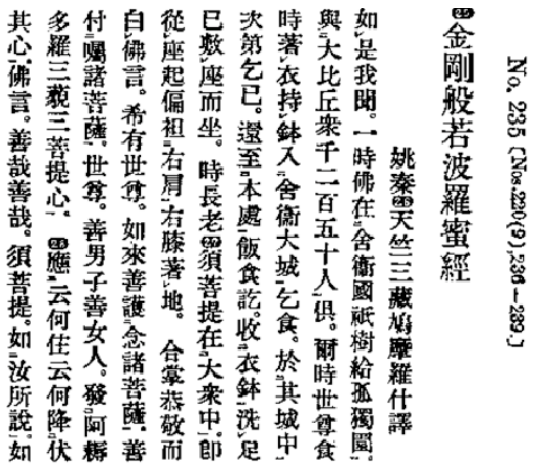

金剛般若波羅蜜經
姚秦三藏法師鳩摩羅什譯
如是我聞一時佛在舍衛國祇樹給孤獨園
與大比丘衆千二百五十人俱爾時世尊食
時著衣持鉢入舍衛大城乞食於其城中次
第乞已還至本處飯食訖收衣鉢洗足已敷
座而坐時長老須菩提在大衆中即從座起
偏袒右肩右膝著地合掌恭敬而白佛言希
有世尊如來善護念諸菩薩善付囑諸菩薩
世尊善男子善女人發阿耨多羅三藐三菩
提心云何應住云何降伏其心佛言善哉善
哉須菩提如汝所說如來善護念諸菩薩善
付囑諸菩薩汝今諦聽當為汝說善男子善
女人發阿耨多羅三藐三菩提心應如是住
如是降伏其心唯然世尊願樂欲聞佛告須

Figure 2: The first page of the Diamond Sutra in *Long Zang* 《龍藏》.

The first punctuated Chinese Tripitaka is *Taishō Shinshū Daizōkyō* (*Taishō Tripitaka*, 大正新脩大藏經）published between 1924 C.E. and 1929 C.E. Only one

punctuation mark is used, namely, the 'period'[2].



No. 235 [Nos. 220(9), 236 - 239.]

金剛般若波羅蜜經

姚秦三藏鳩摩羅什譯

如是我聞。一時佛在舍衛國祇樹給孤獨園。與大比丘衆千二百五十人俱。爾時世尊食時著衣持鉢入舍衛大城乞食。於其城中次第乞已。還至本處飯食訖。收衣鉢洗足已敷座而坐。時長老須菩提在大衆中。即從座起偏袒右肩右膝著地。合掌恭敬而白佛言。希有世尊。如來善護念諸菩薩。善付囑諸菩薩。世尊。善男子善女人。發阿耨多羅三藐三菩提心。應云何住云何降伏其心。佛言。善哉善哉。須菩提。如汝所說。如

Figure 3: The first page of the *Taishō* Diamond Sutra.

The first page of the *Diamond Sutra* in *Taishō Tripitaka* (hereafter *Taishō* Diamond Sutra) is presented in Figure 3. *Taishō Tripitaka* is the most used and read version in the Buddhist as well as the academic circles. However, many scholars, such as Carl Bielefeldt and Lewis Lancaster (1975), are aware that the *Taishō* edition contains many errors. William M. Bodiford (2005) gives the following advice when introducing the *Taishō*:

> "While the annotation provides alternate readings from other manuscripts or xylographic canons, this is not a true critical edition. The punctuation is frequently wrong—do not hesitate to try a different reading."

Bhikshu Dharmamitra (2009: 6) also points out: "Those following the translation in the Chinese should be aware that Taisho scripture punctuation is not traceable to original editions, is often erroneous and misleading, and is probably best ignored altogether." We think that scholars should not continue to accept as an immutable fact that their reference text is not accurate. The correct punctuation of a sutra is not a luxury, but a basic requirement. The Chinese Buddhist Electronic Text Association (CBETA), established in 1998, maintains and distributes free of charge an electronic version of the Chinese Buddhist Tripitaka. The CBETA is based on the *Taishō* (vols. 1-55 and 85). In many

[2] In Figure 3, we can see some other punctuation marks, such as レ, 一 and 二, which are called *kaeriten* (返り点(かえりてん)) . These punctuation marks are used especially by Japanese scholars from the 8th century onward for the purpose of reading ancient Chinese texts.

cases, the original punctuation of the *Taishō* has been corrected, but with more or less success. It is not always coherent and accurate, and there is no explanation concerning the corrections. The punctuation has been modernized, but many punctuations marks are still incorrect and some sutras are still wrongly attributed and dated like those in the *Taishō*. This online version is very useful and represents an immense work. However, the punctuation marks have to be improved. In this study, we use the *Diamond Sutra* as a starting point because it is one of the most popular Buddhist scriptures in the world, and it has been widely studied by lay people, clerics and scholars. We would like to correct at least some of the mistakes concerning the punctuations because the meaning of passages could change, depending on where we choose to punctuate. As a matter of fact, a wrong punctuation alters gravely our understanding of the text and is the origin of many misinterpretations.

2. Our data

There are six versions of the *Taishō Diamond Sutra* as shown in Table 1:

Table 1. Chinese versions of the *Taishō Diamond Sutra*

1.	金剛般若波羅蜜經 by Kumārajīva 鳩摩羅什	Jingang Bore Poluomi Jing T.235 (Kucha 龜茲, Yaoqin 姚秦, 344 - 413 A. D.)[3]
2.	金剛般若波羅蜜經 by Bodhiruci 菩提流支	Jingang Bore Poluomi Jing T.236a (Northern India 北印度, Yuawei 元魏, 508 - 534 A. D.)
3.	金剛般若波羅蜜經 by Paramārtha 真諦	Jingang Bore Poluomi JingT.237 (Ujjain (Ujjayinī), Western India 西印度優禪尼, Chen 陳, 499 - 569 A. D.)
4.	金剛能斷般若波羅蜜經 by Dharmagupta 達摩笈多	Jingang Nengduan Bore Poluomi Jing T.238 (Lāṭa, Central India 南印度羅囉國, Sui 隋, 590 - 619 A. D.)
5.	大般若經第九能斷金剛分 by Xuan-Zang 玄奘	Da Bore Jing Dijiu Nengduan Jingangfen T.220 (Tang 唐, 602 - 664 A. D.)
6.	能斷金剛般若波羅蜜經 by Yi-Jing 義淨	Nengduan Jingang Bore Poluomi Jing T.239 (Tang 唐, 635 - 713 A. D.)

We will first study the first and the earlier translation of the Sanskrit *Diamond Sutra*, namely, Kumārajīva's translation. This version is the most read one among the Buddhist circle. The Sanskrit versions of the Diamond Sutra are given below:

[3] The information in the parenthesis indicates where the translator(s) came from, in which dynasty in China they lived, and their life span periods.

a. Müller's critical edition in *devanagari* script (1881: 15-46), based on the following manuscripts received from Japan, Tibet, and China.

b. Pargiter's critical edition of the manuscript discovered at Dandan Uiliq, in Central Asia, in 1901 by Sir Aurel Stein (Pargiter 1916: 176-195).

c. The editions of the Gilgit manuscript discovered in 1931: Chakravarti's edition (Chakravarti 1956; Dutt 1959; Vaidya 1961, Gomez & Silk 1989; Oguibénine 1996)

d. Conze's critical edition (1958) in Romanized Sanskrit.

e. The Schøyen manuscript, published by Harrison & Watanabe (2006). The folios 26 to 46, discovered in Bamiyan and published in 2006, correspond in the book published by Conze (1974: 27-46) to section 1 to 16c3. The second half of the sutra is missing.

Gomez & Silk (1989) and Harrison & Watanabe (2006) will be our main sources for the Sanskrit version of the *Diamond Sutra* because there are the most reliable. However, of course, we will not fail to always refer to the other Sanskrit editions and especially to Pargiter's critical edition (1916) of the Dandan Uiliq manuscript.

3. Punctuations based on Sanskrit

Chinese classics have no punctuation marks and they can be misinterpreted if one breaks the line inappropriately. The only punctation mark used in the *Taishō Tripitaka* is *ju hao* 句號 (。) 'period.' The CBETA online edition uses a modern punctuation. In the CBETA *Diamond Sutra*, we find that ten different punctuation marks are used. For example, seven different punctuation marks can be found in the following extract:

> 時，長老須菩提在大眾中即從座起，偏袒右肩，右膝著地，合掌恭敬而白佛言：「希有！世尊！如來善護念諸菩薩，善付囑諸菩薩。世尊！善男子、善女人，發阿耨多羅三藐三菩提心，應云何住？云何降伏其心？」 (CBETA, T08, no. 235, p.748, c24-29)

There are three more punctuation marks used in the CEBETA *Diamond Sutra*, as shown in the following extracts:

a. 佛言：「善哉，善哉！須菩提！如汝所說：『如來善護念諸菩薩，善付囑諸菩薩。』汝今諦聽，當為汝說。善男子、善女人，發阿耨多羅三藐三菩提心，應如是住，如是降伏其心。」 (CBETA, T08, no. 235, p.748, c29-p.749, a4)

b. 佛告須菩提：「是經名為"金剛般若波羅蜜"。以是名字，汝當奉持。」(CBETA, T08, no. 235, p.750, a12-13)

c. 須菩提！若有善男子、善女人，以恒河沙等身命布施；若復有人，於此經中，乃至受持四句偈等，為他人說，其福甚多。(CBETA, T08, no. 235, p.750, a23-26)

The ten punctuation marks used in the CBETA *Diamond Sutra* are summarized in table 2 below:

Table 2. The ten punctuation marks used in the CBETA *Diamond Sutra*

No.	Chinese Punctuation marks	Chinese	English equivalents	English
1	。	*juhou* 句號	.	period
2	，	*douhao* 逗號	same	comma
3	：	*maohao* 冒號	same	colon
4	、	*dunhao*[4] *頓號*	,	
5	；	*fenhao 分號*	same	semicolon
6	？	*wenhao* 問號	same	question mark
7	！	*jingtanhao* 驚嘆號	same	exclamation mark
8	「」	*danyinhao* 單引號	‘ ’	single quotation mark
9	『』	*shuangyinhao* 雙引號	“ ”	double quotation mark
10	“ ”	*shuminghao* 書名號	none	title mark[5]

However, the tenth one, namely, the title mark (“ ”) used in the CBETA Diamond Sutra is completely wrong. It should be 《》. Thus, sentence 2(b) should be changed to: 佛告須菩提：「是經名為《金剛般若波羅蜜》。以是名字，汝當奉持。」.

Even when the punctuation is modernized in the CBETA *Diamond Sutra*, it is not always coherent. Therefore, it is difficult for modern readers to fully understand sutras. In this section, we point out some punctuation errors found in either *Taishō Tripitaka* or CBETA based on Chinese-Sanskrit comparative studies.

3.1. A VP or separate clauses

In *Taishō*, *bushi* 布施 ‘to give alms’ and *fude* 福德 ‘merits’ are a VP, namely, *bushi* 布施 is the verb, and *fude* 福德 is the object. They are in the same clause. However, in CBETA, there is a common between the two words, that is, *bushi* 布施 is the verb of the preceding sentence while *fude* 福德 is the subject of the second sentence.

[4] The enumeration comma *dunhao* 頓號 (、) is a used as a sign of coordination, or a "pause mark." Its purpose is to separate words constituting a list. In English, a common (,) is usually used.

[5] It is the punctuation mark used to enclose the title of a book, a newspaper or a journal. In English, there is no punctuation mark used to specify titles; instead, they are marked in italics.

The difference is shown in the following example:

> *Taishō*: 須菩提。菩薩無住相**布施福德**。亦復如是不可思量
> CBETA: 須菩提！菩薩無住相**布施，福德**亦復如是不可思量。
> (T08, no. 235, p.749, a18-19)

The original Sanskrit text is therefore important at this point. Müller's (1881), Conze's (1958), and Schøyen's (2006) versions are given as follows:

> Müller (1881), Conze (1958):
> evam eva Subhūte yo bhodhisattvo 'pratiṣṭhito dānaṃ dadāti, tasya Subhūte puṇyaskandhasya na sukaraṃ pramāṇam udgrahītum |
>
> Schøyen (2006):
> evam etat subhūte yo bhodhisattvo 'pratiṣṭhito dānaṃ dadāti tasya puṇyaskandhasya na sukaraṃ pramāṇam udgrahītum |

"Subhūti, the merits attained by bodhisattvas who practice charity without abiding in its signs are also incalculable like this." (Muller 2004)

We can see clearly that *bushi* 布施 is translated from Sanskrit *dānaṃ dadāti*, which is a VP itself. The word *dānaṃ* means 'the act of giving, donation, gift' which is a noun and the word *dadāti* means 'gives, third person singular' which is a verb. The word *fude* 福德 is translated from Sanskrit *puṇyaskandha* 'a heap of merits' which is the subject of the subordinate sentence. Thus, it is very clear that the CBETA version is correct: there should be a common between *bushi* 布施 'to give alms' and *fude* 福德 'merits.'

3.2. Ekasmin samaye

The phrase *rushi wo wen yishi* "如是我聞一時" is the traditional opening of Buddhists texts. For centuries, monks and scholars have debated over the meaning of this sentence and wether *ekasmin samaye* belongs to the preceding words *evam maya śrutam*" or not. It can have two meanings as shown below:

a. Evaṃ mayā śrutam, ekasmin samaye Bhagavān……
（如是我聞：一時，世尊……）”
b. Evaṃ mayā śrutam ekasmin samaye, Bhagavān……
（一時如是我聞：世尊……）”

In example a, *ekasmin samaye* 'at one time' belongs to the following sentence, and it means 'at the time when the Lord was preaching.' In b, *ekasmin samaye* belongs to the

first sentence, it means ‘at the time when Ananda was listening to what the Lord said.” First, we need to look at the Sanskrit editions and to analyze the Sanskrit terms from "*evam*" to "*arame*".

Table 3. Sanskrit editions, section 1, first sentence

Müller [MM19]	evam mayā śrutam｜ ekasmin samaye bhagavāñ śrāvastyām viharati sma jetavane ’nāthapindadasyārāme
Conze, p.327	Evam mayā śrutam ekasmin samaye. Bhagavāñ Śrāvastyām viharati sma Jetavane ’nāthapindadasya-arame
Rushi foxue yanjiushi (1995; Vol.2, p.3)	Evam mayā śrutam. ekasmin samaye bhagavāñ śrāvastyām viharati sma jetavane ’nāthapindadasyārāme
Schøyen p.103[6]	evam mayā śrutam ekasmin [sa]maye bhagavān[7] śrāvastyām viharati sma . jetavane . anāthapindadasyarame[8]
Schøyen p.112[9]	evam mayā śrutam ekasmin samaye bhagavān｜ śrāvastyām viharati sma ｜ jetavane ｜ anāthapindadasyār<a>me

As we can see in the table above, Müller (1881) breaks the line after ś*rutam*. He translates "*evam maya* ś*rutam*) *ekasmin samaye*" by "Thus it was heard by me: At one time" (Müller 1894: 111). We attribute his choice to the fact that he was influenced not by the Sanskrit[10], but by the Chinese versions in his possesion. We can see in table 4 below that the Chinese texts break the line after *rushi wo wen* 如是我聞 ‘thus I have heard’. Rushi foxue yanjiushi’s (1995) edition punctuates the same way, but adds a punctuation mark after *yishi* 一時 ‘at one time’. They use Müller (1881)[11] and they follow the Chinese way to punctuate the beginning of the first sentence (Rushi foxue yanjiushi 1995; Vol.3, p.353, for example: 如是我聞。一時，*rushi wo wen*. *yishi*,). Harlez (1891)[12] punctuates the way Chinese translations often do, with a break after 聞 *wen* ("heard") and a break after 時 *shi* ("circumstance"): "C’est ainsi que je l’ai entendu dire. En une certaine circonstance, le bienheureux…". ("Thus have I heard. On a certain occasion, the World-Honored One…") Conze (1974: 27) prefers to break the line after *samaye*, like the Tibetan manuscript (Harrison & Watanabe 2006: 112). However, as we can see in the

[6] Reading of the Schøyen manuscript by Harrison & Watanabe (2006: 103).
[7] According to Harrison & Watanabe (2006: 103), there is a virama after *bhagavan*.
[8] The *a* after *r* is missing in "*arame*". It is correctly restored in the reconstruction made by Harrison & Watanabe (2006: 112).
[9] Reconstruction by Harrison & Watanabe (2006: 112).
[10] Harrison & Watanabe (2006: 90).
[11] Rushi foxue yanjiushi (1995; 2: 1).
[12] Rushi foxue yanjiushi (1995; 4: 553). We note that, in volume 4, there are many typographical errors in the different foreign translations of the *Diamond Sutra*. For example, "vénératon" page 553 instead of vénération. Original text, Harlez (1891: 448-449).

reading of the Schøyen manuscript, there is a mark of punctuation neither after *śrutam* nor after *samaye*. Brough (1950) quoted Stäel-Holstein who said: "The question as to whether *ekasmin samaye* belongs to *śrutam* or to *viharati* is discussed in a number of Buddhist commentaries attributed to Indians, and most of them seem to regard *ekasmin samaye* as belonging to the preceding words *evam maya śrutam*." As a result, we think that there should be no break after *śrutam*. In fact, if we really think about what this sentence is supposed to mean, it makes no sense to break the line: "This is what I (Ananda) have heard from Śakyamuni in the following circumstances". Now, if we continue to read the sentence, we can see that in Harrison & Watanabe (2006: 103-112), there is no punctuation mark after *samaye*. We should read the sentence from *evam* to *Bhagavan* without any break. The reading of the Schøyen manuscript shows something interesting, not seen in the other Sanskrit editions of the *Diamond Sutra*: according to Harrison & Watanabe (2006: 112), there is a punctuation mark after *Bhagavant* and *Sugata* ("a virama or the two dots also used to write the visarga"). The two scholars prefer to keep this "honoric" punctuation. T.238 respects this break after *bhagavan*. Here, the punctuation in the *Taishō* is correct and is confirmed by the reading of the Schøyen manuscript.

Table 4. 如是我聞 in the *Taishō*, section 1, first sentence

T.235, p.748 c	如是我聞。一時佛在舍衛國祇樹給孤獨園。
T.236a, p.752 c	如是我聞。一時婆伽婆。在舍婆提城祇樹給孤獨園。
T.237, p.762 a	如是我聞。一時佛婆伽婆住舍衛國祇陀樹林給孤獨園。
T.238, p.766 c	如是我聞。一時世尊。聞者遊行勝林中無親搏施與園中。
T.220, p.980 a	如是我聞。一時薄伽梵。在室羅筏。住誓多林給孤獨園。
T.239, p.771 c	如是我聞。一時薄伽梵。在名稱大城戰勝林施孤獨園。

We can observe that all the texts in the *Taisho* punctuate after *rushi wo wen* 如是我聞. None of the six texts breaks after *yishi* 一時. Only two texts don't break the line after the World-Honored One, T.235 (佛 *Fo*) and T.237 (*Fo Boqiepo* 佛婆伽婆). T.220 alone has a punctuation mark after the name of the city (*Shiluofa* 室羅筏, *Śravasti*). All the texts break the line after 園 *yuan* (*yuan zhong* 園中 for T.238, the locative in T.238 is often translated by: name + 中 *zhong*; Chen 2006, p.294).

Table 5. Our corrections

6 Chinese translations in the *Taisho*	Name of the translator	Beginning of the first sentence until 園 yuan
T.235, p.748 c	Kumarajiva	如是我聞一時佛，在舍衛國祇樹，給孤獨園，
T.236a, p.752 c	Bodhiruci	如是我聞一時婆伽婆，在舍婆提城祇樹，給孤獨園，
T.237, p.762 a	Paramartha	如是我聞一時佛婆伽婆，住舍衛國祇陀樹林，給孤獨園，
T.238, p.766 c	Dharmagupta	如是我聞一時世尊，聞者遊行勝林中，無親搏施與園中，
T.220, p.980 a	Xuanzang	如是我聞一時薄伽梵，在室羅筏住誓多林，給孤獨園，
T.239, p.771 c	Yijing	如是我聞一時薄伽梵，在名稱大城戰勝林，施孤獨園，

By respect for the Sanskrit original version (Schøyen manuscript), even if it feels a little strange to break the line between a subject and its verb ("the World-Honoured One dwelt in Śrāvastī"), we should keep a punctuation mark after *Bhagavan* in Sanskrit and in Chinese. All the Chinese texts should be corrected and, for a problem of coherence, have the same punctuation. There are two possible ways to break the line after *Bhagavan* in Chinese (*Shizun* 世尊 or *Poqiepo* 婆伽婆). One is quite archaic and rarely used nowadays. It is a full width space used as an honorific marker after the name of Buddha. Example in T.238, we could write: *Shizun Wenzhe youxing* 世尊 聞者遊行 ("the World-Honoured One dwelt in Śravasti"). If we use the Western punctuation for the pinyin, *Shizun* ("World-Honoured One") and *Wenzhe* ("Śrāvastī")[13] are capitalized[14]. In conclusion, we propose to translate the beginning of the first sentence by: "Thus it was heard by me one time [when] the World-Honoured One dwelt in Śrāvastī, in the Jeta Grove, in Anāthapiṇḍada's Garden, …". As we saw before, *ekasmin samaye* is looking at both "*evam maya śrutam*" and at the rest of the phrase. "When" has been added to link these two groups. It is better not to put a punctuation mark in English after "World-Honoured One." However, a note should be added to explain why there is a break in Sanskrit and why there should be one in Chinese. Harrison (2006: 142) offers this translation: "This is the word as I heard it once when the Lord was staying in Śrāvastī, in Jeta's Grove, at the monastery of Anāthapiṇḍada."

[13] 聞者 *Wenzhe* corresponds to *Śrāvastī*. The verb 聞 in Chinese means "to hear"; it corresponds to the Sanskrit root √*śru*. Dharmagupta, in T.238, is the only one to translate *Śrāvastī* by 聞者.

[14] In Taiwan, Chiang Kai-shek is formerly referred to as 先總統 蔣公 (*xian zongtong Jiang gong*, "Former President, Lord Chiang"). This style is still used in very formal letters.

3.3. Punctuation marks added

There are no punctuation mark after the locative *Suputi* 須菩提 as shown below:

> 須菩提！實無有法名為菩薩。 (CBETA, T08, no. 235, p.751, b07-08)
> asti Subhūte sa kaścid dharmo yo bodhisattvo nāma｜ (Müller 1881)
>
> "Is there, Subhuti, any dharma named 'Bodhi-being'?" (Conze 1974)

In Sanskrit, this is a relative clause (*yo bodhisattvo nāma* 'which is called bodhisattvahood') with a correlative clause (*asti sa kaścid dharmo 'there is any dharma'*).[15] Although in Sanskrit, there is no punctuation mark between the two clauses, there is always a pause in reading the sentence. In Chinese, we propose a common after *fa* 法 'dharma.' A common in Chinese can be used as a 'pause,' and it makes the sentence more readable and understandable. Likewise, in the following example below there were no common between *zhongsheng* 眾生 'sentient beings' and *Rulai* 如來 'Tathāgata, thus-come' in both the first and the second clauses:

> 實無有眾生如來度者，若有眾生如來度者，如來則有我、人、眾生、壽者。
> (CBETA, T08, no. 235, p.752, a07-08)
>
> nāsti Subhūte kaścit sattvo yas Tathāgatena parimocitaḥ. yadi punaḥ Subhute kaścit sattvo 'bhaviṣyad yas Tathāgatena parimocitaḥ syāt, sa eva Tathāgatasyātmagrāho 'bhaviṣyat, sattvagrāho jivagrāhaḥ pudgalagrāho 'bhaviṣyat. (Müller 1881)
>
> "There is not any being whom the Tathagata has set free. Again, if there had been any being whom the Tathagata had set free, then surely there would have been on the part of the Tathagata a seizing of a self, of a being, of a soul, of a person." (Conze 1974)

There are two relative-correlative constructions: (1) the correlative clause --- *nāsti Subhūte kaścit sattvo* "there is not any being" precedes the relative clause *yas Tathāgatena parimocitaḥ* "whom the Tathagata has set free;" (2) the correlative clause *kaścit sattvo 'bhaviṣyad* "there had been any beings" precedes the relative clause *yas Tathāgatena parimocitaḥ syāt* "whom the Tathagata had set free." In both relative-correlative constructions, correlative pronouns are omitted. We also propose that a common should be added to both clauses. Moreover, we think that there should be a semicolon, instead of a common, between the first two sentences. The proposed new

[15] In Sanskrit, relative clauses usually precede correlative clauses; however, here the correlative clause is followed by the relative clause.

punctuation marks are given as follows:

a. 須菩提！實無有法，名為菩薩。
b. 實無有眾生，如來度者；若有眾生，如來度者，如來則有我、人、眾生、壽者。

3.4. Last sentence in the *Diamond Sutra*

There is a question regarding "Who is enraptured?" in the lasst sentence of Section 32 in the Diamond Sutra. The Sanskrit versions are given in table 6:

Table 6. *huxi* 歡喜 (*āttamanās*)[16]

Müller [MM46]	idam avocad bhagavān āttamanāḥ sthavira subhūtis te ca bhikṣubhikṣuṇyupāsakopāsikās te ca bodhisattvāḥ sadevamānuṣāsuragandharvaś ca loko bhagavato bhāṣitam abhyanamdann iti.
Conze 1974, p.62	Idam avocad Bhagavān. āttamanāḥ sthavira Subhūtis, te ca bhikṣu-bhikṣuṇy-upāsakopāsikās, te ca bodhisattvāḥ sa-deva-mānuṣa-asura-gandharvaś ca loko Bhagavato bhāṣitam abhyanandann iti.
Gomez-Silk-1989, p.107, folio 12b	idam avocad Bhagavān āttamanā sthavira subhūtis te ca bhikṣubhikṣuṇyupāsakopāsikāḥ sadevamānuṣāsuragandharvaś ca loko bhagavato bhāṣitam abhyanandan.

Müller (1894: 144) translates the last sentence of section 32 like this: "Thus spoke the Bhagavat enraptured. The elder Subhūti, and the friars, nuns, the faithful laymen and women, and the Bodhisattvas also, and the whole world of gods, men, evil spirits and fairies, praised the preaching of the Bhagavat". Harlez (1891: 499) says: "Ainsi parla le bienheureux transporté, hors de lui. Et Subhûti le vénérable et les bhixus et les disciples des deux sexes et les bodhisattwas, ainsi que les dévas, les hommes, les asuras, les gandharvas, applaudirent aux paroles du bienheureux." In both cases, Buddha is "enraptured". However, Conze (1974: 62) breaks the line after "*Bhagavān*", making it clear that it is not Buddha who is "enraptured", but the audience. According to Gomez & Silk (1989: 95), Chakravarti's (1956) edition was "full of mistakes and distortions". He omitted entire words and read incorrectly many vowels. Gomez & Silk (1989) pointed at the many mistakes found in Chakravarti (1956) and in Dutt (1959), but it is interesting to note that Oguibénine (1996: 252) criticized Gomez & Silk (1989), calling it a simplified reproduction, that did not take care of the paleographic particularities of the Gilgit manuscript. However, we choose here to quote Gomez & Silk (1989). There are no punctuation marks in the reading of the manuscript, so it cannot really help us to solve the

[16] Folios 26-46 of the Schøyen manuscript correspond to sections 1 to 16c. The second half of the sutra is missing.

problem.

Table 7. 歡喜 in the *Taishō*

T.235, p.752 b and c	佛說是經已。長老須菩提及諸比丘比丘尼優婆塞優婆夷。一切世間天人阿修羅。聞佛所說皆大歡喜信受奉行
T.236a, p.757 a	佛說是經已。長老須菩提及諸比丘比丘尼優婆塞優婆夷。菩薩摩訶薩。一切世間天人阿修羅乾闥婆等。聞佛所說。皆大歡喜。信受奉行
T.237, p.766 b	爾時世尊說是經已。大德須菩提心進歡喜。及諸比丘比丘尼優婆塞優婆夷眾。人天阿修羅等。一切世間踊躍歡喜。信受奉行
T.238, p.771, c	此語。世尊歡喜。上座善實。彼及比丘比丘尼。優婆塞優婆夷。彼天人阿脩羅乾闥婆等。聞世尊說大歡喜。
T.220, p.985 c	時薄伽梵說是經已。尊者善現及諸苾芻苾芻尼鄔波索迦鄔波斯迦。并諸世間天人阿素洛健達縛等。聞薄伽梵所說經已。皆大歡喜信受奉行
T.239, p.775 b	爾時薄伽梵說是經已。具壽妙生。及諸菩薩摩訶薩。苾芻苾芻尼。鄔波索迦鄔波斯迦。一切世間天人阿蘇羅等。皆大歡喜。信受奉行

First, we note that there is no coherence in the punctuation of the texts. The *Taishō* punctuation is different. Only in T.238 there is a full stop at the end of the whole paragraph, and the other five texts do not have any puncuation at the end of the sentences. T.236a is interestingly different from T.235. The first part of the sentence is exaclty the same, but after "優婆夷" there is a full stop. Then, Bodhiruci adds "菩薩摩訶薩。" (Conze 1974: 62) "*te ca bodhisattvāḥ,*" meaning "and the bodhisattvas also"). "乾闥婆等" ("the celestial musicians and so on") is also absent in T.235. However, it is clear in these two texts that it is not the Buddha who is enraptured, but Subhūti and the other beings ("皆大歡喜"). In T.236a, we can read "菩薩摩訶薩": 菩薩 is the Chinese translation of *bodhisattvas* and 摩訶薩 of *mahasattvas*. In T.239, we see "及諸菩薩摩訶薩" (translation of "*te ca bodhisattvāḥ*").

The word *āttamana(s)* in Pali becomes *attamana* in the masculine plural nominative. In the *Diamond Sutra*, "*āttamana*" ("delighted", "filled with joy" or "enraptured", from *ātta* 'seized, taken away' and *manas* 'mind') is not the masculine singular nominative of the classical Sanskrit word *āttamanas*, but the masculine plural nominative of the hybrid Sanskrit word *āttamana(s)*[17]. Being a plural, it cannot apply to the World-Honored One (*Bhagavān*). There is no reason why the Buddha should feel satisfied and "filled with joy" for having spoken to Subhūti. It is quite obvious that it is Subhūti and the audience that should rejoice after having heard the Buddha.

In fact, there are three possibilities concerning *āttamanā*(*ḥ*). The first one connects

[17] Edgerton (1970: 92) says about *attamana(s)*: "applied to the audience at the end of a discourse by Buddha".

the adjective to *Bhagavān* ("Thus spoke the Blessed One enraptured"), like in Müller's translation and in T.238 according to the *Taisho* ("此語。世尊歡喜。"). The second one connects *āttamanā*(*ḥ*) to Subhūti alone, making the adjective a masculine singular nominative. The third one connects *āttamanā*(*ḥ*) a first time to Subhūti and a second time to all the beings. According to Kajiyama (1977), the Tibetan translators have been influenced by the *Abhisamayalamkaraloka* by Haribhadra (Vaidya 1961: 556-557), a commentary of the *Aṣṭasahasrika*. As cited and translated by Kajiyama (1977), Haribhadra considers that everybody is enraptured, even Buddha: "The Blessed One, being enraptured, has spoken so, the saintly Subhuti, being enraptured, has exalted the world…".

Therefore, "enraptured" belongs to Subhūti and to all the beings, and not to the Blessed One. *Ca* ("and") is a connection: Subhūti rejoices and his joy his shared by all the beings (his joy is almost contagious). There are two *ca*: one after *Subhūti* and one after *gandharvas*. It means there is no *ca* close to *Bhagavān*. If *ca* really is a connection between "enraptured" and the beings, the Sanskrit text shows that the Blessed One is not connected to *āttamanās*. "Thus spoke the World-Honored One." marks the end of the Buddha's teaching. And as a consequence, people rejoice and thank him.

In conclusion, here is our translation of this sentence for T.238: "Thus spoke the World-Honored One. Filled with joy, the Elder Subhūti, together with the monks and nuns, the laymen and laywomen, the universe of gods, men, spirits and celestial musicians cheered the teaching of the World-Honored One." Our corrections are shown in Table 8.

Table 8. Our corrections

T.235, p.752, b and c	佛，說是經已。長老須菩提及諸比丘、比丘尼、優婆塞、優婆夷，一切世間天、人、阿修羅，聞佛所說，皆大歡喜，信受奉行。
T.236a, p.757, a	佛，說是經已。長老須菩提，及諸比丘、比丘尼、優婆塞、優婆夷、菩薩摩訶薩，一切世間天、人、阿修羅、乾闥婆等，聞佛所說，皆大歡喜，信受奉行。
T.237, p.766, b	爾時世尊，說是經已。大德須菩提，心進歡喜，及諸比丘、比丘尼、優婆塞、優婆夷眾，人、天、阿修羅等，一切世間，踊躍歡喜，[18]信受奉行。
T.238, p.771, c	此語世尊。歡喜上座善實，彼及比丘、比丘尼、優婆塞、優婆夷，彼天、人、阿脩羅、乾闥婆等，聞世尊說，大歡喜。
T.220, p.985, c	時薄伽梵，說是經已。尊者善現，及諸苾芻、苾芻尼、鄔波索迦、鄔波斯迦，并諸世間天、人、阿素洛、健達縛等，聞薄伽梵，所說經已，皆大歡喜，信受奉行。[19]

[18] In T.237, a comma has been restored after 一切世間 and 踊躍歡喜.

[19] T.220 online is punctuated like in the *Taishō*. We punctuate it like the other texts. We add a

T.239, p.775, b	爾時薄伽梵，說是經已。具壽妙生，及諸菩薩摩訶薩，[20]苾芻、苾芻尼、鄔波索迦、鄔波斯迦，一切世間天、人、阿蘇羅等，皆大歡喜，信受奉行。

As we saw before, it is better to add a comma (，) after *Bhagavān*, as a mark of respect. This, of course, should be applied to the entire text, for the sake of coherence. In the special case of T.238, there will be a full stop after 世尊 in order to clearly separate it from 歡喜. The full stop is restored for all the versions where it is missing at tne end of the sentence, such as in T.237. For the rest of the punctuations marks, we follow the online versions made by CBETA when it is coherent. In T.220, the CBETA did not change the *Taishō*'s punctuation. We have changed it. We do hope that the texts of the *Diamond Sutra* will now have a more accurate, modern, and coherent punctuation. This will help scholars who wish to study and translate the Chinese versions of this important sutra.

5. Conclusion

In this paper we have pointed out that there is no punctuation marks used in the earlier Chinese Buddhist Canon. The first Tripitaka which used punctuation marks is *Taishō Tripitaka* which was published between 1924 C.E. and 1929 C.E. However, only 'periods' are used. The CBETA Tripitaka has done much work in providing modern punctuations marks; however, some more improvements are needed. In this paper, we choose the *Diamond Sutra* as starting point and give four examples to elaborate the need of correct punctuation marks for better understanding of the texts based on the Sanskrit texts. We hope that we will have this opportunity to bring to light the problems of punctuation of the Chinese versions and to propose useful solutions to the Buddhist Community and to the other scholars in the field. We also hope that other scholars and clerics will follow us in making the *Taishō* edition more accurate and more accessible to the modern reader.

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comma after 薄伽梵 as a mark of respect.

[20] Same punctuation mark like for T.236a.

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