Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) and the 18th Annual Meeting of the International Association of Chinese Linguistics (IACL-18)

Volume 2

Edited by
Lauren Eby Clemens and Chi-Ming Louis Liu

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Editorial preface

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

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

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

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

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

Sincerely,

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

April, 2012
Cambridge, Massachusetts

Acknowledgements

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

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

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

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

Sincerely,

C.-T. James Huang, Ph.D (host)
Lauren Eby Clemens (proceedings editor)
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April, 2012
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Logophoric *ziji* in DRT

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In this paper I critically evaluate one recent approaches to the interpretation of logophoric ziji, i.e., that of Anand (2006). After recognizing the problems of his analysis, I provide an account of ziji in the framework of Discourse Representation Theory (DRT), following Sells (1987) and Sterling (1993).

1 Previous analyses

1.1 Huang and Liu on LDR *ziji*

Long-distance *ziji* is of interest to linguists for its peculiar behavior: it does not always obey Binding Condition A as stated in the Binding Theory. Some authors, for example, Huang and Liu (2001) argue that there are two uses of the bare reflexive *ziji*: one as a syntactic anaphor subject to Binding Con- dition A and the other as a pragmatic logophor. It is the logophoric use of *ziji* that licenses the long-distance binding. Drawing on Sells (1987) notion of logophoricity, Huang and Liu further claim that the availability of the relevant de se scenario is necessary for the logophoric reading. However, as I argue in Chen (2009), Huang and Liu's account is problematic. First, their analysis of the 'sentence-free' *ziji* is too vague. The default binder of *ziji* is not always the current speaker. Second, the pragmatic perspectual strategy they offer as an explanation of the Blocking Effect is inconclusive. Their direct-discourse paraphrases changes the truth-condition of the original sen- tence, and when the sentence is properly rewritten, there is no conflict of perspective. Lastly, *ziji* can be long-distance bound even when the binder lacks the relevant de se belief.[1]

1.2 Anand's two Chinese dialects

Anand claims that there are two Chinese dialects with respect to long- distance *ziji*, i.e., IND-Mandarin and LOG-Mandarin. In IND-Mandarin, the long distance reading of *ziji* is a result of context-overwriting; in LOG- Mandarin, *ziji* is a logophor and is subject to syntactic constraint. IND- Mandarin is more permissive with long-distance bound *ziji*,

[1] See Chen (2009) for a fuller account.

but in LOG- Mandarin, long-distnace bound *ziji* is subject to what he calls the De Re blocking effect. Anands theory rests crucially on a series of examples that allegedly distinguish the two dialects, nevertheless, I shall show that judgments of grammaticality from native speakers contradicts Anands prediction.

In Anand's proposal, *ziji* is a logophor obligatorily read *de se* in LOG- Mandarin. On the other hand, in IND-Mandarin long-distance *ziji* is a shitftable indexical much like Amharic I and is a result of semantic context-overwriting. Thus Anand's proposal is attractive in that not only does he offer a more fine-grained distinction between two *ziji*, he also provides a way that *ziji* is related to interesting pronouns in other languages. On the one hand, *ziji* in LOG-Mandarin is a real logophoric pronoun, and it is compared and contrasted with other logophors in African languages. On the other hand, *ziji* in IND-Mandarin behaves in the same vein as the indexical shifts in Amharic and Zazaki, as a result of the working of monsterous context- changing operators.

The contrast between LOG-Mandarin and IND-Mandarin with respect to *ziji* is summarized as follows[2]:

(1) **IND-Mandarin**
ALL[att-verb(OP_{auth})] optionally shifts 1st person indexicals (all attitude verbs)
LOG-Mandarin
ALL[att-verb(OP-LOG_u)] optionally binds all [log] items (all attitude verbs)

In IND-Mandarin:

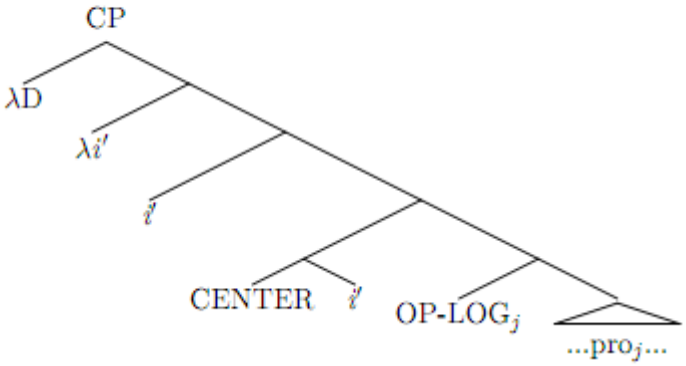
(2) a. All attitude predicates allow OP_{auth} headed complements
b. $[[ziji]]^{c,i} = AUTH(c) = [[wo]]^{c,i}$
c. Binding Optionality: Mandarin attitude verbs may select for an OP_{auth} complement.

[2] The typology I have here is different from Anand (2006); In an email correspondence, Anand confirmed that the typology was reversed by mistake in Anand (2006). The version I present here is the correct one.

(3) a. $[\![\text{OP-LOG}_j\ \alpha]\!] = \lambda x.[\![\alpha]\!]^{g[x \to j]}$

b. $[\![\text{CENTER}]\!]^g = \lambda i.\text{AUTH}(i)$

c.



Note that in Anand's proposal, though the binding of *ziji* in LOG- Mandarin is syntactic, the covert referentially denoting P(erspectival)-Center is not entirely syntactically determined. P-center is 'a point-of-view head high in the left periphery that referentially denotes the psychological perspective from which the sentence is situated (in analogy to the deictic center for a sentence).'[3] The value of the P-Center is at least partially discourse dependent. In other words, *ziji* in LOG-Mandarin may refer to the speaker, the addressee or even a salient third-person.[4]

To establish the validity of his thesis, Anand offers a series of examples that allegedly distinguish the two dialects. Anand's examples rest heavily on the grammaticality judgment of native speakers and as much as I appreciate the depth and elegance of Anand's theory, I am afraid that the empirical ground may not be as solid as one would hope. My survey shows quite a different result from Anand's.[5] In what follows, I shall explain Anand's claims on the said differences between the two Chinese dialects. Furthermore, I will test *ziji* against the principle Shift Together that Anand postulates for shiftable indexicals.

[3] Anand and Hsieh(2005)

[4] P(erspectival)-Center discourse rules: (i) Discourse Rule 1: In unmarked contexts, the P-Center is the speaker. (ii) Discourse Rule 2: When a speech-act-participant (SAP) is the matrix subject, the P-Center is that SAP. (iii) The P-Center can be a non SAP in marked contexts, where the 3rd person is established by discourse to be the perspective-holder (e.g., narrative).

[5] Anand's informants are Taiwanese Mandarin speakers in Boston, MA. My results are from 45 native speakers of Mandarin Chinese in Taiwan.

1.2.1 De Re Blocking Effect

The most significant difference between IND-Mandarin and LOG-Mandarin is the De Re Blocking Effect:

(4) De Re Blocking Effect
a. All [log] (pro*/de se anaphor) elements must be *de re* free.
b. No obligatory de se anaphor can be c-commanded by *de re* counterpart.[6]

In (5), it is stipulated that the third-person ta is John, making it a non-subject (here *ta* is the object) c-commander of zji that is *de re* equivalent to the potential long-distance binder. Anand claims that native speakers are split between the grammaticality judgment of whether *ziji* can be long- distance bound by John in (5). Those who grant this possibility speaks IND-Mandarin; those who don't speak LOG-Mandarin.

(5) $John_i$ renwei $Bill_j$ gei tai $ziji_?$-de shu.
John thinks Bill give he self-POSS book.
'$John_i$ thinks that $Bill_j$ gave him_i $his_{*i/j}$ book.' **LOG-Mandarin**
'$John_i$ thinks that $Bill_j$ gave his_i mother $his_{i/j}$ book.' **IND-Mandarin**

By contrast, in (6), the thematic goal *ta* is replaced with *ta-de mama* (his mother) while *ta* still refers to John. This time the *de re* equivalent is buried too deep in the structure and no long c-commands *ziji*. As a result, no blocking takes place and for both IND-Mandarin and Log-Mandarin speakers *ziji* can be long-distance bound.

(6) $John_i$ renwei $Bill_j$ gei tai-de mama $ziji_?$-de shu
John thinks Bill give he-POSS mother self-POSS book
'$John_i$ thinks that $Bill_j$ gave his_i mother $his_{i/j}$ book.' **ALL**

Why do LOG-Mandarin speakers exhibit the De Re Blocking Effect? Recall that for Anand, long-distance binding of *ziji* in LOG-Mandarin is syntactic: 'P-center binding' is in fact a case of local binding and as such, if there is a closer long-distance binder than the P-center, the closer binder will be preferred. So 'for LOG-Mandarin, a *ziji* that could be long-distance bound by a 1st person antecedent will always be bound by that antecedent. In contrast, IND-Mandarin licenses 1st personal *ziji* in virtue of it being an indexical, and hence a long-distance 1st person subject need not force the insertion of an Op_{auth} to 'bind' *ziji* (Anand 2006).

[6] In Anand (2006), De Re Blocking Effect is shown to hold in Yoruba and is considered characteristic to languages with logophoric pronouns.

To be honest, I am not exactly sure about the logic at work here. Furthermore, my informants do not confirm Anand's result.[7]

(7) a. Zhangsan$_i$ renwei Lisi$_j$ gei-le ta$_i$ ziji$_{*i/j}$ de su.
Zhangsan think Lisi give-LE he self DE book.
'Zhangsan$_i$ thinks that Lisi$_j$ gave him$_i$ his$_{*i/j}$ book.' **?? LOG-Mandarin**
'Zhangsan$_i$ thinks that Lisi$_j$ gave him$_i$ his$_{i/j}$ book.' **??IND-Mandarin**

b. Zhangsan$_i$ renwei Lisi$_j$ gei-le ta$_i$-de mama ziji$_{i/j}$ de su.
Zhangsan think Lisi give-LE his mother self DE book.
'Zhangsan$_i$ thinks that Lisi$_j$ gave his$_i$ mother his$_{i/j}$ book.' **??ALL**

My informants were asked whether an interpretation is acceptable, marginally acceptable or not acceptable. The result is shown in (1.2.1). 16 speakers think *ziji* can be bound by Zhangsan in (7a), 14 think this is only marginally acceptable and 15 consider this ungrammatical. On the other hand, 24 speakers accpet *ziji* as anaphoric to Lisi, 12 think this reading is marginally acceptable while 9 speakers are against this interpretation. Thus, I think it is safe to say that people do have different opinions on whether *ziji* can refer back to Zhangsan, but they surely have a preference of interpreting it to mean the closer binder Lisi than the more distant Zhangsan.

(8)

(7a)	acceptable	marginally	unacceptable
his$_i$=Zhangsan's	16	14	15
his$_j$=Lisi's	24	12	9

Furthermore, Anand's claim is that there is a 'systematic split' of judgments between IND-Mandarin and LOG-Mandarin speakers, but my informants do not show any orderly division. True, their judgments do differ with regard to the reference of *ziji* in sentences with a *de re* counterpart, but their opinions are often not consistent. I find it hard to label any one of my informant as a speaker of one dialect but not the other. Besides, the informants repeated tell me that they do not like (7b) very much. Contrary to what Anand's result, not all of the speakers reckon the sentence felicitous.

Again, people show a preference to interpret *ziji* as anaphoric to Lisi: 20 think it acceptable, 17 as marginally acceptable and 8 as unacceptable. As to long-distance

[7] I present to my informants with both Anand's original examples and my adjusted versions. My sentences have the same relevant structure but a perfective mark -le is added to the verb in the embedded clause so that the whole sentence reads more natural to native speakers.

binding, 14 accept such a reading, 12 consider it marginally acceptable and 19 regard it infelitctious. The interesting puzzle here is that contrary to Anand's prediction, the supposedly non-De Re Blocking-inducing (7b) becomes less desirable to more people compared to (7a). Not only do fewer people interpret *ziji* as anaphoric to Zhangsan, more people state that even the less problematic reading (*ziji*=Lisi) becomes hard to appreciate.

(9)

(7b)	acceptable	marginally	unacceptable
his_i=Zhangsan's	14	12	19
his_j=Lisi's	20	17	8

1.2.2 Shiftable *ziji*

If the above result is of any indication, the distinction between IND-Mandarin and LOG-Mandarin may not be as clear as one might hope. I now turn to the claim that *ziji* in IND-Mandarin is a shiftable indexical. The alleged fact that *ziji* in IND-Mandarin obeys SHIFT TOGETHER is considered a proof that *ziji* is like Amharic-I. Since I have no access to qualifed informants, I do not challenge Anand's and Anand and Nevins (2004) on how the constraint works in African languages. My aim is only to see if this same rule governs the behaviors of *ziji*.

According to Anand and Nevins, all indexicals (first person, second- person temporal locative) can optionally shit under Zazaki-says. However, the indexical shift is constrained. For instance, in (10) the two occurrences of indexical I does not make this sentence four-way ambiguous.

(10) (in Zazaki) Bill said that I argued with my mother.

Assuming John to be the current speaker, (11a) is true when Bill said, *'John argued with my mother.'* (11b) is like its English counterpart, true when Bill said, *'John argued with his mother.'* The shifting reading of Zazaki-I is (11c), true when Bill said, *'I argued with my mother.'* On the other hand, (11d) is true when Bill said, '*I argued with John's mother.'* (11a) and (11d) are the mixed readings.

(11) a. $Bill_i$ said that I_c argued with my_i mother.
b. $Bill_i$ said that I_c argued with my_c mother.
c. $Bill_i$ said that I_i argued with my_i mother.
d. $Bill_i$ said that I_i argued with my_c mother.

Anand and Nevins report that the mixed readings are impossible in Zazaki. (10) can never be true in the context where Bill said, *'I argued with John's mother,'* nor when he said, *'John argued with my mother.*' The sentence is true only when the two occurrences of I shift together, or when they do not shift at all. This 'SHIFT TOGETHER'

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constraint is said to hold for several other languages that have shifting indexicals. The claim is that this phenomenon is best explained when we assume Zazaki contains some type of monstrous operator.

If *ziji* in IND-Mandarin is a shiftable indexical just like Zazaki-I, it should obey SHIFT TOGETHER. Is this the case?

Consider (12), where *ziji* occurs twice in the embedded clause. Literally, the sentences reads, *'Bill says that John gave SELF SELF's exam.* If Anand is right, the mixed readings (12b) and (12c) are impossible. (12) can never be true in a context such as S_2 and S_3.

(12) Bill$_i$ shou John$_j$ gei-le ziji$_{i/j}$ ziji$_{i/j}$-de kaochuan
Bill say John give SELF SELF-POSS exam
'Bill$_i$ said that John$_j$…'
a. gave him$_i$ his$_i$ exam.'
b. gave him$_i$ his$_j$ exam.'*
c. gave him$_j$ his$_i$ exam.'*
d. gave him$_j$ his$_j$ exam.'

(13) S_1 : The math teacher handed over to John the exam books of the whole class and asked him to distribute the exam books among his classmates. Each student should get one and the students would grade each other's exams.
S_2 : Same as S_1 and Bill said, *'John gave me my exam.'*
S_3 : Same as S_1 and Bill said, *'John gave me his exam.'*
S_4 : Same as S_1 and Bill said, *'John gave himself my exam.'*
S_5 : Same as S_1 and Bill said, *'John gave himself his own exam.'*

For the informants that I consulted, however, Anand's prediction is incorrect. (12) appears to be four-way ambiguous, as each reading, even the mixed ones, are deemed acceptable for at least one-third of the informants. Nevertheless, there does exist a preference for the non-mixed readings (12a), (12d). Besides, there is a stronger preference for the reading where *ziji* is interpreted as anaphoric to John: more than 70% of the informants think (12d) is the most appropriate interpretation.

The result is suggestive. There are three possible explanations to my findings. First, perhaps SHIFT TOGETHER does not hold for all shiftable indexicals. Second, perhaps *ziji* is never a shifting indexical. Third, perhaps *ziji* indeed is a shifty indexical, but the semantic overwriting is not the whole story. When concrete contextual information is given, even the impossible mixed readings become available.

All in all, though I may not have presented a knock-down argument against Anand's analysis, there is enough evidence that the distinction between IND-Mandarin and LOG-Mandarin is not so definite. The judgment regarding De Re Blocking is at best blurry, and so is the alleged constraint SHIFT TOGETHER on shiftable *ziji*. I do not

mean to depreciate the importance of Anand's proposal, but there are things that call for further explanation.[8]

1.3 Logophoricity and *ziji* in DRT

1.3.1 Sells on logophoricity

Despite all these talks on logophoricity and its connection to attitude de se, it should be noted that Sells' analysis of logophoricity actually came long before the association. I think it is worthwhile to examine Sells' theory given that he explicitly states that logophors need not be de se. Sells maintains that a logophor is linked to its long-distance antecedent if the antecedent plays the role of SOURCE, SELF or PIVOT. SOURCE is the internal agent of the communication, and thus the subject of verbs of communication such as 'say' is predicated as SOURCE; SELF is the one whose mental state the embedded proposition describes, so the subject of psychological verbs such as 'think' and 'feel' plays the role SELF; PIVOT is assigned to the one whose physical point of view that the content of the proposition is evaluated against.

Sells presents his formal analysis of logophoricity in Discourse Represen- tation Theory. His examples are mostly in Japanese, and I want to show that the Chinese data can be analyzed adopting the same strategies.

σ represents SOURCE;

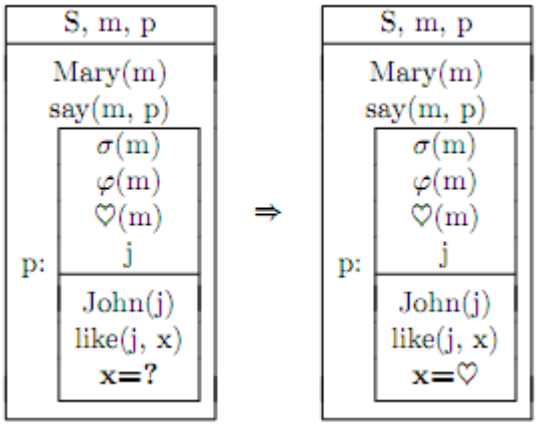
ϕ represents SELF;

♥ represents PIVOT;

S represents the external speaker

[8] For instance, in the case of multiple embedding, distance seems crucial. The further away a noun phrase is, the less likely it is the logophoric antecedent of *ziji*. For LOG- Mandarin, this may be construed as a preference for the closest, local binder for *ziji*. But what can be the basis for this preference in IND-Mandarin where *ziji* is simply a shifting indexical? Perhaps, a syntactic analysis is not the whole story for the interpretation of *ziji*. When a concrete context is supplied, many of the syntactically prohibited readings become possible, indicating that contextual information plays a role that should not be overlooked. For example, when my informants are given a sentence with the structure that supposedly would exhibit the Blocking Effect, most of them reckon the logophoric reading as infelicitous, just as expected. However, if they are given a similar sentence with the same structure plus certain scenarios against which they can judge the sentence, a significant increase is seen in the number of people who judge the logophoric reading felicitous. Perhaps there is some coercion story that can be told regarding the behavior of *ziji*.

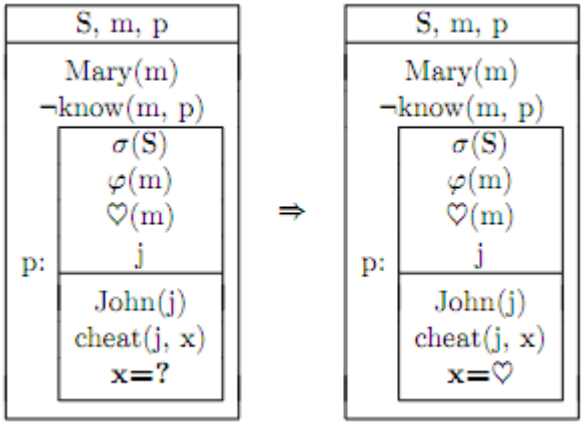
(14) Mary$_i$ shuo John$_j$ xi-huan ziji
Mary say John like self
Mary$_i$ says that John$_j$ likes her$_i$.



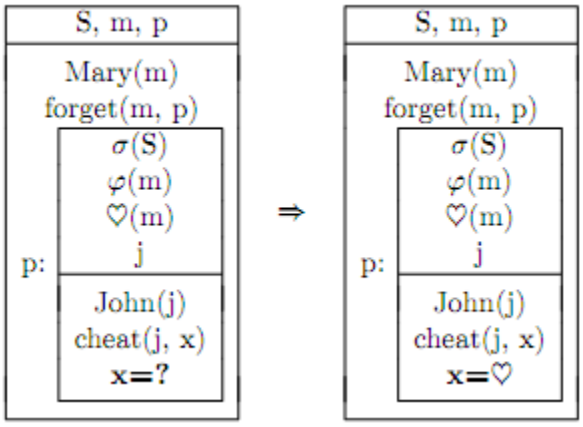
In (14), the verb *shuo* (say) is 'logophoric' and as such the subject plays all three roles. For convenience, Sells simply equates x with PIVOT, hence *m*, and we receive the desired reading.

Verbs like *juede* (think) and *zhidao* (know) *wang* (forget) are all 'psycho- logical verbs.' Though SOURCE is played by the external speaker in these cases, and the agent of these verbs are assigned SELF and PIVOT, which still grants us the logophoric reading of *ziji*.

(15) Mary bu zhidao John pen-le ziji
Mary not know John cheat-PERF self
Mary$_i$ doesn't know that John$_j$ cheated her$_i$.



(16) Mary wang-le John pen-guo ziji
Mary forget-PERF John cheat-PERF self
Mary$_i$ forgot that John$_j$ cheated her$_i$.



1.3.2 Stirling's logophoric DRT

Stirling (1993) argues that three semantic roles are unnecessary proliferation and proposes that the job can be done by postulating simply one role, i.e. the epistemic validator, or validator. A validator is the one that validates the discourse; to be more precise, it is the individual that the current/external speaker linguistically assigns responsibility for the discourse in question. The responsibility that falls under the validator includes the truth of the embedded proposition, the actuality of the eventuality in question and the accuracy of the linguistic expressions used.[9]

The notion of epistemic validator is formally encoded as a discourse marker v. Stirling adopts the version of DRT that encodes ontological types as sorted discourse markers, where a sort is a bundle of features associated with a particular discourse marker and specified discourse marker letters are used for some standard sorts. Her discourse marker v is regarded as a special kind on a par with markers for the current speaker 'I', the current addressee 'you' and for the time of utterance 'now.' More importantly, the insertion of v into the universe of a DRS is not only adding an entity available for the resolution of anaphoric noun phrase but also adding more formal conditions in the DRS.[10]

By default, the current speakers take the role of validator, but they may also dis-assign themselves as validator and re-assign the role to someone else. These three possibilities are formally represented by an anaphoric condition linking *v* with some other

[9] Stirling (1993), Chapter 6.

[10] Stirling (1993), p.284.

discourse entities in the universe of an DRS as follows, where *i* represents the current speaker and *x* is some other accessible marker in the universe.

(17) $v = i$
$v \neq i$
$v = x$

The decisive move in Stirling's approach is to associate the anaphoric conditions linking v and the assignment of the role of validator with lexical rules. The idea is that grammatical constructions may contain items with lexically specified properties which render them the role of epistemic validator. If there is no such items, then the default is to assign the role to the current speaker. There are predicates that can trigger a logophoric context, and they generally have the properties listed in (18):

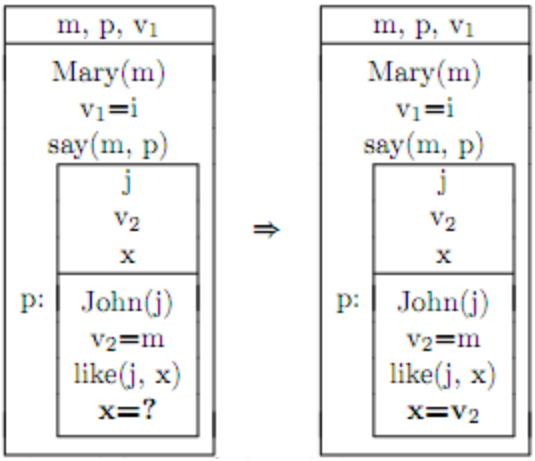
(18) a. they are sub-categorised for a clausal complement;
b. the validator for the clausal complement is constrained to be the referent of some subcategorised-for nominal argument of the matrix clause, usually the subject NP.[11]

As a result, the epistemic validator of the content of the embedded clause of a verb of communication, thought, psychological state or perception will be the subject (usually) of that verb. The one who 'uttered the speech, had the thought, experienced the psychological state, or experienced the sensory perception is the best (perhaps the only) witness to the truth, actuality or accuracy of description of the content of what was said, thought felt or perceive.'

Therefore, (14), repeated here as (19) receives the following analysis:

(19) Mary$_i$ shuo John$_j$ xi-huan ziji
Mary say John like self
Mary$_i$ says that John$_j$ likes her$_i$.

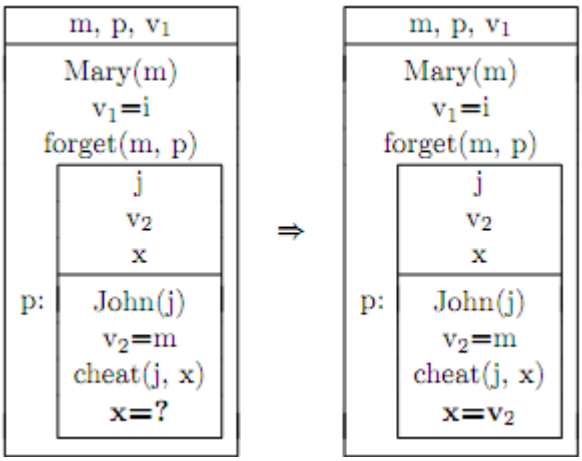
[11] Ibid, p285



The validator of the whole sentence is the external speaker, and the validator of the embedded proposition is the subject of the communication verb *shuo*, that is, the internal speaker Mary.

(16), repeated as (20), is analyzed as:

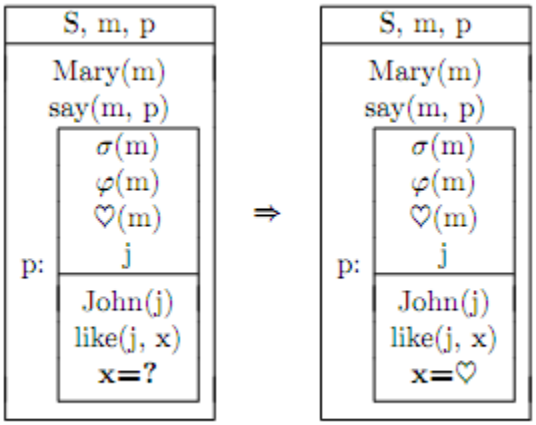
(20) Mary wang-le John pen-guo ziji
Mary forget-PERF John cheat-PERF self
Mary$_i$ forgot that John$_j$ cheated her$_i$.



One merit of both Sells and Stirling's DRT analyses is the prediction of the ambiguous behavior of *ziji*. As discussed earlier, *ziji* may be bound either by its local antecedent or by the long-distance logophoric antecedent. This comes natural in the DRS presented. For example, (14), repeated here as (21):

(21) Mary$_i$ shuo John$_j$ xi-huan ziji
Mary say John like self
Mary$_i$ says that John$_j$ likes her$_i$.

b.



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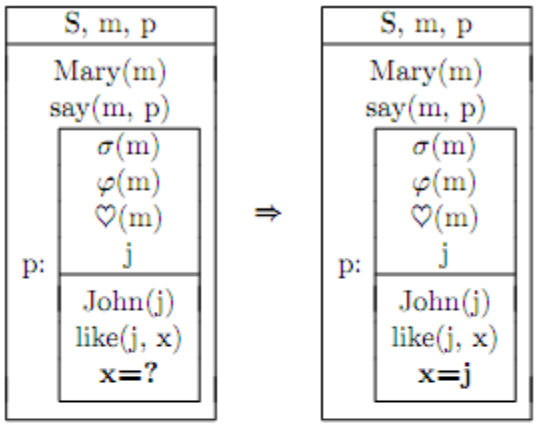
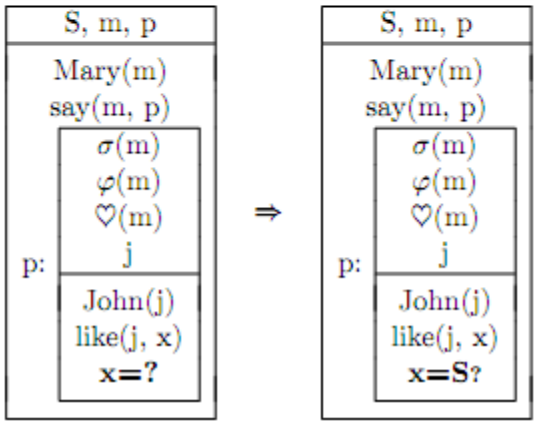


d.

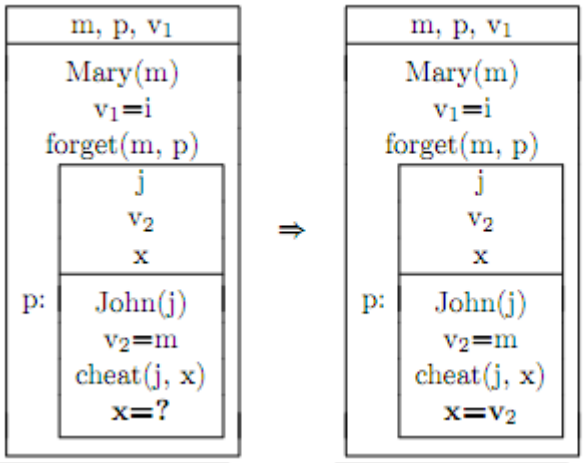


In the embedded DRS in (21b), *x* is resolved to ♥, which is the role played by the marker *m* representing Mary. This gives rises to the logophoric reading. On the other hand, as shown in (21c), we may choose to resolve *x* to *j*, in which case the content of Mary's speech is *'John likes himself.'* Furthermore, the external speaker *S* is also accessible, and if *x* is set to be anaphoric to the external speaker, the sentence is interpreted as the speaker asserting something like, '*Mary says that John likes me.'* Unfortunately, this reading is reckon by most native speakers as ungrammatical.

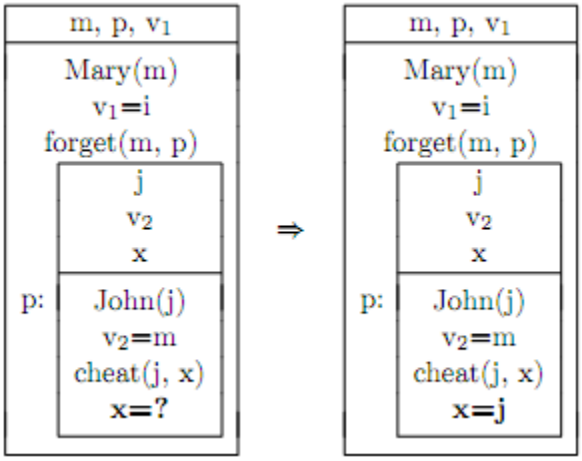
Similar anaphoric resolutions can be done in Stirling's version of DRT. Theoretically, *x* in (22b) can be equated to any accessible discourse marks, including v_1 and *j*. Yet due to the lexical meaning of the verb pen (cheat), the interpretations resulting from these alternatives are infelicitous. Not all possible anaphoric equations are probable; the lexicon and world knowledge place constraints on some of them.

(22) Mary wang-le John pen-guo ziji
Mary forget-PERF John cheat-PERF self
Mary$_i$ forgot that John$_j$ cheated her$_i$.

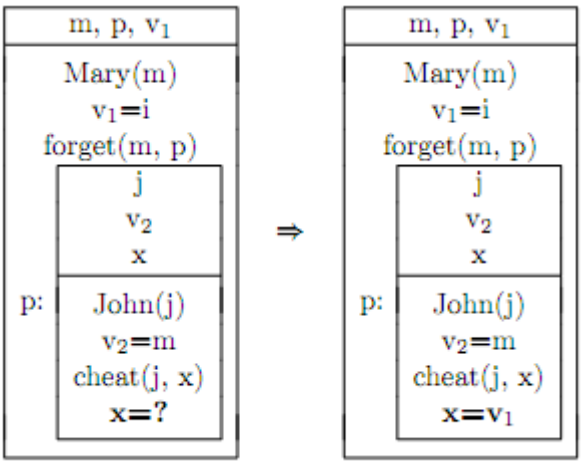
b.



c.



d.



Perhaps the importance of lexicon can be seen from another angle. The problem for Sells is that we are never told what to make of the discourse roles. What is the ontological and theoretic status of SOURCE, SELF and PIVOT? All we are told is that there is no unified notion of logophoricity per se and logophoricity phenomenon is a result of the interaction of these primitive notions. Given that the roles can be predicated of the internal agent or of the external speaker, it might look like they are the special con- ditions that the discourse markers must satisfy. However, his resolution of anaphora in DRT is done by setting a discourse marker as equal to some accessible discourse markers already in the discourse structure, yet in Sells' own formulation of the DRSs, the value of the discourse marker in the clausal complement is resolved to be the role-predicate. That is, 'the pronoun effectively takes a role-predicate as its antecedent, not a marker directly due to some NP.'[12] This strikes me as odd. Moreover, if the roles are conditions in the DRS, how are they similar or different from other predication conditions?

In addition, what exactly is the basis of the assignment of roles? It seems that there should be something in the lexical property of the verb indicating what roles the related agent plays. This is the case for the communication verbs like 'say' or psychological verbs 'think' and 'feel.' The subject of 'logphoric verbs' is the internal agent and she is the source of the report, the person whose mental state the report is made as well as the one whose point of view the report is made; the subject of psychological verbs, though no longer the person who is making the report, is the one whose thought the report is about. Still, it is not obvious what verbs would trigger a discourse environment in which PVIOT (and only PIVOT) is assigned to the internal speaker.

I believe these are legitimate motivations for Stirling's more economical DRT analysis. She not only reduces three roles into one, but actually explains how the role

[12] Sells (1987), p459.

of epistemic validator is semantically interpreted and what standing it takes in the DRS. Unlike Sells' equivocal SOURCE, SELF and PIVOT, the role of epistemic validator is explicated defined as a special sorted discourse markers. Furthermore, as the licensing of logophoricity is due to the assignment of the role of validator, the related lexical rules becomes all the more consequential. Stirling is well aware of this and places good attention on the the verbs that may trigger logophoric contexts. Like Sells's hierarchy of roles, Stirling proposes that there is a hierarchy of logo- centric verb:

(23) communication > thought > psychological state > perception

In any logophoric language, if verbs of one kind trigger a logophoric environment, so will the kind of verbs to the left of it, though it does not follow that a language that allows logophoric contexts resulting from verbs of communication will also have logophoric contexts triggered by the other three kinds.[13]

Summing up, Sells and Stirling's DRT analyses do provide an adequate way to explain the logophoric phenomenon without references to de se be- lief. Besides, the DRT analyses nicely capture the tricky ambiguity of long- distance *ziji*. So in this sense, DRT is our best choice for *ziji*. There are a few loose ends that need to be tied up though. For one thing, tense and aspect have been ignored in the current analysis, but this problem can be over- come by supplementing more temporal discourse markers and conditions in the discourse representations. For another, the Blocking Effect is left unex-plained. I do not have a good answer yet, but given the prominence of both lexicon and the semantic-epistemic role, I suspect that the Blocking Effect may be a result of conflicts in person-feature (depending on what exactly is the person feature of *ziji*)[14] and/or of conflicts of perspective (between different roles and different validators).

On the other hand, it is not the case that *ziji* cannot be analyzed in terms of attitude de se; it is just that in the framework provided by Sells and Stiriling, the data is explained without it. Given the flexibility of DRT, adding to the representation some specific constructions for attitude de se is certainly doable and probably desirable. For example, Maier (2009) proposes a version of DRT where the de dicto and *de re* distinction is modeled as a difference in scope and de se is treated as a special case of relational *de re* attitudes.[15]

[13] Stirling (1993), p260.

[14] This can be a rather complicated story due to the fact that *ziji* can be added to any person: 1st, 2nd and 3rd an even their plural forms.

[15] Maier (2009) The acquaintance relation is, in the case of co-referential pronoun in English, the equation; For shiftable indexical, e.g., Amharic-I, de se is resolved as de dicto with local binding to the center. PRO and LOG are specified in the level of syntax.

All I claim here is simply that *ziji* may be analyzed without stressing its possible *de se* interpretation. If logophoric *ziji* is any reflection of logophors in general, then perhaps logophors do not necessarily require a de se explication.

References

Anand, Pranav. 2006. De De Se PhD thesis MIT.

Anand, Pranav & Andrew Nevins. 2004. Shify Operators in Changing Contexts. In SALT 14.

Anand, Pranav and Feng-Fan Hsieh. 2005. LDR in Perspective. In WCCFL 24.

Chen, Hsiang-Yun. 2009. Logophoricity and *ziji*. In Proceedings of the 21st North American Conference on Chinese Linguistics, ed. et al. (eds.) Yun Xiao. Vol. 2 Bryant University pp. 464–481.

Cole, Peter, Gabriella Hermon and Cher Leng Lee. 2001. "Grammatical and discourse conditons on long distance reflexives in two Chinese dialects." Syntax and Semantics: Long Distance Reflexives 33.

Huang, C.-T. James and C.-S. Luther Liu. 2001. "Logophoricity, Attitudes and *ziji* at the interface." Syntax and Semantics: Long Distance Reflexives 33:141–195.

Sells, Peter. 1987. "Aspects of Logophoricity." Linguisitic Inquiry 18. Stirling, Lesley. 1993. Switch Reference and Discourse Representation. Cambridge University Press.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 18-35.

Sentence-Final *Only* and the Interpretation of Focus in Mandarin Chinese[1]

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In this paper I document the complex interactions between the Mandarin sentence-final *only* item *éryǐ* and the focus marker *shì*. Following work on Chinese Sentence-Final Particles (SFP), *éryǐ* syntactically is in the CP-domain and thus should scope above TP-level operators such as negation, and this is indeed normally the case. However, the introduction of the focus marker *shì* can force the sentence-final *éryǐ* to take scope below the TP-level negation, creating a problem for the theory of Mandarin SFP.
I propose that *shì* unambiguously marks the semantic scope of Mandarin focus-sensitive operators which involve Association With Focus. I show how this analysis preserves the expected syntactic cartography while computing the correct semantic scope. A compositional syntax/semantics utilizing focus movement is also presented.

0. Introduction

Mandarin Chinese has two *only* words which can introduce a semantics of exclusivity: a preverbal *zhǐ* (只) and a sentence-final *éryǐ* (而已). The three examples in (1), in this context, are truth-conditionally equivalent.

(1) Context: "What did he do yesterday?"; "What does he do on Saturdays?"

a. 他 只 看 電視 而已。
Tā zhǐ kàn diànshì éryǐ
He ZHI watch TV ERYI
'He only watches/watched TV.'

b. 他 看 電視 而已。
He watch TV ERYI

c. 他 只 看 電視。
He ZHI watch TV

[1]The work presented in this paper was greatly improved through conversations with Irene Heim, Hadas Kotek, and Waltraud Paul. I thank them for their supportive comments and questions. In addition to the IACL/NACCL joint meeting, parts of this material were also presented at the 2010 Southern New England Workshop on Semantics at Harvard and the 2010 Rencontres d'Automne de Linguistique Formelle at the University of Paris 8. All errors are mine *éryǐ*.

Previous work on Mandarin *only* items (Tsai, 2004) has only investigated *zhǐ*. In this paper we will focus on the distributional and semantic characteristics of the sentence-final *éryǐ*, together with the focus-marker *shì* (是). As we will see, the interaction of the two items presents a puzzle that challenges our understanding of scope and Chinese phrase structure. The crux of the puzzle is as follows: following work on Chinese Sentence-Final Particles, *éryǐ* syntactically is in the CP-domain and thus should scope above TP-level operators such as negation, and this is indeed normally the case. However, the introduction of the focus marker *shì* can force the sentence-final *éryǐ* to take scope below the TP-level negation.

To explain this puzzle, I will propose the following: that there is a particular syntactic projection in the Mandarin Chinese clause where focus alternatives are computed, and that *éryǐ* uses the alternatives from that projection in its computation. This projection can be marked overtly by the focus marker *shì*. The scope contrasts observed are then a reflection of the scopal relations between negation and *shì* (or a covert version thereof). *Éryǐ* can then maintain its CP-level position.

This paper is organized as follows: in section 1, I will present the basic distribution and semantic properties of *zhǐ* and *éryǐ*, establishing both as Association With Focus operators. I also present evidence for the sentence-final *éryǐ* being a low C head. In section 2, I introduce the focus marker *shì* and the novel and challenging puzzle which is at the heart of this paper. In section 3, I present my analysis, which highlights *shì*'s crucial contribution in marking precisely where the computation of focus alternatives takes place, and demonstrate how this can explain the puzzling scope facts. In section 4, I give a proof-of-concept compositional semantics using focus movement, and give evidence from contrastive continuations to support this view. I conclude in section 5.

1. Two *only*s in Mandarin Chinese

1.1. *Only* and Association with Focus

An *only* operator requires that its complement include a focused constituent. *Only* then asserts that no alternative to the prejacent is true (Horn, 1969; Rooth, 1985). *Only* items may also have a presuppositional component, which may specify that the stated prejacent or a similar proposition is true. The choice of semantic focus is established via a mechanism dubbed ***Association with Focus*** (AWF) (Jackendoff, 1972; Rooth, 1985).

A property of AWF is that the focused constituent can be any subconstituent of the complement. In English, for example, prosodic cues are used to indicate which constituent is focused:

(2) **Two sentences with different truth conditions** (Rooth, 1985)
   a. Mary only introduced [Bill]$_F$ to Sue.
   b. Mary only introduced Bill to [Sue]$_F$.

Consider which constituents are possible foci for the Mandarin *only* items, *zhǐ* and *éryǐ*. We see from the sentences below that the semantic focus of both *only* items must be within the verb phrase, such as the object (3a) or the verb (3b), but not the subject (3c). As different VP-internal constituents can be the focus, modulated by prosodic cues, we can conclude that the mechanism here is indeed AWF. (Here, *zhǐ* and *éryǐ* both being marked as optional is meant to indicate that one, the other, or both of the items are present.)

(3) ***zhǐ* and *éryǐ* associate with focus within the VP:**

a. 我 (只) 愛 [你]$_F$ (而已)。
Wǒ zhǐ aì nǐ éryǐ
I ZHI love you ERYI
'I only love [you]$_F$... I love no one else.'

b. 我 (只) 會 [念]$_F$ 漢字 (而已)。
Wǒ zhǐ hùi nìan hànzi éryǐ
I ZHI can read Chinese characters ERYI
'I only can [read]$_F$ Chinese characters... I cannot write them.'

c. * [我]$_F$ (只) 愛 你 (而已)。
Wǒ zhǐ aì nǐ éryǐ
I ZHI love you ERYI
Intended: '[I]$_F$ love you... no one else loves you.'

It is important to note that *éryǐ* also has another, non-AWF reading where it asserts that the given clause is the only appropriate utterance in the conversation. A brief look at this use of *éryǐ* is included in the appendix.

In the remainder of this paper I will focus on the understudied sentence-final *only* item, *éryǐ*. I begin by investigating its syntactic position.

1.2. The position of sentence-final *éryǐ*

Chinese sentence-final particles (SFP) have traditionally been categorized into three classes whose relative order is fixed: $C_1 \prec C_2 \prec C_3$. Some canonical SFP in each class are presented in the following table from Paul (2010):

low C (C_1)	force (C_2)	attitude (C_3)
le currently relevant state	*ma* interrogative	*ou* warning
láizhe recent past	*ba* imperative	*(y)a* astonishment
ne_1 continued state	ne_2 follow-up question	ne_3 exaggeration

An utterance can include at most one item from each class. Paul (2010) thus argues for these three classes to be recast as a split-CP à la Rizzi (1997): [[[TP C_1] C_2] C_3].

This view posits that Chinese CP-level items are head-final, while TP-internal items are head-initial, contra the Final-Over-Final Constraint (Biberauer et al., 2009).

Let us consider *éryǐ* within this context. The linear placement of *éryǐ* clearly puts it in the class of "sentence-final particles": it must be pronounced at the right edge of a clause. Only the force and attitude particles are allowed—in fact, required—to surface after *éryǐ*:

(4) **éryǐ ≺ C_2, C_3 (here C_2 *ma*)**

a. 你 只 會 說 [國語]$_F$ 而已 嗎?
Nǐ zhǐ hùi shūo gǔoyǔ éryǐ ma
you ZHI can speak Chinese ERYI Q
'Can you only speak [Chinese]$_F$?'

b. * 你 只 會 說 [國語]$_F$ 嗎 而已?
you ZHI can speak Chinese Q ERYI

Consistent with this fact, other low C heads cannot be pronounced together with *éryǐ*:

(5) **éryǐ cannot co-occur with C_1 (here 'Currently Relevant State' *le*)**[2,3]
Context: "Where is he?" or "Why is he gone today?"

a. 他 出 去 買 東西 了
Tā chū qù mǎi dōngxì le
he go.out go buy things CRS
'He went out to go shopping.'

b. * 他 出 去 買 東西 {了 而已, 而已 了}
Tā chū qù mǎi dōngxì {le éryǐ, éryǐ le}
he go.out go buy things {CRS ERYI, ERYI CRS}
Intended: 'It's just that he went out to go shopping... there's no other reason.'

We see from the above facts that *éryǐ* is clearly a SFP of the first class. Following Paul (2010), the item must then be a low C head, and we would thus expect it to take scope above the entire TP. In the following section, we will see that this is not always the case.

[2]Note: perfective *-le* (or "verbal *-le*"), on the other hand, can be pronounced string adjacent to *éryǐ* in cases where there is no intervening material in the VP.

(1) Context: "Why is he hurt?"

他 跌倒 了 而已
tā díedào le éryǐ
he fall PRV ERYI

'He just fell.'

[3]Soh (2009, pp. 637–641) argues that sentence-final *-le* cannot cooccur with *éryǐ* due to semantic reasons rather than syntactic ones.

2. The effects of *shì*

2.1. *shì*-focus constructions

The word *shì* (是) in Mandarin is normally the copular verb but can also be a "focus marker," indicating that some or all of its complement is focused (Huang, 1988a; Teng, 1978).

Paul and Whitman (2008) show convincingly that focus-marking *shì* is not a unified phenomenon: different types of constructions with focus-marking *shì* exhibit clearly distinct semantic properties, motivating four distinct focus constructions involving *shì*:

	mechanism	focused constituent	exclusiveness[4]
sentence-initial bare *shì*	cleft	subject	yes
sentence-initial bare *shì*	emphasis	entire sentence	no
sentence-medial bare *shì*	Association With Focus	any constituent within VP	no
shì... de	cleft	subsequent constituent	yes

Among these various focus constructions, here I will pay particular attention to *shì* in sentence-medial (post-subject, pre-verbal) position. This *shì* is the one identified by Paul and Whitman (2008) as using Association With Focus. We can see the AWF in action below, where sentence-medial bare *shì* simply marks the VP as containing a focused constituent.

(6) **Sentence-medial bare *shì*** (Paul and Whitman, 2008)

a. 他 不 是 在 北京 學 [語言學]$_F$，是 在 北京 學 [法文]$_F$。
Tā bu shì zài Běijīng xúe yǔyánxúe, shì zài Běijīng xúe fǎwén
He NEG SHI at Beijing study linguistics, he at Beijing study French
'He didn't study [linguistics]$_F$ in Beijing, he studied [French]$_F$ in Beijing.'

b. 他 不 是 在 北京 [學]$_F$ 語言學， 是 在 北京 [教]$_F$ 語言學。
Tā bu shì zài Běijīng xúe yǔyánxúe, shì zài Běijīng jìao yǔyánxúe
He NEG SHI at Beijing study linguistics, he at Beijing teach linguistics
'He didn't [study]$_F$ linguistics in Beijing, he [taught]$_F$ linguistics in Beijing.'

The sentence-medial bare *shì* marks the existence of a focused constituent within the VP. In the next section, we will see *shì*'s crucial role in determining the interpretation of the *only* word *éryǐ*.

[4]Exclusiveness asserts that only the designated focus can satisfy the property. Exclusiveness is a property of clefts but not of Association with Focus proper.

2.2. Negation, *shì*, and the scope of *éryǐ*

Negation in Mandarin Chinese, canonically *bu* (不), surfaces in the pre-verbal field where *zhǐ* is pronounced. Negation may surface on either side of *zhǐ*, with its scope clearly reflecting linear order:

(7) ZHI ≺ NEG: ONLY > NEG

我 只 不 喜歡 吃 [肉包]$_F$ (而已)。
wǒ zhǐ bu xǐhūan chī ròubāo éryǐ
I ZHI NEG like eat meat buns ERYI

'I only don't like to eat [meat buns]$_F$... I like to eat all other things.'

(8) NEG ≺ ZHI: NEG > ONLY

他 不 只 喜歡 吃 [肉包]$_F$ (而已)。
tā bu zhǐ xǐhūan chī ròubāo éryǐ
He NEG ZHI like eat meat buns ERYI

'I don't only like to eat [meat buns]$_F$... I also like to eat some other things.'

Consider, however, a more interesting case: clauses with negation and *éryǐ*. Based on our identification of *éryǐ* as a low C Sentence-Final Particle, we would predict it to scope over the TP-level negation. This prediction is borne out in the following sentence:

(9) NEG...*éryǐ*: ONLY > NEG, *NEG > ONLY

我 不 喝 [茶]$_F$ 而已。
Wǒ bu hē chǎ éryǐ
I NEG drink tea ERYI

✓'I only don't drink [tea]$_F$... I drink everything else.'
* 'I don't only drink [tea]$_F$... I also drink other things.'

However, if we add a focus marker *shì* after the negation in (9), **only the reverse scope reading is available**:

(10) NEG SHI...*éryǐ*: *ONLY > NEG, NEG > ONLY

我 不 是 喝 [茶]$_F$ 而已。
Wǒ bù shì hē chǎ éryǐ
I NEG SHI drink tea ERYI

* 'I only don't drink [tea]$_F$... I drink everything else.'
✓'I don't only drink [tea]$_F$... I also drink other things.'

This contrast is the core puzzle that this paper—and any analysis of Mandarin negation and focus markers—must address: by default, *éryǐ* must take scope over negation (9), but the addition of the focus marker *shì* flips *éryǐ*'s scope with respect to negation (10).

3. Analysis

To better understand the contrast presented in (9–10), we must be precise about what negation scoping above or below ONLY really means. Following Tsai (2004), I take Horn's (1969) analysis of ONLY to apply in Mandarin as well. That is, ONLY computes a set of alternatives and asserts that only the stated prejacent can be true.

(11) ONLY > NEG:
$[\![(9)]\!] = 1 \iff \forall\phi \in \{\text{I don't drink tea, I don't drink coffee, I don't drink water, ...}\}$
$[\phi \rightarrow (\phi = \text{I don't drink tea})]$

(12) NEG > ONLY:
$[\![(10)]\!] = 1 \iff \neg(\ \forall\phi \in \{\text{I drink tea, I drink coffee, I drink water, ...}\}$
$[\phi \rightarrow (\phi = \text{I drink tea})]\ )$

What is most important here is what the candidates in this alternative set are and what constituent they are generated from. We note that each of the alternatives under consideration in (9) include negation, while the alternatives in (10) do not. This position of alternative set computation is indicated by Alt below:[5]

(13) ONLY > NEG (9)

我	[$_{Alt}$ 不	喝	茶] 而已。
Wǒ	bu	hē	chǎ éryǐ
I	NEG	drink	tea ERYI

(14) NEG > ONLY (10)

我	不	是	[$_{Alt}$ 喝	茶] 而已。
Wǒ	bu	shì	hē	chǎ éryǐ
I	NEG	SHI	drink	tea ERYI

I propose the following generalization: *shì* unambiguously marks the position of alternative set computation in Association With Focus interpretation, regardless of the position of the focus operator (e.g. *éryǐ*). The main claim is as follows:

(15) ***shì* marks the projection where the focus alternatives used by the semantics of *éryǐ* are computed.** Sentences in Mandarin with AWF obligatorily have *shì*, though sometimes an unpronounced version.

This makes *shì* functionally equivalent to Rooth's (1992) squiggle operator ($\sim$), which marks the syntactic level at which focus is interpreted. While Rooth (1992) proposed $\sim$ as

[5] Here I abstract away from the scope and position of the subject, as the purpose here is to better understand the relationship between negation and the interpretation of ONLY.

having no phonological realization and being inserted at LF, *shì* may be an overt version of $\sim$.[6] The scope contrasts observed in (9–10), then, can be more correctly recast as differing scope relations between negation and the squiggle operator, *shì*. **Despite its higher syntactic position, in practice *éryǐ* inherits its semantic scope from the scope of *shì*.** (A technical implementation that resolves this syntax/semantics mismatch will be presented in section 4.)

Under this view, (9) would be a case where there is a phonologically null *shì* (ϕ_{SHI}) above negation. In fact, it is also possible to pronounce a *shì* before *bu* in (9) with the same scope interpretation:

(16) SHI NEG...*éryǐ*: ONLY > NEG, *NEG > ONLY

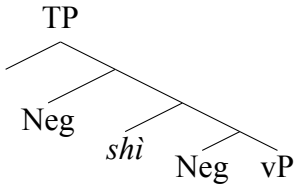
我 是 不 喝 [茶]$_F$ 而已。
Wǒ shì bu hē chǎ éryǐ
I SHI NEG drink tea ERYI

✓'I only don't drink [tea]$_F$... I drink everything else.'
* 'I don't only drink [tea]$_F$... I also drink other things.'

As we have seen now, the negation *bu* can be before or after an overt *shì*. This reflects the fact that Mandarin Chinese simplex sentences have two positions for negation (Schaffar and Chen, 2001), as can be easily observed in sentences such as (17) below.[7] This gives us the cartography in (18) for the possible positions of negation and *shì*.[8]

(17) 我 不 是 [不 喜歡 吃]$_F$ 肉包。
wǒ bu shì bù xǐhūan chī ròubāo
I NEG SHI NEG like eat meat buns
'I don't [not like to eat]$_F$ meat buns... I'd just rather have something else.'

(18)



[6]This equivalence cannot be made explicit, however, as Rooth (1992) does not give a compositional semantics for $\sim$ that allows other operators intervening between it and the focus-sensitive operator. For Rooth, $\sim$ in English is always introduced right below the focus-sensitive operator itself. A proof-of-concept compositional semantics for this process that allows intervening operators is presented in section 4.

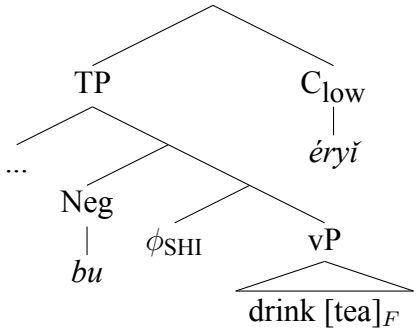
[7]Note that Paul and Whitman (2008) offer evidence from the position of modals and adverbials that sentence-medial bare *shì* constructions (such as in 17) are monoclausal.

[8]Danny Fox (p.c.) and Irene Heim (p.c.) have asked whether *bu* might be a concord negation with an abstract negation in a higher, CP-level position. There is no evidence for adopting such a view, though, especially as the scope of subject quantifiers and adverbs placed before negation all take scope over negation.

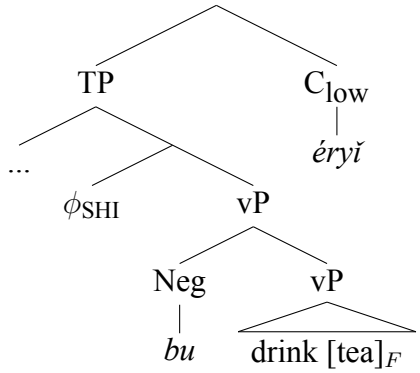
Now let us see how this cartography and the view of the special role of *shì* in AWF interpretation (15) can explain the scope-switching effect in (9–10). First consider (10): *bu shì...éryǐ*. Here the linear order of *bu shì* makes it clear that this negation is the higher one, above *shì*, and crucially does not contribute to the computation of alternatives. As *éryǐ* takes scope where its alternatives are computed, the only available reading gives the attested scope of NEG > ONLY.

Second consider (9): *bu...éryǐ*. Here there are two potential parses since there is no overt *shì*—one where *bu* is a high negation above ϕ_{SHI} (19a) and another where it is a low negation below ϕ_{SHI} (19b):

(19) a.



b.



In (19a), the negation is not included in the alternative set computation, yielding an interpretation with NEG > ONLY. In contrast, the negation in (19b) does contribute to the alternatives, resulting in ONLY > NEG. However, recall that (9) itself is unambiguous: the only attested reading is ONLY > NEG.

A closer look at the negation *bu* helps us resolve this ambiguity. The negation *bu* is a proclitic (Ernst 1995; Huang 1988b), with its phonetic realization conditioned by the following word: *bu* is pronounced with a clear fourth (falling) tone (*bù*) in citation form, but is often pronounced with neutral tone and becomes second (rising) tone (*bú*) when the following syllable is fourth (falling) tone. *Bu* also has a suppletive form, *méi* (没), which is triggered when the following verb is perfective or the verb 'have' (*yǒu* 有). *Bu* requires an immediate morphological host to condition its phonetic realization. In (19a), the proclitic *bu*'s closest morphological host is phonologically null, making this parse unavailable. Thus the only available parse for (9) is (19b), with negation below the covert ϕ_{SHI}. This predicts its unambiguous interpretation of ONLY > NEG.

The key here is the role of *shì*. *Shì* marks precisely where the focus alternatives are computed, and thus where *éryǐ* takes its semantic scope. This explains the puzzling scope contrast in (9–10).

Finally, recall that the sentence-medial bare *shì* considered here must surface between the subject and verb (Paul and Whitman, 2008). The requirement that *shì* mark the position where focus alternatives are computed (15)—and thus that the semantic focus of *éryǐ*

be within the complement of *shì*—explains why *éryǐ* cannot associate with subjects, as observed in (3c).

4. A focus movement compositional semantics

In the previous section I proposed that SHI, which I use to denote both overt or covert versions, explicitly marks the position of focus alternative computation and thus the semantic scope of the higher *éryǐ* (15). In this section I will demonstrate a proof-of-concept syntax/semantics involving focus movement which makes this special contribution of SHI explicit.

4.1. Association via movement

Different technical solutions have been proposed as to how focus operators associate with their focused constituents at LF. Chomsky (1976) proposed a syntactic movement for focus association:

(20) **Focus movement at LF à la Chomsky (1976):**
"introduced [Bill]$_F$ to Sue"
LF: Bill λ_1[introduced t_1 to Sue]

A potential challenge to the focus movement approach to AWF is its lack of island-sensitivity: it is well known that focus operators can associate with constituents within syntactic islands (21). One answer to this challenge is to require that a constituent at least as large as the island is focus-moved in such cases (Drubig, 1994) (21′).

(21) **Focused constituents can be within syntactic islands:** (Krifka, 2006)
John only introduced [$_{\text{island}}$ the man that [Jill]$_F$ admires most] to Sue.

(21′) **Association into islands by moving a larger constituent:** (Krifka, 2006)
LF: only(the man that [Jill]$_F$ admires)(λ_1[introduced t_1 to Sue])

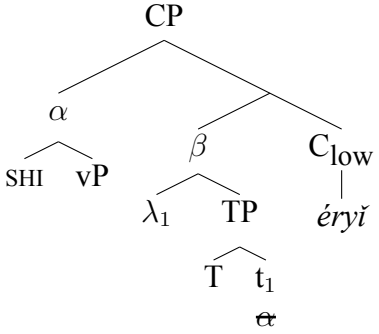
Evidence for this form of focus movement and its unique sensitivities to syntactic islands has been presented from explicit contrasts (contrastive continuations), the unavailability of multiple foci in islands, the interpretation of short answers (Krifka, 2006), and NPI licensing (Wagner, 2006).

4.2. A compositional syntax/semantics for *éryǐ*

One proposal for how SHI marks the position of alternative computation (15) is to take SHI to be a marker of the constituent that is focus-moved at LF. In this section I will entertain this view, presenting a denotation for *éryǐ* which requires focus movement of the SHI-marked constituent below it.

I will illustrate this syntax-semantics first with a basic example, (1b), repeated here as (22). The tree to the right is its LF, post-focus movement. We posit CHI above the vP, where it can optionally be pronounced. α, the constituent marked by *shì*, has been focus-moved. (For the sake of exposition, the subject will be interpreted within the vP via reconstruction.)

(22) 他（是） 看 [電視]$_F$ 而已。
Tā (shì) kàn diànshì éryǐ
He {SHI, ϕ_{SHI}} watch [TV]$_F$ ERYI
'He only watches [TV]$_F$.'



The following is the proposed denotation for *éryǐ* (23). The argument Q corresponds to the focus-moved constituent (α in the tree) and the argument P is the "remainder" of the TP after focus movement (β in the tree). Following Beaver and Clark (2008), $[\![\cdot]\!]^I$ represents the intensional meaning and $[\![\cdot]\!]^A$ is the alternative set à la Rooth (1985). Assume SHI is semantically vacuous: i.e. $[\![[\text{SHI } \gamma]]\!]^I = [\![\gamma]\!]^I$ and $[\![[\text{SHI } \gamma]]\!]^A = [\![\gamma]\!]^A$.

(23) $[\![\text{éryǐ}]\!]^w = \lambda P_{\langle\tau,t\rangle}\lambda Q_\tau.P(\forall\phi \in [\![Q]\!]^A.\phi(w) \rightarrow \phi = [\![Q]\!]^I)$, where $\tau = \text{typeof}(\alpha)$.

We first compute the intensional value of α and its alternative set. The alternative set is computed by considering relevant alternatives to the focused constituent.

a) $[\![\alpha]\!]^I = [\![[\text{SHI vP}]]\!]^I = [\![\text{vP}]\!]^I = \lambda w$. he watches TV in w

b) $[\![\alpha]\!]^A = [\![[\text{SHI vP}]]\!]^A = [\![\text{vP}]\!]^A = \{\lambda w$. he watches TV in w,
λw. he watches movies in w, λw. he watches plays in $w, ...\}$

Next we consider the denotation of β. Because the TP here actually had the same denotation as the constituent which was focus-moved, $[\![\beta]\!]$ becomes the identity function.

c) $[\![\beta]\!] = \lambda\alpha.[\![\text{TP}]\!] = \lambda\alpha_t.\alpha = \text{Ident}_t$

Now we compute the composite denotation $[\![(22)]\!]$ using the meaning of *éryǐ* proposed.

d) $[\![(22)]\!] = 1 \iff [\![\text{éryǐ}]\!]^{w^\star}(\beta)(\alpha)$, where $w^\star$ denotes the evaluation world.
$= \left(\lambda P_{\langle t,t\rangle}\lambda Q_t.P(\forall\phi \in [\![Q]\!]^A.\phi(w^\star) \rightarrow \phi = [\![Q]\!]^I)\right)(\text{Ident}_t)(\alpha)$
$= \left(\lambda Q_t.\forall\phi \in [\![Q]\!]^A.\phi(w^\star) \rightarrow \phi = [\![Q]\!]^I\right)(\alpha)$
$= \forall\phi \in [\![\alpha]\!]^A.\phi(w^\star) \rightarrow \phi = [\![\alpha]\!]^I$
$= \forall\phi \in \{\lambda w$. he watches TV in $w, \lambda w$. he watches movies in $w, ...\}$
$\phi(w^\star) \rightarrow \phi = (\lambda w$. he watches TV in $w)$

= If any of "he watches TV in $w^\star$", "he watches movies in $w^\star$", etc., is true, it must be that he watches TV.

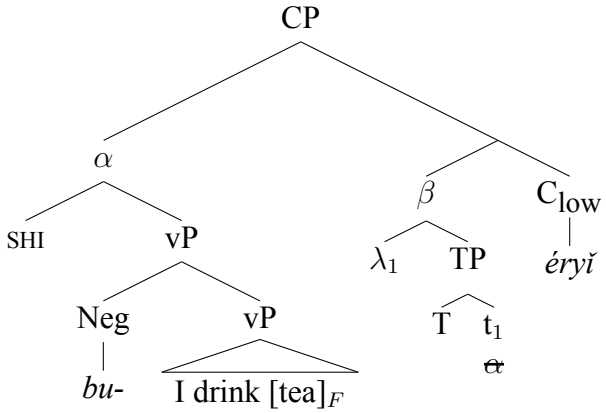
The truth condition expressed in this result matches our expected meaning for (22): namely, that "he watches X" can only be true if X = "TV."

Now let us see how this focus movement computation explicitly derives the puzzling scope contrasts in (9–10). First consider the interpretation of (9), repeated here, where there is no overt focus marker *shì*. As discussed in section 3, the correct parse for (9) interprets the negation as the low negation below ϕ_{SHI}.

(9) 我 不 喝 [茶]$_F$ 而已。 ONLY > NEG, *NEG > ONLY
Wǒ bù hē chǎ éryǐ
I NEG drink [tea]$_F$ ERYI

✓'I only don't drink [tea]$_F$... I drink everything else.'
* 'I don't only drink [tea]$_F$... I also drink other things.'

The structure of (9) at LF, after focus movement, is the following:



As the negation is below ϕ_{SHI}, it is contained within the constituent which is focus-moved and thus contributes to the value of $[\![\alpha]\!]^I$ and the value of all alternatives computed in $[\![\alpha]\!]^A$. This ensures that the AWF computation of alternatives—and the focus operator which uses its value—takes scope above negation.

a) $[\![\alpha]\!]^I = [\![\text{[Neg vP]}]\!]^I = \lambda w$. I don't drink tea in w

b) $[\![\alpha]\!]^A = [\![\text{[Neg vP]}]\!]^A = \{\lambda w$. I don't drink tea in $w, \lambda w$. I don't drink coffee in w, λw. I don't drink water in $w, ...\}$

c) $[\![\beta]\!] = \lambda\alpha.[\![\text{TP}]\!] = \lambda\alpha_t.\alpha = \text{Ident}_t$

We now compute $[\![(9)]\!]$ using the denotation for *éryǐ* given previously.

d) $[\![(9)]\!] = 1 \iff [\![\text{éryǐ}]\!]^{w^\star}(\beta)(\alpha)$, where $w^\star$ denotes the evaluation world.

$= \left(\lambda P_{\langle t,t\rangle}\lambda Q_t.P(\forall\phi \in [\![Q]\!]^A.\phi(w^\star) \rightarrow \phi = [\![Q]\!]^I)\right)(\text{Ident}_t)(\alpha)$

$= \left(\lambda Q_t.\forall\phi \in [\![Q]\!]^A.\phi(w^\star) \rightarrow \phi = [\![Q]\!]^I\right)(\alpha)$

$= \forall\phi \in [\![\alpha]\!]^A.\phi(w^\star) \rightarrow \phi = [\![\alpha]\!]^I$

$= \forall\phi \in \{\lambda w.$ I don't drink tea in $w, \lambda w.$ I don't drink coffee in $w, ...\}$
$\phi(w^\star) \rightarrow \phi = (\lambda w.$ I don't drink tea in $w)$

= If any of "I don't drink tea in $w^\star$", "I don't drink coffee in $w^\star$", etc., is true, it must be that I don't drink tea.

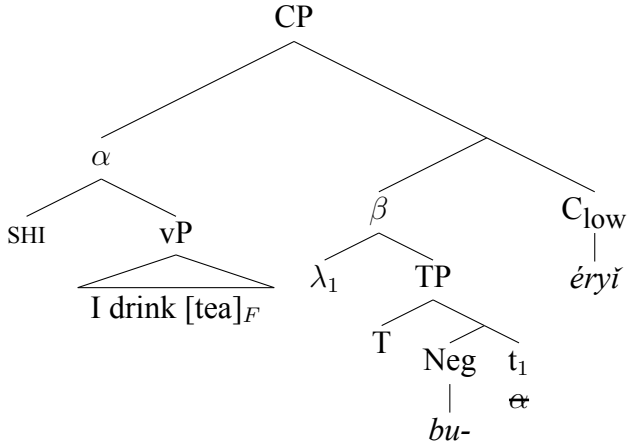
$\Rightarrow$ ONLY > NEG

Now consider the interpretation of example (10). Here, the overt *shì* forces the negation to be unambiguously in the higher position, above SHI:

(10) 我 不 是 喝 [茶]$_F$ 而已。 *ONLY > NEG, NEG > ONLY
Wǒ bù shì hē chǎ éryǐ
I NEG SHI drink tea ERYI

* 'I only don't drink [tea]$_F$... I drink everything else.'
✓'I don't only drink [tea]$_F$... I also drink other things.'

As such, the negation does not figure in the interpretations of α.



a) $[\![\alpha]\!]^I = [\![\text{vP}]\!]^I = \lambda w.$ I drink tea in w

b) $[\![\alpha]\!]^A = [\![\text{vP}]\!]^A = \{\lambda w.$ I drink tea in $w, \lambda w.$ I drink coffee in $w,$
$\lambda w.$ I drink water in $w, ...\}$

Instead, the negation is left behind in β, the "remainder" of the TP. This is reflected in the computation of $[\![\beta]\!]$. $[\![\beta]\!]$, due to the λ-abstraction, becomes a pure logical negation.

c) $\boxed{[\![\beta]\!] = \lambda\alpha.[\![\text{TP}]\!] = \lambda\alpha_t.\neg\alpha}$

Combined with our semantics for *éryǐ*, we yield the following truth condition, which functionally reflects negation taking scope over ONLY:

d) $[\![(10)]\!] = 1 \iff [\![\text{éryǐ}]\!]^{w^\star}(\beta)(\alpha)$, where $w^\star$ denotes the evaluation world.

$= \left(\lambda P_{\langle t,t\rangle}\lambda Q_t.P(\forall\phi \in [\![Q]\!]^A.\phi(w^\star) \rightarrow \phi = [\![Q]\!]^I)\right)(\lambda P_t.\neg P)(\alpha)$

$= \neg\left(\left(\lambda Q_t.\forall\phi \in [\![Q]\!]^A.\phi(w^\star) \rightarrow \phi = [\![Q]\!]^I\right)(\alpha)\right)$

$= \neg\left(\forall\phi \in [\![\alpha]\!]^A.\phi(w^\star) \rightarrow \phi = [\![\alpha]\!]^I\right)$

$= \neg(\forall\phi \in \{\lambda w.$ I drink tea in $w, \lambda w.$ I drink coffee in $w, ...\}$
$\phi(w^\star) \rightarrow \phi = (\lambda w.$ I drink tea in $w))$

$= \neg($If any of "I drink tea in $w^\star$", "I drink coffee in $w^\star$",
etc., is true, it must be that I drink tea.$)$

$=$ It's not the case that [if any of "I drink tea in $w^\star$", "I drink coffee in $w^\star$",
etc., is true, it must be that I drink tea].

$\Rightarrow$ NEG > ONLY

Thus (10) is interpreted as NEG > ONLY, even though the *only* word itself, *éryǐ*, is in a higher syntactic position. This focus movement approach is able to make the semantic import of SHI explicit.

4.3. Evidence from contrastive continuations

One class of evidence for covert focus movement comes from "explicit contrast" constructions (Drubig, 1994; Krifka, 2006), which I will call *contrastive continuations*:

(24) **A contrastive continuation must be at least as large as the constituent which is focus-moved**: (Krifka 2006)
Mary didn't invite [$_{\text{island}}$ the man in a [black]$_F$ suit] to the party,
a. ✓ but [she invited the man in a [purple]$_F$ suit].
b. ? but [the man in a [purple]$_F$ suit].[9]
c. * but [in a [purple]$_F$ suit].
d. * but [a [purple]$_F$ suit].
e. * but [purple]$_F$.

[9] Speaker judgements seem to vary on this continuation. Krifka (2006) gives it a ✓.

The generalization is that a contrastive continuation must be at least as large as the constituent that is focus-moved in the initial sentence. In cases where the focused element in the initial sentence is within a syntactic island, the entire island will be focus-moved and so the continuation must be at least as large as that island. The prediction of these contrasts with respect to Mandarin is clear: contrastive continuations in Mandarin must be at least as large as the projection to which *shì* attaches, i.e. vP, as SHI explicitly marks the constituent that is focus-moved. We see that this is indeed the case:

(25) 他 不 是 喜歡 [豬肉]$_F$,
tā bú shì xǐhūan zhūròu
he NEG SHI like [pork]$_F$

a. ✓ (可是) 他 (是) 喜歡 [牛肉]$_F$。
kěshì tā shì xǐhūan niúròu
(but) he (SHI) like [beef]$_F$

b. ✓ (可是) (是) 喜歡 [牛肉]$_F$。
kěshì shì xǐhūan niúròu
(but) (SHI) like [beef]$_F$

c. * (可是) [牛肉]$_F$。
kěshì niúròu
(but) [beef]$_F$

Thus the cross-linguistic generalization on contrastive continuations, which picks out what constituents are focus-moved, picks out precisely the constituent that is marked by *shì* in Mandarin Chinese. This argument supports the approach presented in this section where the projection marked by *shì* is focus-moved at LF.

5. Conclusion and further questions

In this paper, I focused on the understudied Mandarin sentence-final particle, *éryǐ*. In particular, I have established the syntactic contribution of *éryǐ* as a low C head, following the literature on Chinese SFP, and presented a novel and puzzling scope switching effect resulting from the interaction between *éryǐ*, negation, and the focus-marker *shì*.

At the heart of this discussion is my main claim: **that SHI (specifically, the sentence-medial bare *shì* of Paul and Whitman (2008)) unambiguously marks the position of focus alternative computation**. Thus, *éryǐ* can be interpreted with scope below negation, even while being in a higher syntactic position, so long as the alternative set computation occurs within the scope of negation. In addition, I presented a focus movement analysis as a proof-of-concept for how such a computation would occur at LF, with supporting evidence from contrastive continuations.

The proposal laid out here is not without its questions or further directions for pursuit. Focus-moved constituents are normally theorized to be as small as possible, due to restrictions on pied-piping or by Maximize Presupposition (Wagner, 2006). Why must the focus-moved constituent in Mandarin be precisely the projection marked by *shì*? Can this proposal for *shì* be unified with the other types of *shì*-marked focus constructions?

One way to view the data presented here is to conclude that focus-sensitive operators such as *éryǐ* do not trigger AWF themselves but instead are parasitic on the alternatives computed by a dedicated AWF marker, *shì*. Indeed, *shì* may be an overt version of Rooth's (1992) squiggle operator (∼) which marks the position of focus interpretation. The data and proposal laid out here point to an exciting new possibility in the cross-linguistic space of possible focus syntax-semantics: the existence of "bipartite" focus-sensitive operators, with one lexical item introducing the "logic" of the focus operator's assertion and another marking the semantic scope of the Association With Focus. Further work in both Mandarin and other languages is warranted in pursuing this new perspective on focus.

References

Beaver, David, and Brady Clark. 2008. *Sense and sensitivity: How focus determines meaning*. Wiley-Blackwell.

Biberauer, Theresa, Glenda Newton, and Michelle Sheenan. 2009. Limiting synchronic and diachronic variation and change: The Final-over-Final Constraint. *Language and Linguistics* 10:701–743.

Chomsky, Noam. 1976. Conditions on rules of grammar. *Linguistic Analysis* 2:303–350.

Drubig, Hans Bernhard. 1994. Island constraints and the syntactic nature of focus and association with focus. *Arbeitspapiere des Sonderforschungsbereichs 340: Sprachtheoretische Grundlagen der Computerlinguistik* 51.

Ernst, Thomas. 1995. Negation in Mandarin Chinese. *Natural Language and Linguistic Theory* 13:665–707.

Horn, Laurence R. 1969. A presuppositional analysis of *only* and *even*. In *Proceedings of CLS 5*. Chicago Linguistics Society.

Huang, Cheng-Teh James. 1988a. On 'be' and 'have' in Chinese [說「是」和「有」]. *The Bulletin of the Institute of History and Philology, Academica Sinica* LIX:43–64.

Huang, Cheng-Teh James. 1988b. *Wo pao de kuai* and Chinese phrase structure. *Language* 64:274–311.

Jackendoff, Ray. 1972. *Semantic interpretation in generative grammar*. MIT Press.

Krifka, Manfred. 2006. Association with focus phrases. In *The architecture of focus*, 105–136. Mouton de Gruyter.

Paul, Waltraud. 2010. Why particles are not particular: sentence-final particles in Chinese as heads of a split CP. *Studia Linguistica* to appear.

Paul, Waltraud, and John Whitman. 2008. *Shi... de* focus clefts in Mandarin Chinese. *The Linguistic Review* 413–451.

Rizzi, Luigi. 1997. The fine structure of the left periphery. In *Elements of grammar*, ed. Liliane Haegeman. Kluwer.

Rooth, Mats. 1985. Association with focus. Doctoral Dissertation, University of Massachusetts, Amherst.

Rooth, Mats. 1992. A theory of focus interpretation. *Natural Language Semantics* 1:75–116.

Schaffar, Wolfram, and Lansun Chen. 2001. Yes-no questions in Mandarin and the theory of focus. *Linguistics* 837–870.

Soh, Hooi Ling. 2009. Speaker presupposition and Mandarin Chinese sentence-final *-le*: a unified analysis of the "change of state" and the "contrary to expectation" reading. *Natural Language & Linguistic Theory* 27:623–657.

Teng, Shou-Hsin. 1978. Remarks on cleft sentences in Chinese. *Journal of Chinese Linguistics* 7:101–113.

Tsai, Wei-tien Dylan. 2004. On the formal semantics of *zhi* and *lian* [談「只」與「連」的形式語義]. *Zhongguo Yuwen* 2:99–111.

Wagner, Michael. 2006. Association by movement: evidence from NPI-licensing. *Natural Language Semantics* 14.

Appendix. Utterance-focus *éryǐ*

In example (1), I noted that the utterance with both *zhǐ* and *éryǐ* is interpreted with just one semantic reflex of exclusivity—exactly the same as the alternatives with only *zhǐ* or only *éryǐ*. However, in some particular circumstances, it is possible for *zhǐ* and *éryǐ* to be interpreted as two distinct exclusiveness operators.

(26) Context: the speaker has been offered tea, but does not drink it. "Why aren't you drinking the tea?"

我 只 喝 水 而已。
Wǒ zhǐ hē shǔi éryǐ
I ZHI drink water ERYI

'It's just that I only drink water... there's no other reason.'

Note, however, that this potential complication is simply another use of *éryǐ* with a different semantics. In general, *éryǐ* is also able to take the entire proposition as its focus, asserting that it is the only appropriate response in the conversation, especially in cases where an explanation is sought. I refer to these uses of *éryǐ* as "utterance-focus."

(27) **Utterance-focus with *éryǐ*:**
Context: the speaker has been offered tea, but does not drink it. "Why aren't you drinking the tea?"

我 不 喝 茶 而已。
Wǒ bu hē chǎ éryǐ
I NEG drink tea ERYI

'It's just that [I don't drink tea]$_F$... there's no other reason.'

In contrast, *zhǐ* in sentence medial position cannot introduce utterance-focus.

(28) ***zhǐ* cannot introduce utterance-focus:**

#我 只 不 喝 茶。
Wǒ zhǐ bu hē chǎ
I ZHI NEG drink tea

Intended: 'It's just that [I don't drink tea]$_F$... there's no other reason.'

In cases where we interpret both an utterance-focus exclusivity and a clause-internal exclusivity, the higher, utterance-focus exclusivity must be the contribution of *éryǐ*, not *zhǐ*. Thus, in (26), *éryǐ* must assert that the entire utterance is the only appropriate utterance, while *zhǐ* associates with the "water" below. It is precisely in this configuration that we see the independent contribution of both *only* items.

Note that this utterance-focus use of *éryǐ* also indicates that it must be in a position to scope above the entire clause, as expected by its low C position.

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The Semantics of *yue…yue* in Mandarin Chinese

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In this paper, we argue that *yue…yue* in Mandarin Chinese can mark two semantically distinct comparative structures: comparative correlatives and adverbial comparatives. Comparative correlatives are sentences where the first copy of *yue* precedes a gradable predicate (typically adjectives), and adverbial comparatives are sentences where the first copy of yue precedes a non-gradable predicate (typically verbs). Comparative correlatives and adverbial comparatives are truth-conditionally distinct. The latter has an obligatory temporal reading absent in the former. Based on the semantic difference of these two types of *yue…yue* comparatives, we argue that gradable predicates (typically adjectives) contain a degree argument in their semantics, but lack a time argument; non-gradable predicates (typically verbs) have a time argument, but lack a degree argument.

1.Introduction

It has been observed that sentences in Mandarin Chinese marked by the form of yue…yue, with yue preceding either an adjective, e.g. (1a), or a verb, e.g. (1b), correspond to so-called comparative correlatives in other languages, such as the English translations (Chao 1968, Li and Thomas 1981, Hsiao and Tsao 2002, Lin 2007, Liu 2008).

(1) a. Pingguo ***yue*** da yue tian.
Apple big sweet
'The bigger an apple is, the sweeter it is.'

b. John ***yue*** xihuan Mary, Jane yue gaoxing.
like happy
'The more John likes Mary, the happier Jane is.

However, it has rarely been noticed that when the first *yue* precedes a certain class of predicates, which we characterize as non-gradable predicates, such as *pao* 'run' in (2a), the sentence receives a different interpretation from typical comparative correlatives and instead receives an interpretation like so-called adverbial comparatives, as in the English translations in (2).

(2) a. John ***yue*** pao yue kuai.
John run fast
'John ran faster and faster.'

b. John ***yue*** chang ge, xinqing ***yue*** hao.
John sing songs mood good
As John was singing, his mood became better and better.

The goal of this paper is two-fold. First, we want to establish that comparative correlatives like (1) and adverbial comparatives like (2) are truth-conditionally distinct. The latter has an obligatory temporal interpretation absent in the former. This will be discussed in detail in section 2.

Second, we will propose an analysis which captures the difference in semantic content between comparative correlatives and adverbial comparatives. Our analysis crucially refers to the distinction between gradable and non-gradable predicates. Comparative correlatives have the first occurrence of yue appearing in front of a gradable adjective, e.g. *da* 'big' in (1a), or a gradable verb, e.g. *xihuan* 'like' in (1b). Adverbial comparatives, on the other hand, have the first *yue* occurring in front of a non-gradable verb, e.g. *pao* 'run' in (2a) and *chang* 'sing' in (2b).The gradability of a predicate can be decided by (i) whether it can be modified by a degree modifier such as *hen* 'very', e.g. (3) and (5), and (ii) whether it can be used directly in the *bi*-comparative1, e.g. (4) and (6).

(3) a. John hen gao.
very tall
'John is very tall.'

b. John hen xihuan zhongguo.
very like China
'John likes China very much.'

(4) a. John bi Mary gao.
tall
'John is taller than Mary.'

[1] The syntax and semantics of the bi-comparative have been studied in detail in Li and Thompson (1981), Liu (1996), Xiang (2003, 2005), Erlewine (2007), Lin (2009), Li (2009) and references therein.

b. ‘John bi Mary xihuan Zhongguo.
like China
‘John likes China more than Mary does.’

(5) a. *John hen pao
very run

b *John hen chang ge.
very sing song

(6) a. *John bi Mary pao.
run

b. *John bi Mary chang ge
sing song

Based on the semantic difference between these two types of *yue…yue* comparatives, we argue that gradable predicates (typically Adjectives) do not contain a time argument in their semantics while non-gradable predicates (typically Verbs) do, and, on the other hand, gradable predicates do contain a degree argument, while non-gradable predicates do not.

2. The semantic difference between Comparative correlatives and adverbial comparatives

In this section, we show that comparative correlatives and adverbial comparatives are truth conditionally distinct. To begin with, let us consider the truth condition of a comparative correlative. A comparative correlative is true iff an increase of the degree of the property indicated by the predicate after the first *yue* is accompanied by an increase of the degree of the property indicated by the predicate after the second *yue* (Lin 2007, Liu 2008). For instance, the comparative correlative in (1a) is true iff an increase of an apple’s size correlates with an increase of its sweetness. This meaning is illustrated by the scenario in (8a), in which (1a) is intuitively true.

(8) a. The scenario in which (1a) is true

Apples’ size		**Apple’s degree of sweetness**	
Apple A: **6** cm in radius	↑	A’s sweetness: **10**	↑
Apple B: **5** cm in radius		B’s sweetness: **7**	
Apple C: **4** cm in radius		C’s sweetness: **5**	

(1a) is false if an increase of an apples' size does not correlate with an increase of its sweetness, as shown by the scenario in (8b):

(8) b. The scenario in which (1b) is false

Apples' size		**Apple's degree of sweetness**	
Apple A: **6** cm in radius	↑	A's sweetness: **7**	↑
Apple B: **5** cm in radius		B's sweetness: **10**	✕
Apple C: **4** cm in radius		C's sweetness: **5**	

By the same token, (1b) means an increase of John's liking of Mary is accompanied by an increase of Jane's happiness.

On the other hand, the truth condition of an adverbial comparative is different from the truth condition of a comparative correlative. An adverbial comparative is true iff the degree of the property indicated by the predicate after the second *yue* increases ***over time***. For instance, the adverbial comparative in (2a) is true iff John's running speed increases *over time*. This meaning is illustrated by the scenario in (9a), where (2a) is intuitively true.

(9) a. The scenario in which (2a) is true

Temporally ordered running events		**Average Speed**	
3rd week of running	↑	His average speed was **6** mph	↑
2nd week of running		His average speed was **5** mph	
1st week of running		His average speed was **4** mph	

(2b) is false if John's speed does not increase over time, as illustrated by the scenario in (9b):

(9) b. The scenario in which (2a) is false

Temporally ordered running events		**Average Speed**	
3rd week of running	↑	His average speed was **3** mph	↑
2nd week of running		His average speed was **6** mph	✕
1st week of running		His average speed was **4** mph	

It's worth noting that in evaluating the truth value of (8b) in (9), we do not need to take

into consideration how many times that John ran, unlike what we did in comparative correlatives. All we need to know is whether his speed increases over time.

The truth-conditional difference between comparative correlatives and adverbial comparatives can be further seen by comparing the near minimal pair of the comparative correlative in (10a) and the adverbial comparative in (10b).

(10) a. John pao-de ***yue*** duo, ta (jiu) pao-de ***yue*** kuai.
run-de much he (then) run-de fast
'The more John ran, the faster he went.'

b. John ***yue*** pao ***yue*** kuai.
run fast
'John ran faster and faster.'

In (10a), the first copy of *yue* precedes a gradable adjective *duo* 'much'. The sentence is based on the two non-comparative sentences— *John pao-de hen duo* 'John ran a lot' and *John pao-de hen kuai* 'John ran fast.' Semantically, (10a) describes a correlation between the 'quantity' of John's running and the speed he achieved.

The example in (10b), repeated from (2a), is an adverbial comparative as the first copy of *yue* precedes the non-gradable verb *pao* 'run'. Semantically, (10b) means that John's running speed increases *over time*. Let us compare the truth-values of (10a) and (10b) in the scenario described in (11):

(11) Scenario: John did marathon training for 3 weeks. In the 1st week, John ran 7 times, and his average running speed was 6 mph. In the 2nd week, John ran 5 times, and his average running speed was 5 mph. In the 3rd week, John ran 3 times, and his average running speed was 4 mph.

Time	**Number of Times**	**Average Speed**
Week 3 ↑	John ran **3** times. ↓	His average speed was **4** mph ↓
Week 2 ↑	John ran **5** times. ↓	His average speed was **5** mph ↓
Week 1	John ran **7** times	His average speed was **6** mph

The comparative correlative in (10a) is ambiguous between two readings. On one reading, it says that the number of times that John ran each week (the second column in 11), correlates with his average speed per week (the third column in 11). Under this reading, (10a) is intuitively true in (11), because as the number of times that John ran per week decreases, his average running speed per week also decreases.

Besides this reading, (10a) has another reading, according to which, (10a) means that there is a correlation between a running total of the number of times that John ran (the

second column in 11'), and his average speed (the third column in 11'). We will refer to this reading as the cumulative reading, and the previous reading as the non-cumulative reading.

(11') Time	**Running Total**	**Average Speed**
Week 3 + week 2 +week 3	John ran **3** + **5** + **7** times	His average speed was **5.2** mph
Week 2 + week1	John ran **5** + **7** times.	His average speed was **5.5** mph
Week 1	John ran **7** times	His average speed was **6** mph

Under the cumulative reading, (10a) is intuitively false, because as the total number of times that John ran increasing, his average speed decreases, as shown in the table in (11').

Comparing (10b) to (10a), (10b) has only one reading, which expresses a correlation between John's running speed (the third column in 11), and time (the first column in 11). Intuitively (10b) is false in (9), because as time moves forward, John's running speed decreases. Let us refer to this reading as the temporal reading.

From the examples in (10a) and (10b), we conclude that the temporal reading is not the same as the non-cumulative reading of comparative correlatives, as they do not yield the same truth value in the given scenario in (11). However, a question arises as to whether the temporal reading of adverbial comparatives is equivalent to the cumulative reading of comparative correlatives. If the answer to the question is yes, then this will invalidate the distinction that we have been trying to make between comparative correlatives and adverbial comparatives. In what follows, we will present two sets of evidence to show that the temporal reading of adverbial comparative is distinct from the cumulative reading of comparative correlatives.

First, the cumulative reading of a comparative correlative is truth-conditionally weaker than the temporal reading of an adverbial comparative correlative. That is, the former can be true in scenarios where the latter is false. This is shown by the tables in (12) and (12').

(12) Scenario: John did marathon training for 3 weeks. In the 1st week, John ran 3 times, and his average running speed was 6 mph. In the 2nd week, John ran 5 times, and his average running speed was 7 mph. In the 3rd week, John ran 3 times, and his average running speed was 6.7 mph.

Time	**Number of Times**	**Average Speed**
Week 3	John ran **7** times	His average speed was **6.7** mph
Week 2	John ran **5** times	His average speed was **7** mph
Week 1	John ran **3** times	His average speed was **6** mph

According to the scenario in (12), the adverbial comparative in (10b) is intuitively *false*, because John's speed does not increase over time. However, the comparative correlative in (10a) is *true* in (12') under the cumulative reading, because with an increase of the total number of times that John ran, his average speed increases.

(12') Time	**Running Total**	**Average Speed**
Week 3 + week 2 +week 3	John ran **3** + **5** + **7** times ↑	His average speed was **6.66** mph ↑
Week 2 + week1	John ran 5 + **3** times.	His average speed was **6.6** mph
Week 1	John ran **3** times	His average speed was **6** mph

Second, not every adverbial comparative can be paraphrased by a comparative correlative. Let us look at the examples in (13) below:

(13) a. (fan), John yue chi yue shao.
rice eat few
'John ate less and less (rice).'

b. (huazhuang pin), Mary yue mai yue pianyi.
cosmetics buy cheap
'Mary bought cheaper and cheaper cosmetics.'

c. yu yue xia yue xiao.
rain fall little
'It was raining lighter and lighter.'

(13) are examples of adverbial comparatives. The first yue precedes a non-gradable verb, and the second yue precedes a negative adjective— *shao* 'few' (13a), *pianyi* 'cheap'(13b), and *xiao* 'small' (13c). The sentence in (13a) means: the degree of fewness of the quantity of the rice that John consumed *increases* over time, or, the quantity of rice that John consumed *decreases* over time. (13a) is intuitively true in a situation like the following:

(14) Scenario: John is on a diet. On the 1st day, he ate 3 bowls of rice; on the 2nd day, he ate 2 bowls of rice; on the 3rd day, he only ate 1 bowl of rice.

Time		**Quantity of rice**	
Day 3	↑	1 bowl of rice	↓
Day 2		2 bowls of rice	
Day 1		3 bowls of rice	

When we evaluate the truth value of (13a) in (14), we compare the quantity of the rice that John consumed in each temporally ordered eating event. If the quantity of rice that John ate decreases over time, then (13a) is true in (14), which is indeed the case here. (13a) cannot be paraphrased by a cumulative reading of a comparative correlative, because with the 'quantity' of eating increasing, the rice consumed necessarily increases, as shown by the table in (14').

(14') Time		**Quantity of rice**	
Day 3 +Day 2 + Day1	↑	1+2+3 bowls of rice	↑
Day 2 + Day1		2+3 bowls of rice	
Day 1		3 bowls of rice	

(13b) and (13c) illustrate the same idea. (13b) says that the price of the cosmetics that Mary bought in each buying situation decreases over time. *Pianyi* 'cheap' is a property that applies to the cosmetics that Mary bought each time, instead of the total price she paid for all her buying. (13c) means that the volume of rain falling decreases over time. They both have a reading which cannot be paraphrased by the cumulative reading of a comparative correlative.

Let us recap. In this section we have discussed the semantic difference between the two types of truth-conditionally distinct comparative structures marked by *yue…yue*: adverbial comparatives and comparative correlatives. We have shown that the former has a temporal reading, which is lacking in the latter. In the following section, we will review Lin (2007)'s analysis of *yue…yue* comparatives. We show that as Lin's analysis of *yue…yue* does not differentiate between comparative correlatives and adverbial comparatives, it fails to capture the semantic difference between them.

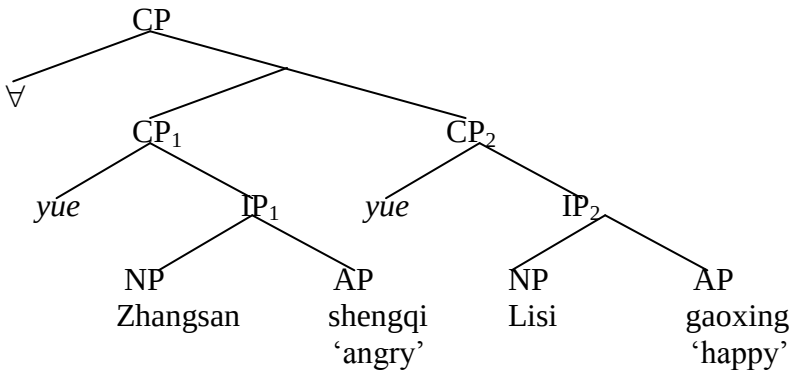
3. Lin (2007)'s analysis of *yue…yue* comparatives

Lin (2007), following Beck (1997)'s semantic analysis of English comparative correlatives, argues that *yue…yue* constructions in Mandarin Chinese uniformly express a correlation between two pairs of degrees provided by the two subordinate clauses marked by *yue*. Let us take (15) as an example, and look at the details of his analysis.

(15) Zhangsan yue shengqi, Lisi yue gaoxing.
angry happy
'The angrier Zhangsan is, the happier Lisi is.

Lin assumes that *yue…yue* constructions have a quantificational structure like a conditional. He proposes that the sentence in (15) has the logical form in (16)

(16)



According to (16), (15) consists of two subordinate clauses CP_1 and CP_2. In each clause, yue takes a sentential complement IP. A covert universal quantifier ∀ takes both CP_1 and CP_2 as its semantic arguments. CP_1 provides the domain of quantification for ∀ and CP_2 provides a nuclear scope. The interpretations of some main components in (16) are provided in (17):

(17) a. $\| \textit{shengqi} \| = \lambda x_e\, \lambda d_d\, \lambda s_s\, \text{angry'}(x)(d)(s)$

b. $\| \textit{yue} \| = \lambda P_{<d<s,\, t>>} \lambda g_1 \lambda g_2 \lambda s_1 \lambda s_2\, [P(g_1)(s_1) \wedge P(g_2)(s_2) \wedge g_2 > g_1]$

c. $\| \forall \| = \lambda G_{<d,\, <d,\, <s,\, <s,\, t>>>>} \lambda Q_{<d,\, <d,\, <s,\, <s,\, t>>>>}\ \forall g_1\, g_2\, s_1\, s_2$
$[G(g_1)(g_2)(s_1)(s_2)] \rightarrow \exists g_3 g_4 s_3 s_4\, [Q(g_1)(g_2)(s_1)(s_2)]$

d. $\|$ Zhangsan yue shengqi, Lisi yue gaoxing $\| =$
$\forall g_1\, g_2\, s_1 s_2\, [\text{angry'}(\text{Zhangsan})(g_1)(s_1) \wedge \text{angry'}(\text{Zhangsan})(g_2)(s_2) \wedge g_2 > g_1]$
$\rightarrow \exists g_3 g_4 s_3 s_4\, [s_1 \leq s_3 \wedge s_2 \leq s_4\ \wedge R<<g_1, s_1>, <g_3, s_3>> \wedge R<<g_2, s_2>, <g_4, s_4>>$
$\wedge\ \text{happy'}(\text{Lisi})(g_3)(s_3) \wedge \text{happy'}(\text{Lisi})(g_4)(s_4) \wedge g_4 > g_3]$

(16d) reads as: For any pair of degrees g_1 and g_2, and any pair of situations s_1 and s_2 such that Zhangsan is angry to degree g_1 in s_1, and Zhangsan is angry to degree g_2 in s_2, and g2 is greater than g_1, there exists a pair of degrees g_3 and g_4, and a pair of situations s_3 and s_4 such that s_3 is an extended situation of s_1 and s_4 is an extended situation of s_2. Lisi is happy to degree g_3 in s_3, and Lisi is angry to degree g_4 in s_4. g_4 is greater than g_3. Moreover, g_1 in s_1 has a causative relation—R relation with g_3 in s_3. g_2 in s_2 has a causative relation—R relation with g_4 in s_4. In short, (17d) conveys the meaning that with an increase of Zhangshan's anger, there is an increase of Lisi's happiness.

Although Lin's analysis successfully accounts for comparative correlatives like (15), his analysis does not extend easily to adverbial comparatives like (18). For one thing, it is a rather debatable claim that non-gradable verbs like *pao* 'run' have a degree argument, just like gradable adjectives. In particular, in Mandarin Chinese, gradable and non-

gradable predicates can be clearly defined by whether they can be modified by a degree modifier such as *hen* 'very', as in (4) and (6), and whether they can be used in *bi*-comparatives directly, as in (5) and (7).

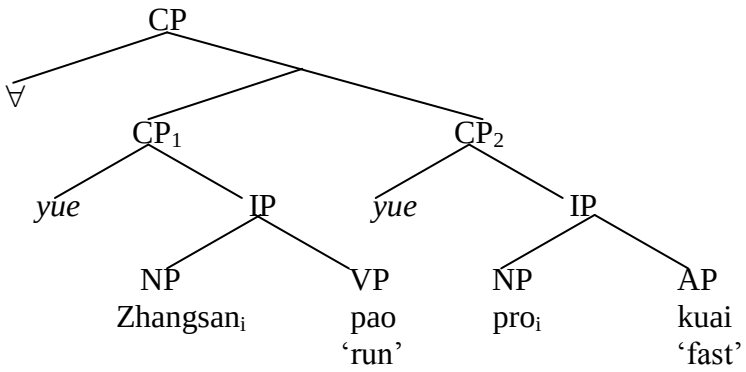
Nevertheless, Lin follows Doetjes (1997) in assuming that non-gradable verbs have a 'quantity' argument, parallel to the degree argument of gradable adjectives. For instance, *pao* 'run' has the semantics in (19a), where run'(x)(d)(s) means x has done d-quantity of running in situation *s*, parallel to the semantics of adjectives like *shengqi* 'angry' (19b).

(18) Johni ***yue*** pao pro_i ***yue*** kuai.
run fast
'John ran faster and faster.'

(19) a. $\| pao \| = \lambda x_e \lambda d_d \lambda s_s$ run'(x)(d)(s) $<e, <d, <s, t>>>$
b. $\| shengqi \| = \lambda x_e \lambda d_d \lambda s_s$ angry'(x)(d)(s) $<e, <d, <s, t>>>$

If we incorporate this assumption into his analysis, the adverbial comparative in (18) (repeated from 10b) would have the structure in (20) and the interpretations in (21).

(20)



(21) a. $\| pao \| = \lambda x_e \lambda d_d \lambda s_s$ run'(x)(d)(s)

b. $\| yue \| = \lambda P_{<d,<s, t>>} \lambda g_1 \lambda g_2 \lambda s_1 \lambda s_2 [P(g_1)(s_1) \wedge P(g_2)(s_2) \wedge g_2 > g_1]$

c. $\| John_i$ *yue pao* pro_i *yue kuai* $\| =$
$\forall g_1 g_2 s_1 s_2 [run'(John)(g_1)(s_1) \wedge run'(John)(g_2)(s_2) \wedge g_2 > g_1] \rightarrow$
$\exists g_3 g_4 s_3 s_4 [s_1 \leq s_3 \wedge s_2 \leq s_4 \wedge R<<g_1, s_1>, <g_3, s_3>> \wedge R<<g_2, s_2>, <g_4, s_4>> \wedge$
$fast'(John)(g_3)(s_3) \wedge fast'(John)(g_4)(s_4) \wedge g_4 > g_3]$

(21c) reads as: For any pair of degrees g_1 and g_2, and any pair of situations s_1 and s_2 such that John has done g_1-quantity of running in s_1, and John has done g_2-quantity of running in s_2, and g_2 is greater than g_1, there exists a pair of degrees g_3 and g_4, and a pair of

situations s_3 and s_4 such that s_3 is an extended situation of s_1 and s_4 is an extended situation of s_2. John is fast to degree g_3 in s_3, and John is fast to degree g_4 in s_4. g_4 is greater than g_3. Moreover, g_1 in s_1 has a causative relation—R relation with g_3 in s_3. g_2 in s_2 has a causative relation—R relation with g_4 in s_4. In short, (21c) expresses a correlation between the quantity of John's running and his speed.

However, given our discussion in the previous section, (21c) does not express the meaning of (15). Instead, it conveys the meaning of (22)(repeated from (10a).

(22) John pao-de ***yue*** duo, ta (jiu) pao-de ***yue*** kuai.
run-de much he (then) run-de fast
'The more John ran, the faster he went.'

In view of this flaw in his analysis, in the following section, we will provide a new analysis for yue…yue which aims to capture the semantic difference between adverbial comparatives and comparative correlatives.

4. The Semantics of *yue…yue*

Let us start with preliminaries. We assume that gradable predicates (typically adjectives) contain a degree argument in their semantics, but lack a time argument; non-gradable predicates (typically verbs) have a time argument, but lack a degree argument. Following this assumption, the non-gradable predicate like *pao* 'run' has the interpretation in (23a), where run'(x)(t)(s) reads as: x runs in situation *s* and at time *t*. It differs from the interpretation of gradable predicates like (23b) in that it does not contain a degree argument.

(23) a. $\| \textit{pao} \| = \lambda x_e\, \lambda t_i\, \lambda s_s$ run'(x)(t)(s) $\quad <e, <\mathbf{i}, <s, t>>>$
b. $\| \textit{gaoxing} \| = \lambda x_e\, \lambda d_d\, \lambda s_s$ happy'(x)(d)(s) $\quad <e, <\mathbf{d}, <s, t>>>$

We propose that *yue* has two interpretations, as shown in (24a) and (24b).

(24) a. $\| \textit{yue} \| = \lambda P_{<d, <s, t>>}\, \lambda s_1 \lambda s_2\, \exists g_1 \exists g_2\, [P(g_1)(s_1) \wedge P(g_2)(s_2) \wedge g_2 > g_1]$
b. $\| \textit{yue} \| = \lambda P_{<i, <s, t>>}\, \lambda s_1 \lambda s_2\, \exists t_1 \exists t_2\, [P(t_1)(s_1) \wedge P(t_2)(s_2) \wedge t_2 > t_1]$

(24a) is the interpretation of *yue* when it combines with a gradable predicate in comparative correlatives. This meaning essentially follows Lin's analysis of comparative correlatives in Mandarin Chinese. In (24a), *yue* takes a property of degrees—$P_{<d, <s, t>>}$, and a pair of situations—s_1 and s_2. It returns a proposition which is true iff P is true of g_1 in s_1 and P is true of g_2 in s_2. g_2 is greater than g_1.

The interpretation in (24b) is our proposed interpretation of *yue* when it is combined with a non-gradable predicate in adverbial comparatives. It minimally differs from (24a) in the type of the first argument that *yue* takes. $P_{<i, <s, t>>}$ in (24b) denotes a property of

times. Both degrees and times are orderable types, that is, allow an order to be defined on the elements in their type domain. The result of applying the meaning of yue in (24b) to the three arguments—$P_{<i, <s, t>>}$, s_1 and s_2, is a proposition true iff P is true of t_1 in s_1 and P is true of t_2 in s_2. t_2 temporally follows t_1.

The dual interpretation of yue in (24a) and (24b) can successfully capture the semantic difference between the adverbial comparative in (10a) (repeated in 25) and the comparative correlative in (10b). Let us look at (25) first.

(25) John ***yue*** pao ***yue*** kuai.
run fast
'John ran faster and faster.'

Syntactically, we propose that (25) has a monoclausal structure, which is different from the biclausal structure of comparative correlatives. The evidence for this proposal comes from the following evidence. First some adverbial comparatives, which are structurally parallel to (25), do not allow an insertion of an overt subject and the morpheme *jiu* 'then' in front of the second *yue*, while maintaining their original meanings.

(26) Comparative Correlatives
a. John yue shengqi, Mary ***jiu*** yue gaoxing.
angry then happy
'The angrier John is, the happier Mary is.

Adverbial Comparatives
b. $John_i$ yue tiao, **ta_i** ***jiu*** yue gao.
jump he then fast
(i) ??'John jumps higher and higher.'
(ii) 'John becomes taller and taller from jumping.'

Second, comparative correlatives like (26a), which are clearly bi-clausal, allow an insertion of a future aspect marker in front of the second *yue*, and receive a future interpretation. However, if we do so with the adverbial comparative in (26b), the sentence receives a different meaning rather than just a future interpretation.

(27) Comparative Correlatives
a. John yue shengqi, Mary (jiu) ***hui*** yue gaoxing.
angry then will happy
'The angrier John is, the happier Mary will be.

b. *John ***hui*** yue shengqi, Mary jiu yue gaoxing.
will angry then happy

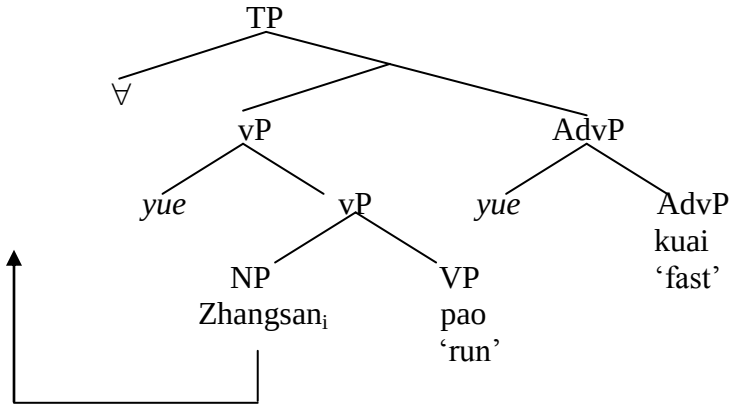
Adverbial Comparatives

c. John yue tiao, jiu ***hui*** yue gao.
run then will fast.
(i) ??'John will jump higher and higher'
(ii) 'John will become taller and taller from jumping.'

d. John ***hui*** yue tiao yue gao.
will run high
'John will jump higher and higher.'

Based on the above evidence, we propose that (25) has the LF in (28):

(28)



The structure in (28) differs from Lin's structure in (20) in that (28) has a monoclausal structure. The predicate following the first *yue—pao* 'run' is the main predicate, and the predicate following the second *yue—kuai* 'fast', is an adverb. The subject *John* is raised out of the vP to the spec of TP to receive a nominative case.

Semantically, the vP in (28) denotes a set of temporally ordered situations in which John ran. The AdvP denotes a set of situations ordered based on John's running speed. The universal quantifier takes the vP and the AdvP as its semantic arguments and returns a proposition true iff John's speed increases over the temporally ordered running' situations. The step-by-step interpretation of (28) is provided below:

(29) a. $\| pao \| = \lambda x_e \lambda t_i \lambda s_s$, run'(x)(t)(s)

b. $\| John\ pao \| = \lambda t_i \lambda s_s$ run'(John)(t)(s)

c. || *yue* || = $\lambda P_{<i, <s, t>>}\ \lambda s_1 \lambda s_2\ \exists t_1 \exists t_2\ [P(t_1)(s_1) \wedge P(t_2)(s_2) \wedge t_2 > t_1]$

d. || *yue John pao* ||
= $\lambda s1 \lambda s_2\ \exists t_1 \exists t_2\ [\text{run'}(\text{John})(t_1)(s_1) \wedge \text{run'}(\text{John})(t_2)(s_2) \wedge t_2 > t_1]$

e. || *kuai* || = $\lambda d_d\ \lambda s_s$ fast' (d)(s)

f. || *yue* || = $\lambda P_{<d, <s, t>>}\ \lambda s_1 \lambda s_2\ \exists g_1 \exists g_2\ [P(g_1)(s_1) \wedge P(g_2)(s_2) \wedge g_2 > g_1]$

g. || *yue kuai* || = $\lambda s_1 \lambda s_2\ \exists g_1 \exists g_2\ [\text{fast'}(g_1)(s_1) \wedge \text{fast'}(g_2)(s_2) \wedge g_2 > g_1]$

h. || ∀ || = $\lambda P_{<s, <s, t>>} \lambda Q <s, <s, t>>\ \forall s_1\ s_2\ [P(s_1)(s_2) \rightarrow Q(s_1)(s_2)]$

i. || ∀ *yue Zhangsan pao yue kuai* || =
$\forall s_1\ s_2\ [\exists t_1 \exists t_2\ [\text{run'}(\text{John})(t_1)(s_1) \wedge \text{run'}(\text{John})(t_2)(s_2) \wedge t_2 > t_1] \rightarrow \exists g_1 \exists g_2$
$[\text{fast'}(g_1)(s_1) \wedge \text{fast'}(g_2)(s_2) \wedge g_2 > g_1]]$

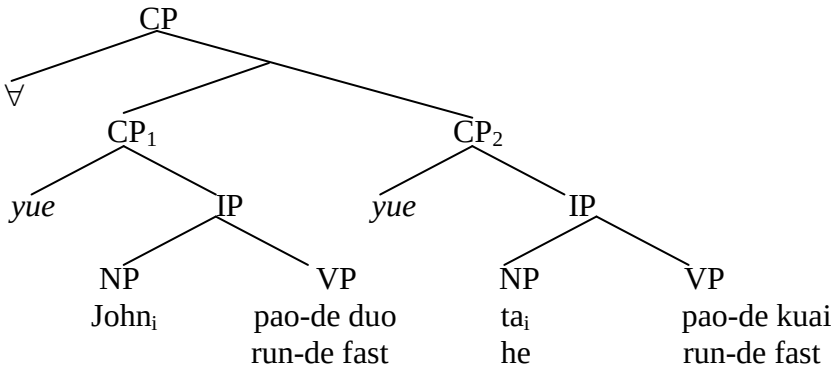
(29i) says that for any pair of situation s_1 and s_2, which are runnings by John, and such that s_2 is later than s_1, s_2 is faster than s_1

The comparative correlative in (10b), repeated below in (30), has a different interpretation. It means an increase of the 'quantity' of John's running correlates with an increase of his speed. Let us calculate how this meaning is derived by incorporating the meaning of *yue* in (24a).

(30) Johni pao-de ***yue*** duo, tai (jiu) pao-de ***yue*** kuai.
run-de much he (then) run-de fast
'The more John ran, the faster he went.'

Syntactically, (30) has the biclausal structure in (31), following Lin (2007):

(31)



(32) a. $\| \textit{pao} \|^g = \lambda x_e \lambda s_s$ run'$(x)(t)(s)$

b. $\| \textit{John pao} \|^g = \lambda s_s$ run'$(\text{John})(t)(s)$

c. $\| \textit{duo} \|^g = \lambda d_d \lambda s_s$ much'$(d)(s)$

d. $\| \textit{John pao-de duo} \|^g = \lambda d_d \lambda s_s$ [run'$(\text{John})(t)(s) \wedge$ much' $(d)(s)$]

e. $\| \textit{yue} \|^g = \lambda P_{<d, <s, t>>} \lambda s_1 \lambda s_2 \exists g_1 \exists g_2$ [$P(g_1)(s_1) \wedge P(g_2)(s_2) \wedge g_2 > g_1$]

f. $\| \textit{yue John pao-de duo} \| = \lambda s_1 \lambda s_2 \exists g_1 \exists g_2$ [[run'$(\text{John})(t)(s_1) \wedge$ much $(g_1)(s_1)$] $\wedge$ [run'$(\text{John})(t)(s_2) \wedge$ much' $(g_2)(s_2)$] $\wedge g_2 > g_1$]

g. $\|ta_i\|^g = g(i) = \text{John}$

h. $\| ta_i \textit{ pao} \|^g = \lambda s_s$ run'$(\text{John})(t)(s)$

i. $\| \textit{kuai} \|^g = \lambda d_d \lambda s_s$ fast'$(d)(s)$

j. $\| ta_i \textit{ pao-de kuai} \|^g = \lambda d_d \lambda s_s$ [run'$(\text{John})(t)(s) \wedge$ fast' $(d)(s)$]

k. $\| \textit{yue } ta_i \textit{ pao-de kuai} \|^g = \lambda s_1 \lambda s_2 \exists g_1 \exists g_2$ [[run'$(\text{John})(t)(s_1) \wedge$ fast' $(g_1)(s_1)$] $\wedge$ [run'$(\text{John})(t)(s_2) \wedge$ fast' $(g_2)(s_2)$] $\wedge g_2 > g_1$]

l. $\| \forall \|^g = \lambda P\text{<s, <s, t>}\lambda Q\text{<s, <s, t>} \forall s1\ s2$ [$P(s1)(s2) \rightarrow Q(s1)(s2)$]

m. $\| \forall$ *yue John pao-de duo, ta yue pao-de kuai* $\|^g =$
$\exists t \forall s_1, s_2 \exists g_1 \exists g_2$ [[run'$(\text{John})(t)(s_1) \wedge$ much'$(g_1)(s_1)$]$\wedge$ [run'$(\text{John})(t)(s_2) \wedge$ much' $(g_2)(s_2)$] $\wedge g_2 > g_1$] $\rightarrow \exists g_3 \exists g_4$ [[run'$(\text{John})(t)(s_1) \wedge$ fast' $(g_{23})(s_1)$] $\wedge$ [run'$(\text{John})(t)(s_2) \wedge$ fast' $(g_4)(s_2)$] $\wedge g_4 > g_3$]]

(32m) says: For any two situations s_1 and s_2 which are runnings by Zhangsan and such that the quantity of running in s_2 is greater than that in s_1, s_2 is also faster than s_1.

So far we have seen how the proposed interpretations of *yue* account for the semantic difference between the adverbial comparative in (25) and the comparative correlative in (30). Before we conclude, some more explanations of adverbial comparatives are in order. First, though we have only examined the semantics of the monoclausal adverbial comparative in (25), adverbial comparatives can be biclausal as well. Below, let us take a brief look at some examples of biclausal adverbial comparatives.

(33) a. John yue pao, shengti yue jiankang.
run body healthy
'As John was running, his body became healthier and healthier.'

b. John yue chang ge, xinqing yue hao.
John sing songs mood good
As John was singing, his mood became better and better.

The examples in (33) are clearly biclausal. (33a) means that John's health improved over the time while he was running. It does not express a correlation between the 'quantity' of John's running and his degree of healthiness, as shown by the scenario depicted in (34).

(35) The scenario in which (33a) is intuitively true

Time	**Mileage**	**Degree of healthiness**
Day 3	John ran **2** miles	**5**
Day 2	John ran **1** mile	**4**
Day 1	John ran **3** miles	**3**

Neither does (33a) express a cumulative reading--a correlation between a running total of the 'quantity' of John's running and his average degree of healthiness. As we have shown earlier (12&12'), the cumulative reading of a comparative correlative usually has a weaker truth-condition than the temporal reading of an adverbial comparative.

Second, the temporal reading of adverbial comparatives has a distinct status from the 'time' reading that Lin (2007) has attributed to comparative correlatives like (35):

(35) Tianqi yue re, wo jiu yue bushufu.
weather hot I then uncomfortable
'The hotter the weather is, the more uncomfortable I feel.'

The meaning of (35) is represented by the formula in (36). It says: for *all* time pairs $t_1$and t_2, if the weather is hotter at t_2 than it is at t_1,then I feel more uncomfortable at t_2 than at t_1.

(36) $\forall t_1 t_2$ [$\exists d_1 d_2$[the weather is d_1-hot at $t_1 \wedge$ the weather is d_2-hot at $t_2 \wedge d_2 > d_1$]→
$\exists d_3 d_4$ [I am d_3-comfortable at $t_1 \wedge$ I am d_4-comfortable at $t_2 \wedge d_4 > d_3$]

Compare this meaning in (36) to the meaning of (37) in (38):

(37) John ***yue*** pao ***yue*** kuai.
run fast
'John ran faster and faster.'

(38) $\forall s_1\ s_2\ [\exists t_1 t_1 2[\text{John runs at } t_1 \text{ in } s_1 \wedge \text{John runs at } t_2 \text{ in } s_2) \wedge t_2 > t_1] \rightarrow$
$\exists d_1 d_2\ [\text{John's running is } d_1\text{-fast in } s_1 \wedge \text{John's running is } d_2\text{-fast in } s_2 \wedge d_2 > d_1]]$

Though both formulas make use of time variables, they have difference status. In (37), time variables are used as an ordering source such that situations are ordered temporally. In (36), degrees, rather than times, are used as an ordering source, such that times are ordered based on degrees rather than based on their temporal orderings.

5. Conclusion

To conclude, in this paper, we have shown that yue…yue in Mandarin can mark two types of comparatives—the comparative correlative and the adverbial comparative, and these two types of yue…yue comparatives are semantically distinct. The adverbial comparative has a necessary temporal reading, which is absent in the comparative correlative. We proposed that non-gradable predicates, mostly verbs, have a time argument, but no degree argument; gradable predicates, mostly adjectives, have a degree argument, but no time argument. We formulated two meanings for yue, depending on whether it combines with a gradable or non-gradable predicate. Our semantics for the comparative correlative maintains Lin's account, but it extends to the semantics of the adverbial comparative, which the previous analyses do not capture.

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References

Beck,S. 1997. On the semantics of comparative conditionals. Linguistics and Philosophy 20 (3), 229–271. [2]

Erlewine, M. 2007. A New Syntax and Semantics for the Mandarin bi-Comparatives. Master's thesis, University of Chicago.

Doetjes, J. S. 1997. Quantifiers and Selection: On the Distribution of Quantifying Expressions in Fresh, Dutch and English. Doctoral dissertation, Leiden Unviersity.

Hsiao, H.-Y. 2003. On proportional correlative constructions in Chinese and Mongolian. Journal of Taiwanese Language and Literature, 1:243-272.

Li, C and Thompson, S.1981. Mandarin Chinese: A functional reference grammar, University of California Press.
Li. X. 2009. Degreeless Comparatives. Rutgers Dissertation
Lin, J.W., 2007. On the semantics of comparative correlatives in Mandarin Chinese. Journal of Semantics 24 (2), 169–213.
Lin, J (2009). Chinese comparatives and their implicational parameters. Natural Language Semantics 17: 1-27.
Liu, C.S. L. 2008. The view from yue: Chinese comparative correlatives. Lingua 118, 1033-1061.
Xiang, M. 2003. A phrasal analysis of Chinese comparatives. In Proceedings of the 39th Annual Meeting of the Chicago Linguistic Society.
Xiang, M. 2005. Some Topics in Comparative Constructions. Doctoral dissertation, Michigan State University.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 54-71.

Future and Modality: A Preliminary Study of *jiang*, *hui*, *yao* and *yao … le* in Mandarin Chinese

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We examine four future-denoting expressions in Mandarin Chinese that function similar to *will* in English: *jiang*, *hui*, *yao* and *yao … le* and discuss whether Kissine's (2008) criticism against *will* being a modal applies to these expressions. We argue that *jiang* requires a union of all possible conversational background, *hui* and *yao … le* an epistemic conversational background, and *yao* a bouletic conversational background. We also argue that, in addition to conversational backgrounds, the possible worlds in an ordering semantics are also relative to time. In this way, the four future-denoting expressions can have modal semantics and do not have the problems discussed in Kissine (2008).

1. Introduction

Discussions have been devoted to the issue whether future is a type of modality. For examples, a few studies suggest that *will* in English has a component of modality in its semantics, e.g. Condoravdi (2002), Copley (2002), Enç (1996), Palmer (1986: 216-218), Smith (1978), and so on, whereas others claim that *will* is a modal on the one hand, but not a modal on the other, for example, Comrie (1985: 43-48), Kamp and Reyle (1993: 535), et cetera. Kissine (2008) proposes that *will* cannot be a modal because such an analysis results in logical inconsistency.

In Mandarin Chinese (hereafter, Mandarin), a 'tenseless' language, e.g. Lin (2006), Wu (2009), etc., in addition to temporal words such as *mintian* 'tomorrow', *weilai* 'future', and so on, there are at least four words that function similar to *will* in English, i.e. *jiang*, *hui*, *yao* and *yao … le*.[1] See the examples below.

1. a. zhangsan mintian jiang chuxi zhe ci huiyi
   Zhangsan tomorrow *jiang* attend this CL[2] meeting
   'Zhangsan will attend this meeting tomorrow.'

[1] We argue that *yao … le* should be treated as a semantic word in latter section.
[2] The abbreviations used in this paper include: CL for classifier, and Prc for particle.

b. zhangsan mintian hui chuxi zhe ci huiyi
Zhangsan tomorrow *hui* attend this CL meeting
'Zhangsan will attend this meeting tomorrow.'
c. zhangsan mintian yao chuxi zhe ci huiyi[3]
Zhangsan tomorrow *yao* attend this CL meeting
'Zhangsan will attend this meeting tomorrow.'
d. zhangsan mintian yao chuxi zhe ci huiyi le
Zhangsan tomorrow *yao* attend this CL meeting Prc
'Zhangsan will attend this meeting tomorrow
(contrary to his previous decision).'

In this paper, we discuss three issues. First, can Kissine's (2008) proposal be applied to these four future-denoting expressions, *jiang*, *hui*, *yao* and *yao … le*, in Mandarin? Second, how are the four expressions semantically different? Third, what are the semantics for the four expressions if Kissine's proposal does not work for them?

This paper is organized as follows. Section 2 is literature review, where I briefly review Kissine (2008). Section 3 includes data of the four future-denoting expressions. In Section 4, we provide semantics for the four expressions along the lines of Kratzer (1977, 1981). Section 5 concludes this paper.

2. Literature Review

Kissine (2008) propose three points: First, *will* is not a modal because a modal analysis of *will* leads to logical inconsistency, second, the necessity reading of *will* comes from a covert necessity operator and, third, the various meanings of *will* are determined by pragmatic principles.

Will, as a modal, is analyzed as a necessity operator, e.g. Enç (1996), Yavas (1982), etc., and it universally quantifies over the set of possible worlds consistent with what is known (or believed) at the present time. Kissine finds that a logical inconsistency occurs when *will* is given a modal semantics.

Suppose W^* is a set of possible worlds such that $W^* = \{w_1, w_2, w_3\}$. What is known in the possible worlds of W^* and the real situations in the possible worlds of W^* are given below as (2).

[3] *Hui* and *yao* are both ambiguous. *Hui*, similar to *will* in English can express prediction, personal habit, properties of places, natural law, etc., e.g. Chang (2000), Hsieh (2002), Liu (1996: 40-51) and so on. *Yao* can also be a deontic modal, and some may claim that *yao* expresses volition, instead of future (Hsieh, Miao-Ling, personal communication). In this paper, I will put aside the issue regarding the ambiguity of these words, and focus only on the future usage of *hui* and *yao*. The ambiguity of *hui* and *yao* is left for future studies.

2. *W** $w = \{p\}$ $K_w i = \{p\}$
$w_1 = \{p, \neg r\}$ $K_{w_1} i = \{\neg r\}$
$w_2 = \{\neg r, \neg p\}$

In (2), w stands for the real world, and w_1, w_2 possible worlds. In the real world w, p holds. In $w1$, p holds but r does not hold. In w_2, neither p nor r holds. $K_{w_n} i$ represents the things that are known in w_n at a time i. For a sentence such as *Mary will come*, listed as (3a), its semantics is represented as (3b):

3. a. Mary will come.
b. ⟦Mary will come⟧ is true in w iff, for every possible world w_1 such that $wE_i w_1$, ⟦Mary comes at $i_1 > i$⟧ $\in w_1$.

Assume that p is ⟦Mary comes at $i_1 > i$⟧. $wE_i w_1$ refers to an accessibility relation, where w_1 is epistemically[4] accessible to the actual world w at the given time i, which means w_1 is consistent with what is known in w at i. Given *W**, *Mary will come* is true in w for the following reasons: In *W**, w_1 is epistemically) accessible to the actual world w because what is known in w at i, i.e. p, is also true in w_1, that is, what is know at w at i is consistent with w_1. Because only w_1 is accessible to w in *W**, it is true that for every possible world w_1 such that $wE_i w_1$, ⟦Mary comes at $i_1 > i$⟧ $\in w_1$.

On the other hand, sentences like (*for all that we know*) *it is possible*$_{\text{epistemic}}$ *that Mary will come* are true as well, given *W**. The sentence is given in (4a) and its semantics in (4b).

4. a. (For all we know), it is possible$_{\text{epistemic}}$ that Mary will not come.
b. ⟦*for all that we know*) *it is possible*$_{\text{epistemic}}$ *that Mary will not come*⟧ is true in w iff there is at least one possible world w_1 such that $wE_i w_1$ and such that, for every possible world w_2, such that $w_1 E_i w_2$ ¬⟦Mary comes at $i_1 > i$⟧ $\in w_2$.

Assume that *Mary will come* is represented as p and therefore *Mary will not come* is represented as $\neg p$. We have demonstrated that w_1 is epistemically accessible to w. w_2 is also epistemically accessible to w_1 because p is not true in w_2 but is known to be true in w_1. Hence (4a) is true, given *W**.

Here comes the logical inconsistency. If p and q are both true, $p \wedge q$ is also true. Since (3a) is true and (4a) is true, (3a) $\wedge$ (3b) is supposed to be true as well. However, this is not the case, as in (5).

[4] Following Enç (1996), Kissine notes that the accessibility relation here can be either epistemic or doxastic. He uses an istemic accessibility relation as an example and proposes that the same, as discussed above, also holds for a doxastic accessibility relation.

5. ?Mary will come and (for all we that we know) it is possible$_{\text{epistemic}}$ that she won't come.

(5) is obviously semantically contradictary. That is, a modal analysis of *will* results in logical inconsistency as discussed above. Kissine suggests that making the epistemic accessibility relation transitive can avoid this problem.

However, he finds another set of possible worlds that leads to fatal logical inconsistency. Suppose $W^{**} = \{w_1, w_2, w_3\}$. The accessibility relation here is non-Euclidean, and in W^{**}, $w\mathrm{E_i}w_1$, $w\mathrm{E_i}w_2$, but $\neg(w_1\mathrm{E_i}w_2)$. What is known in the possible worlds and the real situations are given in (7).

6. W^{**} $w = \{q, \neg r\}$ $\mathrm{K_w}i = \{q\}$
   $w_1 = \{r, q, p\}$ $\mathrm{K_{w_1}}i = \{p, r\}$
   $w_2 = \{\neg p, q\}$

Assume that p = ⟦Mary comes at $i_1 > i$⟧. The semantics of a sentence such as *it is not the case that Mary will come*, listed as (7a), is given below as (7b). The semantics of (*for all we know*) *it is possible*$_{\text{epistemic}}$ *that Mary will come*, listed as (8a), is given as in (8b).

7. a. It is not the case that Mary will come.
   b. ⟦*It is not the case that Mary will come*⟧ is true in w iff there is at least one possible world w_1 such that $w\mathrm{E}_i w_1$ and ¬[Mary comes at $i_1 > i$] ∈ w_1.
8. a. (For all that we know) it is possible$_{\text{epistemic}}$ that Mary will come.
   b. ⟦(*for all we know*) *it is possible*$_{\text{epistemic}}$ *that Mary will come*⟧ is true in w iff there is at least one possible world w_1 such that $w\mathrm{E}_i w_1$ and such that, for every possible world w_2 such that $w_1\mathrm{E}_i w_2$, [Mary comes at $i_1 > i$] ∈ w_2.

Kissine suggests that given W^{**} both (7a) and (8a) are true. However, the coordination of (7a) and (8a) are contradictory, as in (9).

9. ?It is not the case that Mary will come and (for all that we know) it is possible$_{\text{epistemic}}$ that Mary will come.

In order to resolve the contradiction revealed by (9), Kissine suggests that we can make E Euclidean, which means that $\neg will(p) \rightarrow \Box[\neg will(p)]$. However, in the first place, E has been defined to be non-Euclidean. This is an unsolvable contradiction because E certainly cannot be Euclidean and non-Euclidean simultaneously.

Given the above discussion, following Abusch (1998), Kissine proposes that *will* has only a temporal semantics and not a modal meaning. Following Kratzer (1991), Kissine

suggests that the epistemic reading of *will* actually comes from a covert epistemic necessity operator.

Kissine's (2008) research is interesting in that he clearly demonstrates the possible logical flaws if *will* is treated as a modal. But, can his proposal be applied to Mandarin Chinese?

We are convinced that the answer is negative for two reasons. First, as discussed in Kissine (2008: 130), *will* has various meanings, including a future/prediction meaning, a generic meaning, a habitual meaning, an epistemic meaning, a volitional meaning, etc, and he proposes that these meanings are determined by pragmatic principles. However, in Mandarin, these meanings are expressed by different future-denoting words. For example, as discussed in Chang (2000), Hsieh (2002), Liu (1996: 40-51), etc., *hui* expresses a future/prediction meaning, a generic meaning, a habitual meaning and an epistemic meaning. *Yao* has a volitional meaning. That is, the four future-denoting words have their own meanings and their meanings are not determined by pragmatic principles. Second, one may observe that *hui* has various meanings, similar to *will*. However, even though there is similarity between *hui* and *will*, they still differ. For example, Kissine (2008: 146-147) points out that *will* cannot be used when the speaker is witnessing an event. That is why (10a) is not good. However, under the same circumstance, *hui* can be used, as in (10b).

10. a. [pointing at an instance of oil floating on water]
?As you can see, oil will float on water.
b. [pointing at an instance of oil floating on water]
jiu xiang ni keyi kandao de you hui fu zai shu shang
just like you can see Prc oil *hui* float at water top
'As you can see, water will float on water.'

Given the two reasons above, Kissine's proposal, while working well for *will* in English as far as we can tell, cannot be applied to the four future-expressing words in Mandarin. Therefore, the semantics of the four future-denoting words require attention.

3. Semantic Differences of *jiang*, *hui*, *yao* and *yao … le*

Among the four expressions, the most attention has been paid to *hui*. Some studies agree that *hui* denotes future, e.g. Chang (2000), Li (1985: 47), Tang (1979: 5), Wang (1947: 136), Zhu (1982: 63), whereas others claim that *hui* is not related to future, such as Alleton (1994: 9), Cheng (1989: 22), Lü (1980: 245), etc. Not as much attention is paid to *yao*. Tsang (1981) suggests that *yao* can describe a future situation, in addition to a deontic meaning. Very little attention has been paid to *jiang*, which is commonly regarded as the Mandarin counterpart of *will*. Neither does *yao … le* receive much attention.

The examples in (1) seem to suggest that the four expressions are interchangeable. But, this is not an accurate observation. They are not really interchangeable. Look at the examples below.

11. a. mintian yangminshan jiang/hui/*yao xiayu
tomorrow Mt. Yangmin will rain
'It will rain at Mt. Yangmin tomorrow.'
b. xuexiao jiang/hui/*yao zai xia ge yue kaixue
school will at next CL month start
'The school will start next month.'

Hui has long be argued to be epistemic, e.g. Chang (2000), Liu (1996), Hsieh (2006a, 2006b), etc. This is why *hui* is compatible in both examples in (11). (11a) means that based on his/her knowledge the speaker asserts that the event *it rains at Mt. Yangmin* occurs tomorrow. (11b) means something similar: based on his/her knowledge the speaker asserts that the event *the school starts* occurs next month.

Jiang is used to report that a situation will occur in the future, without saying anything about the source of judgment. This 'pure' future sense of *jiang* is best illustrated by the example below. We often hear anchors on TV news report new events. When an anchor says:

12. jiayi daxue jiang yu changshang hezuo kaifa xin xiangshui
Chiayi university *jiang* with industry cooperate develop new perfume
'Chiayi University will$_{pur}$ cooperate with industries to develop new perfumes.'[5]

[t]he audience understands that the anchor does not need to know anything about this situation and that he/she simply reports a future event. This is why *jiang* is compatible in both (11a) and (11b). In these two examples, *jiang* expresses a future very different from what *hui* expresses. *hui* denotes an epistemic future, that is, the speaker makes the statement presented by *hui* based on his/her knowledge. On the other hand, *jiang* expresses a pure future, that is, the speaker simply present a situation that will occur in the future. The speaker does not provide any information how he/she learns about the future occurrence of the situation.

A reasonable question to ask is whether *jiang* describe a fact, i.e. whether a situation presented by *jiang* is bound to occur in the future. The answer is no because a situation presented by *jiang* can end up not occurring at all, as in (13).

[5] From this section on, when *jiang*, *hui* or *yao* is used individually in a sentence, they are translated as *will*$_{pur}$, *will*$_{epi}$, and *will*$_{vol}$ respectively.

13. xuexiao benlai jiang zai xia xingqi kaixue dashi yinwei H1N1 da liuxing
school originally *jiang* at next week start but because H1N1 big prevail
zhengfu jueding yanhou kaixue riqi
government decide postpone start-school date
'Originally, the school will$_{pur}$ start next week. But, because H1N1 prevails, the government decided to postpone the date.'

In (13), although the situation *xuexiao zai xia xingqi kaixue* 'the school start next week' is presented by *jiang*, the future occurrence of the situation is still canceled, i.e. the school will not start on the originally scheduled date. This example shows that pure future does not indicate the certainty of future occurrence of a situation. Instead, pure future still has the uncertainty property of future. The future *jiang* expresses is referred to as 'pure' because neither the speaker nor the subject specifies his/her attitude or opinion toward the situation. In Hsieh's (2006a, 2006b) terms, *jiang* can be categorized as [−source], which means that the modal does not need the information based on which the speaker makes a statement.

Contrary to *jiang*, *hui* denotes an epistemic future. The speaker uses *hui* when he/she reports a future event based on his/her knowledge. Again, in Hsieh's terms, *hui* can be categorized as [+source], which means that the modal needs the information based on which the speaker makes an assertion.

As for *yao*, we suggest that *yao* denotes a volitional future. This is why *yao* can not be used in (11a) and (11b). The subjects in (11a) and (11b) are both inanimate and inanimate subjects do not have volition. When the subject is animate, such as (1), *yao* is compatible.

Two questions about *yao* immediately arise. The first is: is *yao* an abbreviated form for *xiangyao* 'to want'? The second is: does *yao* express obligation, instead of volitional future? For the first question, we argue that *yao* is not an abbreviated form for the verb *xiangyao* 'to want'. The evidence is the examples below.

14. a. xiaozhang mintian yao chuxi zhe ge huiyi !buguo keneng jin-bu-qu[6]
Xiaozhang tomorrow *yao* attend this CL meeting but possible enter-not-go
'Xiaozhang will$_{vol}$ attend this meeting tomorrow, !but it is possible that he cannot go in.'

[6] An exclamation mark on a sentence indicates that the marked sentence renders the discourse incoherent.

b. xiaozhang mintian xiangyao chuxi zhe ge huiyi buguo keneng jin-bu-qu
Xiaozhang tomorrow *want* attend this CL meeting but possible enter-not-go
'Xiaozhang wants to attend this meeting tomorrow, but it is possible that he cannot go in.'

The examples in (14) show an appealing contrast. In (14), if it is a volitional future, then it is not possible not to allow the subject to go into the meeting, as (14a) shows. However, if it is simply a wish, then it is possible not to allow the subject to go into the meeting, as (14b) shows. In short, (14) support that *yao* is not an abbreviated form for *xiangyao* 'to want' and that a volitional future is different from a wish.[7]

yao does not always denote obligation, though it can, and the following example can support this argument.

15. xiaozhang mintian yao chuchai dao riben suiran ta bubi qu
Xiaozhang tomorrow *yao* have a business trip to Japan though he need not go
'Tomorrow, Xiaozhang will$_{vol}$ have a business trip to Japan though he does not need to.'

If *yao* denoted only obligation, (15) would be incoherent, because in the *although* clause it is made explicit that the subject does not need to go on the business trip. Since (15) is coherent, *yao* cannot denote obligation here.[8]

One possible counterexample to *yao* denoting volitional future is as below. In (16), *yao* is used to denote a future change of state. Since the subject can be inanimate, *yao* in these examples cannot be volitional.

16. a. mintain yangminshan yao xiayu le
tomorrow Mt. Yangmin *yao* rain Prc
'It will rain at Mt. Yangmin tomorrow (contrary to the previous condition).'

[7] There might be some grammaticalization process involved when *yao* evolves into a modal and this process leads to the semantic differences demonstrated in (14a) and (14b) . But we will not go into this issue in this paper.

[8] One might argue that in other circumstances *yao* can be an abbreviated form for *xiangyao* 'to want' or can denote obligation. This is an accurate statement. But the examples presented here show that, in addition to the two readings mentioned above, *yao* can also denote volitional future. This paper focuses on how *jiang*, *hui*, *yao* and *yao… le* can be semantically distinguished from each other and what their semantics are, when they are used to denote future. The issues are left for further study how to distinguish the different readings of *yao* and of *hui*.

b. xuexiao yao zai xia ge yue kaixue le
school *yao* at next CL month start Prc
'The school will start next month (a change from a break).

Both of the examples in (16) express a future change of state meaning. It should be clear that both of the examples are future situations. They also express a change of state. (16a) can be used when it has been sunny at Mt. Yangmin area for a while and it is about to change. (16b) is usually uttered by a student who has enjoyed a long break and cannot accept the fact that the school will start next month.

We would like to argue that the usage of *yao* in (16) is actually a semantic extension of volitional future. Volition certainly involves change of state because one's desire for something entails his/her lack of that something and a change of the lack. That is, change is an essential part in the semantics of volition/desire.

The obligatoriness of the sentential *le* in these examples brings out the change of state meaning of *yao*. It is widely accepted that the sentential *le* expresses change of state among other readings, such as Li and Thompson (1981: 238-300). The combination of *yao* and the sentential *le* guarantees the future change of state reading. One interesting contrast to show the semantic contribution of the sentential *le* to the future change of state reading comes from the slang:

17. tian yao xia yu niang yao jia ren shei dou mei banfa zuzhi
sky *yao* fall rain mother *yao* marry people who all no method stop
'The sky wants to rain. A mother wants to re-marry. Nobody can stop it.'

In (17), there is no sentential *le* in *tian yao xia yu* 'sky *yao* fall rain' and under this circumstance *tian* 'sky' is personified and *yao* no longer denotes volitional future. Instead, *yao* here equals to *xiangyao* 'to want'. (17) demonstrates the importance of the sentential *le* in the future change of state reading denoted by the *yao*… *le* combination: without the sentential *le yao* alone cannot express the future change of state reading. That is, in terms of semantic function, *yao*… *le* serves as a word, which expresses a future change of state.

Two questions about *yao* can be asked. The first is whether *yao* expresses the speaker's volition/desire or the subject's. Our intuition suggests that it is the subject's, instead of the speaker's, volition/desire that *yao* requires in its semantics. When one utters (18),

18. xiaomin yao canjia jing nian de xialingying
Xiaomin *yao* participate this year DE summer camp
'Xiaomin will participate in this year's summer camp.'

[h]e can be reporting the subject's volition or he is telling others that Xiaomin is obliged to participate in this year's summer camp. The former is a volitional future reading. The latter is a deontic reading and *yao* in this reading means 'have to', or 'must', i.e. an obligation. This example shows that when *yao* expresses volitional future it talks about the subject's volition, not the speaker's.

The second question is what kind of future *yao… le* expresses, in addition to change of state. That is, based on what can the speaker use *yao… le* to describe a future change of state? Is it knowledge, volition or something else?

Yao… le cannot be based on the subject's volition because it is compatible with inanimate subjects, as in (16a) and (16b). It cannot be based on the speaker's volition because in examples such as (16a) there is no way that the speaker's volition has anything to do with a future raining event.

We propose that *yao… le* is used, based on the speaker's knowledge. When one utters (19), there must be something that triggers the speaker to say so. It can be a slight feeling of change of altitude. It can be that it is about time. That is, *yao… le* is a type of epistemic future and it is different from *hui* in that the former involves change of state, while the latter does not.

19. feiji yao xijiang le
airplance *yao* descend Prc
'The airplane will (start to) descend now.'

To sum up, when *jiang*, *hui*, *yao* and *yao… le* express future, they express different kinds of future. *jiang* expresses pure future, *hui* epistemic future, *yao* volitional future and *yao… le* an epistemic change of state future. A pure future means that the source based on which the speaker makes an assertion about a future situation is not specified. An epistemic future means that the source based on which the speakers makes a statement about a future eventuality is the speaker's knowledge. Volitional future means that the source based on which a statement is made about a future is the subject's volition.

4. Semantics of *Jiang*, *Hui*, *Yao* and *Yao… le*

Modal logic distinguishes the distinction between epistemic modality and deontic modality by means of accessibility relations.[9] Kratzer (1977, 1981) utilizes conversational background to reach the same purpose. Kissine (2008) proposes that *will* in English is not a modal and has only a temporal semantics.

Given the discussions about the semantic differences among *jiang*, *hui*, *yao* and *yao… le* in Section 3, it is clear that these four future-denoting words in Mandarin cannot

[9] For an excellent introduction to modal logic and to formal semantics of modality, readers are referred to Portner (2009).

only have temporal semantics because they require different 'sources' in Hsieh's (2006a, 2006b) terms or conversational backgrounds in Kratzer's (1977, 1981) terms. Therefore, Kissine's (2008) semantics for *will* in English cannot be applied to *jiang*, *hui* and *yao* in Mandarin.

Based on Kratzer (1977, 1981), we propose that *hui* and *yao*… *le* have an epistemic conversational background and *yao* a bouletic conversational background. It is a little hard to decide an appropriate conversational background for *jiang*. We have argued that *jiang* expresses a pure future and that, when the speaker uses *jiang*, he/she simply reports that a situation will take place in the future, without revealing how he/she learns about the future occurrence of the situation. What type of conversational background does *jiang* need? We suggest that the conversational background for *jiang* is the union of all of the conversational grounds. The reason is that *jiang* can be used to report a future situation even though the speaker has knowledge about the situation or about the desire of the subject for the future situation.

Assume the following scenario. Zhangsan knows that Lisi loves sci-fi movies. He also knows that Lisi received a ticket to the preview of the new sci-fi movie Star Trek, and the preview is scheduled tomorrow. Based on the pieces of information, Zhangsan can use *hui* to report that Lisi will go the preview of Star Trek tomorrow, as (22a). However, he can also use *jiang* to report the same future situation, as (22b), without revealing his knowledge about the future situation.

Along the same line, assume that Zhangsan knows that Lisi likes sci-fi movies and the preview of Star Trek is tomorrow. He also knows that Lisi tried so hard and finally managed to get a ticket to the preview. Since Zhangsan knows about Lisi's desire to go to the preview of Star Trek and about Lisi's getting a ticket, he can use *yao* to report that Lisi will go to the preview of Star Trek tomorrow, as (20c). However, again, he can also use *jiang* to report the same situation, as (20b).

20. a. Lisi mintian hui qu canjia xinjizhengbazhan shouyin
Lisi tomorrow *hui* go participate Star Trek preview
'Lisi will$_{eps}$ go to the preview of Star Trek tomorrow.'
b. Lisi mintian jiang qu canjia xinjizhengbazhan shouyin
Lisi tomorrow *jiang* go participate Star Trek preview
'Lisi will$_{pur}$ go to the preview of Star Trek tomorrow.'
c. Lisi mintian yao qu canjia xinjizhengbazhan shouyin
Lisi tomorrow *yao* go participate Star Trek preview
'Lisi will$_{vol}$ go to the preview of Star Trek tomorrow.'

The speaker can rely on other conversational backgrounds, for example, stereotypical, circumstantial, and so on. to use *jiang* to describe a future situation.

Therefore, we propose that the conversational background for *jiang* is the union of all conversational backgrounds.

Based on the discussions above, the conversational backgrounds for *jiang*, *hui*, *yao* and *yao… le* are as follows:

21. Conversational backgrounds for *jiang*, *hui*, *yao* and *yao… le*:
    a. *jiang*: the union of all possible conversational backgrounds
    b. *hui* and *yao… le*: a set of facts known by the speaker in *w*.
    c. *yao*: a set of desires of the speaker in *w*.

Conversational backgrounds can help to distinguish the semantic differences of *jiang*, *hu*, *yao* and *yao… le*. How can we represent the future sense of these modals in their semantics? The only part in Kratzer's theory of modality that can help here is the ordering semantics. Kratzer (1981) proposes that possible worlds of a conversational background are ordered so as to explain different degrees of possibility that modals can express. So, we have to determine whether *jiang*, *hui* and *yao* all express necessity before we can determine their semantics.

Do *jiang*, *hui*, *yao* and *yao… le* all express necessity? Based on the following examples, we argue that only *jiang* and *yao… le* expresses absolute necessity, and *hui* and *yao* only express defeasible necessity. By absolute necessity, we mean the necessity cannot be overridden. See the examples below.

22. a. zhangsan jiang jinru junxiao jiudu
        Zhansang *jiang* enter military school study
        'Zhangsan will$_{pur}$ attend the military school.'
    b. *zhangsan yiding jiang jinru junxiao jiudu
        Zhansang definitely *jiang* enter military school study
    c. zhangsan hui/yao jinru junxiao jiudu
        Zhangsan *hui*/*yao* enter military school study
        'Zhangsan will$_{epi}$/will$_{vol}$ attend the military school.'
    d. zhangsan yiding hui/yao jinru junxiao jiudu
        Zhangsan definitely *hui*/*yao* enter military school study
        'Zhangsan definitely will$_{epi}$/will$_{vol}$ attend the military school.'
    e. *feiji yiding yao jiangluo le
        airplane definitely *yao* land Prc

As we can see from the examples in (22), *yiding* 'definitely' is compatible with *hui*

and *yao*,[10] but not compatible with *jiang* or *yao… le*. *yiding* 'definite' is used for emphasis. In (22), it is used to enhance the degree of certainty and of desire for a future situation. Degrees of possibility are discussed in Kratzer (1981). Portner (2009: 73-81) discusses complex expressions of probability and possibility and suggests an approach similar to the way to deal with the degrees of adjectives for this kind of complex expressions.

However, as far as we know, few, if any, studies deals with degrees of certainty. Actually, the question is whether certainty (necessity) has different degrees. When one says that he is not that certain about something, he is not 100% certain about that thing, though there is possibility of that thing being true. When one says he is only 50% certain about something, actually he is saying that there is 50% possibility of that thing being true. But, when one says that he is certain, then here certainty equals necessity. It can be safely concluded that when the degree of certainty is specified, certainty refers to possibility, while certainty equals to necessity when no degree is explicitly mentioned. Given the discussion, we propose that certainty, by default, refers to necessity and it can be shifted to refer to possibility when the context specifies so.

The examples in (22) suggest that *jiang* and *yao… le* expresses absolute necessity while *hui* and *yao* denote defeasible necessity. *jiang* expresses necessity and this is not defeasible. Therefore, we cannot talk about the degrees of *jiang*. This is why *yiding* 'definitely' is not compatible with the pure future modal. The same reasoning applies to *yao… le*. On the other hand, *hui* and *yao* denotes defeasible necessity, that is, it can be overridden, similar to the discussion about *certain* above. This is why we can talk about the degrees of *hui* and *yao*, and why *yiding* is compatible with them. The example in (23) can further support this distinction between *jiang* and *yao… le* on the one hand, and *hui* and *yao* on the other, in terms of defeasibility of necessity.

23. zhangsan bu yiding hui/yao/ jinru junxiao jiudu
    Zhangsan not definitely *hui*/*yao*/**jiang* enter military school study
    'Zhangsan not necessarily $will_{epi}$/$will_{vol}$/*$will_{pur}$ attend the military school.'

(23) is the negation of (24d). But (23) does not mean that Zhangsan will definitely not attend the military school, and instead it means that it is not necessarily true that Zhangsan will attend the military school. That is, (23) is actually talking about the degrees of certainty. If *hui* and *yao* did not express defeasible necessity, it would be impossible to talk about their degrees.

In addition to necessity, one more piece in the semantics of *jiang*, *hui*, *yao* and *yao… le* needs to be discussed, i.e. their future meaning. Enç (1996) proposes a temporal

[10] Kissine (2008: 150) observes a similarity of the (in)compatibility of *will* and *must* with *definitely*.

semantics for *will* in English and also suggests that *will* expresses necessity. Kissine (2008) finds out the logical inconsistency caused by Enç's proposal and proposes a pure temporal semantics for *will*. How about the three future modals *jiang*, *hui*, *yao* and *yao… le* in Mandarin?

We propose that as far as the ordering semantics for *jiang*, *hui*, *yao* and *yao… le* is concerned, in addition to being ordered relative to conversational backgrounds, the possible worlds are also ordered relative to time. The ordering of possible worlds relative to time is a special semantic property for future modals because they, after all, express future. Based on this idea, an ordering relative both to conversational backgrounds and a time $<_{g(w),\,t}$ can be defined as follows:

24. g is a conversational background, t is time and $<_{g(w),\,t}$ is an ordering generated by the set of propositions $g(w)$ and a time t. For any set of propositions $g(w)$, any world u, v, and any time t, $u <_{g(w),\,t} v$ iff:
    (i) for all $p \in g(w)$, if $v \in p$, then $u \in p$, and
    (ii) for all q, $q' \in g(w)$, if $v \in q$ and $u \in q'$, then $q \,\pi\, q'$

(24i) is the regular definition of ordering, e.g. Kratzer (2003: 374),[11] Portner (2009: 64-65), which says in terms of $g(w)$, u is better than v. (24ii) deals with the temporal semantics of future. It says: for all propositions q and q' in $g(w)$, if q is true in v and q' is true in u, then q occurs before (= in the past of) q'. Since q and q' are temporally ordered, the two possible worlds in which they are true are also temporally ordered, i.e. v exists in the past of u or u exists in the future of v. That is, $u <_{g(w),\,t} v$ means that u is better than v and u is located in the future of v.

Two points about the ordering source in (24) are worth mentioning. First, both (24i) and (24ii) apply on the same two possible worlds. It needs to be so because we need two worlds ordered relative to a conversational background are also ordered relative to time. If they do not apply to the same two possible worlds, then it will be possible that two worlds ordered relative to time are not ordered relative to a conversational background, and this kind of ordering source cannot accurately capture the semantics of future modals. Second, usually an ordering source is represented by $\leq$, where $u \leq v$ is interpreted as u is at least as good as v. However, we use $<$ in (24) because in terms of future I do not want the possibility that u is simultaneous with v.

Given the definition of an ordering source relative both to a conversational background and a time (24), the semantics for *jiang*, *hui*, *yao* and *yao… le* are provided as in (25).

[11] This paper is actually a re-print of Kratzer (1981). Here I cite the page number of the 2003 print.

25. *f* is the modal base and is used to form a conversational background I *f*(*w*). *g* is the ordering source.
    a. $[\![jiang(\mathrm{p})]\!]^{c,f,g} = 1$ iff all $u \in$ I *f*(*w*), there is a $v \in$ I *f*(*w*) such that (i) $v <_{g(w),\,t} u$, and (ii) for all $z \in$ I *f*(*w*): if $z <_{g(w),\,t} v$, then $z \in p$.
    b. $[\![hui(\mathrm{p})]\!]^{c,f,g} \approx 1$ iff all $u \in$ I *f*(*w*), there is a $v \in$ I *f*(*w*) such that (i) $v <_{g(w),\,t} u$, and (ii) for all $z \in$ I *f*(*w*): if $z <_{g(w),\,t} v$, then $z \in p$.
    c. $[\![yao(\mathrm{p})]\!]^{c,f,g} \approx 1$ iff all $u \in$ I *f*(*w*), there is a $v \in$ I *f*(*w*) such that (i) $v <_{g(w),\,t} u$, and (ii) for all $z \in$ I *f*(*w*): if $z <_{g(w),\,t} v$, then $z \in p$.
    d. $[\![yao\ le(\mathrm{p})]\!]^{c,f,g} = 1$ iff all $u \in$ I *f*(*w*), there is a $v \in$ I *f*(*w*) such that (i) $v <_{g(w),\,t} u$, and (ii) for all $z \in$ I *f*(*w*): if $z <_{g(w),\,t} v$, then $v \in \neg p$ and $z \in p$.

The semantics in (25) look the same because, after all, *jiang*, *hui*, *yao* and *yao… le* all express necessity. In terms of ordering source, they are the same, except for two points. As discussed previously, we have established that *jiang* denotes necessity, while *hui* and *yao* by default express necessity. In (25b) and (25c), $\approx$ is used to represent the 'default semantics' for *hui* and *yao*.[12] Moreover, since *yao… le* also expresses change of state, in (25d), it is specified that *p* is true in *z* while *p* is not true in *v*, given $z <_{g(w),\,t} v$.

In addition, although the semantics in (25) look identical, actually they are not identical because I *f*(*w*) are different: *jiang* uses an union of all possible conversational backgrounds, *hui* uses an epistemic background and *yao* uses a bouletic conversational background. The semantics for *jiang*, *hui*, *yao* and *yao… le* proposed here do not have the problem Kissine (2008) points out. The set of possible worlds Kissine uses to demonstrate the logical inconsistency caused by a modal analysis of *will* is give below as (26).

26. *W** $w = \{p\}$ $\mathrm{K}_w i = \{p\}$
    $w_1 = \{p, \neg r\}$ $\mathrm{K}_{w_1} i = \{\neg r\}$
    $w_2 = \{\neg r, \neg p\}$

The ordering source (24) rules out the possibility that *W** is a valid for the three future modals in Mandarin discussed in this paper. (24) explicitly states that, if *q* is true in a world *v* and *q*' is true in a world *u*, then *q* occurs in the past of *q*'. Though it is not specified that *q* and *q*' are not the same proposition, yet since *q* occurs in the past of *q*', they cannot be the same proposition. In *W**, *p* is true in both *w* and w_1 and therefore these two worlds are not valid for the ordering source (24). In this way, our proposal can avoid the problem Kissines (2008) discusses, even if his criticism is accurate.

[12] One interesting issue is how this default semantics can be overridden. This issue will be not discussed here and is left for future study.

5. Conclusion

In this paper, we attempt to examine whether the four future-denoting words in Mandarin, *jiang*, *hui*, *yao* and *yao… le*, are modals and what their semantics are. Contrary to Kissine's (2008) criticism against *will* in English being a modal, we argue that *jiang*, *hui*, *yao* and *yao… le* are modals because their semantics rely both on conversational backgrounds and ordering sources. We propose that *jiang* expresses a pure future, *hui* an epistemic future, *yao* a volitional (bouletic) future and *yao… le* a change of state epistemic future. The conversational background for *jiang* is an union of all possible conversational backgrounds, *hui* and *yao… le* requires an epistemic conversational background and *yao* requests a bouletic conversational background. The ordering source required by *jiang*, *hui*, *yao* and *yao… le* is different from an usual ordering source as discussed in Kratzer (1981) and Portner (2009: 64-65) in that it is ordered relative to time, in addition to a conversational background. In this way, the temporal semantics of *jiang*, *hui*, *yao* and *yao… le* are captured in terms of ordering source. We also argue that *jiang* and *yao… le* expresses necessity, whereas *hui* and *yao* defeasibly denote necessity. With appropriate conversational backgrounds, a new ordering source relative to both conversational backgrounds and time, and (default) necessity, we propose semantics for these three future modals.

It is true that *hui* and *yao* can express more than future. In this paper, we do not commit ourselves to whether *hui* and *yao* are ambiguous or polysemous. Though *hui* and *yao* have several meanings, it is certain that one of their meanings is future. In this paper, we provide semantics for the future meaning of *jiang*, *hui*, *yao* and *yao… le*, which can serve as a base for comparison. We hope that this study can contribute to the research toward a complete understanding of the semantics of *jiang*, *hui*, *yao* and *yao… le* and of future and modality in general.

References:

Abusch, Dorit. 1988. Sequence of tense, intensionality and scope. In Hagit Borer (ed.), *Proceedings of the 7th West Coast Conference on Formal Linguistics* (*WCCFL*), 1-14. Stanford: Stanford Linguistic Association.

Alleton, Viviane. 1994. Some remarks about the epistemic values of auxiliary verbs *yinggai* and *yao* in Mandarin Chinese. In Matthew Y. Chen & Ovid J. L. Tzeng (eds), *In honor of William S.-Y. Wang: Interdisciplinary studies on language and language change*, 1-16. Taipei: Pyramid.

Chang, Yung-Li. 2000. Hanyu lunduan hui de yuyi. [On the semantics of predictive-assertive *hui* in Mandarin]. ms. National Chung Cheng University, Chiayi, Taiwan.

Cheng, Robert L. W. 1989. *Guoyu changyong xuci ji qi taiyu duiying shili* [Common function words in Mandarin and their Taiwanese counterparts]. Taipei: Crane.

Comrie, Bernard. 1985. *Tense*. Cambridge: Cambridge University.
Condoravdi, Cleo. 2002. Temporal interpretation of modals: Modals for the present and for the past. In David I. Beaver, Luis D. Casillas Martínez, Brady Z. Clark & Stefan Kaufmann (eds.), *The construction of meaning*, 59-58. Stanford: CSLI.
Copley, Bridget. 2002. *The semantics of the future*. Cambridge, MA: MIT dissertation.
Enç, Mürvet. 1996. Tense and modality. In Shalom Lappin (ed.), *The handbook of contemporary semantic theory*, 345-358. Oxford: Blackwell.
Gutiérrez-Rexach, Javier (ed.). 2003. *Semantics: Critical concepts in linguistics*. New York: Routledge.
Hsieh, Chia-Ling. 2002. On the emphatic *shi* and predictive-assertive *hui* in Mandarin. *Tsing Huang Journal of Chinese Studies New Series* 31(3). 249-300.
Hsieh, Chia-Ling. 2006a. Huayu guangyi yu xiayi qingtai qi de fenxi [An Analysis of Chinese modals in broad and narrow senses]. *Journal of Chinese Language Teaching* 3 (1). 1-23.
Hsieh, Chia-Ling. 2006b. Hanyu qingtaici de yuying jieding: yuliaoku wei ben de yanjiu [Semantic definition of modality in Chinese: a corpus-based study]. *Zhonggu Yuwen Yanjiu* [Studies on Chinese languages] 21. 45-63.
Kamp, Hans & Uwe Reyle. 1993. *From discourse to logic*: *Introduction to model-theoretic semantics of natural language, formal logic and discourse representation theory.* Dordrecht: Kluwer.
Kissine, Mikhail. 2008. Why *will* is not a modal. *Natural Language Semantics* 16. 129-155.
Kratzer, Angelika. 1977. What 'must' and 'can' must and can mean. *Linguistics and Philosophy* 1(1). 337-55.
Kratzer, Angelika. 1981. The notional category of modality. In Hans-Jürgen Eikmeyer & Hannes Rieser (eds.), *Words, Worlds and Contexts*, 38-74. Berlin: de Gruyter, reprinted in Gutiérrez-Rexach (2003).
Li, Charles N. & Sandra Thompson. 1981. *Mandarin Chinese: A functional reference grammar*. Berkeley: UC Berkeley Press.
Li, Yen-Hui Audrey. 1985. *Abstract case in Chinese*. Los Angeles, CA: USC dissertation.
Lin, Jo-wang. 2006. Time in a language without tense: The case of Chinese. *Journal of Semantics* 23. 1-53.
Liu, Hsiao-Mei. 1996. *Guo Min Keyu de dongtai wenfa tixi ji dongtaici de shangjia dongmao yuyi* [Mood system and aspectual semantics on mood in Mandarin, Taiwanese and Hakka]. Taipei: Crane.
Lü, Shu-Xiang. 1980. X*iandai hanyu babai ci* [Eight hundred Modern Chinese words]. Shanghai: Commerce.
Palmer, Frank R. 1986. *Mood and modality*. Cambridge: Cambridge University.
Smith, Carlota. 1978. The syntax and interpretation of temporal expressions in English.

Linguistics and Philosophy 2: 43-99.
Tang, Ting-Chi. 1979. *Guoyu yufa yanjiu lunji* [A Collection of Researches on Mandarin Grammar]. Taipei: Student.
Tsang, Chui Lim. 1981. *A semantic study of modal auxiliary verbs in Chinese*. Stanford, CA : Stanford University dissertation.
Wang, Li. 1947. *Zhongguo xiandai yufa shang ce* [Modern Chinese grammar: Volume I]. Beijing: Commerce.
Wu, Jiun-Shiung. 2009. Tense as a discourse feature: Rethinking temporal location in Mandarin Chinese. *Journal of East Asian Linguistics* 18. 145-165.
Yavaş, Feryal. 1982. Future reference in Turkish. *Linguistics* 20. 411-429.
Zhu, De-Xi. 1982. *Yufa jiangyi* [Lectures on grammar]. Beijing: Commerce.

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Multi-Spec, Relativized Minimality and Movement in Mandarin

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This paper provides a minimalist account for the embedded Null Object Construction (NOC) in Mandarin. Instead of the variable analysis as proposed by Huang (1984, 1987, 1998, inter alia) or the Free Empty Category (FEC) analysis as argued for by Xu (1986), the null object is argued to be the result of either overt object NP/DP movement that observes a derivational Relativized Minimality (cf. Rizzi, 1990), or the Merge of an empty *pro* due to the pro-support strategy employed in Mandarin.

1. Introduction

It was first observed by Huang (1984, 1987, 1998) that the embedded null object under neutral context cannot refer to the matrix subject (1a) or the embedded subject (1b), though it can refer to someone who is salient in the discourse (1c):

(1) Zhangsan shuo Lisi kanjian le.
Zhangsan say Lisi see AM
*'Zhangsan said that you saw.'

a. *Zhangsan$_i$ shuo Lisi kanjian le [~~Zhangsan~~]$_i$.
b. *Zhangsan shuo Lisi$_i$ kanjina le [~~Lisi~~]$_i$.
c. Zhangsan shuo Lisi kanjian le [SOMEONE, e.g., *Wangwu*].

Counter-examples have also been observed by Xu (1986) in which the co-reference between the embedded null object and the matrix subject is possible (2a and 3a):

(2) Xiaotou yiwei meiren kanjian. (Xu 1986, 9)
Thief think no man see
'The thief thought nobody saw *(him).'

a. Xiaotou$_i$ yiwei meiren kanjian [~~xiaotou~~]$_i$.
b. *Xiaotou yiwei meiren$_i$ kanjian [~~meiren~~]$_i$.
c. Xiaotou yiwei meiren kanjian [SOMEONE, e.g., *xiaotou + Wangwu, his accomplice*].

(3) Haizi yiwei mama yao zeguai le. (Xu 1986, 8)
Child think mother will reprimand SFP
'The child thinks his mother is going to reprimand *(him).'

a. Haizi$_i$ yiwei mama yao zeguai [haizi]$_i$ le.
b. *Haizi yiwei mama$_i$ yao zeguai [mama]$_i$ le.
c. Haizi yiwei mama yao zeguai [SOMEONE, e.g., *haizi + his younger sister*]

How to account for these conflicting data is the focus of this paper. In Section 2, previous analyses will be reviewed. Section 3 and 4 will provide the minimalist analysis under either movement or pro-support. Section 5 re-examines the subject-object asymmetry exhibited in Mandarin under the current analysis. Section 6 extends the 'new' analysis to the CP domain. Section 7 summarizes the whole papers.

2. Previous Analyses

For Huang (1984), (1c)/(2c)/(3c) can be explained if Mandarin allows for null topics (4):

(4) Zhangsan shuo Lisi kanjian le [SOMEONE, e.g., *Wangwu*]. (=1c)
[$_{\text{null-topic}}$]$_i$, Zhangsan shuo [$_{\text{null-topic}}$]$_i$, Lisi kanjian le [$_{\text{variable}}$]$_i$
There is someone such that Zhangsan said that for that person, Lisi saw him.

Under this analysis, the null object starts as a pro. Given the functional definition of empty categories (Chomsky 1981:330) (5) (see Epstein 1984, Brody 1984, Lasnik 1985, Saito 1985 for a different view), it ends as a variable in (4) that is bound by the null topic that gets its reference from discourse/context.

(5) The functional definition of Empty Categories (ECs)
a. An EC is a pronominal if and only if it is free or locally bound by an element with an independent thematic role, and a nonpronominal otherwise.
b. A nonpronominal EC is an anaphor if and only if it is locally A-bound, and a variable if locally Ā-bound.

By utilizing Principal B of the Binding Theory (BT.B), (1b)/(2b)/(3b) can also be explained as they all incur BT.B violations (6b):

(6) a. *Zhangsan shuo Lisi$_i$ kanjina le [~~Lisi~~]$_i$. (=1b)
b. *Zhangsan shuo Lisi$_i$ kanjina le [pro]$_i$. (*BT.B)

To account for (1a), Huang (1984:61) proposed the Generalized Control Rule (GCR) which defines that an empty pronominal has to be co-indexed with the closest nominal

element. As "Zhangsan" in (1a) is not the closest nominal element (farther than "Lisi"), co-indexing the null object with "Zhangsan" violates the GCR (7b):

(7) a. *Zhangsan$_i$ shuo Lisi kanjian le [~~Zhangsan~~]$_i$. (=1a)
b. *Zhangsan$_i$ shuo Lisi kanjian le [pro]$_i$. (*GCR)

This analysis, however, cannot be applied to the two counter examples (2 and 3). To accommodate the two counter examples, Xu (1986:60) proposes that Mandarin contains Free Empty Categories (FECs) in that null objects like those in (2) and (3) can pick up their references 'freely' from context. This is a pragmatic approach, commonly under the assumption that in discourse-oriented languages such as Chinese, pragmatics can always remedy grammar.

3. The Minimalist Analysis

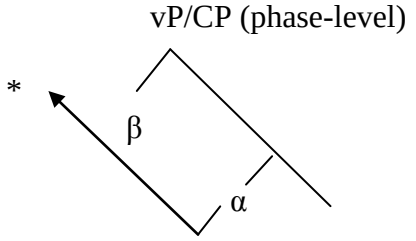
This paper intends to formally solve the aforementioned problem by not resorting to pragmatics. The theoretical framework is within the Principles and Parameters Theory (the P&P model, following Chomsky 1981, 1986; Chomsky and Lasnik 1993), with further assumptions as stated in the Minimalist Program (Chomsky 1993, 1994, 1995, 2000, 2001a, 2001b; also see Uriagereka 1998; Nunes 1995, 2004; Hornstein 2000, inter alia for more 'radical views'). I will assume that the Language Faculty of human being possesses the following architecture:

(8) The architecture of the Language Faculty

<table>
<tr><td colspan="4">Language Faculty</td></tr>
<tr><td colspan="2">Cognitive System</td><td colspan="2">Performance System</td></tr>
<tr><td>Computational System (C_{HL})</td><td>Lexicon</td><td>Conceptual-Intentional System</td><td>Sensorimotor System</td></tr>
</table>

Under (8), the Computational System (C_{HL}) consists of one operation only: Merge (Move is treated as *Internal Merge*). I will also assume the Syntax Maximal Hypothesis (Pylkkänen 2002) in that syntactic structure building is the ONLY mode of structure building in natural language. Under this hypothesis, syntax is nothing more than building up a structure by using Merge and the structure-building is step by step (derivational). I will assume that the only constraint in the process of building up a syntactic structure is the Relativized Minimality (RM) (cf. Rizzi 1990). This is schematized in (9). I will also assume the Multi-Spec Theory (Chomsky 1993) and assume that the Core Functional Categories (CFCs) consist of *v*, C, and T only (Chomsky 2000, Boeckx 2008). Under all these assumptions, languages differ only in the Lexicon. C_{HL} is immune to parameterization.

(9) A derivational RM:



if α and β are of the same type.

With the theoretical framework defined, let us first look at movement within the *v*P domain in Mandarin. The problem of the embedded null object will be explained under this approach. Take (1a) to start with, repeated here as (10). Assuming that movement can be theta-feature driven (Hornstein 1999 and subsequent works) and Mandarin has a strong discourse-related C (cf. Grohmann 2003), the derivation of (1a) proceeds from (10a) to (10d) by repeating Merge:

(10) *Zhangsan$_i$ shuo Lisi kanjian le [~~Zhangsan~~]$_i$. (=1a)
Numeration: {Zhangsan, Lisi, shuo, kanjian, le}
Derivation:
a. [$_{VP}$ kanjian Zhangsan]
b. [$_{v'}$ Zhangsan [$_{VP}$ kanjian Zhangsan]]
c. [$_{vP}$ Lisi [$_{v'}$ Zhangsan [$_{VP}$ kanjian Zhangsan]]]
d. * Zhangsan …[$_{vP}$ Lisi [$_{v'}$ Zhangsan [$_{VP}$ kanjian Zhangsan]]] (*RM)

At the derivation step (10d), RM is violated as "Zhangsan" and "Lisi" are both argument DPs (hence the ungrammaticality of (1a)). This minimalist account can also be utilized to explain the grammaticality of (2a), repeated here as (11).

(11) Xiaotou$_i$ yiwei meiren kanjian [~~xiaotou~~]$_i$. (=2a)
Numeration: {Xiaotou, yiwei, mei, ren, kanjian}
Derivation:
a. [$_{VP}$ kanjian xiaotou]
b. [$_{v'}$ xiaotou [$_{VP}$ kanjian xiaotou]]
c. [$_{vP}$ [mei ren] [$_{v'}$ xiaotou [$_{VP}$ kanjian xiaotou]]]
d. Xiaotou… [$_{vP}$ [mei ren] [$_{v'}$ xiaotou [$_{VP}$ kanjian xiaotou]]]
xiaotou: NP + argument; meiren: mei(you)ren (S) + argument
e. Xiaotou yiwei... [$_{v}$ meiren [$_{v'}$ xiaotou [$_{VP}$ kanjian xiaotou]]]

At the derivation step (11d), RM is checked. "Xiaotou" is an NP and argument and "meiyouren" is an S (sentence) and argument. They are not exactly of the same type. So RM is not violated. Further operations of Merge give rise to the surface form (11e). We are now left with (3a), which cannot be explained under movement as clearly there is an RM violation: "mama" and "haizi" are both NPs and arguments (12).

(12) Haizi$_i$ yiwei [mama] yao zeguai [haizi]$_i$ le. (=3a) (*RM)

In the next section, I argue that (12) is possible because of the pro-support strategy in Mandarin. The derivation is not created by movement (Internal Merge), but by the merge of an empty pro.

4. Pro-support

Mandarin is known as a pro-drop language (Huang 1984). I further develop this argument and define that pro exists in the lexicon of Mandarin. It has three 'surface' forms: deictic (13a), E-type (13b) and bound variable (13c). The notation of α or β-occurrence of indices is following Fiengo and May (1994):

(13) pro in Mandarin:
- a. deictic: pro$_i$ $^{\alpha}$
- b. E-type: pro$_i$ $^{\alpha}$
- c. bound variable: pro$_i$$^{\beta}$

With pro-support, (12=3a) can now be explained under *co-reference*:

(14) Haizi$_i$ yiwei mama yao zeguai [haizi]$_i$ le. (=12/3a)

Numeration: {haizi, yiwei, mama, yao, zeguai, le, pro}

Derivation:
- a. [$_{VP}$ zeguai pro$_i$ $^{\alpha}$]
- b. [$_{vP}$ mama [$_{VP}$ zeguai pro$_i$ $^{\alpha}$]
- c. Haizi$_j$ $^{\alpha}$ yiwei mama yao zeguai [pro$_i$ $^{\alpha}$] le.

Notice that pro is included in the Numeration. At the derivation step (14c), "haizi" bears the index *j* and pro, *i*. They normally cannot co-refer. But the matrix verb *yiwei* and the embedded modal *yao* can typically render possible world semantics. Thus in some possible worlds that *haizi yiwei (e.g., imagined)*, the pro is indentified as the "haizi" himself. This is almost like the situation in which someone abstracts oneself and refers oneself as another individual that is involved in the "zeguai" event. This argument seems

to be on the right track when we replace the factive verb "shuo" in (15a=1a) with the intentional verb "yiwei" (15b). The embedded null object and the matrix subject can now co-refer due to possible world semantics (15b):

(15) a. *Zhangsan$_i$ shuo Lisi kanjian le [~~Zhangsan~~]$_i$. (=1a) (*RM)
Numeration: {Zhangsan, Lisi, shuo, kanjian, le}
b. Zhangsan $_j$ $^{\alpha}$ yiwei Lisi kanjian le [pro$_i$ $^{\alpha}$]. (cf. 1a)
Numeration: {Zhangsan, Lisi, yiwei, kanjian, le, pro}

The minimal pair in (15) argues that the matrix verb plays a role in the interpretation of the embedded null object. A question naturally arises: why pro-support cannot rescue (1a=15a)? Suppose it can. The derivation ultimately reaches (16):

(16) *Zhangsan$_i$ shuo Lisi kanjian le [~~Zhangsan~~]$_i$. (=1a/15a)
Numeration: {Zhangsan, Lisi, shuo, kanjian, le, pro}
Zhangsan $_j$ $^{\alpha}$ shuo Lisi kanjian le [pro$_i$ $^{\alpha}$].

Since "shuo" is a factive verb, no possible world semantics is incurred. The index *j* and *i* thus cannot co-refer in the slightest possibility: Zhangsan is telling the fact that Lisi saw someone in which Zhangsan does not consider himself to be part of the "kanjian" event.

What about (2a)? In theory, we have two analyses now due to pro-support. This can be explained either under the movement approach (11), repeated here as (17a), in which no RM violation is incurred or under the pro-support strategy in which possible world semantics is involved (17b).

(17) Xiaotou$_i$ yiwei meiren kanjian [~~xiaotou~~]$_i$. (=2a)
a. Numeration 1: {Xiaotou, yiwei, mei, ren, kanjian} (no *RM) (=11)
b. Numeration 2: {Xiaotou, yiwei, mei, ren, kanjian, pro} (possible world semantics)

Compare the Numeration in (17a) and (17b). Numeration 2 contains one more lexical items, i.e., pro, to build up the surface structure in (2a). Given that Merge is the only operation in C_{HL}, merging one more lexical item is more costly. Based on the minimalist construal, Numeration 1 is preferred in building up the surface form in (2a), though both computations are possible. This indicates that pro-support might be the last resort strategy in Mandarin. It is not employed unless real/possible world *reference* is involved or simply to rescue an otherwise ungrammatical sentence. This can be further evidenced if we replace the intentional verb "yiwei" in (17) with the factive verb "shuo' (18):

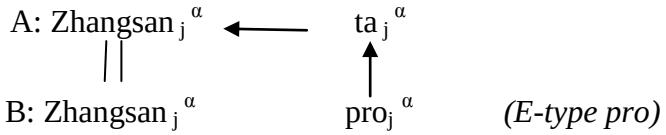
(18) Xiaotou$_i$ shuo meiren kanjian [~~xiaotou~~]$_i$.
a. Numeration 1: {Xiaotou, shuo, mei, ren, kanjian} (no *RM)
b. Numeration 2: {Xiaotou, shuo, mei, ren, kanjian, pro}
Xiaotou $_j$ $^{\alpha}$ shuo meiren kanjian [pro$_i$ $^{\alpha}$].

As there is no possible world semantics involved, pro-support cannot generate the co-reference between "xiaotou" and the embedded null object (18b). The only possibility is then through the derivation of movement (Internal Merge) (18a) as no RM is violated. Under this scenario, pro-support is abandoned and Numeration 1 is the only choice.

It is worth mentioning that with pro-support, even (1a) can be rescued if it is embedded under discourse (19):

(19) A: Zhangsan shuo shei kanjian ta le?
Zhangsan shuo who see him AM
*'Who did Zhangsan say that saw him?'
B: Zhangsan shuo Lisi kanjian le. (=1a)

This can be schematically shown in (20) in which the pro involved is an E-type pro (13b):

(20)


Thus in the B utterance, Zhangsan and pro do not relate to each other directly. The co-reference is possible because of the co-reference chain at the discourse level.

Another advantage of the current analysis is that (1c/2c/3c), repeated here as (21), can now be uniformly explained under pro-support (22):

(21) a. Zhangsan shuo Lisi kanjian le [SOMEONE, e.g., *Wangwu*]. (=1c)
b. Xiaotou yiwei meiren kanjian [SOMEONE, e.g., *xiaotou + Wangwu, his accomplice*]. (=2c)
c. Haizi yiwei mama yao zeguai [SOMEONE, e.g., *haizi + his younger sister*]. (=3c)

(22) a. Zhangsan shuo Lisi kanjian le [pro$_j$ $^{\alpha}$]. (1c) (*deictic pro*)
b. Xiaotou yiwei meiren kanjian [pro$_j$ $^{\alpha}$]. (2c)
c. Haizi yiwei mama yao zeguai [pro$_j$ $^{\alpha}$]. (3c)

This is the deictic use of pro (13a). Compared with the analysis in (4), the null topic is dispensed with and no variable is involved.

For (1b/2b/3b), this can now be explained under either Principle C violation if no pro-support is involved (23) or as Principle B violation if pro-support is involved as argued by Huang (1984) (24):

(23) a. *Zhangsan shuo Lisi$_i$ kanjina le [~~Lisi~~]$_i$. (=1b) (*BT.C) (no pro-support)
b.*Xiaotou yiwei meiren$_i$ kanjian [~~meiren~~]$_i$. (=2b) (*BT.C)
c. *Haizi yiwei mama$_i$ yao zeguai [~~mama~~]$_i$ le. (=3b) (*BT.C)

(24) a. *Zhangsan shuo Lisi$_i$ kanjina le [pro$_i$ $^{\alpha}$]. (=1b) (*BT.B) (with pro-support)
b.*Xiaotou yiwei meiren$_i$ kanjian [pro$_i$ $^{\alpha}$]. (=2b) (*BT.B)
c. *Haizi yiwei mama$_i$ yao zeguai [pro$_i$ $^{\alpha}$] le. (=3b) (*BT.B)

5. The Subject-Object Asymmetry

The Subject-Object Asymmetry as discussed in Huang (1984) can also be explained now under the minimalist approach. It is noticed that although in (1a) the embedded null object and the matrix subject cannot co-refer, the embedded null subject and the matrix subject can (25):

(25) Zhangsan$_i$ shuo [ ]$_i$ kanjian le Lisi. (cf. (1a))
Zhangsan say see AM Lisi
'Zhangsan said that he saw Lisi.'

The minimalist approach can capture the fact easily by resorting to Merge and nothing else (26):

(26) Zhangsan$_i$ shuo [~~Zhangsan~~]$_i$ kanjian le Lisi.
Numeration: {Zhangsan, shuo, kanjian, le, Lisi}
Derivation:
a. [$_{VP}$ kanjian Lisi]
b. [$_{v'}$ Lisi [kanjian Lisi]]
c. [$_{vP}$ Zhangsan [$_{v'}$ Lisi [kanjian Lisi]]]
d. Zhangsan…[$_{vP}$ Zhangsan [$_{v'}$ Lisi [kanjian Lisi]]] (no *RM)

At the derivation step (26d), further moving "Zhangsan" does not cross anything. No RM violation is incurred. The matrix subject consequently is just a copy of the embedded subject. The seemly co-reference is the result of syntactic movement.

6. Multi-Spec, Relativized Minimality and Movement within CP

It is well known in the literature that RM also applies in the CP domain. In Mandarin, for example, focus movement of a wh-word is permitted (27a). But further movement of the focused wh-word to an outer Spec of CP is prohibited (27b):

(27) a. ? [$_{CP}$ Zhangsan, [c'-focus SHEI$_i$], [$_{TP}$ ta ma-le [ ]$_i$]]?
Zhangsan who he scold-ASP
'WHO did Zhangsan scold?"
b. * [$_{CP}$ SHEI$_i$, [$_{CP}$Zhangsan, [$_{C'}$ [ ]$_i$, [$_{TP}$ ta ma-le [ ]$_i$]]]]? (intended: (27a))
who Zhangsan he scold-ASP

This is because of the RM violation. The first focus movement of the wh-word to the inner Spec of CP is legitimate as SHEI contains a focus feature (an A bar feature). So SHEI and *ta* are not of the same type though they are both arguments at the derivation step in (28a). After that, presumably "Zhangsan" is merged to the outer Spec of CP (possibly as a Topic). At this step, both "Zhangsan" and SHEI are non-arguments in the Spec of CP. As they are of the same type, further movement of SHEI to the outmost Spec of CP incurs RM violation (28b).

(28) a. ? [$_{CP}$ Zhangsan, [c'-focus SHEI$_i$], [$_{TP}$ ta ma-le [ ]$_i$]]?
Zhangsan who he scold-ASP
Derivation:
[$_{vP}$ ta [$_{v'}$ SHEI [$_{VP}$ ma SHEI]]]

b. * [$_{CP}$ SHEI$_i$, [$_{CP}$Zhangsan, [$_{C'}$ [ ]$_i$, [$_{TP}$ ta ma-le [ ]$_i$]]]]? (intended: (47a))
who Zhangsan he scold-ASP
Derivation:
[$_{CP}$Zhangsan, [$_{C'}$ [SHEI]$_I$ …
*

In English, the traditional CNPC for the formations of relative clauses (29) can also be explained similarly by resorting to RM violations (30).

(29) a. *John$_i$, the voice with which e_i sings is good. (Huang 1984, 76)
b. *John, I like the voice with which e_i sings.

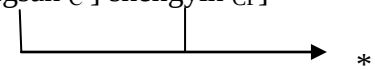
(30) [$_{CP}$ the voice [$_{C'}$ John [$_{C}$ with which [$_{TP}$ John……
*

Clearly, topicalization in (30) has to move "John" crossing the relative Head "the voice" that is adjoined to CP. As they are both non-arguments in the A bar positions, RM violation is incurred. Interestingly, the Mandarin counterpart of (29) shows another instance of the Subject-Object Asymmetry:

(31) a. Zhangsan$_i$, e_i changge de shengyin hen haoting. (Huang 1984, 78)
Zhangsan sing DE voice very good-to-hear
'Zhangsan$_i$, the voice with which *(he$_i$) sings is good.'
b. *Zhangsan$_i$, wo hen xihuan e_i changge de shengyin.
Zhangsan I very like sing DE voice
'Zhangsan$_i$, I like the voice with which *(he$_i$) sings.'

As indicated in (31), when the relative clause is in the subject position, the utterance is actually grammatical (31a). The analysis in (30) should predict that both (31a) and (31b) are ungrammatical, just like their English counterpart in (29a) and (29b), respectively, as they also incur RM violations.

(32) *….Zhangsan $_{TP}$] de $_C$] Zhangsan $_{C'}$] shengyin $_{CP}$]



*

I propose that this is due to pro-support in Mandarin. What is involved is the third type of pro, i.e., the bound variable pro (13c). (31a) is explained if the subject in the relative clause is a bound variable bound by the Topic "Zhangsan" (33):

(33) Zhangsan$_i^{\alpha}$, [pro$_i^{\beta}$] changge de shengyin hen haoting. (*bound variable pro*)

To explain (31b), GCR has to be utilized:

(34) *Zhangsan$_i^{\alpha}$, wo hen xihuan [pro$_i^{\beta}$] changge de shengyin. (*GCR)

As "wo" is the closest nominal element, co-indexing the null subject in the relative clause with the Topic "Zhangsan" violates GCR.

Since English has no pro-support (it being not a pro-drop language), there is no rescue for (29a and 29b). Finally, let us look at example (35):

(35) Zhangsan, [[*e* xihuan *e* de] ren] hen duo. (Huang 1984, 96)
Zhangsan like DE man very many
a. 'Zhangsan, people who he likes are many.'
b. 'Zhangsan, people who like him are many.'

The sentence is ambiguous between the reading in (35a) and (35b). Under pro-support, this can be explained as either (36a) or (36b):

(36) a. 'Zhangsan, people who he likes are many.'
Zhangsan$_i^{\alpha}$, [[[pro$_i^{\beta}$] xihuan [pro$_j^{\alpha}$] de] ren] hen duo.
b. 'Zhangsan, people who like him are many.'
Zhangsan$_i^{\alpha}$, [[[pro$_j^{\alpha}$] xihuan [pro$_i^{\beta}$] de] ren] hen duo. (*GCR)

If we follow (34), (36b) should also incur the violation of GCR. I propose that this is because the matrix subject is by itself a covert pronoun. Co-indexing the subject in the relative clause with the Topic "Zhangsan" crossing a mute nominal element does not count as the violation of GCR. GCR is now elaborated as (37):

(37) Generalized Control Rule (GCR) → revised co-indexing rule (Co-i)
Co-index an empty pronominal with the closest ***overt*** nominal element.

GCR is now treated as a co-indexing rule (Co-i) under the minimalist framework. It is an interpretational rule for null pronominals. This amounts to say that Co-i is an interface requirement, not part of the C_{HL}.

7. Concluding Remarks

This paper provides a minimalist account to some of the central issues that have been discussed in the literature for the embedded null object construction in Mandarin. Everything being equal, the minimalist account captures the fact more directly than the variable analysis or the analysis under Free Empty Categories. I will not defend whether this analysis is superior to the other two or not. My sole intention is that the analysis proposed here can provide us with yet another window to look at some of the "old issues" that has been under debate for decades. The null object has been argued to be a variable, a free empty category. Now it is argued to be formed under either syntactic movement or pro-support.

References:

Boeckx, C. (2008). *Bare Syntax*. Oxford: Oxford University Press.
Brody, M. (1984). "On Contextual Definitions and the Role of Chains", *Linguistic Inquiry* 15: 355-380.
Chomsky, N. (1981). *Lectures on Government and Binding*, Foris, Dordrecht.
Chomsky, N. (1986). *Knowledge of Language: Its Nature, Origin and Use*, New York: Praeger.
Chomsky, N. (1993). "A Minimalist Program for Linguistic Theory", in K. Hale and S. J. Keyser (eds.) *The View from Building 20: Essays in Honor of Sylvain Bromberger*, Cambridge, Massachusetts: MIT Press.
Chomsky, N. (1994). "Bare Phrase Structure", *MIT Occasional Papers in Linguistics* 5.
Chomsky, N. (1995). *The Minimalist Program*, Cambridge, Mass.: The MIT Press.

Chomsky, N. (1999/2001a). "Derivation by Phase", in Michael Kenstowicz (ed.) *Ken Hale: a Life in Language*, Cambridge, Massachusetts: MIT Press.

Chomsky, N. (2000) "Minimalist Inquiries: the Framework", in Martin, Roger, David Michaels and Juan Uriagereka (eds.) *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, Cambridge, Massachusetts: MIT Press.

Chomsky, N. (2001b). "Beyond Explanatory Adequacy", *MITOPL*, Department of Linguistics and Philosophy, MIT.

Chomsky, N. and Lasnik, H. (1993). "Principles and Parameter Theory", in J. Jacobs, A. von Stechow, W. Sternefeld and T. Vennemann (eds.) *Syntax: an International Handbook of Contemporary Research*, 506-569, Berlin: Walter de Gruyter.

Epstein, S. (1984). "A Note on Functional Determination and Strong Crossover", *The Linguistic Review* 3: 299-305.

Fiengo, R. and May, R.(1994). *Indices and Identity*, Cambridge, Mass.: The MIT Press.

Grohmann, K. (2003). *Prolific domains: On the anti-locality of movement dependencies*. Philadelphia: John Benjamins.

Hornstein, N. (1999). "Movement and Control", *Linguistic Inquiry* 30, 69-96.

Hornstein, N. (2000). *Move! A Minimalist Theory of Construal*, Oxford: Blackwell Publishers Inc.

Huang, C.-T. J. (1984). "On the Distribution and Reference of Empty Pronouns", *Linguistic Inquiry* 15.4: 531-574.

Huang, C.-T. J. (1987). "Remarks on Empty Categories in Chinese", *Linguistic Inquiry* 18, 321-337.

Huang, C.-T. J. (1998). *Logical Relations in Chinese and the Theory of Grammar*, New York: Garland Publishing, Inc.

Lasnik, H. (1985). "Illicit NP Movement: Locality Conditions on Chains?" *Linguistic Inquiry* 16: 481-490.

Nunes, J. (1995). *The Copy Theory of Movement and Linearization of Chains in the Minimalist Program*, doctoral dissertation, University of Maryland, College Park.

Nunes, J. (2004). *Linearization of Chains and Sideward Movement*, Cambridge, MA.: The MIT Press.

Pylkkänen, L. (2002). *Introducing arguments*. Doctoral dissertation. MIT.

Rizzi, L. (1990). *Relativized Minimality*, Cambridge, Mass.: The MIT Press.

Saito, M. (1985). *Some Asymmetries in Japanese Syntax and Their Theoretical Implications*, doctoral dissertation, MIT.

Uriagereka, J. (1998). *Rhyme and Reason*, Cambridge, Massachusetts: MIT Press.

Xu, L.-J. (1986). "Free Empty Categories", *Linguistic Inquiry* 17.1: 75-93.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 84-101.

Focus and Archaic Chinese Word Order

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This paper challenges a widely held assumption that the existence of constructions in Archaic Chinese in which an object appeared in preverbal position provides evidence that Pre-Archaic Chinese had OV basic word order. I argue that the preverbal objects in questions – *wh*-phrases and focused NPs – could not have been base-generated in their surface positions but rather must be analyzed as having undergone syntactic movement. I further show that the trigger for this movement was focus.

1. Introduction

This paper analyzes two constructions employing preverbal objects in Archaic Chinese and proposes that the object in both cases achieves its position through syntactic focus movement. In arguing that the OV order seen in these constructions is a derived order, this paper also contributes to the debate on Archaic Chinese basic word order by challenging an assumption in the field that preverbal object positioning in these constructions constitutes evidence for basic OV order.

Although texts show the language to have predominately SVO word order, there are some contexts in which the object appeared in preverbal position. One such case was when the object was a *wh*-phrase. In the examples in (1), non-interrogative objects appear post-verbally, while *wh*-words precede the verb.[1]

(1) a. 天下 之 父 歸 之，
Tianxia zhi fu gui zhi
world Gen father settle here
其 子 焉 往？ (*Mencius* 7)
qi zi **yan** [$_{VP}$ wang t_{yan}]?
3.Gen son where go
'If the fathers of the world settled here, where would their sons go?'

[1] Unless otherwise indicated, all examples are taken from Warring States Period (5th-3rd centuries BCE) texts.

b. 吾 誰 欺? 欺 天 乎？
Wu **shei** [$_{VP}$ qi t_{shei}]? Qi tian hu?
I who deceive deceive Heaven Q
'Who do I deceive? Do I deceive Heaven?' (*Analects* 9)

Another context in which OV order can be observed is the fronting of pronominal objects in the context of negation. (2a) shows that pronominal objects remain in their base positions when negation is not present. (2b) shows fronting of the object to a position following the negative quantifier *mo*.

(2) a. 夫 人 幼 而 學 之，
Fu ren you er xue zhi,
Dem person young Conj study 3.Obj
壯 而 欲 行 之。
zhuang er yu *xing* **zhi**.
mature Conj want do 3.Obj
'When a person is young, he studies this. When he matures, he wants to put it to practice.' (*Mencius* 2)

b. 吾 先 君 亦 莫 之 行 也。 (*Mencius* 5)
Wu xian jun yi mo **zhi** *xing* ye.
1 former lord also none 3.Obj do Decl
'None of our former lords did this either.'

The preverbal positioning of the objects in examples like (1) and (2) have prompted Wang (1958), Feng (1996), Xu (2006), and many others to suggest that the unmarked position for pronominal objects in Archaic or pre-Archaic Chinese may have been preverbal, while full NP objects remained in post-verbal position. The validity of this position is challenged, however, by the fact that object fronting was not limited to pronouns. (3) shows that full NPs could also occur in post-verbal (3a) or pre-verbal (3b) position.[2]

[2] For reasons which are not yet well understood, NP-fronting was more common with *yi* 'use' than with other verbs. In this paper, I tentatively assume *yi* to be a light verb heading a functional projection on the clausal spine. Detailed analysis of the position and function of YI is the subject of future research. See Zou (1993), Sybesma (1999), Whitman (2000), Whitman & Paul (2005), and others for similar treatment of modern Mandarin *ba*, whose functions overlap in significant ways with Archaic Chinese YI.

(3) a. 所 謂 大 臣 者， 以 道 事 君。 (*Analects* 11)
Suo wei da chen zhe, **yi** *dao* shi jun.
Rel call great minister Det use Way serve lord
'One who is referred to as a great minister serves his lord according to the Way.'

b. 弓 以 招 士， 皮 冠 以 招 虞人。
gong **yi** zhao shi, *pi* *guan* **yi** zhao yuren.
bow use call gentleman leather cap use call gamekeeper
'(He) summoned a gentleman in his employ by use of a bow, and the gamekeeper by use of a leather cap.' (*Zuozhuan*, Zhao 20)

Returning to the debate regarding basic word order in Archaic Chinese, Li & Thompson (1974), Wang (1958), La Polla (1994), Feng (1996), Xu (2006), and others view preverbal objects in (1)-(3) as vestiges of basic OV order in pre-Archaic Chinese, while Djamouri (2005), Peyraube (1996), Shen (1992), Djamouri, Paul, and Whitman (2007), Djamouri & Paul (2009), and others argue that VO has been the basic order throughout the attested history of Chinese and that there is no evidence for earlier OV basic order. In this paper, I contribute argumentation for the VO analysis. I show that that OV orders could not have been base-generated. I further identify a motivation for the movement, which is focus.

2. *WH*-movement

In this and the following two sections, I examine two of the cases of object fronting introduced in the previous section and show that neither of them should be analyzed as base-generated OV order. In this section, I show that the preverbal objects in *wh*-questions could appear in a position which could not be analyzed as the verb's complement. I also argue that *wh*-fronting was syntactic movement and not cliticization. In section 3, I show that full NPs could appear before the light verb *yi* only when they were focused and therefore should also be analyzed as having undergone syntactic movement.

I do not discuss pronoun fronting to negation in this paper. This phenomenon is addressed in Aldridge (in preparation), where I also propose a syntactic movement analysis, specifically object shift for the purpose of checking structural accusative case.

2.1. *WH*-movement as opposed to base generation

In this subsection, I show that *wh*-fronting cannot be analyzed as base-generated OV order. First, note that the landing site for *wh*-movement was not immediate preverbal position. (4) shows that *wh*-phrases precede negation. Since the *wh*-phrase is not adjacent to verb which selects it, this position cannot be analyzed as the base position for the object.

(4) a. 何 城 不 克? (*Zuozhuan*, Xi 4)
He **cheng** *bu* ke?
what city not conquer
'What city would (you) not conquer?'

b. 然則 我 何 爲 乎 何 不 爲 乎?
Ranze wo he wei hu? **He** *bu* wei hu?
then I what do Q what not do Q
'Then what should I do? What should I not do?' (*Zhuangzi* 2.10)

Similar evidence comes from long distance *wh*-fronting. The *wh*-phrase appears in a position to the left of the matrix verb and is separated from the verb which selects it, i.e. the embedded verb. Hence, these *wh*-phrases also cannot be analyzed as base-generated in their surface positions.

(5) a. 公 誰 欲 與? (*Zhuangzi* 3.2)
Gong **shei** *yu* [yu *e*]?
you who want give
'Who do you want to give (it) to?'

b. 吾 誰 敢 怨? (*Zuozhuan*, Zhao 27)
Wu **she**i *gan* [yuan *e*]?
I who dare resent
'Who do I dare to resent?'

The next set of examples shows *wh*-fronting from subject position in an embedded clause. Aldridge (2009) argues that the causative verb *shi* is an ECM verb and not an object control verb. On this analysis, the *wh*-words preceding *shi* in (6) are not internal arguments selected by *shi* but are rather the subjects of the embedded clausal complements.

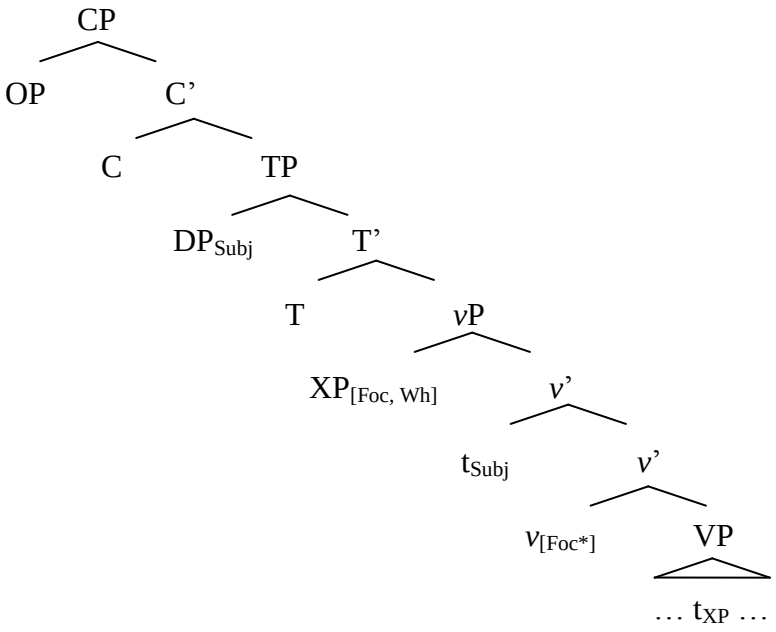
(6) a. 若 子 死， 將 誰 使 代 子？
Ruo zi si, jiang **shei** shi [*e* dai zi]?
if you die Mod who make replace you
'If you die, who shall I have replace you?' (*Hanfeizi* 22)

b. 吾 誰 使 正 之？ (*Zhuangzi* 2)
Wu **shei** shi [*e* zheng zhi]?
I who make correct 3.Obj
'Who shall I have correct it?'

I assume Aldridge's (2010) analysis of *wh*-movement in Archaic Chinese as fronting to a focus position in the edge of *v*P. This analysis is informed by similar proposals of A'

positions for topic and focus in the *v*P layer in Italian (Belletti 2004) and modern Mandarin (Paul 2005).

(7)



2.2. *WH*-movement not cliticization

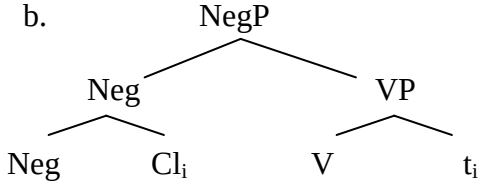
Aldridge (2010) additionally argues that *wh*-fronting was not cliticization, contra Feng (1996). Feng (1996) proposes that pronoun fronting to negation and *wh*-movement were both instances of cliticization. In the context of negation, the pronoun raises out of VP and right-adjoins to the negator.

(8) a.

不	患	人	之	不	己	知。
Bu	huan	ren	zhi	bu	**ji**	zhi ___.
not	worry	others	Gen	not	self	understand

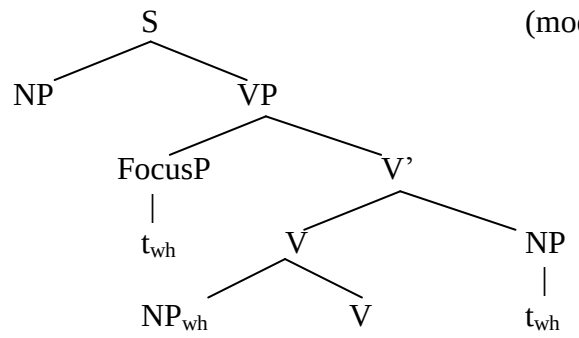
'Do not worry that others do not understand you.' (*Analects* 1)

b. (Feng 1996:343)



For *wh*-movement, Feng claims that the *wh*-word first moves to the edge of VP, where it receives a focus interpretation. Subsequently, the *wh*-word is left-adjoined to the verb.

(9)



(modified from Feng 1996:346)

Examples (4) and (5) in section 2.1 present problems for this analysis, because the *wh*-phrase appears separated from the VP where it was base merged. The examples in (4) further show that *wh*-fronting targets a VP-external position above negation. The possibility of phrasal *wh*-movement in (4a) also suggests that *wh*-movement is syntactic and not prosodic cliticization.

Furthermore, it is clear that *wh*-movement and pronoun fronting to negation are not the same type of movement. Note (10), where *wh*-word *yan* 'where' undergoes *wh*-fronting.

(10)

天下	之	父		歸	之，	
Tianxia	zhi	fu		gui	zhi	
world	Gen	father		settle	here	
其	子	焉		往？		(*Mencius* 7)
qi	zi	**yan**	[$_{VP}$	wang	t_{yan}]?	
3.Gen	son	where		go		

'If the fathers of the world settled here, where would their sons go?'

On the other hand, the non-interrogative counterpart *yan* 'there' does not front in the context of negation. The interrogative 'where' and non-interrogative 'there', both pronounced *yan* in modern Mandarin, are also reconstructed in Archaic Chinese with the same or very similar pronunciations (Wang 1958)[3]. Crucially, both are reconstructed as mono-syllabic and having a coda consonant. Therefore, we do not expect them to behave differently with respect to prosodic processes.

[3] Thanks to Zev Handel for first pointing out to me that the reconstruction of the two pronouns should be similar, if not the same.

(11) a. 出 妻 屏 子， 終身 不 養 焉。
Chu qi bing zi, zhongxhen *bu* yang **yan**.
dispatch wife discard child lifelong not care.for 3.Dat
'(He) sent his wife away and abandoned his children and was not cared for by them for the rest of his life.' (*Mencius* 8)

b. 晉 國 天下 莫 強 焉。 (*Mencius* 1)
Jin Guo Tianxia *mo* qiang **yan**.
Jin nation world none strong 3.Dat
'The Jin nation, in the world, noone is stronger than them.'

Likewise, the asymmetry in (12) and (13) is also unexpected on Feng's analysis. In addition to objects in verbal projections, objects of prepositions also undergo *wh*-fronting.

(12) a. 王 誰 與 爲 善？ (*Mencius* 6)
Wang [**shei** [yu *e*]] wei shan?
king who with be good
'With whom will the king be good?'

b. 如 伋 去， 君 誰 與 守？ (*Mencius* 8)
Ru Ji qu, jun [**shei** [yu *e*]] shou?
if Ji leave you who with serve
'If I (Ji) left, with whom would you serve?'

The situation is different with negation, however. Negation is not able to attract a pronoun from inside a PP.

(13) a. 齊 人 莫 如 我 敬 王。 (*Mencius* 4)
Qi ren **mo** [ru *wo*] jing wang.
Qi person none like me respect king
'Of the people of Qi, none respect the king as I do.'

b. 不 與 之 爭 能。 (*Xunzi* 12)
Bu [yu *zhi*] zheng neng.
not with 3.Obj dispute ability
'(He) does not dispute ability with them.'

In sum, based on the landing site of the movement shown in (4) and (5) and the lack of similarity between *wh*-fronting and pronoun fronting to negation, I conclude that *wh*-movement and pronoun fronting should not be analyzed as the same type of movement. The fact that *wh*-fronting could target a phrasal constituent, as shown in (4a), further argues that *wh*-movement could not have been cliticization.

2.3. *WH*-words not 2nd position clitics

A second analysis based on cliticization is offered by Shi and Xu (2001). Their proposal is similar to Feng (1996) in that they also claim that Archaic Chinese *wh*-words were simultaneously clitics and focused constituents. Specifically, Shi and Xu propose that Archaic Chinese *wh*-words were Wackernagel-type second position clitics. They also carried a [+F] focus feature which provided the motivation for their movement.

This proposal suffers from some of the same weaknesses as Feng (1996). The possibility of phrasal movement in (4a) is particularly damaging. There is also very clear evidence that Archaic Chinese *wh*-words were not restricted to second position. For example, if the modal *jiang* appears in the clause, an object *wh*-word must follow the modal and cannot move to its left. This leaves the *wh*-word in third position in the clause.

(14) 我 將 何 求？ (*Zuozhuan*, Xi 28)
Wo jiang **he** qiu?
I will what ask:for
'What will I ask for?'

In contrast, when we examine a language which uncontroversially has second position clitics, we see that the clitics are in fact required to dislocate in cases like (14) so that they surface in second position in the clause. I illustrate this with examples from Seediq[4], an Austronesian language spoken in Taiwan. Like many Formosan and Philippine languages, the language has second position clitic pronouns. Basic word order is VOS, as shown in (15a), with the full NP subject in clause-final position. If the subject is a clitic pronoun, however, it will attach to the first prosodic word in the tensed clause. In (15b), this is the main verb. In (15c), the main verb is preceded by a tense auxiliary, and the clitic moves up to attach to the auxiliary.

(15) a. Mari patis **Ape**.
buy books Ape
'Ape buys books.'
b. Mari=**ku** patis.
buy=I book
'I buy books.'
c. Wada=**ku** mari patis.
Perf=I buy book
'I bought books.'

Returning to Archaic Chinese, (16) shows subject *wh*-words in clause-initial position. Aldridge (2010) argues that subjects in Archaic Chinese underwent A-movement to

[4] The Seediq data cited in this paper are taken from the author's own field notes.

[Spec, TP]. Consequently, subject *wh*-phrases were not in the c-command domain of the focus probe on *v* triggering *wh*-movement to the edge of *v*P. This proposal is supported by additional evidence from Wei (1999) that subject *wh*-phrases occupied a position higher than object *wh*-phrases, which Aldridge proposes is in-situ in [Spec, TP]. In the examples in (16), we see subject *wh*-words in initial position in the clause. Note that the subject *wh*-word in (16a) precedes the modal which the object *wh*-word follows in (14).

(16) a. 誰 將 治 之？ (*Yanzi Chunqui* 13)
Shei **jiang** zhi zhi?
who will govern them
'Who will govern them?'

b. 誰 能 出 不 由 戶？ (*Analects* 6)
Shei neng chu bu you hu?
who can exit not from door
'Who can exit other than through the door?'

Note further that Shi and Xu's (2001) analysis cannot be salvaged by claiming that *shei* 'who' does not exhibit the clitic behavior that *he* 'what' does. Like *he*, *shei* also undergoes *wh*-movement when it is base merged in a position c-commanded by *v*, as seen above in (1b), (5), (6), and (12).

One final weakness for both Shi and Xu (2001) and Feng (1996), is that since cliticization targets prosodically weak elements, we do not expect these constituents to be focused. Returning to Seediq, this language has strong pronouns in addition to the weak clitics. The strong pronouns appear in argument positions in a declarative clause. For the subject, this is clause-final position, as in (17a). Note that the subject is also resumed by a clitic, which functions as an agreement marker. The strong pronoun can also be fronted to clause-initial position for focus, as in (17b). However, a clitic cannot be focused in this way, as in (17c).

(17) a. Wada=ku mari patis yaku
Perf=I buy book I
'I bought books.'

b. Yaku wada mari patis.
I Perf buy book
'It was I who bought books.'

c. *Ku wada mari patis.
I Perf buy book
'It was I who bought books.'

This subsection has presented additional evidence for the syntactic analysis of Archaic Chinese *wh*-movement by arguing that these can not be analyzed as second position clitics.

2.3. Syntactic movement => cliticization: *WH*-movement

A cliticization analysis of Archaic Chinese *wh*-movement is also severely challenged by by the change which took place between Archaic and early Middle Chinese. In this subsection, I show that syntactic *wh*-movement was reanalyzed as cliticization in the Han period (2nd century BCE). Thus, *wh*-questions in this period had noticeably different properties from those of the Archaic period examined in the preceding two subsections.

Early in the Han period, movement of phrasal *wh*-constituents was lost, as shown in (18b). In contrast, monosyllabic *wh*-words continued to undergo fronting, as in (18a). This asymmetry was noticed by Feng (1996) and is correctly predicted by his cliticization analysis.

(18) a. 子 將 何 欲？ (*Shiji* 86)
Zi jiang **he** [VP yu t_{he}]?
You Mod what want
'What do you want?'

b. 此 固 其 理 也， 有 何 怨 乎？
Ci gu qi li ye, [VP *you* **he** **yuan**] hu?
this Adv Dem way Decl have what complaint Q
'This is the way things are; what complaint could you have?' (*Shiji* 81)

Wh-fronting was lost from a PP, which is also predicted by Feng's analysis that clitics were hosted by verbs and not other categories.

(19) 陛下 與 誰 取 天下 乎？ (*Shiji* 55)
Bixia [yu **shei**] qu tianxia hu?
sire with who conquer world Q
'Sire, with whom will you conquer the world?'

Long distance fronting was also lost in the Han period. What is observed instead is movement within the embedded clause. Again, this is predicted by Feng's analysis, assuming that the *wh*-word attaches within the VP where it is base-generated.

(20) a. 諸 君 欲 誰 立？ (*Shiji* 43)
Zhu jun yu [**shei** li ___]?
all gentleman want who stand
'Gentlemen, who do you want to place (on the throne)?'

b. 吾 敢 誰 怨 乎？ (*Shiji* 31)
Wu gan [**shei** yuan ___] hu?
I dare who resent Q
'Who do I dare to resent?'

I suggest here that Feng's (1996) cliticization analysis of *wh*-fronting be applied to the innovated process which emerged in the Han period. The fact that Feng's analysis correctly accounts for the Han period phenomenon, however, also serves to emphasize the inappropriateness of this approach in accounting for the very different type of *wh*-movement in the preceding period.

To summarize the discussion in section 2, I have established that the preverbal positioning of Archaic Chinese *wh*-words does not constitute evidence for base-generated OV word order, since the position for pre-verbal *wh*-phrases is not the complement of the verb selecting this constituent. I have also shown that *wh*-fronting in Archaic Chinese was not cliticization, since this movement was not limited to prosodically weak elements, was not associated with a specific host such as the verb, and did not target a particular prosodic position, i.e. second position, in the clause. Finally, I have shown that the cliticization analysis of Archaic Chinese *wh*-movement is further damaged by the change from syntactic *wh*-movement to cliticization that takes place in the Han period. I therefore maintain Aldridge's (2010) analysis that preverbal *wh*-phrases in pre-Han Archaic Chinese achieved their position via syntactic focus movement.

3. Preverbal NPs and identification focus

The other type of pre-verbal object which I examine in this paper is the fronting of full NPs to the left of the light verb YI. The examples from section 1 are repeated below. (21a) shows the NP following YI. (21b) shows NPs preceding YI. Let me point out in passing here that (21b) shows parallel clauses. Nearly all cases of NP fronting to the left of YI are cases of this type, which I suggest below is related to focus.

(21) a. 所 謂 大 臣 者， 以 道 事 君。
Suo wei da chen zhe, **yi** *dao* shi jun.
Rel call great minister Det use Way serve lord
'One who is referred to as a great minister serves his lord according to the Way.' (*Analects* 11)

b. 弓 以 招 士， 皮 冠 以 招 虞人。
gong **yi** zhao shi, *pi* *guan* **yi** zhao yuren.
bow use call gentleman leather cap use call gamekeeper
'(He) summoned a gentleman in his employ by use of a bow, and the gamekeeper by use of a leather cap.' (*Zuozhuan*, Zhao 20)

The table in (22) summarizes the occurrences of YI with post- and pre-verbal NPs in the first eleven[5] chapters of the 5th century BCE text *Zuozhuan*. Post-verbal NPs make up the overwhelming majority.

(22) *Zuozhuan* (Yin-Ding)

YI *NP*: 841 (70%)		*NP* **YI**: 368 (30%)		
YI *NP* VP	V (NP) **YI** *NP*	*NP* **YI** VP	*SHI* **YI** VP	*WH* **YI** VP
637 (53%)	204 (17%)	121 (10%)	152 (12%)	95 (8%)

Of the pre-verbal NPs, a significant number are *wh*-words. Given that the language had *wh*-movement, as argued in section 2, these examples pose no problem for the current proposal that pre-verbal objects achieved their position through movement.

(23) a. 失 忠 與 敬， 何 以 事 君？
Shi zhong yu jing, *he* **yi** shi jun?
lose loyalty and respect what YI serve lord
'Having lost loyalty and respect, what does one serve his lord with?'
(*Zuozhuan*, Xi 5)

b. 吾 何 以 堪 之？ (*Zuozhuan*, Xi 30)
Wu *he* **yi** kan zhi?
1 what YI rate 3.Obj
'How do I rate such treatment?'

The largest number of fronting cases involves the demonstrative pronoun *shi*. *Shi* is fronted in all but one of the examples I have found in the *Zuozhuan* involving *shi* and YI.

[5] There are only twelve chapters in the *Zuozhuan*, so this chart very nearly reflects the entire text.

(24) a. 夫 名 以 制 義， 義 以 出 禮，
Fu *ming* **yi** zhi yi, *yi* **yi** chu li,
Dem name YI set right right YI emerge rites
禮 以 體 政， 政 以 正 民。
li **yi** ti zheng, *zheng* **yi** zheng min,
rites YI embody govt. govt. YI correct people
是 以 政 成 而 民 聽。
shi **yi** zheng cheng er min ting.
SHI YI govt. mature Conj people obey
'With a name, (a ruler) determines the codes of righteousness; from righteousness the rites of proper conduct emerge; the rites determine the form of good government; with good government, the people are led into correct conduct. It is in this way that the government matures and the people become obedient.' (*Zuozhuan*, Huan 2)

b. 既 無 德 政， 又 無 威 刑，
Conj wu de zheng, you wu wei xing,
since not.have virtuous govt. Conj not.have imposing penalty
是 以 及 邪。
shi **yi** ji xie.
SHI YI reach evil
'(He) lacks both virtuous government and an imposing penal code. This is what has led to evil.'

Recall from section 1 that Wang (1958), Feng (1996), Xu (2006), and others have noted that pre-verbal objects in Archaic Chinese tend to be pronominal. If there truly is a correlation to be grasped here, it may be related to the semantic nature of pronouns themselves. As anaphoric elements, they take antecedents in the preceding discourse. Note that this is true for all of the cases involving fronted *shi* in (24). In (24b), for example, *shi* refers to the lack of good government and a strong penal code introduced in the immediately preceding context. It is also clear that *shi* is focused, serving to exhaustively identify this antecedent as the subject of the following predicate. This exhaustivity is characteristic of the particular type of focus that Kiss (1998) terms identificational focus.

Two fundamental characteristics of identificational focus are that it requires movement and is exhaustive. Kiss contrasts this with information focus, which does not require movement and need not be exhaustive. In (25b), for example, the focused constituent remains in situ and the interpretation is not exhaustive. In the identificational focus example in (25c), on the other hand, the focused constituent moves to a focus position in the CP layer. The interpretation is also exhaustive.

Hungarian (Kiss 1998:249-250)

(25) a. Hol jartal a nyaron?
where went.you the summer.in
'Where did you go in the summer?'

b. Jartam **OLASZORSZAGBAN**. (Information Focus)
went.I Italy.to
'I went TO ITALY [among other places].'

c. **Olaszorszagban** jartam. (Identificational Focus)
Italy.to went.I
'It was Italy where I went. (and nowhere else)'

(26) provides evidence for the analysis of NP fronting in Archaic Chinese as involving identificational focus. In both examples, the NP preceding YI is offered as the only option available. This is particularly clear in (26a), since it is stated in the preceding clause that the lords have nowhere else to turn. Then their only option is to depend on the Rites.

(26) a. 臣 聞 諸侯 無 歸，
Chen wen zhuhou wu gui,
I hear lords not.have return
禮 以 爲 歸。 (*Zuozhuan*, Zhao 4)
li **yi** wei gui.
Rites YI Cop return
'I hear that when the lords have nothing else to turn to, it is to the Rites that they turn.'

b. 何 以 事 君？
He yi shi jun?
what YI serve lord
穆子 曰: 吾 以 事 君 也。
Muzi yue: *Wu* **yi** shi jun ye.
Muzi say I YI serve lord Nom
'With what do you serve our lord? Muzi said, "It is with myself that I serve our lord."' (*Zuozhuan*, Zhao 15)

Kiss additionally points out that identificational focus is compatible with a contrastive interpretation. This is also true in Archaic Chinese. NP fronting with YI is very frequently found in parallel constructions which are in turn employed to express contrastive focus. In (27a), for example, the purposes of governance and a penal code are being contrasted with each other.

(27) a. 君子 謂
Junzi wei
good.man say
鄭 莊 公 失 政 刑 矣。
Zheng Zhuang gong shi zheng xing yi.
Zheng Zhuang lord lose govt. penalty Asp
政 以 治 民，
Zheng **yi** zhi min,
govt. YI govern people
刑 以 正 邪。
xing **yi** zheng xie.
penalty YI correct evil
'Superior men say that Lord Zhuang of Zheng has misplaced the concept of good government and a penal code. Government is used to govern the people; a penal code is used to correct evil.' (*Zuozhuan*, Yin 11)

b. 楚 國 方城 以 爲 城，
Chu guo *Fangcheng* **yi** wei cheng,
Chu state Fangcheng YI be wall
漢 水 以 爲 池。 (*Zuozhuan*, Xi 4)
Han *Shui* **yi** wei chi.
Han river YI be moat
'The Chu will use Mt. Fangcheng as their castle wall and the River Han as their moat.'

(28) provides additional evidence of contrastive focus. While hunting, the Lord Tian of Qi tries to summon the gamekeeper by waving his bow, but the gamekeeper does not respond, as stated in (28a). The gamekeeper explains that different signals should be used to summon different people. This contrast is stated in (28b). NP-YI is used to express each of them. A flag is used to summon an official, a bow for a gentleman, and a leather cap for the gamekeeper. Not only is a contrast evidence among these three cases, but there is also a sense of exhaustivity. Since the gamekeeper did not see a leather cap, he did not approach. In other words, it is only with a leather cap that a gamekeeper can be summoned.

(28) a. 齊 侯 田 于 沛， 招 虞人 以 弓， 不 進。
Qi Hou tian yu Pei, zhao yuren **yi** *gong*, bu jin.
Qi Lord hunt in Pei call gamekeeper use bow not come
'When the lord of Qi went hunting in Pei, he summoned the gamekeeper using his bow, but he did not come.' (*Zuozhuan*, Zhao 20)

b. 昔 我 先 君 之 田 也，
Xi wo xian jun zhi tian ye,
past 1 former lord Gen hunt Nom
旌 以 招 大夫， 弓 以 招 士，
jing **yi** zhao daifu *gong* **yi** zhao shi,
flag YI call offical bow use call gentleman
皮 冠 以 招 虞人。 (*Zuozhuan*, Zhao 20)
pi *guan* **yi** zhao yuren.
leather cap use call gamekeeper
'In the past, when our former lord went hunting, (he) summoned top official with flag, a gentleman in his employ with a bow, and the gamekeeper with a leather cap.'

c. 臣 不 見 皮 冠， 故 不 敢 進。 (*Zuozhuan*, Zhao 20)
Chen bu jian pi guan, gu bu gan jin.
I not see leather cap, so not dare approach
'I did not see a leather cap, so (I) did not dare to approach.'

Kiss (1998) further points out that identificational focus is incompatible with universal quantification. A universal quantifier can receive informational focus, as in (29a). But this is not possible with identificational focus, which is conveyed with a cleft construction in English, as in (29b).

English (Kiss 1998:253)

(29) a. Mary invited *everybody*. (Information focus OK)
b. *It was everybody that Mary invited. (Identificational focus out)

There is indirect evidence that the same restriction holds in Archaic Chinese. Universal quantification is expressed in Archaic Chinese by means of a preverbal quantifier which quantifies over the VP. The NP selected by YI can be universally quantified, but all examples I have found involve postverbal YI. This suggests, at least indirectly, that fronting is incompatible with universal quantification, as is expected if fronting the NP results in identificational focus.

(30) a. 公 知 之， 盡 以 寶 行。 (*Zuozhuan*, Wen 16)
Gong zhi zhi, **jin** [yi bao] xing.
lord know 3.Obj all YI treasure go
'The lord learned of it and left with all the treasure.'

b. 盡 以 其 寶 賜 左右。 (*Zuozhuan*, Wen 16)
Jin [yi qi bao] ci zuoyou
all YI 3.Gen treasure bestow retainers
'(He) bestowed all of the treasure on his retainers.'

From the discussion in this section, we can conclude that pre-verbal objects were not base-generated in their surface positions. NP-fronting was motivated by a specific information structure-related trigger, i.e. identificational focus, which has been cross-linguistically demonstrated to require movement.

4. Conclusion

The main purpose of this paper has been to show that preverbal objects in Archaic Chinese do not offer evidence for base-generated OV word order but must rather be analyzed as having undergone syntactic movement. I focused in this paper on *wh*-fronting and NP fronting with the light verb YI. Secondarily, I have argued that movement in these cases was a type of focus movement.

References

Aldridge, Edith. 2009. ECM Analysis of Archaic Chinese 使 *shi*. Paper presented at the 6th meeting of the European Association of Chinese Linguistics (EACL), Adam Mickiewicz University, Poznan, Poland.

Aldridge, Edith. 2010. Clause-internal wh-movement in Archaic Chinese. Journal of East Asian Linguistics 19.1-36.

Aldridge, Edith. In preparation. Negation and pronominal object shift in Archaic Chinese. University of Washington ms.

Belletti, Adriana. 2004. Aspects of the low IP area. The Structure of CP and IP, ed. by Luigi Rizzi, 16-51. Oxford: Oxford University Press.

Djamouri, Redouane. 2005. Typological change and word order patterns in Shang inscriptions. Paper presented at the 13th meeting of the International Association of Chinese Linguistics (IACL), Leiden.

Djamouri, Redouane and Waltraud Paul. 2009. Verb-to-preposition reanalysis in Chinese. Historical syntax and linguistic theory, ed. by Paola Crisma and Giuseppe Longobardi, 194-211. Oxford: Oxford University Press.

Djamouri, Redouane, Waltraud Paul, and John Whitman. 2007. Reconstructing VO constituent order for Proto-Sino-Tibetan. Paper presented at the 18th International Conference on Historical Linguistics, UQAM Montreal.

Feng, Shengli. 1996. Prosodically constrained syntactic changes in early Archaic Chinese. Journal of East Asian Linguistics 5.323-371.

Kiss, Katalin. 1998. Identificational focus versus information focus. Language 74.245-273.

La Polla, Randy. 1994. On the change to verb-medial order in Proto-Chinese: Evidence from Tibeto-Burman. Current issues in Sino-Tibetan linguistics, ed. by Hajime Kitamura, Tatsuo Nishida, and Yasuhiko Nagano, 98-104. Osaka: Organizing Committee of the 26th International Conferences on Sino-Tibetan Linguistics.

Li, Charles and Sandra Thompson. 1974. An explanation of word order change SVO => SOV. Foundations of Language 12.201-214.

Paul, Waltraud. 2005. Low IP and left periphery in Mandarin Chinese. Recherches Linguistiques de Vincennes 33.111-134.

Peyraube, Alain. 1996. Recent issues in Chinese historical syntax. New horizons in Chinese linguistics, ed. by C.-T. Huang and Y.-H. Audrey Li, 161-213. Dordrecht: Kluwer Academic Publishers.

Shen, Pei. 1992. Jiagu buci yuxi yanjiu [Research on the word order in Oracle Bone Inscriptions]. Taipei: Wenjin.

Shi, Yuzhi and Jie Xu. 2001. Hanyushi shang yiwen xingshi de leixingxue zhuanbian ji qi jizhi: Jiaodian biaoji 'shi' de chansheng ji qi yingxiang [Typological change in *wh*-questions in the history of Chinese: Emergence and influence of the focus marker 'shi']. Zhongguo Yuwen 284.454-465.

Sybesma, Rint. 1999. The Mandarin VP. Dordrecht: Kluwer Academic Publishers.

Wang, Li. 1958. Hanyu shigao. Reprinted 2004. Beijing: Zhonghua Shuju.

Wei, Pei-chuan. 1999. Lun Xian-Qin Hanyu yunfu de weizhi [On the position of operators in Pre-Qin Chinese]. Linguistic essays in honor of Mei Tsu-lin: Studies in Chinese historical syntax, ed. by Alain Peyaube and Chaofen Sun, 259-297. Paris: Center de Recherches Linguistiques sur l Asie Orientale.

Whitman, John. 2000. Relabelling. Diachronic Syntax: Models and Mechanisms, ed. by Susan Pintzuk, George Tsoulas, and Anthony Warner, 220-238. Oxford: Oxford University Press.

Whitman, John and Waltraud Paul. 2005. Reanalysis and conservancy of structure in Chinese. Grammaticalization and parametric variation, ed. by Montse Batllori, Maria-Lluïsa Hernanz, Carme Picallo, and Francesc Roca, 82-94. Oxford: Oxford University Press.

Xu, Dan. 2006. Typological change in Chinese syntax. Oxford: Oxford University Press.

Zou, Ke. 1993. The syntax of the Chinese BA construction. Linguistics 31.715-736.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 102-116.

"Sluicing" in Hmong (A-Hmao)[1]

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Sluicing is the name given by Ross (1969) to the ellipsis construction illustrated in which an interrogative clause is reduced to only a *wh*-phrase. Sluicing is typically analyzed as *wh*-movement followed by IP deletion. (Lasnik 1999, Merchant 2001) If *wh*-movement is a prerequisite for sluicing, how about a *wh*-in-situ language which is generally defined as a language without overt *wh*-movement? Two competing approaches are still under hot debate. One approach assumes that 'sluicing' in a *wh*-in-situ language pattern the same with the sluicing of a *wh*-movement language such as English, i.e., overt movement followed by IP-deletion. The other approach proposes that a 'sluice' in a *wh*-in-situ language does not instantiate sluicing as found in a *wh*-movement language. The purpose of this paper is to provide empirical data from another apparent *wh*-in-situ language—Hmong, and concludes that the evidences from Hmong in favor of the second approach. What appears to be 'sluicing' in Hmong is in fact a pseudosluice.

1. Introduction

1.1 Issues of Sluicing in the Literature

Sluicing is the name given by Ross (1969) to the ellipsis construction illustrated in (1a) in which an interrogative clause is reduced to only a *wh*-phrase. Sluicing is typically analyzed as *wh*-movement followed by IP deletion, as shown in (1b): (Ross 1969, Merchant 2001)

(1)a. John bought something, but I don't know what.

b. John bought something, but I don't know [$_{CP}$ *what*$_i$ [$_{C'}$ C^0 [wh] ~~[$_{IP}$ he bought t_i]~~

If *wh*-movement is a prerequisite for sluicing, how about a *wh*-in-situ language which is generally defined as a languages without overt *wh*-movement?

In the literature, there are two competing approaches still under hot debate. One

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approach assumes that 'sluicing' in a *wh*-in-situ language pattern the same with the sluicing of a *wh*-movement language such as English, i.e., overt *wh*-movement followed by IP-deletion. The other approach proposes that a 'sluice' in a *wh*-in-situ language does not instantiate sluicing as found in a *wh*-movement language like English.

In line with the first approach, sluicing in Chinese is argued to be derived from the overt movement of *wh*-phrases, called focus movement, which feed IP ellipsis. (Wang 2002, Wang and Wu 2005, Chiu 2007)

Chinese:

(2)a. Zhangsan maile jige dongxi, keshi wo bu zhidao shi shenme.
Zhangsan bought a thing but I not know be what
'Zhangsan bought something, but I don't know what.'

b. …,keshi wo bu zhidao [$_{CP}$ shi [$_{FOCP}$ *shenme*$_i$ FOC ~~[$_{IP}$ Zhangsan maile t_i]~~
but I not know be what Zhangsan bought
'…what Zhangsan bought.'

Likewise, Tskahashi (1993, 1994) assumes a PF-deletion approach to Japanese sluicing, and argues that 'scrambling' of a *sh*-XP to SpecCP counts as *wh*-movement.

Japanese:

(3)a. Dareka-ga sono hon-o yon-da ga, watashi-wa dare ka
someone-NOM that book-ACC read-PAST but I-TOP who Q
wakaranai.
know.not
'Someone read that book, but I don't know who.'

b. …[$_{CP}$ dare$_i$ ~~[$_{IP}$ t_i sono hon-o yon-da]~~ ka]
who that book-ACC read-PAST Q
'…who read that book.'

For people who are in favor of the second approach, however, argued that the equivalent sluicing structure in Chinese is a simple clause involving a null *pro* and a base-generated *wh*-remnant, i.e. [*pro* (be) *wh*-remnant]: (Adams2004, Wei 2004)

Chinese:

(4)a. Zhangsan maile jige dongxi, keshi wo bu zhidao shi shenme.
Zhangsan bought a thing but I not know be what
'Zhangsan bought something, but I don't know what.'

b. …, keshi wo bu zhidao [pro_i shi [*shenme*]].
but *I* *not* *know* *be* *what*
'… what it is.'

Various works also argue that the equivalent sluicing in Japanese is actually reduced from the (pseudo-)cleft structure: (Kizu 1997, Merchant 1998, among others)

Japanese:
(5)a. Dareka-ga sono hon-o yon-da ga, watashi-wa dare ka
someone-NOM *that* *book-ACC* *read-PAST* *but* *I-TOP* *who* *Q*
wakaranai.
know.not
'Someone read that book, but I don't know who.'

b. …[$_{CP}$ [$_{IP}$ *pro* dare (da)] ka]
who *be* *Q*
'…who it is.'

Under this analysis, the elliptical construction is actually a structure of cleft:

Japanese:
(6)a. …[$_{CP}$ [$_{IP}$ __$_i$ sono hon-o yon-da]-no]-wa $dare_i$ da
that *book-ACC* *read-PAST NOM TOP* *who* *be*
'…who it is (that _ read that book).

b. [$_{CP}$ [$_{IP}$ __$_i$ sono hon-o yon-da]-no]-wa $John_i$ da
that *book-ACC* *read-PAST NOM TOP* *John* *be*
'It is John that read that book.

The purpose of this paper is to provide empirical data from another apparent *wh*-in-situ language—Hmong (A-Hmao), and to see which analysis can best account for "sluicing" in Hmong.

1.2 "Sluicing" in Hmong (A-Hmao):
A-Hmao is a dialect of Hmong (苗Miao) spoken in the northeast of Yunnan, which is also called "northeastern dialect (滇东北次方言)". In Hmong (A-Hmao), there exist apparent cases of 'sluicing' which resembles English sluicing in having a *wh*-XP as remnant:

(7) tsɑ^{55}ndɑɯ^{33} ɑ^{21}pu^{22}nɑ^{33} m̥ɑ^{35}tɑu^{33} i^{53} lu^{53} ŋkɑ^{35},
TsaDaw *last year* *bought* *one* *CL* *house*
vie^{22} ku^{55} hi^{53} pɑu^{53} **(ŋgu^{22})** **nio^{53} qʰɑ^{55}ndy^{21}**
but *I* *not* *know* *be* *at* *where*
'TsaDaw bought a house, but I don't know where.'

At the first glance, 'sluicing' structure in Hmong seems to be assimilated English sluicing:

(8) …[$_{CP}$ **nio^{53} qʰɑ^{55}ndy^{21}**$_i$ [$_{IP}$ tsaɑ^{55}ndɑɯ^{33} t_i m̥ɑ^{35}tɑu^{33} i^{53} lu^{53} ŋkɑ^{35}]
at where *TsaDaw* *bought* *one* *CL* *house*
'…where TsaDaw bought a house.'

However, the presence of the copular *ŋgu^{22}* makes Hmong 'sluicing' apparently distinct from English sluicing. The copular *ŋgu^{22}* can appear in sluicing (as in (7)), but it is impossible in the embedded questions (as in (9)). If sluicing is derived from embedded questions by IP ellipsis, the copular *ŋgu^{22}* should not be allowed.

(9) ku^{55} hi^{53} pɑu^{53} [**(*ŋgu^{22})** **nio^{53} qʰɑ^{55}ndy^{21}** ni^{33} m̥ɑ^{35}tɑu^{33} i^{53} lu^{53} ŋkɑ^{35}]
I *not* *know* *be* *at* *where* *he* *bought* *one* *CL* *house*
'I don't know [where TsaDaw bought a house].'

If we analyze the sluicing-like construction in Hmong as a kind of reduced pseudocleft, the presence of the copular *ŋgu^{22}* can easily be accounted for.

(10) …[$_{DP}$ *pro*] **(ŋgu^{22})** **nio^{53} qʰɑ^{55}ndy^{21}**
be *where*
'…where it is.'

Under this analysis, the copula may show up because it originally exists in the underlying pseudocleft structure, as shown in (11):

(11) …[$_{DP}$ ti^{53}tɕʰiœ^{33} ŋgu^{22} [$_{IP}$ tsɑ^{55}ndɑɯ^{33} m̥ɑ^{35}tɑu^{33} ŋkɑ^{35}] i^{55}] **(ŋgu^{22})**
place *COMP* *TsaDaw* *bought* *house* *DEF* *be*
nio^{53}qʰɑ^{55}ndy^{21}
at *where*
'…where the place is that TsaDaw buy a house.'

1.3 Organization

The paper is organized as follows: Section 2 presents two types of question formation in

Hmong and provides evidences to show that Hmong is a genuine *wh*-in-situ language. Section 3 turns to the sluicing-like construction and is in favor against an account in which Hmong sluicing involves overt *wh*-movement. In Section 4 we provide evidences to argue that Hmong 'sluicing' is in fact pseudosluicing. Section 5 is the conclusion.

2. Hmong as a *wh*-in-situ Language

Wh-question in Hmong uses either an in-situ or pseudocleft strategy.

2.1 *wh*-in-situ

Hmong has two strategies for forming *wh*-questions. As shown in (12)-(15), *wh*-phrases may stay in–situ:

(12) tsɑ^{55}ndɑɯ^{33} ɑ^{21}n̥ɑɯ^{21} ntʂl^{53} **qɑ^{21}ndy^{22}** ?
TsaDaw *yesterday* *met* *who*
'Who did TsaDaw meet yesterday?'
ANS: ni^{33} ɑ^{21}n̥ɑɯ^{21} ntʂl^{53} **tsɑ^{55}zɑɯ^{21}**
he *yesterday* *met* *TsaZaw*
'He met TsaZaw yesterday.'

(13) tsɑ^{55}ndɑɯ^{33} ɑ^{21}n̥ɑɯ^{21} m̥ɑ^{35} **qɑ^{22}ʂl^{22}** ?
TsaDaw *yesterday* *bought* *what*
'What did TsaDaw buy yesterday?'
ANS: ni^{33} ɑ^{21}n̥ɑɯ^{21} m̥ɑ^{35} **ʑy^{55}ʑy^{22}**
he *yesterday* *bought* *potatoes*
'He bought potatoes yesterday.'

(14) tsɑ^{55}ndɑɯ^{33} **qɑ^{33}dɑɯ^{55}ndy^{21}** n̥ɑu^{35} ʑy^{55}ʑy^{22} ?
TsaDaw *when* *eat* *potatoes*
'When did Tsadaw eat potatoes?'
ANS: ni^{33} **ɑ^{21}n̥ɑɯ^{21}** n̥ɑu^{35} ʑy^{55}ʑy^{22}
he *yesterday* *eat* *potatoes*
'He ate potatoes yesterday.'

(15) tsɑ^{55}ndɑɯ^{33} **nio^{53} qʰo^{55}ndy^{33}** n̥ɑu^{35} ʑy^{55}ʑy^{22} ?
TsaDaw *at* *where* *eat* *potatoes*
'Where did Tsadaw eat potatoes?'
ANS: ni^{33} **nio^{53} ŋkɑ^{35}** n̥ɑu^{35} ʑy^{55}ʑy^{22}
he *at* *home* *eat* *potatoes*
'He ate potatoes at home.'

There is no evidence of *wh*-movement in such examples. In Hmong, the *wh*-words can

occur within islands and be interpreted as having scope outside the islands i.e., island violations are possible with Hmong *wh*-words:

Insensitive to complex-NP islands:

(16) tsɑ^{55}ndɑɯ^{33} ɑi^{53} ntʂ^{h}œ^{33} n̥ɑu^{35}[$_{complex\text{-}NP\ island}$ zɑu^{53} ŋgu^{22} **qɑ^{21}ndy^{33}** hɑu^{33} i^{55}]?
TsaDaw most like eat vegetable COMP who cook DEF
'Who is the person *x* such that TsaDaw like to eat [the vegetable which *x* cook]?'

ANS: zɑu^{53} ŋgu^{22} ɑ^{55}ɲie^{53} hɑu^{33} i^{55}
vegetable COMP mother cook DEF
'The vegetable which (his) mother cooks.'

(17) [$_{complex\text{-}NP\ island}$ zɑu^{53} ŋgu^{22}**qɑ^{21}ndy^{33}** dei^{21} i^{55}] jɑ^{55} NGɯ^{33}ʂɿ^{53} ?
vegetable COMP who sell DEF most cheap
'Who is the person *x* such that [the vegetable *x* sell] is the cheapest?'

ANS: tsɑ^{55}ndɑɯ^{33} bie^{21} jɑ^{55} NGɯ^{33}ʂɿ^{53}
TsaDaw belong most cheap
'TsaDaw's is the cheapest.'

(18) [$_{complex\text{-}NP\ island}$ zɑu^{53} ŋgu^{22} tsɑ^{55}ndɑɯ^{33}**qɑ^{21}dɑɯ^{55}ndy^{33}** dei^{21} i^{55}]
vegetable COMP TsaDaw when sell DEF
jɑ^{55} NGɯ^{33}ʂɿ^{53} ?
most cheap
'When is the time *x* such that [the vegetable TsaDaw sell *x*] is the cheapest?'

ANS: ʂœ^{55}ntso^{55} dei^{21} i^{55}
morning sell DEF
'The one sold in the morning.'

(19) tsɑ^{55}ndɑɯ^{33} ɑi^{53} ntʂ^{h}œ^{33}n̥ɑu^{35} [$_{complex\text{-}NP\ island}$ zɑu^{53} ŋgu^{22} ɑ^{55}ɲie^{53}
TsaDaw most like eat vegetable COMP mother
nio^{53} q^{h}o^{55}ndy^{33} m̥ɑ^{35} i^{55}] ?
at where buy DEF
'Where is the place *x* such that TsaDaw like to eat [the vegetable which his mother buy at *x*]?'

ANS: nio^{53} m̥ɑu^{53}ɑ^{21}lɑ^{35}lie^{53} m̥ɑ^{35} i^{55}
at MauALaLie buy DEF
'The one bought at MauALaLie.'

Insensitive to wh-islands:

(20) ni^{33} ntʂ^{h}œ^{33}pɑu^{53}[$_{wh\text{-}island}$ **qɑ^{21}ndy^{33}** mɑ̤^{35} **qɑ^{55}ʂɿ^{33}** ʈɑu^{33} tsɑ^{55}ndɑɯ^{33}]?
he want know who buy what to TsaDaw
① 'He wonders [who is the person *x* such that *x* bought what to TsaDaw]? '
② 'He wonders [what is the thing *y* such that who bought *y* to TsaDaw]? '

ANS: ① *qa^{21}ndy^{33} 'who' takes wide scope:*
ni^{33} ntʂ^{h}œ^{33}pɑu^{53} ɑ^{55}n̥ie^{53} mɑ̤^{35} qɑ^{55}ʂɿ^{33} ʈɑu^{33} tsɑ^{55}ndɑɯ^{33}
he want know mother buy what to TsaDaw
'He wonders what his mother bought to TsaDaw'

② *qa^{55}ʂɿ^{33} 'what' takes wide scope:*
ni^{33} ntʂ^{h}œ^{33}pɑu^{53} qɑ^{21}ndy^{33} mɑ̤^{35} ʑy^{55}ʑy^{22} ʈɑu^{33}tsɑ^{55}ndɑɯ^{33}
he want know who buy potatoes to TsaDaw
'He wonders who bought potatoes to TsaDaw'

(21) ni^{33} ntʂ^{h}œ^{33}pɑu^{53}[$_{wh\text{-}island}$ **qɑ^{21}ndy^{33}** **qɑ^{33}ndɑɯ^{55}ndy^{21}** hɑu^{33} zɑu^{53}]?
he want know who when cook vegetable
① 'He wonders [who is the person *x* such that *x* cooked food when]? '
② 'He wonders [when is the time *y* such that who cooked food]? '

ANS: ① *qa^{21}ndy^{33} 'who' takes wide scope:*
ni^{33} ntʂ^{h}œ^{33}pɑu^{53} tsɑ^{55}ndɑɯ^{33} qɑ^{33}ndɑɯ^{55}ndy^{21} hɑu^{33} zɑu^{53}
he want know TsaDaw when cook vegetable
'He wonders when TsaDaw cooked the food.'

② *qa^{21}dɑɯ^{55}ndy^{33} 'when' takes wide scope:*
ni^{33}ntʂ^{h}œ^{33}pɑu^{53} qɑ^{21}ndy^{33} ɑ^{21}n̥ɑɯ^{21} hɑu^{33} zɑu^{53}
he want know who yesterday cook vegetable
'He wonders who cooked the food yesterday.'

(22) ni^{33} ntʂ^{h}œ^{33}pɑu^{53}[$_{wh\text{-}island}$ **qɑ^{21}ndy^{33}** **nio^{53} q^{h}o^{55}ndy^{33}** hɑu^{33} zɑu^{53}]?
he want know who at where cook vegetable
① 'He wonders [who is the person *x* such that *x* cooked food when]? '
② 'He wonders [where is the place *y* such that who cooked food]? '

ANS: ① *qa^{21}ndy^{33} 'who' takes wide scope:*
ni^{33}ntʂ^{h}œ^{33}pɑu^{53} tsɑ^{55}ndɑɯ^{33} nio^{53} q^{h}o^{55}ndy^{33} hɑu^{33} zɑu^{53}
he want know TsaDaw at where cook vegetable
'He wonders where TsaDaw cooked the food.'

② *nio^{53}q^{h}o^{55}ndy^{33} 'where' takes wide scope:*
ni^{33}ntʂ^{h}œ^{33}pɑu^{53} qɑ^{21}ndy^{33} nio^{53}ŋgɑ^{35} hɑu^{33} zɑu^{53}
he want know who at home cook vegetable
'He wonders who cooked the food at home.'

2.2 *Wh-clefts*

The second strategy is pseudoclefting. As shown in (23)-(26), the *wh*-phrase appears at the end of the clause with the presence of copular *ŋgu*^{22}:

(23) tsɑ^{55}ndɑɯ^{33} ɑ^{21}n̥ɑɯ^{21} ntʂl^{53} i^{55} ŋgu^{22} **qɑ^{21}ndy^{22} ?**
TsaDaw yesterday met DEF be who
'Who is the person whom TsaDaw met yesterday?'

(24) tsɑ^{55}ndɑɯ^{33} ɑ^{21}n̥ɑɯ^{21} k^{h}iœ^{22}tɑu^{22} ŋgu^{22} **du^{21} qɑ^{22}ʂl^{22} ?**
TsaDaw yesterday picked up be thing what
'What is the thing that TsaDaw picked up yesterday?'

(25) tsɑ^{55}dɑɯ^{33} n̥ɑu^{35} ^{55}ʑy^{22} ŋgu^{22} **qɑ^{33}dɑɯ^{55}ndy^{21} ?**
TsaDaw eat zypotatoes be when
'When is the time that TsaDaw eat potatoes?'

(26) tsɑ^{55}dɑɯ^{33} n̥ɑu^{35} ʑy^{55}ʑy^{22} ŋgu^{22} **nio^{53} q^{h}o^{55}ndy^{33} ?**
TsaDaw eat potatoes be at where
'Where is the place that TsaDaw eat potatoes?'

The structures of such examples is an equational sentences [DP be *wh*-pivot], where the first DP is taken as a presupposition, realized as a headed or headless relative clause.

(27) [$_{DP}$ (tsɑi^{53} ŋgu^{22}) [$_{IP}$ tsɑ^{55}ndɑɯ^{33} ɑ^{21}n̥ɑɯ^{21} ntʂl^{53}] i^{55}] ŋgu^{22} [qɑ^{21}ndy^{22}] ?
person COMP TsaDaw yesterday met DEF be who
'Who is the person whom TsaDaw met yesterday?'

(28) [$_{DP}$ (di^{35} ŋgu^{22})[$_{IP}$ tsɑ^{55}ndɑɯ^{33} ɑ^{21}n̥ɑɯ^{21} n̥ɑu^{35}] i^{55}] ŋgu^{22} [qɑ^{21}ʂl^{33}] ?
thing COMP TsaDaw yesterday eat DEF be what
'What is the thing which TsaDaw ate yesterday?'

Wh-questions like (23)-(26) are base-generated pseudocleft structures, not derived by *wh*-movement. Therefore, we can conclude that Hmong is a genuine *wh*-in-situ language, and no *wh*-movement is involved in the derivation of interrogative sentences.

3. „Sluicing"in Hmong

3.1 The Existence of the copular *ŋgu*^{22}

On the first glimpse, 'sluicing' sentences in Hmong exhibit great similarities with English ones, except for the striking behavior of the copular *ŋgu*^{22} with respect to *wh*-arguments and *wh*-adjuncts. While *ŋgu*^{22} is obligatory for 'sluicing' with wh-argument as in (29)-(30), it is optional for 'sluicing' with wh-adjunct as in (31)-(35):

(29) tsɑ^{55}ndɑɯ^{33} ɑ^{21}n̥ɑɯ^{21} ntʂɿ^{53} i^{53} lɯ^{53} tɯ^{55}nɯ^{53}/ qɑ^{21}ndy^{22},
TsaDaw yesterday meet one CL person who(=someone)
vie^{22} ku^{55} hi^{53} pɑu^{53} ***(ŋgu^{22})** **qɑ^{21}ndy^{22}** **/lɯ^{53} li^{33}ntɕiɑɯ^{33}** **/tɯ^{55}nɯ^{53} nqɑ^{33}ʂɿ^{33}**
but I not know be who one which person what
'TsaDaw met someone yesterday, but I don't know who/ which one/ what person.'

(30) tsɑ^{55}ndɑɯ^{33} ɑ^{21}n̥ɑɯ^{21} k^{h}iœ^{22}tɑu^{22} i^{53} zɑɯ^{53} tɬɑɯ^{33}nɯ^{53}/ qɑ^{22}ʂɿ^{22},
TsaDaw yesterday picked up one CL thing what(=something)
vie^{22} ku^{55} hi^{53} pɑu^{53} ***(ŋgu^{22})** **qɑ^{22}ʂɿ^{22}/ du^{21} qɑ^{22}ʂɿ^{22}**
but I not know be what thing what
'TsaDaw picked up something yesterday, but I don't know what.'

(31) tsɑ^{55}ndɑɯ^{33} ɑ^{21}pu^{22}nɑ^{33} m̥ɑ^{35}tɑu^{33} i^{53} lu^{53} ŋkɑ^{35},
TsaDaw last year bought one CL house
vie^{22} ku^{55} hi^{53} pɑu^{53} **(ŋgu^{22})** **nio^{53} q^{h}o^{55}ndy^{33}**
but I not know be at where
'TsaDaw bought a house, but I don't know where.'

(32) tsɑ^{55}ndɑɯ^{33} m̥ɑu^{33}ʈɭɑ^{33} ɑ^{55}nie^{21}lɑu^{21} lœ^{22},
TsaDaw went Kunming go
vie^{22} ku^{55} hi^{53} pɑu^{53} **(ŋgu^{22})** **qɑ^{33}tɑɯ^{55}ndy^{33}**
but I not know be when
'TsaDaw went to Kunming, but I don't know when.'

(33) tsɑ^{55}ndɑɯ^{33} ntɑu^{33} ŋɑ^{55}jɑu^{33},
TsaDaw beat child
vie^{22} ku^{55} hi^{53} pɑu^{53} **(ŋgu^{22})** **n̥ɯ^{21} qɑ^{55}ʂi^{33}/ ɑ^{33}li^{33}ntɕiɑɯ^{33}nɑ^{55}**
but I not know be for what why
'TsaDaw beat his child, but I don't know for what purpose/ why.'

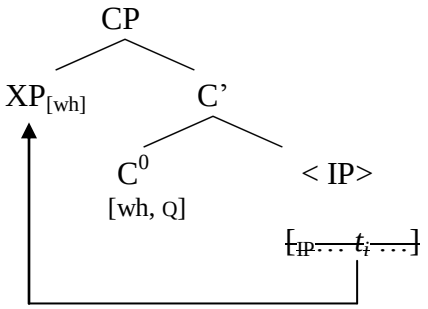
(34)a. tsɑ^{55}ndɑɯ^{33} ntɑu^{33} ŋɑ^{55}jɑu^{33},
TsaDaw beat child
vie^{22} ku^{55} hi^{53} pɑu^{53} **(ŋgu^{22})** **ɑ^{33}li^{33}ntɕiɑɯ^{33}** *(causal/ method)*
but I not know be how
'TsaDaw beat his child, but I don't know how come/ how.'

b. tsɑ^{55}ndɑɯ^{33} m̤ɑu^{33} n̤ɑ^{22} mo^{53}ntsɑɯ^{53},
TsaDaw *go* *see* *sickness*
vie^{22} ku^{55} hi^{53} pɑu^{53} **(ŋgu^{22})** **ɑ^{33}li^{33}ntɕiɑɯ^{33}** *(resultative)*
but *I* *not* *know* *be* *how*
'TsaDaw has seen a doctor, but I don't know how. '

(35) zɑɯ^{53} hue^{55} NGɯ^{33}tɑ^{55},
vegetable *very* *expansive*
vie^{33} ku^{55} hi^{53} pɑu^{53} **(ŋgu^{22})** **NGɯ^{33}tɑ^{55}** **li^{33}ntɕiɑɯ^{33}**
but *I* *not* *know* *be* *expansive* *how*
'The price for vegetables is very expansive, but I don't know how expansive.'

The distribution of the copular *ŋgu^{22}* in Hmong immediately encounters a difficulty if we attempt to assimilate Hmong sluicing to English sluicing, i.e., overt *wh*-movement and deletion analysis. If the sluicing in Hmong is derived from the way as in (36), the copular should not appear because there is no copular in the underlying IP-structure:

(36)



3.2 No Sloppy Readings Available

'Sluicing' in Hmong also differs from English sluicing in that no sloppy reading is available for Hmong.

(37) John knows why he gets marries, Marry also knows why.
a. *Strict Reading:* Mary also knows why he (=John) gets married.
b. *Sloppy Reading:* Mary also knows why she (=Mary) gets married.

(38) tsɑ^{55}ndɑɯ^{33} pɑu^{53} ni^{33}/ʑio^{22} ɑ^{33}li^{33}tɕiɑɯ^{33}nɑ^{55} ndzo̤ɑɯ je^{33}su^{33},
TsaDaw know he/self why believe Jesus
tsɑ^{55}zɑɯ^{21} lo̤^{22} pɑu^{53} ***(ŋgu^{22})** ɑ^{33}li^{33}tɕiɑɯ^{33}nɑ^{55}
TsaZaw also know be why
"TsaDaw knows why he believes in Jesus, TsaZaw also knows why."
a. *Strict Reading:* TsaZaw also knows why he (=TsaDaw) believes in Jesus.
b. *#Sloppy Reading:* TsaZaw also knows why he (=TsaZaw) believes in Jesus.

(39) tsɑ^{55}ndɑɯ^{33} pɑu^{53} ŋgu^{22} ni^{33}/ʑio^{22} tso̤ɑɯ^{33} qɑ^{21}ndy^{22},
TsaDaw know COMP he/self invite who
tsɑ^{55}zɑɯ^{21} lo̤^{22} pɑu^{53} ***(ŋgu^{22})** qɑ^{21}ndy^{22}
TsaZaw also know be who
"TsaDaw knows whom he invited, TsaZaw also knows whom."
a. *Strict Reading:* TsaZaw also knows whom he (=TsaDaw) invited.
b. *#Sloppy Reading:* TsaZaw also knows whom he (=TsaZaw) invited.

The strict and sloppy ambiguity is a typical argument for deletion approach to sluicing structure (Ross 1969, Takahashi 1994, Wang and Wu1996). The lack of sloppy readings in Hmong shows that the assimilation to English sluicing is not applicable.

However, the observations we have seen so far can be nicely captured if analyzing 'sluicing' in Hmong as a kind of reduced clefts.

4. „Sluicing"in Hmong as Pseudosluicing

Pseudosluicing is defined by Merchant (1998) as an elliptical construction that resembles as true sluice in having only a *wh*-XP as remnant, but has the structure of a (pseudo-)cleft, not of a regular embedded question. It is the property of *pro*-drop (or null-subject/ null-expletive) that leads to the confusion of true sluicing with pseudosluicing (Merchant 1998). As a result, it is plausible to assume that the sluicing-like structures in Hmao are actually derived from null subject, and *wh*-in-situ *wh*-pivot, which is taken as a predicate.

(40) …[*pro* copular*wh*-pivot]

Under this approach, the main prediction is that the restrictions on a *wh*-pivot of a pseudocleft will be the same as on the *wh*-XP in Hmong 'sluice', i.e., pseudosluice. The prediction is evidenced to be correct.

4.1 Necessity and Optionality of the Copular ŋgu^{22}

The restrictions on the presence of the copular *ŋgu^{22}* on the pivot of regular pseudocleft constructions are operative in pseudosluicing structures as well. Comparing (41)-(42) to (43)-(47), *ŋgu^{22}* is obligatory for argument-pivot of pseudocleft, but optional for adjunct-pivot of pseudocleft:

(41) [$_{DP}$ (tsɑi^{53} ŋgu^{22}) [$_{RC}$ ni^{33} ɑ^{21}n̰ɑɯ^{21} ntʂɿ^{53}] i^{55}] ***(ŋgu^{22})** tsɑ^{55}ndɑɯ^{33}
one COMP he yesterday meet DEF be TsaDaw
'The one that he met yesterday is TsaDaw.'

(42) [$_{DP}$ (di^{35} ŋgu^{22}) [$_{RC}$ tsɑ^{55}ndɑɯ^{33} ɑ^{21}n̰ɑɯ^{21} n̰au^{35}] i^{55}] ***(ŋgu^{22})** ʑy^{55}ʑy^{22}
thing COMP TsaDaw yesterday eat DEF be potatoes
'The thing that TsaDaw ate yesterday is potatoes.'

(43) [$_{DP}$ (ti^{53}tɕ^{h}iœ^{33} ŋgu^{22}) [$_{RC}$ ni^{33} n̰au^{35} ʑy^{55}ʑy^{22}] i^{55}] **(ŋgu^{22})** nio^{53} ŋkɑ^{35}
place COMP he eat potatoes DEF be at home
'The place that he ate potatoes is home.'

(44) [$_{DP}$ (ntɕie^{35}niɑɯ^{33} ŋgu^{22}) [$_{RC}$ ni^{33} n̰au^{35} ʑy^{55}ʑy^{22}] i^{55}] **(ŋgu^{22})** ɑ^{21}n̰ɑɯ^{21}
time COMP he eat potatoes DEF be yesterday
'The time that he ate potatoes was yesterday.'

(45) [$_{DP}$(k^{h}ɑu^{33}k^{h}ɑu^{55}ŋgu^{22})[$_{RC}$[ni^{33} m̰au^{33} tɬɑ^{33} ɑ^{55}nie^{21}lɑu^{21}]]**(ŋgu^{22})**t^{h}ɑ^{33} tœ^{33} m̰au^{33}
Method COMP he go to Kunming be use foot walk
'The method that he went to Kunming is on foot.'

(46) [$_{DP}$ (ɬœ^{53} ŋgu^{22}) [$_{RC}$ [ni^{33} m̰au^{35} mei^{53} zɑu^{53}] ni^{55}] **(ŋgu^{22})** pɯ^{53} tɬi^{53} ɬœ
money COMP he buy PL vegetable the be five CL money
'The price that he bought these vegetables is five dollars.'

(47) [$_{DP}$ (n̰u^{33} ŋgu^{22}) [$_{RC}$ [tsɑ^{55}ndɑɯ^{33} ntɑu^{33} ŋɑ^{55}jɑu^{22}] i^{55}] **(ŋgu^{22})** hi^{53} n̰au lu^{35} nɑ^{55}
thing COMP TsaDaw hit child DEF be not listen word reason
'The reason why TsaDaw spanked his child is for his disobedience.'

4.2 Island Insensitivity

Pseudocleft constructions in Hmong are insensitive to islands:

(48) [$_{DP}$ [*$_{complex\text{-}NP\ island}$* zɑu^{53} ŋgu^{22} hɑu^{33} hue^{55} qɑɯ^{53}] i^{55}] ŋgu^{22} tsɑ^{55}ndɑɯ^{33}
vegetable COMP cook very delicious DEF be TsaDaw
'TsaDaw is the person x such that the food that x cook is delicious.

(49) [$_{DP}$[$_{complex\text{-}NP\ island}$ vɑ^{33} ŋgu^{22} ni^{33} nɯ^{22} ŋgu^{22} tso^{33} n̥iɑ^{53} nɑ hɑu^{33}] i^{55}]
rice COMP he for COMP marry wife reason cook DEF
ŋgu^{22} tɕiɑu^{53} li^{33}ni^{33}
be many such
'The amount of the rice that he cooked for wedding is a lot.

Similarly, the property of island insensitivity is equally attested in pseudosluicing in Hmong:

(50) tsɑ^{55}ndɑɯ^{33}ɑi^{53}ntɕ^{h}œ^{33}n̥ɑu^{33}[$_{complex\text{-}NPisland}$zɑu^{53}ŋgu^{22}i^{53}lɯ^{53}tɯ^{55}nɯ^{53} hɑu^{33} i^{55}],
TsaDaw very like eat vegetable COMP one CL person cook DEF
vie^{22} ku^{55} hi^{53} pɑu^{53} ŋgu^{22} qɑ^{21}ndy^{22}
but I not know be who
'TsaDaw like to eat the food that someone cooked, but I don't know who.'

(51) [$_{complex\text{-}NP\ island}$ n̥u^{33} ŋgu^{22} tsɑ^{55}ndɑɯ^{33} ntɑu^{33} ndɑ^{21} i^{53} lɯ^{53} tɯ^{55}nɯ^{53}]
thing COMP TsaDaw beat death one CL person
n̥i^{33} ntsɑu^{33} i^{53} zo^{21} ly^{21}ly^{21}, x^{h}u^{55}mpɯ^{21} ts^{h}œ^{55} ŋgu^{22} qɑ^{21}ndy^{33}
say through one village whole people guess be who
'The news that TsaDaw killed someone spread through the whole village, and people are guessing who.'

(52) ku^{55} n̥o^{55}tɑu^{33} [$_{complex\text{-}NP\ island}$ mɑu^{33} ŋgu^{22}tsɑ^{55}ndɑɯ^{33}lɑ^{55} tso^{33} n̥iɑu^{53},
I heard message COMP TsaDaw will marry wife
vie^{22} ku^{55} hi^{53} pɑu^{53} ŋgu^{22} qɑ^{21}ndy^{33}
but I not know be who
'I heard the news that TsaDaw will marry to some woman, but I don't know who.'

Under the pseudosluicing approach advocated here, the grammaticality of these examples can be reduced to the fact that pseudocleft in Hmong does not exhibit Subjacency effects.

4.3 Multiple Sluicing

In Hmong, multiple sluicing is rather prevalent:

(53) m̥ɑ^{35} tɯ^{55}nɯ^{53} n̥ɑu^{35} gi^{21}ntɑu^{35} qɯ^{55}n̥ɑu^{35} sɑɯ^{33}, vie^{22}ku^{55}hi^{53}pɑu
have person eat table food PERF but I not know
^{53}*(ŋgu^{22})qɑ^{21}ndy^{33},*(ŋgu^{22})qɑ^{55}ʂɿ^{33}, (ŋgu^{22}) qɑ^{33}tɑɯ^{55}ndy^{33}
be who be what be when
'??Someone ate the food on the table, but I don't know who what when.'

(54) tsɑ^{55}ndɑɯ^{33} n̥i^{33}q^{h}ə^{33} ku^{55} tsɑ^{55}zɑɯ^{21} tso^{33} ɳiɑu^{53}, vie^{22} ku^{55} hi^{53} pɑu^{53}
TsaDaw tell I TsaZaw marry wife but I not know
***(ŋgu^{22}) qɑ^{21}ndy^{33}, (ŋgu^{22}) qɑ^{33}tɑɯ^{55}ndy^{33}, (ŋgu^{22}) nio^{53}q^{h}o^{55}ndy^{33}**
be who be when be at where
'??TsaDaw told me that TsaZaw got married, but I don't know who when where.'

As show in (55), multiple sluicing in Hmong is also insensitive to islands:

(55) [*complex-NP island* n̥u^{33} ŋgu^{22} tsɑ^{55}ndɑɯ^{33} ntɑu^{33} ndɑ^{21} i^{53} lɯ^{53} tɯ^{55}nɯ^{53}]
thing COMP TsaDaw beat death one CL person
n̥i^{33} ntsɑu^{33} i^{53} zo^{21} ly^{21}ly^{21}, x^{h}u^{55}mpɯ^{21} ts^{h}œ^{55} ***(ŋgu^{22}) qɑ^{21}ndy^{33}**,
say through one village whole people guess be who
(ŋgu^{22}) ɑ^{33}li^{33}ntɕiɑɯ^{33}, (ŋgu^{22}) nɯ^{21} qɑ^{55}ʂŋ^{33}
be how be for what
'??The news that TsaDaw killed someone spread through the whole village, and people are guessing who, how and why.'

It is worthy to note that the *wh*-remnants in multiple sluicing can be scrambled when the copular *ŋgu^{22}* occurs obligatorily:

(56) sɑ^{55}ndɑɯ^{33} n̥i^{33}q^{h}ə^{33} ku^{55} tsɑ^{55}zɑɯ^{21} tso^{33} ɳiɑu^{53},
TsaDaw tell I TsaZaw marry wife

a. …, vie^{22} ku^{55} hi^{53} pɑu^{53} ***(ŋgu^{22}) qɑ^{33}tɑɯ^{55}ndy^{33}, *(ŋgu^{22}) qɑ^{21}ndy^{33},**
but I not know be when be who
***(ŋgu^{22}) nio^{53} q^{h}o^{55}ndy^{33}**
be at where

b. …, vie^{22} ku^{55} hi^{53} pɑu^{53} ***(ŋgu^{22}) nio^{53} q^{h}o^{55}ndy^{33}, *(ŋgu^{22}) qɑ^{33}tɑɯ^{55}ndy^{33},**
but I not know be at where be when
***(ŋgu^{22}) qɑ^{21}ndy^{33}**
be who

c. …, vie^{22} ku^{55} hi^{53} pɑu^{53} ***(ŋgu^{22}) ɑ^{33}li^{33}ntɕiɑɯ^{33}, *(ŋgu^{22}) qɑ^{33}tɑɯ^{55}ndy^{33},**
but I not know be how be when
***(ŋgu^{22}) qɑ^{21}ndy^{33}**
be who

If we adopt pseudosluicing analysis, multiple sluicing of such examples is easy to obtain. Each *wh*-remnant represents a simple clause [*pro* be *wh*-remnant]. The multiple *wh*-remnants are in fact conjoined clauses:

(57) tsɑ^{55}ndɑɯ^{33} n̥i^{33}q^{h}ə^{33} ku^{55} tsɑ^{55}zɑɯ^{21} tso^{33} ɲiɑu^{53},
TsaDaw *tell* *I* *TsaZaw*
marry wife

a. …, vie^{22} ku^{55} hi^{53} pɑu^{53} [*pro* ŋgu^{22} qɑ^{33}tɑɯ^{55}ndy^{33}], [*pro* ŋgu^{22} qɑ^{21}ndy^{33}],
but I not know be when be who
[*pro* ŋgu^{22} nio^{53} q^{h}o^{55}ndy^{33}]
be at where
'…but I don't know when it is and who it is and where it is.'

b. …, vie^{22} ku^{55} hi^{53} pɑu^{53} [*pro* ŋgu^{22} nio^{53} q^{h}o^{55}ndy^{33}],
but I not know be at where
[*pro* ŋgu^{22} qɑ^{33}tɑɯ^{55}ndy^{33}], [*pro* ŋgu^{22} qɑ^{21}ndy^{33}]
be when be who
'…but I don't know where it is and when it is and who it is.'

c. …, vie^{22} ku^{55} hi^{53} pɑu^{53} [*pro* ŋgu^{22} ɑ^{33}li^{33}ntɕiɑɯ^{33}], [*pro* ŋgu^{22} qɑ^{21}ndy^{33}],
but I not know be how be who
[*pro* ŋgu^{22} qɑ^{33}tɑɯ^{55}ndy^{33}]
be when
'…but I don't know how it is and who it is and when it is.'

5. Conclusion

The evidences we have seen here tell heavily in favor in reducing 'sluicing' in Hmong to pseudosluicing, which involves a null-*pro* and a base-generated *wh*-remnant. This analysis captures the *in*-situ nature of *wh*-elements in Hmong and allows us to deal with the Island Repair phenomenon (Cf. Chung 1995, Merchant 1999).

References

Adams, Perng Wang (2004) The Structure of Sluicing in Mandarin Chinese. In *Penn Working Papers in Linguistics*, 10.1:1-16. University of Pennsylvania.

Chiu, Li Ching Livy (2007) A Focus Movement Account on Chinese Multiple Sluicing. *Nanzan Linguistics: Special Issue 1*, Vol. 1: 23-31.

Wang, Chyan-an Arthur (2002) *On Sluicing in Mandarin Chinese*, MA Thesis, National Tsing-Hua University.

Wang, Chyan-an Arthur and Wu Hsiao-hung Iris (2006) Sluicing and Focus Movement in Wh-in-situ Languages. *Penn Working Papers in Linguistics*, Vol. 12.1

Wei, Ting-Chi (2004) *Predication and Sluicing in Mandarin Chinese*, PhD. Dissertation. National Kao-Hsiung University.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 117-129.

Degree Modification and Time Anchoring in Mandarin

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This paper discusses the syntax and semantics of Mandarin predicative adjectives. Mandarin does not require any copular to link the subject and the adjectival predicate; instead, under certain conditions, degree modifications on the adjectival predicate are obligatory. This paper proposes that Mandarin adjectives have no intrinsic boundedness and the degree adverbs specify the boundedness of an adjective, and by doing so the adjectival predicate is time-anchored with the boundedness-based temporal inference patterns proposed in Lin, Jo-Wang (2006) and Smith (2008).

1. Introduction

For tense languages such as English, temporal information is encoded by the syntactic projection of T. For tenseless languages such as Mandarin Chinese, temporal information is inferable from aspectual information (Smith 2008). I propose that the degree modifications specify the boundedness of an adjective (as unbounded). And with this given aspectual information, the temporal relation between event time and reference time is specified.

This paper is organized as following: in section two I introduce Smith's (2008) theory on the relation between aspect and time; in section three I show how the grammatical perfective morpheme *le* and the degree modifications interact with aspectual boundedness; section four is the explanations for unmodified but acceptable adjectives; section five discusses the ambiguity of *hen*; section six concludes this paper.

Before going into the detail of analysis, it is good to have a brief preview on the descriptive generalization of the distributions of Mandarin adjectives:

(1) As the main predicate of matrix declarative, the adjective must be modified or in reduplicated form.
e.g. Zhangsan *(hen) **gao**. (with modification)
Zhangsan HEN tall.
'Zhangsan is tall.' or 'Zhangsan is very tall.'
e.g. Zhangsan gao-gao-de. (in reduplicated form)
Zhangsan tall RED DE
'Zhangsan is tall.'

(2) An adjective can occur without degree modifications when:
a. it is followed by the aspectual marker –*le*.
e.g. Zhangsan **pang** le.
Zhangsan fat LE
'Zhangsan became fat.'

b. it is non-predicative.
e.g. **hong** (de) hua
red DE flower
'a red flower'
c. it is in a comparative constriction.
e.g. Zhangsan bi Lisi **gao**
Zhangsan compare Lisi tall
'Zhangsan is taller than Lisi.'
d. there a negation word.
e.g. Zhangsan bu **gao**
Zhangsan Neg tall
'Zhangsan is not tall'
e. it is in a interragative constriction.
e.g. Zhangsan **gao**-bu-**gao**?
Zhangsan tall Neg tall
'Is Zhangsan tall?'

2. Aspect and Temporal Information

In this section, I give a brief introduction of Smith (1997) about how temporal information of tenseless languages is inferred from aspectual information.

2.1. Temporal Information

Linguistically speaking, locating a situation in time involves three times and the temporal relations between the three times (Reichenbach 1974). Speech time is the moment of speech. Event time is the time interval with which an event holds; this time interval is independent from the event itself. Reference time is the temporal standpoint from which an event is presented, and in a complex sentence Reference time may function as a secondary orientation point. Speech time is directly related to Reference time; Reference time is directly related to Event time; the relations can be simultaneous or sequent.

2.2. Two-component Theory of Aspect (Smith 1997)

Smith developed a theory of aspect, which decomposes aspect into two components: viewpoints and situation type. Viewpoint is about how an even is presented.

(3) a. Mary walked to school.
b. Mary was walking to school. (Smith 1997:2)

In (3) it is a walking event and it has a natural endpoint. The grammatical morphemes in (3a) and (3b) present difference part of this event. By the past tense morpheme *–ed*, (3a) presents a complete event; by the progressive morpheme *–ing*, (3b) presents part of the walking event without any information about whether the endpoint is reached.

Situation type is an intrinsic property of an event, and can be decomposed into three temporal features (Vendler 1967): Stative-Dynamic, Telic-Atelic, and Durative-Punctual.

(4) Temporal features of the situation types (Smith 1997:20)

Situation Types	Static	Durative	Telic
States	[+]	[+]	[-]
Activity	[-]	[+]	[-]
Accomplishment	[-]	[+]	[+]
Semelfactive	[-]	[-]	[-]
Achievement	[-]	[-]	[+]

These two components of aspect, aspectual viewpoints and situation types, are independent from each other. And they can have interaction, and the interaction determines the boundedness of an event. Here I adopt the definition of boundedness in Smith (2008:229). Bounded events occur within the Situation Time interval; Unbounded events overlap or surround the Situation Time interval.

(5) Bounded events(E) are included in the SitT interval:
E $\subseteq$ SitT e.g. *John left*.
Unbounded events and states (S) overlap the Sit
E O SitT e.g. *John was working.*

A telic event, because of its natural endpoint, by default is bounded; an atelic event, which lacks a natural endpoint, by default, is unbounded. However, the default boundedness of a situation type can be overridden by aspectual viewpoint. Consider the walking-to-school event in (3) again. The event is dynamic ([-static]), durative and telic; it is an accomplishment situation. By default, it is bounded; however, when the viewpoint is imperfective as in (3b), which focuses on the walking part of the walking-to-school event, the event is unbounded. The boundedness of an event is determined by aspectual viewpoints and/or situation types.

2.3 A temporal location pattern inferred from aspect

The linking between aspect and temporal location is based on three pragmatic principles proposed in Smith (2008): the Deictic Principle, the Bounded Event Constraint, and the Simplicity Principle of Interpretation. The Deictic Principle and the Bounded Event Constraint are principles for linguistic system, and the Simplicity Principle of Interpretation is a universal principle for all cognition system.

The Deictic Principle is built upon the nature of time. Time is a single unbounded dimension that stretches into the past and future infinitely. To locate an event in time, we need an arbitrary but always available orientation point. Linguistic communication provides this orientation point. It is the Speech time. Speech time is taken as Present; the time preceding it is the Past; the time following it is the Future.

The Bounded Event Constraint states that a bounded event cannot be located in the Present. The explanation for this constraint is semantic and pragmatic. Let's consider this constraint from an opposite angle. What does it require for a bounded event to be located in the Present? When one utters '*John arrives in this room*', if the Bounded Event

Constraint is violated, it means that the moment that the speaker finishes the utterance is exactly the moment John opens the door and arrives. This is impossible in the linguistic communication. A bounded event in its entirety always goes beyond the present moment (Kamp and Reyle 1993: 536-537). It is impossible for a bounded event located at the speech time, the Present.

The Simplicity Principle of Interpretation is shared by all cognitive system. People often give utterance that does not include all the information required for the intended interpretation. The receiver recovers the intended interpretation by adding other pragmatic information to enrich the utterance. Among all the possible enriched interpretations, the receiver chooses the simplest interpretation which requires the minimal information added.

(6) Summary of Smith's (2008:231) universal pragmatic principle:
   a. The Deictic Principle
      Speech Time is the central orientation point for language. The Present time is located at Speech Time; the Past precedes it; the Future follows.
   b. The Bounded Event Constraint
      Bounded situations may not be located in the Present.
   c. The Simplicity Principle of Interpretation
      Choose the interpretation that requires lease information added or inferred.

These three principles derive the aspect-based temporal patterns. An event without any temporal information or violations of any constraints is located at the Present; this is the application of the Deictic Principle and the Simplicity Principle of Interpretation. Thus we get the first part of the temporal patterns – unbounded events are located at the Present. According to the Bounded Event Constraint, a bounded event cannot be located at the Present. Now we have two possible temporal locations of a bounded event: the Past or the Future. In determining these two possibilities, the Simplicity Principle of Interpretation kicks in. The simpler one wins. Futurity always involves some degree of uncertainty and predictions (Lyons 1997:677; Yavaş 1982). The uncertainty of futurity is explicit in the branching-time schema (Dowty 1977); we cannot be sure which branch will be the one that actually occur (Landman 1992). The uncertainty of the Future makes it more complex than the Past. By the Bounded Event Constraint and the Simplicity Principle of Interpretation, a bounded event by default is located at the Past.

(7) Mandarin Temporal location pattern – a default
   Unbounded events, Present
   Bounded events, Past

3. Mandarin Adjectives and Aspect

In this section, I'm going to show that the boundedness of Mandarin adjectives is changed with whether there are any co-occurring aspectual marker or degree adverbials. It is suggested that Mandarin adjectives have no intrinsic boundedness feature. Given the link between the boundedness and temporal location in Mandarin argued in Smith (2008) and Lin, Jo-Wang (2006), boundedness plays a crucial role to anchor the event in time. The degree adverbials or aspectual markers specify the boundedness of an adjective. With this given aspectual information, the temporal relation between event time and reference time is specified.

3.1. *-Le* and Aspect

There are two *le*s in Mandarin: perfective *le* and sentential *le*.

(8) Zhangsan daoda-le s han-ding le.
Zhangsan reach-LE mountain-top LE
'Zhangsan reached the top of the mountain

In (8) the first *-le* is the affixial one, which directly follows the verb and is a perfective marker (Li and Thompson 1981; Smith 1997; Lin, Jo-Wang 2006; Wu 2010, among many others). The second *-le* is sentential one, which is a sentence final particle; its exactly semantic and syntactic functions are still in debate (see Soh 2009 for some proposals on sentential *-le*).

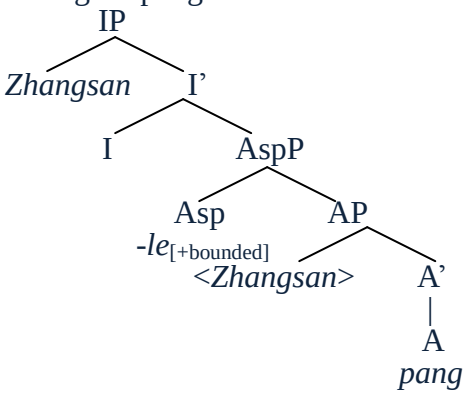
This paper discusses the *-le* which follows a stative predicated.

(9) Zhangsan pang le.
Zhangsan fat LE
'Zhangsan became fat.'

The *–le* in (9) is post-predicate and sentence-finial at the same time. Here two questions may be asked. Is this *–le* is a perfective one or a sentential one? Is *pang* 'fat' here should be treated as a verb or an adjective? I'm open to the first question[1], but crucially it is agreed that this *–le* has a change of state interpretation. For example, in (9) there is a change from not being fat into being fat. Smith (1997:292-294) assumes that when stative predicates followed by *–le* express inchoative reading. Lin, Jo-Wang (2006:13) has the same observation; yet he treats them as being type-coerced into achievement event. Inchoatives and achievements are bounded events. In other words, when *–le* follows a stative predicate, the event is bounded. Given that boundedness is a feature of Aspect Phrase, I assume that the post-stative-predicate *–le* is the head of Aspect Phrase. For the second question, I assume that *pang* 'fat' in (9) is an adjective. Liu (2010) provides an analysis about how the non-modified Mandarin adjectives are licensed. However, in Liu (2010) the constructions like (9) are excluded from discussion because it is assumed that the stative predicates followed by *–le* is a verb instead of adjective. However, there are no prior arguments for treating the stative predicates as verbs or any constraints against adjectives with aspectual marker. I see no reason to treat the stative predicate followed by *–le* as verb and exclude this pattern from analysis when discussing Mandarin adjectives. In short, I assume that the stative predicate like (9) is an adjective and the post-stative-predicate *–le* is Asp^0 with [+bounded] feature.

[1] Soh (2009) argues that *–le* in (6) is a sentential *-le*. Wu (2003) argues that *–le* in (6) is a perfective *–le*.

(10) Zhangsan pang le.[2]



3.2. Adverbial and Event Types

Adverbials play a role in determining the event type. Specifically, adverbials may change the event type or disambiguate event types (Smith 1997:56-59). For example, perception verbs may denote to Sative or Achievement events depending on the adverbials.

(11) a. I saw a star from my window.
b. Suddenly I saw a star. (Smith 1997:54)

(11a) is about the state of seeing; (11b) is about a change of state from no-seeing into seeing. Some vague verb is also ambiguous as denoting an Activity or Accomplishment; this can also be disambiguated by the adverbials.

(12) a. Mary combed her hair.
b. Mary combed her hair in an hour.
c. Mary combed her hair for an hour.

(13) a. John mowed the lawn.
b. John mowed the lawn in an hour.
c. John mowed the lawn for an hour. (Smith 1997:58)

In (12a) and (13a), the event may be an Activity or Accomplishment; with the adverbials '*in an hour*' and '*for an hour*', the event is Accomplishment and Activity respectively.

Mandarin adjectival predication is parallel to perception verbs; it needs extra-modification to specify the event type, as Smith (1997:293) remarks on the adverb *hen* in (14) that 'hen *merely mark the construction*'.

[2] To get the right word order, I assume that *–le* is moved to C^0 and that whole IP is moved Spec of CP. For detailed theoretical and empirical arguments for the movements, see Kayne (1994), Simpson & Wu (2002) and Lin T.-H. (2006).

(14) Zhangsan *(hen) **gao**.
Zhangsan HEN tall.
'Zhangsan is tall.' or 'Zhangsan is very tall.'

More specifically, the extra-modification on Mandarin adjectival predications is to mark the event into Stative. A Stative event by default is unbounded. In short, the extra-modification on Mandarin adjectival predications marks the event as unbounded.

3.3 Boundedness and Temporal Location in Mandarin Adjectival Predication

In the aspect theory of Smith (1997), the boundedness of an event is determined by the event type and the aspectual viewpoint. Adverbials play a role in determining the event type, and by changing the event type adverbials play a role in determining the boundedness of an event. The other way to specify the boundednss feature is achieved by aspectual viewpoint. Mandarin adjectives do not have intrinsic information of boundedness. The adjectival predications in Mandarin are bounded in the presence of the aspectual viewpoint marker –le; while they are unbounded in the presence of a degree adverbial.

(15) a. Zhangsan *(feichang) pang.
Zhangsan very fat
'Zhangsan is very fat.' (unbounded)
b. Zhangsan pang *(le).
Zhangsa fat LE
'Zhangsan became fatter.' (bounded)

The boundedness given by the degree adverbial or aspectual viewpoint marker provides clues for temporal location of the event with the application of the temporal patterns in Smith (2008). The event of being fat in (15) has a present interpretation, while the event of changing from not fat into fatter has a past interpretation.

The unacceptability of Mandarin adjectival predication without any degree adverbial or aspectual viewpoint marker results from the failure of time anchoring. This is the answer to the empirical puzzle about why Mandarin adjectival predication needs extra-elements.

4. Bare Adjectives

In this proposal, the degree modification provides boundedness feature for Mandarin adjectival predications, and the boundedness feature provides the inference premise for time anchoring of the event talked about. However, there are unmodified yet acceptable adjectives in Mandarin. In this section, I'm going to discuss this kind of patterns. It is argued that the bare adjectives are licensed either because they do not need time anchoring or because there are other elements that provide boundedness features.

4.1. Attributive Adjective

In The degree modification on Mandarin attributive adjectives is always optional.

(16) a. Zhangsan mai le yi-duo (hen) hong de hua.
Zhangsan buy LE one-CL HEN red DE flower
'Zhangsan bought a (very) red flower.'

b. Zhangsan kanjian le yi-ge (hen) gao de ren.
Zhangsan see LE one-CL HEN tall DE person
'Zhangsan saw a (very) tall person.'

An attributive adjective modifies an entity, which is neither an event nor a proposition. Thus, aspectual boundedness and time anchoring do not apply in this level. As a result, degree modifications for attributive adjectives are always optional.

4.2. Adjective in Comparison Construction

There are two comparison constructions in Mandarin, in which the adjectives are in bare form.

(17) a. With the comparative morpheme *bi*:
Zhangsan bi Lisi gao.
Zhangsan compare Lisi tall
'Zhangsan is taller than Lisi'
b. Subject combined with bare adjective:
Zhangsan gao.
Zhangsan tall
'Zhangsan is taller (than someone known in the context)'

Comparison constructions are comparing the degrees of properties of entities (Kennedy 2007). For example, in (17a) the degree of Zhangsan's tallness is compared to that of Lisi's tallness. The semantics of comparison makes the comparison construction universally Stative. Thus, comparison constructions are intrinsically unbounded. In other words, the boundedness of an comparison construction is specified by itself. Thus, adjectives can be in bare forms in comparison constructions.

4.3. Adjective in Reduplicated Form

Unmodified adjectival predicates can occur if the adjective is in reduplicated form.

(18) Zhangsan gao-gao-de.
Zhangsan tall RED DE
'Zhangsan is tall'

Reduplicated forms in many languages mark the extending of states or actions (Greenberg 1978; Hurch 2005). Thus events with the predicates in reduplicated forms are unbounded. Reduplication plays the same role in Mandarin. In order to avoid circular argument, consider the verbal reduplication in the language.

(19) a. Zhangsan xiang chang-ge.
Zhangsan want sing-song.
'Zhangsan wants to sing'
b. Zhangsan xiang chang yi-shou-ge.
Zhangsan want sing one-CL song
'Zhangsan wants to sing a song'

In (19a) the event that Zhangsan wants to do is unbounded, given that singing does not have natural end point; in (19b) the event the Zhangsan wants to do is bounded given that singing one song has a natural endpoint. These two examples show that *xiang* 'want' is comparable to both bounded and unbounded events.

(20) a. Zhangsan xiang chang-chang ge .
Zhangsan want sing- RED song.
'Zhangsan wants to sing some songs'
b.* Zhangsan xiang chang-chang yi-shou-ge .
Zhangsan want sing-RED one-CL-song

With the assumptions that the predicates in reduplicated forms are unbounded, the unacceptability of (20b) follows. Specifically, the reduplication is unbounded while singing one song is bounded; thus they are not compatible. The adjectival predicate in reduplicated form receives an unbounded feature, this makes unmodified adjectives acceptable.

4.4. Adjectives with Negation Words and in Interrogative Construction

Unmodified adjectival predicates can occur if there is a negation word or they are in interrogative construction.

(21) Zhangsan bu **gao**.
Zhangsan Neg tall
'Zhangsan is not tall'

(22) Zhangsan **gao**-bu-**gao**?
Zhangsan tall Neg tall
'Is Zhangsan tall?'

In Lin (2003), it is argued that the two negation words in Mandarin, *bu* and *mei*, are in complementary distribution. *Bu* co-occurs with unbounded event, and *mei* co-occurs with unbounded event.

(23) a. Ta mei/*bu nong-dong zhe-ge lilun
he not/not make-understand this-CL theory
'He hasn't understood this theory.'
b. Ta bu/*mei dong zhe-ge lilun
he not/not understand this-CL theory
'He does not understand this theory' (Lin 2003:426)

I propose that *mei* and *bu* are not only sensitive to boundedness but also they are able to provide boundedness feature, specifically with $bu_{[\text{-bounded}]}$ and $mei_{[\text{+bounded}]}$. Given this, negation words are able to license bare adjectives. The bare adjective in the interrogation construction is licensed in a similar manner. In (22), it is the negation word *bu* that provide [-bounded] and license the bare adjective *gao* 'tall'.

In short, bare adjectives in attributives can occur for they do not need time anchoring; bare adjectives in comparison constructions, in reduplicated form, with

negation words and in interrogative construction are licensed by the structures or elements that have intrinsic boundedness features.

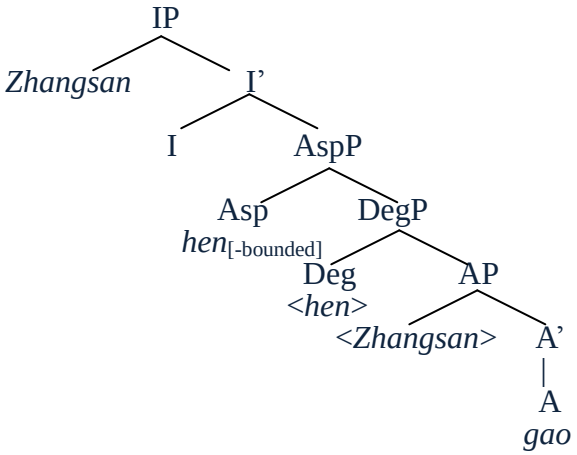
5. Syntax and Semantics of Hen

In this section, I'm going to discuss the syntax and semantics of *hen*. Recall that in certain conditions *hen* is ambiguous as being an intensifier or semantically bleached.

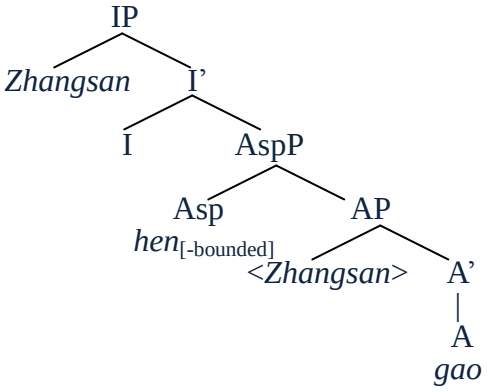
(24) Zhangsanhen **gao**.
Zhangsan HEN tall
'Zhangsan is tall.' or 'Zhangsan is very tall.'

I propose that there are two possible base-merging sites of *hen* in syntax: degree head and aspectual head.

(25) a.Zhangsan hen gao. 'Zhangsan is very tall'(with intensifier interpreation)



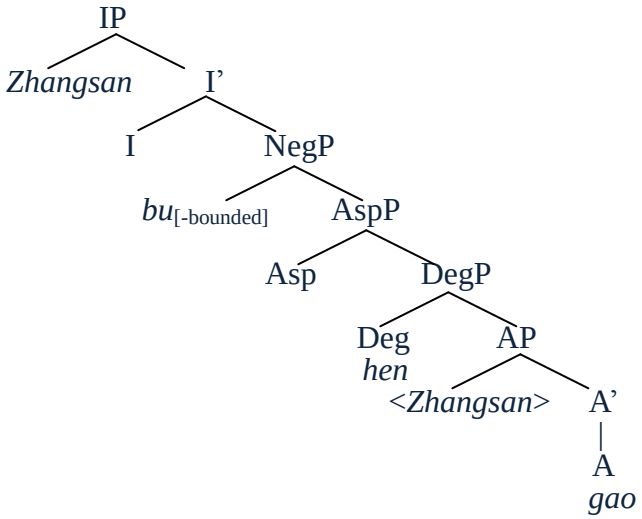
b Zhangsan hen gao. 'Zhangsan is tall' (with bleached interpreation)



In (25a) *hen* is base-generated at Deg^0, and this is the source of the intensifier interpretation. Then *hen* moved to Asp^0;this movement is driven by the [-bounded] of *hen*.

In (25b), the *hen* is a late insertion for boundedness feature; it simply specifies the eventuality and has nothing to do with degree. The bleached *hen* thus has a last-resort nature. In the presence of any other elements with boundedness feature, this bleached aspectual marker *hen* will not occur. If *hen* does occur in the presence of any other elements with boundedness feature, it is expected that it must be base-generated at Deg^0 and have intensifier meaning (i.e. the ambiguity of (24) is gone).

(26) Zhangsan bu hen gao.
Zhangsan NEG HEN tall
'Zhangsan is not very tall'



In (26), the negation word *bu* has unbounded feature. Thus the late-insertion of the semantically bleached *hen* is blocked. As a result, the *hen* here is unambiguously interpreted as 'very'.

6. Conclusion and Final Remarks

The empirical puzzles this paper aims to solve are when and why degree modifications on Mandarin adjectival predicates are obligatory. It is argued that degree modifications provides aspectual boundedness feature, and the event denoted by the adjectival predicate is time-anchored by this aspectual feature and the temporal location patterns in Smith (2008).

However, if this is the answer to the puzzle, it is legitimate to ask whether temporal adverbials/nominals can license Mandarin adjectival predication since temporal adverbials or nouns are directly linked to time.

(27) a. * **Qu-nian** Zhangsan **pang**.
last year Zhangsan fat
Intended ' Zhangsan was fat last year.'
b. * Zhangsan **xian-zai kai-xin**
Zhangsan now happy
Intended ' Zhangsan is happy now.'

The examples in (27) show temporal adverbials/nominals cannot license Mandarin adjectival predication. Actually this is not a surprising result, since what all temporal adverbials/nominals can do is to specify the temporal location of Reference Time. Specification of Reference Time is optional since Speech Time is always available as being the default location of Reference Time. The examples in (27) do not specify the temporal relation between Reference Time and Event Time, and thus the events are not anchored in time. The degree modification and aspectual viewpoint marker can specify the temporal relation between Reference Time and Event Time and recover the acceptability of (27).

(28) a. **Qu-nian** Zhangsan feichang **pang**.
last year Zhangsan fat
'Zhangsan was very fat last year.'
b. Zhangsan **xian-zai** feichang **kai-xin**
Zhangsan now happy
' Zhangsan is very happy now.'

(29) a. **Qu-nian** Zhangsan **pang** le .
last year Zhangsan fat LE
'Zhangsan became fatter last year.'
b. Zhangsan **xian-zai kai-xin** le.
Zhangsan now happy LE
'Zhangsan became happy now.'

Specifically, *feichang* 'very'in (28) marks the events as unbounded; thus the events overlap with the Event Time. And the Event Times in (28) are semultenous as Reference Time. The event of being fat in (28a) is located at last year and the event of being happy in (28b) is located at present. *–Le* in (29) marks the events as bounded; according to the temopral location pattern the Event times are located at Past. The temporal adverbials specify the exact time.

This paper links Smith's temporal inference rule to Mandarin obligatory degree modifications of adjectives. The degree modifications turn out to play a crucial role for specifying the temporal information of the proposition. The fact that in a tense language, such as English, degree modifications are never obligatory follows the prediction of this proposal.

References:

Dowty, David. 1977. Toward a semantic analysis of verb aspect and the English imperfective progressive. *Linguistics & Philosophy* 1. 45-77.
Greenberg, Joseph. 1978. *Universals of Human Language: Word Structure*. Stanford, California: Stanford University Press.
Hutch, Bernhard. 2005. *Studies on Reduplucation.* Berlin: Mounton de Gruyter.
Kamp, Hans, & Uwe Reyle. 1993. *From Discourse to Logic*. Dordrecht, The Netherlands: Kluwer Academic Publishers.
Kayne, Richard. 1994. *The Antisymmetry of Syntax*. Cambridge, MA, MIT Press.
Kennedy, Chris. 2007. Vagueness and grammar: the semantics of relative and absolute gradable adjectives. *Linguistics and Philosophy* 30 (1). 1–45.

Landman, Fred. 1992. The progressive. *Natural Language Semantics* 1:1-32.
Li, Charles N., & Thompson, Sandra A. 1981. *Mandarin Chinese: A functional reference grammar*. Berkeley: University of California Press.
Lin, Jo-Wang. 2003. Aspectual Selection and Negation in Chinese, *Linguistics* 41. 425-459.
Lin, Jo-Wang. 2006. Time in a language without tense: the case of Chinese. *Journal of Semantics* 23. 1-53.
Lin, Tzong-Hong. 2006. Complement-to-specifier movement in Mandarin Chinese. Manuscript. National Tsing Hua University.
Lyons, John. 1977. *Semantics*. Cambridge: Cambridge University Press.
Liu, Chen-Sheng. 2010. The positive morpheme in Chinese and the adjectival structure. *Lingua* 120. 1010-1056.
Reichenbach, Hans. 1947. *Elements of Symbolic Logic*. London: Macmillan.
Simpson, Andrew & Wu, Zoe. 2002. IP raising; tone sandhi and the creation of S-final particles: evidence for cyclic spell-out. *Journal of East Asian Linguistics* 11. 67-99.
Smith, Carlota. 1997. *The Parameter of Aspect*. Kluwer Academic Publishers. Dordrecht.
Smith, Carlota. 2008. Time with and without tense. In Jaqueline Guéron and Jaqueline Lacarme (eds), *Time and Modality*,(pp. 227-249). UK: Springer Netherlands.
Soh, Hooi Ling. 2009. Speaker presupposition and Mandarin Chinese sentence final -le: A unified analysis of the "change of state" and the "contrary to expectation" reading. *Natural Language and Linguistic Theory* 27 (3). 623-657
Vendler, Zeno. 1967. *Verbs and Times*. Ithaca, NY: Cornell University Press.
Wu, Jiun-Shiung. 2010. Interactions Between Aspect and Temporal Relations: A Case Study of the Perfective *le*. *Language and Linguistics* 11 (1). 65-98.
Yavaş, Feryal. 1982. Future reference in Turkish. *Linguuistics* 20. 411-429.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 130-144.

Two Types of Light Verbs and v-Stranding VP Ellipsis in Chinese[1]

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The same with Farsi (Toosarvandani 2009), Chinese as a light-verb productive language also allows a kind of v-stranding VPE, in which part of the complex predicate is stranded on the v-head when it undergoes VP ellipsis. Therefore, these alternates help us observe the domain of deletion around VP, as well as the nature of the phrasal empty category. With extraction (V-to-v movement), and some other tests, VPE is shown to derives in PF[2].

0. Introduction

The aim of this chapter is to show that [i] VPE is derived by PF operation in Chinese since it allows extraction (head mvt) out of the deletion domain. [ii] light-verb-stranding VP ellipsis is testified in Chinese, a well-known light-verb productive language. Empirical evidences arefrom two types of light-verb in Chinese (Tsai 2009 & Lin 2001), which is suggested to be in line with Farsi (Torsavanbani 2009). [ii] Two types of light verb, modals, and other VPE maps out a domain for deletion between the topography between IP and VP.

The analysis is based on two assumptions: [i] Minimalist T-model –grammar is constructed by two interfaces of SM[3], CI, and also the derivation component (what is called "core syntax"). Empty phrasal constituents, therefore, must be operated in one of the three components -- either in SM, CI, or Merger. [ii] Cartography-- the assumption which based on the analytic nature of Chinese is realized on syntactic structure (Tsai 2007; 2009) (Huang 2009). It may end up reflecting on the different domain of ellipsis (cf. also theΣP and VP distinction of Soh (2007)), or the nature of functional heads on the structure height.

Around the VP domain, there are various elements to be examined: [1] the high/low dichotomy of light verb. Following Lin (2001) and Tsai (2009 (24)), light verbs could be subdivided into at least two types. For Lin (2001), higher and lower light verbs introduces

[1] Thanks. This paper is finished during my visit in Harvard. I am in debt to Audry Li, Barry Yang, Grace Kuo, Iris Wu, James Huang, Luther Liu, Melody Chang, Sze-Wing Tang, Wei-tian Dylan Tsai. I would also like to thank the audiences in the IACL conference held in Boston 2010.

[2] Also the Sensor-Motor System in the later development of the theory.

[3] SM is the abbreviation of Sensor-Motor system; CI is the abbreviation of Conceptual-Intellectual system, while the derivation is mainly about the merge operation.

subject and object arguments respectively. This is mainly the reason of the unselectiveness of arguments in Chinese. For Tsai (2009), on the other hand, the two types of light verbs are projections to different structure height.[4] [2]Modals –the epistemic and deontic distinction of modal has been much discussed in the literature (Iatridou 2009; Tsai & Portner 2009). It is generally assumed that epistemic modals are higher in the structure than deontic modals. And the licensing of VP Ellipsis differs in respect to the nature of the modals (Wu 2002). It is observed that deontic modals are licensors for VP Ellipsis while epistemic modals are not (cf. also Aelbrecht 2009). [3] Negation– Chinese negator *meiyou* could license VPE while *bu* could not.[4] Future modal 'hui'.The status of the future *hui* is still unknown in Chinese.As a modal verb (Lin1995), it patterns with deontic modal in VP ellipsis data, which would be discussed in this chapter. [5] Focus marker –*shi*.This is the most typical type of VP Ellipsis noted in the literature (Wu 2002; Wei 2009).

In this chapter, we review the various data concerning VP-related ellipsis in Section 1. In Section 2, we analyze with some well-known diagnosis of PF operation in VP domain. Finally in Section3, we examine the domain/ constituency of ellipsis on VP domain.

1. Literature Review

1.1. Two Types of Light Verbs and VPE

First of all, Tsai (2009) distinguishes two types of light verbs(1)(3), in which we also demonstrates the raising of the light verb in (1)(3)b and c. Lexical verbs are raised to the higher functional head if the head is vacate. Their alternant are given in (2) and (4). (2)realize the higher light verb *ran*'let' introducing the CAUSEE[5]; while (4) realize the lower light verb *yong*'use' introducing the theta role of TOOL.

(1) a. na-ba dao qie-de wo zhi maohan.
that-CL knife cut-Res I continuously sweat
'That knife made me cut such that I sweated continuously.'
那把刀切得我直冒汗。

b. na-ba dao CAUSE wo qie-de zhi maohan.
that-CL knife I cut-Res continuously sweat
'That knife made me cut such that I sweated continuously.'

c. na-ba dao $[qie\text{-}de]_k$+CAUSE wo t_k zhi maohan.
that-CL knife cut-Res I continuously sweat
'That knife made me cut such that I sweated continuously.'

[4] Different light verbs in different height of the structure display different syntactic properties as well as semantic interpretations. As mentioned in Tsai (2009), …

[5] The capitalized word is used to indicate theta role.

(2) na-ba dao rang wo qie-de zhi maohan.
that-CL knife cause I cut-Res continuously sweat
'That knife made me cut such that I sweated continuously.'
那把刀讓我切得直冒汗。

(3) a. ni qie na-ba dao, wo qie zhe-ba dao.
you cut that-CL knife wo cut this-CL knife
'You (will) cut with that knife, and I (will) cut with this knife.'
你切那把刀，我切這把刀。
b. ni USE na-ba dao qie, wo USE zhe-ba dao qie.
You that-CL knife cut wo this-CL knife cut.
c. ni qie_i+USE na-ba dao t_i, wo qie_k+USE zhe-ba dao t_k.
you cut that-CL knife wo cut this-CL knife

(4) ni yong na-ba dao qie, wo yong zhe-ba dao qie.[6]
you use that-CL knife cut, wo use this-CLknife cut
'You (will) cut with that knife, and I (will) cut with this knife.'
你用那把刀切，我用這把刀切。

Among them, we find that only the lower type of light verb license VP ellipsis(5)(6), but not the higher alternates(7)(8).The elliptical data suggest that two types of light verbsaredistinct.[7]

(5) ni qie zhe-ba dao, wo ye qie ~~zhe-ba dao~~
you cut this-CL knife, I also cut this-CL knife
你切這把刀，我也切~~這把刀~~

(6) niyong zhe-ba dao qie, wo ye yong ~~zhe-ba dao qie~~
you use this-CL knife cut, I also use this-CL knife cut
你用這把刀切，我也用~~這把刀切~~

(7) *Na-ba dao qie-de wo zhimaohan, zhe-ba dao ye qie-de ~~wo zhimaohan~~
That-CL knife cut-DE I sweat this-CL knife also cut-DE
*那把刀切得我直冒汗，這把刀也切得~~我直冒汗~~

[6] The two alternations are distinguished by their ability to take thematic object, clausal complement, verb copy as rescue, as well as some semantic contex such as focus interpretation.
[7] For Tsai (2009), the inner and outer light verbs are distinguished by their syntactic behavior, such as the ability to take another object (raising to the outer light verb is capable of licensing another THEME object),

(8) * na-ba dao ran wo qie-de zhimaohan, zhe-ba dao ye ran ~~wo qie-de zhimaohan~~.
That-CL knife let I cut-DE sweat this-CL knife also let
*那把刀讓我切得直冒汗，這把刀也讓~~我切得直冒汗~~

1.2. Four Types of VPE (Wu 2002).

Secondly, we should also review four types of ellipsis mentioned in Wu (2002). Four types of VP ellipsis mentioned are: Modal(9)(10), negation(11), shi-type(12), and verbal type (13)respectively. She also noted the asymmetry of deontic/epistemic modals on licensing modal complement ellipsis(9)(10) in Chinese. However, the solution to the asymmetry is not conclusive in Chinese, since (non-)finiteness is not observable from Chinese verbal element, since Chinese has no inflection (Aelbrecht 2009).

(9) Zhangsan hui/keyi shuo fayu, Lisi ye hui/keyi. (deontic)
Zhangsan can speak French Lisi too can
'Zhangsan can speak French and Lisi can too.'
張三會/可以說法語，李四也會/可以

(10) *Zhangsan keneng/yinggai qu-le faguo, Lisi ye keneng/yinggai. (epistemic)
Zhangsan likely/possible went France Lisi too likely/possible
'Zhangsan might have gone to France, and Lisi might too.'
*張三可能/應該去了法國，李四也可能/應該

(11) Zhangsan kanjian-le tade mama, Lisi *(meiyou).
Zhangsan saw his mother Lisi not
'Zhangsan saw his mother, but Lisi did not.'
張三看見了他的媽媽，李四*(沒有)

(12) Zhangsan kanjian-le tade mama, Lisi ye shi.
Zhangsan see-Asp his mother Lisi also FOC
'Zhangsan saw his mother, and did, too'
張三看見了他的媽媽，李四也是

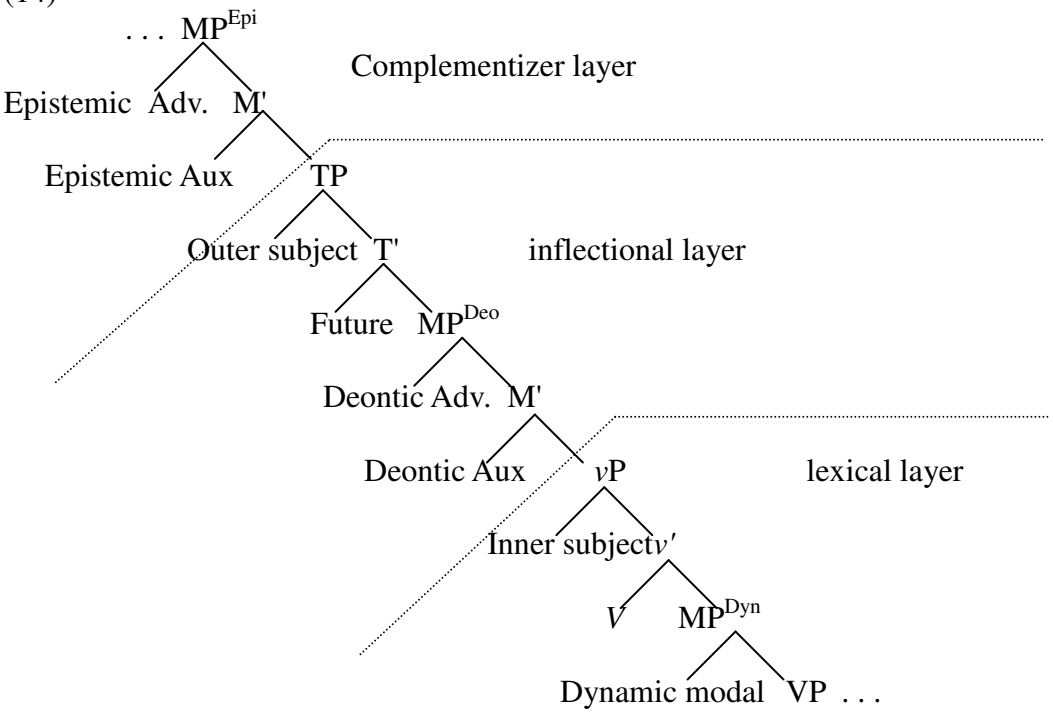
(13) Zhangsan kanjian tade mama, Lisi ye kanjian le.
Zhangsan see his mother Lisi also see Asp
'Zhangsan saw his mother, and Lisi did, too.'
張三看見了他的媽媽，李四也看見了

1.3. Modal and VPE

Tsai (2009) proposes a modality spectrum indicates a hierarchy as following: Epistemic Adverbial (知識副詞) > Epistemic Auxiliary (知識助動詞) > Deontic Adverbial (義務副詞) > Deontic Auxiliary (義務助動詞) > Dynamic Auxiliary (能願助動詞). This

approach is in line with a cartographic analysis to Mandarin Chinese.

(14)



In this spectrum, modals in the lexical layer and inflectional layer licenses modal type VP ellipsis while those in the complementizer layer licenses no modal complement ellipsis. This pattern is the same with the data shown in (9)(10).

1.4. VPE or NOC-like Construction

Finally, one famous alternate of VPE are noted(16) in the literature. We would like to compare it with another construe in (15).While (15) is the canonical VPE, the NOC-like (or named as V-stranding VPE) construction(16) is much discussed in the literature (Hoji, Otani & Whitman 1991, Huang 1988; 1991 ect.). The point here is that there is no possibility for (15) to be any kind of v-stranding VPE, since *shi*'be', as a focus marker, is merged high on the structure. If these contexts help us differentiate these two types of VPE, we can manipulate light-verb-stranding VPE in these context, and its nature could be observed.

(15) Zhangsan xihuan Mali, Lisi ye shi (canonical VPE)
ZS likes Mary LS also SHI
'Zhangsan likes Mary, and Lisi does, too'
張三喜歡瑪莉，李四也是[e]

(16) Zhangsan xihuan taziji de mama, Lisi ye xihuan (V-stranding VPE)
ZS likes himself DE mother, LS also like
Zhansan likes his mother and Lisi does, too.
張三喜歡他自己的媽媽，李四也喜歡[e]

(16)is accountedfor as empty pronominal (Xu 2003) or VP deletion (Huang 1991). Actually, it is possible to distinguish these two types of VP related empty elements into different categories of empty phrasal categories.Here, three empirical contexts in which they behave differently are provided. If these contexts and judgmentsare testified, a plausible account would need to account for their distribution.

Context 1subordination

(17) Zhangsan da-le Lisi zhihou, Xiaomei ye da-le.
Zhangsan hit-Asp Lisi after Xiaomei also hit-Asp
'After Zhangsan hit Lisi, Xiaomei did,too.'
張三打了李四之後，小美也打(了)

(18) * Zhangsan da-le Lisi zhihou, Xiaomei ye shi.
Zhangsan hit-Asp Lisi after Xiaomei also FOC
*張三打了李四之後，小美也是

Context 2Neg-*que*

(19) Zhangsan mei-kanjian ziji de mama, Lisi que kanjian-le
Zhangsan not-see self DE mother Lisi however see-Asp
'Zhangsan didn't see his mother, but Lisi did.'
張三沒看見自己的媽媽，李四卻看見了

(20) *Zhangsan mei-kanjian ziji-de mama, Lisi que shi
Zhangsan not-see self-DE mother Lisi however FOC
*張三沒看見自己的媽媽，李四卻是

In (17)(18), the antecedent clause is subordinate to the main clause in the second conjunct. In (19)(20), on the other hand, the antecedent clause is a negative sentence while the second conjunct shows a meaning of transition. As demonstrated above, canonical VPE is not compatible with subornation construction (18) and Neg-que construction(20), but verb-stranding VP ellipsis is compatible with both ofthem(17)(19).

As for light-verb stranding VP ellipsis, (21)(22) shows that they pattern together with the V-stranding alternates in (17)and (19). This shows that the head in IP domain (such as the *shi*- case) behaves quite different from its lower domain.

Light-Verb stranding VPE in Context 1

(21) a. Wang-mama qie zhe-ba dao zhihou, Li-mama ye qie
Wang-mother cut this-CL knife after Li-mother also cut
'After Mrs. Wnag cut something with this knife, Mrs. Li does so, too'
王媽媽切這把刀之後，李媽媽也切

b. Zhangsan pao caochang zhihou, Lisi ye pao
Zhangsan run playground after Lisi also run
'After Zhangsan runs in the playground, Lisi does so, too'
張三跑操場之後，李四也跑

Light-Verb stranding VPE in Context 2

(22) a. Wang-mama bu qie zhe-ba dao, Li-mama que qie
Mrs. Wang not cut this-CL knife Mrs. Li however cut
'Mrs. Wang does not use this knife, but Mrs. Li does'
王媽媽不切這把刀，李媽媽卻切

b. Zhangsan bu pao caochang, Lisi que pao
Zhangsan not run playground Lisi however run
'Zhangsan does not run in the playground, but Lisi does'
張三不跑操場，李四卻跑

2. Diagnosis for Real SM Operations

In this section, we start test the VP elliptical constructions with the typical diagnosis for PF operation. As indicated in Merchant (2010). Extraction and pragmatic control are used as diagnosis for SM-operations.

2.1. The Extraction test

The reasoning for extraction as a diagnosis for PF operation is based on our idea about the generative grammar. Under the T-model of generative grammar, derivation is followed by two interfaces, namely PF and LF[8]. As far as we know, there are three types of extraction in the grammar of syntax–namely A, A-bar, and head movement. As shown in the following examples(23)(24), wh- and cleft extraction from elided VP is possible in English.

(23) a. I know which book Max read, and which book Oscar didn't.
b. This is the book of which Bill approves, and this is the one of which he doesn't.(Fiengo & May 1994:229 quoted by Johnson)

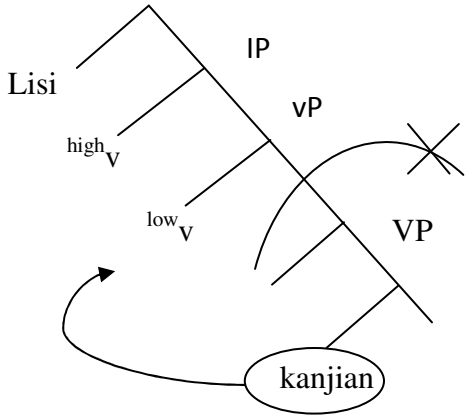
[8] Or what is known now as Sensor-Motor and Conceptual-Intellectual system.

(24) …vs. no extraction from pronouns
a. * I know which book Max read for class, and which book Oscar did it too.
(cf. *..and which book Oscar did too.*)
b. *This is the book of which Bill approves, but of which he won't admit it.
(cf. *..but of which he won't admit that he does*.)

As for Chinese, head movement out of ellipsis site is found in V-stranding VP-ellipsis, presentin languages with V-raisingand VP-ellipsis, such as Irish, Hebrew, and Portuguese(see McCloskey 1991, Goldberg 2005, and Santos 2009).For Chinese, the V- or light-verb ellipsis both demonstrated head movement following by a VP deletion.The V-stranding data (25) is demonstrated in (26), where main verb is raised to the head of light verb and following by a deletion of VP constituent.

(25) Zhangsan kanjian tade mama, Lisi ye kanjian le.
Zhangsan see his mother Lisi also see Asp
'Zhangsan saw his mother, and Lisi did, too.'
張三看見了他的媽媽，李四也看見了

(26) [9]



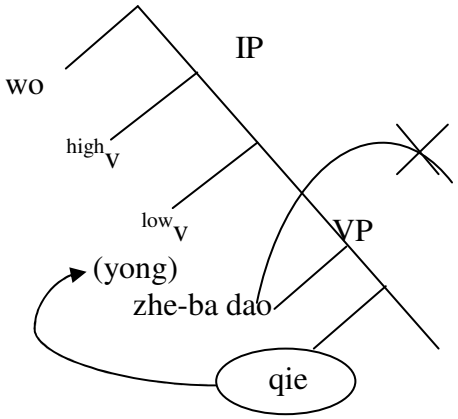
The derivation of(27)(28), as shown in (29), is also a raising of V head to the light verb head following by a VP ellipsis. One thing to note is that when the prepositional light verb *yong*'use' is realized in the light verb head, main verb *qie*'cut' would not be raised, and the alternant (28) is derived.

[9] ye 也 is understood as a adverb, and is omitted in this diagram.

(27) ni qie zhe-ba dao, wo ye qie ~~zhe-ba dao~~
you cut this-CL knife, I also cut this-CL knife
你切這把刀，我也切~~這把刀~~

(28) ni yong zhe-ba dao qie, wo ye yong ~~zhe-ba dao qie~~
you use this-CL knife cut, I also use this-CL knife cut
你用這把刀切，我也用~~這把刀切~~

(29)



Finally, (30) is the A-bar extraction out of an elliptical site in English. This kind of example also shows that structure exist before deletion of phonological form happens. The example of the A-bar Extraction in Chinese areexemplified as in (31)(32).(31)isthe example of focus movement, in which a focused element is marked with the focus marker *shi* . According to Lin (2001), *zhe-ba dao* 'this knife' is a real object introduced by the lower light verb. The other example is topicalization in Chinese (32). Here we treat it as a case of extraction although the real nature of the gap in the object is still under debate.

(30) Jason will eat shrimp, but squid, I know he won't ~~[eat <squid>]~~

(31) Shi zhe-ba dao$_i$, wo ye qie le t_i
SHI this-CL knife I also cut Asp
'It is this knife that I also cut with it'
是這把刀$_i$，我也切了 t_i

(32) zhe-ba dao a, wo ye qie le
this-CL knife TOP I also cut Asp
'This knife, I also cut with it'
這把刀啊，我也切了

Here we have to note that there might not bea A-Extraction case in Chinese for the test.The cognate of passive construction –*bei*-construction is traditionally analyzed as operator-variable binding (Huang 1984).

2.2. Pragmatic Control

It is generally assumed that a PF operation would need a phonological antecedent, a pragmatic antecedent is not sufficient to license a true PF ellipsis.The following example (39) is formHankamer & Sag (1976:414), which distinguishes a true PF ellipsis from an anaphora.

(33) [Observing Hankamer attempting to stuff 12'' ball through 6'' hoop]
Sag:

a. #I don't see why you even try to. [VPE]
b. I don't see why you even try. [Null complement anaphora]
(Hankamer & Sag 1976:414)

Parallel Chinese example can be found in (34). Here, the light-verb-stranding alternate (34)a is wired in the context because it lacks a phonological antecedent.

(34) [observing the sales demonstrating the use of a very nice-brand knife]
Zhangsan:

a.# wo mama ye qie
I mother also cut
'My mother also cut something with the same knife'
我媽媽也切

b. Wo mama ye you
I mother also have
'My mother also has one'
我媽媽也有

Null argumentscan exhibit two interpretations, one pragmatic and the other linguistic antecedent, while null complement selected by light verb cannot. (Toorsavandani 2009 (28) (29-30)). As shown in (35), this sentence could only be interpreted as the (35)a reading rather than the b reading. In other words, the deleted element could be like the case in (36)a but not (36)b.

(35) Zhangsan qie zhe-ba dao, Lisi ye qie [e]
ZS cut this-CL knife LS also cut
張三切這把刀，李四也切 [e]
a. Zhangsan use this knife to cut something, Lisi also use this knife to cut something
b. *Zhangsan use this knife to cut something, Lisi also cut the bread

(36)
a. Zhangsan qie zhe-ba-dao, Lisi ye qie ~~[zhe-ba-dao]~~
張三切這把刀，李四也切~~[這把刀]~~
b. #Zhangsan qie zhe-ba-dao, Lisi ye qie ~~[mianbao]~~
張三切這把刀，李四也切~~[麵包]~~

3. On Domain (or constituency)

3.1. Head licensing / "Isidore's diagnostic"

Starting from Chao (1987) and Lobeck (1995), linguists notice one of the ways to formalize a proper ellipsis in language. She defines it as proper licensing of functional head, by which functional heads are proper licensors of deletion of their complement. Recently, Merchant (2010)'s term "Isidore's diagnostic"indicates similar concept, in narrow ellipsis studies, the elementsD (determiner), C (complementizer), and T (tense) are taken to obligatorilyselect for NP, TP, and VP complements, respectively. When these complementsare missing, we have an instance of what Chao 1987 called 'headed' (H+) ellipses.If we adapt their idea,thev-Stranding VPE is also a case of complement of functional head – light verb.

Another argument in favor of PF operation in VP domain is that the nonverbal element of a complex predicate can be an adjective, as shown in Farsi (Toorsavanbani 2009 (27)). It is not argument selected by the light verb. Therefore, it should not be *pro*.

(37) rostam piran-esh-o xoshk kard vali sohr_ab
Rostam shirt-his-obj dry do.past.3sg but Sohrab
[AP piran-esh-o xoshk] na-kard.
shirt-his-obj dry neg-do.past.3sg
"Rostam dried his shirt, but Sohrab didn't."

In Chinese, Lin (2001) also observed that: object in a Mandarin Chinese sentence can be selected by a light verb, an effect that is called the "unselectiveness of object in MC". Those objects are also called the "adverbal object".

(38) Zhangsan qie (USE) zhe-ba-dao
ZS cut this-CL-knife
張三切(USE)這把刀

(39) Ku (FOR) kuopojiawang
cry the broken country and home
哭(FOR)國破家亡

3.2. Outer Tests for Deletion Domain

Again test

Johnson (2008 (24)) test the size with *again* ambiguity. Von Stechow (1996) and Rapp and von Stechow (1999) demonstrate that the repetitive reading results when *again* modifies the entire vP since it denotes an action event resulting in the door being in a closed state. When *again* modifies only the VP, it give rise to the restitutive reading since the VP just denotes the resulting state of the door being closed.

(40) Zhangsan you kai men le
Zhangsan again open door Asp
張三又開門了
a. Zhangsan opened the door, and somebody had opened it before.
b. Zhangsan opened the door, and it had been in that state before.

To use the test on the light-verb-stranding ellipsis, we can manipulate the following examples (41)(42).The only restitutive readings of these examples indicate that the empty phrasal category is in the domain of VP.

(41) Wo qie-le zhe-ba dao, ta you qie ~~[zhe-ba-dao]~~
I cut-Asp this-CL knife he again cut this-CL-knife
我切了這把刀，他又切~~[這把刀]~~
a. He uses the knife to cut something, and somebody had used it before.
b. #He uses the knife to cut something, and it had been in that state before.

(42) Wo pao-guo caochang, ta you pao ~~[caochang]~~
I run-Asp playground he again run playground
我跑過操場，他又跑~~[操場]~~
a. He repeatedly runs in the playground again.
b. #someone runs in the playground, and he run in the playground again.

With adverbials

Adverbial element is known as adjunction to VP, vP, or IP domain. In Chinese, *manman-de*‘slowly’is an adjunction to vP or VP.The contrast between (43)(44)shows that*manman-de*‘slowly’ can only precede the light verb *qie*‘cut’.Assuming light verb *qie*‘cut’ indeed raises to the light verb head, this adverbial is modifying vP, but not VP.

(43) Lisi [$_{vP}$manman-de[$_{v}$ qie$_{i}$[$_{V}$ t$_{i}$ zhe-ba-dao]]]
LL slowly-DE cut this CL knife
'Lisi slowly use this knife'
李四 [$_{vP}$慢慢得 [$_{v}$ 切 $_{i}$ [$_{V}$ t$_{i}$ 這把刀]]]

(44) *Lisi [$_{vP}$ [$_{v}$qie [$_{VP}$manman-de[$_{V}$ t$_{i}$zhe-ba dao]]]]
LL cut slowly-DE this-CL knife
*李四 [$_{vP}$ [$_{v}$切 [$_{VP}$慢慢得[$_{V}$ t$_{i}$ 這把刀]]]]

In the ellipsis context, on the other hand, (45) further proves that the domain of deletion is VP. When we delete higher to the light verb head (46), or delete the adverb separately (47), sentences are not grammatical.

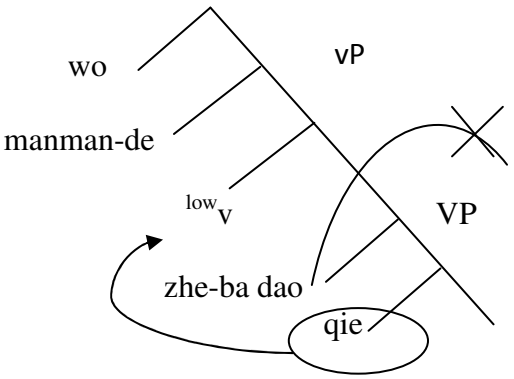
(45) ? Lisi manman-de qie zhe-ba-dao, Wangwu ye manman-de qie [$_{VP}$ e]
LS slowly-DE cut this-CL-knife WW also slowly-DE cut
'Lisi cut slowly with this knife, Wangwu also cut slowly with this knife'
?李四慢慢得切這把刀，王五也慢慢得切

(46) * Lisi manman-de qie zhe-ba-dao, Wangwu ye manman-de ~~[$_{v}$[$_{VP}$…]]~~
LS slowly-DE cut this-CL-knife WW also slowly-DE
'Lisi cut slowly with this knife, Wangwu also cut slowly with this knife'
*李四慢慢得切這把刀，王五也慢慢得

(47) *Lisi manman-de qie zhe-ba-dao, Wangwu ye ~~manman-de~~qie
LS slowly-DE cut this-CL-knifeWW also slowly-DE cut
*李四慢慢得切這把刀，王五也切

The data with adverbs show that the deletion domain around VP is like the diagram in the following:

(48)



Identity of v

It is noted in the literature (Goldberg 2005) that the verbal element (or light verb) stranding in the v/V-stranding VP ellipsis has identity requirement with the verb in the antecedent.We repeat Goldberg's principle in the following (49).

(49) the Verbal Identity Requirement:[10]
The antecedent-and target-clause main Vs of VPE must be identical, minimally, in their root and derivational morphology.

Chinese is a light-verb productive language. The following examples(50)-(53) show that the identity of the light-verb is strictly parallelbetween the first and the second conjunct.

(50) Zhangsan qie zhe-ba dao, Lisi ye*yong/ qie
Zhangsan cut this-CL knife Lisi also use
張三切這把刀，李四也*用/切。

(51) Zhangsan yong zhe-ba dao qie, Lisi ye *qie/yong
Zhangsan use this-CL knife cut Lisi also cut
張三用這把刀切，李四也*切/用[11]

(52) wang-mama qie zhe-ba dao, Li-mama *duo/qie
Mrs. Wang cut this-CL knife Mrs. Li chop
王媽媽切這把刀，李媽媽*剁/切

(53) Zhangsan pao caochang, Lisi ye *zou / pao
Zhangsan run playground Lisi also walk
張三跑操場，李四也*走/跑

The ungrammaticality of (54)(55), on the other hand, is due to the wrong "domain of deletion" rather than the identity of the verb.

(54) *zhe-ba dao ran Zhangsan qie-de hen lei, na-ba dao ye * shi-de/ * daozhi/ * ran
This-CL knife let Zhangsan cut-DE very tired that-CL knife also cause
Int. 'This knife cause Zhangsan very tired by cutting something, and so does that one'
*這把刀讓張三切得很累，那把刀也*使得/ *導致/ *讓

[10] With only the e-GIVENESS identity constraint, we don't expect the identity of the light verbs to matter for determining when ellipsis occurs.

(55) *zhe-ba dao qie de Zhangsan hen lei, na-ba dao ye qie-de
This-CL knife cut-DE Zhangsan very tired that-CL knife also cut-DE
Int. 'This knife cause Zhangsan very tired by cutting something, and so does that one'
*這把刀切得張三很累，那把刀也切得

References

李艷惠 2007 空語類理論和漢語空語類的辨識與指稱研究. <<語言科學>> 6:2. P37-47.

Chomsky. 2005. On phases. Ms. MIT.

Dagnac, A. (2008), French, Modal Ellipsis and the 'Same Subject Constraint', Communication à LSRL 38, University of Illinois at Urbana-Champaign, 4-6 avril 2008.

Johnson, Kyle. 2009. Gapping is not (VP) Ellipsis.a pre-publication version of Linguistic Inquiry 40.2, 289-328

Li 2007. Beyond Empty Categories. ms. USC.

Lin, Jo-Wang and Chih-Chen Jane Tang. 1995. "Modals as Verbs in Chinese: a GB perspective," The Bulletin of Institute of History and Philology 66. 53-105.

Lin, T.H Jonah. 2001. Light Verb Syntax and the Theory of Phrase Structure. PhD Dissertation, University of California, Irvine.

Lin, Tzong-Hong. Jonah. 2006a. Complement-to-Specifier Movement in MandarinClause. Ms. National Tsing Hua University.

Lin, Tzong-Hong. Jonah. 2006b. Multiple-Modal Constructions in Mandarin Chinese and Their Finiteness Properties. Ms. National Tsing Hua Univrsity.

Merchant Jason. 2008. An Asymmetry in Voice Mismatches in VP-Ellipsis and Pseudogapping. *Linguistic Inquiry* 39:01.

Toosarvandani, Maziar.2009. Ellipsis in Farsi Complex Predicates. *Syntax* 12:1. P60-92

Tsai, Wei-Tien Dylan. 1999. *On Economizing the Theory of A-bar Dependencies, Garland*, New York. 1994 PhD Dissertation, MIT.

Tsai, W.-T. Dylan. 2007. Two Types of Light Verbs in Chinese. Paper presented in Symposium on Chinese Syntax and Semantics. City University of Hong Kong.

Tsai, Wei-Tien Dylan.and Paul Portner. 2008. Adverb-Modal Interactions and Actuality Entailments in Chinese. Paper presented at IsCLL-11, National Chiao Tung University, Taiwan.

Wu. H-H. Iris. 2002. On Ellipsis and Gapping in Mandarin Chinese. Master Thesis, National Tsing Hua University, Taiwan.

Zagona, K. 1988. Verb phrase syntax: a parametric study of English and Spanish. Kluwer: Dordrecht .

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 145-162.

粵語（廣州話）“V 下”、“VV 下”與“V 下 V 下”形式關係探討

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摘要：本文在前人從共時層面對粵語（廣州話）“V 下”、“VV 下”及“V 下 V 下”結構的語法形式、語法意義、語義特徵及語用條件進行討論的基礎上，從考察粵語歷時材料入手並借鑑 Joan L. Bybee（1985）談論形態中意義與形式之間關係的理論框架，即相關性（Relevance）與普遍性（Generality），對“V 下”、“VV 下”、“V 下 V 下”及與這些形式同源且在語義上有所聯係的“V 一下”、“V 一 V”、“VV”、“V 兩 V”、“V 咗 V”形式之間的關係進行疏理。疏理的結果是“V 一 V”、“VV”、“V 兩 V”、“V 咗 V”和“VV 下”同屬一條關係鏈，而“V 一下”、“V 下”和“V 下 V 下”自成另一條關係鏈，兩條關係鏈的共同源頭可能即是中古的“一 V”式。在考察材料的過程中，我們發現不是所有的“V 下”形式都有相對應的“V 一下”形式。因此，我們認爲“V 下”是由“V 一下”省略入聲“一”字而成的説法值得商榷。此外，我們在對上述形式關係進行梳理的過程中同時得出了現有研究區分“V 下”、“V 下 V 下”的“下”讀陽上調，“VV 下”的“下”讀高升調的原因，縱然現代粵語使用者對這兩個“下”的聲調都不再加以區分。總的來說，本文跟前人研究的不同在於我們不僅從歷時層面看這些形式的發展演變，更進入其深層結構去探討它們之間的關係。

1. 引言

1.1 概説

粵語（廣州話）中有這樣幾個表層結構看似相關的形式，即“V 下”、“VV 下”及“V 下 V 下”。[1]在結構上，前人論述多認爲“V 下”是省略數詞“一”而成的固定結構，其中的“下”源于短時動量詞“（一）下”，而形式表現較“V 下”複雜的“VV 下”及“V 下 V 下”結構中的“下”亦源於此。[2]在聲調上，學者多認爲“V 下”及“V 下 V 下”的“下”讀[haˋ]（陽上調），而“VV 下”的“下”讀[haˊ]（高升調）。[3]彭小川（2000）則認爲，“VV 下”的“下”有兩讀，即[haˋ→ˊ]（陽上→高升）和[haˋ]（陽上），且整個結構在語用上表達的意義不盡相同：“VV 下[haˋ→ˊ]”表示動作、情況持續了一段時間，出現了新情況或發生了變化，例如：“我哋**開開下**會，忽然間沖咗幾個人入嚟我們開著會，忽然沖進幾個人來。”；“VV 下[haˋ]”用於描寫動作、情狀，例如：“你睇，啲彩燈**閃閃下**，幾靚啊！看，那些彩燈一閃一閃的，多美啊！”，或用於持續了一段時間並含有“隨意”或“嘗試”之意的場合，例如：“其實由頭至尾都係客串**玩玩下**。其實從一開始就是客串玩玩兒。”

普遍上，學者認爲“V 下[haˋ]”表示動作短暫，例如：“畀條手巾你**抹下**手啦。給你一條手絹擦擦手吧。”；“VV 下[haˊ]”表示動作正在進行，有“正……著”的意思，但當這動作行爲正在進行的時候，發生了別一件事情，使動作發生變化，例如：“**讀讀下**書有人搵佢。正在讀書有人找他。”；而“V 下 V 下[haˋ]”則表示動作持續下去，相當於“……著……著”，例如：“**傾下傾下**，傾到天光。談著談著，談到天亮。”[4]這裡，我們要問，區分“下”在個別形式中的聲調以及彭氏所言“VV 下”的“下”有兩讀，且各自在不同的句式中表示不同的意義，這其中的理據是什麼？

至於“下”的語法功能，張洪年（1972）將“VV 下”結構中的“下”看作一個特別的體貌詞尾，而認爲“V 下”的“下”則純粹是一個已經失去了“一下”的意思的詞尾。不過，大部分學者統一將“V 下”、“VV 下”和“V 下 V 下”結構中的“下”視為體貌（Aspect），說“下”是短時、嘗試体標記。[5]從漢語史的角度來看，“V 下”和“VV 下”，甚或是“V 下 V 下”結構中的“下”都是短時

[1] 由於“下”和“吓”在書面上可以交替使用而所表達的意思不變，因此，本文將兩者看作自由變體，行文一律作“下”。

[2] 彭小川：〈廣州話的“VV 下”與“V 下 V 下”〉，載單周堯、陸鏡光主編：《第七屆國際粵方言研討會論文集》（《方言》增刊）（北京：商務印書館，2000），頁 423；王紅梅、詹伯慧：〈漢語方言“VXVX”動詞重疊式比較研究〉，《語言研究》，2007 年第 27 卷第 3 期（9 月），頁 53。

[3] 張洪年：《香港粵語語法的研究》（香港：香港中文大學，1972），頁 162-163；高華年：《廣州方言研究》（香港：商務印書館，1980），頁 55；陳慧英：〈廣州方言的一些動詞〉，《中國語文》，1982 年第 1 期，頁 71。

[4] 張洪年：《香港粵語語法的研究》，頁 162-165；高華年：《廣州方言研究》，頁 55；陳慧英：〈廣州方言的一些動詞〉，《中國語文》，1982 年第 1 期，頁 71。

[5] 高華年（1980）、張雙慶（1996）、彭小川（2000、2003）等。

動量詞“（一）下”的虛化形式，因此，不管“下”是不是體貌，本文將三個結構中的“下”一概看作詞尾來進行討論。[6]

綜上所述，前人在共時平面上列舉及討論了此三個結構的語法形式、語法意義、語義特徵及語用條件，這給我們接下來的研究提供了基礎。

1.2 研究材料

至於我們所參照的材料，主要是 1841 至 1941 這 100 年間的粵語（廣東話）教科書及字典，茲羅列如下：

Bridgman, E. C. 1841. Chinese Chrestomathy in the Canton Dialect. Macao: S. Wells Williams.
Bonney, S. W. 1853. Phrases in the Canton Colloquial Dialect. Canton: Canton.
Williams, Samuel Wells. 2001. A Tonic Dictionary of the Chinese Language in the Canton Dialect (1856) [Part I: A-PAI]. United Kingdom: Ganesha Publishing Ltd.
Dennys, N. B. 1874. A Handbook of the Canton Vernacular of the Chinese Language. London: Trubner & Co.
Eitel, Ernest John. 2001. A Chinese-English Dictionary in the Cantonese Dialect (1877) [Part I: A-O]. United Kingdom: Ganesha Publishing Ltd.
Stedman, T.L. and Lee, K.P. 1888. A Chinese and English Phrase Book in the Canton Dialect. New York: William R. Jenkins.
Wisner, O. F. 1906. Beginning Cantonese. Unknown: Unknown.
1927. Beginning Cantonese (Rewritten). Part One. Canton: Canton.
Ball, J. Dyer. 1912. How to Speak Cantonese: Fifty Conversations in Cantonese Colloquial. 4th ed. Hong Kong: Kelly & Walsh Limited.
Fulton, A. A. 1931. Progressive and Idiomatic Sentences in Cantonese Colloquial. Hong Kong: Kelly & Walsh.
Wells, H. R. 1941. Cantonese for Everyone. Hong Kong: International Commercial Printing Press.

全面考察這些材料，我們發現只有“V 下”在所有材料中都出現，而“VV 下”及“V 下 V 下”結構最早見於 1906 年的材料。此外，我們在 20 世紀以後的材料中看到“V 兩 V”這樣的結構，其在句式中表短時、嘗試義，與“V 一 V”、“VV”的用法相類，例如：**啲兩啲**佢睇過喇。碰碰他看看吧。（Wisner 1927，p.437）。高華年（1980）討論短時体的部分還列舉了“V 咗 V”結構，表示動作短暫兼表完成態，例如：佢喺嗰**企咗企**就翻去嘞（p. 54）他在那兒站了站就回去了。就前人對近、現代漢語的研究，“V 一 V”式始見於唐代，其中的“一 V”多為表實指的同形動量詞，

[6] 王紅梅、詹伯慧（2007）也將“下”看作後綴。

其省略形式“VV”到元代才出現，[7]而兼表完成態的“V 了一 V”形式則是後來的延伸。[8]據此，我們認爲粵語中也是先有“V 一 V”及其省略式“VV”，後來才延伸出“V 兩 V”及兼表完成態的“V 咗 V”式的。

然而，我們卻不能就考察的材料斷言“V 下”、“VV 下”和“V 下 V 下”的出現有時間差異，即“V 下”、“VV 下”和“V 下 V 下”出現在不同的時間點。這是由於這三個形式在語法和語義表達上有所分工，它們並不是共同承擔一項意義及語法功能的不同變體，而且這也可能是早期材料的内容表達剛好不涉及“VV 下”和“V 下 V 下”結構。不過，我們也不排除它們之間有歷時演變關係的可能。在我們所考察的材料範圍内，20 世紀以前的材料剛好都沒有“VV 下”和“V 下 V 下”結構的情況或非偶然。而且，在 Williams 及 Eitel 編寫的字典裏，“吓”的用法只有“V 一吓”，如：打一吓[strike it once]$_{打一下}$、“V n 吓”，如：打佢兩吓[He struck him twice.]$_{打他兩下}$、“一吓”[in a while/ soon]，如：一吓同去[I will go with you soon.]$_{待會兒一起去}$以及“V 吓”，如：問候吓佢啫[only came to visit him]$_{過來看看他罷了}$，還不包括“VV 下”和“V 下 V 下”的用法。[9]因此，我們相信“VV 下”和“V 下 V 下”是後起的，惟無法確切指出其出現的時間點。由於這方面的研究尚缺，關於“V 下”、“VV 下”和“V 下 V 下”出現的時間問題還有待進一步考證。[10]

1.3 本文的意義

考察現有的相關研究，我們同意“V 下”等形式中的“下”由短時動量詞“（一）下”虛化而來，但我們認爲“V 下”是由“V 一下”省略數詞“一”而形成的説法值得商榷。此外，我們還希望回答的問題是：（一）現代粵語使用者一般不分，但在學者的研究中爲什麽就區分“V 下”的“下”讀陽上調，“VV 下”的“下”讀高升調？（二）爲什麽“V 下”這個形式表示動作短暫、“VV 下”有表示動作後突然發生新情況的意思，而“V 下 V 下”則表示動作持續？總的來説，我們所要探討的就是“V 下”、“VV 下”、“V 下 V 下”這三個形式之間究竟有何關係？它們各自的形式與意義又有何聯係？爲了解決這些問題，我們借鑑前人從

[7]范方蓮：〈試論所謂“動詞重疊”〉，《中國語文》，1964 年第 4 期；劉堅：〈《訓世評話》中所見明代前期漢語的一些特點〉，《中國語文》，1992 年第 4 期；金桂桃：《宋元明清動量詞研究》（武漢：武漢大學出版社，2007），頁 118-134。

[8] 我們認爲粵語的“V 咗 V”結構與明、清出現的“V 了一 V”結構相類。

[9] Williams, Samuel Wells. 2001. A Tonic Dictionary of the Chinese Language in the Canton Dialect (1856) [Part I: A-PAI]. United Kingdom: Ganesha Publishing Ltd, p. 67; Eitel, Ernest John. 2001. A Chinese-English Dictionary in the Cantonese Dialect (1877) [Part I: A-O]. United Kingdom: Ganesha Publishing Ltd, p. 178.

[10] 由於本文主要是對形式之間的關係進行疏理，因此，“V 下”、“VV 下”和“V 下 V 下”結構出現的確切時間點並不影響本文的討論。

共時語料中整理、歸納的論述，通過考察歷時材料，並以 Joan L. Bybee（1985）談論形態中意義與形式之間關係的理論框架，即相關性（Relevance）與普遍性（Generality）為基礎，嘗試對“V 下”、“VV 下”與“V 下 V 下”形式之間的關係及語義聯係進行疏理。在疏理的過程中我們發現，“VV 下”及“V 下 V 下”形式與意義的匹配符合張敏（1997，2001）所言重疊的象似性（Iconicity）。

由於學者普遍認爲漢語共同語的“V 一下”與“V 一 V”式同源，都源于中古的“一 V”式。[11]因此，我們認爲粵語中的“V 一下”形式也是循著相同的路徑發展而來，也跟“V 一 V”式同源，故本文的討論將涉及“V 一 V”及其相關形式“VV”、[12]“V 兩 V”和“V 咗 V”。在粵語中，這些形式也都有表示動作時量短及嘗試的意義。

總的來說，本文的意義是在前人對這些形式的表層結構（Surface structure）及其語法功能進行討論的基礎上，從歷時材料著手，進一步探討這些形式之間的關係問題，給粵語中這幾個形式各異、語義表達似有關聯又似乎不能任意互相取代的結構進行系統的疏理。在進行疏理的過程中，我們也看到粵語中這些表示動量小、時量短及嘗試意義的形式在語言發展中的變化。

下面我們先來看看“V 一 V”及“V 一下”等相關形式在漢語中的歷時演變及發展。

5. 結構溯源

“V 一 V”式在中古的時候只有“一 V”的形式，如“一擊”、“一問”等動量結構。一直到宋代，“一 V”才以同形動量詞的形式與動詞組合成“V 一 V”式。其中的“一 V” 既可以表示確定的次數，例如：“師以手于空**畫一畫**曰：‘會麽？’曰：‘不會。’師曰：‘一尚不會，什麽處得百會來？’”（五燈會元，p.7），又可以表示動作次數少、時間短、程度輕等抽象的量概念，例如：“我上又不得，下又不得。且**歇一歇**了，去坐地。（張協狀元，p.8）。[13]簡言之，同形動量結構中的數詞在最開始是實指的，後來才發展出虛指的用法，且逐漸取代實指的優勢。由此推斷，現代漢語表示次數少、時量短的“VV”式出現較晚，大概始見於元代“V 一 V”中數詞虛指逐漸普遍化之時，其為“V 一 V”結構省去“一”的省略形式。[14]

[11] 王力（1944）、太田辰夫（1987）、范方蓮（1964）、趙元任（1968）等對此都有論述。

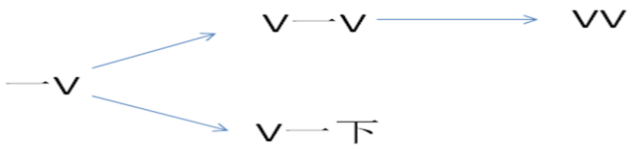
[12] 這裡所談“V 一 V”、“VV”不包括由形容詞組成的形式，如：“靚（一）靚”、“貴（一）貴”等。

[13] 范方蓮（1964）、徐正考（1990）、劉堅（1992）、金桂桃（2007）等。

[14] 范方蓮（1964）、劉堅（1992）。

而同樣來源於中古“一 V”形式的還有由短時動量詞“一下”構成的“V 一下”形式。其中“下”最初是作為動量詞，用來稱量方向“自上而下”的擊打類動詞。由於擊打類動詞的動作表現一般是快速的，故動量詞“下”在表動作次數的同時，又含有“時矩短”的意味，由此發展出表示時量短的用法。“下”表短時量作補語，表示動作本身所持續的時間不長。[15]

據此，我們可將漢語“V 一 V”和“V 一下”的發展途徑概括如下：

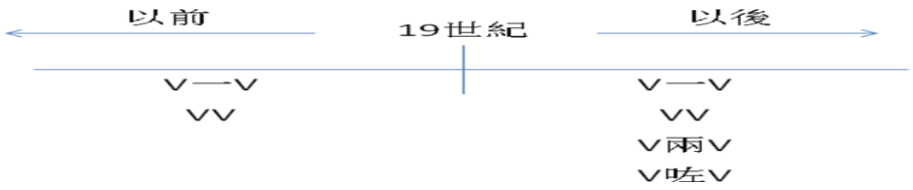


2.1 粵語的“V 一 V”及其延伸形式

粵語中的“V 一 V”式很有可能也是循著上述同形動量結構的演變而發展出“VV”式來的。除了“VV”式，粵語的“V 一 V”式還延伸出“V 兩 V”式以及表示完成態的“V 咗 V”式，舉例如下：

1. **嘟兩嘟**佢睇過喇（Wisner 1927，p.437）
   碰碰他看看吧。
2. 佢喺嘅**企咗企**就翻去嘞（高華年 1980，p.54）
   他在那兒站了站就回去了。
3. 佢**睇咗睇**，就知邊嘅要修整啦（高華年 1980，p.54）
   他看了看就知道哪兒要修整了。

根據材料的考察，“V 一 V”和“VV”在 Bridgman（1841）就已出現；“V 兩 V”式首見於 1927 年的材料；“V 咗 V”式則見於高華年（1980）的討論。由此，我們推斷，粵語中“V 一 V”及其相關形式在時間軸上的分佈如下：



[15] 王紹新：《課餘叢稿》（北京：北京語言文化大學出版社，2000），頁 167、169；金桂桃（2007），頁 170-188。

在語義上，“V 一 V”、“VV”除了表示動作的時間短暫，也兼表嘗試意義，例如：

4. 你們**想一想**假如我身上有一處兒生個瘡或者閃了手跌了腿渾身上難道受用麼（Bridgman 1841，p.102）
   你們想想，我身上要有一處兒長了瘡或是折了手、摔了腿，這渾身上下還受用嗎？
5. 咪催命咁，等我**計一計**先。（高華年 1980，p.53）
   別催，先讓我算一算。
6. 你去**睇睇**佢哋執起晒啲工具未？（高華年 1980，p.53）
   你去看看他們把工具都收了沒？
7. **試一試**（Dennys 1874，p.28）
   試一試。
8. 烚塊鹿脯**試試**（Bridgman 1841，p.167）
   燒塊鹿肉試試吧。
9. 你**搵搵**嗰喱有冇把斧頭？（高華年 1980，p.53）
   你找找那兒有沒有一把斧頭？

由於“V 一 V”和“VV”在句式中表達的意義基本相同，我們或可將它們視爲一個形式的兩個自由變體。[16]

而與“V 一 V”結構相同、內容不同的“V 兩 V”式在句式中的表達功能也跟“V 一 V”基本相同，如上邊例子中的“啲兩啲”，也是表現的嘗試意義及動作時間短暫。但是，“V 咗 V”形式則跟前三者有較大的不同，除了表示動作短暫，它還兼表完成態，表示動作已經完成，例如：“佢**睇咗睇**，就知邊喱要修整啦他看了看就知道哪兒要修整了。”，“睇”的動作不僅短暫，並且已經完成。而前面所說的“V 一 V”、“VV”、“V 兩 V”的動作時間雖也短暫，但卻不一定完成。例如：“你去**睇睇**佢哋執起晒啲工具未？你去看看他們把工具都收了沒？”，“睇”是某人建議“你”去做的動作，動作未完成，這裡就不能用“睇咗睇”來表示。可見，粵語中“V 一 V”等相關結構的演變不僅表現在形式上，還體現在語義特徵的豐富化。至於這些結構在形式表現上有何關係，我們將在第四章進行探討。

2.2 粵語的“V 一下”及其相關形式

[16] 因爲“VV”一般都可加“一”還原為“V 一 V”；“V 一 V”一般也都可以省略“一”成“VV”。例如：“試試、掃掃、行行”可加“一”還原為“試一試、掃一掃、行一行”；“想一想、睇一睇、勸一勸”可省略“一”成“想想、睇睇、勸勸”，它們所表達的意思基本不變。

學者普遍認為，粵語的“V 一下”結構由動量詞“一下”發展而來。不過，由於動量詞“（一）下”的虛化，它很快就演變成“V 下”形式並被廣泛使用。值得注意的是，“下”作動量詞在早期粵語中也是稱量擊打類動詞，表示動作次數，例如：“打兩下添[Strike two more]多打兩下”（Bonney 1853，p.44），“兩下”在這裡是實指，表示“打”的動作做了兩次。此外， 粵語還發展出“VV 下”和“V 下 V 下”形式。

在語義上，“V 一下”、“V 下”表示動作是短暫的，例如：

10. **試一吓**添，係好計嚟啞（Dennys 1874，p.63）
    是個好計劃，多試一次吧。
11. 要**掃吓**天花板（Bridgman 1841，p.131）
    要把天花板掃一掃。
12. 我**歇下**同你做喇（Wisner 1906，p.11）
    我歇一會兒就幫你做。
13. 所以嚟共你**商量下**（Wisner 1906，p.27）
    所以來跟你商量商量。
14. 你講的唐人餐廳我**聽吓**好唔好（Wells 1941，p.164）
    你說些唐人餐廳給我聽聽好嗎？

在多數情況下，“V 一下”、“V 下”能替換“V 一 V”、“VV”，兼表嘗試意義，例如：

你**搵搵**嗰喥有冇把斧頭？
你**搵一搵**嗰喥有冇把斧頭？
你**搵一下**嗰喥有冇把斧頭？
你**搵下**嗰喥有冇把斧頭？

“搵一搵”、“搵搵”跟“搵一下”、“搵下”在句式中進行互換，所表達的意思基本相同。我們認爲，“V 一下”、“V 下”與“V 一 V”、“VV”之所以能互換，跟它們在中古是同一來源以及它們的語義特徵相近有關。

至於“VV 下”和“V 下 V 下”，“VV 下”表示動作進行過程中驟然發生一些事情，使原來的動作發生變化：

15. **講講下**又忽然話……（Wisner 1906，p.54）
    說著說著又突然說……
16. 車**行行吓**就停（Wells 1941，p.179）

車走著走著就停下了。

17. 張醫生**食食下**飯，就有人搵佢睇病（高華年 1980，p.55）
張醫生吃著飯，突然有人來找他看病。

也可以用於描寫動作、情狀，例如：

18. 唔合腳步，乘轎**（口揖）（口揖）吓**（Ball 1912，p.136）
腳步不合，轎子就會顛顛簸簸。

“V 下 V 下”則表示動作持續下去，相當於“……著……著”，例如：

19. **講下講下**，覺得冇幾耐就到步（Wisner 1906，p.49）
聊著聊著，感覺不多久就到了。

20. **等下等下**，越等越心急（陳慧英 1982）
等著等著，越等心越急。

由於“VV 下”和“V 下 V 下”在句式中表示的意義有差異，因此它們不能互換。同樣的，由於“VV 下”、“V 下 V 下”在句式中表達的意思跟“V 一下”、“V 下”或“V 一 V”、“VV”等有明顯的差異，因此也不能互換。

值得注意的是，雖然多數情況下“V 一下”、“V 下”在句式中可以互換，但以現代粵語的語感來判斷，不是所有的“V 下”形式都能加“一”還原為“V 一下”形式。上一章我們說，在結構上，學者普遍認爲“V 下”是省略入聲“一”字而成的固定結構，其中的“下”源于短時動量詞“（一）下”。我們同意“V 下”等形式中的“下”由短時動量詞“（一）下”虛化而來，但對於“V 下”是由“V 一下”省略數詞“一”而形成的説法存有疑問，原因就在於以“V 下”而不以“V 一下”形式出現在現代粵語中的例子，也不以“V 一下”形式出現在早期粵語材料中。例如：我們現在說“食下野”、“飲下水”，而“食一下野”、“飲一下水”的説法極不自然。關鍵在於，如果說“V 下”是“V 一下”的省略式，那能夠進入“V 下”形式的動詞，最初的時候也要能夠進入“V 一下”形式。但事實並非如此。我們無法在早期的材料中找到如“食一下”、“飲一下”的例子。而且，即使材料中出現“V 一下”形式，動詞 V 也都是由“試”、“等”、“打”等來充當。例如：試一吓添，係好計嚟啞。（Dennys 1874，p.63）。我們或許能說這是种偶然現象，材料中剛巧都不出現如“食一下”等例子，而進入“V 一下”形式的動詞剛巧都是“食”、“飲”等以外的動詞。然而，若我們將這個問題跟“V 一 V”式聯係起來，我們會發現不在現代粵語語用和語法範疇内的“食一食”、“飲一飲”等例子，也不出現在早期粵語材料中。既然“V 一 V”和“V 一下”形式有著同源關係，而這兩個形式又都不能容納動詞“食”、“飲”等，早期材料中沒有

“食一下”、“飲一下”等用例的情況就不太可能是偶然。如此説來，“V 下”是“V 一下”省略入聲“一”字而來的説法不夠完善，因爲不是所有的“V 下”式都有相對應的“V 一下”形式。與其説是省略，不如說“V 下”是“V 一下”形式經語法化過程而形成的，即動補結構“V 一下”中的“一下”詞義虛化而成詞尾“下”；詞義虛化後的“下”適應性更強，能允許更多的動詞與其組成“V 下”結構式，這也就解釋了爲什麽動詞“食”、“飲”等能進入“V 下”形式而不能進入“V 一下”形式。

我們再以動詞“打”來鞏固我們的説法。若將動詞“打”分爲表示具體肢體動作的“打 $_1$”（打 $_1$人）、動作表現為一段過程的“打 $_2$”（打 $_2$波）及動作表現較不明顯的 “打 $_3$”（打 $_3$電話），我們會發現，“打 $_1$佢一下”打他一下、“打 $_2$下壁球”打會兒壁球 、“打 $_3$下電話”打下電話是自然的説法，但“打 $_1$下佢”說起來就不甚自然，或者只會出現在特定語境，例如：個仔你打 $_1$下佢，佢就會乖嘅喇。那個孩子你只要打打他，他就會聽話的了。這是由於“打 $_1$”的動作次數是可數的，“打 $_1$佢一下”是實指的動量“一下”，而由“（一）下”虛化而來的“下”已不具備實指的能力，更偏向于表示時量的短暫。根據人類使用語言的認知心理，我們一般不會用時量來描述“打 $_1$”的動作表現，比如我們不會說媽媽打了他很久或媽媽打了他一陣子。但是，我們卻能用時量來描述“打 $_2$”、“打 $_3$”的動作表現，因爲“打 $_2$”、“打 $_3$”的動作表現往往牽涉時間過程，如“打 $_3$電話”、“打 $_2$壁球”都會經過一段或長、或短的時間才結束，不像“打 $_1$”，是一擡手、一投足就結束的瞬間動作，這一擡手、一投足的動作可以清楚地一下、一下計算，但每一下動作之快以致無從計時。就因爲這樣，“打 $_1$”也不能進入表短時的“VV”形式；我們能說“打 $_2$打 $_2$波”、“打 $_3$打 $_3$電話”，但不說“打 $_1$打 $_1$人”。[17]有鑒于此，“食”、“飲”等動詞爲什麽只能進入“V 下”形式就不解而明了。這是由於在動詞“食”、“飲”所表現的動作過程中，其動作次數是不可數的。我們只能用時量來描述動作進行了多長時間，或用量詞作爲動詞“食”等的賓語，如：“食一啖”，來説明“食”的分量，但不能用動量來描述這類動作過程。此外，雖然“V 一下”形式中的“一下”也從實指虛化爲表短時量，但它表實指的用法並未因此而消失，所以在句式中會出現歧義，如：“試一下”可以表示短暫的嘗試，也可以就實指一次的動作“一下”（try sth once），也就是說，相對于“打 $_1$”等動作動詞及“食”、“飲”等動詞，“試”、“着”、“睇”等這些動詞能兼用動量和時量來描述，故“V 一下”和“V 下”兩個形式都能接受它們。

總的來說，我們認爲與其說“V 一下”形式省略入聲“一”字而成“V 下”，不如就將焦點集中在短時動量詞“（一）下”的虛化。“下”由實指的“一下、兩下、三下……”等動量補語虛化為表示動作短暫的“下/一下”，其中的數

[17] 雖然“打 $_1$緊人”、“打 $_2$緊波”、“打 $_3$緊電話”都能說，且也都牽涉過程，但這種過程確切指的是時態過程（Tense），而不是如“下”所表的動作在短時間內的量化過程。

詞已不起任何作用，不僅“一下”不再是實指的動量“一下”（once）, 詞義虛化後表示動作短暫的“下”也不再能與“一”以外的數詞結合，且即使與“一”結合，這個“一”也不再表示實際的數量。換言之，表示動作短暫的“下”不需要數詞來支撐其語義表達，故在“一下”跟“下”都表示短時而“一”又不含具體意義的情況下，經濟性原則選擇淘汰不表數量的數詞“一”，使表示動作時量短的“一下”進一步語法化成與動詞關係更爲緊密的詞尾“下”。如此一來，“V 下”形式就是動詞 V 與詞尾“下”的重新組合，是短時動量詞“（一）下”詞義虛化後與動詞結合而產生的一個新的形式，因此，它是較“V 一下”[18]意義虛化的形式而不是“V 一下”的省略式。此外，我們認爲，根據動詞所表現的動作性質，有些動詞只能進入“V 一下”或“V 下”形式，有些動詞則兩個形式都能進入。我們在材料中只找到“食下”以及我們現在一般只說“食下”而不說“食一下”，就是因爲在動詞“食”所表現的動作過程中，其動作次數是不可數的，故動詞“食”不能進入表示動量的“V 一下”形式。

這裡必須強調，以上論述僅為初步想法，還有待考察更多的語料以進行深入論證。

表面看來，“VV 下”和“V 下 V 下”形式似乎都是順著“V 下”形式隨語言的發展演變而來的。其實不然。關於“V 一下”、“V 下”、“VV 下”、“V 下 V 下”結構的形成及各形式之間的關係，又它們跟“V 一 V”、“VV”等在形式上的聯係，將在第四章討論。

6. 相關性（Relevance）與普遍性（Generality）

這一節，我們先簡略介紹 Joan L. Bybee（1985）談論形態中意義與形式之間關係的思路及其理論框架。

Bybee（1985）將形態手段主要概括為三類：詞彙（Lexical expression）、屈折（Inflectional expression）和句法（Syntactic expression）。這三種手段不是離散的範疇，而是彼此有所聯係組成一個連續統（Continuum）：

詞彙----------派生----------屈折----------自由語法單位----------句法

（Lexical）（Derivational）（Inflectional）（Free grammatical）（Syntactic）

<----------

融合程度高（Greater degree of fusion）

上圖顯示，在詞彙、屈折、句法之間存在中間範疇。派生介乎詞彙與屈折之間，而介乎屈折和句法之間是有固定句法位置的自由語法單位，即附著詞（Clitics）、虛詞（Particles）或助動詞（Auxiliaries）。

[18] 這裏的“一下”是實指的動量詞。

既然上述形態手段呈現為一個連續統，那麼語言中各個詞或詞組所表現的形式與意義的結合採用哪种手段是根據什麼來決定的，即語言中各個形式的形成及其與意義配對的主導原則或動因爲何？Bybee 指出，形態手段的決定因素主要依據兩項原則，即相關性和普遍性。

所謂相關性是指若一個語義單位的語義內容直接影響或修飾另一個語義單位的語義內容，這兩個語義單位就互相關聯。如果兩個語義單位的語義內容高度相關，那我們就能推斷，它們是通過詞彙或屈折手段結合的，但若兩者的語義內容毫不相關，那它們的結合就僅受限於句法手段。換言之，高度相關的語義成分往往會互相靠攏並通過詞彙形式表達，或者更常為屈折或派生形式；而相關性越弱的語義成分就越不常以形態手段進行表達，尤其是毫不相關的語義成分就只能在句式中共現，不能進一步融合成更緊密的結構。因此，相關性與形式成分的融合程度（Degree of fusion）有關。形式中各個成分的內容相關性越強，彼此間的融合程度就越高，其結構也越緊密，所表達的語義因此跟原始形式（Basic form）的語義產生越大差異。

普遍性則是指意義單位所表意義的強適應性及通用性；意義單位所表意義的適應性（Applicability）越強、通用性越高，就越容易與其他語義單位結合，構成的形式融合度也越高。譬如從實詞演變為附著詞而最終變爲屈折形式的過程中，進行演變的語素的語音形式及語義內容都得縮減。這種縮減是爲了增強其意義的適應性，並且能適當地在句法上與盡量多的詞根結合。此外，這種縮減后的意義也必須符合交際、溝通需求以提高其在語言中的使用頻率。這也就是爲什麼語言中的虛詞絕大部分是由使用頻率高的實詞經語法化過程虛化而來。

接著，我們回過頭來談上述粵語中的幾個形式之間的關係問題。

四、 形式之間的關係

上邊我們說粵語中的“V 一 V”和“V 一下”可能都源于中古的“一 V”式，因此，最初的時候，“V 一 V”和“V 一下”結構中的“一 V”和“一下”多為實指，“一 V”是同形動量詞，而“下”可以表示動作次數，。後來，隨著漢語的發展，“V 一 V”結構中的“一”越來越趨向于虛指而最終被省略，生出“VV”形式；“下”也因詞義虛化而變成詞尾，黏附于動詞構成“V 下”形式表示動作的時量短。這種演變形式正好符合 Bybee（1985）形態理論中的相關性和普遍性原則。

4.1 “V 一 V”、“VV”、“V 兩 V”和“V 咗 V”

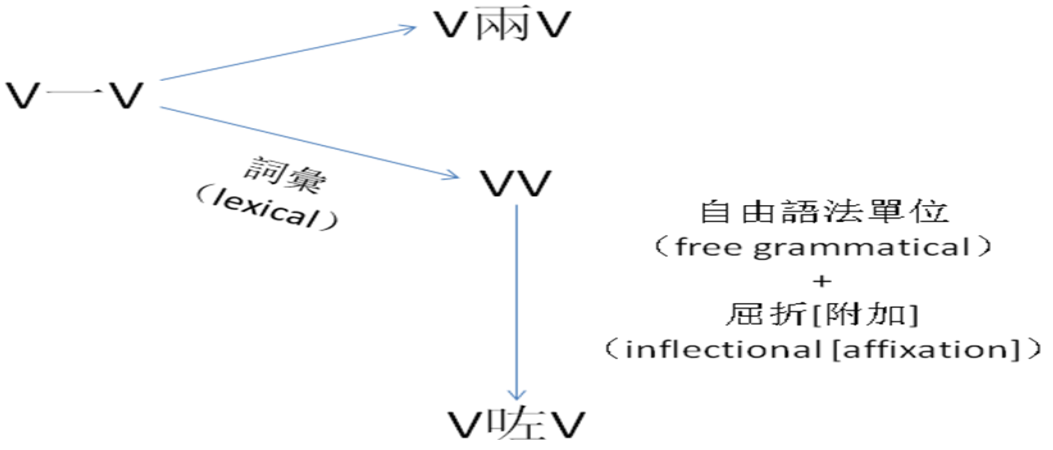
既然是同形動量詞，“V 一 V”結構中的兩個 V 自然同屬一個動詞，兩個 V 之間具備絕對的相關性。最初“V 一 V”結構中的“一 V”就是實指，如“畫一畫”就確實只一畫，其所指是特定的（Specific），適應性弱，一般只能與表現具體動作的動詞組合。隨著語言的進步發展，“V 一 V”形式的使用頻率增高，爲了

增強其在語言使用中的適應性及提高其通用性，數詞“一”由實指逐漸轉爲虛指，再後來結構本身更捨棄“一”以拉近兩個 V 之間的距離，凸顯兩個 V 的相關性，使兩個 V 的融合度提高，形成結構關係更爲緊密的“VV”形式。從手段上來分析，原來“一 V”表示實指的“V 一 V”是句法上的動賓結構，但“一”省略以後，“V+V”兩個詞結合，以一個詞彙形式表達一個意義，使其融合度基本上升至詞彙層面。此外，由於從實指的“V 一 V”到數量意義較虛的“VV”經歷了語素和意義的縮減，結構的語音形式也相應發生了變化。除了讀陰平、陰上和上陰入的動詞聲調無明顯變化，其他動詞變成“VV”式後第一個字都讀高升變調。[19]例如：

21. 瞓瞓 fɐn˥˧* fɐn˧［陰去→高升］
22. 坐坐 tsʻɔ˧˥* tsʻɔˊ［陽上→高升］

至於與“V 一 V”在結構上相同但內容不同的“V 兩 V”結構，我們認爲它只是“V 一 V”形式的延伸，其構形手段跟“V 一 V”是一樣的。而兼表完成態的“V 咗 V”結構中表示完成體的自由語法單位“咗”則以附加的方式加插在“VV”式之間。

至此，我們可以總結出“V 一 V”、“VV”、“V 兩 V”和“V 咗 V”形式在形成過程中的聯係如下圖所示：



[19] 陳慧英：〈廣州方言的一些動詞〉，《中國語文》，1982 年第 1 期，頁 69-70；李新魁著；嶺南文庫編輯委員會、廣東中華民族文化促進會合編：《廣東的方言》（廣州：廣東人民出版社，1994），頁 244。

4.2 “V 一下”、“V 下”、“VV 下”和“V 下 V 下”

上邊我們說，“V 一下”可能也源于中古的“一 V”結構；“下”最初既可表示動作次數，也可表示短時量，且表示動作次數時主要稱量方向自上而下的“擊打”類動詞，而表示短時量時主要作狀語，到了明代，用作補語的例子才漸漸多起來。不論是表示動作次數還是用作補語表示短時量，“V 一/n 下”形式都是句法層面上的動補結構，“一/n 下”和動詞 V 的融合程度不高，動詞 V 和“一/n 下”之間有時還能加插賓語，如：“牽住個匹馬一吓”牽一下那匹馬（Bonney 1853，p.71）、“打佢兩吓”打他兩下（Eitel 2001，p.178），動詞和補語之間都還能加插受事賓語；而且當時表示動作數量的“下”的意義是特指的，主要用來稱量跟人類肢體有關的具體動作，如“打”、“射”、“牽”、“咬”、“吹”等。後來，隨著語言的發展，動量詞“下”的使用頻率增高，爲了適應更多的動詞，其詞義進行虛化；詞義虛化後的動量詞變成一個詞尾，而能與更多動詞組合形成“V 下”結構。這個詞尾“下”已不再表示動作次數，而是偏向于表短時量，出現在動詞後表示動作是短暫的。

如果我們同意“V 下”形式中的“下”是個詞尾，那這個形式就是通過屈折手段構成的，即自由的動詞+黏附性詞尾，所構成的“V 下”形式的融合程度較“V 一下”形式高。因此，“V 下”結構除了在某些情況下“下”字前能出現體貌詞尾“過”和“咗”，例如：“讀過吓英文。”讀過會兒英文、“佢諗咗吓先至話……”他想了一下才說……（張洪年 1972，p.164），[20]一般不容許其他成分出現在動詞 V 和詞尾“下”之間。此外，由於“V 下”形式中“下”的意義較“V 一下”更爲虛化，“V 下”的“下”在任何情況下都不能是實指，但“V 一下”的“一下”在某些情況下還能表示動作的次數，如：“試一吓添，係好計嚟啞[try it again once more]”（Dennys 1874，p.63）、“打一下[strike it once]”（Williams 2001，p.67）。在這類情況下，“一下”表示動詞“試”、“打”等的動量，跟動詞是句法上的動補關係，故形式的融合程度不如“V 下”高。

除了“V 下”式，粵語中這個虛化的詞尾“下”還跟動詞結合成“VV 下”和“V 下 V 下”形式。

表面上看來，“VV 下”和“V 下 V 下”形式都源自“V 下”形式。其實不然。我們認爲，“V 下 V 下”是“V 下”的重疊式，即短時動作的重疊，表現的是動作的持續；而“VV 下”則是“VV”形式加詞尾“下”，“VV”形式本身已經表示動作的時量短，而“下”可看作是個標記，或表示正在進行的動作後會有突發狀況、或表示情狀的短暫、亦或表示持續動作和情狀的間歇。

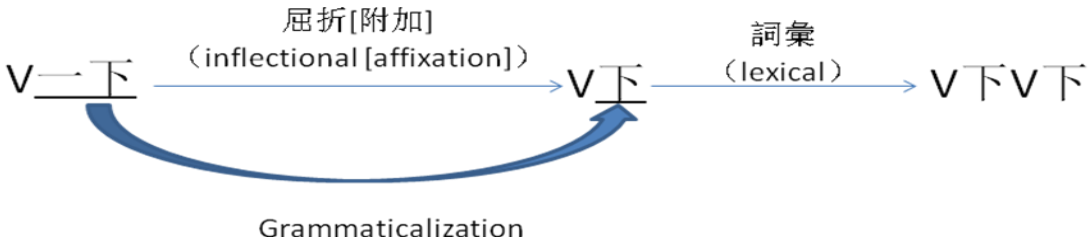
就形式上來說，“V 下 V 下”是由兩個形式完全相同的“V 下”組合而成，也就是說，組成“V 下 V 下”的語義單位有絕對的相關性。此外，“V 下”

[20] 詞尾一般不共現，而“下”跟體貌詞尾“過”、“咗”共現是由於這裡的“下”更偏向於一個補語，相等於英語的“soon/a while”。

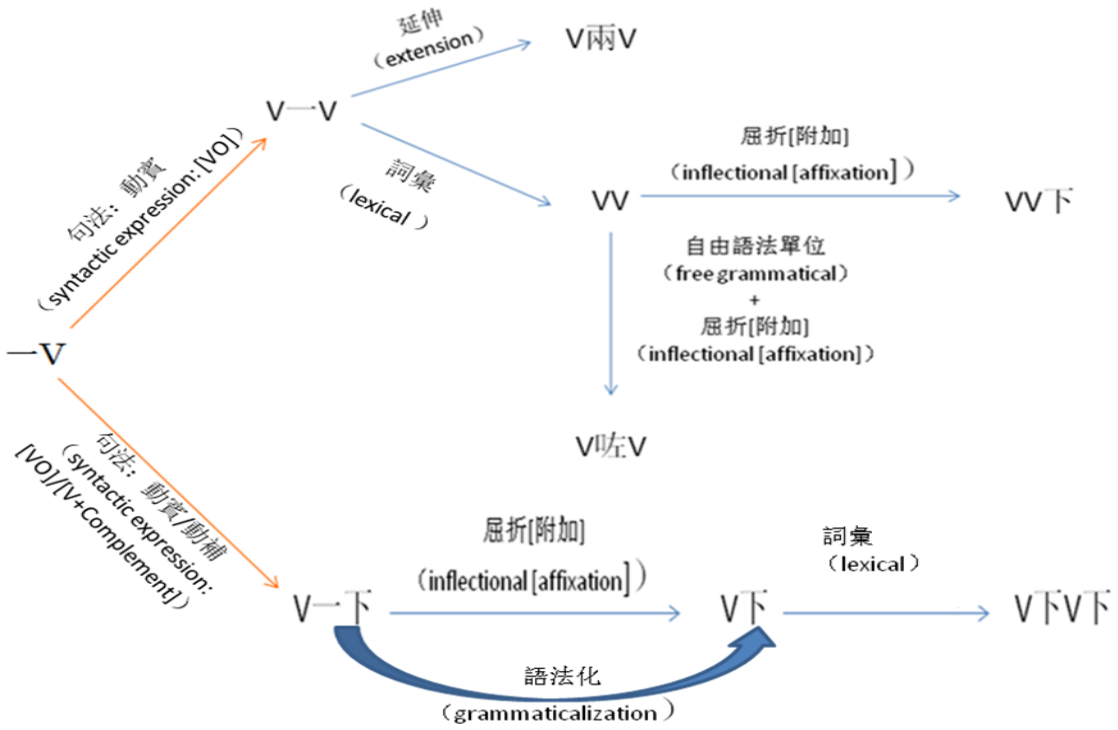
重疊是“V 下+V 下”，即兩個獨立的語義單位結合而成一個語義單位，共同表達一個新的意義。因此，“V 下 V 下”是個融合程度高的詞彙化形式。此外，“V 下 V 下”重疊形式與意義的匹配也符合張敏（1997、2001）所說的重疊的象似性，即更多的相同的形式（重疊）代表更多的相同的內容，所以“V 下 V 下”重疊式表示動作的持續進行。

至於“VV 下”形式，“VV”與詞尾“下”的相關性則在於“下”這個語義單位修飾並影響了“VV”這個語義單位。由於“VV 下”形式是“VV”動詞形式加詞尾，因此在連續統上屬於屈折構形。值得強調的是，一些學者認爲表示正在進行的動作後面有突發情況的“VV 下”形式中的“下”讀高升變調，這明顯有別于其他形式以及用於描寫動作、情狀的“VV 下”形式中讀陽上調的“下”。爲什麼會出現這種語音形式上的演變呢？我們認爲，這是由於附著于“VV”形式的“下”在語義上有所附加，它不僅僅表示動作的短暫，而是要強調動作的短暫，更重要的是它擔負著標示正在進行的動作後面有突發事件產生的責任，因此，隨著語義負擔的加重，其語音形式也發生改變，從陽上變爲高升變調。正如 Sapir（1921）和 Haiman（1985b）所說：“語音的加重直接反映強調的加重。”所以，“VV 下”的“下”變讀高升調也可看作是語音加重反映強調加重的一種表現形式。況且，粵語中的高升變調也常用來指小、表示愛稱或特指，是發生在特定或特殊情況下的變調形式，這就更進一步解釋了“VV 下”形式中“下”爲何選擇變讀高升調而不是其他聲調。然而，在現代粵語使用中，“VV 下”一般跟“V 下”、“V 下 V 下”同讀陽上調[haɻ]，這或許是因爲陽上與高聲調聽起來差別不大，現代粵語使用者在說話時也就不特意加以區分了。

至此，我們為粵語中表示次數少、動量小、時量短的多種形式理出了如下圖所示的關係：



雖然“V 一 V”及其相關形式和“V 一下”及其相關形式各自成兩條關係鏈，但它們都為同一源頭所維繫，即中古的“一 V”式。因此，我們將兩條鏈維繫起來，構成如下圖所示的形式關係：



五、 結語

粵語中表示次數少、動量小、時量短、又兼表嘗試的“V 一 V”和“V 一下”形式可能有著同源關係，即都源自中古的“一 V”式。隨著語言的發展、變化，它們相繼延伸出語義特徵更豐富的形式，計有“VV”、“V 兩 V”、“V 咗 V”、“V 下”、“VV 下”和“V 下 V 下”。若將這些形式放到時間軸上，是先有“V 一 V”、“V 一下”，再有“VV”、“V 下”，接著“V 一 V”才延伸出

“V 兩 V”和“V 咗 V”式，而根據早期粵語字典的記載，我們相信“VV 下”和“V 下 V 下”式也不跟“V 下”同時出現。

從語義和語法功能上看，早期“V 一下”形式中的“一下”可以確切表示動作次數，也可以表示動作的短時量，動詞 V 和“一下”是動補關係，可以在其間插入受事賓語。隨後，短時動量詞“（一）下”的詞義虛化而成詞尾，緊貼著動詞組成結構緊密的“V 下”形式。除了體貌詞尾“過”和“咗”，動詞 V 和“下”之間一般不容許其他成分介入。由於“V 一 V”、“VV”、“V 一下”和“V 下”形式都表示動作的動量小、時量短，且都能表嘗試，因此，它們在句式中可以互換。“V 咗 V”雖是“V 一 V”的延伸式，卻不能跟“V 一 V”等形式互換，因爲“V 咗 V”除了具備“V 一 V”等形式的語義特徵，還兼表完成態。至於“VV 下”及“V 下 V 下”，它們的形式雖都出現詞尾“下”，但由於語義單位的重疊，它們都包含持續義--“V 下 V 下”表示動作持續進行，而“VV 下”除表示在動作進行的過程中會出現突發情況，也用於描寫動作或情狀。由於語義特徵的明顯差異，“VV 下”和“V 下 V 下”在句式中不能互換，當然它們也不能與“V 一下”、“V 下”等形式互換。

從形態的角度出發，以 Bybee（1985）討論形式與意義之間關係的相關性及普遍性原則為基礎，我們對粵語中這幾個在語義上有所聯係的形式進行疏理的結果是“V 一 V”、“VV”、“V 兩 V”、“V 咗 V”和“VV 下”同屬一條關係鏈，而“V 一下”、“V 下”和“V 下 V 下”自成另一條關係鏈，兩條關係鏈的聯係在其源頭，即中古的“一 V”式。

本文對上述形式進行疏理，實際僅解決了這些形式之間的關係問題。對於“V 一 V”、“V 下”等形式，還有待進一步探討的是（一）“V 兩 V”、“V 咗 V”、“VV 下”和“V 下 V 下”究竟是在什麼時候產生的？（二）我們在第二章裏對“V 下”形式的來源所作的論述僅為初步想法，仍需進一步論證。至於哪些動詞只能進入“V 一下”或“V 下”形式、哪些動詞兩個形式都能進入，以及哪些動詞進入哪些形式是否受條件制約的問題，也必須從考察共時、歷時語料著手，並進行整理、歸納以後，才能有所論斷。

參考文獻

[1] 陳慧英：〈廣州方言的一些動詞〉，《中國語文》，1982 年第 1 期，頁 66-71。
[2] 范方蓮：〈試論所謂“動詞重疊”〉，《中國語文》，1964 年第 4 期，頁 264-278。
[3] 高華年：《廣州方言研究》（香港：商務印書館，1980）。
[4] 金桂桃：《宋元明清動量詞研究》（武漢：武漢大學出版社，2007）。
[5] 李新魁著；嶺南文庫編輯委員會、廣東中華民族文化促進會合編：《廣東的方言》（廣州：廣東人民出版社，1994）。

[6] 劉堅：〈《訓世評話》中所見明代前期漢語的一些特點〉，《中國語文》，1992 年第 4 期，頁 287-293。
[7] 彭小川：〈廣州話的“VV 下”與“V 下 V 下”〉，載單周堯、陸鏡光主編：《第七屆國際粵方言研討會論文集》（《方言》增刊）（北京：商務印書館，2000），頁 420-424。
[8] 彭小川：〈廣州方言表“持續”義的幾種形式及其意義的對比分析〉，《語文研究》，2003 年第 4 期，頁 45-48。
[9] 太田辰夫：《中國語歷史文法》（1958），蔣紹愚、徐昌華漢譯本（北京：北京大學出版社，1987）。
[10] 王紅梅、詹伯慧：〈漢語方言“VXVX”動詞重疊式比較研究〉，《語言研究》，2007 年第 27 卷第 3 期（9 月），頁 50-54。
[11] 王紅梅：〈動詞重疊研究的方言視角〉，《方言》，2009 年第 2 期，頁 140-144。
[12] 王力：《中國現代語法》（臺北：藍燈文化，1944）。
王紹新：《課餘叢稿》（北京：北京語言文化大學出版社，2000）。
[13] 徐正考：〈單音節動詞重疊形式探源〉，《吉林大學社會科學學報》，1990 年第 3 期。
[14] 張洪年：《香港粵語語法的研究》（香港：香港中文大學，1972）。
[15] 張敏：〈從類型學和認知語法的角度看漢語重疊現象〉，《國外語言學》，1997 年第 2 期，頁 37-45。
[16] 張敏：〈漢語方言重疊式語義模式的研究〉，《中國語文研究》，2001 年第 1 期，頁 24-42。
[17] 趙元任：《中國話的文法》（A Grammar of Spoken Chinese）（University of California Press, 1968）。
[18] Bybee, Joan L. 1985. Morphology: A Study of the Relation Between Meaning and Form. Amsterdam: John Benjamins Publishing Company.
[19] Haiman, John (ed.) 1985. Iconicity in Syntax. Amsterdam: John Benjamins Publishing Company.
[20] Sapir, E. Osgood. 1921. Language: An Introduction to the Study of Speech. New York: Harcourt, Brace and World.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 163-177.

The Case of the Non-canonical Subjects in Chinese[1]

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This paper is an attempt to explain how non-canonical subjects are derived in Chinese sentences like "Wang Mian sile fuqin"(Lit. "Wang Mian died father", meaning "Wang Mian's father has died.") within the minimalist framework developed by Chomsky (1995, 2001, 2004, 2008). Following Schütze's (2001) conception of default case, the author argues that a Chinese DP bears a morphologically null default case if there is no case assigner licensing it structurally. The neutrality of case feature enables any DP closer to the case assigner to be assigned the case feature. Thus the DP which moves to occupy Spec-T is the one which is closer to T than the other nominal candidates within the same search domain.

1. The issue

The derivation of non-canonical subjects in Chinese such as in (1) has been a puzzle in linguistic studies of the Chinese language.

(1) Wang Mian sile fuqin.
Lit. Wang Mian die-ASP father
"Wang Mian's father has died."

In a recent paper, Shen (2006) argues that (1) is generated as a result of the blending of (2)a and (3) rather than deriving from movement of [Wang Mian] from a lower position. In Shen's theory, "die" is a typical intransitive verb, suggesting that the meaning of "die" in (1) implies the suffering of losing something and the blending of both the transitive "diu" (meaning "lose" ; "diu" can also be used as an intransitive verb as shown by 2b) and intransitive "si"(meaning "die") results in the generation of the non-canonical structure illustrated in (1). Such an account, which is based on introducing the meaning of "diu" into "si" or the analogy of (1) to (2), is not well-grounded.

[1] Part of this paper was presented at IACL-18 & NACCL-22 at Harvard (May 20-22, 2010). Thanks go to Prof. Lu Jianming for his comments and Prof. Suzanne Flynn for her comments and suggestions as to how to improve this paper. However, all faults are mine.

(2) a. Wang Mian diule mouwu. (transitive "diu")
Lit. Wang Mian lose-ASP something
"Wang Mian has lost something."
b. Wang Mian de mouwu diule. (intransitive "diu")
Lit. Wang Mian DE something lose-ASP
"Something of Wang Mian has been lost."

(3) Wang Mian de fuqin sile.
Lit. Wang Mian DE father die-ASP.
"Wang Mian's father has died."

Liu(2007) argues similarly, additionally suggesting that (1) could be analyzed as a case of a generalized existential construction in Chinese on analogy with English presentational constructions such as (4a-b).

(4) a. *Here* comes the bus.
b. *There* goes the audience.

The above accounts, however, ignore the fundamental differences between (1) and (2)/(4). First, "si" is an unaccusative verb, semantically and syntactically intransitive, and can be used without the meaning of "loss", such as exemplified in (5). The death of the enemy in (5)a is not a "loss" but some form of a "gain". The interpretation of (5)b is that "the death of the butcher Zhang won't result in people eating pork with bristles", implying neither loss or gain. The so-called blending of (2)a and (3) is not well justified on the basis of semantic and cognitive relations.

(5) a. diren sile.
Lit. enemy die-ASP
"The enemy has died."
b. sile Zhangtufu, bu chi hunmaozhu.
Lit. die-ASP Butcher Zhang, not eat pig with bristles
"We won't eat pork with bristles and all even when the butcher Zhang is dead"
(implying that somebody is not that important)

Second, (1) is not a presentational construction although it shares some mechanism in derivation, which is part of my focus in the present paper. It is misleading to say that "Wang Mian" and "fuqin" are two arguments in (1) because "si" is a one-place predicate. In English existential constructions like (6), only the postverbal DP is an argument. "There" or "here" in (4) and (6), which are sentences of inversion, is not analyzed as arguments. In (4), "go" and "come" are one-place predicates. "here" and "there" in (4) are locative expressions. "There" in (6), a true existential construction, is an expletive.

(6) *There* are many newcomers.

In this paper, the author attempts to explain the mechanism of the derivation of non-canonical subjects like (1) in Chinese within the framework of generative grammar rather than with recourse to semantic and cognitive conditions as suggested by Shen(2006).

2. The theoretical framework

This paper follows Chomsky's(2001, 2004, 2008) derivation by phase in assuming that syntactic objects are formed in only one way, by means of Merge. Lexical items (LI) are assemblies of features, which are taken to be atoms for further computation and the locus of parameters. The edge feature of an LI enables it to be merged. Chomsky divides Merge into external Merge (EM) and internal Merge(IM). It is suggested that EM serves to build the generalized argument structure and that IM expresses discourse-related and scopal properties.

It is proposed that the key to the analysis of the non-canonical subjects is the Case Filter (cf.Chomsky, 1981) which is assumed to be applicable to DPs in human language. The Case filter, as a principle of Universal Grammar, requires every noun phrase to bear case, which is independent of its morphological instantiation (Manzini & Savoia, 2008). That is, Case must be present as an abstract feature which is checked syntactically.

Schütze (2001) argues that the Case Filter is a purely configurational requirement and that a DP is structurally licensed if and only if it is in an appropriate surface position. In other words, some DPs (perhaps nonarguments) do not need structural licensing while certain DPs (perhaps all arguments) are obligatorily supplied with an uninterpretable case feature upon entering the Numeration as a way of implementing the Case Filter. Schütze (2001) proposes that DPs may be optionally supplied with morphological case features, making distinctions between Nominative, Accusative, Dative, and so forth. And only these features have a default, with crosslinguistic variation of the default form.

According to Schütze (2001), default case marking is reducible to parametric setting. The default case in rich case languages (i.e., Latin, German, Russian, etc.) is Nominative, while in poor case languages, it may be Nominative (i.e., Dutch, Swedish, etc.) or Accusative (i.e., English, Irish, Norwegian, etc.).

To be more exact, the default case is the default morphological case form of a DP in a syntactic context where there is no structural case assigner. Given that Schütze's evidence is based on the morphological realization of DPs, such a taxonomy does not cover the case facts of the Chinese language which has no morphological case marking at all. Arguably, the default case in Chinese is neither Nominative nor Accusative but null or neutral morphologically. The lack of morphological case marking in Chinese gives DPs

of the language greater freedom in occupying the subject positions (or object positions[2]). Any Chinese DP entering the derivation of a sentence has the freedom to be structurally licensed if it establishes an agreement relationship with the case assigner, T (or V in the case of objects).

Agreement relationships between the case assigner and the case assignee are established in the syntax on the basis of closest c-command (Chomsky 2000, 2001, 2004). Thus, the DP to occupy the subject position of a finite clause should be one that is closest to T. As Legate (2008:59) explains, when T is merged into the derivation, it probes down the tree for a DP with an unvalued Case feature. If one is found, T values the feature to Nominative.

According to this theory, the three lexical items "Wang Mian", "fuqin", and "sile" in (7) are three LIs with edge features to be externally merged in building the argument structure.

(7) Wang Mian sile fuqin.
Lit. Wang Mian die-ASP father
"Wang Mian's father has died."

It is reasonable to merge [DP fuqin] with [V sile] as the first-Merge because "si" is intransitive and the logical subject is "fuqin". Since the event of "fuqin sile" affects "Wang Mian" and there is a semantic relationship ("son" and "father") between "Wang Mian" and "fuqin", the second-Merge is the external Merge of [VP fuqin sile] with [DP Wang Mian], resulting in [VP Wang Mian [VP fuqin sile]].

How this VP results in the surface word order as observed in (7) requires a convincing account. Given that phases are defined as CP and v*P (where C involves left periphery, and "v* is the functional head associated with full argument structure, transitive and experiencer constructions, and is one of several choices for v")(Chomsky, 2008:143), (7) is a one-phase derivation. When T is merged with vP and inherits its Agree feature from C, it serves as a probe derivatively. [Wang Mian] and [fuqin] are both in the search domain of the probe. What constrains the raising of [Wang Mian] is essential to the present analysis.

[2] The discussion of DPs in object positions is not my concern in this paper although it shares something in common. The examples below may illustrate the point.

(1) Ta meitian chi shitang.
He every day eat canteen (meaning " He has his meals in the canteen every day.")

(2) Ta jingchang ma jie.
He often curse the street (literally meaning "He often curses on the street." The intended meaning is " He often calls people names in public.")

3. The derivation of Chinese non-canonical subjects

I propose that non-canonical subjects in Chinese are derived as a result of movement of nominals to Spec-T for feature checking and that the post-verbal DPs like that in (7) are nominals that are stranded in situ as a result of failure to raise. What constrains this derivation is the distance between T and the nominals in the same search domain. The following constraint, which is based on Chomsky's (1995: 297, 356) ***Attract* F**, a reformulation of minimality, determines which DP raises to Spec-T when there are several candidates competing for the same Case feature checking or syntactic position.

(8) **Distance Constraint**[3]

a. Given two relevant nominal categories X and Y in the same search domain of Probe T, if X asymmetrically c-commands Y in the configuration [T…[X…Y]], then X is closer in distance to T than Y.

b. It is the closer one that is structurally assigned the Nominative case and raises to check the D features of T.

The "Distance Constraint" derived from minimality can be extended from T to other Heads and plays a central role in determining the movement of a category that cannot skip another one of the same kind. It is also related to superiority, which is applied to analyses of multiple wh-questions such as in (9). The raising of "what" over "who" is illicit because "who" is superior to "what" in terms of distance or minimality.

(9) a. Who bought what?

b. *What did who buy? (Boeckx & Hornstein, 2008)

Superiority only exists among categories with identical clusters of formal features, such as wh-phrases in (9). The extension of this notion to the analyses of nominals contributes to a better understanding of why Chinese nominals seem to occupy subject positions "freely".

It is generally assumed that DP, which is assigned the Accusative case by Verb, functions as object and that DP, which is assigned the Nominative case, functions as subject. Structural case features, not the thematic roles of DPs which may contribute to their argument structure, determine the syntactic positions of DPs. This suffices to explain why DPs which bear no Agent or Theme can occupy Spec-T as in (10). It seems both English and Chinese allow non-Agent subjects.

[3] We reformulate Attract F into the Distance Constraint because we intend to focus on the nominal candidates, not the head. The nominal candidates don't necessarily bear the same feature (such as case) since only the closest one is assigned the case feature structurally. The Distance Constraint differs from Superiority or Attract F in that the candidates in the latter two share the same formal features.

(10) a. ***There*** arrived a man from London.
b. ***The boat*** sank.
c. ***The car*** drives well.
d. ***gebi*** zhuzhe Wangxiansheng
Lit.next door live-ASP Mr Wang
"Mr Wang lives at the next door."
e. ***jiali*** laile sange keren
Lit. home come-ASP three guests
"We have three guests at home."
f. ***ta*** lanle yixiang pingguo
Lit. he rot-ASP one box apples
"One box of his apples became rotten."
g. ***zuotian*** sile yitiao gou
Lit. yesterday die-ASP a dog
"A dog died yesterday."

The Distance Constraint in (8) predicts that any nominal phrase closest to T is eligible to occupy Spec-T. In the case of two candidate nominals X and Y (nominals without structural case assignment) competing to be assigned Nominative by T, if X asymmetrically c-commands Y, it is closer to T and superior to Y. The strong version of (8) is that any nominal candidate closer to T, even if it is merged in adjunct positions such as Spec-V and Spec-v, is eligible to be assigned Nominative case.

However, when the closer nominal is headed by a preposition, it is no longer eligible for case assignment, as (11) shows. The reason is that the case feature of the DP has already been checked with the preposition and thus is inert.

(11) a. * ***zai zuotian*** sile yitiao gou ("zai"=at; compare with 10g)
"A dog died yesterday."
b. ***dao jiali** laile sange keren ("dao"=to; compare with 10e)
"We have three guests at home"
c. ***zai gebi** zhuzhe Wangxiansheng ("zai"=at; compare with 10d)
"Mr Wang lives at the next door."

"Zuotian", "jiali", and "gebi" are nominal adjuncts, which are merged in Spec-V as adjuncts[4] of time or location; structurally, they are higher than the logical subjects. Adjuncts, bearing edge features, are not merged as heads; instead, they specify HP (a head phrase such as VP, vP, or TP), adding semantic content to HP without changing its structural status. Such a position is in conformity with Chomsky (2008:141) with respect to internal Merge (IM) and external Merge(EM) as mechanisms designed to express

[4] Although nominals can be adjuncts of time and location, not all adjuncts in Chinese are nominals. The others may be adverbs headed by DE, PPs or even clauses.

semantic properties apart from generalized argument structure.

The remaining problems[5] we have to deal with are the case of DP that remains in situ and the syntactic relationship between "Wang Mian" and "fuqin". As mentioned in section 2, DPs that are not structurally licensed bear a default case. It is justifiable in assuming that the DP stranded in situ bears such a default case feature. In English, the default case is morphologically the same as Accusative, as shown in (12).

(12) a. It's ***me***.
b. There's ***us***.
c. A. I'll take a holiday. B. ***Me*** too. (ellipsis)
d. Me/*I, I like beans. (topic)
e. The best athlete, her/*she, should win. (appositive)
f. Who's going to take care of him if not us/*we?
(examples d-f are from Schütze, 2001)

There is no evidence that the Accusative case can be assigned by any transitive verbal head in (12) unless one unreasonably insists that copula "be", existential "be", or a verbless head, if any, in (12)c, assigns Accusative. "Me" and "us" bear only default case features. (12)d and (12)e are good evidence that T can only license one DP.

It is argued that Chinese nominals, regardless of their syntactic status when merged (be it Complement, Specifier, or Adjunct), can be structurally assigned case features when they are minimally c-commanded by V (inheriting Agree feature from v*, according to Chomsky, 2008) or T (inheriting Agree feature from C). Case features are morphophonologically invisible in Chinese (while they are morphologically realized in some English pronominal expressions). Morphological invisibility does not mean non-existence of the abstract case which is structurally licensed. In Chinese, the default case is argued to be morphologically unmarked, just like Nominative and Accusative in this language. Thus what distinguishes a default case from Nominative or Accusative is not

[5] Actually there's another issue that is worthy of a note here. Although Chinese is assumed to be a pro-drop language, pro occupies the subject position only when it can be identified discoursally. When such a discoursal environment is not available, Spec-T must be occupied by DP. For example,

(1) * si le Wang Mian fuqin.
die-ASP Wang Mian father
(2) A: zheli sile shei? B: sile Wang Mian fuqin.
A: here die-ASP who? B: die-ASP Wang Mian father
(3) * mai le yi ben shu.
buy-ASP a Classifier book
(4) A: ni maile shenme? B: maile yi ben shu.
A: you buy-ASP what? B: buy-ASP a Classifier book

However, the constraint on the availability of pro is not a concern of this paper and it doesn't damage the logic of our reasoning about Chinese non-canonical subjects.

their morphological form but the syntactic position. It is the external Merge position of "Wang Mian" or "ta" in (13) that makes it possible for them to raise to occupy the subject position. However, the EM position is determined by the generalized argument structure. The logical subject is merged with V before the DP (i.e., possessor, location, or time, etc.) related to the event is introduced. However, when the logical subject DP fails to raise over the higher DP to be licensed structurally by T, it remains in situ, bearing a default case, the morphologically null case form.

The relationship between the logical subject DP and the higher DP is complicated, including possession between the two DPs, time or location of an event described by the sentence, or even manner of an action.

(13) a. Wang Mian sile fuqin.
Lit. Wang Mian die-ASP father
"Wang Mian's father has died."
b. ***ta*** lanle yixiang pingguo
Lit. he rot one box apples
"One box of his apples became rotten."

Let's look at the typical examples in (13). In (13)a or (13)b, the two DPs in each sentence are related semantically, which is usually explained as "possession". Although the two sentences are structurally identical, "possession" may not be the central explanation. In my analysis, the two sentences in (14) are derived identically. "Wang Mian" and "fuqin" can be introduced into derivation in the following two ways. One is that "Wang Mian" and "fuqin" are merged as DP, whether DE is strong (morphologically realized) or weak (not morphologically realized), resulting in (14). If D (DE) heads the phrase, then none of the elements contained in DP can be extracted because DP is an island. If DP moves, it is the whole phrase that moves because the head D checks features with T. The result of such a derivation is that Spec-T is occupied by the canonical subject.

(14) a. [DP Wang Mian fuqin] sile.
b. [DP Wang Mian DE fuqin] sile.

The second possibility is that, as argued previously, "fuqin" is merged with V, forming VP and then "Wang Mian" is merged as adjunct, specifying the domain of VP, generating (13)a. "Wang Mian" merged as adjunct allows it to be topicalized after it raises to Spec-T, given that the Lexical Array contains the functional head C_{Topic}.

(13)b is identical to (13)a in derivation in that "ta" is introduced to specify "yixiang pingguo lanle". (15) and (16) demonstrate the derivation process, with some steps omitted. Lexical Array (Chomsky 2001), which used to be called Numeration (Chomsky, 1995), contains the LIs and functional heads for derivation.

(15) a. Lexical Array
{Wang Mian, fuqin, si, le, C, T, v }
Lit. {Wang Mian, father, die, ASP, C, T, v}
b. [VP fuqin sile]
Lit. [VP father die-ASP]
c. [VP Wang Mian [VP fuqin sile]]
Lit. [VP Wang Mian [VP father die-ASP]]
d. [vP sile [VP Wang Mian [VP fuqin ~~sile~~]]]
Lit. [vP die-ASP [VP Wang Mian [VP father ~~die-ASP~~]]]
e. [TP Wang Mian [vP sile [VP ~~Wang Mian~~ [VP fuqin ~~sile~~]]]]
Lit. Wang Mian die-ASP father
"Wang Mian's father has died."

(16) a. Lexical Array
{ ta,yixiang pingguo, lan,le, C,T,v}
Lit. { he,a box of apples, rot, ASP, C,T,v}
b. [VP [yixiang pingguo]lanle]
Lit. [VP [a box of apples] rot-ASP]
c. [VP [ta] [VP [yixiang pingguo]lanle]]
Lit. [VP [ta] [VP [a box of apples] rot-ASP]]
d. [vP lanle [VP [ta] [VP [yixiang pingguo] ~~lanle~~]]]
Lit. [vP rot-ASP [VP [ta] [VP [a box of apples] ~~rot-ASP~~]]]
e. [TP [ta] [vP lanle [VP ~~[ta]~~ [VP [yixiang pingguo] ~~lanle~~]]]]
Lit. he rot a box of apples
"One box of his apples became rotten."

(10)g, repeated as (17)a, is derived identically. "Zuotian" is a typical adjunct of time, merged or predicated with VP, indicating timing of the event. It is eligible to compete for case assignment just like "Wang Mian" in (15) or "ta" in (16).

(17) ***zuotian*** sile yitiao gou
Lit. yesterday died a dog
"A dog died yesterday."

Note that the derivation of (15) and (16) does not block further operation. For example, if the Lexical Array contains Topic, then (13)a may be extended to (18)a while a late merger of "Wang Mian" in topicalization results in (18)b.

(18) a. Wang Mian, *t* sile fuqin. (Topicalization of the subject)
Lit. Wang Mian, die-ASP father
"Wang Mian, his father has died."

b. Wang Mian, fuqin sile.(Topicalization by late-merger of "Wang Mian")
Lit. Wang Mian father die-ASP
"Wang Mian, his father has died."

The difference between (18) a and (18)b is that the topicalization of the former is derived by means of movement (of the subject) and that the latter is derived by merging "Wang Mian" with [TP fuqin sile], which is "about" "Wang Mian" (cf. Xu & Langendoen, 1985; Shi, 2000; Hu & Pan, 2009). Both operations are allowed in Chinese topicalization, depending on the relationship between what is topicalized and the existing structure in forming Topic-Comment structures. This is demonstrated by (19). Reconstruction of (19)a is possible but that of (19)d is impossible although (19)b might be controversial. Reconstruction of (19)c or (19)d is not acceptable.

(19) a. zhebenshu, wo kanguo *t*.
Lit. This book, I have read
"This book, I have read."
b. zhebenshu, wo xihuan (*t*) disanzhang.
Lit. This book, I like Chapter Three
"This book, I like Chapter Three."
c. zhe taoshu, wo xihuan zhanzhengyuheping.
Lit. This book series, I like *War and Peace*
"Among this book series, I like *War and Peace*."
d. shuiguo, wo aichi pingguo.
Lit. Fruits, I like apples
"Among fruits, I like apples."

(20) shows that (18) are topicalized sentences and do not allow further operations while (13)a allows for further operations.

(20) a.*zuotian, Wang Mian, sile fuqin. (not allowing double Topicalization)
(cf. Costa, 1997)
Lit. yesterday, Wang Mian, die-ASP father
"Yesterday, Wang Mian's father died."
b. *zuotian, Wang Mian, fuqin sile.
Lit. yesterday, Wang Mian, father die-ASP
"Yesterday, Wang Mian's father died."
c. zuotian, Wang Mian [sile fuqin]. (Topicalization of "zuotian")
Lit. yesterday, Wang Mian die-ASP father
"Yesterday, Wang Mian's father died."

d. zuotian, [Wang Mian fuqin] sile. (Topicalization of "zuotian")
Lit. yesterday, Wang Mian father die-ASP
"Yesterday, Wang Mian's father died."

(20)c is derived differently from (21)a in that "zuotian" is merged as Topic in (20)c while it is merged in Spec-v in (21)a, allowing it to compete for the subject position. The merger of "zuotian" in Spec-v results in two possible derivations, (21)a or (21)b, depending on whether "Wang Mian" and "fuqin" are merged in DP (as in (21)b), or separately (as in (21)a).

(21)a. [TopicP Wang Mian [TP zuotian [vP [~~zuotian]~~ sile fuqin]]]
Lit. Wang Mian yesterday die-ASP father
"Wang Mian's father died yesterday."
b. [TP zuotian [vP [~~zuotian]~~ sile [VP ~~sile~~ Wang Mian fuqin]]]
Lit. yesterday die-ASP Wang Mian father
"Yesterday, Wang Mian's father died."

Thus, "Wang Mian" may be introduced into derivation in three different ways, as summarized in (22).

(22) a. [Wang Mian] in Spec-V
b.[Wang Mian] as Topic
c.[DEP Wang Mian (DE) fuqin] (overt/covert DE)

To unify this account, I argue that "Wang Mian" is just like any other nominal expressions such as "zuotian", which supposedly functions as an adjunct and specifies VP, vP, or even TP (in Topicalization). Only "Wang Mian" in (22)a is free to compete for the subject position, responsible for (1) and (23)a. (22)b results in (23)b. (22)c result in (24), which has canonical subjects in Spec-T, because the head D of the complex DP checks features with T.

(23) a. Wang Mian,[TP ~~Wang Mian~~ [vP sile [VP fuqin ~~sile~~]]].
(Topicalization of the subject)
Lit. Wang Mian die-ASP father
"Wang Mian, his father has died."
b. Wang Mian [TP zuotian [vP ~~zuotian~~ sile [VP fuqin ~~sile~~]]].
(adjunct "zuotian" in Spec-v; "Wang Mian" merged as Topic)
Lit. Wang Mian yesterday die-ASP father
"Wang Mian, his father died yesterday."

(24) a. [Wang Mian fuqin] sile.
Lit. Wang Mian father die-ASP
"Wang Mian's father has died."
b. [Wang Mian DE fuqin] sile.
Lit. Wang Mian 's father die-ASP
"Wang Mian's father has died."

If we extend this analysis to other non-canonical subjects, we find that they are derived exactly in the same manner, as shown by (25). And the ungrammaticality of such sentences can be attributed to violation of the same constraint.

(25) a. [TP zuotian [vP sile [VP ~~zuotian~~ [VP yitiao gou ~~sile~~]]]]
Lit. yesterday die-ASP a dog
"A dog died yesterday."
b. [TopicP zuotian [TP yitiaogou [vP sile[VP ~~yitiaogou~~ ~~sile~~]]]]
Lit. Yesterday a dog die-ASP
"Yesterday, a dog died."

(26) a. *[TP fuqin [vP Wang Mian [vP sile [VP ~~fuqin~~ ~~sile~~]]]]
(violating distance constraint)
Lit. father Wang Mian die-ASP
"Wang Mian's father has died" (such an interpretation is hard to obtain from the derivations in (23))
b. *[TP fuqin [vP sile [VP Wang Mian ~~fuqin~~ ~~sile~~]]]. (violating distance constraint or DP island)
Lit. father die-ASP Wang Mian
"Wang Mian's father has died"
c.*[TP yitiaogou [vP zuotian [vP sile [VP ~~yitiaogou~~ ~~sile~~]]]] (violating distance constraint)
Lit. a dog yesterday die-ASP
"A dog died yesterday."
d. *[TopicP yitiaogou,[TP ~~yitiaogou~~ [vP zuotian [vP sile [~~yitiaogou~~ ~~sile~~]]]]
(violating distance constraint)
Lit. a dog yesterday die-ASP
"A dog died yesterday."

4. Concluding remarks

If the above analysis is correct, (1) or (13)a is structurally ambiguous in that "Wang Mian" is either topicalized in Spec-Topic or the subject in Spec-T. This explains why some researchers (for example, Shen, 2006) treat it as subject while others (cf. Pan and Han, 2005) analyze it as Topic. My analysis offers a unified explanation of (1) and

related constructions within the minimalist framework, particularly derivation by phase (Chomsky, 2001, 2008), in which main verbs raise to *v*, DPs raise to Spec-V to check Accusative case feature or to Spec-T to check Nominative case feature. The matrix verb V in (1) or related examples is unaccusative and takes no object. V is always merged with DP in base generation, forming VP.

The DP that follows the matrix verb in surface structure is the logical subject. It is sentence-final because it is stranded in situ for failing to raise to Spec-T. It fails to raise because a higher DP which c-commands it is closer to T and establishes probe-goal relationship with T. What determines this operation is the Distance Constraint in (8). Thus it is a natural consequence of derivation that the logical subject DP takes a sentence-final position. What occupies the structural subject position Spec-T is a nominal expression which happens to be closer to T and is thus capable of receiving Nominative case. The DPs that are not structurally licensed in case assignment take the default case form, which is morphologically null in Chinese. These DPs seem to be exempt from the Case Filter as strictly defined in Chomsky (1981) since there is no case assigner to license them in the course of derivation.

The above analysis can help explain why DPs which seem to be adjuncts of Time, Location, Possessor, etc., in Chinese can be in the structural subject position Spec-T, as evidenced by the examples in (27). The adverbial marker "DE" renders (27)d ungrammatical since [gaogaoxingxing DE] is not nominal in nature.

(27) a. *zuotian* xia yu le (Time)
Lit. yesterday fall rain ASP
"It rained yesterday."
b. *qiangshang* gua le yifu hua (Location)
Lit. wall hang ASP a Classifier painting
"A painting is hung on the wall."

c. gaogaoxingxing shangban qu[6]. (Manner)
Lit. happy go to work
"Go to work happily."
d. *gaogao xingxing DE shangban qu.
Lit. happily go to work

To sum up, the non-canonical subjects in Chinese sentences as demonstrated in this paper are derived as a result of movement of the closer nominal to T. "Wang Mian" in (1) and (18)a is the structural subject and "fuqin" is a stranded DP in situ, bearing only a default case. "Wang Mian" in (18)b is Topic, which is late merged with TP. The Distance Constraint in (8) predicts that any nominal which is closest to T is eligible to occupy Spec-T. This property of Chinese is the cause of diversified non-canonical subjects in Chinese sentences.

References

Boeckx, Cedric, and Norbert Hornstein. 2008. Superiority, reconstruction and islands. In Robert Freidin, Carlos P. Otero, & Maria L. Zubizarreta(eds.). *Foundational Issues in Linguistic Theory-Essays in honor of Jean-Roger Vergnaud*. Cambridge, MA.: The MIT Press. pp.197-225.

Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA.: The MIT Press.

Chosmky, Noam. 2001. Derivation by phase. In Michael Kentowicz(ed.). *Ken Hale: A life in Language*. Cambridge, MA.: The MIT Press.pp.1-52.

Chomsky, Noam. 2004. Beyond explanatory adequacy. In Adriana Belletti (ed.). *The Cartography of Syntactic Structures Vol.3, Structures and Beyond.* Oxford: Oxford University Press. pp.104-131.

Chomsky, Noam. 2008. On phases. In Robert Freidin, Carlos P. Otero, & Maria L. Zubizarreta(eds.). *Foundational Issues in Linguistic Theory-Essays in honor of Jean-*

[6] This is the first half of a longer saying "gaogaoxingxing shangban qu, pingpinganan huijia lai" (a couplet slogan literally meaning "Go to work happily and return home safely"), which is usually written or painted on a wall or at some conspicuous place so that people, especially people who drive to and from work, can see the saying clearly when they leave home for work, reminding them that they should drive carefully. In this saying, "gaogaoxingxing" is reduplication of "gaoxing"(happy or happiness). The addition of DE turns it into an adverb, which modifies VP. However, (27)d is not acceptable. The only way to make it acceptable is the insertion of a DP at Spec-T, generating "Dajia/women gaogaoxingxing DE shangban qu", where "dajia/women" means "everybody/we". The (un)grammaticality of (27)c and (27)d is not due to the presence or absence of the logical subject (which is missing in either sentence), but due to the adverbial marker DE. When DE is absent, Spec-T seems to be occupied by "gaogaoxingxing", morphologically resembling a nominal. When DE is present, Spec-T has to be filled in by the logical subject DP. This is some additional evidence that Chinese is not an arbitrarily pro-drop language.

Roger Vergnaud. Cambridge, MA.: The MIT Press. pp.133-166

Costa, João. 1997. On the behavior of adverbs in sentence-final context. *The Linguistic Review* 14:43-68.

Legate, Julie A. 2008. Morphological and abstract case. *Linguistic Inquiry* 39:55-101.

Liu, Xiaolin. 2007. Another account of the generation of "Wang Mian sile fuqin". *Zhongguo Yuwen* 5:440-443.

Manzini, M. Rita, & Leonardo M. Savoia. 2008. Uninterpretable features are incompatible in morphology with other minimalist postulates. In Robert Freidin, Carlos P. Otero, & Maria L. Zubizarreta(eds.). *Foundational Issues in Linguistic Theory-Essays in honor of Jean-Roger Vergnaud*. Cambridge, MA.: The MIT Press. pp. 43-72.

Pan, Haihua & Han Jingquan. 2005. Syntactic analysis of explicit unaccusative verb constructions. *Yuyan Yanjiu* 3:1-13.

Shen, Jiaxuan. 2006. The generation of "Wang Mian sile fuqin"—on blending in Chinese sentence making. *Zhongguo Yuwen* 4:291-300.

Schütze, Carson T. 2001. On the nature of default case. *Syntax* 4:205-238.

Xu, Liejiong & Terence Langendoen. 1985. Topic structures in Chinese. *Language* 61:1–27.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 178-195.

Adverbs and Light Verbs*

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Chinese allows manner and degree adverbs to occur further to the left than is possible in English and other languages; compare *Amanda will (*loudly) be (loudly) greeting her guests (loudly)* with *Lisi (qingqingde) ba zhuozi (qingqingde) qiao-le yixia* "Lisi lightly knocked once on the table," with the manner adverbial to the left of BA. It is proposed here that this results from the two languages having different types of light verbs, with Chinese BA and BEI being "lighter" than English auxiliaries like *be*, and the UG definition of domains for such Low adverbs depending on the nature of light verbs. This result has a number of implications, especially for the analysis of Chinese passives, providing evidence that BEI takes a vP complement rather than an IP, as on some recent analyses.

1. Introduction

After many years with no coherent theory of adverbial adjuncts, formal syntax now has several useful proposals for an overall framework. Though they differ in both their underlying philosophy and specific formal mechanisms, these frameworks (exemplified by Cinque 1999, Frey and Pittner 1999, and Ernst 2002) agree on many facts, such as that certain sequences of adverbs are rigidly ordered, while others are not, and that certain types of adverbs in all languages occur in particular areas of a sentence – very low or very high, for example. And they agree that facts of this sort ought to be encoded in universal grammar (UG) in some way.

1-2 illustrate the fact that adverbs have fairly well defined "zones," or ranges where they occur, for English and Chinese, respectively:

(1) a. (Perhaps) Al (perhaps) should (perhaps) be (*perhaps) seeing a doctor (*perhaps).
b. (*Tightly) she (*tightly) would (tightly) grip (*tightly) the handle (tightly).
c. (Wisely,) Karen (wisely) has (wisely) been (wisely) answering questions (wisely).

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(2) a. Zhangsan (dagai) yinggai (*dagai) kan yisheng (*dagai).
Zhangsan probably should probably see doctor probably
"Zhangsan should probably see a doctor."
b. (*Jinjinde) Ta (*jinjinde) hui (jinjinde) wo-zhu (*jinjinde) bashou (*jinjinde).
tightly s/he tightly will tightly grasp tightly handle tightly
"S/he will grasp the handle tightly."
c. Lisi (hen congmingde) huida-le wenti (*hen congmingde).
Lisi very intelligently answered-PRF question very intelligently
"Lisi intelligently answered the question."

1a illustrates that speaker-oriented adverbs, like the modal adverb *perhaps*, occur high in a sentence, to the left of the base positions of all auxiliary verbs. English auxiliaries, including the modal auxiliary *should* in 1a, raise into T, so the third occurrence of *probably* is above the auxiliaries' base positions. 2a shows the same effect in Mandarin Chinese (henceforth merely *Chinese*), where the modal auxiliary does not raise. In 1b, the manner adverb *tightly* must occur either right before the verb *grip* or at the end of the VP, with the position between the verb and direct object barred. Chinese shows a similar pattern in 2b, though final position is impossible for this sort of manner adverbial. 1c and 2c involve an agent-oriented adverb, which allows two readings. For the clausal (or "sentential") reading, *wisely* in 1c means that Karen was wise to answer the questions, as opposed to not answering them – though in fact her answers may have been stupid. The first three occurrences of *wisely* clearly have this reading, paralleling the high range shown by *probably*, though the range for agent-oriented adverbs extends a bit lower. Such adverbs also have a manner reading, so that she answered the questions in a wise way; this is expressed by the occurrences just before the verb and the one in VP-final position. The Chinese sentence in 1c shows an ambiguity, with *hen congmingde* "intelligently" having both readings in the immediately preverbal position, where the ranges for the two readings overlap.[1]

This paper is about defining and explaining the range for manner adverbs and similar "Low adverbs," otherwise known as "event-internal adverbs": basically, this range goes from immediately preverbal position to the right edge of the VP. The relevant adverb subclasses are (a) Manner (e.g. *tightly*, *loudly*, *precisely*), (b) Degree/Measure (*completely*, *partially*), and (c) Restitutive (*again*). I will ignore the restitutive *again* and its Chinese equivalent *you*, to keep things simple – there are a number of complications in this case which we need not address. 3-4 provide further examples: here, the manner adverbs *precisely* and *tightly* can only occur to the right of the last auxiliary verb,

[1]Some speakers do not have an ambiguity in this sentence, but given proper additions and context, the indicated position can be shown to allow to readings.

immediately to the left of the main verb:[2]

(3) a. The drawing (*precisely) was (precisely) carved onto the copper plate.
b. The criminal (*tightly) was (tightly) held by the policeman.

(4) a. The drawing (*precisely) had (*precisely) been (precisely) carved onto the copper plate.
b. The criminal (*tightly) had (*tightly) been (tightly) held by the policeman.

However, Chinese allows manner adverbs to occur further to the left than English does, preceding both BA and BEI, as shown in 5-6.

(5) a. Tuhua (hen jingquede) bei Wangwu (hen jingquede) ke zai tongban shang.
drawing very precisely PASS Wangwu very precisely carve at copperplate on
"The drawing was carved precisely onto the copper plate by Wangwu."
b. Fanren (jinjinde) bei jingcha (jinjinde) zhuazhu-le.
criminal tightly PASS police tightly hold-PRF
"The criminal was held tightly by the policeman."

(6) Lisi (qingqingde) ba zhuozi (qingqingde) qiao-le yixia.
Lisi lightly BA table lightly knock-PRF once
"Lisi lightly knocked once on the table."

I assume the sequence of clausal heads for the two languages shown in 7a-b, though the Tense/Infl and Modal heads will not be crucial here (see Huang et al. 2009 for evidence justifying the head-status of BA and BEI). I assume that for both languages, the main verb moves into v. Given this sequence, we can define the problem for adverb licensing with the difference in bold-facing in 8: English licenses Low adverbs in the range shown in bold in 8a, from just to the left of the main verb and out to the right edge of VP. Chinese, on the other hand, has the range shown in boldface in 8b, including the position just to the left of the passive marker BEI:

(7) a. English clausal-head sequence: T - Mod - Perf - Prog - Pass - v - V
b. Chinese clausal-head-sequence: Infl - Mod - Asp - Pass - BA - v – V

[2]There are occasional examples of pre-auxiliary manner adverbs, especially in passive sentences, although they are often awkward, and not accepted by all speakers (see i-ii). I leave these aside, since they are relatively rare, and English-Chinese contrast seems robust.

(i) ?Our new proposals had firmly been turned aside during that series of meetings.
(ii) ?Jim would peacefully be sitting on his porch reading a newspaper if not for his next-door neighbor's houseguest.

(8) a. English domain for Low adverbs: T - Mod - Perf - Prog - Pass - **[v - V]**
b. Chinese domain for Low adverbs: Infl - Mod - Asp - **[Pass - BA - v - V]**

In 7-8, note especially the difference between the passive heads in the two languages: Low adverbs may appear to the left of the Chinese passive BEI, but not to the left of the English passive *be*.

Many analyses assume that the correct description for Low adverb distribution is that they are licensed in vP, but given the facts shown here, this formulation is not correct, or at least not obviously correct. I will propose here instead that Low adverb interpretation differs in the two languages because it is formulated in UG not in terms of vP per se, but in terms of the types of light verbs that occur above the lexical VP. In English, there is only one such light verb, v, while in Chinese there may be three (v, BA, and BEI). More specifically, the Low range for manner and degree adverbs is relativized to projections headed by non-Auxiliary, functional light verbs, where I take the non-boldfaced heads in 8 including the English passive head *be,* to be auxiliary verbs, while BA and BEI are not.

Thus, the questions to be answered here are these: (i) Where is the left edge of the Low Range? (ii) How is this to be stated in UG? (iii) How can cross-linguistic variation be accounted for? And (iv), more specifically for Chinese syntax: What implications do these adverb distribution facts have for the BA and BEI constructions?

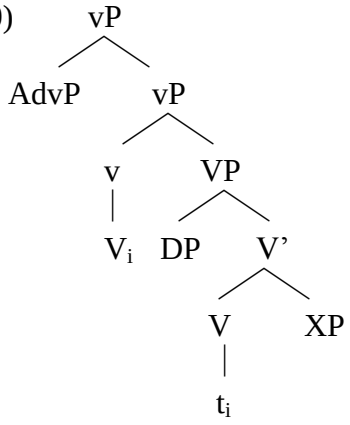
2. Outline of the Problem

As noted, in English Low adverbs can go as high as edge of vP, but not to left of any AuxV. 9 provides further examples:

(9) a. Gretchen (*softly) may (*softly) have (softly) sung a lullaby.
b. Bob had (*smoothly) been (smoothly) skiing around the obstacles on the course.
c. The apparatus (*completely) had (??completely) been (completely) dismantled.

I assume the structure shown in 10, with the main verb obligatorily moving up to v, and direct objects in Spec,VP. Adverbs can adjoin to vP, as shown, but if adjoined to the lexical VP they may only adjoin to the right (for reasons discussed in Ernst 2002); this accounts for the usual ban on adverbs between verbs and their DP objects.

(10)



11-13 provide further examples showing that Chinese Low adverbs can go to the left or right of BA and BEI (and their object) (11-12), though not to the left of modals (13):

(11) a. Fanran (hen yonglide) bei jingcha (hen yonglide) tui dao chezi limian.
Criminal very forcefully BEI police very forcefully push to car in
"The criminal was forcefully pushed into the car by the policeman."
b. Chezi (zhijie) bei Xiao Wang (zhijie) kaihuiqu-le.
car directly BEI Xiao Wang directly drive.back-PRF
"The car was driven straight back by Xiao Wang."
c. Fangjian (wanquan) bei (wanquan) shoushi ganjing le.
room completely BEI completely pick.up clean PRF
"The room was completely cleaned up."

(12) a. Lisi (qingqingde) ba zhuozi (qingqingde) qiao-le yixia.
Lisi lightly BA table lightly knock-PRF once
"Lisi lightly knocked once on the table."
b. Zhangsan (wanquan) ba qiang (wanquan) ca ganjing le.
Zhangsan completely BA gun completely wipe clean PRF
"Zhangsan wiped the gun completely clean."

(13) a. *Jingcha jinjinde neng(gou) zhua-zhu neige fanren.
police tightly can hold that criminal
"The policeman tightly can hold the criminal."
b. *Bianlun zhong, duishou dashengde yinggai fanbo.
debate middle opponent loudly should retort.
"During a debate, opponents loudly should retort."

In order to address the problem of the English-Chinese difference, we must look briefly at the theory of adverbial distribution that I assume, laid out in 14 (see Ernst 2002 for a fuller exposition):

(14) Properties of the theory
a. Adverbials are adjoined to XP or X' nodes
b. For the most part, adverbials may adjoin wherever they receive their proper interpretation (as determined by their lexical requirements, requirements of other lexical items, and principles of semantic composition for adverbials)
c. There are broad principles of syntax-to-semantics mapping for adverbials, e.g.
i. Event-descriptions and proposition-descriptions are built up in layers
ii. Low (event-internal) interpretations are barred above vP (to be revised)
d. A given clausal projection (VP, vP, AspP, etc.) does not necessarily always map to the same semantic entity (event, proposition, etc.).

14a indicates that there are relatively few restrictions on adverb syntax per se – adverbs are adjoined, not in Spec positions as in some approaches,[3] and adjunction is free in principle. For the most part, adverbials may adjoin wherever they receive their proper interpretation, determined in part by the lexical requirements of the adverbial in question, by the requirements of other lexical items, and by general principles of semantic composition for adverbials. For example, a speaker-oriented adverb like *xingkui* "fortunately" in 15 must precede negation:

(15) Zhangsan (*bu) xingkui (bu) yao ba chezi mai-diao.
Zhangsan not fortunately not will BA car sell-off
"Zhangsan is (*not) fortunately (not) going to sell his car."

As shown in Ernst 2008, 2009, this is accounted for because adverbs of this type are positive polarity items, which amounts to a lexical requirement that they not be in the local scope of negation or a similar operator. 16 illustrates the effect of broad principles of semantic composition for adverbials, specifically 14c (i), i.e. event-descriptions and proposition-descriptions are built up in layers (this is as opposed to a very general conjunctive, Neo-Davidsonian mechanism, as in Pietroski 2005, for example):

(16) a. Xiaoming (haoxiang) jingjingde (*haoxiang) zuozhe.
Xiaoming apparently quietly apparently sit-Dur
"Xiaoming is (apparently) quietly (*apparently) sitting."

(17) PROPOSITION > EVENT > EVENT-INTERNAL

[3]For discussion of cartographic, "F-Spec" approaches to adverbials, see Cinque 1999, 2004.

Without going into details here (see Ernst 2002: ch. 2), the informal template in 17 shows event-internal modifiers may create new event-descriptions from a basic predicate, which represents an event, as in basic manner modification. A sentence may then have an event-modifier, such as the agent-oriented *wisely* or *hen congmingde* illustrated above, combining with a completed event including event-internal modifiers. Finally, this event becomes "part" of a proposition, which may take propositional modifiers such as speaker-oriented adverbs, like *haoxiang* "apparently" in 16. The ordering in 17 is rigid, so that once you start using event-modifiers you cannot go back and perform event-internal modification; once you start using propositional modifiers, you can no longer do event-modification. This explains why 16 is ungrammatical with the second occurrence of *haoxiang*: once the latter combines with a proposition corresponding to *Xiaoming zuozhe* "Xiaoming is sitting," it is impossible to add the event-internal modifier *jingjingde* "quietly."

An important implication of this system is that (as stated in 14d) a given projection does not always map to the same semantic object. It is important to emphasize this point, because there is a common background assumption that this is the case, e.g. that vP always maps to some sort of an event-description, IP always maps to a proposition, and so on. I explicitly deny this, and in fact there is evidence to this effect. 18 illustrates the point:

(18) a. Tim [$_P$ had [$_E$ cleverly [$_E$ frequently [$_E$ not [$_E$ always [$_E$ returned his library books]]]]]

b. Bob [$_P$ has [$_P$ not [$_P$ obviously [$_E$ returned his library books]]]

In 18a, the basic event description represented by the vP *returned his library books* is augmented by the event-modifier *always*, the resulting event description then being modified by *not* – which I take to be either an event-modifier or a propositional operator – and so on upward, until we have the full proposition. In 18b, on the other hand, the adverb *obviously*, which modifies a proposition, adjoins to vP and turns the basic event-description into a proposition, which can then be modified by propositional negation. Crucially, both *always* in 18a and *obviously* in 18b adjoin to vP, though the resulting vP represents an event in the first case and a proposition in the second.

Now we are ready to turn to the main issue: given the schematic adjunction sites shown in 7-8, why is it that English allows Low adverbs only when adjoined to vP, while Chinese allows them in a higher position? In earlier work I proposed, in essence, that vP-adjunction was universally the highest adjunction site for Low adverbs, but given the Chinese facts, this must be revised.

3. Solutions that Will Not Work

We can start by examining several solutions that may seem promising given the

recent literature, but which can be shown not to work. One possibility is to say that vP is indeed the universal domain for Low adverb modification, but that, as illustrated in 19, Chinese phrase structure is such that both BA and BEI are within vP:

(19) [$_{vP}$ v [$_{BeiP}$ BEI [$_{BaP}$ BA [$_{VP}$ DP [$_{V'}$ V XP]]]]]

To some extent, evaluating this proposal depends on precisely what properties one imputes to v, but at least on the most common current assumptions 19 has a number of difficulties. First, if we take the usual stance that the main verb moves to v (as seems necessary on the common assumption that v represents the locus of causative meaning in a lexically decomposed predicate), then 19 clearly gets the wrong word order for Chinese BA and BEI sentences, since the latter two always precede main verbs. Moreover, such raising ought to be impossible by the Head Movement Constraint, which blocks raising of one head over another, as would be the case in 19. But if raising does not occur, then the semantic requirements of at least transitive verbs with Agent subjects are not met. Second, we would have to parameterize, or otherwise explain, the variant order of the passive head and v, which normally occur in the opposite order from that shown in 19. In effect, 19 reduces v to a mere marker of the Low range for adverbs, with no other advantage and plenty of problems.

A second way of approaching the Chinese-English distinction with respect to Low adverb licensing would be to say that the languages differ in which heads license which sort of adverbial modification (see Tang 1990 for an analysis of Chinese adverbials that would be amenable to this). On such an approach, illustrated in 20, one might say that English V and v have features that license manner adverbs but the passive *be* and higher Auxiliaries do not – this would account for why English Low adverbs cannot go to the left of any auxiliaries – while in Chinese the whole set including V, v, BA, and BEI bear such features.

(20) a. English: V, v = [+Manner] b. Chinese: V, v, BA, BEI = [+Manner]
Passive *be* = [-Manner]

However, aside from being a mere stipulation, with no general value for universal grammar, this presupposes a system of adverb licensing that relies on very specific, often *ad hoc* features that may vary from projection to projection and language to language. As a number of recent works have shown, this sort of theory misses all sorts of generalizations and amounts to little more than lists of adverb positions. So this ought to be rejected as well.

A third group of approaches to the Chinese-English adverb distribution difference involves movement, either of heads around adverbs, or adverbs around heads. The first of these is represented by the well-known theory of Cinque 1999, which is characterized by a rigidly-ordered series of empty functional heads, each of which licenses one class of

adverbs. For the data at issue here, we would need the sequence shown in 21, with manner and degree adverbs indicated by lower case letters and located in Spec positions, licensed by the correspondingly-named heads in capital letters (PASS = BEI):

(21) [$_{\text{MannerP}}$ Manner MAN [$_{\text{DegP}}$ Degree DEG [$_{\text{PassP}}$ PASS [$_{\text{BaP}}$ DP BA [$_{\text{vP}}$ v VP]]]]]

I and others have extensively discussed the problems with this general type of theory elsewhere, so I will not go into great detail here. But there are two points to make. First, the general word order freedom of manner and degree adverbs with BA and BEI shown above adds weight to a prime argument against this general framework, i.e. there is no general rigidity among adjuncts, as Cinque claims.[4] This is illustrated further in 22, where *changchang* "frequently" and *guyi* "intentionally" can occur in either order.

(22) Ta (guyi) changchang (guyi) zao hui-jia.
s/he purposely often purposely early go-home
"S/he purposely often goes home early."

Second, the required head movements are quite problematic, since in a structure like 21, both BA and BEI would have to move up over the degree and manner adverb heads, sometimes both of them in the same sentence, to obtain the orders where the adverbs follow BA and BEI. These movements (i) have no independently motivated triggers or justified landing sites, (ii) violate the usual constraints on head movement (HMC), and (iii) cannot get word order right unless BA's object DP also moves, which ends up being very stipulative.

An alternative movement approach to the adverb data would involve raising the adverbs, as sketched out in 23, where English represents the base order for both languages, but Chinese allows raising of the manner adverb to either of two higher positions:

(23) a. English: Subject *have* *be* MANNER V
b. Chinese: Subject *you* MANNER_i BEI t_i BA t_i V

But this suffers from a number of drawbacks as well: (i) it would violate the apparent ban on adverb-specific movements; (ii) it would require ad hoc movements and movement triggers; and (iii) it would have no obvious way to explain why cross-linguistic variation exists.

Thus it seems like the approaches outlined here all have significant problems, and we should seek a more general, less problematic approach.

[4]For further discussion, see Ernst 2002, 2009, Tang 2001, van Craenenbroeck 2009, and references cited there.

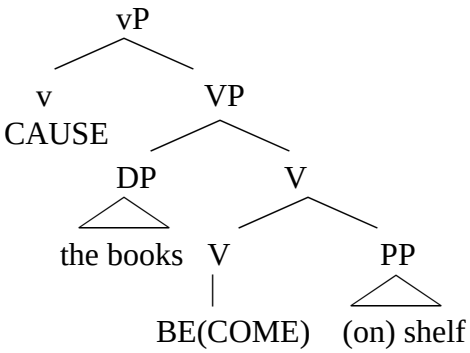
4. Proposal

The difference between Chinese and English can be handled if we define the range where Low adverbs are licensed in terms of the lexical VP plus a small number of light verbs above the VP, taking BA and BEI as two of the relevant light verbs. In order to do this, and especially to get the correct left edge of the Low range, we must look at the different types of light verbs.

There is a vast confusion in the literature about what counts as a light verb, as Butt (to appear) makes clear. One common referent for the term *light verb* in the current formal-syntax world is the covert head usually noted *v*, or variants of this, serving as a building block for verbs in a decompositional framework; thus v might have the value of CAUSE, as indicated in 25. This type is noted on the scale in 24 as a *decompositional v*:

(24) Lexical V > *Suru*-LV > Aux V > "Fully Functional V" > Decompositional v
a. [------------------------------[+overt] --]
b. [----------------------------------[+ light]--]
c. [+internal] [-internal] [---------- [+internal] ----------]

(25) a.



b. Hal shelved the books.

Another common referent is the original usage of the term, a verb that acts morphologically like a main lexical verb, but which is bleached of meaning and typically combines with some other element to form a predicate. I will refer to these as *suru*-type light verbs, after the well-known Japanese exemplar *suru*; these stand close to lexical verbs on the left of the scale in 24. 26 provides an example from Urdu (Butt, to appear), where the verb in sentence-final position, glossed as "do," combines with the noun meaning "memory":

(26) nadya=ne kahani yad k-i.
Nadya.Msg-Erg story.Fsg memory.F do-PRFsg
"Nadya remembered the story."

In between these two types are auxiliary verbs and what I will call, for lack of a better term, "Fully Functional" light verbs. It must be stressed that there is little agreement across frameworks or even within frameworks about how to draw dividing lines between light verbs, auxiliary verbs, serial verbs, and the like. I will take the stance that auxiliary verbs typically express notions like modality, tense, aspect, and voice, and that they differ from both main verbs and *suru*-type light verbs in a given language in some significant and consistent way. Thus in English, of course, auxiliaries express these notions but also differ from main verb in their position in negative and interrogative sentences (see 27-28), and in their rigid ordering preceding main verbs. In Urdu, using different criteria, light verbs reduplicate as in 29a, while auxiliaries do not (cf. 29b (Butt, to appear)):

(27) a. Dan has not left.
b. *Dan left not.

(28) a. Has Dan __ left?
b. *Left Dan __ ?

(29) a. vo so →a-ti (vati) t^{h}-i
Pron.3.sg.Nom sleep go-Impf.F.Sg go-Redup be.Past-Sg.F
"She used to go to sleep."
b. vo so rah-i (*vahi) t^{h}-i
Pron.3.sg.Nom sleep Prog-F.Sg Prog-Redup be.Past-Sg.F
"She used to keep going to sleep (at inopportune moments)."

I propose that BA and BEI belong to a class partway between true auxiliaries and decompositional light verbs, and that they thus contrast with English *have* and *be*, which are true auxiliaries. BA and BEI obviously are overt, and so are not decompositional light verbs. But they are clearly not auxiliary verbs either. First, they lack the typical modal, tense, or aspectual meanings associated with auxiliaries. These meanings are external to basic argument structure, whereas BA and BEI are both internal in some sense, either having effects on argument structure (the passive BEI) or marking a site for a verbal object (BA).

Second, BA and BEI do not have all the morphological properties of either English or Chinese main or auxiliary verbs, nor do they license gaps as main and auxiliary verbs do.

Note first that English auxiliaries, exemplified by *have* in 27-28, not only have external meanings as discussed just above, but also license gaps, as in 30.

(30) Addie hasn't left, but Dan has __.

31-33 illustrate how BA and BEI differ from Chinese auxiliaries and main verbs. 31-32 show that BA and BEI do not take aspect markers like the perfective *le*; though Chinese modals do not take aspect markers either, they allow the A-not-A question form, while BA and BEI do not, as shown in 31-32. It is true that some speakers accept some cases of the A-not-A form with BA and BEI, but this is rarer and much less productive than with, say *hui* "will" or the perfective *you* (see 33):

(31) a. *Ta bei-le ren sha.
s/he PASS-PRF person kill
"S/he was killed by a person."
b. *Ta bei-bu-bei ren sha?
s/he PASS-not-PASS person kill
"Is s/he killed by a person?" (Li 1990: 159)

(32) a. *Ta ba-bu-ba shui fang-zai guo li?
s/he BA-not-BA water put at pot in
"Does s/he put the water into the pot?"
b. *Ta ba-le shui fang-zai guo li.
s/he BA-PRF water put at pot in
"S/he put the water into the pot." (Li 1990: 186)

(33) a. Ni hui-bu-hui guolai?
you will-not-will come.over
"Can you come over?"
b. Ni you-mei-you chi bingqilin?
you PRF-not-PRF eat ice.cream
"Did you eat ice cream?"

Also, 34-35 show that BA and BEI cannot function as one-word answers – that is, they cannot license gaps – in the way that *hui* "will" or the perfective *you* can in 35:

(34) a. Zhangsan bei ren kanjian-le ma? *Bei.
Zhangsan BEI person see-PRF Q BEI
"Was Zhangsan seen by anyone? Was."
b. Wangwu ba beibao nazou-le ma? *Ba.
Wangwu BA backpack take.away-PRF Q BA
"Did Wangwu take the backpack away? Ba."

(35) a. Ta hui mashang guolai ma? Hui.
s/he will immediately come.over Q will
"Will s/he come over right away?"

b. Ta you-mei-you chi bingqilin? You.
s/he PRF-not-PRF eat ice.cream PRF
"Did s/he eat ice cream? Did."

Given these differences, and now taking BA and BEI as an identifiably separate class of light verbs from true auxiliaries, we may formulate the proposal for the Low range in 36:

(36) Event-Internal Modification is licensed only within [+V, +Internal] projections.

36 seems to make the right cut for the features shown in 24 (I ignore features for *suru*-type light verbs here, as irrelevant to the issue at hand). 36 allows manner and degree adverbs to adjoin to BA and BEI phrases in Chinese, as well as to the vP, while in English such adverbs may only adjoin as high as vP, since English has no overt Fully Functional light verbs (i.e. internal light verbs aside from v) – only auxiliaries. Note especially that the rightmost possible English auxiliary verb, the passive *be*, is internal just as BEI is, since it represents Voice and thus relates to the main verb's argument structure; however, English auxiliary verbs have more properties of main verbs than do BA and BEI, so the passive *be* counts as a true auxiliary verb and therefore does not license Low adverbs. Thus [+internal] must be taken as a partly arbitrary feature, mixing semantic and morphosyntactic criteria.

5. Implications

36 could be seen as defining the Low range as an extended VP excluding auxiliary verbs. BA and BEI are fully functional in the way that decompositional v is, as shown by their functional meanings and their lack of any true verbal morphology. The difference between English and Chinese is that English lacks fully functional light verbs of this sort, while Chinese has them.

Does this proposal have any implications for the BA and BEI constructions? For BA, there are no problems if we take the construction to be monoclausal, as illustrated in 37; various analyses are compatible with the adverb facts shown here as long as BA takes some sort of VP complement along these lines. As for BEI (see below), if BA were to take a clause as its complement, then the pattern in 38 (=12a), with manner adverbs above as well as below BA and its object, would be incorrectly predicted ungrammatical.

(37) $[_{IP}$ DP Infl $[_{BaP}$ BA $[_{vP}$ DP $[_{v'}$ v VP]]]]

(38) Lisi (qingqingde) ba zhuozi (qingqingde) qiao-le yixia.
Lisi lightly BA table lightly knock-PRF once
"Lisi lightly knocked once on the table."

The implications for BEI are more significant. Consider the analysis of long passives in Huang 1999 (cf. Ting 1998): its main points are schematized in the tree in 39 (reformatted from Huang et al. 2009: 120):

(39) [$_{IP}$ NP ... [$_{v'}$ V [$_{IP}$ NOP [$_{IP}$ NP ... [$_{v'}$ V NP]]]]
Zhangsan$_i$ bei OP$_i$ Lisi da-le t$_i$
"Zhangsan was hit by Lisi."

Without going into all the data and justifications for this structure, what is important for present purposes is that BEI takes an IP complement, and this IP contains a null operator NOP, representing the direct object, which has been A'-moved to the beginning of that IP. This operator is in turn identified with the subject of BEI, *Zhangsan* in 39, so that even though *Zhangsan* has not actually moved from object position as is usually assumed for passives, it is interpreted as the verb's object. I accept the evidence that (a) BEI is a clausal head, not a preposition taking its object inside a PP, and that (b) movement of the direct object has the properties of A'-movement (see Ting 1998, Huang 1999 or Huang et al. 2009).

What is at issue here is the identity of BEI's complement: given the adverb facts discussed above, it is difficult to see how a coherent theory of adverb licensing could take this category as an IP, because if it is, then Low adverb interpretation should be impossible. To see this, consider 40a, a version of 39:

(40) a. Zhangsan bei [$_{IP}$ OP$_i$ Lisi INFL [$_{vP}$ da-le t$_i$]]
b. Zhangsan bei [$_{P}$ OP$_i$ Lisi INFL [$_{E}$ da-le t$_i$]]

As noted earlier, adverbial modification proceeds by building up event-descriptions and proposition-descriptions. If we take Infl as finite, with some sort of world-time index to which the perfective marking in this sentence relates, then the IP must represent a proposition, as indicated in 40b by the subscripted P on the IP bracket; regardless of the precise semantic reasoning, it is uncontroversial that an IP normally represents a proposition. This being so, adverbs to the left of BEI should not be able to modify the verb in the lower clause. Yet clearly they can; for example, in 41b, *jinjinde* "tightly" modifies *zhuazhu* "hold"; on Huang's analysis, where the meaning of BEI is something like "to be affected by", then 41b would have to mean "The criminal was tightly affected by being held by the policeman."

(41) a. Tuhua (hen jingquede) bei Wangwu (hen jingquede) ke zai tongban shang.
drawing very precisely PASS Wangwu very precisely carve at copperplate on
"The drawing was carved precisely onto the copper plate by Wangwu."
b. Fanren (jinjinde) bei jingcha (jinjinde) zhuazhu-le.
criminal tightly PASS police tightly hold-PRF
"The criminal was held tightly by the policeman."

As others have pointed out in the literature (e.g. Li 1990, Kuo 2010), there are further indications that BEI does not take an IP. For example, neither modals nor negation can occur to the right of BEI, as shown in 42a-b:

(42) a. Zhangsan (dei) bei Lisi (*dei) jiaoxun yiduan.
Zhangsan must BEI Lisi must scold once
"Zhangsan must be scolded once by Lisi."
b. Zhangsan bei Lisi (*bu) xuan-wei duizhang.
Zhangsan BEI Lisi not choose-be captain.
"Zhangsan was(*n't) chosen as captain by Lisi."

Note in particular that meaning cannot be used to rule such sentences out; again, on Huang's proposal, 42b with negation (for example) ought to mean that Zhangsan was affected by not being chosen as captain – a perfectly coherent proposition. Similarly, time adverbials do not go comfortably after BEI:

(43) a. *Zai bianlun zhong, Lisi bei duishou gangcai fanbo-le.
at debate in Lisi BEI opponent just-now rebut-PRF
"In the debate, Lisi was rebutted just now by his opponent."
b. *Zhangsan bei Lisi zuotian xiao. (Li 1990: 161 (14c))
Zhangsan BEI Lisi yesterday laugh
"Zhangsan was laughed at by Lisi yesterday."

Some cases of this order do seem to be acceptable, but the fact that they are not fully productive is in fact better handled if they are more deeply embedded in vP than adjoined to IP, since there are heavier restrictions on time adverbials in more deeply embedded positions (see Ernst, to appear).

The facts just reviewed can be accommodated by saying instead that BEI takes a vP, or a BaP when the two cooccur (cf. Li 1990, Kuo 2010). The rest of Huang's analysis may stand, giving the structure shown in 44:

(44) [$_{IP}$ NP ... [$_{v'}$ V [$_{vP}$ NOP [$_{vP}$ NP ... [$_{v'}$ V NP]]]]
Zhangsan$_i$ bei OP$_i$ Lisi da-le t$_i$
"Zhangsan was hit by Lisi."

Similarly, the advantages of this style of analysis are preserved, such as the anaphor-binding facts in 45 (which depend on *Lisi* being a subject, as it still is in 44, given the generation of VP-internal subjects in Spec,vP), and the constituency facts illustrated in 46 (Huang et al. 2009: 117), with BEI being a clausal head taking a clause-type complement, not a preposition taking a nominal complement:

(45) Zhangsan$_i$ bei Lisi$_j$ dai-hui ziji$_{i/j}$ de jia.
Zhangsan BEI Lisi take.back self 's home
"Zhangsan was taken back to self's home."

(46) (?) Zhangsan bei Lisi ma-le liang sheng, Wangwu ti-le san xia.
Zhangsan BEI Lisi scold-PRF two time Wangwu kick-PRF three time
"Zhangsan was scolded twice by Lisi and kicked three times by Wangwu."

Finally, and most important for present purposes, we account for the facts of adverbial distribution. The manner and degree adverbials are of course expected adjoined to vP, or to BaP, given the fact that BaP does not require mapping to a specific type of semantic entity. Additionally, as expected given that vP also allows event-modification by participant PPs like locative and instrumental phrases, both of these types are possible to the right of BEI, as shown in 47a-b:

(47) a. Zai bianlun zhong, Lisi bei duishou zai wutai shang fanbo-le.
at debate middle Lisi BEI opponent at stage on retort-PRF
"In the debate, Lisi was rebutted on stage by the opponent."
b. Wangwu bei tade pengyou yong shengzi bangqilai-le.
Wangwu BEI his friend use rope tie.up-PRF
"Wangwu was tied up with a rope by his friend."

There is at least one remaining problem: that of the so-called short passives, which have BEI without a following nominal. The adverb distribution facts for short passives are not entirely clear, and show certain complications, but it is at least certain that they are different from the long passive patterns. So, for example, while the long passive allows both locatives and instrumentals after BEI, the short passive seems only comfortable with instrumentals, as 48 shows. As might be expected, it allows manner adverbials after BEI (as in 49) but not time adverbials (as in 50).

(48) a. *Zai bianlun zhong, Lisi bei zai wutai shang fanbo-le.
at debate middle Lisi BEI at stage on retort-PRF
"In the debate, Lisi was rebutted on stage by the opponent."

b. Wangwu bei yong shengzi bangqilai-le.
Wangwu BEI use rope tie.up-PRF
"Wangwu was tied up with rope by his friend."

(49) Lese bei (Zhangsan) buxiaoxin(de) diu zai dishang.
garbage BEI Zhangsan carelessly throw on floor
"The garbage was carelessly thrown on the floor by Zhangsan."

(50) *Zhangsan bei (Wangwu) zuotian ma-le yi-dun.
Zhangsan BEI Wangwu yesterday scold-PRF one time
"Zhangsan was scolded yesterday by Wangwu."

So it does not seem straightforward to treat both kinds of passive as taking the same sorts of vP. More work needs to be done to account for these facts.

6. Conclusions.

In this paper I have tried to account for the distribution of Mandarin Chinese Low adverbs, especially the fact that they can occur to the left of BA and BEI. The goal was to contribute to a universal theory of adverbial licensing, and also to account for the difference between Chinese and English in this regard, as schematized in 8:

(8) a. English domain for Low adverbs: T - Mod - Perf - Prog - Pass - **[v - V]**
b. Chinese domain for Low adverbs: Infl - Mod - Asp - **[Pass - BA - v - V]**

The crucial proposal was given in 36 (repeated here). It says, in essence, that rather than define the left edge for Low adverbs simply in terms of vP, we should define it in terms of projection of fully functional, internal light verbs.

(36) Event-Internal Modification is licensed only within [+V, +Internal] projections.

I also tried to show that, if this sort of analysis is correct, then BEI takes a vP complement (or some other constituent smaller than a full clause), as opposed to the IP that is often assumed.

It must be admitted that 8 (especially the feature [+internal]) represents little more than a description as it stands, and one would certainly hope for something more principled and integrated into a universal system of both light verbs and adverbial licensing. Perhaps this will serve as a starting point.

References:

Butt, Miriam. To appear. The Light Verb Jungle: Still Hacking Away. *Complex Predicates in Cross-Linguistic Perspective,* ed. by B. Baker, M. Amberger, and M. Harvey. Cambridge: Cambridge University Press.

Cinque, Guglielmo. 1999. *Adverbs and Functional Heads: a Cross-Linguistic Perspective*. Oxford: Oxford University Press.

Cinque, Guglielmo. 2004. Issues in Adverbial Syntax. *Lingua* 114.683-710.

van Craenenbroeck, Jeroen (ed.). 2009. *Alternatives to Cartography*. Berlin: Mouton de Gruyter.

Ernst, Thomas. 2002. *The Syntax of Adjuncts*. Cambridge: Cambridge University Press.

Ernst, Thomas. 2004. Principles of Adverbial Distribution in the Lower Clause. *Lngua* 114.755-777.

Ernst, Thomas. 2009. Speaker-Oriented Adverbs. *Natural Language and Linguistic Theory* 27. 497-544.

Ernst, Thomas. To appear. *Adverbial Modifiers in Chinese*. *Handbook of Chinese Linguistics*, ed. by James Huang, Audrey Li, and Andrew Simpson. Malden: Blackwell.

Frey, Werner, and Karin Pittner. 1998. Zur Positionierung der Adverbiale im Deutschen Mittelfeld (On the Positioning of Adverbials in the German Middle Field). *Linguistische Berichte* 176.489-534.

Haider, Hubert. 2004. Pre- and postverbal adverbials in OV and VO. *Lingua* 114,779-807.

Huang, C.-T. James. 1999. Chinese Passives in Comparative Perspective. *Tsing Hua Journal of Chinese Studies* 29.423-509.

Huang, C.-T. James, Y.-H. Audrey Li, and Yafei Li. 2009. *The Syntax of Chinese*. Cambridge: Cambridge University Press.

Kuo, Pei-Jung. 2010. The BEI Construction, Movement Chains and the Copy Theory. Handout to talk given at National Jiayi University, 2010

Li, Y.H. Audrey. 1990. *Order and Constituency in Mandarin Chinese*. Dordrecht: Kluwer.

Nilsen, Øystein. 2004. Domains for Adverbs. *Lingua* 114.809-847.

Pietroski, Paul. 2005. Events and Semantic Architecture. Oxford: Oxford University Press.

Tang, C.-C. Jane. 1990. Chinese Phrase Structure and the Extended X' Theory. Ithaca, NY: Cornell University dissertation.

Tang, C.-C. Jane. 2001. Functional Projections and Adverbial Expressions in Chinese. *Language and Linguistics* 2.203-241.

Ting, Jen. 1998. Deriving the *Bei*-construction in Mandarin Chinese. *Journal of East Asian Linguistics* 7.319-354.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 196-208.

The Interplay of the Synthesis and Analysis Macro-parameters in Jim Huang's New Theory

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Huang's innovative idea of macro-parameters deploying a macro-principle is insightful and inspiring. We explicate Huang's synthesis and analysis macro-parameters, and we show that the two macro-parameters are engaged in a constant interaction, with the speaker trying to reach a balance between syntactic concision, yielding synthesis, and semantic transparency, producing analysis. To describe this interaction, we adapt the concept of 'reflexivity', or reciprocity, in the theory of economic change proposed by the renowned financial investor George Soros.

Globalization is changing everything, and it seems unlikely that it will leave Chomsky's theory of Generative Grammar untouched. Globalization concentrates on the increasingly faster speed at which an increasingly larger volume of physical mass or informational content is transmitted. As the Generative Grammar tries to adapt to the new era of globalization, it may take several possible routes, of which Jim Huang's new theory of macro-parameters appears to be a relatively promising one.

Huang (2005, 2006, and 2007) proposed to set up an additional level of syntactic representation at which 'analysis' and 'synthesis' function as two alternate forces, or as two macro-parameters, deploying the same macro-principle. Analysis would express a meaning in an elaborate form, such as in a phrase like *call Bill on the phone*, and synthesis would give it a terse form, such as *phone Bill*. The two ways of expression are two sweeping macro-parameters, because they apply widely to a huge range of sentence patterns, such as exemplified by *put the wine into the bottle* versus *bottle the wine*, *put the books on the shelf* versus *shelve the books*, *put the apples into the box* versus *box the apples*, *put the saddle on the horse* versus *saddle the horse*, *give John a hug* versus *hug John*, *give Mary a kiss* versus *kiss Mary*, *make the operation larger* versus *enlarge the operation*, and *make the search narrower* versus *narrower the search*. A wide range of alternations like this cannot be well described by relying on the standard notion of a principle and its varying parameters, because not just one homogeneous but several heterogeneous patterns may be involved. Macro-parameters are therefore needed. We explicate Huang's idea of macro-parameters, and, adapting Soros' theory of reflexivity in

economic change, lay out a procedure, which guides a speaker aiming for grammatical equilibrium to convert an analysis to a synthesis or a synthesis to analysis.

1. Analysis and synthesis as two macro-parameters

Huang's notion of a macro-principle deployed as two or more macro-parameters within one language or across languages can be explained with an illustrative example, which Huang himself has provided. Consider (1a) and (1b):

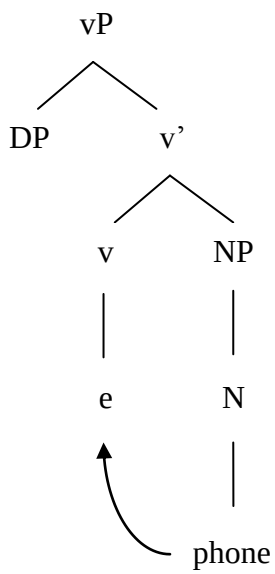
(1) a. Zhang1san1 da3 dian4hua4 gei3 Li3si4.
Zhangsan- hit -telephone -give-Lisi.
'Zhangsan telephoned Lisi.'
張三 打電話給李四.
b. John telephoned Bill.

(1a) and (1b) have the same or equivalent meaning. They both express the event that a person makes a phone call to another person. (1a) in Chinese is *analytical* and it analyzes this event of telephoning by using three meaning elements, da3 'hit' 打, dian4hua4 'telephone'電話 , and gei3 'give' 給. In contrast, (1b) in English is *synthetic* and it combines the corresponding three separate elements ' hit', 'telephone', and 'give' into one complex element *telephone*. To account for the convergent meanings and the divergent forms in (1a) and (1b), Huang (2006) postulated two parallel light-verb phrases, or two vP's, as seen in (2a) and (2b) (see next page).

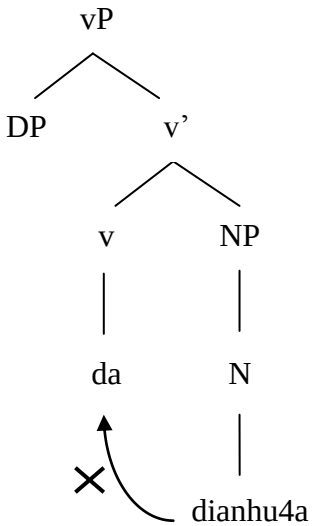
In (2a) the lexicalized light verb *da3* 'hit' blocks the N *dian4hua4* 'telephone' from moving into it, yielding (1a) in Chinese as an analytical form, or as an *analysis*. By contrast, in (2b), the empty light verb *e* allows the N *phone* to move to it and merge with it, yielding (1b) in English as a synthetic form, or as a *synthesis*.

Huang rightly thinks that languages have no inherent tendency to favor analysis or synthesis. Some languages such as Chinese, as seen in (1a), may by chance favor analysis, and some languages such as English, as observed in (1b), may incidentally opt for synthesis. Although we don't know why different selections are made, we know how to describe them. The representation trees for (1a) and (1b) both have the same sub-tree, vP, as shown in (2a) and (2b). There is a universal *macro-principle*, which determines the movement of a noun N or a main verb V to the light verb v.

(2a)



(2b)



This macro-principle, as we interpret it, is the requirement that a syntactic expression must be aimed at transparency in meaning or targeted on concision in form. Meaning transparency leads to the analytical alternate on the *analysis macro-parameter*, and form concision yields the synthetic alternate on the *synthesis macro-parameter*. If the analysis macro-parameter is in operation, then the light verb is lexically realized as in (2a), and the N is blocked from moving to merge with it. On the other hand, if the synthesis macro-parameter begins to function, then the light verb is lexically empty as in (2b), and the N will move to merge with it. Synthesis and analysis work as a pervasive opposition within individual and across different languages. A sentence is thus caught between two conflicting needs: the need for form concision and the need for meaning transparency. And these two different needs motivate two different processes--one is movement and one is non-movement—which achieve two divergent effects: synthesis and analysis. Thus, the issue is not an issue on the application of a syntactic rule or the function served by the syntactic rule, but an issue on the '*cognitive effect'* produced by the application of the syntactic rule. In the standard theory of Principle and Parameters (P&P), this sort of cognitive effect lacks an inherent, system-internal device for expression. And Huang solved this problem with a technical innovation. He postulated, for the shared source structure of potential analysis and potential synthesis, a vP that has a light verb v, which may be either lexically filled or left empty. If the v happens to be non-empty, then the movement of the N or V up to the light verb v is blocked, and the cognitive effect of analysis is achieved, as in (2a). However, if the v happens to be empty, then the N or V will move up to merge with it, and the cognitive effect of synthesis is obtained, as in (2b).

If Generative Grammar wants to look beyond pure syntax to explore such 'supra-syntactic' phenomena as the cognitive effects of synthesis and analysis, then Huang's light-verb technique appears to have initiated such an exploration. In this sense, Huang may have opened up a promising new path for Chomsky's theory as it faces the challenge of globalization.

2. Historical changes driven by macro-parameters

Huang investigated historical changes in the syntax and morphology of Chinese, viewing a syntactic pattern as being propelled by the two conflicting macro-parameters of synthesis and analysis. A metaphor can help us to better understand Huang's view. A syntactic expression for a meaning can be compared to a small boat floating in an ocean, and the two macro-parameters can be compared to two waves pushing it in two opposite directions. If the synthesis wave is more powerful, the syntactic expression will be pushed by it to approach the synthesis shore, or to grow more synthetic; and if the analysis wave is more forceful, the syntactic expression will be driven by it to come near to the analysis shore, or to become more analytical. The contest of the synthesis and analysis macro-parameters or waves never ends and the ocean is always churning.

With this ocean metaphor, we can keenly appreciate the innovative nature of Huang's account of historical changes in the syntax and morphology of Chinese. As Huang has shown (Huang 2006, slide 5), Chinese syntax has undergone historical changes from Old Chinese through Modern Chinese, propelled by these two opposite macro-parameters as two counter-waves. According to Huang, Archaic Chinese, or rather Old Chinese (OC), a relatively synthetic language, has acquired high analyticity when it evolved into Middle Chinese (MC), with the analyticity degree peaked during late MC (Tang-Song dynasties), and later when MC developed into Modern Chinese (MnC), limited degrees of synthesis emerged that resulted in the micro-parametric differences in various modern dialects. Hence, as Huang has suggested, we have a sequence of macro-parametric alternates in Chinese syntactic changes: OC-synthesis → MC-analysis → MnC- analysis (with minor 'dialectical' synthesis).

3. The interaction of macro-parameters

Clearly, the two macro-parameters have interacted to gain alternate predominance in the history of Chinese. In this case as in others, a syntactic *form* expressing a fixed semantic *content* can switch from analysis to synthesis and from synthesis to analysis, following a general procedure. In this procedure, if an existent syntactic form disappears, its corresponding semantic content will also vanish, and if a new syntactic form is created, its matching semantic content will also emerge. The appearance or disappearance of a semantic content, being a separate issue, need not concern us here. What we would like to ask is the crucial question of how, with the semantic content largely fixed, an analysis may change to a synthesis, and a synthesis may change to an analysis. We are searching for a general solution. We wish to find out which particular synthetic form among the available many will the grammar pick to replace an analysis, and conversely which

specific analytical form among the usable multitude will the grammar choose to substitute for a synthesis.

To our pleasant surprise, that sought-for general solution emerges from the theory of economic change recently proposed by the famous financial investor George Soros (2008). Soros' theory assumes that there is reciprocity, or in his own term, 'reflexivity', affecting a participant in any economic change. A participant uses two reciprocal strategies or 'functions' to achieve the goal of maximizing his profit, gain, or benefit. He uses his 'cognitive function' to gain knowledge about an emergent situation and applies his 'manipulative function' to modify the gained knowledge in order to achieve a maximal benefit. Soros emphasized that, contrary to the conventional view, these two functions are not isolated from each other but are constantly in a 'reflexive', or reciprocal, interplay. The result is that just as the cognitive function is trying to 'objectively' gain knowledge about a situation, the manipulative function has already 'subjectively' reshaped that situation in hopes of achieving the desired maximal benefit. In other words, 'perceived reality' gained through the cognitive function and 're-interpreted reality' obtained through the manipulative function are constantly in a tug of war. This contest creates an uncertainty regarding what response or action a participant should take, and that uncertainty gives rise to a wide range of variation in the participant's action. The economic man is making a smart choice from this broad range of variation. But what determines his eventual choice? It could be his fear of sovereign debts, national deficits, pension fund shortages, high unemployment rates, aging workforces, etc., or any combination of them. While an economic man is mainly interested in his desired profit, a grammatical man, or a speaker of a language, we suggest, is primarily concerned with achieving a perfect combination of semantic transparency and syntactic concision. To achieve that perfect combination, the speaker has to try to balance two conflicting objectives: synthesis directed at syntactic concision, and analysis aiming for semantic transparency. By adapting Soros' theory of economic change, which focuses on the exclusive need for profit, we derive a theory of the speaker's effort to balance syntactic concision and semantic transparency in a historical change or in a contemporary state. If this balance is to some degree realized, the grammar would have reached a stage or state of relative 'grammatical equilibrium'. If we look at the grammatical equilibrium affecting a particular part or subpart of a grammar as a macro-principle in the grammar of a language, then the strategies of synthesis and analysis which Huang has first called our attention to would be its two macro-parameters.

Let us elaborate a bit. The speaker of a language, language viewed as a structure undergoing a historical change or as a structure caught in a frozen state, may seek synthesis to obtain syntactic concision, or analysis to gain semantic transparency. In such a change or state, a speaker may face a situation in which a synthetic form is changing to an analytical form, or an analytical form is shifting to a synthetic form. In either situation, he wants to maximize his benefit by striking a fine balance between synthesis and analysis. If a synthetic form is switching to an analytical form, he wants to retain some

degree of the original syntheticity, or synthetic quality, and conversely if an analytical form is shifting to a synthetic form, he desires to preserve some degree of the original analyticity. Therefore, his best choice or maximal benefit is a form which keeps as much as possible the original syntheticity or analyticity. This means that, faced with an analytical form, he wants to replace it with the 'best compromised' synthetic form, or the synthetic form that keeps the optimal amount of the original analyticity. Conversely, confronted with a synthetic form, he desires to substitute it with the best compromised analytical form, or the analytical form that holds the optimal amount of the original syntheticity. Therefore, for the linguist, the crucial question is: how does a speaker find his best compromised synthetic or analytical form? We have not yet found a way to rigorously measure the amount or degree of syntheticity or analyticity, and therefore we are unable to provide a method for finding the 'best compromise'. However, the compromise, best or non-best, is most likely determined or constrained by (morpho-) syntactic, semantic, and (socio-) pragmatic factors. And we proceed to explain these tree types of constraints.

4. The way macro-parameters interact

To understand these three types of constraints, we need first to establish a framework for describing the interaction between the synthesis macro-parameter and the analysis macro-parameter. In particular, we need to set up a procedure, which we will call Soros' Procedure, or the *Sorosian Procedure* (SP), for mapping a synthesis onto an analysis, or an analysis onto a synthesis. Let *e* stand for an entity. Then *e* has a form F(e) and a meaning M(e). The F(e) has two alternate shapes: the synthesis shape F-Syn(e) and the analysis shape F-Ana(e). The M(e) likewise has two alternate values: the synthesis value M-Syn(e), and the analysis value M-Ana(e). F(e) and M(e) are not fixed, but have a range of variation in various contexts C_k's. Specifically, F-Syn(e) = {F-Syn(e)@C_1, F-Syn(e)@C_2,…,F-Syn(e)@C_k,…,F-Syn(e)@C_n}; F-Ana(e) = {F-Ana(e)@C_1, F-Ana(e)@C_2,…,F-Ana(e)@C_k,....,F-Ana(e)@C_n}; M-Syn(e) = {M-Syn(e)@C_1, M-Syn(e)@C_2,…,M-Syn(e)@C_k,…,M-Syn(e)@C_n}; and M-Ana(e) = {M-Ana(e)@C_1, M-Ana(e)@C_2,…,M-Ana(e)@C_k,…, M-Ana(e)@C_n}.

The Sorosian Procedure, or SP, is a set of rules, which apply to a given input macro-parametric form to obtain an output alternate macro-parametric form. The input can be an analysis or a synthesis in a context C_k. Two contexts C_i and C_j may be different, with $i \neq j$, or they may be the same, with i=j. Assume that SP, for example, starts with an analysis F-Ana(e)@C_i, which is *A calls B on the phone,* with the C_i being an official communication. First, the Cognitive Function applies, and it reads F-Ana(e)@C_i as M-Ana(e)@C_i, which is 'A calls B on the phone.' This is step (i). Next, the Manipulative Function applies in four subsequent steps, (ii) through (v). In step (ii) it set C_j as the desired (syntactic, semantic, or pragmatic) context, where C_j = a personal communication. This means it begins to seek an M-Syn(e)@Cj. Next, in step (iii), it finds M-Syn(e)@C_j, 'A rings B', in M-Syn(e). Next, in step (iv), it picks this M-Syn(e)@C_j, 'A rings B.'

Finally in step (v), it maps M-Syn(e)@Cj, 'A rings B', onto F-Syn(e)@C_j, *A rings B*. This whole process is laid out in (3) (see next page). Assuming that the set F-Ana(e) and the set F-Syn(e) have an equal number of elements *m*, and that we had instead started out with F-Syn(e)@C_j, *A rings B*, we would have reached F-Ana(e)@C_i, *A calls B on the phone*. In general, SP works on an F-Ana(e)@C_i to derive an F-Syn(e)@C_j, through the mediation of M-Ana@C_i and M-Syn(e)@Cj, and vice versa.

Although our Sorosian Procedure is inspired by Soros' idea of reciprocity, yet in an important way, it is different from Soros' original theory. In Soros' view, the Manipulative Function continuously feeds on Cognitive Function to come up with an 'altered' cognition, on which the economic man acts. The interplay of these two functions is a 'feeding' relation (Her 1997). In contrast, in our perspective, the analysis macro-parameter and the synthesis macro-parameter continuously feeds on each other to obtain a 'compromised' analysis or synthesis. The interplay of these two macro-parameters is a 'conflict' relation (Hsieh 1991).

(3) The Sorosian Procedure (SP) illustrated with an example in English:

Operations	Products
0. Start with	F-Ana(e)@C_i; C_i = an official communication. *A calls B on the phone*.
1.Apply the Cognitive Function:	(i) Read F-Ana(e)@C_i as M-Ana(e)@C_i. 'A calls B on the phone.'

2.Apply the Manipulative Function:	(ii) Set C_j as the desired (syntactic, semantic, or pragmatic) context, C_j=a personal communication; seek M-Syn(e)@Cj. (iii) Find M-Syn(e)@C_j in M-Syn(e). 'A rings B' (iv) Pick M-Syn(e)@C_j. 'A rings B.' (v) Map M-Syn(e)@C_j onto F-Syn(e)@C_j. *A rings B.*
3. To gain	F-Syn(e)@ C_j. *A rings B.*

We now proceed to look at examples illustrating the three types of grammatical constraints. First, we look at a bunch of examples involving pragmatic constraints. Huang (2006, slide 40) gave this amusing example:

(4) Wu2wang2 dian4 Yue2wang2.
King wu- electrify-King Yue
吳王電越王
'King Wu telephoned King Yue.'

Huang's sentence is teasingly cute, because Huang pretends that there was electrical phone call in Archaic China. The entity at issue is e = //dian4//, the concept that A does something to B with electricity. For this e, F-Syn(e) = { (A) affects (B) with electricity, (A) calls (B) on the phone, (A) sends (B) a telegram,…,(A) asks God to strike (B) with electricity, (A) erotically attracts (B), (A) delivers (B) an e-mail message,…., (A) faxes (B) a message}. If this sentence had appeared in a recently discovered Archaic Chinese volume, since we know that there was only natural electricity in a storm and no machine-generated electricity, we would pick *A asks God to strike B with electricity* and not *A calls B on the phone*. So we can see that this switch from the F-Syn(e) to the F-Ana(e) is pragmatically constrained. It is constricted by our world knowledge that in Archaic China, there was no machine-generated electricity. But now consider another possible Archaic Chinese sentence (5):

(5) Liang2shan1bo2 dian4 zhu4ying1tai2.
Mr. Liang- electrify-Ms. Zhu
梁山泊電祝英台.
'Mr. Liang erotically attracts Ms. Zhu.'

Our choice of a variant in the F-Ana(e) would now be different. We would choose *A erotically attracts B*, because as speakers of Chinese, we all know the beautiful love story of Liang and Zhu. Again, the choice is pragmatically constrained. We would never have chosen *A asks God to strike B with electricity*, because there was only love and no hatred between the two persons in the love story. Now suppose that in the above example, we reverse the switch, and focus on the variant *A calls B on the phone* in F-Ana(e). What variant in F-Syn(e) would we pick ? If we want to focus on electricity as the source of energy for transmission, we would pick *electrically calls* 電 but not *calls* 叫, *sends* 送, *asks* 求, *erotically attracts* 迷,…,*delivers an e-mail* 伊眉兒. And our choice would likewise be constrained by pragmatics.

Next, we consider additional sentences involving pragmatic constraints:

(6) a. Zhang1san1 hui4 bu2 hui4 ying1wen2?
Zhangsan- can/will do-not-can/will do-English
張三會不會英文?
'Can Zhangsan hear/speak/read/write English?'
b. Zhang1san hui4 bu2 hui4 dian4nao3?
Zhangsan-can do-not-can do- computer
張三會不會電腦?
'Can Zhangsan use a computer ?'
c. *Zhang1san hui4 bu2 hui4 tai2bei3?
Zhangsan- can/will do-not-can/will do-Taipei?
張三會不會台北?
'Will Zhangsan go to Taipei ?' (intended meaning)

Sentences (6a) and (6b) are grammatical, but (6c) is not. To render (6c) grammatical, we can insert a *qu4* 'go to'去 after *hui4* 'can/will do' 會. So the *hui4* in (6c) is an auxiliary, not a full verb. But the word *hui4* in (6a) and (6b) is a full verb in its synthetic form. It denotes the entity *e* = // can/will do something that requires skills //. F-Syn(e) = {can_1 (*hear*), can_2 (*speak*), can_3 (*read*), can_4 (*write*), can_5 (*use*), can_6 (*dance*), can_7 (*cook*),…, can_m (*drive*)}. And F-Ana(e) ={ *can hear, can speak, can read, can write, can use, can dance, can cook,…, can drive*}. To the question posed in (6b), the answer

could be just 'yes' or 'no', but to the question posed in (6a), there are often several possible answers, of which (6a') is one:

(6) a'. Hui4 shuo1 bu2 hui4 kan4.
can- speak- not- can-read
會說不會看。
'He can speak (English) but cannot read (English).'

So picking the F-Ana(e) variant *can hear, can speak, can read,* or *can write* as the substitute for the F-Syn(e) variant *can* is determined by the pragmatics in the discourse context or by world knowledge.

A similar case of synthesis has been made well-known in English, mainly through the work of Pustejovsky (1995). Consider (7):

(7) a. John began (to read, to write, to edit,.., to translate) a novel.
b. John wants a beer (to drink).
c. John wants a book (to read).
d. John wants a cigarette (to smoke).
e. John wants a car (to drive).

The word *begin* in (7a) is a synthesis, and F-Syn(e) ={*begin*}. The corresponding analysis is F-Ana(e) = { *begin to read*, *begin to write*, *begin to edit*, …, *begin to translate*}. We have to rely on world knowledge or pragmatics to know which element of the F-Ana(e) is the right choice for the single element *begin* in F-Syn(e). In a slightly different way, the word *want* in (7b), (7c), (7d), and (7e) is also a synthesis. F-Syn(e) = {*want*}, and its correspondence is F-Ana(e) = {*want to drink*, *want to read*, *want to smoke,…,want to drive*}. However, the choice of the element from the F-Ana(e) is not pragmatically constrained, but is semantically or lexically constrained. If the direct object is *a beer*, then *wants to drink* is the right choice, and if the direct object is *a book* then *wants to read* is the right choice, and so on.

Let us now look at some more examples of syntactic, semantic, or lexical constraints. We start with the preposition *into* in English. It is an analysis, which depicts a journey in two parts. To understand this journey, we invoke Talmy's (2000) idea that a physical object may be construed as a point, a line, a plane, or a space, in various circumstances. In the *into something* phrase, the person first moves toward an object, viewed initially as a point which requires *to*, then the person moves inside the object, now shifted in view from being a point to being a space, which requires *in*. The word *into* is an analysis, that is, F-Ana(into)={*into*}. Its corresponding syntheses are *in* and *to*, that is, F-Syn(into) = {*in, to*}. As we see in (8) and (9), when *into* is preceded by a verb like *change, move, drop,* or *put,* only one but not the other of the two variants is permitted:

(8) a. The horse changed into a unicorn.
b. The horse changed to a unicorn.
c. *The horse changed in a unicorn.
(9) a. John moved into New York City (from its suburb).
b. John moved to New York City (from Boston).
c. *John moved in New York City (intended as 'moved into').
(10) a. The flower dropped into the pond.
b. *The flower dropped to the pond (intended as 'dropped into').
c. The flower dropped in the pond.
(11) a. John put the books into the box.
b. *John put the books to the box.
c. John put the books in the box.

In these examples, the switch from the analysis to the synthesis is constrained on two levels: syntactic and lexical. Syntactically, the external NP is a Theme and the NP of the PP is a Locative; lexically, some verbs (*change, move*) must take *to* and some other verbs (*drop, put*) must take *in*.

In the above examples, both the syntax and the lexicon constrain the switch from *into* to *to* or *in*. This can be confirmed by other examples involving another syntactic pattern , in which the lexicon works differently. Thus, consider (12):

(12) a. John racked money into his wealth.
b. John racked in money.
c. * John racked to money.
(13) a. John drove the car into the garage.
b. John drove the car in.
c. *John drove the car to.

Money does not move by itself; John made it move into his wealth by racking it. A car does not move by itself; John made it move into the garage by driving it. Sentence (12) and (13) employ a causative syntactic structure, which is different from the transitive syntactic structure employed in (8) through (11). And the lexical item *rack* demands an *in* rather than a *to*, presumably because if someone racks money, he wants the money to be in his wealth, viewed as a space, and not just to his wealth, viewed as a point. Similarly, the lexical item *drive* demands an *in* rather than a *to*, presumably because if someone drives a car into a garage, he wants the car to be inside the garage, viewed as a space, and not just in front of the garage, viewed as a point.

Likewise, if someone steps into a crisis to prevent the situation from getting worse, he wants to be *in* the crisis, and not just *to* the crisis, in order to be effectively in control. Consider:

(14) a. The European Central Bank steps into the crisis to shore up market confidence.
b. The European Central Bank steps in to shore up market confidence.
c. *The European Central Bank steps to to shore up market confidence.

The choice of different syntheses, *in* and *to*, for the same analysis, *into*, in the examples in (14) is apparently constrained by world knowledge: to be effective one must step into or in the mess, and not just close to the mess as a mere by-stander.

The choice of different synthetic forms to substitute for the same analytical form can become more complicated as the sentential pattern gets more complex. The complexity is witnessed when we compare a pair of translation-equivalent sentences in English and Chinese. Consider (15):

(15) (Easy money has turned into heavy debt. Baby boomers have postponed retirements.) College graduates are *moving back in with* their parents.

This sentence is quite synthetic. One way to convey the same idea in a more analytical form is (15'), which has five parts centering on the Italicized words but six parts if we separate *in* and *to*:

(15') College graduates are *moving back into* their parents' house to *live with* them.

The translation- equivalent of (15) in Chinese is (16):

(16) Da4xue2 bi4ye4sheng1 zheng4zai4 ban1 hui2 fu4mu3de0 fang2zi0 qu4 gen1 ta1men0 zhu4 zai4 yi4qi3.
college-graduate-ing-*move-back*-parent's house-go-*with*-them-*live-in*-together.
大學畢業生正在搬回父母的房子去跟他們住在一起。
'College graduates are moving back in with their parents.'

The Chinese sentence (16), as indicated by the italicized cores in the gloss, has five parts just as the English sentence (15'). So (16) and (15') are equally analytical. The Chinese sentence (16) has one more part than its equivalent English sentence (15), and in this sense it is more analytical than (15). Furthermore, we also notice that (15) and (16), as two translation-equivalent sentences, achieve their syntheses in slightly different ways. In (15) *into* is shortened into *in*, and *live with* is shortened into *with*. In (16) the equivalent to the English phrase *back into* is shortened into *back, hui2* 回, but the equivalent to the English word *live* is expanded into the phrase *live in, zhu4 zai4* 住在.

5. Conclusion

Huang has suggested that synthesis and analysis are two macro-parameters deploying a macro-principle, which we interpret as the principle of grammatical equilibrium. These two macro-parameters are in a continuous competition (Wang 1969) for their dominance in the history and the contemporary state of a language. To explicate Huang's theory, we reviewed Huang's data for support from the history of Chinese, and we offered our own confirming observations in English and Chinese. Synthesis is working for the need of syntactic concision, while analysis is working for the need of semantic transparency. These two needs are in conflict and therefore the speaker is constantly trying to balance them to achieve the cognitive effect of grammatical equilibrium. We borrow George Soros' theory of reflexivity or reciprocity in economic change for our linguistic description. We suggest that when the speaker aims to achieve semantic transparency, he must also leave room for syntactic concision, and when he seeks to obtain syntactic concision, he must also leave room for semantic transparency. Grammatical equilibrium is achieved through this compromise. Huang's theory of macro-principle and macro-parameters possess a strong explanatory power, in that it can formally explain the cognitive effect of grammatical equilibrium. Generative Grammar can begin to look beyond autonomous syntax to explore supra-syntactic features such as the grammatical equilibrium resulting from a balance between syntactic concision and semantic transparency. If globalization has as its goal an increase in the speed of transmission of materials and information, and an enlargement of the volume and scope of what is transmitted, then Huang's macro-parameters fit the enlargement demand. It expands Generative Grammar from an autonomous syntax into a syntax that can address supra-syntactic features such as the cognitive effect of grammatical equilibrium.

References

Her, One-soon. 1997. *Interaction and Variation in the Chinese VO Construction*. Taipei: Crane Publishing.

Hsieh, Hsin-I. 1991. Interaction: Some basic concepts.(Lecture notes, 1-23-1991)

Huang, C.-T. James. 2005. Syntactic analyticity and the other end of the parameter, lecture notes, Harvard University.

Huang, C.-T. James. 2006. The macro-history of Chinese syntax and the theory of change, lecture notes, Chinese Linguistics Workshop, University of Chicago, 12-01-2006.

Huang, C.-T. James. 2007. The thematic structures of verbs in Chinese and their syntactic projections. *Language Science* 6.4, 3-21. (in Chinese)

Pustejovsky, James. 1995. *The Generative Lexicon*. Cambridge, Mass.: The MIT Press.

Soros, George. 2008. *The New Paradigm for Financial Markets*. New York: Public Affairs.

Talmy, Leonard. 2000. *Toward a Cognitive Semantics* (2 volumes). Cambridge, Mass.: The MIT Press.

Wang, William S.-Y. 1969. Competing changes as a cause of residue. *Language* 45.9-25.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 209-219.

Wh-in-situ, Phase, and Argument-adjunct Asymmetry

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This paper focuses on *wh*-in-situ phenomena under phase-based approach and discusses the asymmetry between *wh*-arguments and *wh*-adjuncts in Mandarin Chinese. *Wh*-adjuncts, contrary to *wh*-arguments, are considered to be operators and must undergo movement so that the *wh*-island effects in this case can be explained. This paper attributes the subjacency effect to the locality requirement of *wh*-adjuncts and suggests that the asymmetry results from different licensing processes on *wh*-words, movement in the narrow syntax, or binding after narrow syntax.

1. *Wh*-in-situ and Subjacency Effect

It is well known that *wh*-words in Chinese and Japanese stay in situ, whereas *wh*-words in English must move to the initial position. The data are shown in (1).

(1) a. ***What*** did John think [that Bill bought *e*]? (*wh* movement)
b. Zhangsan renwei [Lisi mai-le ***sheme***]? (*wh* in-situ)
Zhangsan think Lisi buy-Asp what
c. Taro-ga [Hanako-ga ***nani***-o katta] to omotteiru-no? (*wh* in-situ)
Taro-Nom Hanako-Nom what-Acc bought Comp think Q
'What does Taro think Hanako bought?'

In addition, overt movement of *wh*-words in English triggers island effects, as (2a) shows. In contrast to English, *wh*-words in Chinese are in-situ and are not sensitive to island effects, as shown in (2b). However, *wh*-island effects are observed in Japanese, even though Japanese is a *wh*-in-situ language, as (2c) shows.

(2) <*Wh*-island sensitivity>
a. *[***What*** did you ask [***who*** bought ___]]? (Richard, 2001 (2))
b. ni xiangzhidao [***shei*** mai-le ***sheme***]? (Huang 1982 (39))
you wonder who buy-Asp what
i. For which person x, you wonder what x bought . (*shei* >*sheme*)
ii. For which thing x, you wonder who bought x. (*sheme*>*shei*)

c. ??John-wa [Mary-ga ***nani***-o katta ***kadooka***] Tom-ni tazuneta no?
John-Top Mary-Nom what-Acc bought whether Tom-Dat asked Q
'What did John ask Tom whether Mary bought? '(Watanabe, 2001(16))

Watanabe (2001, 2003) suggests that *wh*-words in Japanese actually undergo invisible overt operator movement; in this case, the *wh*-island effects can be captured by a universal condition, which is subjacency. Due to this, it is possible to consider that in-situ *wh*-words in Chinese do not undergo movement and thus no island effect is triggered (2b).

If the lack of island effects in Chinese is due to the lack of movement of in-situ *wh*-words, the existence of island effects of *wh*-adjuncts becomes an exception for Chinese. The data are given in (3). The *wh*-argument *sheme* 'what' can be interpreted in the matrix clause (3a), while the *wh*-adjunct *weisheme* 'why' cannot be interpreted outside of the *wh*-island (3b).

(3) *Wh*-adjunct *weisheme* is sensitive to *wh*-island
ni xiangzhidao [***shei weisheme*** taoyan Lisi]?
you wonder who why dislike Lisi
i (answer) I wonder why Xiaomei dislikes Lisi. (*shei*>*weisheme*)
ii. (answer) ???I wonder who dislikes Lisi because Lisi is not honest.
(**weisheme* >*shei*)

Huang (1982) accounts for this asymmetry by assuming ECP. Tsai (1999), on the other hand, reduces this kind asymmetry to a noun-adverb asymmetry. He suggests that the nominal *wh*-word *sheme* 'what' is unselectively bound by a Q particle and therefore no movement is involved. But the *wh*-adjunct *weisheme* must undergo movement and therefore it must be subject to subjacency.

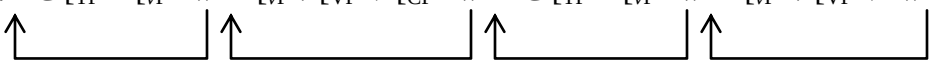
This paper will reconsider this argument-adjunct asymmetry of Chinese *wh*-words under a phase-based approach. In what follows, I will review two approaches accounting for *wh*-in-situ phenomena first, both movement analysis and non-movement analysis, and then point out the theoretical problems under phase theory.

2. Overt Movement and Phase Theory (Chomsky 2004)

Overt movement in English is generally assumed to undergo Successive cyclic movement, as (4) shows.

(4) Overt *wh*-movement (Successive cyclic movement)

$[_{CP}$ ***wh*** C $[_{TP}$ T $[_{vP}$ <*wh*> $[_{vP}$ *v* $[_{VP}$ V $[_{CP}$ <*wh*> C $[_{TP}$ T $[_{vP}$ <*wh*> $[_{vP}$ *v* $[_{VP}$ V<*wh*>]]]]]]]]]]



Under phase theory[1], the *wh*-elements must move to the edge of each phase head before spell-out, assuming *v* and C are phase heads. And as the phases are spelled out, the spell-out domain is not visible. According to the Phase Impenetrability Condition (PIC), as shown in (5), no operation is allowed to access the domain.

(5) Phase Impenetrability Condition (PIC)
The domain of H (Phase head) is not accessible to operations, only the edge of HP is (PH=[α[Hβ]])

Based on these assumptions, the derivation of overt *wh*-movement in English can be illustrated as in (6). (Shade means invisible)

(6) Overt *wh*-movement under a phase-based approach
[*u*wh] (invisible from matrix C)
[$_{CP}$ ***wh*** C [$_{TP}$ T [$_{vP}$ <wh> [$_{vP}$ *v* [$_{VP}$ V [$_{CP}$ <*wh*> C [$_{TP}$ T [$_{vP}$ <*wh*> [$_{vP}$ *v* [$_{VP}$ V<*wh*>]]]]]]]]]
(SO1) PH2 *wh* [PH1 [$_{VP}$ V <*wh*>]]
(SO2) PH3 *wh* PH2 [$_{TP}$ [$_{vP}$ <*wh*> [PH1 ✓]]]
(SO3) PH4 *wh* PH3 [$_{VP}$ [$_{CP}$ <*wh*> PH2 [✓]]]
(SO4) ***wh*** PH4 <wh>

Chomsky (2004) suggests that the copy in original position loses its phonological features during spell-out. Assuming these, let us think about the derivation of covert movement in the next section.

3. Non-overt Movement and Phase Theory

3.1 Covert Movement under a Phase-based Approach

Huang (1982) accounts for *wh*-in-situ phenomena by assuming that there is covert movement at LF. Chomsky considers covert movement to be the same as overt movement except that the phonological features in covert movement stay with the first, lowest copy of *wh*-words. This can be illustrated in (7). In the narrow syntax, in-situ *wh* also must under go successive cyclic movement, in order to avoid violating PIC.

[1] Under the phase-theory of Chomsky (2004), derivation proceeds by phase and the TRANSFER (TRANSFER hands D-NS over to PHON and SEM) must be convergent. CP and *v*P are phases and TRANSFER applies when the next phase head is merged (i).
(i) PH=[α[Hβ]]

βmust be spelled out but not the edge of PH, which is an escape hatch.

(7) Covert movement
NS : $[_{CP}$ ***wh*** $C_{[u\text{wh}]}$ $[_{TP}$ T $[_{vP}$ <*wh*> $[_{vP}$ *v* $[_{VP}$ V <*wh*>]]]]]
PHON : $[_{CP}$ ~~***wh***~~C $_{[u\text{wh}]}$ $[_{TP}$ T $[_{vP}$ ~~<*wh*>~~ $[_{vP}$ *v* $[_{VP}$ V ***wh***]]]]]

Nevertheless, problems arise for this analysis when we consider *wh*-in-situ in Chinese, in which there is no subjacency effect, as we have already seen in (2b). If movement only occurs in narrow syntax, and then there should be no syntactic difference between overt movement and so-called 'covert' movement, because they only differ in their phonological realizations. Moreover, there is a conflict between the assumptions about covert movement and the PIC. Chomsky suggests that the internal merge can apply either **before** or **after** TRANSFER (Spell-Out) and overt movement requires the ordering of Move TRANSFER, while covert movement requires the ordering TRANSFER Move. But if we assume the PIC, no operation should be allowed after TRANSFER. This means that the movement after TRANSFER should not be allowed either. This is summarized in (8).

(8) Conflicts in the assumptions about covert movement suggested by Chomsky 2004.
a. There is no LF, but there is covert movement[2] (Chomsky 2004:111)
b. Internal Merge can apply either **before** or **after** TRANSFER (Spell-Out). The former case yields overt movement, the latter case covert movement, with the displaced element spelled out in-situ. (Chomsky 2004:111)
i. Overt movement requires the ordering of operations: Move TRANSFER.
ii. Covert movement requires the ordering: TRANSFER Move.

As a result, if we assume the PIC, there should not be allowed any operation after TRANSFER (Spell-Out). Therefore, under a Phase-based approach, any movement including covert movement must occur in narrow syntax.

If that is true, subjacency effects should be predicted to appear under both overt movement and 'covert' movement. However, if we assume *wh*-words in Chinese to undergo covert movement, the lack of island effects shown in (2b) will be problematic. Due to this, it is noticed that the other assumption is needed to explain this fact. Tsai's (1994) unselective binding approach is remarkable in solving this problem.

3.2. Unselective Binding under a Phase-based Approach

Tsai's (1994) unselective binding analysis assumes that there is no movement for *wh*-words (specifically *wh*-arguments) and the scope of each in-situ *wh*-word is determined

[2] L contains operations that transfer each unit to Φ and to ∑. In the best case, these apply at the same stage of the cycle. In this conception there is no LF: rather the computation maps LA to <PHON, SEM> piece by piece, cyclically. There are, therefore, no LF properties and no interpretation of LF, strictly speaking, though ∑ and Φ interpret units that are part of something like LF in a non-cyclic conception. (Chomsky 2004: 107)

by a Q binder. In this approach, in-situ *wh* is assumed to be an indefinite, not an operator. The assumptions for this unselective binding approach are summarized in (9).

(9) Unselective binding (Cheng 1991, Tsai 1994)
a. *wh*-words (arguments) are indefinites.
b. Q operator is base-generated in [Spec, CP].
c. Operator Q binds *wh*-indefinite, and *wh* is interpreted as interrogative.
d. c-command
SS/LF [$_{CP}$ Q_i [wh_i]]

(9d) shows that the in-situ *wh*-word is c-commanded by the Q particle. Does this kind of binding relation need to be confirmed in the narrow syntax? If so, the long-distance binding relation would violate the PIC, as we have seen before. The derivation can be illustrated in (10).

(10) *wh* in-situ is not visible to Q.

[$_{CP}$ (null) **Q**$_i$ C [$_{TP}$ T [$_{vP}$ *v* [$_{VP}$ V [$_{CP}$ C [$_{TP}$ T [$_{vP}$ *v* [$_{VP}$ V ***wh***$_i$]]]]]]]]
PH4 PH3 PH2 PH

According to (10), in-situ *wh* should not be visible to the Q particle. If we assume that the derivation is phase by phase under phase theory, then the in-situ *wh*-word must be spelled-out when the second phase head (PH2) is merged. Therefore, it is impossible for an in-situ *wh*-word to be bound by the Q particle. As a result, the *wh*-word is predicted to remain unbound, unable to obtain any interrogative force.

This kind of problem with regard to this PIC is not limited to the unselective binding approach, but to all kinds of *binding* relations. Therefore, one way to keep a binding relation from violating the PIC is to think that unselective binding must happen somewhere other than narrow syntax.

4. Asymmetries between *Wh*-Arguments and *Wh*-Adjuncts

4.1. Locality and Operator-hood

The previous sections reviewed two main approaches (covert movement and unselective binding) on *wh*-in-situ phenomenon under a phase-based approach. It is clear that both of those approaches have some theoretical problems. This section will provide a group of data to show that the argument-adjunct asymmetry is not limited to the categories of *wh*-words, but is related to the locality requirement for *wh*-movement.

Firstly, let us repeat the data that show the asymmetries between *wh*-arguments and *wh*-adjuncts in (11). *Shei* 'who' in (11a) can have wider and narrower scope over *sheme* 'what', and vice versa. But in (11b), *shei* can only have wider scope over *weisheme*

'why', while *weisheme* cannot take wider scope over the subject *shei*.

(11) a. ni xiangzhidao [***shei*** mai-le ***sheme***]?
you wonder who buy-Asp what
i. (answer) I wonder what Zhangsan bought. (*shei*>*sheme*)
ii. (answer) I wonder who bought that book. (*sheme*>*shei*)
b. ni xiangzhidao [***shei weisheme*** taoyan Lisi]?
i (answer) I wonder why Xiaomei dislikes Lisi. (*shei*>*weisheme*)
ii. (answer) ???I wonder who dislikes Lisi because Lisi is not honest.
(???*weisheme* >*shei*)

Here, I attribute that the existence of *wh*-island effect is to the locality requirement of the *wh*-adjunct *weisheme*, as claimed in (12).

(12) a. *Wh*-adjunct *weisheme* must be interpreted locally, while *wh*-arguments do not.
b. *Wh*-island effect is the result of the locality requirement.

Not only the *wh*-adjuncts must be subject to locality, but must *wh*-words which are marked by non-D-linked marker *daodi* 'what-on-earth'. The data are shown in (13).

(13) *Daodi* … *wh* must be subject to locality (compare to (11b))
ni xiangzhidao [***shei*** **daodi** taoyan ***sheme***]?
you wonder who what-on-earth hates what
a. (answer) I wonder what is exactly the thing that Xiaomei dislikes.
(*shei*>*daodi…sheme*)
b. (answer) *I wonder who dislikes snakes. (**daodi…sheme*>*shei*)

As shown in (13b), subjacency effects are observed when *wh*-words marked by *daodi* are interpreted outside of the island. This fact indicates that *wh*-arguments marked by *daodi* must be subject to locality.

In addition to their requirement of locality, *wh*-adjucts and *wh*-arguments marked by *daodi* also trigger intervention effects. The data are shown in (14).

(14) a. ???ni xiangzhidao [Xiaomei ***weisheme*** xihuan ***sheme***]?
you wonder Xiaomei why like what
i. (answer)*I wonder what Xiaomiei likes **because it is good**.(**weisheme*>*sheme*)
ii. (answer)*I wonder why Xiaomiei likes **this book**. (**sheme*>*weisheme*)
b. *ni xiangzhidao [***weisheme shei*** xihuan Xiaomei]?
i. (answer)*I wonder who likes Xiaomei **because she is good**. (**weisheme*>*shei*)
ii. (answer)*I wonder why **Lisi** likes Xiaomei. (**shei*>*weisheme*)

c. #ni xiangzhidao [**daodi** ***shei*** xihuan ***sheme***]?
you wonder what-on-earth who like what
i. (answer)*I wonder **what** Xiaomei likes. (**shei>daodi..sheme*)
ii. (answer)*I wonder who likes **this book**. (**daodi..sheme >shei*)

The unacceptable interpretation shown in (i) of (14) indicates the fact that the *wh*-adjunct *weisheme* and *wh*-words marked by *daodi* are subject to locality (subjacency effects exhibit). However, these unacceptable interpretations are not due to subjacency effects, but due to intervention effects. This is because the intervention effects can be obviated when *wh*-words are displaced overtly from their original positions, as shown in (15).

(15) a. ni xiangzhidao [[***sheme***] Xiaomei ***weisheme*** xihuna ***t***]?
you wonder Xiaomei why like what
i. (answer)*I wonder what Xiaomiei likes **because it is good**.(**weisheme>sheme*)
ii. (answer) I wonder why Xiaomiei likes **the book**. (*sheme>weisheme*)
b. ni xiangzhidao [[***shei***] ***weisheme t*** xihuan Xiaomei]?
i. (answer)*I wonder who likes Xiaomei **because she is good**. (**weisheme>shei*)
ii. (answer)*I wonder why **Lisi** likes Xiaomei. (*shei>weisheme*)
c. ni xiangzhidao [[***sheme***] **daodi *shei*** xihuan ***t***]?
i. (answer)*I wonder what **Xiaomei** likes. (**daodi..shei> sheme*)
ii. (answer)*I wonder who likes **this book**. (*sheme > daodi…shei*)

In (15), the displaced *wh*-words are allowed to be interpreted to have wide scope over matrix clause. As what we have seen in (11) and (13a), the general *wh*-words (*wh*-arguments) do not need to be subject to locality. The intervention effect is avoided because the intervener does not block the *wh*-words and its binder (assuming it is Q particle in matrix COMP) after the displacement of *wh*-words.

Based on these facts, I assume that *wh*-adjunct *weisheme* and *wh*-arguments marked by *daodi* in (14) are genuine operators, which block two related elements (such as an operator and a variable) and are subject to locality. A general *wh*-argument, on the other hand is not an operator and thus it must be co-related to the Q operator in matrix COMP. As a result, it does not need to subject to locality. An intervention effect appears when there is an operator between the *wh*-word (variable) and its binder (operator). This can be illustrated in (16).

(16) *Op1$_i$….OP2 ….var$_i$

a. *Q$_i$ … {*wh*-adjuct/*daodi…wh*} … *wh*-argument$_i$ (×)

b. Q$_i$ … *wh*-argument$_i$… {*wh*-adjuct/*daodi…wh*} (ok)

The *wh*-adjuncts and the *wh*-words marked by *daodi* should be considered to be operators that undergo covert phrasal movement and leave the copy in-situ. In Chinese, the lowest copy is pronounced after spell-out. Except for the different pronunciation rule, the movement is similar to that in English and must be subject to locality. I suggest that the subjacency effects in Chinese can be accounted for by the movement approach, and the lack of subjacency effects can be accounted for by the non-movement approach. This result supports Tsai's (1994) analysis, but the data here give further evidence showing that there are two types of *wh*-arguments: one is the general *wh*-argument which functions as a variable, the other (*wh*-arguments with non-D-linked marker *daodi*) functions as a genuine operator and must undergo movement. This can be illustrated in (17).

(17) a. [$_{CP}$ {*wh*-adjuct/*daodi*…*wh*}……. < {*wh*-adjuct/*daodi*…*wh*}>]
b. *[$_{CP}$ {*wh*-adjuct/*daodi*…*wh*} [$_{island}$…….< {*wh*-adjuct/*daodi*…*wh*}>]

I suggest that the locality can be derived in narrow syntax. The derivation will be discussed in the following section.

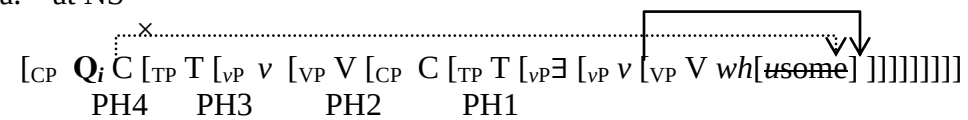
4.2. Assumptions and Derivations

The previous section showed that there are two types of *wh*-arguments, one functions as an operator and is like a *wh*-adjunct; the other functions as a variable and must be bound by Q. I suggest that the different behaviors of these two types of *wh*-words are determined by the licensing process of they are bound by Q particles at syntax.

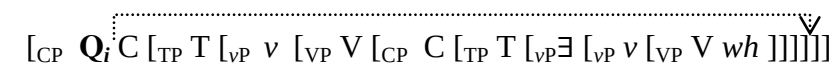
First of all, I assume that *wh*-words in Chinese have [*u*some] feature and the feature must be checked by an operator, such as Q or ∃, before spelled out. Following Diesing (1992), the ∃ operator is introduce by existential closure and merges in the edge of *v*P. *Daodi* is also a kind of operator which merges *v*P or AspP. *Wh*-words with [*u*some] checked by Q at NS will be operator-like. Under this assumption, the general *wh*-arguments must be licensed within *v*P by ∃-operator, and they will be spelled-out in an earlier derivation, before the merger of Q binder. This means that the licensing of the *wh*-interrogative force of *wh*-arguments does not happen in narrow syntax (or alternatively that unselective binding does not occur in narrow syntax). As a result, the *wh*-arguments before Spell-out only have a semantic feature [some], which cannot trigger movement. It follows that there is no movement in narrow syntax for *wh*-arguments. The derivations are illustrated in (18).

(18) Derivation of a general *wh*-argument

a. at NS



b. at SEM (LF)



The fact that intervention effect appeared with a general *wh*-argument provides evidence to support the existence of the interface after narrow syntax. The general *wh*-arguments must be co-related by Q operator, and this binding relation cannot be blocked by an intervener (other operators), as has shown in (16).

Contrary to general *wh*-arguments, *wh*-adjuncts and *wh*-words marked by *daodi* are genuine operators and have feature [*u*some]. They are not licensed inside *v*P, but in some higher functional projection. This assumption is supported by the fact that *wh*-adjuncts such as *weishenme/zenme* 'why' cannot appear inside the infinite clause. The data are shown in (19).

(19) a. ta *weisheme/zenme* xiang/dasuan [qu Taipei]?
he why/why want/intend go Taipei
'For x, x a reason, he want/intend to go to Taipei for x.'

b. *Ta xiang/dasuan *weisheme/zenme* [qu Taipei]?
he want/intend why/ why go Taipei

A *wh*-word marked by *daodi* is similar to a *wh*-adjunct in that *daodi* must appear in a higher projection to license *wh*-words, as shown in (20).

(20) a. ta daodi xiang qu nali?
he what-on-earth want go where
'Where-the-earth does he want to go?'

b. *ta xiang daodi qu nail?
he want what-on-earth go where

I suggest that *wh*-adjuncts and *daodi…wh* are licensed by a clause which is related to event structure rather than argument structure. The functional projection (FP) that *wh*-adjuncts merge might be something like Aspect or Tense. This is formulated in (21).

(21) a. [$_{CP}$ Q [*wh*-adjunct [$_{TP/AspP}$ [$_{vP}$ [$_{VP}$]]]]
b. [$_{CP}$ Q [*daodi* <*wh*> [$_{TP/AspP}$ [$_{vP}$ [$_{VP}$ <*wh*>]]]]

Wh-adjuncts and *daodi…wh* can be checked by Q before spell-out, unlike *wh*-arguments. At that point, *wh*-adjuncts and *daodi…wh* can be licensed by Q in narrow syntax. If this logic is correct, a Chinese *wh*-adjunct licensed in narrow syntax will behave like an operator like English, and the movement to scope position is predicted. If this is the case, the well-known fact of the island sensitivity in the case of *wh*-adjuncts can be captured. The derivations are shown in (22).

(22) a. *wh*-arguments

NS [$_{CP}$ Q C [$_{FP}$ F [$_{vP}$ OP(∃)$_{[some]}$[$_{vP}$ *v* [$_{VP}$ V *wh*-argument$_{[~~usome~~]}$]]]
[SOME]
[*u*some] is checked within NS

SEM [$_{CP}$ Q C [$_{FP}$ F [$_{vP}$ *v*[$_{VP}$ V *wh*-argument]]]
wh-argument is bound by [wh] after NS

b. *wh*-adjunct *weisheme*

NS [$_{CP}$ Q C [$_{FP}$ *wh*-adjunct$_{[~~usome~~]}$ [$_{FP}$ F [$_{vP}$ OP(∃)$_{[some]}$ [$_{vP}$ *v* [$_{VP}$ V]]]]]]]
[*u*some] is checked and bound by [wh] within NS

c. *wh*-arguments(*wh*-object) marked by *daodi*

NS [$_{CP}$ Q C [$_{FP}$ *daodi* [$_{FP}$ F [$_{vP}$ <*wh*-argument$_{[~~usome~~]}$>[$_{vP}$ *v* [$_{VP}$ V *wh*-argument [*u*some]]]]
[*u*some] is checked and bound by [wh]within NS

5. Conclusions

In this paper, I reviewed several previous studies about *wh*-in-situ languages, and discussed how each approach could be reanalyzed in a phase-base approach under a minimalist framework. I went on to discuss the asymmetries between *wh*-arguments and *wh*-adjuncts in Chinese. Their different syntactic behaviors, such as the island sensitivity and intervention effects, show their properties as operators or indefinites. *Wh*-arguments are bound by Q binder in semantic component, which is after narrow syntax. *Wh*-adjuncts, on the other hand, are bound by Q binder in narrow syntax and become operators, which must undergo movement and thus must be subject to locality.

References

Chomsky, N. (2004) Beyond Explanatory Adequacy. In: Belletti, A. (Ed.), Structures and Beyond: *The Cartography of Syntactic Structures, Volume 3*. Oxford University Press, 104-191.

Chomsky, N. (2008) On Phases. In: Freidin, R., Otero, C, and Zubizarreta, M.L (Eds.): *Foundational Issues in Linguistic Theory*. Cambridge, MA: MIT Press, 133-166.

Cheng, Lisa L.-S. (1991) *On the Typology of Wh-questions*, PhD Dissertation MIT.

Felser, C. (2004) Wh-copying, Phases and Successive Cyclicity, *Lingua* 114(5), 543–574.

Huang, C.-T. James. (1982) Move WH in a Language without WH Movement. *The Linguistic Review* 1, 369-416.

Li, Y.-H. Audrey. (1992) Indefinite Wh in Mandarin Chinese, *Journal of East Asian Linguistics*1, 125-155

Tsai, W.-T. D. (1994) *On Economizing the Theory of A' Dependencies*, Ph.D. dissertation, MIT

Tsai, W.-T. Dylan (2008) Left Periphery and How-why Alternations. *Journal of East Asian Linguistics 17,* 83-115

Reinhart, Tanya (1998) Wh-in-situ in the Framework of the Minimalist Program. *Natural Language Semantics* 6, 29–56.

Richards, Norvin. (2001) *Movement in Language*: Interactions and Architectures, Oxford Univ. Press.

Watanabe, Akira. (2001) Wh-in-situ Languages. In M. Baltin & C. Collins (eds) *The Handbook of Contemporary Syntactic Theory*, 203-225. Blackwell.

Watanabe, Akira (2003) Wh and Operator Constructions in Japanese. *Lingua* 113, 519-558

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 220-229.

On the Absence of Island Effects in Chinese Alternative Questions*

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This paper offers an account for why Chinese alternative questions do not display island effects. Three approaches to deriving this type of question are evaluated, including movement without deletion, movement with deletion, and non-movement with deletion. The third approach is defended in this paper. For comparative purposes, Chinese A-not-A questions and English alternative questions are also discussed. It is concluded that only Chinese alternative questions are not licensed by movement, while the other two are. Without involving movement, Chinese alternative questions are thus found with the absence of island effects.

1. Introduction

This study stems from a minimal pair as illustrated below in (1) and (2), cited from Huang (1991: 313-314).

(1) [Wo qu Meiguo haishi bu qu Meiguo] bijiao hao?
I go US or not go US more good
'Is it better that I go to the US or do not go to the US?'

(2) *[Wo qu Meiguo bu qu Meiguo] bijiao hao?
I go US not go US more good
'Is it better that I go to the US (or) do not go to the US?'

The form within the square brackets in (2) can alone be used as an interrogative sentence, known as an A-not-A question. This type of question is characteristic of combining a positive predicate with its negative counterpart without placing a disjunctive coordinator 'or' in between. Consider an example below in (3a) and its derivation in (3b) (Huang et al. 2009: 255).

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(3) a. Ni gaoxing bu gaoxing (ne)?
you happy not happy Q_{wh}[1]
'Are you happy (or) not happy?'
b. [$_{CP}$ [$_{VP}$ gaoxing-bu-gaoxing]$_i$ [$_{IP}$ ni t_i] (ne)] (LF representation)
happy-not-happy you Q_{wh}

The analysis of an A-not-A constituent as having the operatorhood can be traced back to Huang (1982), according to whom an A-not-A element undergoes LF movement to CP in order to take the question scope, on a par with a Chinese *wh*-adjunct such as *weishenme* 'why'. As we can see, both examples in (2) and (4) are detected with island effects of sentential subject.

(4) *[Ni weishenme mai shu] bijiao hao? (Huang 1991: 323)
you why buy book more good
'What is the reason *x* such that it is better that you, for reason *x*, buy books?'

Huang (1991) owes the ungrammaticality of examples like (2) and (4) to the violation of the Empty Category Principle (ECP, see Chomsky 1981). That is, the A-not-A trace in a case like (2) and the *wh*-trace in a case like (4) fail to be properly governed either by a lexical category or by an antecedent, and the sentences are thus ruled out.

Given the contrast between (1) and (2), one might then wonder why a disjunctive sentence like (1) is immune to the island constraint. The linguistic literature, as far as I know, has not paid as much attention to the derivation of Chinese alternative questions as Chinese A-not-A questions, and this immediately leaves us with some room for further investigation. Through this study, I aim to derive an alternative question as in (1) without inducing island effects. The rest of this paper is organized as follows. Section 2 and section 3 review two different previous approaches to deriving Chinese alternative questions based on movement, and Section 4 is my proposed approach based on non-movement. Section 5 summarizes the paper.

2. Movement without Deletion

In Huang (1982, 1998), a disjunctive *haishi*-phrase has to move to CP at LF to yield the question reading. Given this, an alternative question like (5a) is derived as in (5b).

[1] The abbreviations used in examples of this paper are glossed as follows: CL: classifier; DE: clitic-like linker; Op: operator; Perf: perfective aspect; Q_{wh}: *wh*-question marker.

(5) a. Zhangsan haishi Lisi hui lai?
Zhangsan or Lisi will come
'Will Zhangsan or Lisi come?'
b. [$_S$ [Zhangsan haishi Lisi]$_i$ [$_S$ t_i hui lai]]?
Zhangsan or Lisi will come

(Huang 1998: 194)

Under this approach, nominal disjunction is not reduced via ellipsis from clausal disjunction, and the disjunctive phrase is treated in parallel with a *wh*-word which may undergo LF movement.

Notice that Huang's analysis only considers NP-disjoined phrases such as 'Zhangsan or Lisi' in (5). To achieve a unified account, we may extend his analysis and assume that even IP/TP-disjoined phrases may move just like *wh*-words. This is illustrated below in (6), where the IP-disjoined phrase *ta de jiang haishi wo de jiang* 's/he won the prize or I won the prize' moves to CP at LF to take the question scope.

(6) a. Ni xiangxin [$_{NP}$ [$_{ConjIP}$ ta de jiang haishi wo de jiang] de xiaoxi] ne?
you believe s/he get prize or I get prize DE news Q_{wh}
'Do you believe the news that s/he won the prize or I won the prize?'
b. [$_{CP}$ [ta de jiang haishi wo de jiang]$_i$ [$_{IP}$ ni xiangxin [$_{NP}$ [$_{IP}$ t_i] de xiaoxi]]] ne?
s/he get prize or I get prize you believe DE news Q_{wh}

However, the trace in (6b) cannot find any head governor in its local domain, nor can it be governed by its long-distance antecedent, so that the sentence should be predicted to be ruled out by the ECP. This prediction, nonetheless, is contrary to fact, suggesting that the present movement approach is not on the right track.

3. Movement with Deletion

Another movement approach, brought up by C.-T. Huang (1982, 1998) and followed by R.-H. Huang (2009), appeals to LF movement along with a deletion process called Conjunction Reduction (henceforth CR, Ross 1967). Departing from C.-T. Huang, R.-H. Huang proposes that the element which undergoes movement in Chinese alternative questions is a null Q-operator, rather than the disjunctive *haishi*-phrase itself. Along this line, the sentence in (5a) is derived as below.

(7) a. [$_{TP/IP}$ Op [$_{TP/IP}$ [Zhangsan hui lai] haishi [Lisi hui lai]]]?
Zhangsan will come or Lisi will come
'Will Zhangsan come or Lisi come?'
b. [$_{CP}$ Op$_i$ [$_{TP/IP}$ t_i [$_{TP/IP}$ [Zhangsan ***e***] haishi [Lisi hui lai]]]]?
Zhangsan or Lisi will come

As it turns out, apparent nominal disjunction is reduced from clausal disjunction via CR. In fact, R.-H. Huang's analysis of Chinese alternative questions is extended from Han and Romero's (2004) analysis of English alternative questions under the proposal that alternative questions have clausal disjuncts. Accordingly, in the case of English, a superficial NP-disjoined case like (8a) is reduced from an IP-disjoined case like (8b).

(8) a. Did John eat [$_{NP}$ rice] or [$_{NP}$ beans]?
b. Op$_i$ did t_i [$_{IP}$ John eat beans] or [$_{IP}$ ~~John eat~~ rice]?[2]

In short, under the present approach, both English and Chinese alternative questions are derived by movement as well as CR applied to clausal disjuncts.

However, the null-operator movement approach runs into a difficulty in accounting for the following contrast with respect to the non-interrogative interpretation of *wh*-phrases (i.e., *wh*-indefinites).

(9) a. *Ruguo Akiu weishenme bu-neng jiao zuoye, ta yiding hui lai
if Akiu why not-can hand.in homework he surely will come
gaosu wo. (Tsai 1999: 63)
tell me
'If for some reason Akiu cannot hand in homework, he surely will come to tell me.'
b. Yaoshi Akiu cizhi haishi tuixiu dehua, qing gaosu wo.[3]
if Akiu resign or retire the.case please tell me
'If Akiu resigns or retires, please tell me.'

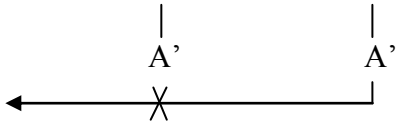
According to Tsai (1994, 1999), Chinese *wh*-nominals like *shenme* 'what' and *shei* 'who' are variables, while Chinese *wh*-adverbs like *weishenme* 'why' are intrinsic operators. The former are licensed in situ via unselective binding (cf. Heim 1982, Pesetsky 1987) by existential closure (∃-closure) under "affective contexts" (see Kilma 1964 for an initial discussion), such as negation, conditionals, yes-no questions, etc. Consider the following example in (10) for the licensing of an existential *wh*-nominal (cited from Tsai 1999: 63-64).

[2] Han and Romero do not explain why the deletion of a non-constituent like *John eat* in (8b) is feasible since it does not fit the general assumption that ellipsis only applies to a constituent. A possible explanation coming to my mind is that ellipsis can be applied twice: *John* is elided first and *eat* is elided later. Each time the elided item is an unproblematic constituent.
[3] This sentence is accepted by the majority of my informants who speak Taiwan Mandarin.

(10) a. Ruguo Akiu mai-le shenme, ta yiding hui lai gaosu wo.
if Akiu buy-Perf what he surely will come tell me
'If Akiu bought something, he surely will come to tell me.'
b. [$_{CP}$ ruguo $\exists_x$ [$_{IP}$ Akiu [$_{VP}$ mai-le shenme$_{(x)}$]]], …
if Akiu buy-Perf what

The above example shows that the *wh*-nominal *shenme* 'what' is bound in situ by existential closure and interpreted as 'something'. Chinese *wh*-adverbs, on the other hand, cannot be licensed in parallel ways for the following reason suggested by Tsai (1999). Due to its operatorhood, a *wh*-adverb has to move to take the proper quantificational scope. As demonstrated below in (11a), since the closer landing site has been occupied by existential closure, *weishenme* 'why' will have to move up to the matrix [Spec, CP]. This long-distance movement which skips over a closer A'-position without taking the shorter route violates the Shortest Movement Condition (Chomsky 1995: 182) and thus renders the sentence ungrammatical. A typical effect of Relativized Minimality (Rizzi 1990) is seen here.

(11) a. *[$_{CP}$ ruguo $\exists_x$ [$_{IP}$ Akiu weishenme$_{(x)}$ bu-neng [$_{VP}$ jiao zuoye]]], …



b. [$_{CP}$ yaoshi $\exists_x$ [$_{IP}$ Akiu Op$_{(x)}$ cizhi haishi tuixiu dehua], …

Given that the configuration in (11a) is in trouble, we should expect the parallel configuration in (11b) to be in trouble as well. But this is contrary to fact. I therefore doubt if disjunctive *haishi* sentences can be derived by null-operator movement.[4]

[4] One might argue for the null-operator movement analysis by claiming that (11b) is actually reduced from a CP-disjoined structure, as shown below.

(i) Op [$_{CP}$ yaoshi Akiu cizhi dehua] haishi [$_{CP}$ yaoshi Akiu tuixiu de hua], …
if Akiu resign the.case or if Akiu retire the.case

Under the above analysis, the absence of the Relativized Minimality effect is expected. Since the null operator is not merged within the domain of *yaoshi* 'if' where existential closure is able to occur, the null-operator movement will not be blocked by existential closure.

I argue, nevertheless, that (i) is not a tenable source. Lin (2008) points out that when *haishi*-phrases are used with the non-interrogative reading, they behave like polarity items and require polarity triggers such as negators, the yes-no question particle *ma*, modals, and conditional markers. In a structure like (i), however, we fail to find a c-commanding polarity trigger to license the non-interrogative use of *haishi* 'or'. I therefore abandon the CP-disjunction

4. Non-Movement with Deletion

I propose in this study that Chinese disjunctive *haishi* sentences are derived by unselective binding and CR from clausal disjunction. Inspired by Tsai (1994, 1999), I treat 'A *haishi* B' phrases as being on a par with Chinese *wh*-nominals, forming a binding dependency as in (12a). Chinese *wh*-adverbs, on the other hand, enter into a movement dependency as in (12b).

(12)a. Q_x ….. $wh_{(x)}$ ….. (binding dependency)
b. wh_i …..... t_i …..... (movement dependency)

Given (12a), the earlier example in (5a) is derived as follows.

(13) a. $[_{CP}\ Q_x\ [_{IP}$ [Zhangsan hui lai] haishi [Lisi hui lai]$]_{(x)}]$?
Zhangsan will come or Lisi will come
'Will Zhangsan come or Lisi come?'
b. $[_{CP}\ Q_x\ [_{IP}$ [Zhangsan ***e***] haishi [Lisi hui lai]$]_{(x)}]$?
Zhangsan or Lisi will come

Under the proposed analysis, superficial nominal disjunction in fact originates from clausal disjunction via CR.

As seen in (13a), variables bound by the Q-operator correspond to two full sentences disjoined by the disjunctive coordinator *haishi* 'or'. This is arguably not ad hoc. Consider the following three equivalent yes-no questions in (14a-c) and their semantic translation in (14d).

(14)a. whether Mary cooks
b. whether or not Mary cooks
c. whether Mary cooks or not
d. $\hat{p}\ [\ \check{}\ p \wedge [\ p = \hat{}\text{cook}_*(m) \vee p = \hat{}\neg\ \text{cook}_*(m)]]$ (Karttunen 1977: 16)

As pointed out by Karttunen (1977), yes-no questions may count as a subclass of alternative questions. The representation in (14d) "designates the unit set containing either the proposition that Mary cooks or the proposition that Mary doesn't cook" (ibid.: 16). Regarding a typical alternative question like (15a) below, the set sill contains two propositions, but, unlike yes-no questions, the two propositions here are not restricted to true-false counterparts, as shown in (15b).

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analysis. For the detailed discussion, see Chapter 4 of Huang (2010).

(15) a. whether Mary smokes or Bill drinks
b. $\hat{p}$ [$\check{}$ $p \wedge$ [p = ˆsmoké$_*$ (m) $\vee$ p = ˆdrinḱ$_*$ (b)]] (Karttunen 1977: 16)

By the same token, the semantics for a Chinese disjunctive case like (16a) can be represented as in (16b).

(16) a. Q Zhangsan hui lai haishi Lisi hui lai
Zhangsan will come or Lisi will come
b. $\hat{p}$ [$\check{}$ $p \wedge$ [p = ˆhui laí$_*$ (z) $\vee$ p = ˆhui laí$_*$ (l)]]

The semantic representation in (16b) denotes the set containing either the proposition that Zhangsan will come or the proposition that Lisi will come (or neither or both).

I argue that this third approach based on non-movement and CR is superior to the previous two based on movement. On the one hand, a case like (6a) that poses the ECP problem for the first approach can be accommodated under the present approach. The derivation for (6a) is illustrated below.

(17) [$_{CP}$ Q_x [$_{IP}$ ni xiangxin [$_{NP}$ [$_{IP}$ [$_{IP}$ ta de jiang] haishi [$_{IP}$ wo de jiang]]$_{(x)}$ de
you believe s/he get prize or I get prize DE
xiaoxi]] ne]?
news Q_{wh}
'Do you believe the news that s/he won the prize or I won the prize?'

Since I am arguing for a non-movement approach which creates no empty category, the ECP naturally does not apply here.

On the other hand, a case like (9b) that poses the Shortest Movement problem for the second approach may receive a satisfactory account under the unselective binding analysis, as demonstrated below.

(18) [$_{CP}$ yaoshi $\exists_x$ [$_{IP}$ [$_{IP}$ Akiu cizhi] haishi [$_{IP}$ *pro* tuixiu]]$_{(x)}$ dehua], qing gaosu wo.
if Akiu resign or retire the.case please tell me
'If Akiu resigns or retires, please tell me.'

As shown above, the *haishi*-phrase is bound by existential closure. Without the occurrence of any movement, the Shortest Movement Condition is irrelevant in this case.

My proposal of the unselective binding approach to Chinese alternative questions receives support from specificity effects as in the following paradigms. I cited (19) from Tsai (1997: 140-141).

(19) a. Ni mai-le shei xie de shu?
you buy-Perf who write DE book
'Who is the person *x* such that you bought books which *x* wrote?'
b. *Ni mai-le shei xie de na-xie shu?
you buy-Perf who write DE that-CL book
'Who is the person *x* such that you bought those books which *x* wrote?'

(20) a. Ni xihuan Zhangsan haishi Lisi xie de shu?
you like Zhangsan or Lisi write DE book?
'Do you like books Zhangsan or Lisi wrote?'
b. *Ni xihuan Zhangsan haishi Lisi xie de na-xie shu?
you like Zhangsan or Lisi write DE that-CL book
'Do you like those books Zhangsan or Lisi wrote?'

Tsai (1997) attributes the unacceptability of a case like (19b) to the violation of the Specificity Condition (Fiengo and Higginbotham 1981). That is, specific NP's are opaque in that they cannot contain free (or bound) variables. Given the Specificity Condition, the unacceptability of a disjunctive sentence like (20b) follows. Since, under my analysis, the *haishi*-phrase is treated as a *wh*-variable merged within the opaque definite-article domain, the Specificity Condition is not obeyed and the sentence is thus ruled out. In brief, the paradigms here suggest that *haishi*-phrases behave in line with *wh*-nominals, both entering into binding dependencies and displaying specificity effects.

Returning to the alternative question in (1) with the sentential subject island, I derive it as below based on my proposed non-movement approach.

(21) $[_{CP}\ Q_x\ [_{IP}$ [Wo qu Meiguo] haishi [bu qu Meiguo]]$_{(x)}$ bijiao hao]?
I go US or not go US more good
'Is it better that I go to the US or do not go to the US?'

In my proposal, Chinese alternative questions are licensed by unselective binding, a mechanism without involving movement. Lack of movement will thus not induce any island effect.

5. Conclusion

In this paper, I have compared three different approaches to deriving Chinese alternative questions and argued that the one based on non-movement is more desirable than the other two based on movement. Specifically, I have proposed that Chinese alternative questions are licensed by unselective binding, on a par with *wh*-nominal questions. My proposal may explain why Chinese alternative questions do not exhibit island effects whereas Chinese A-not-A questions do. This issue boils down to the essential difference between *haishi*-phrases and A-not-A constituents: the former are

variables while the latter are operators. Only operators that move may lead to island effects. *Haishi*-phrases, however, stay in situ as variables under my proposal and thus spare themselves the island problem.

References:

Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht, Holland: Foris Publications.

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.

Fiengo, Robert and James Higginbotham. 1981. Opacity in NP. *Linguistic Analysis* 7: 395-421.

Han, Chung-hye and Maribel Romero. 2004. The syntax of *whether/Q…or* questions: ellipsis combined with movement. *Natural Language and Linguistic Theory* 22: 527-564.

Heim, Irene. 1982. *The Semantics of Definite and Indefinite Noun Phrases*. Ph.D. dissertation, University of Massachusetts, Amherst.

Huang, C.-T. James. 1982. *Logical Relations in Chinese and the Theory of Grammar*. Ph.D. dissertation, MIT.

Huang, C.-T. James. 1998. *Logical Relations in Chinese and the Theory of Grammar*. New York: Garland Publishing.

Huang, C.-T. James. 1991. Modularity and Chinese A-not-A questions. In Carol Georgopolous and Robert Ishihara (eds.), *Interdisciplinary Approaches to Language*, pp. 305-322. Dordret: Kluwer Academic Publishers.

Huang, C.-T. James, Y.-H. Audrey Li, and Yafei Li. 2009. *The Syntax of Chinese*. Cambridge, MA: Cambridge University Press.

Huang, Rui-heng Ray. 2009. Delimiting three types of disjunctive scope in Mandarin Chinese. *UST Working Papers in Linguistics* (*USTWPL*) 5: 59-71.

Huang, Rui-heng Ray. 2010. *Disjunction, Coordination, and Question: A Comparative Study.* Ph.D. dissertation, National Taiwan Normal University.

Karttunen, Lauri. 1977. Syntax and semantics of questions. *Linguistics and Philosophy* 1: 3-44.

Kilma, Edward S. 1964. Negation in English. In Jerry A. Fodor and Jerrold J. Katz (eds.), *The Structure of Language: Readings in the Philosophy of Language*, pp. 246-323. Englewood Cliffs, NJ: Prentice Hall.

Lin, Hsin-yin. 2008. *Disjunctions in Mandarin Chinese: A Case Study of* Haishi 'or'. MA thesis, National Kaohsiung Normal University.

Pesetsky, David. 1987. Wh-in-situ: Movement and unselective binding. In Eric J. Reuland and Alice G.B. ter Meulen (eds.), *The Representation of (In)definiteness*, pp. 98-129. Cambridge, MA: MIT Press.

Rizzi, Luigi. 1990. *Relativized Minimality*. Cambridge, MA: MIT Press.

Ross, John Robert. 1967. *Constraints on Variables in Syntax*. Ph.D. dissertation, MIT.

Tsai, Wei-Tien Dylan. 1994. *On Economizing the Theory of A-Bar Dependencies*. Ph.D. dissertation, MIT.
Tsai, Wei-Tien Dylan. 1997. On the absence of island effects. *Tsing Hua Journal of Chinese Studies*, New Series 27: 125-149.
Tsai, Wei-Tien Dylan. 1999. On lexical courtesy. *Journal of East Asian Linguistics* 8: 39-73.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 230-241.

On Bare Classifier Phrases

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This paper investigates bare classifier phrases (ClPs), the phrase consisting of only a classifier and a noun [Cl + N], in several different languages with respect to semantic interpretations and syntactic distributions. In the literature, it has been discussed that not all classifier languages allow bare CLPs (Cheng and Sybesma 1999, 2005). In those classifier languages which allow bare CLPs, the semantic interpretations and syntactic distributions of bare CLPs are quite restricted. For example, indefinite bare CLPs can only appear in object positions but not subject positions in all languages reported. In this paper, we present new data from Yi, a Sino-Tibetan language with SOV word order, which shows that bare ClPs receive indefinite interpretation and can appear in both subject and object positions. The newly discovered data cast doubt on the previous empirical generalizations and analyses on bare classifier phrases. We propose a universal structure for bare classifier phrases by introducing an Argumental Head which is the locus of different interpretations and is subject to parameterization, which is free from the empirical problems involved in previous analyses.

1. Introduction

An important property of classifier languages, such as Mandarin, Cantonese, and Japanese, is that all nouns are like mass nouns in needing a measure word or classifier to be counted by numerals. For example, Classifier Phrases (CLPs) in Mandarin take the form of 'Num+CL+Noun', as shown below.

(1) *san* **(ge)* *ren* (Mandarin)
three CL person
'three persons'

(2) *sāam* **(zek)* *gau* (Cantonese)
three CL dog
'three dogs'

(3) *hong san* **(satsu)* (Japanese)
book three CL
'three books'

However, not all classifier languages allow bare classifier phrases (bare CLPs)—the phrase consisting of only a classifier and a noun without numerals, exampled in (4) and (5) (with bare CLPs underscored).

(4) *zek gau zungji sek juk.* (Cantonese)
CL dog like eat meat
'The dog likes to eat meat.'
Not: 'Dogs like to eat meat.'/ 'A dog likes to eat meat.'

(5) **jia gau be lim zhui*. (Min)
CL dog want drink water
Intended: 'The dog wants to drink water.'
(Cheng and Sybesma 1999, 2005)

In those classifier languages which allow bare CLPs, the semantic interpretations and syntactic distributions of bare CLPs are very restricted (Cheng and Sybesma 1999, 2005). Cheng and Sybesma (1999, 2005) discuss the distribution and interpretation of bare CLPs in four Chinese dialects. They propose that the classifier can be viewed as a counterpart of the determiner in Romance and Germanic languages, based on the fact that bare CLPs phrases are definite and can freely occur in argument positions in Cantonese. According to them, the head of CLPs is the locus of definiteness, the Numeral Phrase (NumP) is the recourse for indefiniteness, the Num and CL may be left empty, and the NumP head Num can undo the definiteness introduced by the CLP. Their proposal well explains the syntactic and semantic differences of bare CLPs in four Chinese dialects (Cantonese, Mandarin, Wu, and Min).

Simpson (2005) presents a head movement analysis for bare CLPs by applying Longobardi's (1994) DP hypothesis to Cantonese. Specifically Simpson treats Cantonese definite CL-NPs as a result of CL-to-Num-to-D head movement. In this system, the head of Determiner Phrases (DPs) is the locus of definiteness and indefiniteness. Specifically, when the D head is filled, the DP receives the definite interpretation; when the D head is empty, the DP gains the indefinite interpretation, and the empty D head is subject to Empty Category Principle (ECP). Simpson's approach provides a unified analysis for nominal phrases in both classifier languages without overt determiners and languages with overt determiners (Romance and Germanic languages). It can also explain the subject-object asymmetry of bare indefinite CLPs in languages such as Cantonese and Mandarin.

In this paper, we are going to introduce newly discovered data from Yi, a Sino-Tibetan language with SOV word order. We show that bare CLPs in Yi can freely occur

in argument positions, the same as those in Cantonese. But different from Cantonese, Yi bare CLPs only receive indefinite interpretations. The new data cast doubt on previous accounts for bare CLPs shown above, namely, first the head of CLPs might not be the locus of definiteness as bare CLPs can only be indefinite, and secondly the indefinite CLPs are not subject to the ECP restriction as they can freely appear in both subject and object positions.

To account for all the empirical data that we have so far, we propose an alternative account which argues that neither the head of DP nor the head of CLP is the locus of definiteness or indefiniteness and that it is the head of Argumental Phrases (ArgP) which contributes to the different semantic interpretation of nominal phrases and is subject to parameterization. This new account is expected to be free from the empirical problems involved in the previous studies. Our account has two further consequences. One is that it can help explain why other SOV languages such as Japanese and Korean do not allow bare classifier phrases. The other is that it can shed light on the structure of nominal phrases in general.

This paper is organized in the following way: Section 2 presents previous observed data on bare CLPs from a variety of classifier languages as well as newly discovered data in Yi. Section 3 shows previous analyses on bare CLPs and their problems. In Section 4, we propose an alternative account for bare CLPs in all languages we have shown. We show that our proposal can explain not only previously established data, but also the newly discovered data and language variation. Section 6 draws a conclusion.

2. Previous established data and newly discovered Data

Cheng & Sybesma (1999, 2005) discuss the interpretation and distribution of bare CLPs in four Chinese dialects. Three of them—Cantonese, Mandarin and Min well represents the distinctive difference of bare CLPs in the classifier languages they discuss. Cantonese allows bare CLPs [CL-NP] appear in both subject and object positions. When bare CLPs appear in object positions, they can either be definite or indefinite (nonspecific), as shown in (6) and (7); when bare CLPs appear in subject positions, they only receive definite reading, exemplified in (8).

Cantonese:

(6) *ngo zungji tong <u>zek gau</u> waan*. (Object: definite)
I like with CL dog play
'I like to play with the dog.'
Not: 'I like to play with a dog.' / 'I like to play with dogs.'

(7) *ngo soeng maai <u>bun syu</u> (lei taai)*. (Object: indefinite)
I want buy CL book come read
'I like to buy a book (to read).'

(8) *zek gau zungji sek juk.* (Subject: definite only)
CL dog like eat meat
'The dog likes to eat meat.'
Not: 'Dogs like to eat meat.'/ 'A dog likes to eat meat.'
(Cheng and Sybesma 1999)

Mandarin only allows bare CLPs to appear in object positions with indefinite (nonspecific) reading, illustrated in (9) and (10). Bare CLPs are disallowed to appear in subject positions, as shown in (10) (Cheng & Sybesma 1999, 2005).

Mandarin:

(9) a. *wo xiang mai ben shu.* (Object: indefinite)
I would-like buy CL book
'I would like to buy a book.'
b. **wo xiang gen zhi gou wan* (Object: *definite)
I want with CL dog play
Intended reading: 'I want to play with the dog.'

(10) a. **zhi gou yao guo malu.* (*Subject)
CL dog want cross road
Intended: 'A dog wants to cross the road.'
b. **zhi gou xihuan chi rou.*
CL dog like eat meat
Intended: 'A dog likes to eat meat.'
(Cheng and Sybesma 1999)

The contrast in (9) and (10) shows that Mandarin exhibits a subject-object asymmetry with respect to the positions that bare CLPs can occur in a sentence, which is not attested in Cantonese.

Differing from Cantonese and Mandarin, Southern Min does not allow bare CLPs at all. The classifier can never occur without being preceded by either a numeral or demonstrative, showed in (11) (Cheng & Sybesma 2005).

Southern Min:

(11) a. **ua siuN bue bun zhu* (*Subject)
I want buy CL book
Intended: 'I would like to buy a book.'
b. **jia gau be lim zhui* (*Object)
CL dog want drink water
Intended: 'The dog wants to drink water.' (Cheng and Sybesma 2005)

In Wu (Fuyang dialect)[1], bare CLPs appear in either preverbal positions (subject and shifted object positions) or postverbal positions (base-generated object positions). Preverbal bare CLPs in Wu (Fuyang) have a definite interpretation, as shown in (12) and postverbal bare CLPs have an indefinite interpretation, as shown in (13) (Li 2011).

Wu (Fuyang):

(12) a. *tsəʔ giu sʔ-ɳiɔ die.* (Subject: definite)
Cl dog die Part
'The dog died.'

b *ŋɤ saŋ gə yoʔ bu tsʰotsʔ ma le uœlœ die.* (Shifted Object: definite)
I last Cl month Cl car buy Perf back Part
'I went to buy the car last month.'

(13) *ŋɤ maʔ le bu tsʰotsʔ. n tsʰœ-tsʰa-kʰan zʔ goʑ tsoʔ ?* (Object: indefinite)
I buy Perf Cl car. you guess be what car
'I bought a car. Can you guess what car it is?

(Li 2011)

The languages allowing bare CLPs above are all SVO languages, and it seems that SOV languages do not allow bare CLPs at all, such as Japanese or Korean, illustrated in (12) and (13) respectively.

Japanese:

(14) a. **kodomo ri-ga benkyoo shite-iru* (*Bare CLPs)
child Cl -Nom study do-be
Intended reading: 'One/The child is studying.'

b. **John-wa hong satsu-o katta*
John-Top book CL -Acc bought
Intended reading: 'John bought a book.'

Korean:

(15) *a. *soi mali-ka swuley-lul kkul-ko iss-ta* (*Bare CLPs)
cow Cl -Nom cart-Acc pull-Del Prog-Decl
Intended reading: 'The/One cow is pulling a cart'

[1] This Wu (Fuyang dialect) is different from the Wu (Wenzhou dialect) discussed in Cheng and Sybesma (2005). Wu-Fuyang dialect belongs to the Taihu Lake clusters of the Northern Wu dialect. It is spoken in the Fuyang city, in the northwest of Zhejiang province and to the southwest of Shanghai, with about 600,000 speakers (Li 2011).

*b. *na-nun haksayng myeng-ul po-ass-ta*
I-Top student Cl-Acc see-Past-Decl
Intended reading: 'I saw one/the student.'

In this paper, we present some newly discovered data from Yi, a Sino-Tibetan language with an obligatory classifier system. The same as Japanese and Korean, Yi is a SOV language; however Yi allows bare CLPs, which can appear in both subject and object positions, with indefinite interpretations only, demonstrated in (14) and (15)

Yi:

(16) *ke ma ngo xi la.* (Subject-indefinite)
dog CL we bite come
'A dog came to bite us'
Not: 'The dog came to bite us.'

(17) *ngo ke ma vu bbo mi* (Object-indefinite)
we dog CL buy go will
'We are going to buy a dog.'
Not: 'We are going to buy the dog.'

To summarize the data that we have shown so far, in SOV languages, neither Japanese nor Korean allows bare CLPs, but Yi allows bare CLPs in both subject and object positions with indefinite reading only. In SVO languages, Min disallows bare CLPs, Mandarin allows indefinite bare CLPs in object positions only, Wu (Fuyang) allows definite bare CLPs in subject positions and indefinite bare CLPs in object positions, and Cantonese allows definite bare CLPs in both subject and object positions and indefinite bare CLPs in object positions. The distribution and the interpretations of the bare CLPs in these seven languages are summarized in (16).

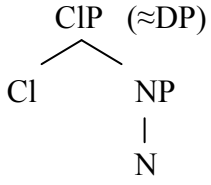
(18)

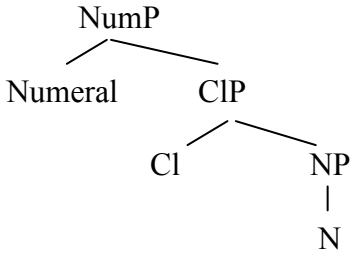
	Bare Classifier Phrases						
	Verb Medial (SVO) languages				Verb Final (SOV) languages		
	Mandarin	Min	Cantonese	Wu	Yi	Japanese	Korean
Def	*	*	Subject/Object	Subject	*	*	*
Indef	Object	*	Object	Object	Subject/Object	*	*

3. Previous Analyses

on the fact that in Cantonese bare CLPs are definite and can freely occur in argument positions, Cheng & Sybesma (1999) propose that classifiers are like determiner in Romance and Germanic languages which turns predicates to arguments and yields the definite interpretation (comparable to an iota operator 'ι'). They propose that all definites ([CL-NP]s and bare nouns) and generics have the structure in which a CL is filled either by the ι operator (realized as an overt classifier) or a moved N, as in illustrated in (19a). For the indefinites (Num-C-NPs, Cl-NPs, and bare nouns), Cheng and Sybesma propose that they all have the structure in (19b) (Num and CL may be left empty), in which the head of NumP can undo the definiteness introduced by the head of ClP.

(19) a. Definite NPs ([Cl-NP], N) b. Indefinite NPs ([Num-Cl-NP], [Cl-NP], N)
Generic NPs (N)



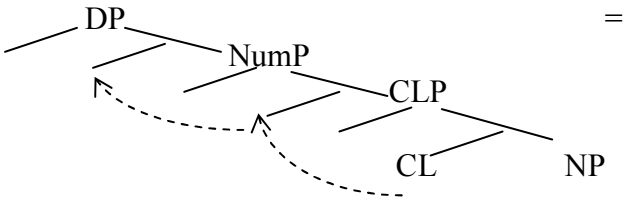


Cheng and Sybesma explain the interpretational and distributional differences of bare CLPs phrases by following some of the ideas developed by Longobardi (1994). When the CL position is filled (by a classifier or a moved N), the CLP receives either a definite or generic interpretation and is not limited to occur in lexically governed positions. When the projection above NP involves an empty head, it must be lexically governed, and this explains why the indefinites bare CLPs are distributionally restricted to lexically governed positions. Specifically, they propose that Cantonese differs from Mandarin and Min in whether or not it is possible to have an overt classifier without a numeral and whether definiteness is expressed by a segmental operator ι in Cl in the form of a full-fledged classifier. Min differs from Cantonese and Mandarin in that Min cannot have empty numerals while other classifier languages can Cheng and Sybesma.

However, their analysis has the following problems. First, the head of CLP might not be the locus of definiteness as they propose. Their argument for this proposal is based on the fact that bare CLPs in Cantonese are definite and can freely occur in argument positions. However, bare CLPs in Yi can also free appear in argument positions, but they only receive indefinite readings. Secondly, the government-based account cannot explain why indefinite bare CLPs in Yi can freely appear in both subject and object positions, we will elaborate this point after we introduce Simpson's analysis as the same problem also arise for him.

Simpson (2005) argues against the view that CLs correspond to the definite article since definite articles are always higher than Numeral Phrases in languages with overt determiners, but CLs occur lower than numerals. Simpson proposes a head movement analysis for bare CLPs by applying Longobardi's (1994) DP hypothesis to Cantonese. Longobardi's hypothesis has several important components. The first one is that an empty D head leads to a default existential interpretation for the DP; secondly, an empty head must be lexically governed (as a result of ECP constrain); thirdly, if the D head is filled, the DP receives a definite interpretation. Simpson analyzes definite CL-NPs in Cantonese as CL-to-Num-to D head movement, as shown in (20).

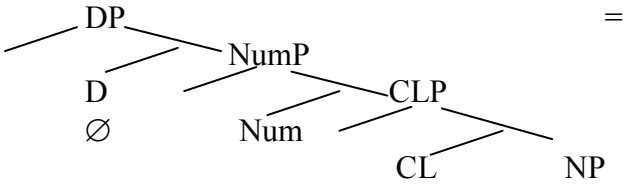
(20)



= definite

When the head of CLP undergoes CL-to-Num-to-D movement, the D head position is filled, and the whole bare CLP receives a definite interpretation—this is the case for the definite bare CLPs in Cantonese. When no movement occurs from CL to D position, the D head position remains unfilled, and the DP receives a default existential reading, illustrated in (21).

(21)



= indefinite

Syntactically, when the D head is not filled, the distribution of the DP is restricted to lexically governed positions because of the ECP constraint. This explains why indefinite bare CLPs can only occur in object positions but not subject positions in the three languages: Mandarin, Cantonese, and Wu (Fuyang).

Simpson's analysis well explains the language variation with respect to different semantic interpretation of bare CLPs in these three languages and keeps a universal structure—DPs for all nominal phrases. However, there are several empirical problems for this DP Hypothesis-based analysis. The first one is that the government-based account cannot explain why the indefinite bare CLP can freely appear in both subject and object position in Yi. This is the same problem that Cheng and Sybesma's analysis has, as mentioned above. Specifically, if assuming Longobardi's DP Hypothesis as Simpson does, Yi should on the one hand have an unfilled empty D head in order to derive the indefinite reading and on the other hand have a filled D head in order to avoid the ECP

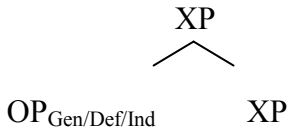
violation as bare CLPs can freely appear in argument positions. However, this is a contradiction. Secondly, if assuming head movement from CL to D position for definite readings in Cantonese, Simpson's analysis cannot explain why N cannot undergo the same type of movement to D position to get definite interpretation for bare NPs in Cantonese. Although bare CLPs can have definite readings, bare NPs in Cantonese cannot be interpreted as definite but only generic and indefinite (Cheng and Sybesma 2005). If the head of CLP undergoes head movement to D position to get a definite interpretation, one should expect that the head of NP—N should be able to move to D position to get the definite reading for bare NPs as well. However, it is not the case.

Before moving on to an alternative account to be proposed in this paper, we'd like to review the puzzles that we need to solve. The first puzzle is what the source of definite and indefinite is—is it the D head, or the CL head, or something else? The second puzzle is the language variation with respect to the different syntactic distribution and semantics interpretations as shown in section 2. In the next section, we are going to present an alternative account for these puzzles.

4. An alternative account

Based on the fact that as long as an expression could denote definite, indefinite, or generic, it can serve as an argument (no matter what the 'label' of that expression has), we propose an Argumental Operator Hypothesis, which says that as long as an argumental operator merges with a phrase, it will make that phrase argumental. Semantically, the Argumental Operator takes a type <e, t> denoting property and returns a type <e> entity. Specifically, the argumental operator can apply at any level—bare NP level, CLP level, NumP level. And there are three types of argumental operators—genetic, definite, and indefinite, as shown below.

(22)



(XP could be NP, ClP, NumP)

In (22), the XP could be bare noun phrases, bare classifier phrases, or numeral phrases. We further assume that languages differ in choosing different types[2] of operators to apply at different levels. Now, let us show how to explain the two puzzles—the locus of different interpretations and language variation in these classifier languages.

[2] There could be a hierarchical semantic ranking of these three types of operators, as Chierchia (1998) and Dayal (2004) suggest.

By assuming the Argumental Operator Hypothesis, the head of classifier phrases will not be the locus of definiteness, whereas the OP is the locus of the definiteness/indefinites/genericity. A question may arise here, namely, why there isn't a language with generic bare CLPs? If we assume that all three types of argumental operators (definite, indefinite, generic) can apply at different levels, we should expect generic bare CLPs as the OP_{Gen} should be able to apply at CLP level. Indeed, we do find a language—Zhuang, a Sino-Tibetan classifier language, which allows bare CLPs in both subject and object positions with generic interpretations besides definite interpretations, exemplified in (23) and (24) respectively .

Zhuang:

(23) *[tu^{0} be^{4}] saμ^{1} iu^{2} [tu^{0} mou^{1}]* (Generic)
CL sheep clean more than CL pig
Sheep are cleaner than pigs.

(24) a. *[ko:ŋ^{1} ha:k^{8}] ʔeu^{1} te^{1} pai^{1} ham^{8} nai^{4}.* (Definite)
Cl officer ask him go night this
'The officer asked him to go there tonight.'
b. *pai^{2} nai^{4} [ʔan^{1} ka:ŋ^{1}] hi^{4} wa:i^{6}.*
then Cl jar also broken
'Then, the jar is also broken.'

(Example from Liu 2010)

Next, we are going to show how our account explains the language variation with respect to bare CLPs that we have presented so far. As the three argumental operators (genetic, definite, and indefinite) can apply at any level—bare NP level, CLP level, NumP level, languages differ in choosing different types of operators to apply at different levels. For languages that do not allow bare CLPs, such as Japanese, Korean, and Min, the argumental operator simply cannot apply at bare ClP level. For languages that allow bare CLPs, they differ in choosing different types of argumental operators to apply. In both Cantonese and Wu (Fuyang), only OP_{Def} applies at the bare CLP level. In Yi both OP_{Def} and OP_{Indef} can apply: when the OP_{Indef} applies, we get the indefinite bare CLPs, and when OP_{Def} applies, we will have a definite [NP-Cl-Su] phrase in Yi (see Jiang and Hu to appear for the discussion on Su in Yi). As for the indefinite interpretation of bare CLPs in Cantonese, Wu (Fuyang), and Mandarin, we assume that an empty numeral 'one' is present in the structure, in the same line as Cheng and Sybesma (1999) and Yang (2001) propose. Consequently, the indefinite bare CLP in these three languages is not a true bare classifier phrase; instead, it is a numeral classifier phrase with an empty one [e_{one}-CL-NP].

With regard to the subject-object asymmetry of the [e_{one}-CL-NP] phrase in these three languages, we think that it is an independent issue for all indefinite nominal phrases

in Chinese types of languages as other classifier languages, such as Japanese and Korean, do not have such a semantic constraint for subjects. As Chao (1968) and Li and Thompson (1981) observe, indefinite subject are not well-suited for the subject position in Chinese, and many different explanations have been proposed for this phenomenon, such as the extended Mapping Hypothesis by Tsai (1999, 2001, 2008), the Hypothesis on Constraining the Eventuality Argument by Huang (1996: 13), and the clitic hypothesis for bare classifiers by Yang (2001:72). Here, we are not going to propose any new explanation for this indefiniteness-related subject-object asymmetry, we will treat it as non-ECP related issue but an independent issue for Chinese type of languages as other linguists assume.

5. Conclusion

In this paper, we examine bare classifier phrases (ClPs) in several different languages—Cantonese, Min, Mandarin, Wu (Fuyang), Japanese, Korean, with respect to different semantic interpretations and syntactic distributions. We introduce new data from Yi, a Sino-Tibetan language with SOV word order, in which bare ClPs only receive an indefinite interpretation and can freely appear in both subject and object positions. The newly discovered data cast doubt on the previous empirical generalizations and analyses on bare classifier phrases. We present an alternative account which is free from the empirical problems for the previous analyses as pointed in section. Specifically we propose an Argumental Operator Hypothesis, which says that as long as an argumental operator merges with a phrase, it will make that phrase argumental. Semantically, the Argumental Operator takes a type <e, t> denoting property and returns a type <e> entity. Furthermore, the argumental operator can apply at any level—bare NP level, CLP level, NumP level. And there are three types of argumental operators—genetic, definite, and indefinite. With this Argumental Operator Hypothesis, we not only have an universal structure for all classifier languages, we can also explain language variation—languages differ in choosing different types of operators to apply at different levels.

REFERENCE

Chao, Yuen Ren. 1968. *A Grammar of Spoken Chinese*. Berkeley: University of California Press.

Cheng, Lisa Lai-Shen, and Rint Sybesma. 1999. Bare and Not-So-Bare Nouns and the Structure of NP. *Linguistic Inquiry*, Volume 30, Number 4, P:509-542.

Cheng, Lisa Lai-Shen, and Rint Sybesma. 2005. Classifiers in four varieties of Chinese. In *The Oxford handbook of comparative syntax*, ed. by Guglielmo Cinque and Richard Kayne, 259–292. Oxford: Oxford University Press.

Chierchia, Gennaro. 1998. Reference to kinds across languages. Natural Language Semantics 6:339–405.

Dayal, VENEETA. 2004. Number Marking and (In)definiteness in Kind Terms. *Linguistics and Philosophy* 27.4, pp. 393-450.

Liu, Danqing. 2010. Yuyan Kucun Leixing Xue [linguistic inventory typology]. presented at International Symposium for Comparative and Typological Research on Languages of China, Hong Kong.

Huang, Shizhe. 1996. Quantification and Predication in Mandarin Chinese: A Case Study of DOU. Doctoral Dissertation: University of Pennsylvania.

Jiang, L. Julie and Suhua Hu. To appear. An overt determiner in a classifier language. In *Proceedings of GLOW-in-Asia VIII*.

Li, Xu ping. 2011. Doctoral dissertation, Bar-Ilan University.

Longobardi, Giuseppe. 1994. Reference and proper names: a theory of N-movement in syntax and logical form. *Linguistic Inquiry* 25:pp.609-665.

Simpson, Andrew. 2005. Classifiers and DP structure in Southeast Asia. In *The Oxford handbook of comparative syntax*, ed. by Guglielmo Cinque and Richard Kayne, 806–838. Oxford: Oxford University Press.

Tsai, W.-T. Dylan. 1999. *On Economizing the Theory of A-bar Dependencies*. New York: Garland [Originally: MIT Ph.D. Dissertation, 1994]

Tsai, W.-T. Dylan. 2001. On subject specificity and theory of syntax-semantics interface. *Journal of East Asian Linguistics* 10: 129–168.

Tsai, W.-T. Dylan. 2008. Object specificity in Chinese: A view from the *v*P periphery. *Linguistic Review* 25, 479-502.

Yang, Rong. 2001. Common nouns, classifiers, and quantification in Chinese. Doctoral dissertation, Rutgers University.

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Deriving Distributivity from Discourse

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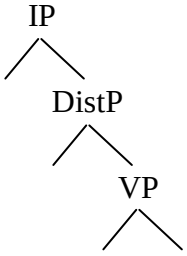
This paper discusses the structure that incorporates information from discourse to derive distributivity. Following a proposal by López (2009) to account for the interpretation shown in the canonical focus structure using the notion "contrast", I suggest that the feature "contrast" assigned to the edge of CP results in distributivity to the extent that distributivity occurs if and only if predicate and plural meet the structural condition. To get the distributive reading the distributive predicate targets the plural which is either from the sentence or from a combination of sentence and discourse. From the perspective of the plural to be distributed, distributivity is target independent.

1. Licensing distributivity

When a plural occurs in a preverbal position, it is interpreted either collectively or distributively, or both. Sometimes, due to the nature of the element the plural (in the sense of semantics) must be interpreted distributively. In my previous study (Li 1997) a proposal was made to the effect that distributivity as essentially a relation between subject and predicate must be licensed syntactically in a way that a distributive marker functions, either overtly or covertly, as a bridge connecting the subject and the predicate. Syntactically, the relation is realized via spec-head agreement. I proposed that distributivity projection is intrinsically associated with predicate.

(1)



Assume that the distributive predicate has a feature that needs to match a distributive feature on the plural nominal. Assume further that a plural entity is intrinsically capable of being interpreted distributively as well as collectively as default, except for those

universal quantifiers that only require a distributive reading. Under this model, distributivity is obtained within the distributivity projection through spec-head agreement. On the other hand, a collective reading occurs from within VP. As a result, distributivity and collectivity are interpreted compositionally. Given that a plural has the potential to be interpreted both collectively and distributively, the fact that they are is understood to satisfy the Principle of Full Interpretation defined in various versions such as the structure to which the semantic interface rules apply contains no uninterpretable features (Adger 2003), a representation for a given expression must contain all and only those elements which contribute directly to its interpretation at the relevant level (Radford 1997), or no expressions occur idly in grammatical representations (Hornstein et al 2005).

2. Distributivity or focus

The plural subject does not seem to be always overt. In languages like Chinese, subject can be omitted if the context supplies sufficient information for the subject to recover. This is fully expected as long as a pro form is assumed to exist in the sentence in question. Logically speaking, there are three possibilities for the appearance of the plural nominal. Either it appears on the surface, or it does not occur but understood through context. The third possibility is that it partially occurs on the surface in the sentence and partially understood through context. This possibility is considered in this paper. First consider (2):

(2) 连老王都/也买了房子。
lian Lao Wang dou/ye mai-le fangzi
even Lao Wang all/also buy-asp house
'Even Lao Wang bought a house.'

With respect to the structure associated with the part "*lian* … *dou*" in (2), there are two prominent suggestions. It could be argued that the sentence in (2) is interpreted distributively, thus involving a distributive projection, as I assumed in Li (1997), rather implicitly. Another popular analysis takes focus as the structural projection (Shyu 1995 and others).

In (2) the subject *Lao Wang* is singular but associated with it is a possible nominal in parallel with *Lao Wang*. That understood nominal, by virtual of being implicit from context, puts the overt subject in a highlighted position. In the literature the overt subject is often referred to as being focused or emphasized with reference to some other people understood in discourse. Given the fact that (2) involves both distributivity and focus, the question is which one we should take as primitive and which one is derived. If a structure is involved that has a primary function, it does not then seem plausible to posit that the projection is both distributivity and focus. Therefore, a particular syntactic analysis has no other choice but opt for one over the other. I approached cases like (2) as issues relating to distributivity rather than the structure of pure focus or others. This position

certainly regards the problem of distributivity as the core issue and assumes that the issue of focus can be derived. The focus approach on the other hand highlights the difference between the overt nominal and the implied covert and generally neglects the issue of distributivity associated with the structure. Suppose that we take the distributivity approach. To define (2) within the realm of distributivity involves extending the subject-predicate relation to discourse. For distributivity to occur the predicate remains the same and for the predicate each member of the plural nominal is true. The only operation to be manipulated is to make sure that the overt element and the covert form a conjunct. Since the individual members of the plural are interpreted one by one, it is not implausible to superimpose some members with some additional pragmatic functions. Assume the focus approach on the other hand. First, this approach needs to distinguish the focus in question from other types of focus. Focus is a broader notion than shown in (2).

(3) a. 是老王买了房子。
shi Lao Wang maile fangzi
be Lao Wang bought house
'It was Lao Wang who bought a house.'

b. **老王**买了房子。
Lao Wang maile fangzi
Lao Wang bought house
'It was Lao Wang who bought a house.'
(The bold-faced font indicates stress)

In (3) Lao Wang is focused, though in different ways. In (3a) it is focused because of *shi* (be); in (3b) it is focused because of stress. In both cases and many others involving focus the focused element is being highlighted with reference to some implied elements in the context. The predicate is irrelevant; it does not apply to the understood. But in (2) when focus is related to predicate, the restriction is that the predicate has to remain constant, or rather shared. This distinguishes itself from cases like (3) where the so-called focus has nothing to do with distributivity. Naturally focus is classified into two distinct groups depending on the (non)requirement imposed upon predicate. To assume that (2) is essentially a focus structure, we need to define in a way when the highlighted is in contrast with some implied element(s) and the predicate is constant distributivity is bound to occur.

It seems that with certain additional assumptions, both approaches could be made to work. So looked at in isolation, whether the sentence in (2) is primarily a case of distributivity or focus is little more than a matter of naming. From either one the other could be derived. The problem lies in the relation with other sentences and with the nature of overt distributive elements shown in the language.

3. Against focus

We may wonder why the issue of distributivity was brought up surrounding (2). To the best of my knowledge, the corresponding sentence in English as in (4) has not been argued elsewhere for or against being related to distributivity.

(4) even Max bought a house

Given that (4) is related to distributivity, the matter is hidden in English. Even in Chinese it is hidden if we solely take (2) into consideration. Only when we loot at other types of sentence that contain similar elements do we become suspicious that those sentences may be related in a way that could be captured in some principled fashion. One difference between (2) and (4) is that besides corresponding meaningful elements there are two markers for the focus (or distributivity for that matter) in (2), namely *lian* and *dou*, whereas (4) contains only one such element, *even*. This in and of itself is a phenomenon that requires an explanation. But still that does not result in an analysis intrinsically related to distributivity, as we have seen above.

Problems begin to emerge when we shift our attention onto the nature and function of *dou*. The extensive use of *dou* makes Chinese linguists wonder why and try to produce an account general enough to cover the empirical facts as much as possible. Depending on what type of construction receives primary attention, linguists may opt for one analysis over others. In this paper I will not go into details of other analyses on *dou*, but approach the problem directly as it relates to structure. Consider (5):

(5) 每个人都买了房子。
meige ren dou maile fangzi.
everyone all bought house
'Everyone bought a house.'

Obviously (5) involves distributivity as the universal quantifier itself is intrinsically distributive. Does (5) also have something to do with focus? It does if universal quantification is arguably intrinsically related to focus. After all, the concept of 'no exception' exhibited by a universal quantifier seems to match well with focus in emphasizing every single member of a set. For the moment let's ignore some cross-linguistic variations and assume that universal quantification entails focus.

Consider another *dou*-containing sentence as in (6):

(6) 老张和老王都买了房子。
Lao Zhang he Lao Wang dou mai-le fangzi
Lao Zhang and Lao Wang all buy-asp house
'Lao Zhang and Lao Wang both bought a house.'

Is *dou*'s function in (6) to help derive focus or distributivity? Here the choice between distributivity and focus is not simply a matter of label, but rather a matter of significance. It is difficult to argue for an analysis of focus in (6) because *Lao Zhang* and *Lao Wang* are on equal footing in terms of prominence, neither one of whom is more highlighted than the other. If (2) involves focus and (6) involves distributivity, then additional assumption is needed to account for the behavior of *dou*. This is a hard nut to crack, I think. However, if both of them involve distributivity, then the burden is to prove the possibility to derive focus from distributivity. It is doable and preferable.

If *dou* is to focus, problems lie in (6); whereas if *dou* is to distribute, problems lie in (2). Assume that *dou* is to distribute. Consider the plural nominal in (2). Does the overt *Lao Wang* form a conjunct with an implied set? It seems that it does. We know that Lao Wang and some other unspecified person(s) performed the event of purchasing. One analysis, originated in Karttunen and Peters (1979) for *even*, hypothesized that *even* introduces two types of implicature *existential implicature* and *scalar implicature* as shown in (4). The existential implicature ensures that besides Max some other person(s) also bought a house; scalar implicature highlights Max as the least likely to buy a house. In parallel, *lian* in (2) functions like *even*. If the implicature specifies Lao Zhang, then Lao Wang and Lao Zhang form a plural.

Given that a plural must be interpreted collectively or distributively, the question is whether the plural in question needs to be interpreted collectively or distributively. Collective reading precludes isolation of an individual element for an independent interpretation. So when the plural is understood as collectively buying a house, it would not be possible for a member in the set to buy a house separately. Distributive reading, though, is free from this type of restriction. It is natural to see that the overt is highlighted. In fact, it would be pragmatically puzzling if both the overt and the covert are equally highlighted or non-highlighted.

When *lian* is used, the contrast is of the type that it introduces a set of parallel elements to the existing noun in the sentence. Furthermore, the predicate remains intact. The set that contains both the overt element and the implicated one form a plural entity which requires a distributive reading. Note that the collective reading is not possible. This is because the contrast set implicated by *lian* which contains two types of implicature makes it impossible for the sentence to have a collective reading. Once a plural entity is formed, and collective reading is barred, distributive feature must match a distributive head. Therefore, there must be a distributive marker in the head position of the same projection the spec of which holds the contrast.

There are two general questions regarding *dou*. One is what *dou* can do. The other is related to what the structure is relating to *dou*. I think that most analyses focus on the former, but neglect the latter.

4. Focus reanalyzed as contrast

The assumption that (2) involves distributivity does not solve the syntactic problem of distributivity, though. The position of *dou*/*ye* in (2) seems to be higher than *dou* in (6). Consider (7-10):

(7) 老张和老王都没买房子。
Lao Zhang he Lao Wang dou mei mai fangzi
Lao Zhang and Lao Wang all not buy house
'Neither Lao Zhang nor Lao Wang bought a house.'

(8) 老张和老王没都买房子。
Lao Zhang heLao Wang mei dou mai fangzi
Lao Zhang and Lao Wang not all buy house
'Lao Zhang and Lao Wang didn't both buy a house.'

(9) 连老王都/也没买房子。
lian Lao Wang dou/ye mei mai fangzi
even Lao Wang all/also not buy house
'Even Lao Wang didn't buy a house.'

(10) *连老王没都/也买房子
lian Lao Wang mei dou/ye mai fangzi
even Lao Wang not all/also buy house

Further investigating the construction involving (2) and (6), we notice that the negation marker *mei* can precede or follow *dou* as shown in (7-8) relating to (6), but in (2) *mei* can only follow *dou* as in (10-11). This shows that *dou* may occur in two different positions. If the structure relating to distributivity is as in (1), *dou*'s position is set with respect to negation. But as these cases show, it is somewhat flexible. If (2) is also structurally related to distributivity, then there must be two distributivity projections. That begs the question of why this is so.

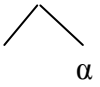
Assume that there are two structures relating to distributivity: one is as in (1); the other higher in position. What is the difference between them? The lower one is intrinsically responsible for distributivity. It is a distributive predicate, which may or may not exist. The higher one is not intrinsically related to distributivity. It is a projection for

other appropriate function(s). When context information comes in, it may trigger the structure resulting in distributivity.

With respect to the free order shown in (7-8), let's consider the following. In the absence of an overt distributive marker, the position of a distributive projection is not rigid in the sense that it does not result in a contrast between collectivity and distributivity, although it makes a difference in the relative scope with respect to other scope-bearing elements. In other words, the force of distributivity is holistic rather than relative with respect to collectivity. Consider (11):

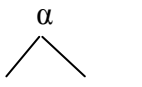
(11)

a. 

b. 

Suppose that DistP is syntactically licensed in (11). Once the distributive projection occurs, it doesn't matter where the projection occurs with respect to α. The collective reading is not available. This follows from two considerations. One is that a specific structure is associated with one particular meaning. The other is that the simultaneous readings of collectivity and distributivity will result in a contradiction. In both (11a) and (11b) distributivity is available but collectivity is not. The distinction between collectivity and distributivity should be reflected in the structure in (12).

(12)

a. 

b. 

c. 

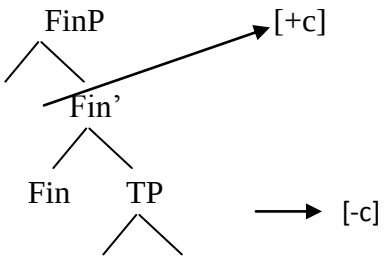
Whether it is licensed or not, the distributive projection is intrinsically associated with predicate. So to begin with, as part of predicate, it has the potential to be instantiated. The assumption is that if DistP does not exist, the predicate is interpreted collectively. When DistP exists there is only distributive reading. A collective reading is only possible in the structure as in (12c) in which no DistP is available. DistP needs to be instantiated by having some content in the head, either overtly or covertly. Here I want to suggest that when a plural nominal needs to be interpreted distributively the predicate needs to be interpreted distributively for the sentence to be grammatical. If the predicate is higher than the normal position for DistP, this predicate should be able to assume that function of distributivity.

In the minimalist program, phases are the locus for semantic interpretation. (Chomsky 2008). It is proposed recently (López 2009) that a feature system based on the notion "contrast" is better adopted to account for the interpretation shown in the

canonical focus structure. The notion "focus" is just a descriptive term for a particular feature, not theoretical primitive. Phase edges are the places where pragmatic rules apply. One crucial information structure notion is (discourse) contrast, giving rise to the binary feature [±c(ontrast)]. The feature [±c] is derivationally assigned. Constituents are not merged in the derivation with features related to their information structure. The feature [±c] is assigned by the modular pragmatics to a constituent in certain structural position: Spec, Fin. Default rules assign the information structure features.

(13) a. Spec, Fin is assigned [+c]
b. Default rule: complement of Fin is assigned [-c] (complement of Fin is non-contrastive) (López 2009)

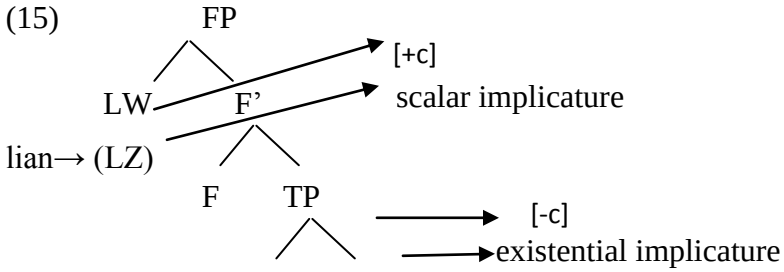
(14)



López views *even* as a contrast inducer associated with a regular focus. In terms of introducing contrast, *even* is stronger than a simple assignment of contrast to the spec. Due to the nature of *even* not only the TP is assigned [-c] but also that the predicate takes force on the contrast that is introduced, which ultimately results in distributivity.

Following the spirit of this analysis, I suggest that the phase CP, putting aside the argumentation that FinP is one possible realization of CP, is where context information interacts with an existing element to form a distributivity-required constituent if it is the unit that interfaces with interpretive systems. A feature "contrast" assigned to the edge of CP results in distributivity to the extent that distributivity occurs if and only if predicate and plural meet the structural condition. In Chinese, as I assume, *lian* (even) introduces a contrast, which differs from other types of contrast in a way that a conjunct is formed which requires a distributive reading. Essentially distributivity is a relation between spec and complement of a head. When a new set is formed via connecting the identified and the relevant set from discourse, if, as López argues, syntax-information structure integration takes place at the phase level and the feature "contrast" is assigned at CP level, then a structure for distributivity is called for license. As a result a distributive marker is obligatory in Chinese.

(15)



In effect, to get the distributive reading the distributive predicate targets the plural which is either from the sentence or from a combination of sentence and discourse. From the perspective of the plural to be distributed, distributivity is target independent.

In light of the discussion above, we may formulate distributivity condition as in (16) and (17).

(16) *Availability of distributivity*
Distributivity is available iff
1. there is a plural nominal
2. there is a distributive predicate
3. (1) and (2) form sped-head relation

(17) *Distributive predicate*
A distributive predicate is available iff
1. there is a licensed distributivity projection, or
2. a projection headed by an overt distributive marker

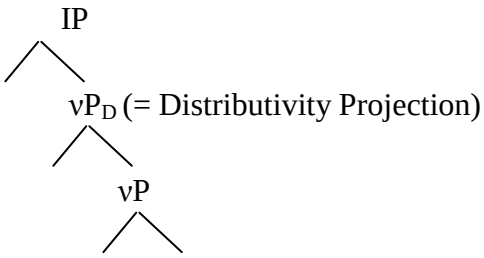
(16) guarantees that if the three elements for distributivity, namely plural, predicate, and structural relation, are all available, then distributivity is bound to occur. (17) distinguishes two possible distributive predicates. One is inherent; the other is a function that a predicate assumes to make possible interpretation of a formed plural through context. The structural condition on the inherent distributivity condition, as originally formulated, is in (18).

(18) *Syntactic Condition on Distributivity Projection*
Distributivity Projection is licensed iff Dist is instantiated.
Dist is instantiated if it is lexically filled either overtly or covertly.

(16-18) collectively ensure that distributivity is derived from both overt distributive markers and covert distributive operations. To the extent that the distributivity projection is positionally fixed as it is intrinsically associated with verbs, quite possibly a part of vP

as in (19), (16-17) open up another possibility of deriving distributivity from higher projections than distributivity projection. But that possibility starts to materialize only when the requirement for distributivity is called for.

(19)



One may wonder if the projection vP_D is warranted given that distributivity obtained from higher positions comes from, predicate-wise, projections of some other kinds in nature. Is it possible or ever preferable to eliminate vP_D to achieve a uniform representation for distributivity? In other words, if we give up vP_D we may put an overt distributive marker on a head position of any predicate projection to achieve distributivity. I am reluctant to take this position for two reasons. First, conceptually keeping vP_D and vP separate helps derive meaning compositionally. Since distributivity and collectivity are distinct in interpretation, giving them two distinct structures corresponds to two different interpretations. This is in sharp contrast to distributivity derived from positions higher than vP_D which is exclusively distributive, imposed by joint plural as in (2) accompanied by an overt distributive marker which eliminates the possibility of collectivity. Second, empirically speaking, positing vP_D distinct from vP ensures the existence of language difference. Given the condition in (18), in the absence of an overt distributive marker, the existence of vP_D depends on some syntactic mechanism independently motivated. Such covert operations result in different interpretations in distributivity corresponding to native speakers' intuition.

5. Parametric considerations

Given that a plural nominal is formulated through context which requires a distributive reading, the requirement of a distributive predicate is satisfied by *dou* in (2). This raises a question on the English counterpart as in (4) where no overt distributive marker is used. This can be explained in the following way. In English the distributivity projection already exists due to verb raising indirectly instantiating the distributivity projection. As we have seen above, the effect of a distributive predicate is global in the sense that once the distributive projection occurs the whole predicate is distributive. Assume that for reasons of economy, if a predicate is already distributive it resists the use of an overt distributive marker. Therefore, there is no *dou*'s corresponding element to be used as a distributive marker.

6. Full Interpretation

If a plural nominal has a distributive feature, then to match this feature with the corresponding feature in the distributive predicate via a structural relation will satisfy the principle of full interpretation. Notice that the principle of full interpretation is formulated in different versions in the literature. Let's assume that the principle is formulated in such a way that features must be checked off. Then the question is what if the distributive feature is not checked off. We know that a regular plural noun could be potentially interpreted either collectively or distributively. However, as in (5) minus *dou*, no distributive reading is available. The feature is not checked off, but the sentence is still grammatical. So it seems that the distributive feature may or may not be checked off. What is the catch then? In the absence of a distributive reading as in (5) without *dou* where no relevant feature is checked off, there is always a collective reading available. So failing of checking off distributive feature is simultaneously accompanied by presence of the collective reading. Now let's assume that by default there is a feature for collectivity. Distributivity and collectivity form a feature matrix set {c, d}, with *c* indicating collectivity and *d* distributivity. Assume further that a feature to be checked forms a set, which may contain a single member or multi-members. In case of Case the feature contains a single member {C}. In plurals, it contains two members. To check features one member of the set to be checked is sufficient to satisfy the Principle of Full Interpretation.

So empirically when the subject is a regular plural, distributivity may or may not be available. If the subject is a distributive quantifier, distributivity must be present, resulting in a difference between English and Chinese. In case of focus similar picture presents itself. Chinese needs an overt marker, but English doesn't. In cases where no overt markers are used, the occurrence of distributivity is as follows:

(20)

	Plural Nominal	**Predicate**	**Reading(s)**	**Full Interpretation**
1	$PN_{c, d}$	$P_{c, d}$	C, D	yes
2	$PN_{c, d}$	P_{c}	C	yes
3	PN_{d}	$P_{c, d}$	D	yes
4	PN_{d}	P_{c}	Ø	no

PN = plural nominal; P = Predicate; c = collectivity; d = distributivity

7. Conclusion

Distributivity is both an inherent property of a plural nominal/distributive predicate and a derived property in the course of derivation. For both types of distributivity to occur there must be a plural nominal and a licensed predicate to be in a required structural position. For inherent distributivity the crucial part is to license the distributive predicate. To derive distributivity from context an external contrast inducer will force distributivity which requires a distributive predicate to be licensed in the same way as sentence internal distributivity.

References

Adger, David. 2003. *Core Syntax: A Minimalist Approach*. Oxford University Press.

Chomsky, Noam. 2008. On phases. In Robert Freidin, Carlos P. Otero and Maria Luisa Zubizarreta. Eds. *Foundational Issues in Linguistic Theory*, 133-166. MIT Press.

Hornstein, Norbert, Jairo Nunes, and Kleanthes K. Grohmann. 2006. *Understanding Minimalism*. Cambridge University Press.

Karttunen, Lauri and Stanley Peters. 1979. Conventional implicature. In Choon-Kyu Oh and David A. Dineen, eds., *Syntax and Semantics*, Vol. 11: *Presupposition*, pp. 1–56. Academic Press, New York.

Li, Xiaoguang. 1997. Deriving distributivity in Mandarin Chinese. Ph.D. dissertation, University of California, Irvine.

López, Luis. 2009. *A Derivational Syntax for Information Structure*. Oxford University Press.

Radford, Andrew. 1997. *Syntactic theory and the structure of English*. Cambridge: Cambridge University Press.

Shyu, Shu-ing. 1995. The syntax of focus and topic in Chinese. Ph.D. dissertation, University of California, Los Angeles.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 254-270.

The *De*-marked Modification Structure in Mandarin Chinese

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Over the years the nominal construction with marked modifiers in Mandarin Chinese, the so-called *de* construction, has been one of the most studied topics within the literature of Chinese linguistics. Due to its complicated properties and distributions, a satisfactory account has not yet been achieved that covers all the phenomena observed. In particular, the categorial status of *de* remains rather vague. Therefore, this paper addresses the issue of the syntactic category of the element *de* in the nominal domain. It reanimates the idea that in Mandarin Chinese all modifiers in the nominal domain which are accompanied by *de* are full-fledged relative clauses adjoined to the left of modified phrases by the syntactic operation Adjunction and that the particle *de* is a head-initial complementiser. The current left-adjunction proposal can better account for the co-ordination of two relative clauses modifying one single nominal phrase in Mandarin Chinese.

1. Introduction

Over the years the nominal construction with marked modifiers in Mandarin Chinese, the so-called *de* construction, has been one of the most studied topics within the literature of Chinese linguistics. So far, due to its complicated properties and distributions, a satisfactory account has not yet been achieved that covers all the phenomena observed. In particular, the categorial status of *de* remains rather vague. Within the framework of Chomsky's (2000, 2001, 2004) Minimalism, this paper investigates the way in which *de*-marked modifiers is incorporated into the syntactic structure of nominal phrases.

According to Li and Thompson (1981), the particle *de* that marks modification in pre-nominal strings has several functions: a possessive marker, an adjectival marker and a nominalisation marker. Examples of *de* being used in its various contexts are provided in (1) to (6) below, with the labelled bracketing indicating the surface structure of the preceding constituents.

(1) [$_{DP}$ Zhào Yuánrèn] de shū
Zhào Yuánrèn DE book
'Zhào Yuánrèn's book(s)'

(2) [$_{AdjP}$ tèbié piàoliàng] de fangzǐ
particularly gorgeous DE house
'a/the house(s) that is/are gorgeous'

(3) [$_{PP}$ zài zhuō shàng] de chábēi
at table up DE cup
'a/the cup(s) that is/are on the table'

(4) [$_{NP}$ mùtóu] de zhuōzi
wood DE table
'a/the table(s) that is/are made of wood'

(5) [$_{TP/AspP}$ tuō-zhe xínglǐ] de lǚkè
carry-Asp luggageDE passenger
'a/the passenger(s) who is/are carrying the luggage'

(6) [$_{TP/AspP}$ wǒ zuótiān mǎi] de shū
I yesterday bought DE book
'a/the book(s) that I bought yesterday'

As can be seen from the examples above, modifying elements with different categorial status can be followed by the marker *de* in Chinese nominal expressions. More specifically, the particle *de* can appear in a possessive construction as in (1), or it can appear after an adjective phrase (AdjP) as in (2), a prepositional phrase (PP) as in (3), a noun as in (4), or a relative clause as in (5) and (6).

This paper will reanimate the idea that all the *de*-marked modifiers as in (1) to (6) are full-fledged relative clauses. The new constructed arguments are the combinations of *de*-marked modifiers with negation and high adverbials. Given the assumption that once we have negation and high adverbials we necessarily have a clause, it is argued that the *de*-marked modifiers in Mandarin is a relative clause left-adjoined to the noun modified.

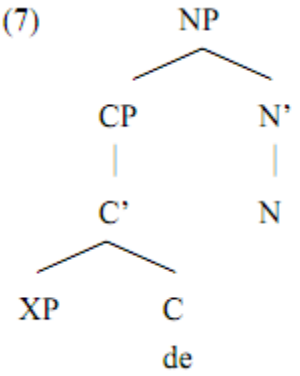
This paper is organised in the following manner. In Section 2, I will review the literature on the proposals for analyzing *de* as the head of complementiser phrase (CP). In Section 0, I will argue for a left adjunction of full relative clause analysis to account for the *de* construction in Mandarin Chinese. I will then conclude this paper in Section 4.

2. Review of Literature: *DE* as the Head of CP

Within the Government and Binding (GB) framework, Cheng (1986: 321) proposes that '*de* is a head-final complementizer that does not select any particular category of complement'. In other words, being a complementiser, *de* places no restriction on the syntactic category of its complement. As can be seen from (1) to (6), the particle *de* can intervene between different sorts of modifiers and the modified nominal phrase. More

precisely, the modification marker *de* can select a possessor as in (1), an AdjP as in (2), a PP as in (3), a noun phrase (NP) as in (4), or a tense phrase (TP) as in (5) and (6). Although not stated explicitly, Cheng seems to treat all the pre-nominal modifiers in (1) to (6) as full or reduced forms of relative clauses. The structure she assumed is illustrated in (7), where XP represents the various sorts of modifying elements.

(7)



Cheng's proposal that *de* is a head-final complementiser seems to rely solely on her observation of the surface word order. However, it is not in line with her belief in Huang's (1982) X-bar schema for Mandarin highlighted in (8), where only the NP is assumed to be head-final.

Huang (1982: 41; modified):

(8) X-bar schema for Mandarin:

a. $[_X{}^n\ X^{n-1}\ YP^*]$ if and only if n=1 and X≠N

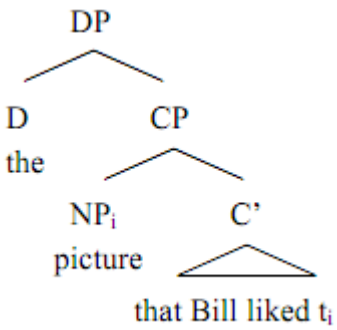
b. $[_X{}^n\ YP^*\ X^{n-1}]$ otherwise

Even if she abandons Huang's X-bar schema for Mandarin, her assumption of the existence of a head-final C head needs to face the challenge from the existence of subordinators, such as *rúguǒ* 'if' in Mandarin, which are generally analysed as involving a head-initial C. To accommodate this, Cheng would need two types of C in Mandarin, each with different directionality. However, from the theoretical viewpoint of first language acquisition, it seems dubious that there is variation of directionality within the C category.

Adopting Cheng's idea, Xu (1997) also argues that *de* is a C element from an early Minimalist perspective (Chomsky 1995). However, in accordance with Kayne's (1994) restrictive and universal theory of phrase structure, the Linear Correspondence Axiom (LCA), in which all phrases are underlyingly head-initial and no (base-generated or derived) right-adjunction structures are allowed, Xu maintains that *de* is a head-initial complementiser that takes an inflection phrase (IP) (the previous version of TP) as its complement. As for the surface modifier-*de*-N order, following Kayne's D-CP analysis

of relative clauses in English, which assumes that a D head selects a CP complement, Xu assumes that some movements are involved in the derivation of *de*-marked modification in Mandarin. First of all, Xu proposes that an NP moves to the Spec of CP. This proposal is in line with Kayne's (1994) analysis of the English non-wh-relative clause as in **Error! Reference source not found.**, where *t* indicates the position out of which the NP moves:[1]

(9)

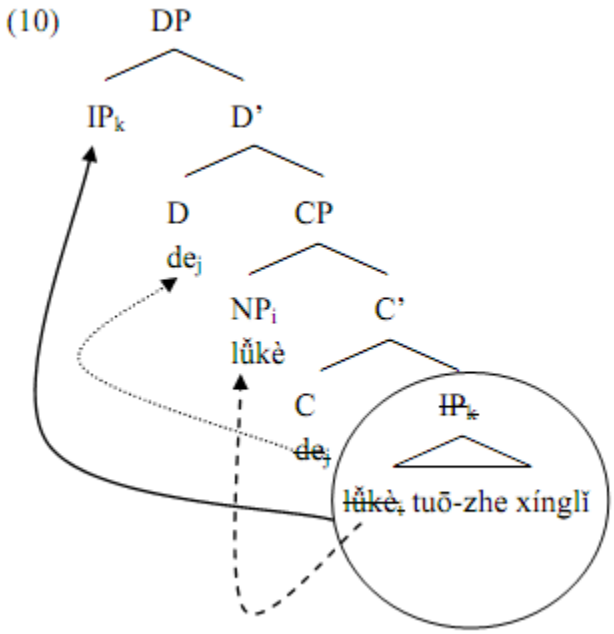


According to Kayne's D-CP analysis, English nominal expressions such as *the picture that Bill liked* are derived by a syntactic operation of movement of the NP object *picture* to the Spec of CP. The determiner *the* heads the projection of D, and the clause *that Bill liked picture* projects as the complement of the determiner *the*.

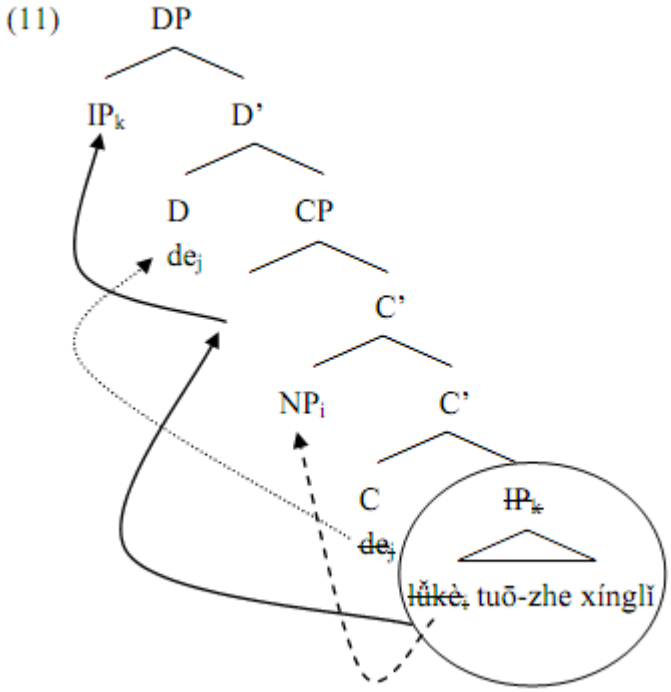
Secondly, Xu maintains that the particle *de* moves from the head of CP to the head of DP. Lastly, he argues that the complement of C, the remnant IP, moves to the Spec of DP. The entire derivation is illustrated in (10), where the lower copy of a moved item is marked by strikethrough.

[1] As for the English wh-relative clause as in (i), Kayne proposes that it involves a D with a CP complement and movement of a DP or PP to the Spec of CP.

(i)a. the picture which Bill liked
b. the picture at which Bill gazed



Although this can derive the correct word order for the relative clauses in Mandarin, Xu's analysis encounters a major problem within the recent Phase-based Minimalist Programme (Chomsky 2000, 2001, 2004). That is, the movement of remnant IP to the Spec of DP is not fully motivated (or is even redundant). According to his analysis, the head movement of *de* from C to D paves the way for the feature checking of IP. Nevertheless, within the Phase-based Minimalist framework, the movement of IP to the Spec of DP needs to pass through the Spec of CP as shown in (11) (with strikethrough marking the lower copy of moved items).



If the IP does not pass through the Spec of CP as shown above, a violation of the Phase Impenetrability Condition in (12) will be incurred.

Chomsky (2000: 108):

(12) *Phase-Impenetrability Condition*

In a phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.

According to (12), the external Probe in (10), namely the D head, cannot attract the c-command domain (the remnant IP) of a phase head, namely the C head in this case. Since the remnant IP has to move via the Spec of CP, the features of IP, which have to be checked by the C head instead of the D head as claimed by Xu, will be matched and deleted in the Spec of CP. As a result, the further movement of IP to the Spec of DP will become redundant. In other words, Xu has to discard the idea that the head movement of *de* from C to D paves the way for the feature checking of IP and that the feature checking of IP are all related to the C head. Alternatively, Xu has to resort to an articulated CP to solve this problem.

Furthermore, the obligatory movement of the particle *de* to the D head contradicts Li's (2001) finding that the occurrence of a relative clause in Mandarin can merely have

an NP projection. In other words, a relative clause in Mandarin does not require the occurrence of a D head. An example is provided in (13) below.[2]

Li (2001: 179; modified):

(13) yī ge fùzé yīngwén de mìshū jiān jiāo xiǎohái de jiājiào
one Cl charge English DE secretary and teach kid DE tutor
'a secretary that takes care of English (matter) and tutor that teaches kids'

As can be seen above, the conjunction word *jiān* 'and' in (13) coordinates two activities performed by one individual. In terms of categories, according to Li (2001), the conjunction *jiān* only connects NPs but not DPs as shown in (14) to (15) below:[3]

Li (2001: 175; modified):

(14) yī ge [$_{NP}$ mìshū] jiān [$_{NP}$ dǎzìyuán]
one Cl secretary and typist
'a secretary and typist'

Li (2001: 176; modified):

(15) *[$_{DP}$ yī ge mìshū] jiān [$_{DP}$ yī ge dǎzìyuán]
one Cl secretary and one Cl typist
Intended meaning: 'a secretary and typist'

Xu's analysis that Mandarin relative clauses require the occurrence of D is not compatible with Li's observation, for the coordination of two DPs is not allowed for the conjunction word *jiān* 'and' as shown in (15). Therefore, (13) must involve the coordination of two NPs as illustrated in (16) below:

(16) [$_{DP}$ yī ge [$_{NP}$ [$_{NP}$ [$_{CP}$ fùzé yīngwén de] [$_{NP}$ mìshū]] jiān [$_{NP}$ [$_{CP}$ jiāo
one Cl charge English DE secretary and teach
xiǎohái de] [$_{NP}$ jiājiào]]]]
kid DE tutor
'a secretary that takes care of English (matter) and tutor that teaches kids'

As a result, Xu's proposal that the particle *de* moves obligatorily from the head of CP to the head of DP is not on the right track.

[2] Li (2001) provides a sentence from which I have isolated just the nominal phrase.
[3] Li (2001) provides the sentences from which I have isolated just the nominal phrases.

Rejecting the analysis that postulates an underlying predicate for different categorial modifiers, Paul (2007: 18) proposes that the particle '*de* is a complementiser limited to non-root contexts'. She argues that some complementisers in Mandarin are able to select complements of heterogeneous nature in addition to clauses. The particle *de* is just one of these sorts of complementisers. She further proposes that the particle *de*, with its various categorial complements, forms a *de* Phrase (henceforth DeP). In line with Aoun and Li's (2003) adjunction analysis for relative clauses in Mandarin, she maintains that DeP is adjoined to the modified noun, as illustrated in (17) below, where XP represents the various sorts of modifying element.

Paul (2007: 21):

(17) $[_{NP}\ [_{DeP}\ XP\ \textit{de}]\ N]$

According to Paul, the requirement for the DeP to occur within a nominal expression is due to the feature composition of the particle *de*, in which a nominal feature is included. This also accounts for why the modifier-*de* sequence is always interpreted as a headless nominal.

Although Paul's analysis is compatible with Li's (2001) observation that the D is optional in the formation of a relative clause in Mandarin, Paul does not justify the head-final status of the particle *de* but only takes Cheng's (1986) proposal as her starting point. As a result, her proposal inherits the same flaw as in Cheng's analysis of the particle *de*. That is the head directionality of C in Mandarin. In addition, her rejection of the predicational approach, which derives modifier phrases from underlying predicates in the form of a small clause or a relative clause, cannot explain why the *de*-marked modification structures in (1) to (6) can be negated, as shown in Section 0 below.

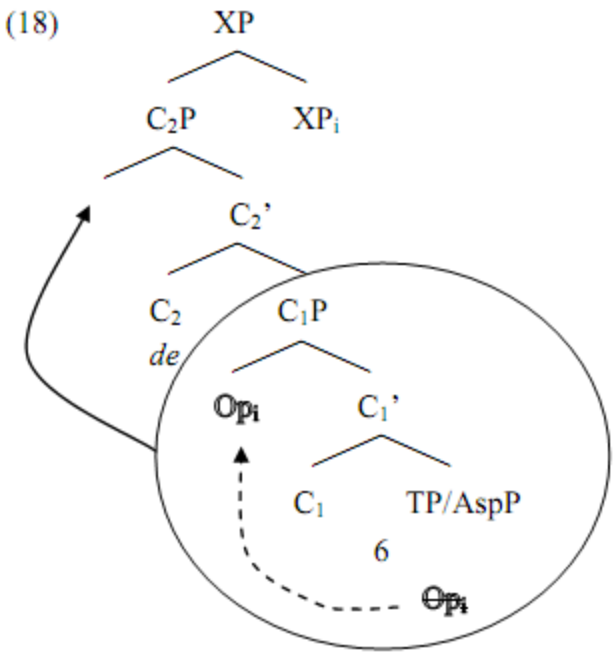
3. Current Analysis

This section will cover all the uses of *de* in the previous section and present a uniform analysis. It is proposed here that the formation of the *de*-marked modification structure in Mandarin Chinese is derived by the operation Adjunction. More specifically, it is argued that the particle *de* is a head-initial complementiser and that all instances of the *de*-marked modifying phrases as in (1) to (6) are actually full forms of relative clauses adjoined to the left of modified phrases.

The entire derivation of the *de*-marked modification structure is depicted in (18), where XP represents the modifiee and $\mathbb{Op}$ embodies the null relative operator.[4]

[4] I assume that the operator can bind either an argument variable (resulting in an argumental relative clause), or an adjunct variable (leading to an adjunct relative clause).

(18)



The particle *de* is assumed to be base-generated in the C_2 position. This position is also the place where sentence final particles (SFPs) in Mandarin are base-generated as proposed by Hsieh and Sybesma (2008a, 2008b). As for the C_1 position, this is the place where subordinators, such as *shuō* 'say' and *rúguǒ* 'if' in Mandarin, are merged. In Mandarin relative clauses, there is a null C_1 that takes a TP (or an aspect phrase (AspP) if one assumes that there is no TP in Mandarin) as its complement to its right. In addition, as can be seen from (18), it is proposed that a relative clause in Mandarin is adjoined to the left of a modified phrase by the operation Adjunction. The so-called head noun is base-generated external to the relative clause. In other words, Kayne's (1994) head-internal analysis of relative clauses as complementation structures is rejected in the following investigation due to theoretical concerns and empirical facts which will be disclosed later in this section. Furthermore, within the TP (or AspP), there is a null relative operator which is co-indexed with the modified phrase. This operator undergoes movement to the Spec of C_1P. After the movement of the operator, the whole C_1P moves to the Spec of C_2P to derive the surface word order.[5]

From a theoretical perspective, Kayne's head-internal analysis of relative clauses as complementation structures has been rejected independently.

[5] See Hsieh and Sybesma (2008a, 2008b) for a discussion of the obligatory XP-raising in the left periphery of the clause in Mandarin Chinese.

This is on the basis of anaphor binding within the current copy theory of movement in Minimalism (Chomsky 1995).[6] Consider the contrast in (19).

Hornstein, Nunes and Grohmann (2005: 276):

(19) a. *Which claim that $John_i$ was asleep did he_i discuss?
b. Which claim that $John_i$ made did he_i discuss?

The sentences above have different binding properties, which are related to Binding Theory. The pronoun *he* cannot be co-referential with *John* in (19a), whereas it can be in (19b). According to Lebeaux (2000), the contrast between the two sentences lies in the distinction between complement and adjunct. More specifically, (19a) involves a noun complement clause, which is generated by the operation Merge, whereas (19b) involves a relative clause, which is generated by the operation Adjunction. Given the assumption that adjuncts can be merged in the course of the derivation (immune from the Extension Condition), the potential violation of Binding Condition C can be avoided because the relative clause containing *John* in (19b) can be merged once it is no longer c-commanded by the pronoun *he*. Therefore, (19b) is grammatical, whereas (19a) is ruled out due to the violation of Binding Condition C.

In contrast to Kayne's head-internal analysis of relative clauses, the current left-adjunction proposal can better account for the co-ordination of two relative clauses modifying one single nominal phrase in Mandarin as observed by Tang (1979) in the sentence below:

Tang (1979: 189; modified):

(20) hěn piàoliàng de gēn hěn cōngmíng de xiǎojiě dōu lái-le
very beautiful DE and very smart DE lady all come-Asp
'The beautiful lady and the smart lady both have come.'
'The beautiful ladies and the smart ladies all have come.'

Since there are two occurrences of the *de*-marked modifiers, within the head-internal analysis of relative clauses, an extra mechanism is required to explain from which position the noun, such as *xiǎojiě* 'lady' in (20), is moved. For instance, there may be a means in the PF component for the deletion of one of the copies of the noun. However, in the adjunction analysis, there is no need for such a mechanism because the constituents which are being coordinated are two CPs as illustrated in (21).

[6] See also Borsley (1997) for a discussion of arguments against Kayne's (1994) D-CP analysis of the relative clause.

(21) [$_{CP}$ hěn piàoliàng de] gēn [$_{CP}$ hěn cōngmíng de] xiǎojiě dōu lái-le
very beautiful DE and very smart DE lady all come-Asp
'The beautiful lady and the smart lady both have come.'
'The beautiful ladies and the smart ladies all have come.'

Interestingly, relative clauses in English show evidence of a comparable construction, as exemplified in (22).

Alexiadou, Haegeman and Stavrou (2007: 356):
(22) a. The students [who failed the exam][who are currently on holiday]
b. The students [who are currently on holiday][who failed the exam]

Similarly, as there are two occurrences of wh-relative clauses, within Kayne's (1994) head-internal analysis of relative clauses, an extra mechanism is required to explain from which position the noun, such as *students* in (22), is moved. As mentioned, a means in the PF component for the deletion of one of the copies of the noun is needed. In contrast, there is no need for such a mechanism in the adjunction analysis. Furthermore, the free ordering illustrated in (22) is not surprising, since the operation Adjunction is not subject to the ordering restrictions.[7]

In addition, the current *de*-as-complementiser analysis can also account for Tang's (1979) observation that the sentence with the SFP, such as (23) and (24), cannot be embedded as a relative clause. This restriction is accounted for if we accept Hsieh and Sybesma's (2008a, 2008b) proposal that SFPs in Chinese are base-generated in the C_2 position, for which the particle *de* competes. Once the C_2 position is inserted with SFPs, the formation of a relative clause is inhibited, as shown in (23) and (24).

(23)	yì	pī	pǎo	hǎo	kuài	(*a)	de	mǎ
	one	Cl	run	very	fast	SFP	DE	horse

'a horse that runs very fast'

(24)	zài	xiào	(*lī)	de	nà	ge	nǚhái
	Asp	smile	SFP	DE	that	Cl	girl

'the girl that is smiling'

The proposal that the particle *de* is base-generated in the position where the SFP is base-generated is supported by Hsieh's (1998) observation that *de* can appear as the SFP in cleft sentences as in (25).

[7] With regard to the surface word order of English relative clauses, whether it is derived from right adjunction or obligatory movement of DP to the Spec of higher functional projection is an issue left open for future research.

(25) Zhāngsān yīnggāilái yīngguó de
Zhangsan should come Britain DE
'Zhangsan should come to Britain.'

In the above example, the particle *de* simply indicates the mood that has the connotation of affirmation.

In contrast to Kayne's (1994) analysis of English adjectives as reduced forms of relative clauses, I propose that in Mandarin the *de*-marked modification structures are all full forms of relative clauses. Such a proposal is based on the fact that all of them can be negated as shown in (26) to (31) below.

(26) a. bù shǔyú Zhào Yuánrèn de shū[8]
not belong Zhào Yuánrèn DE book
'a/the book(s) that do/does not belong to Zhào Yuánrèn'
b. fēi Zhào Yuánrèn de shū
not Zhào Yuánrèn DE book
'a/the book(s) that is/are not Zhào Yuánrèn's'
c. Zhào Yuánrèn méi yǒu de shū[9]
Zhào Yuánrèn not have DE book
'a/the book(s) that Zhào Yuánrèn does not have'

(27) bù piàoliàng de fangzǐ
not gorgeous DE house
'a/the house(s) that is/are not gorgeous'

(28) bù zài zhuōshàng de chábēi
not at table DE cup
'a/the cup(s) that is/are not on the table'

(29) fēi mùtóu de zhuōzi
not wood DE table
'a/the table(s) that is/are not made of wood'

[8] As mentioned in Xu (1997), Sybesma (p.c.) suggests to him that the possessive construction in (1) can be analysed as containing an empty preposition (namely, the null spell-out of the word *shǔyú* 'belong to').

[9] Yue-Hashimoto (1971) argues that the possessive construction in (1) can be considered as a relative clause construction derived from an underlying sequence of *Zhào Yuánrèn yǒu shū* 'Zhào Yuánrèn has a book' and that there is a rule in Mandarin which deletes the verb *yǒu* 'have' when it precedes the particle *de*.

(30) méi tuō-zhe xínglǐ de lǚkè
not carry-Asp luggage DE passenger
'a/the passenger(s) who is/are not carrying the lugguage'

(31) wǒ zuótiān méi mǎi de shū
I yesterday not bought DE book
'a/the book(s) that I did not buy yesterday'

Furthermore, the full relative clause analysis of the *de*-marked modification structures can also be supported by the fact that they can merge with high adverbs, such as *xiǎnrán* 'obviously', *yíding* 'certainly' and *jìngrán* 'actually' as exemplified in (32) to (34) below:

(32) xiǎnrán wújiě de xuánàn
obviously unsolvable DE unsettled case
'a/the case(s) that is/are obviously unsolvable'

(33) yíding dǎobì de gōngchǎng
certainly close down DE factory
'a/the factory/factories that is/are certainly to be closed down'

(34) jìngrán dāngxuǎn de zàiyě dǎng lǐngxiù
actually elected DE opposition party leader
'a/the leader(s) of the opposition party/parties that is/are actually elected'

On the other hand, Paul (2005, 2007) argues that non-predicative adjectives in the *de*-marked modification structure invalidate the claim that every *de*-marked sequence is to be analysed as a relative clause. However, non-predicative *de*-marked modifying phrases can also be negated whereas their *de*-less counterparts may not. An example of the latter phenomenon is provided in (35) below.

(35) a. yuánlái (de) yìsi
original DE meaning
'original meaning'
b. fēi yuánlái *(de) yìsi
not original DE meaning
'non-original meaning'

As a result, it is maintained here that the non-predicative *de*-marked modification can be analysed as a relative clause as the predicative *de*-marked modification. However, does this mean that there is no so-called non-predicative adjective in Mandarin? The answer is

definitely negative, since the non-predicative adjective cannot appear in the copula construction as shown in (36).

(36) *zhè yìsi (bù) shì yuánlái
this meaning not copula original
Intended meaning: 'this meaning is (not) original.'

Following Paul (2007), I propose that the requirement for the CP headed by the particle *de* to occur within a nominal expression is due to the feature composition of the particle *de*, in which a nominal feature (namely, the uninterpretable categorial [+N] feature[10]) is included. This may explain why the non-predicative adjectives can appear in the *de*-marked modification structure and why they can be negated within the CP headed by the particle *de*. In other words, this uninterpretable categorial [+N] feature makes the CP headed by the particle *de* different from the matrix clause so that modifiers which cannot function as a predicate of the matrix clause are still able to get the intersective reading within the relative clause.

Compared with Cheng's (1986) or Paul's (2007) analysis of *de* as a head-final complementiser, the current head-initial complementiser account of *de* is even more compatible with the essential assumption of head directionality within the GB framework, no matter whether the head directionality parameter is set for the whole language or per category. From the theoretical viewpoint of first language acquisition, it seems dubious that there is variation of head directionality within the C category. If headedness must be unidirectional within one category, given Hsieh and Sybesma's (2008a, 2008b) head-initial analysis of complementisers in Chinese, it is more consistent to treat the C head lexicalised by *de* as head-initial. The surface word order is then due to a movement-triggering feature carried by the C head. Although this just shifts parameterisation from a head ordering parameter to the movement-triggering feature, it conforms to the current Minimalist assumptions more.

In contrast to Xu's (1997) analysis, the current proposal can better account for Li's (2001) observation that a relative clause in Mandarin does not require the occurrence of a D head as shown in (13), repeated as (37) below. This is because *de*-marked modifiers can adjoin to the left of *n*Ps given my assumption that the C head realised by *de* bears an uninterpretable categorial [+N] feature that has to be matched and deleted by the interpretable categorial [+N] feature. This Agree operation takes place when the pair-Merge of C and *n*P occurs.

[10] This uninterpretable categorial [+N] feature will be matched and deleted when the pair-Merge of CP and the modified nominal phrase occurs. In other words, this uninterpretable categorial [+N] feature gives a signal to the Narrow Syntax to carry out the operation pair-Merge.

Li (2001: 179; modified):

(37) yī ge fùzé yīngwén de mìshū jiān jiāo xiǎohái de jiājiào
one Cl charge English DE secretary and teach kid DE tutor
'a secretary that takes care of English (matter) and tutor that teaches kids'

More precisely, (37) has its internal structure as illustrated in (38) below:[11]

(38) yī ge [$_{nP}$ [$_{nP}$ [$_{CP}$ fùzé yīngwén de] [$_{nP}$ mìshū]] jiān [$_{nP}$ [$_{CP}$ jiāo xiǎohái
one Cl charge English DE secretary and teach kid
de] [$_{nP}$ jiājiào]]]
DE tutor
'a secretary that takes care of English (matter) and tutor that teaches kids'

As can be seen in the above example, the *de*-marked modifiers adjoin to the left of *n*Ps so that the two *n*Ps can be further co-ordinated by the conjunction word *jiān* 'and'. The *n*P that results from the co-ordination can then merge with the classifier *ge*.

Furthermore, the current proposal is more consistent with the general assumption that argumental nominal phrases are all DPs rather than NPs. On the other hand, the head-internal analysis of Mandarin relative clauses, such as Xu's (1997) analysis, has to assume that argumental nominal phrases in Mandarin relative clauses as shown in (10) are NPs but not DPs.

4. Conclusion

This paper discusses the derivation of *de* construction in Mandarin within the current Phase-based Minimalist programme (Chomsky 2000, 2001, 2004). It is argued that *de* is a head-initial C and that all instances of the *de*-marked modifying phrases are full forms of relative clauses. Furthermore, Kayne's (1994) head internal analysis of relative clauses as complementation structures is rejected. Instead, it is proposed that Chinese relative clause is adjoined to a DP or NP by adjunction. The current proposal can better account for Li's (2001) finding that a Chinese relative clause does not require the occurrence of a D and Tang's (1979) observation that the sentence with the sentence final particles cannot be embedded as relative clauses. In addition, it is more compatible with the fact that Mandarin Chinese is a C-initial language.

[11] Here I assume that the *n* head lexically realised by a classifier can select another *n*P.

References

Alexiadou, A., Haegeman, L. & Stavrou, M. 2007. Noun Phrase in the Generative Perspective. New York: Mouton de Gruyter.

Aoun, J. and, Li, A. Y.-H. 2003. Essays on the Representational and Derivational Nature of Grammar: The Diversity of Wh-constructions. Cambridge, MA: MIT Press.

Borsley, R. 1997. Relative clauses and the theory of phrase structure. Linguistic Inquiry 28. 629-647.

Cheng, L. L.-S. 1986. DE in Mandarin Chinese. Canadian Journal of Linguistics 31. 313-326.

Chomsky, N. 1995. The Minimalist Program. Cambridge, MA: MIT Press.

Chomsky, N. 2000. Minimalist inquiries: The framework. In R. Martin, D. Michael & J. Uriagereka (eds.), Step by Step: Essays on Minimalism in Honor of Howard Lasnikhomsky, 89-155. Cambridge, MA: MIT Press.

Chomsky, N. 2001. Derivation by phase. In M. Kenstowicz (ed.), Ken Hale: A life in language, 1-52. Cambridge, MA: MIT Press.

Chomsky, N. 2004. Beyond explanatory adequacy. In A. Belletti (ed.), Structures and beyond, 104-131. Oxford: Oxford University Press.

Hornstein, N., Nunes, J. & Grohmann, K. K. 2005. Understanding Minimalism. Cambridge: Cambridge University Press.

Hsieh, C.-L. 1998. Guóyǔ de jùjiāo jiégòu: fēnliè yǔ zhǔn-fēnliè jù [Focusing construction in Mandarin Chinese: Cleft and pseudo-cleft sentences]. Master's thesis, National Tsing Hua University.

Hsieh, F.-F. & Sybesma, R. 2008a. On the linearization of Chinese sentence final particles: Max spell out and why CP moves. Ms., National Tsing Hua University and Universiteit Leiden.

Hsieh, F.-F. & Sybesma, R. 2008b. shēngchéng yǔfǎ lǐlùn hé Hànyǔ yǔqìcí yánjiù [Generative syntax and the study of sentence final particles in Chinese]. In S. Feng & Y. Shen (eds.), Dāngdài Yǔyánxué Lǐlùn hé Hànyǔ Yánjiù [Contemporary Linguistic Theories and Related Studies on Chinese], 364-374. Beijing: The Commercial Press.

Huang, J. C.-T. 1982. Logical Relations in Chinese and the Theory of Grammar. PhD dissertation, MIT.

Kayne, R. 1994. The Antisymmetry of Syntax. Cambridge, MA: MIT Press.

Lebeaux, D. 2000. Language Acquisition and the Form of the Grammar. Amsterdam: John Benjamins.

Li, C. & Thompson, S. 1981. Mandarin Chinese: A functional reference grammar. Berkeley, CA: University of California Press.

Li, A. Y.-H. 2001. Universal construction? Relativization in English and Chinese. Concentric: Studies in English Literature and Linguistics 27.163-187.

Paul, W. 2005. Adjectival modification in Mandarin Chinese and related issues. Linguistics 43. 757-794.

Paul, W. 2007. The insubordinate subordinator de in Mandarin Chinese. Ms., CRLAO, Paris.
Tang, T.-C. 1979. Zhōngwén de Guānxì Zǐjù. Journal of Taiwan Normal University 24.181-218.
Xu, D. 1997. Functional Categories in Mandarin Chinese. Hague: Holland Academic Graphics.
Yue-Hashimoto, A. O.-k. 1971. Mandarin Syntactic Structures. Princeton, NJ: Princeton University.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 271-286.

Mandarin Chinese as an *Exceed*-type Language

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This paper deals with the relation between the *bi*-comparative and the bare comparative in Mandarin Chinese. In most of the previous work addressing these two types of comparative constructions, it is usually assumed that the bare comparative is derived from the *bi*-comparative via head-movement. However, if we adopt this analysis, we cannot provide a satisfactory explanation for why a measure phrase has to appear obligatorily in the bare comparative while it does not in the *bi*-comparative. In this paper, I suggest that the optionality of a measure phrase be attributed to differences of the argument structures of these two comparative constructions.

1. Introduction

Basically, there are two types of comparative constructions in Mandarin Chinese, the *bi*-comparative and the bare comparative. To the best of my knowledge, most of the previous work focuses on the syntax and semantics of the former type.

(1) The *bi*-comparative:
Yuehan bi Mali gao wu gongfen
John BI Mali tall five centimeter
"John is 5-cm taller than Mary."

(2) The bare comparative:
Yuehan gao Mali wu gongfen
John tall Mary five centimeter
"John is taller than Mary by 5-cm."

Although semantically these two sentences are similar, they have two major structural differences. The first one is concerned with word ordering: the standard of comparison *Mali* 'Mary' precedes the adjective *gao* 'tall' in (1) but follows it in (2); the second one is about whether a measure phrase has to be present obligatorily or not. As the following pair of sentences shows, the measure phrase can be omitted in the *bi*-comparative while this omission is not allowed in the bare comparative.

(3) The *bi*-comparative
Yuehan bi Mali gao
John BI Mary tall
"John is taller than Mary."

(4) The bare comparative
* Yuehan gao Mali
John tall Mary
"John is taller than Mary."

This paper aims to account for the contrast between these two types of comparative constructions and to see why Mandarin Chinese displays this property from a syntactic point of view.

This paper is organized as follows. Section 2 shows that cross-linguistically it is quite common to use a particular type of comparative construction in which an overt comparative marker taking a standard of comparison as argument. In Section 3, in addition to the *bi*-comparative and bare comparative, two more comparative constructions will be addressed. Moreover, based on a detailed comparison between the *bi*-comparative and bare comparative, I propose that although they have certain syntactic and semantic properties in common, they are not related to each other transformationally. In Section 4, with the help of non-comparative sentences I argue that the phenomenon that we have in comparative constructions in Mandarin Chinese is not co-incident, but follows from a fact that Chinese is an analytic language. Section 5 concludes the paper.

2. Types of comparative constructions

Stassen (1985) classifies comparative constructions into several different types. Five of them are the separative comparative, the allative comparative, the locative comparative, the exceed comparative, and the conjoined comparative.[1]

(5) a. The separative comparative
Nihon-go wa doitsu-go yori muzukashi (Japanese)
Japanese TOP German from difficult
"Japanese is more difficult than German."
b. The allative comparative (Breton)
Jazo bras-ox wid-on
He big-PRT for-me
"He is bigger than me."
c. The locative comparative (Chuckchee)
Gamga-qla'ul-ik qetvu-ci-um

[1] For more comparatives and detailed discussions, please see Stassen (1985).

All -men-on strong-more-1SG
"I am stronger than all men."

d. The exceed comparative (Yoruba)
O tobi *ju* u
He big exceed him
"He is bigger than him."

e. The conjoined comparative (Sika)
Dzarang tica gahar, dzarang rei kesik
Horse that big horse this small
"That horse is bigger than this horse."

Among these comparatives, the *exceed*-comparative is special in that it contains a lexical item whose meaning is close to that of *exceed* in English. Examples from other languages are listed below.[2] (Also see Beck et al. 2008, Kennedy 2005, and Vanderelst 2008.)

(6) a. Cambodian
Bony- sreuy khngom crieng pirueh *crieng* nih
elder- sister my sing good exceed this
"My elder sister sings better than this."

b. Jabem
Tamoc kapoeng ke-*lelec* ae su
father is-big he-exceed me ready
"My father is taller than me."

This cross-linguistic phenomenon suggests that it is not uncommon to express the concept of comparison by using a lexical item that can be glossed as *exceed*. From this point of view, Mandarin Chinese can be classified as an *exceed*-type language as well since it has a type of comparative construction that looks like those we have above.[3]

(7) Yuehan gao-*guo* Mali
John tall-exceed Mary
"John is taller than Mary."

3. Comparative constructions in Mandarin Chinese

3.1 Previous analyses

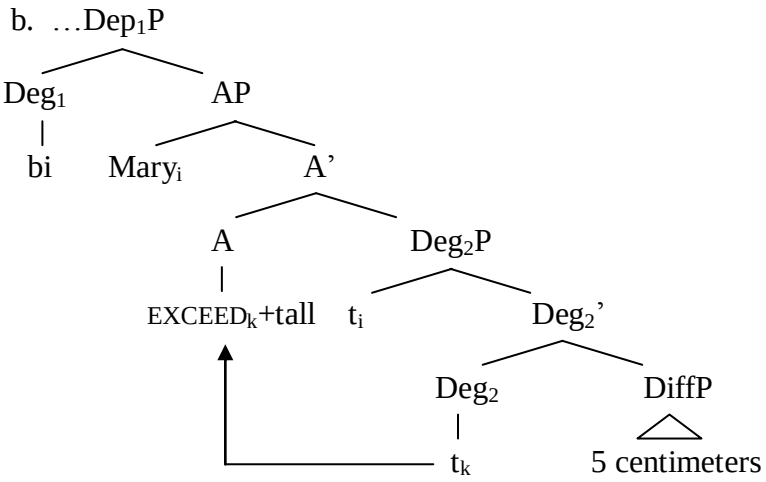
In order to accommodate the properties of comparative constructions in Mandarin Chinese, Xiang (2005) proposes that the comparative construction in Chinese is similar to

[2] Instead of using *exceed*, Ansaldo (2004, 2010) use *surpass* to gloss the comparative marker.
[3] As the discussion proceeds, *guo* will have a different gloss.

the double object construction in English in that there is one head in the construction that takes two elements as its arguments. Inspired by Hale and Keyser (1993), Huang (1997), Larson (1991), and Lin (2001), she builds the following structure for the *bi*-comparative on the concept of the Larsonian VP-shell.

(8) a. Yuehan bi Mali gao wu gongfen
John BI Mary tall five centimeter
"John is 5-cm taller than Mary."

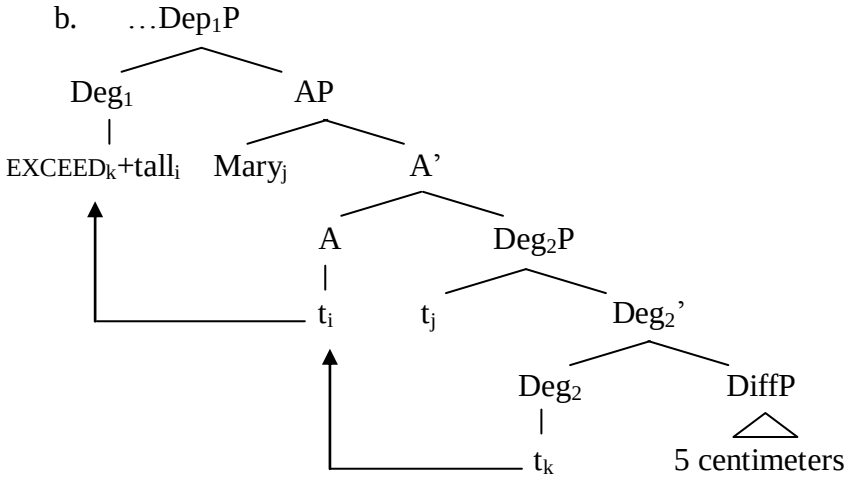
b. …Dep_1P



According to Xiang (2005), AP is flanked by two separate degree projections and a phonologically null element EXCEED heading Deg_2P is assumed to take the standard phrase and the differential value as its arguments. The standard phrase, which is base-generated in Spec, Deg_2P, raises to Spec, AP, and *bi* is assumed to be the head of a higher DegP right above the adjectival projection.

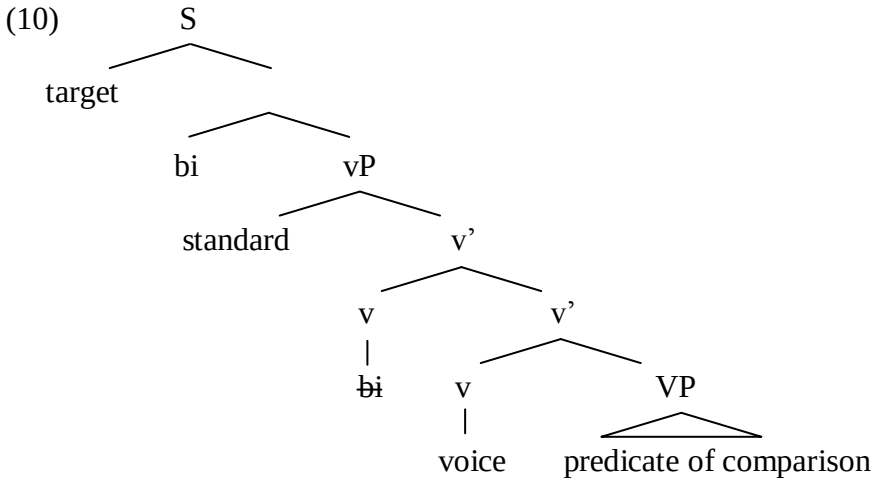
The crucial analysis in her paper with respect to the relation between the *bi*-comparative and the bare comparative is that the bare comparative is derived from the *bi*-comparative by moving the combined EXCEED+tall sequence further upwards to the empty Deg_1. The derivation is shown below.

(9) a. Yuehan gao Mali wu gongfen
John tall Mary five centimeter
"John is taller than Mary by 5-cm."



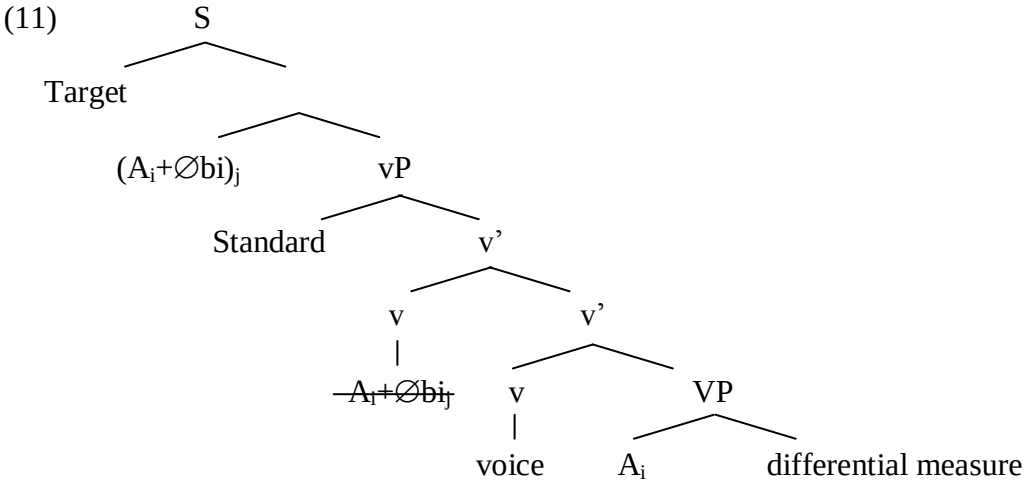
This analysis is appealing in the sense that the word order of the bare comparative is captured correctly. However, the problem facing this analysis is that if this is the case that these two comparatives share the same argument structure, there is no principled way to account for why the measure phrase which expresses a differential value is obligatory in the bare comparative while it is optional in the *bi*-comparative, as shown in (3) and (4).

Erlewine (2007) deals with the *bi*-comparative in terms of event semantics and argues that *bi* heads its own projection and indirectly subcategorizes for a predicate with an intervening *voice* head. After the basic structure is constructed, *bi* raises to a higher position, giving rise to the desired *bi*-comparative.



As for the bare comparative, which is called the transitive comparative in his paper, Erlewine proposes the following structure.

(11)



He suggests that there exist a phonologically null *bi* and the movement of adjectives takes place prior to another movement in which the combination of the null *bi* and adjective lands in a higher position.

Although Erlewine (2007) and Xiang (2005) provide detailed analyses for comparative constructions, they run into the same problem of not being able to account for why measure phrases have to be present in the bare comparative while they do not have to in the *bi*- comparative, since both of them assume that the *bi*- comparative and the bare comparative share the same structure.

3.2 The bare and not-so-bare comparatives in Chinese

In this section, I will discuss several Mandarin comparative constructions, especially focusing on whether or not measure phrases can be omitted and why they behave this way.

So far, we have discusses the *bi*-comparative and the bare comparative. In fact, Mandarin has two more comparative constructions, one of which has been briefly mentioned earlier.

(12) a. The *guo*-comparative

Yuehan	gao-*guo*	Mali	(wu	gongfen)
John	tall-VSUR	Mary	five	centimeter

"John is (5-cm) taller than Mary."

b. The *chu*-comparative

Yuehan	gao-*chu*	Mali	*(wu	gongfen)
John	tall-VEXC	Mary	five	centimeter

"John is taller than Mary by 5-cm."

The *chu*-comparative is similar to the *guo*-comparative in that this comparative construction also contains an overt comparative marker, but different from it in that the measure phrase is required to be present obligatorily. If we consider the optionality of a measure phrase as a tool to classify comparative constructions, we should think about the *chu*-comparative on a par with the bare comparative and group the *bi*-comparative together with the *guo*-comparative since measure phrases are required to appear in the former group of comparatives, but such a requirement does not hold in the latter two types of comparative constructions.[4]

The fact that *chu* and *guo* are similar in meaning might lead one to wonder if they have the same function in comparative constructions. The following pair of sentences shows that in fact *chu* and *guo* behave differently.

(13) a. Yuehan gao-*chu* yibai gongfen
John tall-VEXC 100 centimeter
"John is taller than someone/something by 100-cm.
b. Yuehan gao-*guo* yibai gongfen
John tall-VSUR 100 centimeter
"John is taller than 100 centimeters."

That the measure phrase serves as a differential value in (13a) but a standard of comparison in (13b) can be attributed to the difference in the meanings of *chu* and *guo*. That is, *chu* has to select a differential value as argument and *guo* has to choose a standard of comparison. Two more pieces of evidence showing that *chu* and *guo* behave differently are represented as follows.

(14) a. Yuehan gao-*guo* shei
John tall-VSUR who
"Whom is John taller than?"
b. *Yuehan gao-*chu* shei
John tall-VEXC who
"Whom is John taller than?"

Since *guo* is assumed to introduce the standard of comparison into the structure, it is not surprising that we can question who the person that John surpasses in height is. However, such a question cannot be formed in the *chu*-sentence (14b). On the other hand, if we want to ask the differential value between two compared entities, we need to use *chu* since it selects a measure phrase denoting a differential value as argument. (15b)

[4] Cantonese has similar comparative constructions. For examples and analyses, please see Mok (1998).

shows that this is indeed the case, and the ungrammaticality in (15a) once again confirms that *chu* and *guo* are different.

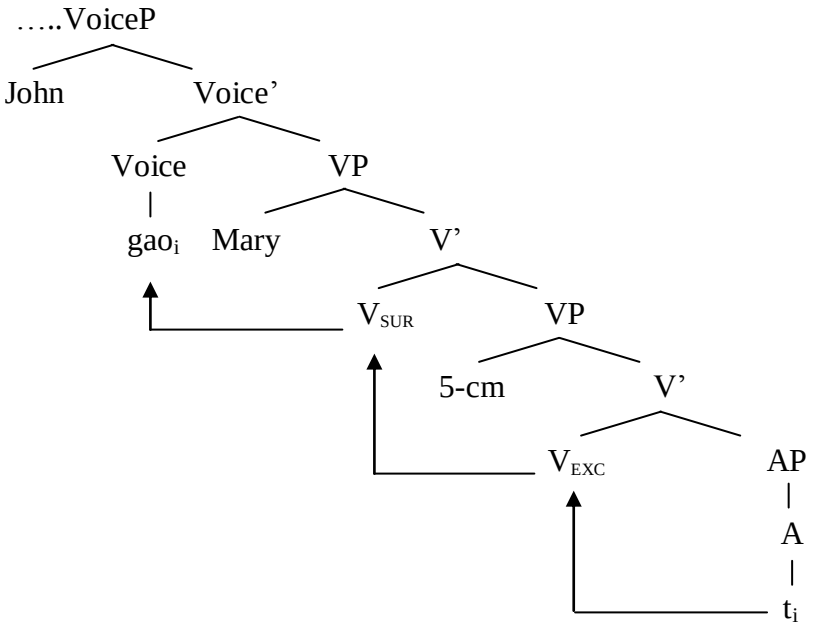
(15) a. *Yuehan gao-*guo* duoshao
John tall-VSUR how-much
Intended reading: "How much is the difference between John and someone else in height?"

b. Yuehan gao-*chu* duoshao
John tall-VEXC how-much
Intended reading: "How much is the difference between John and someone else in height?"

Taking all of these facts into account, I propose the following structure for the bare comparative.[5]

(16) a. Yuehan gao Mali wu gongfen
John tall Mary five centimeter
"John is taller than Mary by 5-cm."

b.



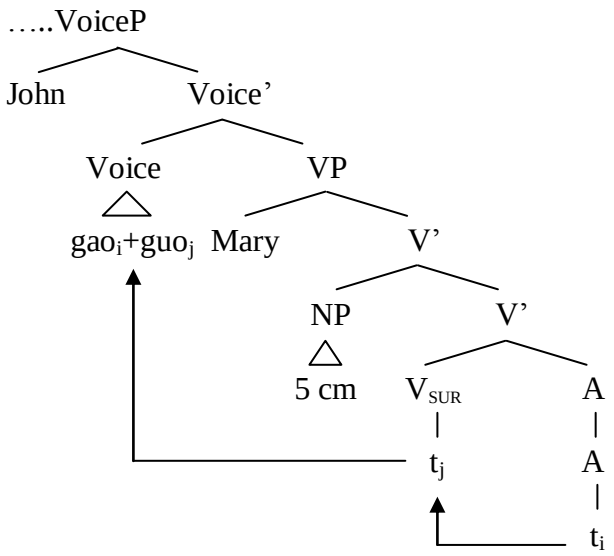
[5] That I gloss *chu* and *guo* as VEXC(EED) and VSUR(PASS) does not mean that *chu* and *guo* are exactly the same as *exceed* and *surpass* in English. This usage is just for convenience.

For the bare comparative, I propose that the measure phrase and the standard of comparison are not arguments of adjectives but are arguments of VEXC and VSUR respectively. Moreover, I propose that due to the affixal features of VEXC and VSUR the adjective has to move cyclically to the head of VoiceP.[6]

As for the *guo*-comparative, I propose that the measure phrase is not an argument at all, but serves merely as an adjunct, coming into the structure by left-adjoining to V'. This is why it is optional.

(17) a. Yuehan gao-*guo* Mali (wu gongfen)
John tall-VSUR Mary five centimeter
"John is (5-cm) taller than Mary."

b.

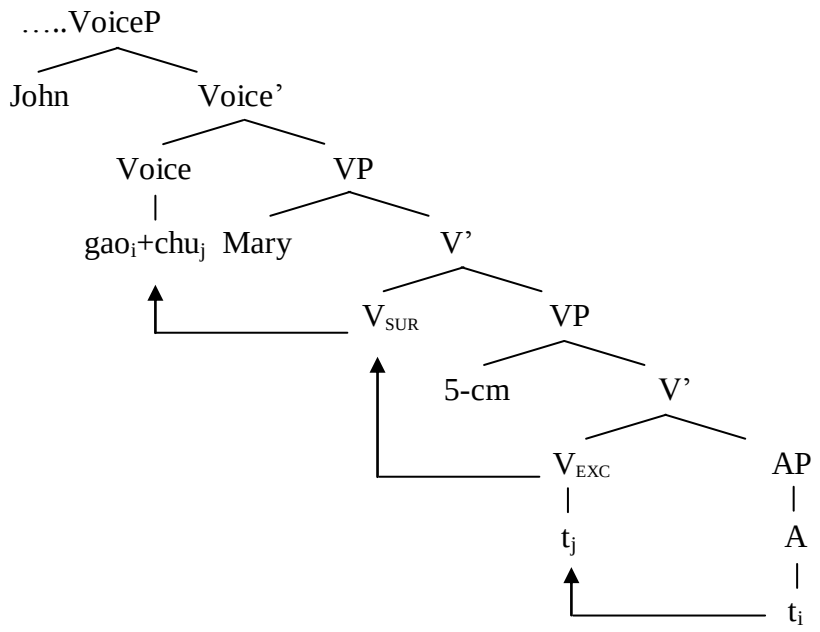


As for the *chu*-comparative, its syntactic structure is shown below.

(18) a. Yuehan gao-chu Mali wu gongfen
John tall-VEXC Mary five centimeter
"John is taller than Mary by 5-cm."

[6] As what is proposed in Kratzer (1996), the function of *Voice* is to introduce an external argument into the structure.

b.



The *chu*-comparative basically is similar to the bare comparative except for the fact that the head of VEXC is overtly realized as a lexical item *chu*.

In the constructions that I propose for the bare comparative, the *chu*-comparative and the *guo*-comparative, the adjective always raises to a higher position, combining with heads with verbal properties.[7] This analysis is evidenced by the following sentences.

(19) a. Yuehan gao-le Mali wu gongfen
John tall-PERT Mary five centimeter
"John is taller than Mary by 5-cm."

b. Yuehan gao-chu-le Mali wu gongfen
John tall-VEXC-PERF Mary five centimeter
"John is taller than Mary by 5-cm."

c. Yuehan gao-guo-le Mali
John tall-VSUR-PERF Mary
"John is taller than Mary."

It is usually assumed that the aspectual marker *le* only combines with verbs in Mandarin, so what we observe in (19a-c) implies that the adjectival head *gao* 'tall' is not the same as the one that comes into the structure in the beginning of derivation since it has acquired a verbal property from different heads at different stages.

[7] *Chu* and *guo* were used as independent verbs and could stand alone in earlier Chinese.

3.3 The *bi*-comparative

If a standard of comparison is assumed to be introduced into the structure by the head V_{SUR} in comparatives, then the next question we need to answer is what kind of role *bi* plays in a comparative construction. C.-S. Liu (1996) proposes that the standard of comparison is *bi*'s complement and they together constitute a prepositional phrase. If it is true that the lexical item *bi* functions to introduce a standard of comparison into the structure, we can predict that *bi* cannot co-occur with *guo* in sentences in which there is only one standard of comparison. (20) shows that this prediction is borne out.

(20) a. * Yuehan bi Mali gao guo
John BI Mary tall V_{SUR}
"John is taller than Mary."
b. *Yuehan bi guo Mali gao
John BI V_{SUR} Mary tall
"John is taller than Mary."
c. *Yuehan guo bi Mali gao
John V_{SUR} BI Mary tall
"John is taller than Mary."

The fact that sentences containing both *bi* and *guo* are always ungrammatical supports the analysis that like *bi*, V_{SUR}/guo also serves to introduce a standard of comparison. Based on this information, I propose that *bi* is base-generated in the same position as V_{SUR} does, so that we can account for why the presence of one excludes that of the other. Contrastively, *bi* has no problem occurring with the overt form of V_{EXC}, shown in (21). These facts confirm that the measure phrase and standard of comparison come into the structure with different heads, V_{EXC}/chu and V_{SUR}/guo.

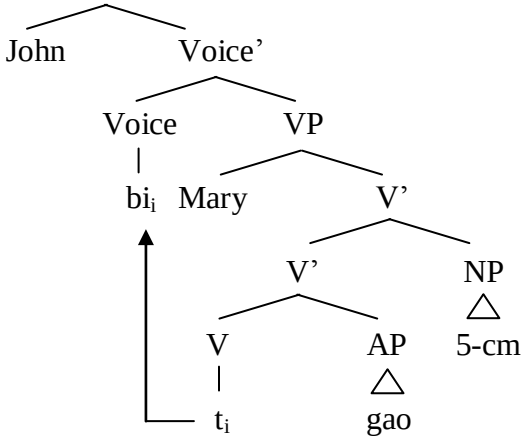
(21) Yuehan bi Mali gao-chu wu gongfen
Yuehan BI Mary tall-V_{EXC} five centimeter
"John is 5-cm taller than Mary."

Given these observations, I propose that the *bi*-comparative and the bare comparative do not share the same argument structure, and the reason why a measure phrase is optional in the *bi*-comparative is because it is just an adjunct.[8]

[8] Based on coordination and other phenomena, C.-S. Liu (1996) and Lin (2009) propose that the *bi*+standard sequence is a constituent. In this paper, following Erlewine (2007), I analyze *bi* as an independent head and it is one of the building blocks constituting the main predicate.

(22) a. Yuehan bi Mali gao (wu gongfen)
John BI Mary tall (five centimeter)
"John is (5-cm) taller than Mary."

b. ……. VoiceP



One may notice that if *bi* and V_{SUR} are base-generated in the same position, why does an adjective have to move upwards when the head of a higher projection is V_{SUR} while this movement does not take place when the head is *bi*? If the movement happened in the *bi*- comparative, the sentence would be ungrammatical.

(23) *Yuehan gao bi Mali wu gongfen
John tall BI Mary five centimeter
Intended meaning: "John is 5-cm taller than Mary."

The answer to this question, I believe, lies in the properties of V_{SUR}/guo and *bi*. As a full-fledged lexical item, *bi* can occur independently without combining with another element. But, since *guo* has undergone grammaticalization, it has lost the ability to stand alone and consequently acquired an affixal feature that needs to be checked. In other words, the requirement of feature checking in the non-*bi* comparatives is the impetus for movement.

4. Further discussion

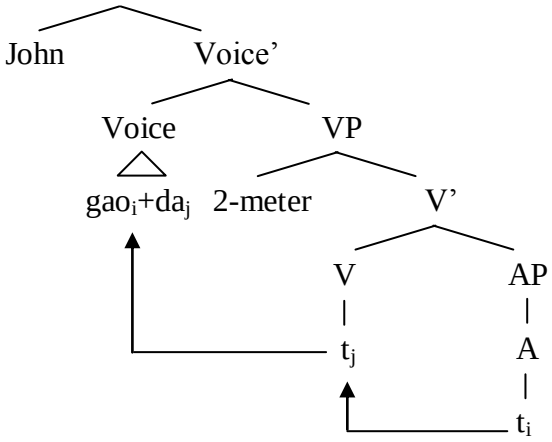
In the previous sections, I propose that comparative sentences have their constructions built on different heads. If it is the case that the functions of different heads are detectable in comparatives of Mandarin Chinese, we may be able to observe similar phenomena in non-comparative constructions. The following sentences confirm our expectation and support the analysis that different heads are needed to establish a relation between an adjective and a degree modifier.

(24) a. Yuehan gao-da liang-mi
John tall-reach two-meter
"John is 2-meter tall."

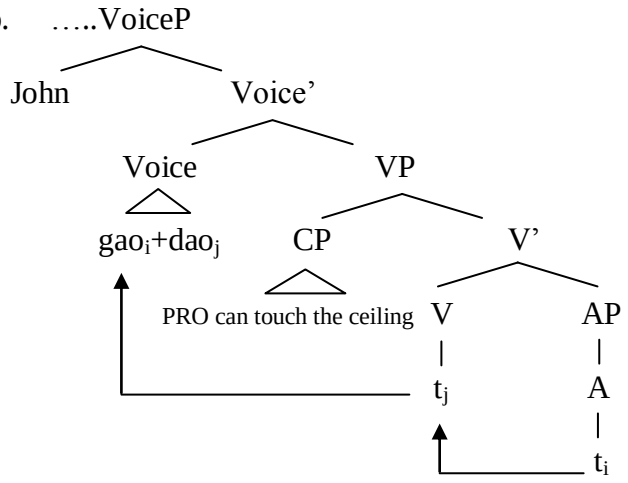
b. Yuehan gao-dao keyi modao tianhuaban
John tall-arrive can touch ceiling
"John is tall enough to touch the ceiling."

In (24a) and (24b), two morphemes following *gao* 'tall' are *da* 'reach' and *dao* 'arrive', which can be thought of as posing restrictions on what types of degree modifiers can appear in relevant sentences. Their structures are illustrated in (25a) and (25b) respectively.

(25) a.



b.



What *da* 'reach' selects in the specifier position has to be a specific degree, while the element licensed by *dao* 'arrive' has to be an interval of degree which matches with the dimension denoted by the adjective. If the assumption that *dao* and *da* select their own arguments is on the right track, we can predict that switching the positions of two degree modifiers in (25a) and (25b) will result in ungrammaticality. (26) shows that this prediction is borne out.

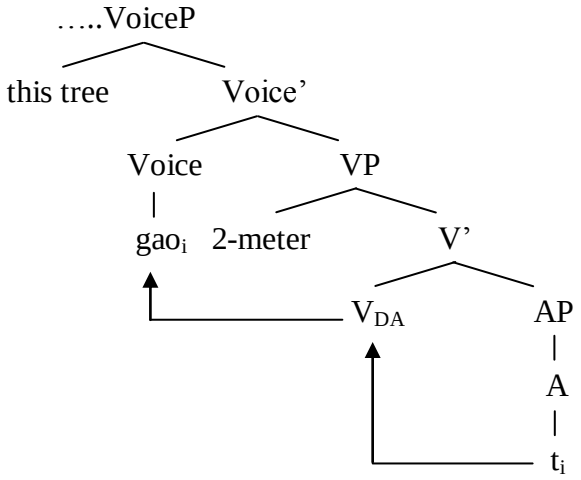
(26) a. ??Yuehan gao-dao liang-mi
John tall-arrive two-meter
"John is 2-meter tall."
b. *Yuehan gao-da keyi modao tianhuaban
John tall-reach can touch ceiling
"John is tall enough to touch the ceiling."

One more piece of evidence in favor of the proposal that heads on top of adjectives play an important role comes from (27), which has two possible interpretations.

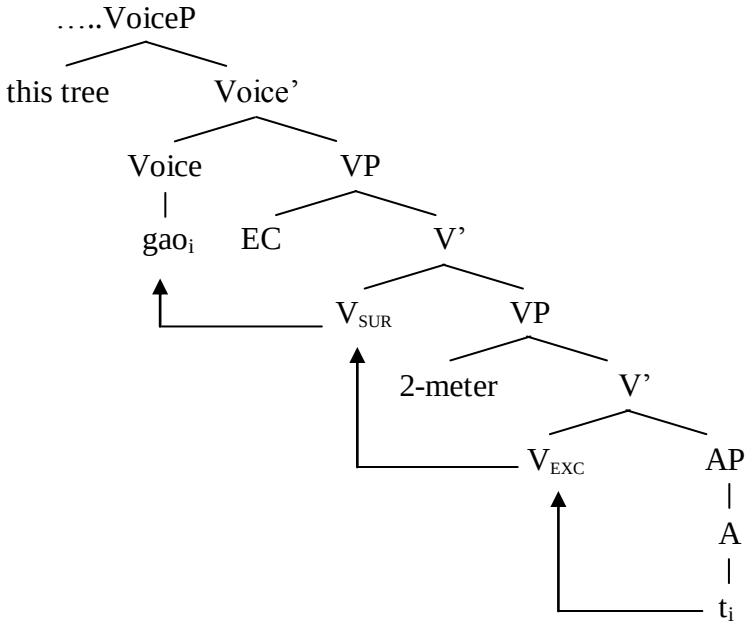
(27) Zhe-ke shu gao liang-mi
this-CL tree tall two-meter
Reading1: "This tree is 2-meter tall."
Reading2: "This tree is 2-meter taller (than some other thing)."

Under this analysis, I propose that the ambiguity of (27) results from the differences in their argument structures.

(28) a. Reading 1:



b. Reading 2:



The crucial difference between these two interpretations is dependent on the semantics of the heads merged with adjectives. In (28a), I assume that there exists a covert head V_{DA} which is similar to its overt counterpart *da* 'reach' in that it also functions to pick a degree on the dimension denoted by an adjective. In this case, the relevant degree is 2-meter and it is ascribed to the nominal phrase *zheke shu* 'this tree'. On the other hand, the comparative reading in (28b) stems from the fact that the heads VEXC and VSUR select a differential value and a standard of comparison as argument respectively, though the standard of comparison is an empty category. In sum, although (27) consists of a single string of lexical items on the surface, it can be mapped to two syntactic structures, giving rise to different interpretations.

5. Conclusion

This paper shows that the bare comparative is not derived from the *bi*-comparative and the reason why a measure phrase is optional in the *bi*-comparative is because it comes into the structure by adjunction. As for the bare comparative, I propose that the head introducing a measure phrase is part of building blocks of the whole structure, so the appearance of a measure phrase is obligatory. In addition, several pieces of evidence demonstrate that heads contributing to the meanings of comparative constructions as well as non-comparative constructions can be detected by observing the interactions between degree modifiers and other components in the same structure. The analysis proposed in this paper, I think, matches with the fact that Mandarin Chinese is an analytic language, in which different functions are realized separately.

References

Ansaldo, Umberto. 1999. *Comparative constructions in Sinitic. Areal typology and patterns of grammaticalization*. Stockholm University.

Ansaldo, Umberto. 2004. The correlation between surpass comparatives and verby languages. ms. National University of Singapore.

Ansaldo, Umberto. 2010. Surpass comparatives in Sinitic and beyond: typology and grammaticalization. *Linguistics* 48-4: 919-950.

Beck, Sigrid, Krasikova, Sveta, Fleisher, Daniel, Gergel, Remus, Hofstetter, Stefan, Savelsberg, Christiane, Vanderelst, John, Villalta, Elisabeth. 2008. Crosslinguistic Variation in Comparative Constructions. Ms, University of Tubingen.

Erlewine, Michael. 2007. *A New syntax- semantics for the Mandarin bi comparatives*. MA thesis, University of Chicago.

Hale, Kenneth and Samuel Jay Keyser. 1993. On argument structure and the lexical expression of syntactic relation. In Hale, K.and Keyser, S. eds, *The View from Building 20*. Cambridge MA: MIT Press.

Huang, C.-T. James. 1997. On lexical structure and syntactic projection. *Chinese Languages and Linguistics* 3: 45- 89.

Kennedy, Chris. 2005. Variation in the Expression of Comparison: Implication for the Semantics of Comparatives and Gradable Predicates. Talk Handout, Cornell University.

Kennedy, Chris. 2007. Modes of comparison. *Proceedings of CLS 43*. University of Chicago, Chicago, Illinois.

Kratzer, Angelika. 1996. Severing the external argument from its verb. In *Phrase structure and the lexicon*, ed. Johan Rooryck and Laurie Zaring. Kluwer Academic Publishers.

Larson, Richard. 1991. The projection of DP and DegP. Ms. Stony Brook University.

Lin, Jo-Wang. 2009. Chinese comparatives and their implicational parameters. *Natural Language Semantics* 17: 1-27.

Lin, Tzong-Hong. 2001. *Light verb syntax and the theory of phrase structure*. Ph.D. Dissertation. UC Irvine.

Liu, Chen-Sheng Luther. 1996. A note on Chinese comparatives. *Studies in the Linguistic Sciences* 26: 217- 235.

Mok, Sui-Sang. 1998. *Cantonese exceed comparatives*. Ph.D. Dissertation, University of California, San Diego

Stassen, Leon. 1985. *Comparison and universal grammar*. Oxford: Basil Blackwell.

Tsao, Fong-Fu. 1982. The double nominative construction in Mandarin Chinese. *Tsing Hua Journal of Chinese Studies* 14: 276–297.

Vanderelst, John. 2008. Can Degree Semantics cope with exceed type languages? Paper presented at Journee Semantique st Modelisation 2008, Toulouse.

Xiang, Ming. 2005. *Some topics in comparatives constructions*. Ph.D. Dissertation, Michigan State University.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 287-304.

What is A in Mandarin A-not-A Questions?

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In this paper, I argue that A refers to I° in Mandarin A-not-A questions, which can either be a modal, an aspect marker, a raised verb, a verb with aspect suffixation, or a preposition. I also argue that the formation of A-not-A questions follows a successive cyclic derivation; i.e. I° moves to Neg° to form the +Q template [A-not], with its trace undeleted for not being a strict head movement, and then [A-not] moves to C° for the surface structure. My analysis also offers a syntactic account for why A-*meiyou*-A is ungrammatical and why VO-not-VO is not attested in A-not-A questions.

1. Introduction

(1) and (2) are examples of Mandarin A-not-A questions (Dai 1990; Huang 1991; Ernst 1994; Wu 1997; Law 2006; Hagstrom 2006), where the disyllabic verb *xihuan* or only its first syllable *xi* is referred to as A, two of which is separated by a negator, either *bu* or *mei*, depending on whether the predicate is individual-level or stage-level (cf. Lin 2003; Liu 2008). (2) illustrates the so-called grammatical violation of lexical integrity (Huang 1991); i.e., only *xi*, the first syllable of the verb *xihuan* 'like', serves as the first A:

(1) Ni xihuan bu xihuan Ditelü?
you like not like Detroit
'Do you like Detroit or not?'
(2) Ni xi bu xihuan Ditelü?
you like not like Detroit
'Do you like Detroit?'

Other items that can function as A in A-not-A questions include modals as shown in (3), prepositions as in (4), and frequency adverbs as in (5). Also note that in (4)a, it is the preposition *gei* 'to' that functions as A; and in (4)b, it is the verb *da* 'to make' that functions as A. The contrast between (5)a and (5)b shows that in a sentence with the frequency adverb *chang* 'often' only *chang* can function as A but not the whole adverb. I will offer explanations in 3:

(3) Zhangsan hui bu hui lai?
Zhangsan can not can come
'Can Zhangsan come?'

(4) a. Lisi gei bu gei ni da dianhua?
Lisi to not to you make telephone
'Does Lisi call you?'
b. Lisi gei ni da bu da dianhua?
Lisi to you make not make telephone
'Does Lisi call you?'

(5) a. Wangwu chang bu chang chi Zhongguo fan?
Wangwu often not often eat China food
'Does Wangwu often eat Chinese food?'
b. *Wangwu changchang chi bu chi Zhongguo fan?
Wangwu often eat not eat China food
'Does Wangwu often eat Chinese food?'

2. Literature on the Properties of A-not-A Questions

2.1. Huang (1991): A-not-A not Derived from Disjunctives

Huang (1991) has convincingly argued that A-not-A questions are not syntactically derived from disjunctive questions as other linguists have proposed (Chao 1968; Li and Thompson 1981); Huang (1991) further divides A-not-A questions into two types: V-not-VO, like (1), and VO-not-V like (6):

(6) ?Ni xihuan Ditelü bu xihuan?
you like Detroit not like
'Do you like Detroit or not?'

Many native Mandarin speakers I have consulted, however, would put a ? before (6). Yue-Hashimoto (1993), Zhang (1990), and Zhu (1990) have reported that VO-not-V exists in other Chinese dialects. Nevertheless, despite the acceptance of VO-not-V by some Mandarin speakers, the violation of lexical integrity is no longer allowed in this structure, as shown in (7). VO-not-VO like (8) is not possible, for which no literature has offered an analysis, a point I will come back to in 3.

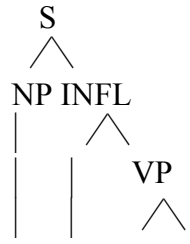
(7) *Ni xi Ditelü bu xihuan?
you li(ke) Detroit not like
'Do you like Detroit or not?'

(8) *Ni xihuan Ditelü bu xihuan Ditelü?
you like Detroit not like Detroit

'Do you like Detroit or not?'

Huang (1991) argues that the V-not-VO structure has an INFL, as shown in (9), with an interrogative feature +Q that is realized by a verb copying rule that copies a sequence immediately following INFL and inserts *bu* or *mei*; the length of the copied sequence is a variable; for example, it can either be *xi* or *xihuan* for 'like' as shown in (2). The +Q INFL can also be found in wh-questions, which explains why A-not-A questions have similar distributions to those of wh-questions. Hagstrom (2006) has also shown the similarity between A-not-A questions and wh-questions in terms of island effects and focus marking.

(9) Ni xihuan bu xihuan Ditelü?
you like not like Detroit
'Do you like Detroit?'



ni +Q xihuan Ditelü
you like Detroit

+Q = xihuan bu
like not

Hagstrom (2006) notices that both A-not-A questions and wh-questions can both be embedded, as shown in (10) and (11), whereas yes-no *ma*-questions cannot, as shown in (12). Such a contrast does make A-not-A questions look like an embeddable subtype of yes-no questions, cf. Cheng (1991).

(10) Wo xiang zhidao ta shenmo shihou lai.
I want know he what time come
'I wonder when he is coming'

(11) Wo xiang zhidao ta lai bu lai.
I want know he come not come
'I wonder if he is coming or not.'

(12) *Wo xiang zhidao ta lai ma.
I want know he come Y/N
'I wonder if he is coming.'

Huang's contribution lies in the distinction between A-not-A and disjunctive questions and in the connection of A-not-A questions and wh-questions. His original argument for the existence of +Q in A-not-A questions will be further developed in this paper.

2.2. Ernst (1994): +Q as a Head Immediately C-Commanding V

Ernst (1994) further argues that +Q is a head immediately c-commanding V or a feature on V. The motivation is to account for the ungrammaticality of (13), since higher modal adverbs like *yiding* 'definitely' cannot take questions in their scope, considering that they only operate on a proposition but not a question (Cinque 1999). Consequently, according to Ernst, (13) is semantically anomalous since +Q is above V but lower than the modal. We will see in 0 that *yiding* 'definitely' can be under the scope of the B- not-B, a different type of question construction.

(13) *Ta yiding qu bu qu?
he definitely go not go
'Is he definitely going?'

Ernst (1994) notices the scope relation between A-not-A and sentential modal adverbs, but we still need to pinpoint the exact position of the proposed +Q.

2.3. Wu (1997): A-not-A vs. B-not-B

Wu (1997) distinguishes *shi-bu-shi* or B-not-B questions from A-not-A questions, based on the fact that the former is sentential and takes scope over sentential adverbs and modals, as shown in (14) and (15).

(14) Zhangsan shi-bu-shi yiding dei qu?
Zhangsan B-not-B definitely got.to go
'Does Zhangsan definitely need to go?'
(15) Zhangsan shi-bu-shi yinggai qu xuexiao?
Zhangsan B-not-B should go school
'Should Zhangsan go to school?

(14) and (15) show that *shi-bu-shi* has scope over the adverb *yiding* 'definitely' and the modal *yinggai* 'should'. Also note that the *shi* in B-not-B is no longer the copula since in (14) and (15), the lexical verb is not *shi* 'to be' but *qu* 'to go'. I argue that B-not-B is base-generated in C°, which gives them not only the power of having scope over sentential modal adverbs but also the power of determining the force of the sentence. The ungrammatical **shi-mei-shi* further helps argue that B-not-B is base-generated at a position higher than INFL, since it is not sensitive to the types of predication downstairs.

2.4. Dai (1990): A Phonology-Based Copying Rule?

Dai (1990) argues that the variable length of the copied sequence in V-not-VO, as illustrated in (1) and (2), i.e. the grammatical lexical disintegrity, is determined by a phonological rule on metrical requirement; i.e., Mandarin follows the Disyllabification

Rhythm Rule. He further shows, for example, that although *mei-you* is usually interchangeable with *mei*, as in (16)

(16) Ta mei-you lai. = Ta mei lai.
he not-have come he not come
'He did not come.'

it is not the case, however, in A-not-A questions. In A-not-A questions, only *mei* is allowed, because only *meilai* 'didn't come' instead of *meiyoulai* 'did not come' forms a disyllabic troche; compare (17) and (18); see also Duanmu (2002) on Chinese stress patterns:

(17) Ta lai mei lai?
he come not come
'Did he come?'
(18) *Ta lai mei-you lai?
he come not-have come
'Did he come?'

I will argue in 0 that the unavailability of *mei-you* in A-not-A questions is also caused by syntactic factors.

3. A: Main Predicate or What?

Ernst (1994), Huang (1991), and Li and Thompson (1981) have argued that in A-not-A questions, A is the main predicate. It has never been clarified, however, what we mean by the 'main predicate' while discussing A-not-A questions. For example, main predicates can refer to the thematic or lexical verbs like *xihuan* 'like' as we have seen in (1) and (2). Alternatively, main predicates can refer to the highest verb or auxiliary in a sentence (Ross 1969). Recall also that A can be a modal verb as shown in (3). Furthermore, the experiential perfect marker *guo* can either follow A-not-A, as shown in (19), or follow each A, as shown in (20):

(19) Ni qu mei qu guo Meiguo?
you go not go ExpAsp[1] America
'Have you ever been to America?'
(20) Ni qu guo mei qu guo Meiguo?
you go ExpAsp not go ExpAsp America

[1] Some abbreviations used in this article: ExpAsp: experiential aspect; DurAsp: durative aspect; Y/N: yes-no question marker.

'Have you ever been to America?

(21) and (22) illustrate the same phenomenon for the suffixal durative aspect-marker *zhe*. Again, A seems to be something more than the lexical verb:

(21) Lisi shou-li na mei na zhe yiben shu?
Lisi hand-in hold not hold DurAsp a book
'Is/was Lisi holding a book in his hand?'

(22) Lisi shouli na zhe mei na zhe yiben shu?
Lisi hand-in hold DurAsp not hold DurAsp a book
'Is/was Lisi holding a book in his hand?'

Consequently, Ross (1969)'s characterization of the main verb being the structurally highest verb is the most relevant, given our concerns. To be more specific, I argue that A refers to I°, which can be realized either as modals, aspectual markers; or prepositions; and the +Q of A-not-A is located in C°, like B-n ot-B; but the former reaches C° through successive cyclic m ovements rather than being base-generated like the latter. In the following sections, I will go more deeply into how modals, bare-verbs, adverbs, and aspects form A-not-A questions.

3.1. A-not-A for Modal Verbs

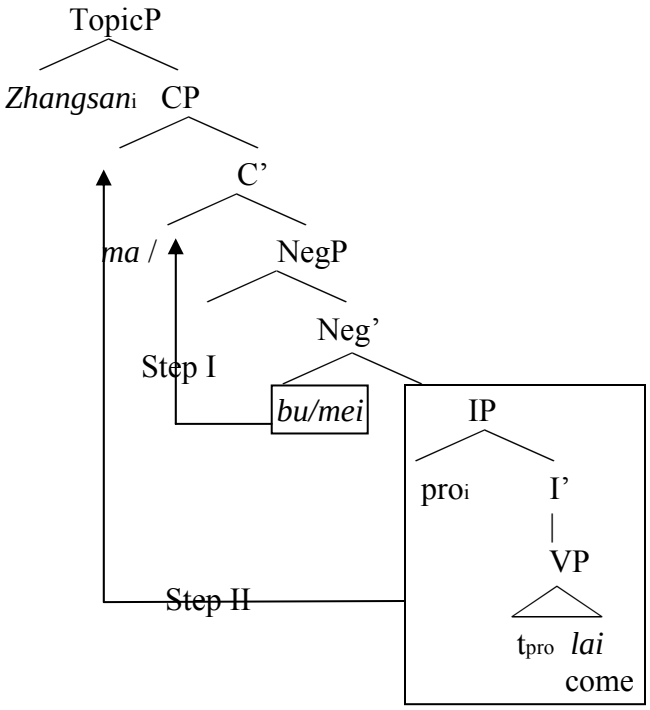
In A-not-A formation, I argue that +Q is realized in C° as a template of [A-Neg]; such a construal is consistent with the formation of one type of yes-no question as discussed by Cheng (1991)[2]. For example, as shown in (23), like the speech-act yes-no question particle *ma* that is bas e-generated in C°, the negator *mei* or *bu* is capable of being moved from Neg° to C°, attracting its complement to raise to form a yes-no question:

(23) (a) Zhangsan lai ma?
Zhangsan come Y/N
'Does Zhangsan come?

(b) Zhangsan lai bu?
Zhangsan come not
'Does Zhangsan come?'

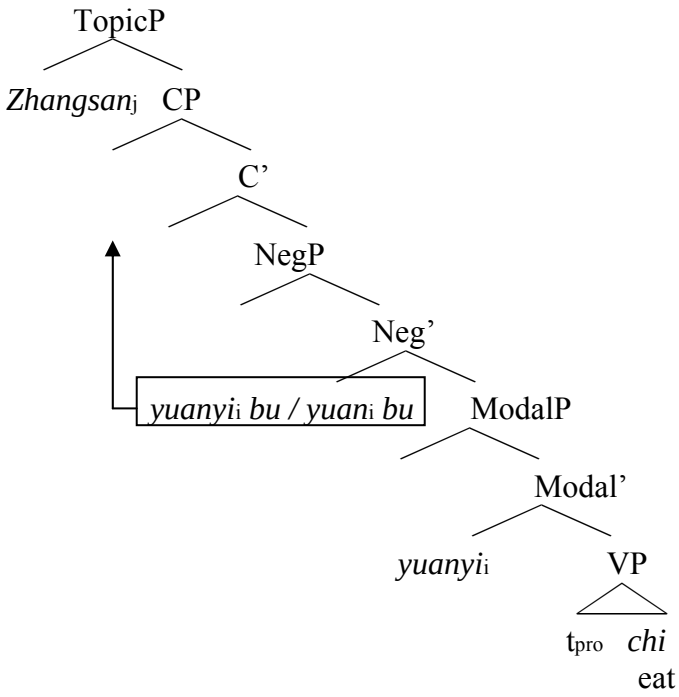
(c) Zhangsan lai mei?
Zhangsan come not
'Did Zhangsan come?'

[2] Hagstrom (2006) argues that yes- no *ma* occupies a sen tence-final position higher than that of an interrogative negator.



In yes-no questions, only Neg° undergoes head-movement to reach C°. In A-not-A questions, however, I argue that it is [A-not] that moves to C° from Neg°. Before the Neg-to-C movement, I° is adjoined to Neg°, filling in the [A-Neg] template. The partial spell-out of I°, however, is phonologically conditioned. Such a phonological realization of +Q is blind to syntactic or lexical boundary, which results in lexical disintegrity; i.e. any segment of A° that starts with the first syllable of I° is capable of filling the [A-Neg] template. Furthermore, since this is not a rigid head-movement but an adjoining of a part of a constituent, the trace of I° is not deleted. After the adjoining, the [A-Neg] template is attracted to C° to finalize the question formation. Through such an adjoining and non-trace-deletion process, we arrive at the surface structure. (24) illustrates how A-not-A questions with modal verbs are formed through the above-mentioned successive cyclic movements. *Yuan* or *yuanyi* 'willing to' from I° is first adjoined to *bu* with its trace maintained, forming an [A-Neg] template at Neg°. Then the template is attracted to C° where the force of the whole sentence is determined.

(24) Zhangsan yuan(yi) bu yuanyi chi?
Zhangsan willing not willing eat
'Is Zhangsan willing to eat?'



The involvement of Asp° and Modal° explains why we have the alternation of A- *bu*-A and A-*mei*-A, which are sensitive to the type of predication. Compare the minimal pair, (25) and (26): they differ from one another only in the choice of the negator; such difference makes them end up having different interpretations, the former habitual and the latter perfective:

(25) Ta lai bu lai?
he come not come
'Does he come?'

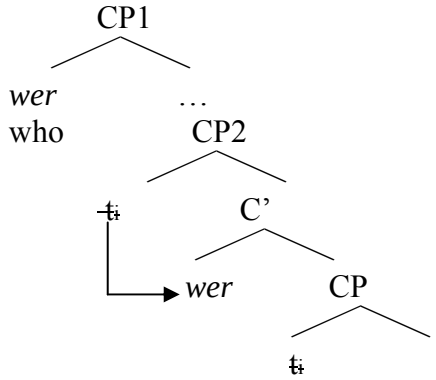
(26) Ta lai mei lai?
he come not come
'Did he come?'

I°'s being the starting point of A-not-A formation explains why (13) is impossible; recall that the sentential adverbial *yiding* 'definitely' is higher than IP, and therefore it does not allow questions within its scope.

In their analysis of German wh-copy construction, Fanselow and Mahajan (2000) account for the undeleted wh-traces by arguing that they are actually not on the chain of head-movement: the intermediate wh-word, *wer* 'who', as shown in (27), actually undergoes head-movement from its intermediate [Spec, CP] position, and therefore it survives the deletion process; what actually is deleted is the 'who' that is on the chain for wh-movement; the untouched intermediate 'who' becomes a part of a separate chain.

(27) Wer glaubst du, wer daß du bist?

who think you who that you are
'Who do you think you are?'



Another example of undeleted trace is the verb-doubling phenomenon in Nupe predicate cleft constructions (Kandybowicz 2000) as shown in (28). Koopman (1984) argues that the trace of the verb that is raised to C° for clefting is spelled out as a resumptive verb[3]:

(28) Gigi Gana gi gulu o.
eating Gana eat vulture Focus
'It was eating that Gana did to the vulture (as supposed to riding it.)

The reason why Wu (1997), Ernst (1994), and Huang (1991) did not locate A-not-A in C° is that all wh-movements in Mandarin were assumed to happen at LF. Recent works on overt movements by Kayne (1998), as well as Koopman (2000) on English wh-subject vs. wh-object movements, and Liu (2002) on the co-occurrence of wh-words and universal quantifier in Mandarin, suggest that Chinese has overt-wh-movement at least in, for example, quantification.

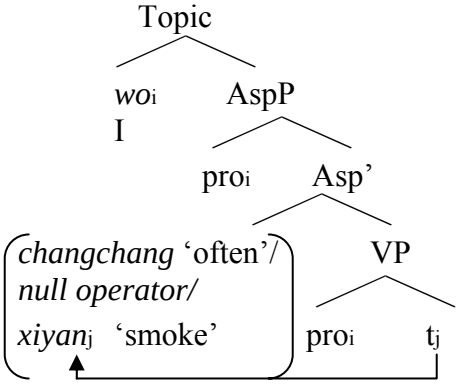
The proposal to locate [A-Neg] in C° is also based on the existence of the *shi-bu-shi* or B-not-B question particle. I have shown in 0 that B-not-B originates higher than modal adverbs, modals, and AspP. I propose that B-not-B is base-generated in C°, as a realization of +Q. Without all the derivations starting from I-to-Neg movement, B-not-B is able to have scope over all the above items.

3.2 A-not-A for Bare Activity and Stative Verbs

Mandarin AspP can be realized as activity and stative verbs that are raised from V°, or by a null habitual operator that can also be realized as an frequency adverb *changchang* 'often', as shown again in (29), cf. Koopman (1984) that an Asp° has to be lexicalized:

[3] Alternatively, Nunes (2004) also argues that the phonetic realization of multiple chain links arises through head-movement that is followed by morphological reanalysis.

(29) Wo $_{AspP}$[changchang/xiyan$_i$ $_{VP}$[t$_i$]].
I often / smoke
'I (often) smoke.'



(30) and (31) are examples of A-not-A questions involving a bare verb and adverbial; i.e., A can refer to either the lexical verb or the habitual aspect marking adverb *changchang*:

(30) Zhangsan xi(huan) bu xihuan zheben shu.
Zhangsan like not like this book
'Does Zhangsan like this book?'

(31) Zhangsan chang bu chang lai?
Zhangsan often not often come
'Does Zhangsan come often?'

In the derivation of (30) and (31), Asp° is occupied by the habitual aspect marker, the adverb *chang* 'often', or by a raised stative or active verb like *xiyan* 'smoke'. After I°/Asp° is filled with *chang* 'often' or *xiyan* 'to smoke', what follows is the same successive cyclic movements we have discussed in (24), i.e. I-to-Neg and then Neg-to-C; again, the adjoining of I to Neg does not delete its trace.

Note that only monosyllabic form of *changchang*, i.e. *chang*, is used in (31); when the disyllabic form is used, the sentence does not sound very natural. This is consistent with Dai (1997)'s claim of the Disyllabification Rhythm Rule that we have discussed in 0:

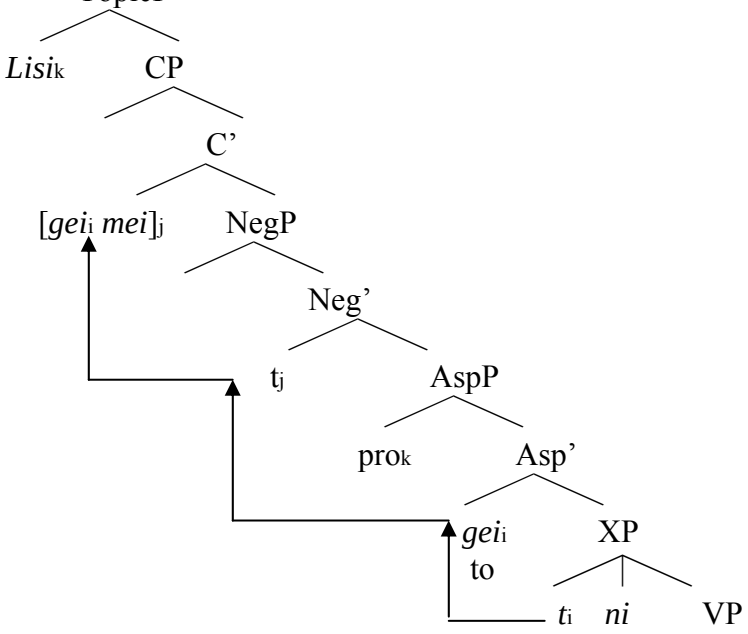
(32) ?Zhangsan chang(chang) bu changchang lai.
Zhangsan often not often come
'Does Zhangsan come often?'

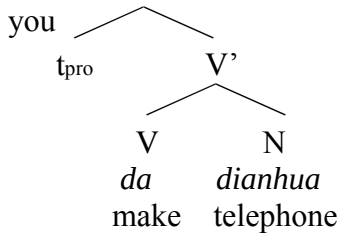
By arguing for V-to-I and then I-to-Neg movements, one can also explain why V O-not-VO is not possible, i.e. (8), repeated below as (33): what moves is only I° or part of it, but not the whole VP involving the internal argument *Ditelü* 'Detroit' in it.

(33) *Ni xihuan Ditelü bu xihuan Ditelü?
you like Detroit not like Detroit
'Do you like Detroit or not?

I suggest that A-not-A questions with A as a preposition, as shown in (4), repeated below as (34), have similar structure to (24). The PP of *ei ni* 'to you' originates in a complement position of VP and then moves to an XP above VP; after this, the preposition moves to I° for A-not-A question formation. For other non-complement PP's, I suggest that they originate in an XP above VP. The preposition *gei* 'to' first moves to Neg and then the template [*gei mei*] moves to C°. Actually Mandarin prepositions have all been identified as co-verbs (Li and Thompon 1981), a result of the grammaticalization of verbs; for example *gei* can also be a verb meaning 'to give' and *gen* 'with' is also a verb 'to follow'; consequently the Prep-to-I movement resembles that of V-to-I movement. I use a simplified version of the PP structure with focus on its A-not-A question formation.

(34) Lisi gei mei gei ni da dianhua?
Lisi to not to you make telephone
'Did Lisi call you?'





(35) and (34) form a minimal pair. They further support the idea that prepositions have verbal features in Mandarin, since they are sensitive to the type of predication, as seen from their choice of either *bu* or *mei* for negation.

(35) Lisi gei bu gei ni da dianhua?
Lisi to not to you make telephone
'Does Lisi call you?'

3.3. A-not-A Questions for Sentences with Aspect Marking

3.3.1. Progressive *Zai*

The formation of A-not-A questions with progressive aspect marking is not too much different from my treatment of modals as shown in (24). Now it is *zai* that occupies Asp° and moves to Neg° that is occupied by *mei*

3.3.2. Culminative Perfective Aspect

3.3.2.1. When A is *You*

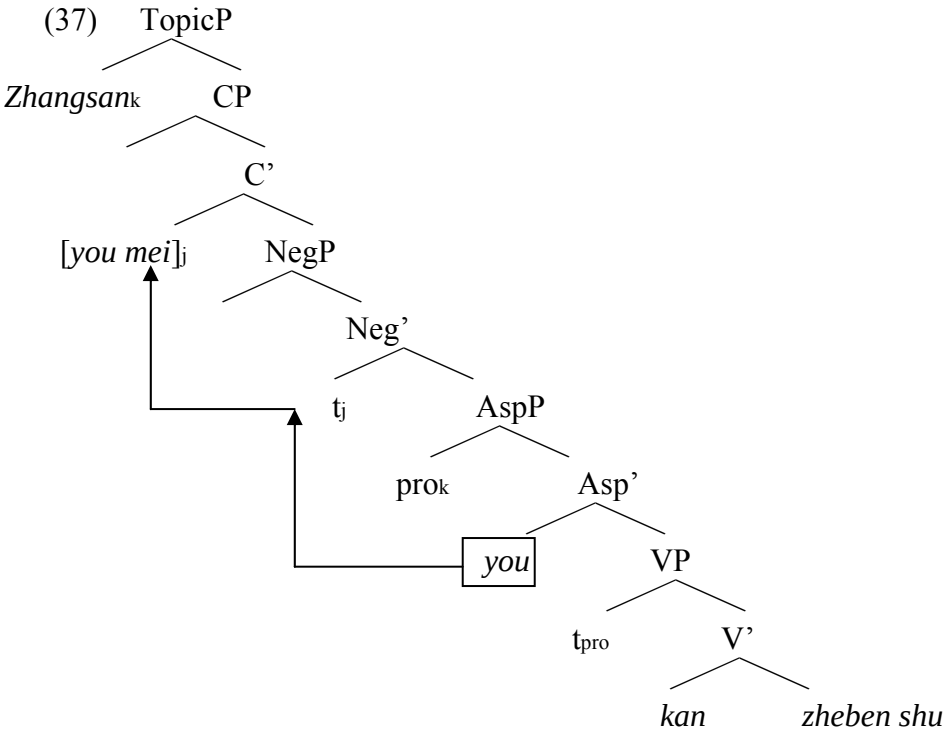
Let us take a look at the simpler case first when I° is occupied by the culminative perfective aspect particle *you* as shown in (36)a[4]. (36)b and (36)c are the corresponding affirmative and negative sentences. (37) shows the derivation of (36)a, where A-not-A emerges as *you-mei-you*:

(36) a. Zhangsan you mei you kan zheben shu?
Zhangsan have not have read this book
'Has Zhangsan read this book?'
b. Zhangsan kan zheben shu le.
Zhangsan read this book Perf
'Zhangsan has read this book.'
c. Zhangsan mei kan zheben shu.

[4] I will not distinguish the two *le*'s in Mandarin, one sentence-finally for currently relevant state and another post-verbally for perfective marking (Li and Thompson 1989). Since *le* and *mei* are in complementary distribution, in A-not-A questions, *le* does not surface and therefore its location does not affect my general analyses.

Zhangsan not read this book
'Zhangsan did not read this book.'

(37)

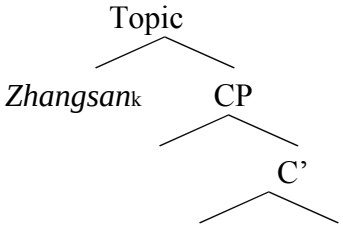


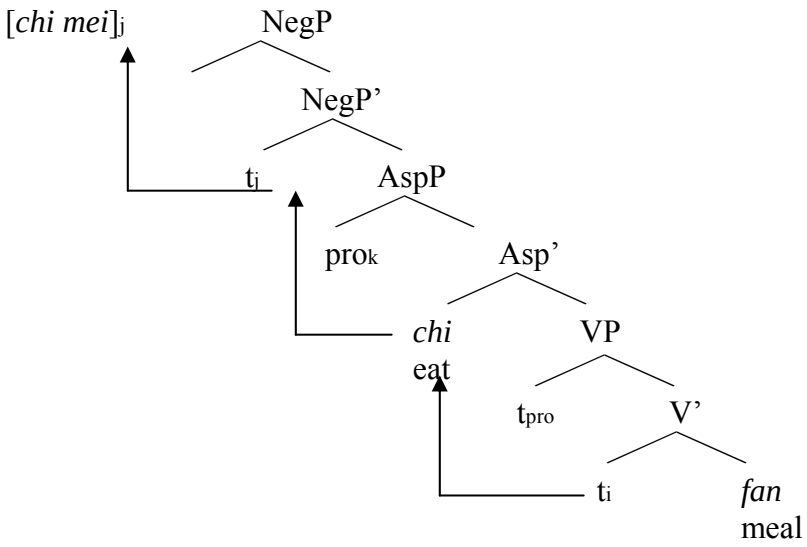
Following what we have been discussing for modals and bare verbs, in (37), *you* is adjoined to Neg° from I°, with *mei* being the head of NegP. As can be seen from (36), *mei* and *le* are in com plementary distribution, *le* therefore cannot surf ace in (37). The mutual exclusion between *mei* and *le* proves again that the NegP is activated in form ing A-not-A questions, providing A with a position to adjoin to form the [A-not] template.

3.3.2.2. When A is the Verb

Another way of forming an A-not-A question with culminative perfective aspectual interpretation is (38), when A is not the aspectual marker *you* but the verb *chi* 'to eat', i.e. A-not-A being *chi-mei-chi*.

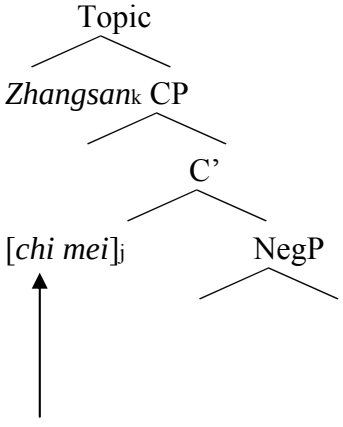
(38) Zhangsan chi mei chi fan.
Zhangsan eat not eat meal
'Did Zhangsan eat?

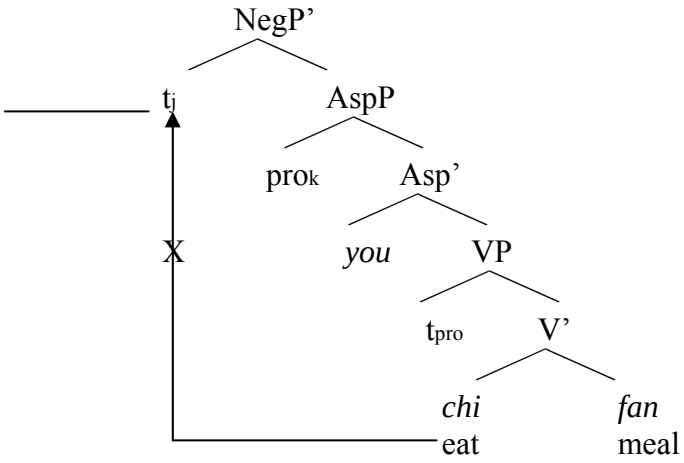




For such a structure, I argue that the lack of aspectual particle *you* in I°, caused by the implementation of a null operator as a result of the use of contracted *mei*, is compensated for by the raising of the verb, i.e. *chi* 'to eat', again due to the requirement that INFL must be lexically realized (Koopman 1984). After V-to-I raising, we can follow the same process that happens to modals, bare verbs, and other aspects to reach the surface structure, i.e. I-to-Neg and then Neg-to-C, combined with adjoining without trace deletion. In other words, (38), similar to the A-not-A formation for bare stative and activity verbs as shown in (29) that involves verb raising. Now, the derivation in (38) enables us to account for the ungrammaticality of (18), repeated below as (39), from a syntactic perspective; i.e. only A-*mei*-A but not A-*meiyou*-A is grammatical. A-*meiyou*-A is not allowed because in A-not-A formation, what is adjoined to Neg° is I°; in (39), however, what is adjoined to Neg° is the verb *chi* 'to eat', though I° is already occupied by the head *you*, which is not a suffix to which the verb can be attached to:

(39) *Ta chi mei-you chi fan?
he eat not-have eat meal
'Did he eat?'





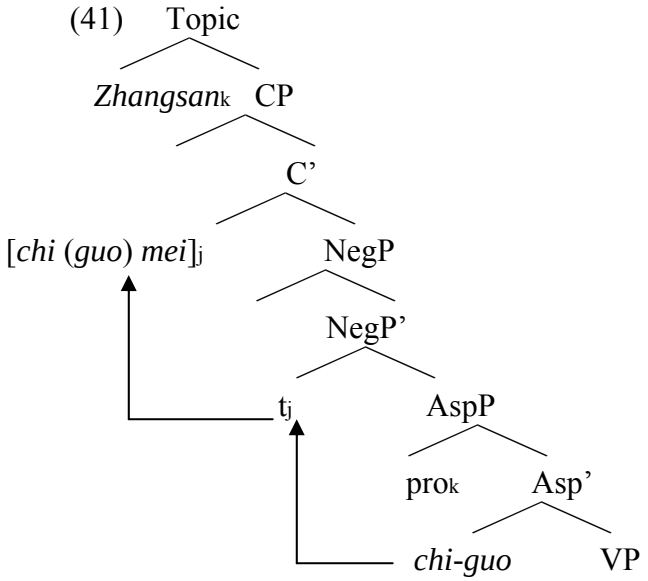
3.3.3. Experiential Aspect *Guo* and Durative Aspect *Zhe*

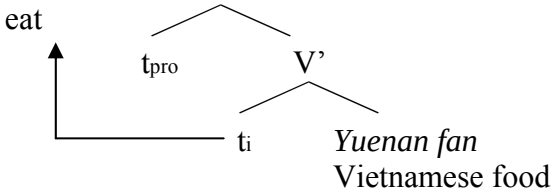
(40) shows how A-not-A questions are formed with the suffixal experiential aspect marker *guo* involved.

(40) Zhangsan chi(guo) mei chi guo Yuenan fan?
Zhangsan eat (DurAsp) not eat DurAsp Vietnam food
'Did Zhangsan ever eat Vietnamese food?'

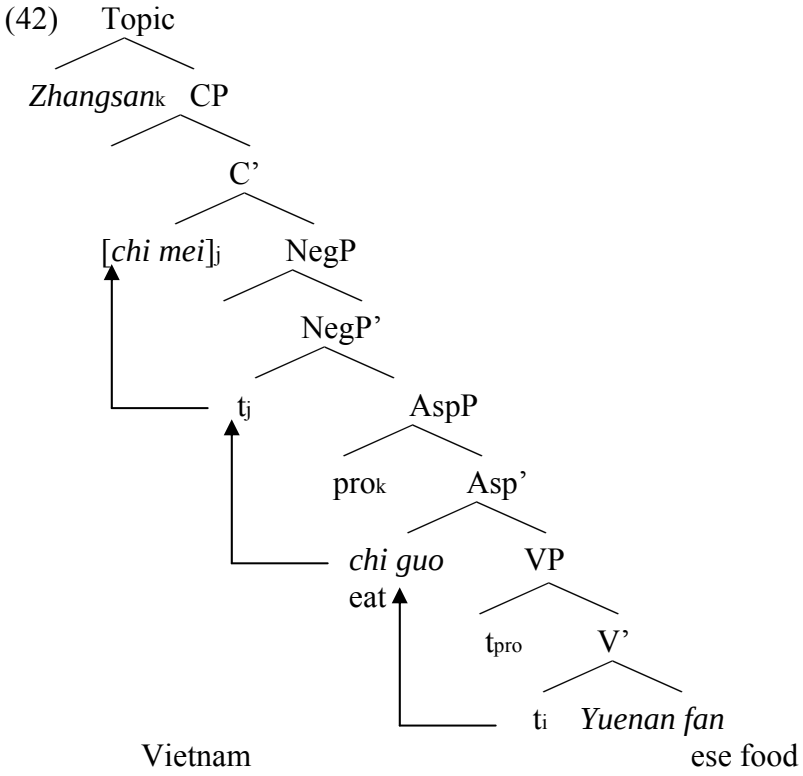
The lexical item that can function as A is either the verb *chi* 'to eat' alone or the verb suffixed with *guo*, i.e. *chiguo*. *Guo* is a suffixal aspect head, attracting the verb for experiential aspect marking through V-to-Asp head-movement, as shown both in (41) and (42):

(41)





(42)



In (41), after the suffixation, the whole Asp°, *chiguo*, is adjoined to Neg° for further derivation; the result is that we have *chiguo* as A. In (42), after the suffixation, only the verb, but not the suffix *guo*, moves to Neg°; again this is due to the fact that I°-to-Neg° movement is not a strict head-movement, any element from I° is sufficient for the formation of the [A-Neg] template, so now we have only the verb *chi* 'to eat' as A.

The durative aspect marker *zhe* is, like experiential maker *guo*, a suffix, and originates in Asp°. A can refer to either the verb *na* 'to hold' or the suffixed verb *na-zhe*; the derivation processes are identical to (41) and (42),

Although in the formation of A-not-A questions of culminative, experiential, and durative aspects, A can refer to either the verb or the verb suffixed with an aspect marker, in A-not-A questions that involve progressive aspect marker *zai*, only *zai-mei-zai* is allowed but not *zai*-V-*mei-zai*-V, as shown in (43) and (44).

(43) Zhangsan zai mei zai xuexi?
Zhangsan Prog not Prog study
'Is Zhangsan studying?'

(44) ?*Zhangsan zai xuexi mei zai xuexi.
Zhangsan Prog study not Prog study
'Is Zhangsan studying?'

Such contrasts once again support the claim that A refers to I. In culminative, experiential, and durative aspect marking, I have argued th at the verb needs to merge with the suffixal aspect markers, forming a constituent in I° and then s erving as possible A in A-not-A question form ation. Progressive aspect marking, however, is not through suffixation but through *zai* licensing the verb; what is in I, therefore, is only *zai* but no verbal element, and, that is why (44) is ungrammatical.

4. Conclusion

I conclude that A in A-not-A questions refers to I°, Asp° or Modal°. The derivation of A-not-A questions starts with I-to-Neg movement, attracted by the realization of +Q o f [A-not] in Neg°. This movement leaves its trace undeleted. And Neg-to-C movement gives the sentence the force of a question. A study of the scope o f B-not-B question further proves that A-not-A question starts at a position lower than C°. My analysis also explains why A- *mei*-A is possible but A- *meiyou*-A is not, considering that *mei* and *meiyou* are free variants in negation of stage-level predicates.

References:

Chao, Y. R. (1968). *A grammar of spoken Chinese.* Berkeley: University of California Press

Cheng, L. (1991). *On the typology of Wh-questions*. Ph.D. dissertation, MIT

Cinque, G. (1999). *Adverbs and functional heads: a cross-linguistic perspective.* Oxford: Oxford University Press.

Dai, J. X. (1990). Some issues on A-not-A questions in Chinese . *Journal of Chinese Linguistics 18(2): 285-318.*

Ernst, T. (1994). Conditions on Chinese A-not-A questions. *Journal of East Asian Linguistics (3): 241-264.*

Fanselow, G. A. M. and Anoop Mahajan (2000). Partial movement and successive cyclicity. *Wh-scope Marking: 195-230.* G. M. U. Lutz & A. von Stechow (eds.). Amsterdam and Philadelphia, John Benjamins Publishing Company.

Huang, C.-T. J. (1991). Modularity and Chinese A-not-A question s. *Interdisciplinary approaches to linguistics: Essays in honor of Yuki Kuroda: 305-332.* C. G. R. Ishihara (ed.). Kluwer Academic Publishers

Kandybowicz, J. (2000). The homogeneity of Nupe verb doubling constructions. *UCLA Working Papers in Linguistics 8: Papers in African Linguistics 2: 60-85.* H. Torrence (ed.).

Kayne, R. (1998). Overt vs. covert movement. *Syntax 1.2: 128-191.*

Koopman, H. (1984). *The syntax of verbs: from verb movement rules in the Kru languages to universal grammar.* Foris Publications.

Koopman, H. (2000). On what subject Wh-extraction and partial Wh-movement have in common: a CP movement analysis of partial Wh-movement. Talk given at USC/UCLA joined syntax colloquium

Law, P. (2006). Adverbs in A-not-A questions in Mandarin Chinese. *Journal of East Asian Linguistics 15(2): 97-136.*

Li, C. and Sandra Thompson (1989). *Mandarin Chinese: A functional reference grammar.* University of California Press.

Lin, J.-W. (2003). *Aspectual selection and negation in Chinese. Linguistics 41(3): 425-459.*

Liu, H. (2002). *The co-occurrences of dou with DPs and Yiwencis in Mandarin Chinese. Proceedings of the 14th North American Conference of Chinese Linguistics.* University of Arizona.

Nunes, J. (2004). *Linearization of chains and sideward movement.* MIT Press.

Wu, J. (1997). *More on A-not-A questions: a model-theoretic approach. Proceedings of the 16th West Coast Conference on Formal Linguistics.*

Yue-Hashimoto. A. (1993). *Comparative Chinese dialect grammar: Handbook for investigators*. Paris: CRLAO

Zhang, Min (1990). Dialectal distribution of V-neg-VO and VO-neg-V interrogative sentence patterns. *Journal of Chinese Linguistics 18: 209-230*

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 305-322.

The Distributions of the Aspect Markers *Zhe* and *Le* in the Chinese *You*-coda Constructions[1]

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According to Huang (1987), all Chinese existential sentences involve the string of "… (NP) … V … NP … (XP) …". When the V position is occupied by the verb *you*, the XP is refered to as *you*-coda. It has been observed that although the aspect markers *zhe* and *le* may alternate in the locative inversion construction (LIC), the superficially identical V-*le* and V-*zhe* sequences cannot appear in the *you*-coda construction. Moreover, the *you*-coda construction with V-*le* is more unacceptable than those with V-*zhe*. We assume that the ungrammatical *you*-coda constructions with V-*le* involve the sentence-final le_2 (or perhaps 'le_1 + le_2') being used in construction with the wrong choice of verbs. While, the marginality of the *you*-coda structure with V-*zhe* is due to *zhe*'s being incapable of anchoring tense of the CP complement of *you*.

1. Introduction

According to Huang (1987), all Chinese existential sentences involve the following string as in (1)[2]. The XP in position 4 is also called the 'coda' of existential sentences, such as in Zhang's (2008) work. When the verb in position 2 is *you* 'have', we shall refer to the coda existential sentences as *you*-coda constructions.

[1] I would like to express my thanks to Prof. C.-T. James Huang, from whom I received many helpful and inspiring comments and suggestions. I am also grateful to Prof. W.-T. Dylan Tsai, Prof. Gu Yang, Prof. Ning Chunyan and Prof. Gu Gang for extensive discussions and valuable suggestions. I am solely responsible for all the remaining errors and inadequacies. This research was supported by Tianjin Philosophy and Social Sciences research planning grant, #TJ05-YW0208.

[2] Abbreviations used in this paper are as follows: CL: classifier; CP: complementizer phrase; DE: attributive particle; DP: distinguished phase; Exp: experiential marker; LE1 or le_1: the verb-final *le*; LE2 or le_2: the sentence-final *le*; LICs: locative inversion constructions; NP: noun phrase; PART: particle; PASS: passive; Prg: progressive; V: verb.

(1) … (NP) … V … NP … (XP) …
1 2 3 4

It has been observed in the literature that the aspect markers *zhe* and *le* may alternate in locative inversion constructions (LICs), as in (2).

(2) a. Qiangshang tie-zhe liang-zhang bugao (Nie 1989)
On the wall stick-ZHE two-CL placards
'On the wall are stuck two placards'
b. Qiangshang tie-le liang-zhang bugao
On the wall stick-LE two-CL placards
'On the wall are stuck two placards'

However, as can be seen below, when the two aspect markers appear in *you*-coda constructions, the sentences derived are ill-formed. What is more interesting is that the *you*-sentence with V-*le* in the coda is in a greater degree of unacceptability than that with V-*zhe* in the same situation, as shown in (3a-b).

(3) a. ?? Qiangshang you liang-zhang bugao tie-zhe (Nie 1989)
On the wall have two-CL placards stick-ZHE
'On the wall there are stuck two placards.'
b. * Qiangshang you liang-zhang bugao tie-le
On the wall have two-CL placards stick-LE
'On the wall there are stuck two placards.

The goal of this paper is to offer an explanation for the failure of *zhe* and *le* to appear in *you*-coda constructions and discuss its implications for the syntax of the complement of *you*. The paper is organized as follows. In section 2, we adopt Lin's (2002) explanation of *zhe/le* alternation in LICs. In section 3, we will show that there are two factors that affect the distribution of *le* in *you*-coda constructions and how they interact with each other to contribute to the (un)grammaticality of the sentences. In section 4, we put forward the analysis of the distribution of *zhe* in post-*you* structures, which is controlled by a different mechanism from that affecting the distribution of *le*. Section 5 indicates that the distributions of *zhe/le* in the post-*you* construction imply that the verb *you* may syntactically be followed by a clause and more evidence will be put forward to support this hypothesis. Finally, section 6 draws the conclusion.

2. Lin's (2002) analysis of the *zhe/le* alternation in LICs

According to Lin (2002), the alteration of *zhe* and *le* in LICs does not seem to affect the meaning of the sentence in certain contexts. For example, both (2a) and (2b) can be used

to express the state of two placards being stuck on the wall at the speech time.

However, it is generally agreed that *le* and *zhe* are two separate aspectual morphemes, *le* being the perfective aspect and *zhe* being the durative or imperfective aspect. The question is then how we can account for the neutralization of *zhe* and *le* in locational verb existential sentences. According to Lin's explanation, the neutralization of *zhe* and *le* in LICs is not a special property of this sentence pattern, since it can also happen in an ergative construction, as in (4), a passive construction, as in (5), and a normal active sentence, as in (6).

(4) a. Men kai-zhe
door open-ZHE
'The door is in a state of being open.'
b. Men kai-le
door open-LE
'The door is opened.'

(5) a. Ta de shuang-shou bei fan-bang-zhe
he DE two-hand PASS reverse-tie-ZHE
'His hands are in a state of being tied on the back.'
b. Ta de shuang-shou bei fan-bang-le
he DE two-hand PASS reverse-tie-LE
'His hands are tied on the back.'

(6) a. Ni ti-zhe zheme duo shu, yao qu nali?
You carry-ZHE this many book want go where
'Where are you going, carrying so many books'
b. Ni ti-le zheme duo shu, yao qu nali?
You carry-LE this many book want go where
'Where are you going, carrying so many books?'

Therefore, he assumes that the neutralization of *zhe* and *le* should be attributed to the semantics of the two aspect markers and proposes the meanings of *le* and *zhe* as follows.

(7) *Le* (φ) is true at a reference time *t* if and only if the initial subinterval of f_{DP} (φ) precedes *t*.

(8) *Zhe* (φ) is true at a reference time *t* if and only if *t* overlaps with f_{DP} (φ).

(7) represents "the meaning of *le* with respect to a proposition φ which requires the initial subinterval of the 'distinguished phase' corresponding to φ precede a pragmatically determined reference time *t*, which is usually the speech time by default if no other

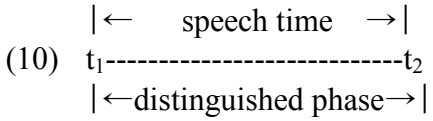
reference time is available." (Lin 2002:29) While, (8) states that the reference time *t*, usually the speech time by default, overlaps with the whole distinguished phase corresponding to the proposition φ.

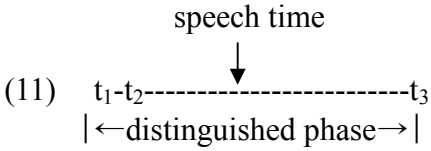
Lin's definition involves the notion of a "distinguished phase" defined by Klein et al (2000). According to them, there are three distinguished times: the time of utterance (TU), the time of situation (T-SIT) and the time span about which an assertion is made (TT or topic time). Tense is concerned with the relations between TT and TU, and aspect expresses the relations between TT and T-SIT. There are different types of lexical contents of verbs. For example, some verbs "are true at some time t, then there is a contrasting time t' at which they are not true". Such verb contents are referred to as 1-phase contents, such as *to sleep* or *to work*. Some verb contents describe a change of state within a certain time span. That is a situation that may first obtain and then still within the same time span, does not obtain, or vice versa. They are referred to as 2-phase contents, such as *dao* 'to arrive' or the resultative verb *ti-dao* 'kick-fall'. They also regard the phase (or time interval) to which TT is related as the distinguished phase (DP). For 1-phase verbs, T-SIT only involves one time interval, so TT can only be related to this interval. Therefore, the only phase is the DP. However, 2-phase expressions involve two time intervals: the one for the source phase and the one for the target phase. Languages may select either of them related to TT and the selected phase is the DP. In English, DP is the source phase, whereas in Chinese, DP is the target phase, since English is more "action-oriented" while Chinese is "result-oriented"(Chu1976, Li1990, Yong1997).

Lin (2002) also defines the notions of the Initial Subinterval and the Final Subinterval of the distinguished phase as in (9).

(9) Let I' be a member of [T]. I is a (PROPER) SUBINTERVAL OF I' if and only if I∈[T] and I⊆I' (I⊆I' and not I = I'). I is an INITIAL SUBINTERVAL OF I' if and only if I is a subinterval of I' and there do not exist t'∈I'−I and t∈I such that t'<t. I is a FINAL SUBINTERVAL of I' if and only if I is a subinterval of I' and there do not exist t'∈I'-I and t∈I such that t<t'.

According to Lin's definitions of *zhe* and *le*, the conditions for (2a) and (2b) to be true should be illustrated as (10) and (11) respectively.

(10)


(11)


(10) represents the case where the proposition *zhe (qiang shang tie liang-zhang bugao)* is true at the speech time if and only if the speech time overlaps with the interval at which the distinguished phase, represented as $[t_1,t_2]$, corresponding to the proposition *(qiang shang tie liang-zhang bugao)* holds. That is to say, the speech time overlaps with the whole distinguished phase from t_1 to t_2.

In (11), $[t_1,t_3]$ represents the distinguished phase of the two placards being stuck on the wall and $[t_1,t_2]$ the initial subinterval of the distinguished phase. The vertical arrow denotes the speech time. Then, (11) shows that the proposition *le* (*qiang shang tie liang-zhang bugao*) is true at the speech time if and only if the initial subinterval of the interval at which the distinguished phase corresponding to the proposition (*qiang shang tie liang-zhang bugao*) holds precedes the speech time. That is to say, the speech time falls between t_2 and t_3.

In sum, in the case of *zhe*, the speech time overlaps with the whole distinguished phase, and in the case of *le*, the speech time overlaps with the part of the distinguished phase between the initial subinterval and the final subinterval. Anyway, in both cases, there is an overlapping of the speech time with the distinguished phase. Therefore, the truth conditions of (2a) and (2b) are equivalent so far as temporal reference is concerned.

Although we agree with Lin that the *zhe/le* alternation is caused by the overlapping in one part of their meanings: they both assert that the situation (of two placards being on the wall) is true at the speech time (or a given reference time), we would like to argue that (2a) and (2b) do not have the same truth conditions. At the initial subinterval of the DP, the meaning of *le* involves a change of state, and then, from t_2 to t_3, the result state exists. While, *zhe* denotes that a state exists during the whole DP. Therefore, as suggested by C.-T. James Huang (p.c.), (2a) and (2b) do not have the same truth conditions, but in the given speech context, the difference in truth conditions doesn't matter. That is to say, given that a sentence introduced by a locative subject is primarily presenting a scene to the addressee, the minor difference between the perfective *le* and the durative *zhe* is ignorable. Hence the two sentences are inter-changeable in usage.

In fact, the speech context does play an important role in *zhe/le* alternation. When it changes, even a little bit, the *zhe/le* alternation might disappear. The alternation of the sentences (12a) and (12b) disappears when the verb *tie-zhe* 'stick-ZHE' in (12a) and *tie-le* 'stick-LE' in (12b) are modified by the adverb *ganggang* 'just now'.

(12) a. qiang-shang ganggang tie-zhe liang-fu hua. (zenmo zhuanyan-jian
wall-on just now stick-ZHE two-CL picture how come blink eye-in

jiu bu jian-le?)
just not see-LE
'On the wall were hanging two pictures just now. (How come they disappeared just in the blink of an eye?)'

b. qiang-shang ganggang tie-le liang-fu hua. (fangjian haokan duo le)
wall-on just now stick-LE two-CL picture room beautiful much LE
'On the wall hung two pictures just now. (The room looks much better.)'

In (12a), the adverb *ganggang* 'just now' makes it necessary for *zhe* to describe a past state (by implicature, a state that does not obtain now). That is to say, the reference time that overlaps with the DP precedes the speech time. While, (12b) implies that the two pictures were hanged on the wall and still exist there. Furthermore, it seems that in this sentence, *le* has the function of 'telicizing' an atelic. Even though *le* and *zhe* are similar when used to present a given state (in which case the most relevant part for *le* is the state that obtains in t_2-t_3)—the present perfective says that a certain new state obtains now, the use of *ganggang* 'just now' makes it necessary to refer to t_1-t_2, and therefore it is possible for t_2-t_3 to refer to the speech time. Hence, the superfically alternating sentences (12a) and (12b) do not alternate at all.

Some *zhe/le* alternations do not hold even superficially when the context is changed. As shown in (13), when the context implies a change of state, it is necessary for *le* to refer to t_1-t_2, not t_2-t_3, so *zhe* is ruled out in such a situation.

(13) Gangcai dianli yige ren ye meiyou, zenme yixiazi (Liu 2007)
just-now store-in one-CL person also not-exist how-come suddenly
wei -le/ *-zhe zheme duo ren
gather-LE/-ZHE so many people
'Just now there was nobody in the store; how come suddenly gathered so many people?'

3. The distribution of *le* in *you*-coda constructions

3.1 The two factors affecting the distribution

As mentioned in section 1, *le* alternates with *zhe* in LICs but the superficially identical V-*le* sequence cannot appear in *you*-coda constructions, as shown in the contrast between (2b) and (3b), repeated below.

(2) b. Qiangshang tie-le liang-zhang bugao
On the wall stick-LE two-CL placards
'On the wall are stuck two placards'

(3) b. * Qiangshang you liang-zhang bugao tie-le
On the wall have two-CL placards stick- LE
'On the wall there are stuck two placards.'

We try to achieve a unified account for these two sentences, since they have some structural similarities. They are both existential constructions, including some common

constituents, such as the locative subject *qiangshang* 'on the wall', the locational verb *tie* 'stick' and the theme argument of the verb *liang-zhang bugao* 'two placards'. The differences between them are first, the sentence pattern of (2b) is the LIC and that of (3b) is the *you*-sentence; second, the constituent V-*le* in (2b) is in the middle of the main clause, while the one in (3b) is in the coda of *you* and at the sentence final position. As we have discussed in section 2, *zhe/le* alternation is not unique to LICs. That is to say, *tie-le* 'stick-LE' in (2b) may also appear in other constructions, such as the *you*-coda construction. What else may block V-*le* to appear in post-*you* construction but allow it to occur in the LIC? As a first approximation, one might have the idea that the two sentences are derivationally related, but that the ill-formedness of (3b) comes from the perfective *le* being stranded at the end of the sentence, which for some reason is prohibited. In particular, if we treat *tie* 'stick' as an unaccusative verb with its agent theta role deleted in both (2b) and (3b), the theme argument is base-generated as the complement of *tie* 'stick'. In (2b), it remains in that position, while in (3b), it is raised to preverbal position with a trace left, as shown in (14).

(14) [qiangshang you [… [liang-zhang bugao$_i$ … [$_{VP}$ tie-le t_i]]]]
Wall-on have two-CL placards stick-LE

One immediate problem with this idea, however, is that there is no independent reason why the representation (14) is ill-formed. In fact, the sentence (15a), with a similar structural representation as in (15b), is entirely natural:

(15) a. jianyu-li you wu-ge fanren pao-le
jail-inside have five-CL prisoners escape-LE
'From the jail, there are five prisoners who escaped.'
b. [jianyu-li [you [. . . wu-ge fanren$_i$ … [$_{VP}$ pao-le t_i]]]]
jail-inside have five-CL prisoners escape-LE

The contrast between (14) and (15b) shows that the grammaticality depends, in part at least, on verb choice. More examples in (16) and (17) strengthen the point that when the verb changes, the grammaticality of the sentences varies.

(16) Menkou you yi-ge xiaohai ku-le
doorway have one-CL child cry-LE
'At the doorway, there is a child crying.'

(17) * Jieshang you xuduo xin dalou gai-le.
street-on have many new building build-LE
'On the street, there are many new buildings built.'

But the choice of verbs alone cannot be the whole explanation for the ungrammaticality of (3b), given the grammaticality of (2b), which differs from (3b) not in the choice of verbs (except for the presence of *you*), but in the position of the V-*le* phrase. And if the sentence-final V-*le* (in 3b) is identical with the sentence-medial V-*le* in (2b), we are back to square one!

I would like to pursue a different tack by assuming that (2b) and (3b) do not involve the same *le*: in (2b) we have the perfective *le*, but in (3b) we have the change-of-state *le*, that is le_1 and le_2, respectively. And the ungrammatical sentences are those that involve at least the sentence-final le_2[3] being used in construction with the wrong choice of verbs.

3.2 The interactions of the two factors

According to Smith (1997), there are two types of aspect: situation aspect (aktionsarten / verb aspect) and viewpoint aspect. The situation aspects include state, activity, semelfactive, achievement and accomplishment. They are the inherent properties of verbs. Following Smith, Gu (2008) classifies the verbs such as *kesou* 'cough' as a semelfactive verb which denotes an event that includes an indefinite number of atomic activities. One example to illustrate the atomic property of such verbs is that we can say *kesuo yisheng* 'give a cough'. Here, we assume that the verb *ku* 'cry' in (16) is also a semelfactive verb because we can add the adverbial *yisheng* 'a sound' to it to get *ku-le yisheng* 'give a cry'. Now, the above examples involve three types of verbs in the post-*you* structure: the activity verb *tie* 'stick' in (3b), the activity verb *gai* 'build' in (17)[4], the achievement verb *pao* 'escape' in (15) and the semelfactive verb *ku* 'cry' in (16). Gu (2008) further assumes that semelfactive verbs and achievement verbs have the [atomic] feature, while

[3] Another possibility is that those ungrammatical sentences involve 'le_1 + le_2'. Anyway, the *le* in post-*you* construction must not be le_1 because sentences are not ended by le_1 in Chinese.

[4] Tai (1984: 290) points out that though in English accomplishment verbs generally imply the achievement of a goal, "their supposed equivalents in Chinese do not contain such an implication as an inherent part of meaning." To make sure that "the attainment of goal, Chinese resorts to resultative verb compounds, of which the first element indicates action, the second the result". For example, there are two English verbs *study* and *learn*. The former denotes just an activity, while the latter is an accomplishment verb expressing the goal attained in the process of studying. In Chinese, the counterpart of *learn* is a resultative verb compound *xue-hui* in which *xue* corresponds to *study*, *hui* 'able' implies the result of study. Similar examples are *kan-jian* 'look-perceive', *sha-si* 'kill-dead', *xie-wan* 'write-finish', etc. Following Tai, Sybesma (1997) assumes that "Chinese has no inherently telic predicates because all accomplishment (and arguably, achievements) in Chinese are analyzable as activity-result compounds. Therefore, we treat *gai* 'build' as an activity verb or an incremental theme verb, which, according to (Lin 2007), carries an accomplishment meaning only when it has an indefinite object. One thing needs to be pointed out is that we agree with Sybesma that Chinese has no inherent accomplishment verbs on one hand, and on the other hand, we argue that Chinese does have inherent telic verbs which are achievements. The different behaviors of the achievement verb *pao* 'escape' in (15) and the activity verb *gai* 'build' in (17) supports this hypothesis.

activity verbs have the [extended] feature.

Li & Thompson (1981) treated the sentence-final *le* as a perfect marker relating two time points: the time in the past and the speech time. Therefore, we assume that le_2 is compatible with the verbs which indicate the change of state. The verbs with the [atomic] feature have such an implication. For example, the achievement verb *pao* 'escape' implies two states: the prisoner being in the jail and being away from the jail. Therefore, having combined with *pao*, le_2 can relate two time points to the two states: a time when the prisoner is in the jail and a time, which happens to be the speech time here, when the prisoner is away from the jail. Similarly, when le_2 is used with the verb *ku* 'cry', it links two time points: a time when the child did not cry and a time when it sent out a sound of cry. On the contrary, [extended] verbs describe continuous action and do not include two distinct states to which the two time points of le_2 can relate. Thus, they are not compatible with le_2. That's why (3b) and (17) are ungrammatical. This hypothesis can be supported by the fact that when we add some adverbials denoting duration, direction or a result, the sentences become well-accepted, as in (18) and (19).

(18) a. Qiangshang you liang-zhang bugao tie-le henjiu le
On the wall have two-CL placards stick-LE1 long time LE2
'On the wall there has been two placards stuck for *a long time*.'
b. Qiangshang you liang-zhang bugao tie chu-lai le
On the wall have two-CL placards stick out-come LE2
'On the wall there has been two placards stuck out.'
c. Qiangshang you liang-zhang bugao tie fan le
On the wall have two-CL placards stick upside down LE2
'On the wall, there are two placards which have been stuck upside down.'

(19) a. Jieshang you xuduo xin dalou gai-le henjiu le.
street on have many new building build-LE1 long time LE2
'On the street, there are many new buildings built for a long time.'
b. Jieshang you xuduo xin dalou gai qilai le.
street on have many new building build rising up LE2
'On the street, there are many new buildings built up.'
c. Jieshang you xuduo xin dalou gai-hao le.
street on have many new building build-well LE2
'On the street, there are many new buildings built up.'

The durational adverbial *henjiu* 'for a long time' in (18a) and (19a) helps to set up two states: a state in which the action of sticking or building has just started and a state in which the action has been done for a long time. The directional adverbial *chulai* 'coming out' and *qilai* 'rising up' in (18b) and (19b) also help to set up two states: a state in which the placards are not on the wall or the new buildings are not built up and a state in which

the placards are stuck on the wall and shown to the public or the buildings have been built up. The resultative predicate *fan* 'upside down' in (18c) (offered by C.-T. James Huang) and *hao* 'well' in (19c) help to bring about two states: a state in which the two placards are not on the wall or the buildings are not built and a state in which the two placards have been stuck on the wall in the wrong way or the new buildings have been built up. Therefore, with these adverbials, the two states, the one in the past and the one at the speech time, are established, to which the two time points of le_2 can relate.

4. The distribution of *zhe* in LIC and the post-*you* structure

As we pointed out in section 1, though LICs with *zhe* are perfectly normal, the *you*-sentences with it in the coda sound marginal, as shown in (2a) and (3a), repeated below.

(2) a. Qiangshang tie-zhe liang-zhang bugao (Nie 1989)
On the wall stick-ZHE two-CL placards
'On the wall are stuck two placards'

(3) a. ?? Qiangshang you liang-zhang bugao tie-zhe (Nie 1989)
On the wall have two-CL placards stick-ZHE
'On the wall there are stuck two placards.'

The case of *zhe* seems to be similar to that of *le*. However, there is a significant difference between them. The occurrence of *le* in the post-*you* construction causes the sentence to be totally ungrammatical, while the occurrence of *zhe* in the same situation just makes the sentence to be marginal. What causes the marginality of the *you*-sentences with *zhe* in the coda? We assume the reason is that the aspect marker *zhe* cannot anchor the tense of the clausal complement of *you*. The explanation goes as follows. Huang (2005) states that tense is a constrainer of the event variable. The bare form of the verb denotes an event and the tensed form denotes a specific event. This variable must be licensed by tense morphology or other forms of constrainers. Tsai (2007) further assumes that since Chinese has no overt tense, its underlying event variable will be satisfied by a variety of morpho-syntactic means. The verb raising to v/T is one of them. In a sentence like (2a), the verb *tie-zhe* 'being stuck' is raised to an existential light verb in the locative-existential construction to bring out the event variable, as shown in (20).

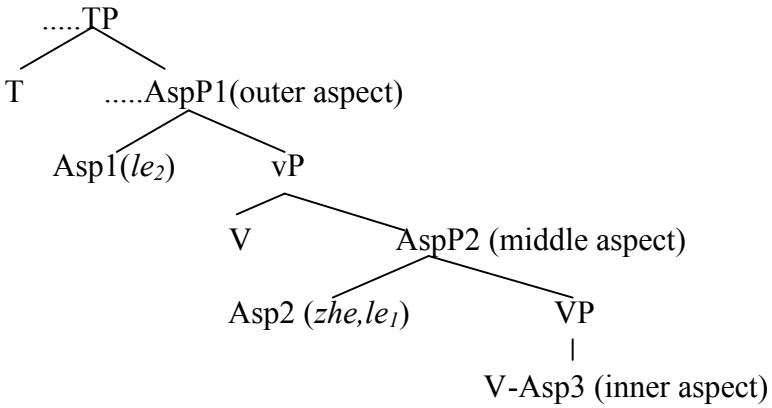
(20) $[_{TP}$ Qiangshang$_j$ $_T$ $[_{vP}$ $_v$ tie-zhe$_i$ $[_{VP}$ liang-zhang bugao $_V$ t_i $t_j]$
wall-on stick-ZHE two-CL placards

In the incomplete sentence (3a), we assume that the existential operator of the sentence is occupied by the modal verb *you* which functions to present an event represented by its complement clause, as shown in (21).

(21) [$_{TP}$ Qiang-shang$_{j}$ T [$_{vP}$ v you [$_{CP}$ liang-zhang bugao$_{i}$ [$_{TP}$ t$_{i}$ [$_{VP}$ tie-zhe t$_{i}$]]]]]
wall-on have two-CL placards stick-ZHE

In the complement CP, there is no existential operator. How can the event variable of the CP be licensed? By the aspect marker *zhe*? According to Tsai (2007), there are three layers of aspectual projections, as shown in (22), and only the outer AspP (designated as Asp1) can raise to T to value the lexical tense operator. The aspect marker *zhe* is in the middle layer and can never reach T for tense anchoring. Therefore, it cannot render completeness to a sentence by itself, as in (23).

(22)



(23) ?? Zhangsan ku-zhe.
Zhangsan cry-ZHE
'Zhangsan is crying'

In the light of Tsai's analysis, we assume that the marginality of the *you*-sentence in which V-*zhe* occurs in the coda is caused by *zhe*'s being incapable of anchoring tense of the post-*you* CP. This assumption can be somewhat supported by the evidence that if we put the locative phrase *qiangshang* 'on the wall' in the embedded CP, as in (24a)[5] or an adverbial phrase denoting manner (as *bingpai* 'side by side' in (24b)) or duration (as *yizhi* 'for a long time' in (24c)), the sentence (3a) will become complete, since these adverbials help anchor tense of the CP complement of *you*.

(24) a. you liang-zhang bugao zai qiangshang tie-zhe
have two-CL placards at wall-on stick-ZHE
'There are two pictures stuck on the wall.'

[5] When the locative phrase appears in non-subject position, it is usually preceded by the preposition *zai* 'at'. As for why the preposition *zai* 'at' must be omitted in the sentential subject position, see Huang (1987) for detailed discussions.

’ b. Qiangshang you liang-zhang bugao bingpai tie-zhe
On the wall have two-CL placard side by side stick-ZHE
‘On the wall, there are two placards stuck side by side ’
c. Qiangshang you liang-zhang bugao yizhi tie-zhe
On the wall have two-CL placard for a long time stick-ZHE
‘On the wall, there have been two placards stuck for a long time’

These elements cannot be added to save the ill-formed sentence (3b) which involves V-*le* in the complement clause of *you*. This strengthens our hypothesis that the distributions of *le* and *zhe* in post-*you* constructions are controlled by different mechanisms.

In sum, the occurrence of V-*le* in *you*-coda construction is blocked because the [extend] feature of activity verbs is not compatible with le_2 which denotes ‘a change of state’. This is supported by the fact that when V-*le* is modified by durational, directional or resultative phrases which help set up a result state, the sentences become well-accepted. At this time, the complement of *you*, such as in (18) and (19), is similar to a middle construction which requires the predicate to be resultative somehow. On the other hand, the [extended] feature of activity verbs is comfortable with *zhe* that denotes imperfectiveness. Though, the marginality caused by V-*zhe* in the *you*-coda construction is caused by *zhe*’s incapability of anchoring tense of the complement clause of *you*.

5. Discussions about the syntax of the complement of *you*

5.1 The implications of the distribution of *zhe/le* on the syntax of the coda of *you*

Huang (1987) assumes that *you* is an auxiliary which might brings a clause as its complement. In his (1988) work, the *you*-sentence with a locative phrase in the sentential subject position behaves quite differently from the one without a locative phrase in that position. The *you* in the former case is a main verb, similar to the possessive *you*. While, the *you* in the latter, which he calls an existential *you*, is a raising auxiliary and subcategorizes for a clause. Tsai (2004) classifies these two types of *you* as the existential *you* and the presentational *you* respectively, with the latter possessing the function of presenting an event which is represented by a clause.[6] On one hand, we agree with the two scholars that in bare *you* sentences, *you* brings a clause as its complement, and our discussion will provide additional support for this analysis. On the other hand, we assume that in non-bare *you*-sentences, i.e., those with a locative subject, *you* might subcategorize for a clause, similar to the conclusion made by Gu (2004)[7].

[6] Tsai (2004) summarizes that there are five types of *you*. They are the possessive *you*, e.g., *wo you yidong fangzi* ‘I have a house’, the existential *you*, e.g., *fangzi-li you ren* ‘In the house, there is a man’, the presentational *you*, e.g., *you ren zou-le* ‘Someone left’, the perfective *you*, e.g., *ren mei you lai* ‘The man has not come’ and the assertive *you*, e.g., *wo mei you hen tiaopi wo* ‘I was not naughty’

[7] Different from her, we will compare the syntax of *you*-coda constructions with locational verb coda constructions and assume that *you* takes a clause as its complement when XP is a stage-level

The distribution of *zhe* discussed in section 4 shows that the complement of *you*, as in (3a), is a tensed clause, because it behaves as a simple incomplete clause with the aspect marker *zhe*, in which when some tense anchoring adverbials are added, the sentence becomes complete, as in (24).

Similarly, the distribution of *le* also shows that the string after *you* is good just in case it is independently good, as shown in the comparison between (25) and (26).

(25) a. * Qiangshang you liang-zhang bugao tie-le
On the wall have two-CL placards stick-LE
'On the wall there are stuck two placards.'
b. Qiangshang you liang-zhang bugao tie fan le
On the wall have two-CL placards stick upside down LE2
'On the wall, there are two placards which has been stuck upside down.'

(26) a. * na liang-zhang bugao tie-le
that two-CL placards stick-LE2
'On the wall there are stuck two placards.'
b. na liang-zhang bugao tie fan le[8]
that two-CL placards stick upside down LE2
'On the wall, there are two placards which has been stuck upside down.'

From the observation of the distributions of *zhe* and *le* in post-*you* constructions, we temporarily conclude that the complement of the modal verb *you* involving NP and XP is a clause.

5.2 Two differences between locative inversion constructions and *you*–sentences

The first difference is described as follows. According to Huang (1987), when there is an

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predicate. When XP is an individual-level predicate, similar to locational verbs, *you* subcategorizes for an NP with XP being a secondary predicate, as shown in Section 5.2.

[8] According to C.-T. James Huang (p.c.), another way to save (26a) is to form a contrastive sentence, as shown in (i).

(i) na liang-zhang bugao tie-le, lingwai san-zhang hai mei tie
That two-CL placard stick-LE other three-CL still not stick
'That two placards are stuck (on the wall), while the other three are not'.

Each part of the contrastive sentence involves a secondary topicalization. This sentence is different from the sentence (26b) and the complement clause of *you* in (25b), which are middle constructions that require the predicates be accomplishments.

XP in the position 4, the NP in position 3 must be not only indefinite but also specific, as shown in (27).

(27) a. Wo jiao-guo yige xuesheng hen congming. (Huang 1987: 248)
I teach-Exp one student very clever
'I have taught one student who is very clever.'
b. * Wo jiao-guo xuesheng hen congming. (Huang 1987: 248)
I teach-Exp student very clever
'I taught very naughty students.'

Locational verb existentials follow this rule generally, as in (28a). However, both bare and non-bare *you*-sentences allow non-specific bare NPs in the position 3, as in (28b) and (28c) respectively.

(28) a. chuang-shang tang-zhe *(liang-ge) ren zai kan shu
bed-top lie-ZHE two-CL person Prg reading book
'In the bed lies a man reading a book'
b. you (liang-ge) ren zai wuzi-li shuohua
have two-CL person at room-inside speak
'there are two men speaking to each other in the room'
c. wuzi-li you (liang-ge) ren zai shuohua
room-inside have two-CL person Prg speak
'In the room there are two men speaking to each other'

Therefore, we assume that the XP or coda in locational verb existentials is a secondary predicate, as Huang (1987) and Tsai (1994) suppose, whereas the coda in *you*-sentences may form a clause with the post-verbal NP as its subject. If the XP were only a secondary predicate, then the NP in position 3 would clearly violate the specificity requirement of Huang (1987). Recall also from Huang (1988) that the clausal complement analysis is already available for *you* anyway.

There seems to be a counterexample to the above observation from Tsai (1994), as in (29).

(29) * fangjian-li you nühai hen piaoliang.
Room-inside have girl(s) very pretty
'?? In the room, there is/are (Sm) girl(s), who is/are very pretty.'

However, with further observation, we discover that in (29), the XP which follows *nühai* "girl(s)" is an individual level predicate. When it is replaced by a stage-level predicate, the sentence will become well accepted, as in (30).

(30) fangjian-li you nühai zai deng ni
Room-inside have girl(s) Prg wait you
'In the room, there is/are (Sm) girl(s), who is / are waiting for you.'

Therefore, we assume that XP can be either a secondary predicate or form a clausal complement with the NP in position 3. When XP is an individual-level predicate, it is a secondary predicate because an individual level predicate forces a secondary predicate reading. Therefore, a sentence like (29) would have been asserting only the existence of an individual, about whom the speaker makes a further comment (the secondary predicate). Hence, (29) is ungrammatical unless *nühai* '(Sm)girl(s)' is turned into *(yi-)ge nühai* 'a girl'. (30) is grammatical because a clausal analysis is available. The clausal analysis denotes existence of an event, so it must involve a stage-level predicate because an individual-level predicate denotes a generic situation. Since it is a clause, and there is no secondary predication, the NP in the 3rd position does not need to be specific. So all the good cases with bare NP in position 3 must have clausal analysis. Those cases with specific NP in position 3 can have a clausal analysis, but by logic, need not be.

The second difference between *you* sentences and locational verb existential sentences, pointed out by Gu (2004), is that the former can be subcategorized by transitive verbs while the latter cannot, as shown by the contrast between (31a) and (32a).

However, as we observed, locational verbs can also be followed by transitive verbs, as in (31b). The real difference between locational verbs and *you* is that the former can only be followed by the predicate which is in present tense or describes a present situation, as in (31), whereas the latter can be followed by the predicate which is in either present tense or past tense or describes either a present situation or a past event, as in the non-bare *you* sentences in (32) and the bare-*you* sentences in (33).[9]

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[9] At the IACL-18 & NACCL-22 conference, Prof. Gu Yang pointed out that if the verb phrase *tou-le Xiao Ming-de qianbao* 'stole Xiao Ming's wallet' in (31a) is changed into the verb phrase *chi-le Xiao Ming-de pingguo* 'ate Xiao Ming's apple', the sentence will become better, as shown in (i).

(i) men-kou zuo-zhe yi-ge ren chi-le Xiao Ming-de pingguo
doorway sit-ZHE one-CL person eat-LE Xiao Ming-DE apple
'There sits a man at the doorway who ate Xiao Ming's apple.'

We assume that (i) might not be a counterexample to the analysis in this paper. The verb *chi* 'eat' is an activity verb, while the verb *tou* 'steal' is an achievement verb. Different from *tou-le* 'steal-LE' which denotes a past event, *chi-le* 'eat-LE' is ambiguous. It can denote a past event and an inchoative meaning as well, i.e., the event of eating Xiao Ming's apple may start before the speech time, last and overlap with the time of sitting and the speech time. This can be shown

(31) a. ?? men-kou zuo-zhe yi-ge ren tou-le Xiao Ming-de (Gu 2004)
doorway sit-ZHE one-CL person steal-LE Xiao Ming-DE
wallet
qianbao
'There sits a man at the doorway who stole Xiao Ming's wallet'
b. men-kou zuo-zhe yi-ge ren zai kan shu
doorway sit-ZHE one-CL person Prg reading book
'There sits a man at the doorway reading a book'

(32) a. men-kou you yi-ge ren tou-le Xiao Ming-de qianbao (Gu 2004)
doorway have one-CL person steal-LE Xiao Ming-DE wallet
'At the doorway, there is a man who stole Xiao Ming's wallet'
b. men-kou you yi-ge ren zai kan shu
doorway have one-CL person Prg reading book
'At the doorway, there is a man reading a book'

(33) a. you yige ren zai men-kou tou-le Xiao Ming-de qianbao
have one person at door way steal-LE Xiao Ming-DE wallet
'There is a man who stole Xiao Ming's wallet at the door way'
b. you yige ren zai men-kou kan shu
have one person at doorway read book
'There is a man reading a book at the doorway'

As observed by C.-T. Huang (p.c.), when the coda in these ill-formed locational verb existentials is turned into a simple clause, as in (34), the sentence becomes natural.

(34) men-kou zuo-zhe yi-ge ren, ta tou-le Xiao Ming-de qianbao
doorway sit-ZHE one-CL person, he steal-LE Xiao Ming-DE wallet
'There sits a man at the doorway, and he stole Xiao Ming's wallet'

In sum, based on the above observations that the existential verb *you* can be followed by a bare NP and a predicate describing a past event, but the locational verb cannot, we conclude that the coda in the locational verb construction is a secondary

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in (ii).

(ii) men-kou zuo-zhe yi-ge ren chi-le Xiao Ming-de pingguo, hai mei chi-wan
doorway sit-ZHE one-CL person eat-LE Xiao Ming-DE apple yet not eat-finish
ne.
PART
'There sits a man at the doorway who eats Xiao Ming's apple and has not finished it yet.'

predicate, while the coda in the *you*-sentence may form a clause with the NP after *you*, or it may also be a secondary predicate.

6. Conclusion

In this paper, I have proposed that although the V-*le* and V-*zhe* alternate in LICs, they differ in their distributions when occurring in the coda of *you* without additional modifying elements. To account for *zhe/le* alternation in LICs, we adopted Lin's (2002) account that *zhe/le* alternation is irrelevant to the sentence pattern LIC, but is attributed to the overlap of the meanings of the two aspect markers. As for why V-*le* is prevented from appearing in post-*you* constructions, we assume that the aspect marker *le* in such a structure is the sentence-final le_2 (or perhaps 'le_1+ le_2') and the one in LICs is le_1. It is the incompatibility between the semantics of le_2 and the [extended] feature of activity verbs that blocks the V-*le* sequence appearing in post-*you* constructions. On the other hand, *zhe* is blocked from the post-*you* construction because it cannot help anchor tense of the CP complement of *you*. The distributions of *le* and *zhe* in post-*you* constructions together with some other facts which distinguish *you*-sentences from locational verb existentials, such as the facts that post-*you* NPs can be bare NPs and the coda of *you* can be past tense predicate, show that the coda in *you*-sentences may form a clause with the post-*you* NP when it is a stage-level predicate, or, it may be a secondary predicate when it is an individual-level predicate.

References:

CHU, CHAUNCEY C. 1976. Some semantic aspects of action verbs. *Lingua* 40. 43-54.

GU, YANG. 2004. On the existential constructions in Mandarin Chinese. Paper presented at the 12th annual meeting of International Association of Chinese Linguistics, Tianjin.

GU, YANG. 2008. Shitai, shizhi lilun yu hanyu shijian canzhao yanjiu (Theories of tense and aspect and temporal reference in Chinese). *Dangdai Yuyanxue Lilun he Hanyu Yanjiu* (*Contemporary Linguistic Theories and Related Studies on Chinese*), ed. by Yang Shen and Shengli Feng, 97-119. Beijing: Shangwu Yinshu Guan.

HUANG, C.-T. JAMES. 1987. Existential sentences in Chinese and (in)definiteness. *The representation of (in)definiteness*, ed. by Eric Reuland and Alice ter Meulen, 226-253. Cambridge: MIT Press.

HUANG, C.-T. JAMES. 1988. Shuo *shi* he *you* [on 'be' and 'have' in Chinese]. *Bulletin of the Institute of History and Philology, Academia Sinica* 59. 43-64.

HUANG, SHIZHE. 2005. *Universal Quantification with Skolemization: Evidence from Chinese and English*. New York: the Edwin Mellen Press.

KLEIN, WOLFGANG, PING LI AND HENRIETTE HENDRIKS. 2000. Aspect and assertion in Mandarin Chinese. *Natural Language and Linguistic Theory* 18. 723-770.

LI, CHARLES AND SANDRA A. THOMPSON. 1981. *Mandarin Chinese: A Functional Reference Grammar*. Berkeley: University of California Press.

LI, PING. 1990. *Aspect and aktionsart in child Mandarin*. The Netherlands: University of Leiden dissertation.

LIN, JO-WANG. 2002. Aspectual selection and temporal reference of *–zhe* in Mandarin Chinese. *Tsinghua Journal of Chinese Studies* 32. 257-296.

LIN, Jo-wang. 2007. Event decompostion and the syntax and semantics of durative phrases in Chinese. *Event Structures in Linguistic Form and Interpretation*, ed. by Johannes Dölling, Tatjana Heyde-Zybatow and Martin Schäfer, 31-54. Berlin: Mouton de Gruyter.

LIU, FENG-HSI. 2007. Auxiliary Selection in Chinese. *Split Auxiliary Systems: A Cross-Linguistic Perspective*, ed. by Raul Aranovich, 181-205. Amsterdam: John Benjamins Publishing Company.

NIE, WENLONG. 1989. Cunzaiju he cunzaiju de fenlei [the existential sentences and their classification]. *Zhongguo Yuwen* (*Chinese Language and Writing*) 2. 95-104.

SMITH, CARLOTA. 1997. *The Parameter of Aspect*. Dordrecht: Kluwer.

SYBESMA, RINT. 1997. Why Chinese verb-le is a resultative predicate. *Journal of East Asian Linguistics* 6. 215-261.

TAI, JAMES H.-Y. 1984. Verbs and times in Chinese: Vendler's four categories. *Papers from the Parasession on Lexical Semantics*, ed. by David Testen, Veena Mishra and Joseph Drogo, 289-296. Chicago Linguistic Society.

TSAI, W.-T. DYLAN. 1994. *On economizing the theory of A'-dependencies*. Cambridge, MA: MIT dissertation.

TSAI, W.-T. DYLAN. 2004. Tan "you ren", "you de ren" he "you xie ren" (Remarks on *you ren*, *you de ren* and *you xie ren*). *Hanyu Xuebao* (*Chinese Linguistics*) 2. 16-25.

TSAI, W.-T. DYLAN. 2007. Tense anchoring in Chinese. *Lingua* 118. 675-686.

YONG, SHIN. 1997. The grammatical functions of verb complements in Mandarin Chinese. *Linguistics* 35. 1-24.

ZHANG, NING. 2008. Existential coda constructions as internally headed relative clause constructions. *The Linguistics Journal* 3. 8-54.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 323-340.

The Relative Position of Demonstratives and Relative Clauses in Mandarin Chinese

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In Mandarin Chinese there are two possibilities with regard to the relative order of relative clauses (RC) and demonstrative expressions (DM). A relative clause may either precede a demonstrative expression (RC+DM) or follow it (DM+RC). Traditionally, it is assumed that the latter is transformationally derived from the former by virtue of the movement of DM across RC. An investigation of a large Chinese corpus, the Lancaster Corpus of Modern Chinese (McEnery et al. 2003) (LCMC), however, reveals that the choice of the two different word orders is governed by semantic, syntactic, and pragmatic factors.

1. Introduction

Chinese relative clauses (RC) have two possible distributions in terms of their relation to a demonstrative expression (DM) and they may either precede or follow demonstrative expressions (DM), as shown in (1a) and (1b) respectively.

(1) a. [$_{RC}$ dai yanjin] de na ge nianhai **Construction$_1$**
wear glasses DE that CL boy
'I like the boy who wears glasses.'

b. na ge [$_{RC}$ dai yanjin] de nianhai **Construction$_2$**
that CL wear glasses DE boy
'I like the boy who wears glasses.'

For the sake of convenience, in this paper we call the first order, where the RC precedes the DM construction$_1$, and the second order, where the RC follows the DM, construction$_2$.

Previous researches on the two constructions mainly concern the nature of the two constructions and the transformational relation between them. Studies on the nature of the two constructions center on the classification of them. Chao (1968), Hashimoto (1971), Huang (1982), for example, treat relative clauses in (1a) and (1b) as restrictive and non-restrictive relative clauses respectively. Huang (1982) explains the difference of the RC (1a) and the RC (1b) in terms of scope. The RC is in the scope of the DM in (1a) and the DM is deictic and used to determine the reference of the head noun. In contrast, the

DM is in the scope of the RC and the RC serves to determine the reference of the head noun. Del Gobbo (2003) holds an opposing view, arguing that non-restrictive relative clauses do not exist in Chinese and that both relative clauses in (1) should be interpreted restrictively.

Linguists, whose attention is on the transformational relation between the two constructions, concentrate efforts on determining the basicness of the two constructions, the syntactic movements to derive one construction from the other, and the motivation underlying the syntactic movements. Simpson (1997, 1998a, 2002) theorizes that, as opposed to the order DM+RC, the order RC+DM where a relative clause precedes a demonstrative expression, is the basic one and further movement of DM renders it to precede RC. Zhang (2006) comes up with an opposing theory, arguing that the word order RC+DM is transformationally derived from the word order DM+RC and that the motivation for such movement is to construct contrastive focus.

It is obvious from the above brief review of literature that previous studies have failed to provide an account of the word order variation in this subset of relative clauses in Chinese. There are at least three reasons for this situation. First, previous studies, without exception, have been based on intuitive and introspective analyses of grammaticality/acceptability judgments alone. This methodology has been shown to be fundamentally flawed (see e.g., Gries 2003; Tao 1996). This has already been made clear by the disagreement on the grammaticality judgments on the word order variation. A second and related reason is that previous studies took a deterministic view of language, and have thus failed to recognize the fundamental nature of language as probabilistic and not as "always this and never that" (Halliday, 1961, p. 259). Each language provides its speakers with a variety of structural options to express the same situation, and various factors contribute to the choice of one structure over the other. As Siewierska (1988: 29) points out, "studies of word order variation reveal that word order is dependent on an array of syntactic, semantic, pragmatic and even phonological factors." Consequently, some choices are more probable than others, and probabilities of occurrences are highly relevant to the description of a particular form (Tao and McCarthy, 2001). Finally, previous studies have made no attempts to explain why speakers choose one construction over the other in a particular discourse situation. Thus it is not possible to predict which word order a speaker will choose in a natural discourse setting. Recent functional studies of structural alternation have found how different processing requirements lead speakers to choose one word order over the other, and in fact more generally to choose one structure over others, during the evanescent process of online communication (Fox and Thompson, 1990; Gries, 1999).

In this study, we set out to investigate the differences between the two constructions and the distribution of the two constructions in a bid to provide an explanation for the underlying motivation that determines native speakers' choices governing the alternation. In what follows, we report the results of a corpus-based analysis investigating the occurrence of different positions of a relative clause in relation to a DM. We will then

provide an explanation of the observed patterns in the preference of one construction over the other.

The organization of this paper is as follows: Section 2 introduces the two corpora used for this article. Section 3 provides a detailed account for the distribution of the two types of relative clauses. Section 4 discusses the syntactic differences underlying the choice of right type of relative clauses. Section 5 aims to examine the pragmatic factors governing the choice of relative clauses. Finally, Section 6 is the conclusion.

2. Data

The data for this paper is extracted from a publicly available Chinese language corpus, the Lancaster Corpus of Modern Chinese (McEnery et al. 2003). The Lancaster Corpus of Modern Chinese (LCMC), a one-million-word balanced corpus of written Mandarin Chinese, consists of five hundred 2,000-word samples of written Chinese texts selected from fifteen text categories published in Mainland China around 1991. LCMC provides web-based concordance search functionality, which greatly facilitates this research. The concordance results from LCMC always come with a complete sentence where the searched word occurs. The complete discourse where a RC occurs is examined when it comes to determine the information status of the head noun and discourse functions of the RC.

3 Types of Relative Clauses Examined in This Research

It is found in the data that Chinese relative clauses have two positions with respect to the position of a demonstrative expression (DM) if the head noun is a direct argument such as subject or object. Sentences in (1), repeated here as (2), are examples showing that two possible orders are allowed if a subject is relativized:

(2) a. wo xihuan [$_{RC}$ dai yanjin] de na ge nanhai
I like wear glasses DE that CL boy
'I like the boy who wears glasses.'

b. wo xihuan na ge [$_{RC}$ dai yanjin] de nanhai
I like that CL wear glasses DE boy
'I like the boy who wears glasses.'

Similarly if an object is relativized, relative clause may also have two distributions: they may either precede demonstratives (3a) or follow them (3b):

(3) a. wo du guo [$_{RC}$ ni zuotian tidao] de na ben shu.
I read Asp you yesterday mention DE that CL book
'I read the book which you mentioned yesterday.'

b. wo du guo na ben [$_{RC}$ ni zuotian tidao] de shu.
I read Asp that CL you yesterday mention DE book
'I read the book which you mentioned yesterday.'

In contrast, when an indirect argument, such as manner, time, and space, is relativized, relative clauses seldom, if not all, follow demonstratives. That is, demonstratives co-occurring with manner, time and spatial head nouns can not precede relative clauses. Therefore, relative clauses with manner, temporal and spatial head nouns are excluded from the discussion.

4. Preliminary Findings

With the help of the text analysis software Concordance (Watt, 1999), a total of 198 relevant relative clauses were randomly selected from LCMC, with OMNs and IMNs accounting for 28% and 72% of the total data respectively, as shown in **Error! Reference source not found.**:

Table 1 Distribution of the two constructions

Order	Constructions$_1$	Constructions$_2$
Total	56	142
percentage	28%	72%

Table 1 shows that the distribution of the two word orders is skewed with construction$_2$ (DM +RC) overwhelmingly outnumbering construction$_2$ (RC+DM), by a ratio of almost 3 to 1.

The fact that the number of construction$_2$ (about 72%) far exceeds that of construction$_1$ (around 28%) indicates that the claim that construction$_2$ (RC+DM) is the basic word order and construction$_1$ (DM+RC) is the derived one lacks quantitative support. If we need to establish which word order is the basic one, based on the data from the LCMC, we may conclude that the latter (DM+RC) instead of the former (RC+DM) is the basic one, as far as frequency of occurrence is concerned[1.] The reason why the number of DM+RC predominantly exceeds that of RC+DM is shown to be related to the information status of the head noun, which will be discussed later. In the next section, I will proceed to discuss the distinguishing properties of these two word orders.

5. Coding of possible factors governing the word order variation

Discourse oriented studies of relative clauses have identified various factors that influence the distribution of syntactic types of relative clauses in both written texts and

[1] I am aware that frequency of occurrence may not be the sole factor in determining the basicness of word orders. Historical linguistic data, for example, may be needed to provide further evidence.

naturally occurring conversation (e.g., Fox 1987; Fox and Thompson 1990; Givón 1993; Pu 2007). These factors concern various aspects of relative clauses and their modifying head nouns, including information flow, information status, grounding, humanness, definiteness, and discourse function of relative clauses. In the following subsections, we will discuss the coding of the two constructions along the following four dimensions:

(1) Grammatical roles of head nouns
(2) Information status of head nouns
(3) Humanness of head nouns
(4) Discourse functions of relative clauses

5.1 Grammatical Roles of Head Nouns

Grammatical roles of head nouns in relative clauses are shown to be relevant to explain the distribution of relative clauses (Fox 1987; Fox and Thompson 1990; Hou and Kitagawa 1987; Pu 2007). For our purpose, three grammatical roles are distinguished: subject (S), object (O), and others (X). We first discuss the grammatical roles of the head noun within the relative clause. S-relative clause is used to name relative clauses where the relativized head noun is the subject of the relative clause. O-relative clauses are used to name relative clauses in which the head noun functions as the object of the relative clause, and X-relative clause refers to those whose head noun do not serve as the core argument of the relative clause. O-relative clause, S-relative clause, and X-relative clause are exemplified in (4a), (4b), and (4c) respectively.

(4) a. 1 9 6 3年 焦 裕禄 亲手 栽 下 的 [[那]]r 棵 麻 秆 粗 的 幼桐.
‘The flax-size Aleurites cordata which Jiao Yulu planted.’
b. [[这]]r 位 急于 离京 出走 的 男子 终于 低下 了 头.
‘The man eager to leave the capital city lowered his head.’
c. 厂长 李 海生 下令 将 [[这]]r 批 价值 4万 多元 的 箱子 当众 砸 毁.
‘The director of the factory ordered to destroy the trunks worth of more than forty thousand in public.’

The grammatical role of the head noun in the relative clause is frequently shown to play an important role in the grammar of relative clauses (Fox 1984; Fox and Thompson 1990; Pu 2007). An analysis of the LCMC data reveals that construction$_1$ (RC+DM) differs from construction$_2$ (DM+RC) with regard to the grammatical role of the head noun inside the RC. That is, the head noun in construction$_1$ tends to be the object of the relative clause, whereas the head noun in construction$_2$ tends to be the subject of the relative clause. Table 5 details the distribution of grammatical roles of the head noun within the relative clause in the two constructions:

Table 2 Distribution of grammatical roles of head nouns within the relative clause in the two constructions

Type	O	S	X
construction$_1$	39 (70%)	9 (16%)	8 (14%)
construction$_2$	5 (4%)	130 (91%)	7 (5%)

To recap, if the head noun is the subject of the relative clause, the relative clause tends to follow the demonstrative. Conversely, if the head noun is the object of the relative clause, the relative clause tends to precede the demonstrative.

The grammatical roles of the relativized head noun in the main clause are also coded. The relativized head noun which functions as the subject of the main clause is called subject head. In the same vein, head noun which is the object of the main clause is named object head. X head is utilized to name a head noun which is not a core argument in the main clause. Subject head, object head, and X head are illustrated in (5a), (5b), and (5c) respectively.

(5) a. 焦 裕禄 用 生命 绘制 的 [[那]]r 张 蓝图 ， 今天 已经 成为 兰考 大地 的 现实 。
‘The blue print drawn by Jiao Yulu has turned into reality.”

b. 我 不会 忘记 [[那些]]r 令 他 老人家 饮恨 千古 的 人。
‘I will not forget those who made him leave with a world of regrets.’

c. 在 国内 念 大学 时 ， 对 [[那些]]r 当 过 兵 再 来 念书 的 男生 ， 总 是 佩服 得 要命.
‘When I was attending college at my home country, I admired those boys who went to college after military service.’

Besides discussing the grammatical roles of the relativized head noun in the main clause and relative clause, we will also discuss their combination patterns. The combinatory patterns of the grammatical role in main clause and that in relative clause is represented with AB. For example, SS refers to a relative clause in which the relativized head noun is the subject in the main clause and also the subject in the relative clause. Three examples are presented in the following to illustrate some combinatory patterns of grammatical roles.

(6) SS: subject head modified by a S-relative clause
[[这]]r 位 急于 离京 出走 的 男子 终于 低下 了 头.
‘The man eager to leave the capital city lowered his head.’

SO: object head modified by a O-relative clause

焦 裕禄 用 生命 绘制 的 [[那]]r 张 蓝图，今天 已经 成为 兰考 大地 的 现实 。

'The blue print drawn by Jiao Yulu has turned into reality."

XS: X head modified by a S-relative clause

在 国内 念 大学 时 ， 对 [[那些]]r 当 过 兵 再 来 念书 的 男生 ， 总是 佩服 得 要命.

'When I was attending college at my home country, I admired those boys who went to college after military service.'

It has been observed that combinatory patterns of grammatical roles of the relativized head noun in the relative clause and main clause can be attributed to the information flow and the information status of the head noun (Fox 1984; Fox and Thompson 1990; Pu 2007). A close study on the combinatory patterns of grammatical roles reveals that the two constructions also differentiate from each other in terms of dominant combinatory patterns of grammatical roles. Table 3 presents the detailed information of the observed patterns.

Table 3 Combinatory patterns of grammatical roles

	SS	SO	OS	OO	SX	XS	OX	XO	XX
$Construction_1$	5	26	2	6	3	2	2	5	5
%	8.9%	46.4%	3.5%	23.2%	5.3%	3.5%	3.5%	8.9%	5.3%
$Construction_2$	78	2	30	2	2	22	3	1	2
%	54.9%	1.4%	21.1%	1.4%	1.4%	15.4%	2.1%	0.7%	1.4%

Like previous studies (Fox 1984; Fox and Thompson 1990; Pu 2007), in this study we only focus on the combination patterns between core arguments, that is, between subject and object. Of the combination patterns between subject and object, for $construction_1$, the most dominant pattern is SO; for $construction_2$, the most dominant pattern is SS. In conclusion, the two constructions also contrast with each other in terms of combination patterns of grammatical roles. Later in this paper we will show that the grammatical patterns are determined by the discourse functions of relative clauses and the information status of the head nouns.

5.2 Humanness

Humanness of a referent has been shown to play a significant role in various studies. For example, Fox and Thompson (1990) observe that the humanness of the head noun plays an important role in explaining the distribution of syntactic types of relative clauses

in their conversation data in English. We are interested in whether humanness is relevant in the word order variation in the subset of Chinese relative clauses in the present study. Thus, the animacy of the head NP is also coded. Two categories have been identified:

a. Human
   Human beings and animals are included in this category.
b. Nonhuman
   Concrete tangible objects and abstract intangible entities such as abstract concepts are subsumed under this category.

Table 4 shows the distribution of the two word orders for human and nonhuman head NPs. It shows a close correlation between the word order and the animacy of head NPs. Table 4 suggests that construction$_2$ is favored over construction$_1$ in relative clauses with human head NPs and the overwhelming majority of relative clauses with human head NPs occur in construction$_2$. In contrast, the word order in construction$_1$ is favored over construction$_2$ if the head NP is nonhuman.

Table 4 the Distribution of the Two Word Orders for Non/Human head NPs

	Human	Nonhuman
Construction$_1$	13 (23%)	43 (77%)
Construction$_2$	92 (65%)	50 (35%)

The data in Table 4 shows another interesting difference between the two constructions. That is, the head noun of the relative clause in construction$_1$ tends to be human whereas the head noun of the relative clause in construction$_2$ tends to be nonhuman.

5.3 Information Status of Head Nouns

Chafe (1987, 1994) identifies three different information statuses of a referent: given, new, and identifiable. However, in this study we will use a simpler dichotomy of *given* and *new*. A new referent refers to a referent which is introduced into the discourse for the first time and is not anaphorically related to any previous referent or established frame. A given referent refers to a referent which is not introduced into the discourse for the first time and anaphorically linked to its previous mention or a referent which is introduced into the discourse for the first time but identifiable through our generic knowledge or through a frame established in previous discourse (Givon 1993). The head noun *蓝图* 'blueprint' in example (7) carries new information because examination of previous discourse shows that there is no previous mention for the head referent although it is preceded by a demonstrative which in general signals given information[2]. The head noun

[2] The mismatch between given information and demonstratives is well described in Tao (1999).

大学生营业员 'college student salespeople' in example (8) codes given information because the people coded by the head noun are introduced and discussed in previous discourse.

(7) 焦 裕禄 用 生命 绘制 的 [[那]]r 张 蓝图，今天 已经 成为 兰考 大地 的 现实。
'The blue print drawn by Jiao Yulu has turned into reality.'

(8) 记者 发现 [[这些]]r 在 柜台 里 异常 活跃 的 大学生 营业员 有 3 个 突出 特点。
'The reporter found that sales people who are college students have three characteristics.'

Given information in this study also refers to those referents which can be identified through our generic world knowledge or a frame evoked in previous discourse.

(9) 连 中国 人 自己 也 惊异 ： 那些 从前 羞羞答答 地 缝制 新衣 的 人们 ，如今 大大方方 地 亮 出 了 自己 独具特色 的 新 款式 ；那些 一向 以 坚固耐久 、 不 招风 惹 眼 为 守则 的 人们 也 有滋有味 地 打扮 起来 ；
'Even Chinese people themselves are amazed. Those people who shyly sewed their own clothes in the past now proudly present their clothes which have original styles. The people who always uphold the principle that clothing be sturdy and obscure also begin to dress up.'

In example (9) the head noun *人们* (people) in the two relative clauses is introduced into the discourse for the first time. However, it does not code brand new information. The previous discourse discusses the fashion styles and changes in Chinese people's perception of proper dressing. In other words, a frame which centers on dressing is established in previous discourse and the introduction of the two different kinds of people who have changed their perception of dressing can be identified through this established frame.

Investigation of the information status of the head noun in a relative clause co-occurring with a demonstrative expression shows that the overwhelming majority of head nouns of the relative clause in construction$_1$ carry new information. In contrast, the head nouns of the relative clause in construction$_2$ tend to carry given information. Table 5 presents the information status of head nouns in the data.

Table 5 the Information Status of the Head Noun

	Given	New
construction$_1$	16 (29%)	40 (71%)
construction$_2$	103 (73%)	39 (27%)

The finding in Table 5 is compatible with the finding in Ming (2006) where it is reported that the main discourse function of relative clause in construction$_1$ is to introduce a new referent into a discourse whereas the main discourse function of the relative clause in construction$_2$ is to track a given referent.

5.4 Discourse Functions of RC

Discourse functions of RCs have been shown to be closely related to different grounding mechanisms. For this reason, we will discuss the grounding mechanisms before presenting the discourse functions of RCs. To achieve effective communication, a speaker/writer presents a new referent into the discourse in such a way as to make them relevant for the listener/reader at the point where they are introduced; and grounding is the primary way of making relevant NPs "whose relevance is not clear from prior mention or situation" (Fox and Thompson 1990, P 300). Fox and Thompson (1990, p. 301) identify two major types of relative clauses according to their functional roles: characterization and identification. In the first type, the relative clause provides a characterizing assertion or description of a new head NP referent in a particular discourse situation to supply additional descriptive information regarding the head noun. In the second type the relative clause makes the referent of a head NP relevant at a point in a particular discourse situation when it is first introduced. They use the contrast in (10) to illustrate the two discourse functions.

(10) a. *This man* [who I have for linguistics] is really too much.
b. There's *a woman* in my class [who's a nurse].

While the relative clause in (10a) is used to ground the referent by virtue of providing a given referent *I* to anchor the new head referent *this man* and the relative clause in (10b) does not ground the referent; rather, it makes a characterizing assertion because the relative clause does not provide any *anchoring* given referent to identify the new referent *a woman*. A Chinese relative clause which serves the discourse function of identification is illustrated in (11). The head noun *种子* 'seed' is introduced into the discourse for the first time and its relevance to the current discourse can not be justified if it is not grounded by a given referent introduced into the prior discourse. The given referent *我* 'I' in the relative clause serves to ground the new head referent. In other words, the relative clause identifies the new head referent by providing a grounding given referent.

(11)虽然 这 是 六十 多年 前 的 事 ， 是非 恩怨 ， 都 已经 淡薄 了 ， 但是 作为 当年 她 的 校长 和 老师 ， 丈夫 和 保护 人 ， 我 事后 所 得到 的 痛苦 的 代价 使 我 深 悟 到 ， *我 最初 播 下 的 [[那]]r 颗* **种子** 并 不 理想 ， 并且 没有 着意 耕耘 ， 尤其 不 注意 锄草 ， 爱情 的 果实 能 茁壮 吗 ？

Have seen examples of relative clauses in Chinese serving as identifying devices, we provide example (12) as a relative clause that serves to provide characterization rather than grounding.

(12)楚 女 发现 ， 利群 书社 是 一个 组织 严密 、有 着 崇高 理想 的 社团 ， 它 的 核心 就是 恽代英 早 两 年 建立 的 互助 社 。 利群 书社 的 成员 们 自己 经营 、管理 ， 操持 杂务 ， 他们 住 在 一起 ， 自 炊 伙食 。 *这 些 肩 不能 担 手 不能 提 ， 从来 没有 干 过 体力 劳动 、 料理 过 家务 的* **白面书生** ， 尽管 经常 煮 出 些 夹生饭 、 糊 饭 ， 闹 了 不少 笑话 ， 他们 的 " 共同 生活 " 却 十分 融洽 ， 愉快 和 认真 。

In example (12) the relative clause does not provide grounding information because the head noun *白面书生* "fair skin scholar" has been introduced into the previous discourse, actually the whole previous discourse talks about their activities and the organization they have organized. At the time it is mentioned again, there is no need to ground it because its relevance to the current discourse is well-established in prior discourse. As a result, the relative clause characterizes the referent by providing additional descriptive information. It is worth pointing out that there is no given referent in the relative clause in (12) and the relative clause is used to describe some properties associated with the head referent.

Table 6 summarizes the discourse functions of relative clauses with regard to the two constructions.

Table 6 Discourse Functions of Relative Clauses

	Characterization	Identification
Construction_1	11 (20%)	45 (80%)
Construction_2	127(89%)	15 (11%)

Table 6 suggests that the relative clause in construction_1 mainly serves the discourse function of identification by providing an anchoring given referent to ground the head. As opposed to the relative clauses in $\text{construction}_{1,}$ relative clauses in construction_2 mainly serve the discourse function of characterization to provide additional descriptive information.

6. Interim Summary

Investigation of the two constructions shows that they differ from each other semantically, syntactically, and pragmatically. Syntactically, the grammatical role of the head noun inside the relative clauses in construction$_1$ tends to be the subject whereas that in construction$_2$ tends to be the object. The two constructions also contrast with each other in terms of combination patterns between the grammatical roles of the head noun in the main clause and that in the relative clause. Construnction$_1$ favors SO while construction$_2$ prefers SS. Semantically, in terms of information status of the head referent; those in construction$_1$ mainly carry new information. By contrast, those in construction$_2$ mainly code given information. They also stand in contrast to each other in terms of humanness of the head noun. Head nouns in construction$_1$ are mainly human whereas those in construction$_2$ are predominantly nonhuman. Pragmatically, relative clauses in the two constructions serve different discourse purposes. The relative clause in construction$_1$ mainly serves the discourse function of identifying the head referent by providing a given referent while the relative clause in construction$_2$ tends to be employed to characterize the head referent to provide additional descriptive information. In the following section, we will try to provide a unified account for the four differentiating factors which serve to distinguish between the two constructions and to provide an explanation why the two constructions co-exist side by side.

7. Discussion

In this section we will discuss the four factors which serve to differentiate the two constructions in a unified way. The first question we need to answer is why the head noun of the relative clause in construction$_1$ mainly assumes the object role whereas that in construction$_2$ takes the subject role and why the main combination pattern of grammatical roles for construction$_1$ is SS and that for construction$_2$ is SO. The answer to these questions, we believe, can be attributed to the information status of the head noun, humanness of the head referent, and the discourse functions of the relative clause in the two constructions. Let's first discuss the grammatical roles of the head noun and its dominant combination in construction$_1$. In contruction$_1$, the head referent tends to carry new information, new referents should be grounded the moment they are introduced into the discourse for the first time to make it relevant to the current discourse because new referents cannot be grounded by "previous mention or situation" (Fox and Thompson 1990). The most natural way to ground a new nonhuman referent with a modifying relative clause is for its modifying relative clause to provide a given human referent which owns it, use it, or manipulate it, which dictates that the head noun should occur in the object position of the relative clause. Example (11) repeated as (13), serves to demonstrate how a new nonhuman referent is typically grounded.

(13)虽然 这 是 六十 多年 前 的 事， 是非 恩怨， 都 已经 淡薄 了， 但是 作为 当年 她 的 校长 和 老师， 丈夫 和 保护 人， 我 事后 所 得到 的 痛苦 的 代价 使 我 深 悟 到， *我 最初 播 下 的 [[那]]r 颗* **种子** 并 不 理想， 并且 没有 着意 耕耘， 尤其 不 注意 锄草， 爱情 的 果实 能 茁壮 吗 ？

In example (13), the new referent *种子* (seed) is introduced into the discourse for the first time and it functions as the subject of the main clause. By the time it is introduced into the discourse, there is no given referent in previous discourse to ground it. As a result, the relative clause serves to ground it by providing a given referent *I.* Careful examination of the data shows that a majority of head nouns (34 out of 56) appear in the subject position of the main clause. By the time it is introduced into the discourse, the new nonhuman head noun cannot be grounded by the main clause because of its clause initial position (fox and Thompson 1990). As a result, it is the relative clause that fulfills the function of grounding the new head referent by providing a given referent which in general is human. The second reason why the head referent of the relative clause in construction$_1$ mainly functions as an object of the relative clause is related to humanness of the head noun. It is reported in previous discussion that the head referent of the relative cause in construction$_1$ is mainly nonhuman and new. Non-humanness, newness are prototypical features associated with object position (DuBois1987; Pu 2007), which predicts that the head referent in the relative clause in construction$_1$ mainly occur in object position of the relative clause. The question arises why the new and nonhuman head referents do not occur in the subject position of the main clause. We believe that the answer is related to the salience of the head referent. The salience of the head referent of the relative clause in (13) is apparent because after its first mention, the three subsequent clauses are used to elaborate on it. According to Givon (1993, P. 350), the function of the relative clause which modifies a new head noun is to make the new referent "salient and grounded" in discourse and cataphorically link a new referent to the subsequent discourse. A salient referent is more topical than prototypical referent in object position which is transient and tends to fade from the discourse after its initial mention. In other words, it is not surprising for new nonhuman head referent to occur in the subject position of the main clause. That's the reason why the combination pattern SO wins out in construction$_1$. The finding that for nonhuman objects the combination pattern SO is the dominant one is compatible with the findings in several studies (Fox and Thompson; Chen 1997; Pu 2007).

Having discussed how the interaction between the four factors contributes to explain the observed patterns in construction$_1$, we now move to explore the inter-relation between the four factors in construction$_2$. As opposed to the head referent in construction$_1$, the head referent of the relative clause in construction$_2$ tends to occur in subject position of the relative clause and the dominant combination pattern of grammatical roles is SS. Why

does construction$_1$ differ from construction$_2$ in terms of the deployment of grammatical roles of head referents? We believe that the reason can be attributed to three factors: the information status of the head referent, humanness of the head referent, and the discourse function of the relative clauses. It is reported in previous discussion that the head referent in construction$_2$ tend to carry old information and are mainly human. Humanness and givenness are prototypical features of subject position (Keenan 1976; DuBois 1980, 1987; Fox and Thompson 1990; Pu 2007). In conclusion, it is expected that the head referent of the main clause in construction$_2$ functions as the subject of the relative clause owing to the humanness and given information status of the head referent. We now answer why the head referent of the relative clause in construction$_2$ tends to assume the subject role of the relative clause. The answer, we believe, can be attributed to the interaction of the information status of the head noun and the discourse function of its modifying relative clause. Previous investigation of the information of the head noun in construction$_2$ shows that the head noun in construction$_2$ mainly codes given information. Functional linguists such as Fox and Thompson (1990) and Givon (1993) propose that all referents should be grounded to warrant their relevance to the current discourse. Givon (1993) further argues that a new referent differs from a given referent in terms of the way how they are grounded. For a new referent, it is grounded by the **current text location** because of the fact that it cannot be grounded by a previous mention or situation. If a new referent is modified by a relative clause, the modifying relative clause tends to provide the grounding information because the relative clause occurs in the current text location of its modifying head owing to its proximity with it. By contrast, for a given referent, it is mainly grounded by **other text location** in previous discourse by virtue of its previous mention or a frame established in prior discourse and the relative clause in general does not serve to ground the new head referent because it occurs in the current text location of the new head referent. The observation that a given referent does not tend to be grounded at its current text location can be translated into the fact that relative clauses modifying a given head referent are not deployed to provide grounding information.

The discussion in section 5.4 concludes that the main discourse function of relative clauses in construction$_2$ is to characterize a given referent by providing additional descriptive information. According to Fox and Thompson, characterization is mainly done by S-relative clauses. The reasoning is that characterization is mainly done by a predicate which describes properties of its subject on which it predicates. The following example from Fox and Thompson (1990:307) serves to illustrate this point.

(14) She teaches at the University of Colorado,
is a linguist,
works on Indonesian,
goes to LSA meetings,
is an Austronesians,
sleeps late on weekend,
likes to dance,
etc

If we need to characterize a female, we need to describe what she does, who she is, what she likes etc. As a result, characterization relative clauses are S-relative clauses. In other words, the observation that the dominant combination pattern of grammatical roles in construction$_2$ is SS is expected. The reasons are twofold: 1) the given information status and humanness of the head noun makes head nouns in construction$_2$ fit nicely with the subject role of the main clause. 2) The main discourse function of relative clauses in construction$_2$ is to characterize the given head referent and characterizing relative clauses, according to (Fox and Thompson 1990), mainly fulfilled by S-relative clauses. The following Chinese example is to illustrate this point.

(15) 母亲 则 于 心灵 深处 对 幼子 怀 着 羞怯 而 不可 明 言 的 指望 ， 相信 *这个 不 说话 而 贪 食 的* **孩子** 终究 会 大 有 前途 。 所以 晚间 从 地 里 回来 ， 腰 在 痛 着 ， 臂 在 麻 着 ， 匆匆忙忙 藉着 灶 火 的 余 光 而 备 饭 的 时候 ， 仍然 忘不了 偷看 孩子 几 眼 即 那 *捧 着 碗 ， 合 着 眼 ， 半 睡 半 醒 地 躺 在 地上 ， 只要 一 喊 吃饭 ， 便 会 精神 起来 的* **孩子**。

‘The mother had a humble and vague hope on her little son in the depth of heart, believing that the eager-for food-kid who cannot speak would score a success sooner or later. She cast several glimpses at the kid who was cupping a bowl, half awake and half asleep. He would become attentive as long as you ask him to eat. The mother returned from the field when it was dark. Her arms were numb, her back ached. She prepared the meal against the dim light from the stove.’

There are two relative clauses in this excerpt. The head noun *孩子* ‘kid’ codes old information because it is introduced into the previous discourse as *幼子* ‘second son’. What is more, its previous mention *幼子* ‘second son’ is immediately adjacent to the head noun *孩子* ‘kid’ of the first relative clause. Four clauses later, the same referent is mentioned again. It is apparent that there is no discourse need to ground the given head referent at the moment it is reintroduced into the discourse (Given 1993). Therefore, the

relative clause serves the discourse function of characterization to provide additional descriptive information.

In conclusion, the observed properties differentiating the two constructions can be explained by examining the interaction of the four factors identified in this study.

8. Residual Issues

We hope that we have succeeded in our efforts toward providing a discourse explanation to the co-existence of the two word orders and their differentiating properties. However, does the finding in our research share any similarity with that in any previous researches on the two constructions? The answer is positive. According to Chao (1968), Hashimoto (1971), and Huang (1982), relative clauses in construction$_1$ and construction$_2$ are of different nature. Relative clauses in the former are considered as restrictive relative clauses used to pick out the referent of the head noun. Our study on the discourse function of the relative clause in construction$_1$ shows that relative clauses in construction$_1$ mainly serve the discourse function of grounding the head noun. A grounding relative clause is mainly used to establish the identity of the introduced referent which is analogous to the function of a restrictive relative clause because both of them serve to identify the referent of the head noun. In contrast, relative clauses in construction$_2$, according to Chao (1968), Hashimoto (1971), and Huang (1982), are considered as descriptive/non-restrictive relative clauses. They do not serve to pick out the referent of the head noun but to provide descriptive information regarding the head noun, which is fully compatible with the finding in our study where it is reported that the main discourse function of the relative clause in construction$_2$ is to characterize the head noun by providing additional descriptive information. In other words, a discourse approach to the two constructions advocated in this study cannot only provide the observation offered by previous researches but also explains why the co-existence of the two constructions is justified in discourse.

Another related question raised at the very beginning is why construction$_2$ predominantly outnumbers construction$_1$. We believe that the answer to this question might be related to the general tendency of information flow in discourse. According to Givon (1993), in a discourse, given information in general exceeds new information, which is dictated by the information flow. New information in a discourse needs to be grounded by given information in prior discourse to justify its relevance to the current discourse. The opposite is not true. The general tendency of larger amount of given information in discourse might be translated into the preponderance of construction$_2$ over construction$_1$ because construction$_1$ is in association with new information while construction$_2$ with given information. Needless to say, a quantitative study needs to be conducted to test this hypothesis.

9. Concluding remarks

To conclude, we have attempted to show that the two constructions differ from each other semantically, syntactically, and pragmatically. We hope that we have offered a convincing explanation of the differentiating properties between the two constructions and a persuasive account for the justification of the co-existence of the two constructions. The different behaviors of the two constructions suggest that, besides investigating clause-level grammar, examination of discourse is indispensable in order to understand the variant forms of grammatical constructions.

References:

Aoun, Joseph and Yen-hui Audrey Li. (2003). Essays on the representational and derivational nature of grammar: The diversity of *wh*-constructions. Cambridge, MA: MIT Press.

Bernardo, Robert. (1979). The Function and Content of Relative Clauses in Spontaneous Narratives. *Proceedings of Fifth Annual Meeting of the Berkeley Linguistics Society*. 539-551.

Chafe, Wallace. (1993). Discourse, Consciousness and Time: The Flow and Displacement of Conscious Experience in Speaking and Writing, U Chicago Press

Chao, Yuen Ren. (1968). A grammar of spoken Chinese. Berkeley: University of California Press.

Chen, S. (1997). A discourse analysis of relative clauses in spoken Chinese: A study based on grammatical reflexes and information structure. Unpublished master's thesis, National Taiwan University.

DuBois, John. W. (1987). The discourse basis of ergativity. *Language*, 63: 805–855.

Del Gobbo, Francesca. 2003. Appositive at the interface. Ph.D. dissertation. University of California, Irvine. Fox, Barbara A. and Sandra A. Thompson. 1990. A Discourse Explanation of the Grammar of Relative Clauses in English Conversation: *Language* 66. 2: 297-316.

Fox, Barbara A. and Sandra A. Thompson. 1990. On Formulating Reference: an Interactional Approach to Relative Clauses in English Conversation: *Papers in Pragmatics* 4:1/2: 183-195.

Givon, Talmy. (1993). English grammar: A function-based introduction. Amsterdam/Philadelphia: John Benjamins.

Gries, Stephan. T. (1999). Particle movement: a cognitive and functional approach. Cognitive *Linguistics, 10,* 105-45.

Gries, Stephan T. (2003). Multifactorial analysis in corpus linguistics: a study of Particle Placement. London: Continüm Press.

Halliday, Michael. A. K. (1961). Categories of the theory of grammar. Word, 17: 241-292.

Huang, C.-T. James. 1982. Logical relations in Chinese and the theory of grammar. Ph.D. dissertation, MIT.

Huang, Shuan-fan. 1999. The emergence of a grammatical category: definite article in spoken Chinese. *Journal of Pragmatics* 31: 77-94.

Kayne, R.S. 1994. The antisymmetry of syntax. Cambridge, MA: The MIT Press.

Li, Charles N. and Sandra Thompson. 1981. Mandarin Chinese: A functional reference grammar. Berkeley: University of California Press.

McEnery, A., Xiao, Z. & Mo, L. (2003). Aspect marking in English and Chinese: Using the Lancaster Corpus of Mandarin Chinese for contrastive language study. *Literary and Linguistic Computing*, 18: 361-378.

Ming, Tao. & Chen, Liang. (2010). A Discourse-Pragmatic Study of the Word Order Variation in Chinese Relative Clauses. *Journal of Pragmatics*. 42, 168-189.

Ming, Tao. (2005). Chinese Relative Clauses: A Corpus-Based Study. *Proceedings of the Seventeenth North American Conference on Chinese Linguistics* (NACCL-17), edited by Qian Gao. 2005. Los Angeles: GSIL Publications, University of Southern California.

Pu, Mingming (2007). The distribution of relative clauses in Chinese discourse. Discourse Processes, 43, 25-53.

Siewierska, Anna. (1988). *Word order rules*. London: Croom Helm.

Simpson, Andrew. 1997. On the status of 'modifying' DE and the structure of Chinese DP. MS. SOAS, London

Simpson, Andrew. 2002. On the status of 'modifying' DE and the structure of Chinese DP. In *on the formal way to Chinese language*, eds. Cheng-sheng， Luther Liu and Sze-wing Tang. Stanford: Centre for the study of language and information.

Tao, Hongyin. 1994. Demonstratives and the speaker's point of view in Mandarin conversational discourse. Paper given at *the 6th North American Conference on Chinese Linguistics*, USC. May 13-15.

Tao, Hongyin. 1996. Units in Mandarin conversation: prosody, discourse, and grammar. Amsterdam: John Benjamins.

Tao, Hongyin. 1999. The grammar of demonstratives in Mandarin conversational discourse: a Case study. *Journal of Chinese Linguistics* 27: 69-103.

Tao, Hongyin. 2002. Hanyu kouyu xushiti guanxi congju de yuyi he pianzhang shuxin [The semantic and textual characteristics of relative clauses in Chinese spoken narratives]. *Contemporary Research in modern Chinese* 4: 47-57.

Tao, Hongying., & McCarthy, Michael J. (2001). Understanding non-restrictive which-clauses in spoken English, which is not an easy thing. Language Sciences, 23, 651-677.

Zhang, N. 2001. Sell nonrestrictive relative clauses MS at http://www.usc.edu/dept/LAS/ealc/chinling/articles/appositivies.pdf

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 341-355.

Inheritance of Argument Structure and Compounding Constraints of Resultative Compound Verbs in Chinese and Japanese

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In this paper we will discuss constraints on the lexical conceptual structure and argument structure in the process of word formation of RCVs in Chinese, and also discuss similarities and differences in verb compounding between Chinese and Japanese and how they are related to the typological features of the two languages.

1. Foreword

In this paper we will discuss constraints on the lexical conceptual structure and argument structure in the process of word formation of resultative compound verbs in Chinese from the following viewpoints: 1) Direct Object Restriction (Simpson 1983, Levin & Rappaport Hovav 1995, Huang 2005), 2) Argument Structures (Li 1990), 3) Principles of Temporal Sequence in Chinese Word Order (Tai 1985), 4) Principles of Combination in Lexical Conceptual Structures.

We will also discuss similarities and differences in verb compounding between Chinese and Japanese and how they are related to the typological features of the two languages.

2. Inheritance of Arguments from V1/V2 in Resultative Compound Verbs in Chinese

To examine the inheritance of arguments of V1/V2 to resultative compound verbs, we adopted 1,866 RCV sentences found in the *Verb-Resultative Complement Dictionary in Chinese* (1987) and classified them into the following two categories: 1) the type that inherits arguments from both V1 and V2, and 2) the type that inherits argument from either V1 or V2.

3. Five Types of Resultative Compound Verbs in Chinese

3.1 RCV with arguments inherited from both V1 and V2

This type is subcategorized into Type 1 where V2 predicates object and Type 2 where V2 predicates subject as follows:

1) RCV where V2 predicates object

e.g. 推開、 殺死、 穿破、 切斷、 碰 倒、
tui-kai, sha-si, chuan-po, qie-duan, peng-dao,
push-open, kill-dead, wear-broken, cut-broken, knock-toppled over,
曬乾、 染黑、 磨滑、 熨壞、 炒 碎、 踩扁
shai-gan, ran-hei, mo-hua, tang-huai, chao-sui, cai-bian
sun dry-dried, dye-black, polish-smooth, iron-broken, fry-fragmented, step-flat

2) RCV where V2 predicates subject

e.g. 走累、 吃膩、 跳煩、 穿慣、 累倒、
zou-lei, chi-ni, tiao-fan, chuan-guan, lei-dao
walk-tired, eat-tired of, dance-vexed, wear-accustomed to, tired-fall
學會、 看懂、 嚇哭、 哭累、 餓死、 驚醒
xue-hui, kan-dong, xia-ku, ku-lei, e-si, jing-xing
learn-understand,see-understand, frighten-cry, cry-tired, starve-dead, startle-awake

3.2 RCV with arguments inherited from either V1 or V2.

This type is subcategorized as follows:

3) RCV where no argument is inherited from V1. In other words, the argument of V1 is not inherited into the RCV.

(1) a. 我 寫 了 一天 字， 手 都 **寫酸** 了。(我寫字，手酸)
Wo xie-le yitian zi , shou dou xie-suan le.
I write-PFV for one day character hand all write-painful PFV
I have been writing for the whole day, and my hand is aching (from all the writing).

b. 字 太 小，看 一會兒 眼睛 就 **看累** 了。(我看字，眼睛累)
Zi tai xiao, kan yiuhuir yanjing jiu kan-lei le.
Character too Small look a while eyes just loo-tired PFV
The characters are too small, my eyes are tired just by looking at them for a while.

c. 我 抽 太 多 菸， 頭 都 **抽 暈** 了。(我抽菸，頭暈)
Wo chou tai duo yan, tou dou chou -yun le.
I smoke too much cigarette head all smoke-dizzy PFV
I have smoked too much,and I feel dizzy.

4) RCV where no argument is inherited from V2, i.e. the argument of V2 is not inherited into the RCV, and no example was found in our corpus.

5) RCV with [Complemental V1- Resultative V2] Relation:

This type can be syntactically analyzed to have a structure where the event indicated by V1 is a complement of V2:

a. V2 indicates an evaluation of Event1
e.g. '起-晚'(get up- late) [it was too late (V2) [$_{event1}$ to get up (V1)]]
b. RCV with 'phase markers' to guarantee telicity of V1
e.g. -完-wan (finish)/ -尽-jin (exhausted) /-光-guang (exhausted)
[x finish (V2) [$_{event1}$ ……V1……]]

The semantic relation between the event structures of V1 and V2 is a temporal one of 'Preceding Event +Resultative Event', but not of 'Causal Event + Resultative Event'.

(2) a. 我 因 起晚 了， 所以 沒 趕上 火車。
Wo yin qi-wan le, suoyi mei ganshang huoche.
I due to get up-late PFV, therefore NEG catch up train
Since I got up too late, I could't catch the train.
(*Verb-Resultative Complement Dictionary in Chinese*:332)

b. 止痛藥 吃多 了，對 大腦 有 損傷。
Zhitongyao chi-duo le, dui danao you sunshang.
painkiller eat-much PFV. to brain have damage
Eating too much painkillers is damaging to the brain.
(*Verb-Resultative Complement Dictionary in Chinese*:130)

c. 我 查 錯 部首 了，
Wo cha- cuo bushou le,
I look up-make a mistake radical PFV.
怪不得 找不到 這個 字!
guaibude zhao budao zhege zi.
No wonder search-NEG.-TELIC this character.
I looked up the wrong radical, no wonder I couldn't find this word!
(*Verb-Resultative Complement Dictionary in Chinese*:63)

d. 我 沒 想到 你 喜歡 吃 茄子， 我 這次 買少 了。
Wo mei xiangdao ni xihuan chi qiezi, wo zheci mai-shao le.
I NEG think of you like eat eggplant I this time buy-little PFV.
I didn't know you like eggplants. I bought too litle this time.
(*Verb-Resultative Complement Dictionary in Chinese*:295)

3.3 The Frequency of Occurance in five different RCV patterns among 1,866 examples in the *Verb-Resultative Complement Dictionary in Chinese* :

(3) Five patterns of RCV in terms of the inheritance of arguments

1	RCV where V2 predicates object	816 examples	44%
2	RCV where V2 predicates subject	322 examples	17%
3	RCV where no argument is inherited from V1	73 examples	4%
4	RCV where no argument is inherited from V2	none	0%
5	[Complemental V1- Resultative V2] RCV	655 examples	35%

3.4 Constraints on Verb Compounding in Japanese

Verb compounding in Japanese undergoes stricter constraints. First, Type 1 RCV (where V2 predicates object), which displays the most frequent occurrance (44%) in (3) , is not allowed due to the following 'Transitivity Harmony Principle' (Kageyama 1993):

(4) **'Transitivity Harmony Principle'** (Kageyama 1993)

Verb compounding in the Japanese lexicon, i.e. compounding on the argument structure level, is restricted to the compounding between

a. verbs with external arguments (transitive verbs and unergative verbs) or

b. verbs without external arguments(unaccusative verbs).

Therefore compounding between a) transitive (or unergative) verbs and b) unaccusative verbs is not allowed.

The Transitivity Harmony Principle is a language-specific constraint applied to Japanese, a language which displays a rich morphological system in voice; e.g. case markers for nominative and accusative cases, morphological distinctions of transitive/intransitive pairs, and compulsory correspondence between case and verb form in transitivity. This explains why the unmarked compounding in Japanese is [transitive verb + transitive verb→transitive verb] compounding. On the other hand, the unmarked RCV compounding in Chinese is [transitive verb + {unaccusative/adjective} verb →transitive verb], shown as follows:

(5) a. 他 一脚　把 掉 在 地上　的 馒头 踩扁 了。
Ta yijiao ba diao zai dishang de mantou cai-bian le.
He one foot BA fall on ground GEN. bun step-flat PFV

b. 彼は　足 で 地面 に 落ちていた マントウ を 平らに
Kare-wa ashi de jimen ni ochiteita mantou wo tairani
He-Topic foot with ground on drop-perfect bun ACC. flat
踏み潰した／*踏み潰れた。
{fumi-tsubush (Vt) /*fumi-tsubure (Vi)- ta.
step－break(Vt) /*step－break(Vi) PAST

c. He stepped the steamed bun flat with one stomp of his foot.

However, the Transitivity Harmony Principle does not explain why Japanese also

allows Type2 RCV in (3), where V2 predicates subject as follows:

(6) a.我 穿惯 了 这 双 鞋。
Wo chuan-guan le zhe shuang xie.
I wear-accustomed PFV this pair shoes
b. 私 は この 靴 を 履き慣れて いる。
Watashi-wa kono kutsu-wo haki - narete yiru.
I-Topic this pair of shoes- Acc. wear – accustomed Aux.(perfect)
c. I got used to wearing these pair of shoes.

In(6b), '履き慣れる'(haki-nareru; wear-accustomed) is the compounding between the transitive verb 'haku'(wear) and the unaccusative verb 'nareru'(accustomed), which violates the Transitivity Harmony Principle but is nevertheless allowed. As in Chinese, Japanese has RCVs where V2 predicates a physiological or psychological state of the subject like '-tsukareru/-kutabireru'(-tired), '-akiru'(-be sick and tired of~), '-nareru'(-get used to~). In order to explain this phenomenon, Yumoto (1996) and Matsumoto (1996) propose revising the principle to the Subject Agreement Principle:

(7) **'The Subject Agreement Principle in Japanese Verb Compounding'**
Subjects of V1 and V2 should be the same in verb compounding in Japanese.

For example, '書き疲れる kaki-tsukareru'(write-tired) share the same subject when transitive V1 'kaku' (write) and unaccusative V2 ' tsukareru'(tired) are compounded, even though it violates the Transitivity Harmony Principle.

The Subject Agreement Principle blocks both Type3 RCV in (3) where no argument is inherited from V1 and Type4 RCV in (3) where no argument is inherited from V2.

Lastly, Type 5 in (3) [Complement of V2 +V2] compound verbs are allowed since this structure fits the head-final VP structure in Japanese as listed below:

(8) a. V1+[$_{Vi}$hajimaru/$_{vt}$hajimeru] (V1+start; start to V1)
b. V1+[$_{Vi}$owaru/$_{vt}$oeru] (V1+finish; finish to V1)
c. V1+[$_{Vi}$tuzuku /$_{vt}$tuzukeru] (V1+continue; continue to V1)
d. V1+[$_{Vt}$sokonaw/$_{Vt}$ sokoneru] (V1+fail; fail to V1)
e. V1+wasureru (V1+forget; forget to V1)
f. V1+sugiru (V1+ exceed; over-V1)
g. V1+naosu (V1+re-V1; re-V1)

However, some RCVs where V2 indicates an evaluation of Event1 like '起晚' (qi-wan: get up-late), '買少' (mai-shao; buy-little) are not allowed due to a violation of the Subject Agreement Principle.

4. Lexical Conceptual Structures and Inheritance of Arguments in Chinese RCVs

The Lexical Conceptual Structure (event structure of a verb; henceforth LCS) of Chinese RCVs can be classified into 'causal event structure type' and 'non-causal event structure type'. We will examine the LCS and inheritance of arguments in both types and show that the arguments of V2 always should be inherited to the argument structure of RCV and allocated a theta-role of Theme/Experiencer while this is not the case for V1.

4.1 Causal-Result Type RCV

Causal-Result type RCV in Chinese can be subcategorized into the following types:

a. Volitional Causal Relation
   [Volitional Causal Verb + Resultative Verb] Type
b. Nonvolitional Causal Relation
   [Nonvolitional Unaccusative Verb + Resultative Verb] Type

4.1.1 Volitional Causal Type RCV

A. RCV where V1 is a transitive action verb

The first RCV type is the most typical causal type, e.g. <推開 tui-kai; push-open>. The inheritance of arguments from V1 and V2 into RCV and its LCS are depicted as follows:

(9) a. 推 開 push-open
(Causer <Th 2>)

推 開
(Ag <Th1>) (<Th2>)

identified

b. [x ACT ON y] CAUSE [BECOME [y BE AT - z]]

推 push 開 open

(10) a. 這 種 吃法 需要 把 肉 切薄 點兒。
Zhe zhong chifa xuyao ba rou qie-bao dianer.
This kind way of eating require BA meat cut-thin a little
To prepare this dish, the meat must be sliced thin.
(*Verb-Resultative Complement Dictionary in Chinese*:6)

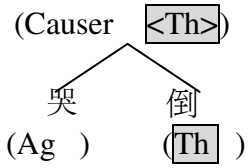
b. 經過 幾年 的 鍛鍊， 他的 胳膊、腳 都 練粗 了，
Jingguo ji nian de duanlian, tade gebo jiao dou lian-cu le
after several years GEN. training his arms legs all train-thick perfect
身體 比 以前 結實 多 了。
shengti bi yiqian jie shi duo le.
body compared to the past sturdy more PFV
After years of training, his arms and legs have grown bulkier, and his body has become sturdier compared to the past.
（*Verb-Resultative Complement Dictionary in Chinese*:61）

c. 他 正 在 打 電話， 線路 突然 被 切斷 了。
Ta zhengzai da dianhua xianlu turan bei qie-duan le.
He right now make phone call line suddenly PASS. cut-broken PFV.
He was making a phone call when the line was suddenly cut off.
（*Verb-Resultative Complement Dictionary in Chinese*:126）

B. RCV where V1 is an unergative verb

The second causal RCV type is the [unergative causal event + unaccusative resultative event] type, e.g. <哭倒 ku-dao; cry-topple>. The inheritance of arguments from V1 and V2 into RCV and its LCS are depicted as follows:

(11) a. 哭倒



b. [x ACT] CAUSE [BECOME [y BE AT –z]]
哭 cry 倒 topple

(12) a. 民間 傳說 的 孟姜女 哭倒 了 萬里 長城 的 故事
Minjian chuanshuo de Mengjiangnu ku-dao le Wanli changcheng de gushi
folk legend GEN. Mengjiangnu cry-topplePFV Great Wall of ChinaGEN story
家喻戶曉。
jiayuhuxiao.
well-known
The folk legend of how Mengjiangnu cried and caused the Great Wall of China to collapse is well-known.
（*Verb-Resultative Complement Dictionary in Chinese*:76）

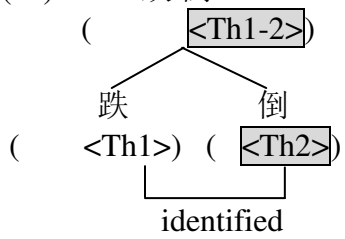
b. 他們 幾個 人　　又說 又　　笑，把 我 笑醒　了。
Tamen jige ren　　you shuo you　xiao ba wo xiao-xing le.
They a few people talk and　laugh BA me laugh-awake PFV
A few of them talked and laughed, and woke me up with their laughter.
（*Verb-Resultative Complement Dictionary in Chinese*:349）

c. 他 這　　兩　天 咳嗽　得　　厲害，把 嗓子　都 咳啞　　了。
Ta zhe　liang tian kesou de　　lihai　ba sangzi　dou ke-ya　　le.
He these two　days cough COMP.deg. terrible BA voice　all　cough-hoarse PFV
He has been coughing so severely these couple of days that his voice is all hoarse.
（*Verb-Resultative Complement Dictionary in Chinese*:351）

4.1.2 Nonvolitional Causal type RCV

The third RCV type has an [unaccusative causal event + unaccusative resultative event] causal relation; e.g. <跌倒>(die-dao; stumble-fall). The inheritance of arguments from V1 and V2 into RCV and its LCS are depicted as follows:

(13) a.　跌 倒



b. [BECOME[y BE AT-z_1]] CAUSE [BECOME [y BE AT-z_2]]

跌 stumble　　倒 fall

(14) a. 由於　經受　不住　這樣　沉重的　打擊，她 病倒　了。
Youyu jingshou buzhu zheyang chengzhong dedaji ta bing-dao le.
Due to undergo unable this kind severe　shock she sick-fall PFV
As she was not able to withstand such a severe shock, she fell sick.

b. 連續　三 年　　乾旱，　不 少　牲　畜　都 餓死　　了。
Lianxu san nian　ganhan　bu shao shengchu dou e-si　le.
continuous three years drought　not a few livestock all　starve-die PFV.
The drought continued for three years, and many livestock died from starvation.

c. 她 一定　是 做　　了 什麼　惡夢 才 嚇醒　　的。
Ta yiding shi zuo　le shengme emeng cai xiaxing　de.
She surelySHI make PFV. some nightmare just scared-awake affirmative particle
She must have woken up because of a nightmare.

4.1.3 Causativization of Unaccusative Causal Type RCV

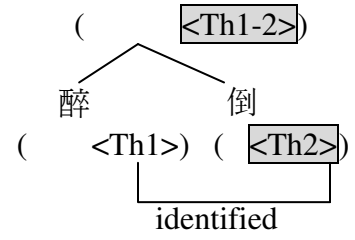
Unaccusative Causal Type RCV in 2.1.2 undergoes causativization and inchoative intransitive RCV converts to causative transitive RCV without any morphological change, as shown in (15).

(15)a. 許多 人 都 醉倒 了。 (inchoative intransitive)
Xu duo ren dou zuidao le.
Many people all intoxicated-fallen PFV
Many people were dead drunk.

b. 這 瓶 酒 醉倒 了 許多 人。 (causative transitive)
Zhe ping jiu zuidao le xu duo ren.
This bottle wine intoxicate-fall PFV several people
This bottle of wine has made many people drunk.

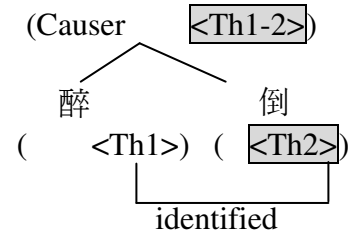
The inheritance of arguments from V1 and V2 into RCV and its LCS are depicted as follows:

(16) a. 醉倒

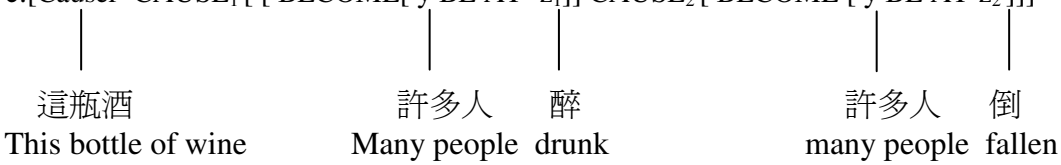


→ Causativization

b. 醉倒



c.[Causer CAUSE$_1$ [[BECOME[y BE AT- z_1]] CAUSE$_2$ [BECOME [y BE AT-z_2]]]



In (16b), causativized transitive RCV <醉倒> has an argument structure <Causer, Theme>. Its external argument <Causer> is inherited neither from V1 nor V2, but it is allocated from LCS depicted in (16c). More examples will be shown below:

(17) a. 兩天 兩 夜 的 急行軍 把 戰士 累慘 了。(causative transitive)
Liang tian liang ye de jixingjun ba zhanshi leian le.
Two days two nights GEN. forced march BA soldiers wear out-badly PFV.
Two continuous days of forced march wore the soldiers out completely.
（*Verb-Resultative Complement Dictionary in Chinese*:20）

b. 戰士 累慘 了。 (inchoative intransitive)
Zhanshi leican le.
Soldiers wear out-badly PFV
The soldiers were completely worn out.

c. external causer: <兩天兩夜的急行軍>(Two days and two nights of forced march)

(18)a. 這次 地震 把 門 窗 的 玻璃 都 震碎 了。(causative transitive)
Zheci dizhen ba menchuang de boli dou zhensui le.
This time earthquakeBA door windowGEN.glass all shake-fragmented PFV
This earthquake shattered all the glass of the doors and windows into pieces.
（*Verb-Resultative Complement Dictionary in Chinese*:311）

b. 玻璃 都 震碎 了。 (inchoative intransitive)
Boli dou zhensui le.
Glass all shake-fragmented PFV.
The glass is all shattered to pieces.

c. external causer: <這次地震> (This earthquake)

4.1.4 RCV where V2 predicates a resultative state of its external argument

Another nonvolitional causal RVC type has [active causal event + unaccusative resultative event], where there is no volitional causation, e.g. <吃 膩>(chini; eat-sick and tired of). The inheritance of arguments from V1 and V2 into RCV and its LCS are depicted as follows:

(19) a. 吃 ＋ 膩 → 吃 膩 (Experiencer <Event>)
V1 V2
(Ag<Th>) (Ex< Ev >) V1 V2
identified (Experiencer <Event>)
(Ag<Th>)

b. [x ACT **ON y (TOO MUCH)**] CAUSE [BECOME [x BE **AT - z**]]]

吃 eat　　膩 tired of

In (19a), V2 <膩> can be analyzed to have an argument structure <Experiencer, Event>, so V1 constitutes a complement of V2 <膩> although in (3) this type is analyzed as Type 2 RCV where V2 predicates subject, not Type 5 [Complemental V1- Resultative V2] RCV.

4.2 Non Causal Type

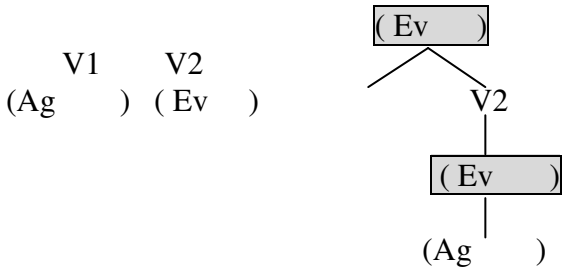
Chinese RCV also displays non causal type where there is no causal relation between V1 and V2. This non causal type RCV can be subcategorized into two types:

1) [Complement V1 + Result V2] Type
2) [Preceeding Event V1 + Result V2] Type.

4.2.1 [Complement V1-V2] Relation Type

First, let us examine the [Complement V1 + V2] Type, e.g. <起晚>(qi-wan; get up-late). We can observe that only the argument <Event> of V2 <晚> is inherited into the RCV <起晚>, while the argument of V1 <起> is embedded in <Event> of V2 <晚> as analyzed in Kageyama (1993).

(20) a. 起 ＋ 晚 → 起 晚



b. [$_{Event}$ x ACT] RESULT IN [[$_{Event}$ x ACT] BE AT- z]]

我 起　　我 起　　晚

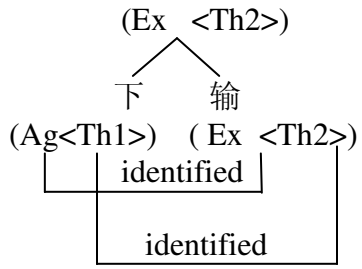
I get up　　I get up　　late

4.2.2 [Preceding Event V1 + Result V2] Type <下輸 play-lost> type

Li (1990:184-185) discusses the following sentences which have the event structure [Preceding Event V1 + Result V2].

(21) a. 寶玉 下輸 了 棋。
Baoyu xiashu le qi.
Baoyu play (chess)- lose PFV. chess
Baoyu played chess and lost.
b.焦大的 主人 打贏 了 這 一 仗。
Jiaoda de zhuren da ying le zhe yi zhang.
Jiaoda GEN. master hit- win PFV this one battle
Jiaoda's master won this battle.
c. 香菱 背會 了 這 首 詩。
Xiangling beihui le zhe shou shi.
Xiangling memorize -learned PFV this piece poem
Xiangling has memorized this poem.

(22) a. 下输



b. [x ACT] RESULT IN [BECOME [x BE AT- z]]
宝玉 下棋 宝玉 输
Baoyu play chess Baoyu lost

According to our corpus, it seems that this type is a kind of idiom which is seen when V2 is one of the following specific verbs: <输 shu;lost, 赢 ying;win ,会 hui;master, 懂:dong;understand>.

4.3 The types of LCS in Japanese RCVs

Japanese RCV allows neither 'Causation of unaccusative RCV' discussed in 2.1.3 nor 'Non Causal Type RCV' discussed in 2.2. Through comparing with Japanese RCV, it is seen that Chinese displays more prominence in 'causation' and 'iconicity between temporal sequence and word order' (Tai 1985)in the word formation of RCV.

5 Word Formation of RCV and Semantic Constraints on Verb Compounding

To summarize, we can reach the following conclusions:

(23) a. The participant of the resultative event expressed by V2 always should be inherited to the argument structure of RCV and allocated a theta-role of Theme/Experiencer.
b. The argument of V1 cannot be inherited to the argument structure of RCV when the arguments of V1 and V2 fail to be identified. For example, <手寫酸了>, the external argument of V1<寫> fails to be inherited into RCV although it might appear in a preceding context, e.g.<我寫了一天字, 手寫酸了 I have been writing for the whole day, my hand is aching (from all the writing). >
c. The argument of V1 cannot be inherited to the argument structure of RCV when RCV undergoes causativization. Instead, a new argument 'Causer' is allocated to the external argument of causativized RCV from the LCS;
e.g.<張三跳煩了所有的客人(Zhangsan's dancing frustrated all the customers) v.s.
<張三哭走了所有的客人(Zhangsan cried and caused all the customers to leave)
d. The argument of V1 is embedded under the V2 argument ' Event' when V1 has a complemental relation with V2, and the V2 argument ' Event' is inherited to RCV, as <起晚 get up-late> shown in (20a) and (20b) above.

If we define 'Head of RCV' depending on the inheritance of arguments, we can conclude that 'Head of RCV' is V2 since the argument of V2 should always be inherited to RCV while this is not the case for V1.

As a further study, we have to examine the system of causation and decausativization, in terms of the volitionality of subject, transitivity and topic structure, to explore semantic constraints on causation and decausativization in RCV in Chinese.

Corpus:

《汉语动词-结果补语搭配词典》(*Verb-Resultative Complement Dictionary in Chinese*) 1987. 王砚农・焦 群・庞颙编. 北京语言学院出版社.

申亜敏、望月圭子、Terence SEAH '中国語の結果を表す複合動詞の分類と英語・日本語との対照コーパス' 2007.
http://www.tufs.ac.jp/ts/personal/mkeiko/

詹卫东、砂岡和子 2009 <现代汉语述补结构用法数据库>
http://ccl.pku.edu.cn/vc/default.asp

References:

Cheng, Lisa Lai-Shen 1997. "Resultative Compounds and Lexical Relational Strucuture", in Tsao Feng-fu and Wang H. Samuel(eds) 『中國境內語言暨語言學: 第三輯—詞法與語彙』1997: 167-198, 中央研究院歷史語言研究所, 台北.

Cheng, Lisa Lai-Shen and C.T. James Huang 1994 "On the Argument Structure of Resultative Compounds", *In Honor of William S-Y. Wang: Interdisciplinary Studies on Language and Language Change*. 187-221. Pyramid Press, Taipei.

郭锐 1995 <述结式的配价结构和成分的整合>, 沈阳、郑定欧主编≪现代汉语配价语法研究≫,北京大学出版社。

郭锐 2002 <述结式的论元结构>, 徐烈炯、邵敬敏主编≪汉语语法研究的新拓展(一) 一 21 世纪首届现代汉语国际研讨会论文集≫, 浙江教育出版社。

何元建、王玲玲 2009 <再论宾语指向型动结式的结构>, 陆俭明、沈阳主编≪语言学论丛≫,第 39 辑. 商务印书馆。

Huang, C.T. James 2006. "Resultative and Unaccusatives: a Parametric View", 『中国語学』235 号：1-43, 日本中国語学会.

影山太郎 1993.『文法と語形成』(*Grammar and Word Formation*)，日本：Hitsuji 書房。

Levin, Beth and Malka Rapapport Hovav. (1995) *Unaccusativity: At theSyntax-Lexical Semantics Interface*. Cambridge: MIT Press.

Li, Yafei 1990. "On V-V Compounds in Chinese". *Natural Language and Linguistic Theory* 8: 177-207.

陆俭明 1990 <"VA 了"述补结构语义分析>, ≪汉语学习≫, 1990 年第 1 期。

陆俭明 2001 <"VA 了"述补结构语义分析补义>,≪汉语学习≫, 2001 年第 6 期。

Matsumoto, Yo 1996 *Complex Predicates in Japanese: A Syntactic and Semantic Study of the Notion 'Word'*. Stanford: CSLI Publications, Tokyo: Kurosio Publishers.

马真,陆俭明 1997 <形容词作结果补语情况考察>,≪汉语学习≫, 1997 年 1 ,4,6 期。

Mochizuki, Keiko. (2007) "Patient-Orientedness in Resultative Compound Verbs in Chinese."Yuji KAWAGUCHI (et al.), *Corpus-Based Perspectives in Linguistics.* p.267-280. Amsterdam/Philadelphia: JohnBenjamins Publishing Company.

Simpson, Jane. (1983) "Resultatives". *Papers in Lexical-Functional Grammar*, L.Levin,M.Rappaport and A.Zaenen eds. pp.192957. Indiana University Linguistics Club.

Tai, James H-Y. 1985. "Temporal sequence and Chinese word order", In John Haiman (ed.), *Iconicity in Syntax*:49-72, Amsterdam and Philadelphia：John Benjamins.

湯廷池(1989)「詞法與句法的相關性：漢、英、日三種語言複合動詞的對比分析」『漢語詞法句法續集』pp.197-211. Tapei: 臺灣學生書局.

湯廷池(1992)「漢語述補式複合動詞的結構,功能與起源」『漢語詞法句法四集』pp.95-154. Taipei:臺灣學生書局.

沈家煊 2003 <现代汉语动补结构的类型学考察>, ≪世界汉语教学≫,2003 年第 3 期。

申亜敏 2005「中国語の自他と結果表現類型」, 影山太郎編『レキシコンフォーラ

ム No.1』: 231-266. ひつじ書房.
申亜敏 2007「中国語の結果複合動詞の項構造と語彙概念構造」, 影山太郎編『レキシコンフォーラム No.3』: 195-229. ひつじ書房.
申亜敏 2009 *Resultative Compound Verbs in Chinese- From a Viewpoint of Comparative Analyses with Resultative Compound Verbs in Japanese and English Resultative Constructions.* Ph.D dissertation, Tokyo University of Foreign Studies.
申亜敏,望月圭子 2009「中国語の結果複合動詞－日本語の結果複合動詞・英語結果構文との比較から」小野尚之編『結果構文のタイポロジー』407-450.ひつじ書房。
施春宏 2008 ≪汉语动结式句法语义研究≫, 北京语言学院出版社。
宋文辉 2007 ≪现代汉语动结式认知研究≫ 北京大学出版社。
由本陽子 1996「語形成と語彙概念構造」奥田博之教授退官記念論文集刊行会編『言語と文化の諸相』: 105-118. 英宝社.
詹卫东 2011(待刊) <复合事件的语义结构与现代汉语述结式的成立条件分析>, ≪词·语界面 - 前沿研究及应用≫, 北京大学出版社。

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 356-371.

动结式中动作 V1 和结果 V2 隐现的句法条件

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关键词：谓词隐含、双动词（CAUSE 系统）结构、补语小句、补语虚化和弱化

1. 关于汉语动结式中动词隐现现象

汉语动结式“VV（动作 V1+结果 V2）”中有时可能只出现其中一个动词，结构和意义仍大致等于原动结式。但动词的隐现（即出现或隐含哪个动词）却可能有所不同。如下面（1a）只出现表示动作的述语动词（以下简称“动作 V1”），未出现表示结果的补语动词（以下简称“结果 V2”）；（1b）则相反只出现补语动词，未出现述语动词。而这两个句法片段在结构和意义上似乎都仍然相当于原来由两个动词（VV）构成的动结式。比较：

（1）a. 脖子扭伤了≠ ?脖子伤了＝ 脖子扭（伤）了
b. 肚子吃饱了≠ *肚子吃了＝ 肚子（吃）饱了

对这种现象有一种分析意见认为：动结式中结果 V2 比动作 V1 可能更重要，即动结式有时可以只保留补语动词而无需出现述语动词，或者说汉语中至少存在“省略动作 V1 的动结式”。如李临定（1984、1992）就从动结式与偏正结构类比中得出结论，认为述补结构中补语为句法和语义上的中心，而述语动词则处于修饰和从属地位，因此经常可以省略而不改变基本意义。例如“病（治）好了”、“火（扑）灭了”、“衣服（淋）湿了”。张伯江（2007）讨论“把”字句中施事和受事的语义语用特征，并认为至少有一部分动结式中存在动作 V1 脱落而结果 V2 保留现象，比如“楼倒了”就等于“楼（震）倒了”，“钱丢了”就等于“钱（弄）丢了”。在分析“把”字句的形成机制时，郭锐（2003）也曾指出单个动词有时相当于动结式，并用语义缺省理论来分析这种现象，认为句法成分的缺失可以靠语义缺省推理机制来补足，比如由于 V2“饱”必然是 V1“吃”的结果，因此“肚子饱了”中一定是省略了 V1“吃”。同时他在文末附注中也提到，表示致使事件谓词（V1）隐含的把字句在近代汉语中曾经较为常见，但在现代汉语中已基本消失。

那么是不是动结式中隐含的成分就只是或更多是“动作 V1”呢？我们的看法与

此不同：一方面，如果一个单动词结构确实相当于动结式，那么应该都只能是其中的结果 V2 经过虚化而隐含，或者说动作 V1 吸收和合并了补语动词的词义和词形从而导致结果补语弱化和脱落，而不大会是动作 V1 的省略；另一方面，即使有些结构看上去很像是动结式省略了动作 V1，那也应该仅仅只是汉语中极个别的例子（即某个动作是某个结果的唯一或最大概率致使条件），并且缺少动作 V1 的结构也肯定改变了动结式的结构和意义，不再属于“动作-结果”的双动词结构，也不再具有“致使-结果”的双事件意义。

2. 双动词（CAUSE 系统）结构中“结果 V2”隐含的句法条件

按照沈阳、司马翎（2010）的分析，现代汉语中的“NP_X VP”结构（如“米饭煮糊了”）、“NP_X 给 VP”结构（如“米饭给煮糊了”）和“NP_Y 把 NP_X 给 VP”结构（如“妈妈把米饭给煮糊了”）是汉语的“作格结构”、“中动结构”和“致使结构”。这三种结构逐层扩展或彼此包含，层次严整地构成汉语的“双动词系统（CAUSE 系统）”。在汉语双动词结构中，主要动词只带有结果内论元（补语小句），不带有施事外论元（即使出现外论元也只能是致使性或伴随性论元），并且整个结构中一定包含动作 V1 和结果 V2（包括 V2 虚化和弱化）。按照这种分析，汉语“动结式”就是一种最基础的“双动词结构”或“双事件结构”，其特点主要表现为：整个结构在语义上必须包含“动作行为”和“结果状态”两个事件，在句法上必须由一个动作行为动词 V1 和一个结果状态动词 V2 共同构成。例如“小 S 唱哭了”、“米饭煮糊了”这种结构，虽然对此有不同的分析操作，但不论是分析成“[小 S 唱[PRO 哭]]”、“[米饭煮[PRO 糊]]”（黄正德 2008），还是分析成“[唱[小 S 哭]]”、“[煮[米饭糊]]”（沈阳等 2010），都必须承认在这种结构中包括了由述语动词 V1（如“唱、煮”）所表示的“动作行为事件”和由补语动词 V2（如“哭、糊”）所表示的“终点结果事件”。事实上前面说的三种“双动词结构”中的“VP”就是动结式，或者说“NP_X VP”结构（S1）这种“广义作格结构”就是指“动结式”。

不过，判断一个动词结构是否属于“双动词和双事件结构”，即是不是“广义的作格结构”（动结式），其依据不在于表层的结构本身，也不在于结构中是否看到两个动词，而应当测试该结构能否添加属于双动词结构系统的一些句法结构标记，从而使得该结构衍生为该系统的其他结构。汉语双动词结构系统（CAUSE 系统）有两个主要的句法标记：其一为是否可添加中动标记“给”，即在作格结构（动结式）前面加上“给”使得结构升级为中动结构（“给字句”），如“小 S 给唱哭了”、“米饭给煮糊了”；其二则是否可添加“致使者（Causer）”和致使标记“把（小 v）”，即在中动结构当中添加致使者和致使标记而使得结构再进一步升级为致使结构（“把字句”），例如“这首歌把小 S 给唱哭了”、“妈妈把米饭给煮糊了”。因此可以说，只要任何动词结构能够通过这两种标记测试，那么无论是基础结构（作格结构）还是添加了标记之后的升级结构（中动结构、致使结

构），都可以肯定是属于“双动词和双事件”系统（CAUSE 系统）内的子结构，亦即其中的 VP 都是动结式。

一般的单动词结构中只包含一个动作事件，仅由一个动词构成，这类动词结构（即“不及物 Vi 结构”和“及物 Vt 结构”）属于“单动词和单事件”系统（DO 系统）的子结构，当然肯定无法通过双动词系统的句法标记测试。例如：

（2）a. （*NP 把）她（*给）哭了　　b. （*NP 把）她（*给）休息了
　　c. （*NP 把）她（*给）唱了　　d. （*NP 把）她（*给）参观了

但不难发现，很多表面上只出现一个动词的结构也能通过这两种句法标记测试，即在单个动词之前也可以加上中动标记“给”，以及“致使者”和致使标记“把”。例如：

（3）a. （爸爸把）房子（给）卖了　　b. （弟弟把）苹果（给）吃了

（4）a. （看守把）犯人（给）跑了　　b. （爷爷把）小鸟（给）飞了

既然这些表面上的单个动词结构都能够通过双动词系统的句法标记测试，那么根据我们的标准，应当认为这些结构也属于“双动词和双事件”系统（CAUSE 系统）的子结构，其 VP 原形仍为动结式，只是结构中的另一个动词由于某种特定的句法条件隐含而无法被直接观察到。而我们想进一步证明的是：双动词结构中隐含而致“看不见”的动词都只能是动结式中的补语动词，即表示结果状态事件的“结果 V2”。

一方面，大家都公认汉语的动结式中存在广泛的“虚化”现象，而现有许多研究均证明，动结式中的虚化成分无一例外都是补语动词（“结果 V2”）。动结式结构中的补语动词在虚化后往往趋同于表示“完成”的意义，从而形成一个封闭的小类，包括“完、好、掉、住、成、了（liǎo）、着（zháo）、过（guò）”等。如玄玥（2008）就认为，汉语结果补语中有一个小类，即作为补语的词语在黏合式述补结构动结式中自身的谓词词汇意义很不明显，语义上指向述语，主要表示动作事件“完成”的意义，与前项动词 V1 有比较广泛的搭配，具有很强的能产性，并称其为虚化结果补语。这种虚化之后的结果 V2 并不影响动结式的形式和意义，也就是其句法结构与带实义补语的动结式可作同样的分析。例如：

（5）a. 河面（给）冻硬/住了

←河面[$_{VP}$冻硬/住了[$_{SC}$tt]]　←[$_{VP}$冻[$_{SC}$河面硬/住了]]

b．桌子（给）擦干净/好了

←桌子[$_{VP}$擦干净/好了[$_{SC}$tt]]　←[$_{VP}$擦[$_{SC}$桌子干净/好了]]

c．答案（给）写清楚/完了

←答案[$_{VP}$写清楚/完了[$_{SC}$tt]]　←[$_{VP}$写[$_{SC}$答案清楚/完了]]

另一方面，既然补语动词能够虚化，也就完全有可能弱化脱落而最终隐含，从而使得原形动结式在句法上只表现为单个动词，或者就可以由此推断，动结式的隐含一定是保留动作动词 V1 而隐含结果动词 V2。前述沈阳、司马翎（2010）将动结式看作“广义的作格结构”，亦即双动词结构系统（CAUSE 系统）的基础结构。同时根据 VP 是否具有[+自动自发]的特征，将其分为典型作格动词（包括相当于作格动词的动词词组）和非典型的作格动词词组，两类作格动词结构分别引入伴随性外力和致使性外力。而 Cheng & Huang（1994）受 Keyser & Roeper（1984）的影响，明确提出动结式分为“深层作格（deep ergatives）”和“表层作格（surface ergatives）”两大类。在作格结构中，表层作格的施事被抑制（suppressed）了，深层作格则根本无法补出施事。这种“深层作格”和“表层作格”的分类，也与沈阳、司马翎（2010）对双动词系统结构中的动词分类相对应。“深层作格”即相当于典型性作格动词和动词词组，是词汇层面的作格动词，没有施事性外论元，因此在中动结构和致使结构中只能引入伴随性外力；“表层作格”则相当于非典型性作格动词结构，是在句法层面上构造的作格动词结构，其动词词根在词汇上本身带外论元，因此在中动结构和致使结构中可以引入致使性外力。根据这种对不同作格动词结构的划分，就可以进一步区分动结式中结果 V2 隐含的两种类型：

第一类，动结式中的述语动词不是典型作格动词，而是一般动作动词。隐含动结式由于结果补语 V2 进一步虚化，直至弱化脱落而形成。这一类动结式可以看作是在结果补语语法化的过程中，述语动词 V1“吸收”了补语动词 V2 的词义，最终形成的单个动词 VP 形式可能正是述语动词 V1 和补语动词 V2 的“合并（merge）”形式，或者说补语动词 V2“隐含”了。这种虚化直至弱化脱落的结果补语，主要表示动作事件“完成”的意义，与表示动作事件的动词可以有广泛的搭配，尤以与去除义动词搭配最为常见和明显。例如：

（6）a.（我把）衣服（给）洗（完）了

b.（弟弟把）这盘红烧肉（给）吃（完）了

c.（老王把）这盘棋（给）输（掉）了

d.（他把）那件事忘（掉）了

e.（警察把）小偷（给）抓（住）了

沈阳、玄玥（2009）曾分析了汉语完成体标记“了”从结果补语到虚化结果补

语、最终发展为体标记的语法化过程。由此也可以看出汉语虚化结果补语存在着继续语法化的可能性，在语法化的过程中，一方面可能因为意义不断虚化而直至弱化脱落，词义被述语动词吸收，并与述语动词词形合并；另一方面也可能由内部体向真正的体貌标记发生语法化转变。这样的语法化历程是具有很强的理论可行性的，因此可以从这一类隐含结果补语 V2 的动结式结构中得到解释。

这种类型中，动词 V1 不是典型作格动词，而表示一般的动作事件，即不带有[+自动自发]的语义特征。这类动词词根在词汇上本来带有外论元，即原本属于单动词（DO 系统）结构；而到了句法层面之后，由于需要进入双动词 CAUSE 系统结构，因此必须与相应的结果补语相结合，在句法层面上构造出作格动词。即使结果补语经历语法化过程之后弱化脱落，但在语义上仍然隐含着一个表示“完成、达成”的结果补语，并且也可以在句法中补出。这也可以解释为什么这些隐含了结果 V2 的单动词 VP 结构也依然能够进入“给 VP”结构和“把 NP 给 VP”结构亦即通过双动词系统的句法标记测试。这种分析还可以用下面的例子来加以证明。比如下面（7）“别吃了”这句话有两个意思，但只有其中一种表示完成的意思, 即包含两个动词词义的结构，或者说可以补出另一动词的结构，才能构成“给 VP”结构和“把”字句；另一种表示正在进行的意思，即不包含两个动词词义的结构，或者说不可以补出另一个动词的结构，则并不能构成“给 VP”结构和“把”字句。比较：

（7）a1. 别吃了（给弟弟留着）（吃＝动作行为 V1“吃”＋动作后遗留结果 V2“掉”）
➞a2. 别把蛋糕吃（掉）了
b1. 别吃了（先去洗手）（吃＝单纯动作 V1“吃”）
➞b2. *别把蛋糕吃（掉）了

说这一类动结式是在句法层面上构造的作格动词，相当于 Cheng & Huang（1994）提出的“表层作格（surface ergatives）”一类动结式。在双动词 CAUSE 系统结构中，作格结构中的动结式的施事在句法上被抑制，而进入中动结构和致使结构之后，分别可以在语义上和句法上引入一个致使性外力（致事），表示由致事实施的行为动作导致被致使对象产生某种结果或处于某种状态。上引各例皆是如此，引入的都是主动施加动作的致使者，并且虽然结果动词 V2 隐含，整个结构仍然可以表示出被致使对象处于完结或去除的结果状态之中。

由于虚化结果补语与述语动词有比较广泛的搭配，具有很强的能产性，因此能够进入这一类隐含动结式中的动词 V1 也较多，大多带有“完结、去除”意义的动作。吕叔湘主编（1981）的《现代汉语八百词》也指出，汉语有一类动词如“忘、丢、关、喝、吃、咽、吞、泼、酒、扔、放、涂、抹、擦、碰、砸、摔、磕、碰、撞、踩、伤、杀、宰、切、冲、卖、还、毁”，后面的“了 1”表示动作有了结

果，相当于补语“掉”。可以看出，这些动词都可以构成隐含结果补语 V2 的动结式，表示动作的完成。又如：

（8）a. 水（给）洒（掉）了 ←水[VP 洒（掉）了[SCtt]] ←[VP 洒[SC 水（掉）了]]
b. 烟（给）戒（掉）了 ←烟[VP 戒（掉）了[SCtt]] ←[VP 戒[SC 烟（掉）了]]
c. 东西（给）扔（掉）了 ←东西[VP 扔（掉）了[SCtt]] ←[VP 扔[SC 东西（掉）了]]

第二类，述语动词 V2 是典型的作格动词。典型作格动词都是单个动词，如“死、病、跑、飞、沉、塌、犯、融化、暴露”等，这些动词结构之前都可以加上“给”构成“NP 给 VP”中动结构，也可以加上“致使者”和“把”构成“NP 把 NP 给 VP”致使结构，因此均属于双动词结构（CAUSE）系统。例如：

（9）a.（看守把）犯人（给）跑（掉）了
b.（爷爷把）笼里的小鸟（给）飞（走）了
c.（这场瘟疫把）那几个孩子（给）病（倒）了
d.（他把）父亲（给）死（掉）了
e.（我把）憋肚子里的那股气（给）爆发（出来）了
f.（领导班子把）矛盾（给）暴露（出来）了

由于典型的作格动词的一大特点就是其本身的语义都包括一定的结果或终点，即作格动词本身具有有界性，因此甚至不妨说单个作格动词也一定内在地包含着结果 V2，如“（给）跑了”就不是“跑步”的意思，而是“跑掉”的意思。因此典型单动词作格结构也就完全可以进行上述相同的分析，即这种典型单动词结构仍然只能看作是表示终点结果意义的结果 V2 隐含了（即被包含在作格动词本身的词形和词义之中）。

而在这种类型的隐含动结式中，述语动词 V1 都是典型的作格动词，即带有[+自动自发]的语义特征，相当于 Cheng & Huang（1994）提出的“深层作格（surface ergatives）”。这类 VP 是在词汇层面上的作格动词，由于本身隐含着结果 V2，因此可以进入双动词 CAUSE 结构，满足“给 VP”结构和“把”字句的句法语义要求。同时由于典型作格动词在词汇层面上本身就没有施事外论元，只有客体内论元，也就在句法上无法补出施事。而在“给 VP”结构和“把”字句中引入的也并非致使性外力（致事），而是伴随性外力。以上的例子皆是如此，句法上无法补出主动的施事者，只能引入伴随性外力。

同时，第一种类型的动结式结构中由虚化脱落而隐含的结果 V2 通常均能够“还原”而保持整个动词结构的意义不变，与此相同，典型作格动词结构中内在被隐含的结果 V2 也可以在句法上补出来，构成完整的动结式结构，且保持整个动词结构的意义不变。例如：

（10）a．犯人（给）跑（掉）了
←犯人[$_{VP}$跑（掉）了[$_{SC}$tt]] ←[$_{VP}$跑[$_{SC}$犯人（掉）了]]
b．孩子（给）病（倒）了
←孩子[$_{VP}$病（倒）了[$_{SC}$tt]] ←[$_{VP}$病[$_{SC}$孩子（倒）了]]
c．冰块（给）化（开）了
←冰块[$_{VP}$化（开）了[$_{SC}$tt]] ←[$_{VP}$化[$_{SC}$冰块（开）了]]

由此我们就可以得出初步的结论：所有双动词系统（CAUSE 系统）中的动词结构，尤其是作为基础结构的动结式（“广义的作格结构”），必须在语义上包含两个事件，在句法上包含两个动词。而如果表层的结构中只出现了一个动词，那么必定存在另一个隐含的动词，而这个隐含的动词只能是结果 V2，而不会是动作 V1。同时结果补语 V2 隐含的动结式出现的句法语义条件大致可以分为两类：一类是由于结果补语不断虚化而最终弱化脱落，使得述语动词 V1“吸收”了补语动词 V2 的词义，最终形成的隐含动结式成为述语动词 V1 和补语动词 V2 的“合并（merge）”形式，主要为表示“完成”的结果补语弱化形式；另一类则是动作 V1 本身内在地隐含着结果 V2，主要为典型作格动词。

3. 对动结式中“动作 V1”省略的几种可能解释的质疑和分析

由上文的分析可以看出，如果一个单动词结构确实相当于动结式，那么都只可能是其中的结果 V2 隐含，而不会由动作 V1 省略。但现有很多研究却认为汉语中一些单动词结构相当于省略了动作 V1 的动结式，并且对这种所谓的动作 V1 省略的动结式做出了不同的解释。而根据我们所做的一定规模的语料调查以及分析可以证明，不但汉语中并不存在省略与出现动作 V1 的动结式的真实的比较性用例，并且现有的几种对省略动作 V1 的动结式的可能分析和解释，都在不同程度上存在着一定的误读、误判和误导，都并不能支持动结式省略动作 V1 的观点。

第一种分析可以叫做“语义等同说”。即认为某些单动词结构在添加上动作 V1 构成动结式之后，在语义上与原结构基本等值，并不改变结构的基本意义或至少在意义上差别很小，因此可以认为这些单动词结构是动结式省略动作 V1 之后的变体。但事实上这种分析的大多数引例中，缺少动作 V1 和添加动作 V1 之后的动结式在意义上其实并不等值，甚至差别很大。因此所谓动结式省略动作 V1 的现象也根本无法用“语义等同”予以证明。

如在分析“把”字句的语义构造时，郭锐（2003）曾指出单个动词有时相当于动结式，并运用语义缺省理论来分析这种现象。文中对“把”字句的语义构造作出了致使性解释，并分别举出了隐含被使事件谓词（即结果 V2）和隐含致使事件谓词（即动作 V1）的例子。但我们认为，文中举出的隐含致使事件谓词的例子都并非动结式隐含动作 V1 的现象，这些例子中虽然在语义上隐含着一个致使事件，但无法在句法上补足动结式，且添加上致使事件谓词之后也改变了原结构的意义。例

如文中认为，“你怎么把特务跑了”的语义构造是“你疏忽→特务跑了”；“我把钱包丢了”的语义构造是“我不小心→钱包丢了”。而根据上文的分析，这些例子都应分析为隐含结果 V2 的动结式，即“你怎么把特务给跑（掉）了”，“我把钱包给丢（掉）了”。

李临定（1984、1992）从动结式与偏正结构的类比中得出结论，认为述补结构中补语为句法和语义上的中心，而述语动词则处于修饰和从属地位，因此经常可以省略而不改变基本意义。文中举出了很多隐含述语动词 V1 而不改变动结式基本意义的例子，但仔细分析这些例句不难看出，单动词结构所表示的意义与补充上动作 V1 的动结式原形结构差别很大，两种格式之间并不存在一致性，这些例子均不符合隐含动作动词 V1 而不改变动结式基本意义的标准，因此认为其中存在动结式动作 V1 的省略显然比较牵强。例如下面的例句，在大多数人的语感中，各例中左右两边的两种格式在语义上并不等值甚至差别很大，因此也就不能作为“语义等同说”的例证。比较：

（11）a. 我跑累了, 得休息休息　→我累了, 得休息休息
b. 他跑丢了一只鞋　→他丢了一只鞋
c. 我听懂了你的意思　→我懂了你的意思
d. 小孩子吓哭了　→小孩子哭了
e. 裤子磨破了　→裤子破了
f. 病治好了　→病好了
g. 水倒洒了　→水洒了
h. 我们跑丢了一个孩子　→我们丢了一个孩子
i. 生产队里病死了一头牛　→生产队里死了一头牛
j. 他累病了　→他病了
k. 衣服淋湿了　→衣服湿了

第二种分析可以称为“事件强迫说”，即认为某些结构中可能会强制性地隐含着一个动作事件，或者说至少某些结构中允许补出一个动作动词，且补充动词之后的结构所表达的意义更为准确。这样说来似乎动结式中也就应该可以有“事件强迫”而省略动作 V1 的现象。

“事件强迫”又称为“逻辑转喻”，是指一个词的句法论元看起来与那个论元的逻辑形式不同：动词或形容词语义上要求选择一个事件类型（event type）论元，虽然实际上论元名词不指事件，而事件解读可以从名词的语义获得。如以下例（a1）中 begin 和（b1）中 enjoy 都要求带事件类型的论元，而 book 却是指事物的，不符合这两个动词的语义选择（s-selection），不过这两个句子都是合法的，即因为可以在理解过程中重建一个事件，（a2、b2）就分别是对（a1、b1）的解释，其他例子也是如此。比较：

（12）a1. John began the book.　　a2. John began to write/to read the book.
b1. John enjoyed the book.　　b2. John enjoyed reading the book.
c1. an easy problem　　c2. a problem that is easy to solve
d1. fast programmer　　d2. someone who programmes fast
e1. Books bored me.　　e2. My reading books bored me.

据宋作艳（2009），汉语中也存在一些类似的事件强迫现象。例如：

（13）a1. 她从小就学习钢琴。　　a2. 她从小就学习弹钢琴。
b1. 他喜欢音乐。　　b2. 他喜欢听音乐。
c1. 这场电影不花钱。　　c2. 看这场电影不花钱。
d1. 舒服的椅子　　d2. 坐起来舒服的椅子
e1. 学校决定推迟会议。　　e2. 学校决定推迟召开会议。

以上例句可看出，事件强迫的本质是语义压缩、事件隐含，上引各例中的左侧例句都是一种语义压缩形式，而右侧句都是对左侧句的一种解释，所谓事件强迫就是重建隐含的事件、解压缩的过程，是由动词、形容词等触发（trigger）的，这些词激活一个隐含谓词的事件解读，宾语名词则提供一个具体的谓词，使得这个隐含的事件具体化。而必须指出的是，汉语中由“事件强迫”造成谓词隐含的现象必须满足以下几个具体条件：第一，结构中必须存在一个“触发成分”，通过相应的触发机制进行语义解释，即由触发成分激活一个隐含谓词、事件的语义模式。谓宾动词是最为常见的触发成分，如“学习、喜欢、推迟”等等。由于谓宾动词在句法上要求其后的宾语应该或可以为谓词性成分，因此当谓宾动词后本来应当出现谓词性成分的位置由体词性宾语占据时，就可以激活相应的隐含谓词。第二，由于事件强迫而隐含的谓词，往往能够在语义上被自然激活，即补充出来的谓词具有一定的唯一性，是在人们的语感或常识中与结构中的名词性成分最自然最普遍的搭配，结构中的名词通过论元结构提供一个具体的谓词来使隐含事件具体化。例如“舒服的椅子”自然激活谓词“坐”，“舒服的床”自然激活谓词“睡”或“躺”，除非特殊语境，否则没有其他的补充谓词的可能性。第三，事件强迫的结构在补充出隐含的谓词之后，并不会改变原来结构的基本意义。例如（13）中各例左侧句都是一种语义压缩形式，而右侧句都是对左侧句提供一种解释，二者在意义上是基本等值的，只存在语义表达精确度的差别。

但反观所谓省略了动作 V1 的动结式可以发现，这些结构并不能满足“事件强迫”的三个条件，结构中既不存在“触发成分”，也不满足自然激活谓词的唯一性，当然也不符合语义等值的条件，因此无法用“事件强迫”来解释动结式动作 V1 的省略。退一步说，诸如“肚子（吃）饱了”这一类结构，确实在表面上很像是动结式省略了动作 V1，且省略前后并不改变结构的基本意义。但这种情况必须

满足语义缺省推理，即动结式构成的动作-结果事件中，结果 V2 一般只能由唯一的动作 V1 导致，或者说从结果往动作看二者为同一事件。也就是说，在省略了动作 V1 之后，可以运用缺省推理机制推导出动作 V1。结果 V2 大都是动作 V1 的自然结果，即在无外因干扰的情况下能够正常实现的结局。在正常语境下，从 V2 就可以自然地推导出 V1，因此 V1 才可以省略。这种“某个动作行为只能导致某个唯一结果状态”的条件较为严格，属于语言中的特殊情况，在真实语料中的用例也非常少，以下这些例子可以大致归为这种情况：

（14）a. 我（吃）饱了　　b. 孩子（睡）醒了
c. 老王（喝）醉了　　d. 衣服（晾）干了
e. 水（烧）开了　　f. 饭（煮）熟了
g. 菜（炒）糊了　　h. 这个球（踢）进了
i. 弟弟（长）高了　　j. 栅栏（生）锈了

当然，因为缺省推理必须是在无外部语境干扰的正常情况下进行，因此这种省略也与一定的语境有关。例如说“我饱了”，一般都会理解为“我吃饱了”，但如果是说“我气饱了”，就不能省略为“我饱了”；又如说“孩子醒了”，一般都会理解为“孩子睡醒了”，但如果是说“他咳嗽醒了”，就不能省略为“他醒了”；又如“醉了”通常是“喝醉”，但也可能是“灌醉”，“衣服”通常是“晾干”，但也可能“烘干”，“足球”通常是“踢进”，但也可能“顶进”等等。因此，这种表面上类似于省略动作 V1 的隐含动结式只能在最正常最一般的语境下使用，且不能进入很多汉语句法格式之中，其使用受到较多的句法和语义限制，只出现在较为特殊的情况之下。同时从另一个角度看来，当满足“某个动作行为是某种结果状态的唯一致使手段”的条件时，这种语义缺省推理也就并不仅限于由结果推出动作，也可以相应地由动作推出结果，因此也就完全可以省略结果 V2 而保留动作 V1，构成结果 V2 隐含的动结式结构。例如以下这些例子，单动词结构中的述语动词 V1 都不是典型的作格动词，隐含的补语动词 V2 也都不是表示完成的虚化结果补语，不满足上述的隐含结果 V2 的两种句法条件，因此可以看作是在动作 V1 必然导致相应的结果 V2，或者说从动作往结果看二者为同一事件的条件下，隐含的结果补语 V2 可以通过语义缺省机制推理出来。

（15）a. 脖子扭（伤）了　　b. 大桥炸（毁）了

不过如同省略动作 V1 的解释很难保证动作的唯一性一样，用这种办法解释结果 V2 省略现象，也很难保证结果的唯一性。例如“炸了”通常可以理解为“炸毁”，但也可以是“炸坏、炸烂、炸塌、炸断”等等。因此可以认为“动作 V1-结果 V2 的双向严格唯一对应关系”仅仅是一种带有百科性知识性质的倾向性选择，

并非一种严格的句法操作，也就自然无法提供“事件强迫”。

第三种分析则可以叫做“动词泛化说”，即类似于结果补语 V2 由于表示完成意义而发生虚化，最终弱化脱落而隐含的过程，述语动词 V1 也同样可以由于不关注动作行为本身而发生泛化，从而逐渐弱化脱落并发生隐含。

一般认为汉语的泛化动词有“弄、打、做、搞、闹”等等，这些动词已在使用过程中逐渐失去了最初的实在意义，不再表达具体的动作行为，意义逐渐模糊泛化，因此其使用范围也不断扩大，可以与很多不同意义的补语动词搭配构成动结式。例如“打”可以说“杯子（打）碎了”、“门（打）开了”、“球（打）进了”等；“弄”可以说“钱包（弄）丢了”、“收音机（弄）坏了”等。而按照我们的分析，实际上这些例子都应该分析为结果 V2 隐含的动结式，即“杯子碎（掉）了”、“门开（开）了”、“球进（去）了”、“钱包丢（掉）了”、“收音机坏（掉）了”等。

同时，在文献中还可以发现近代汉语中的一些值得我们揣摩的例句。例如：

（16）a. 偏又把凤丫头病了。（《石头记》第 76 回）
b. 要眼睁睁儿的把只煮熟了的鸭子给闹飞了。（《儿女英雄传》第 40 回）
c. 把只煮熟的鸭子飞了。（《儿女英雄传》第 75 回）

按照蒋绍愚（1997、1999）分析，（16b）中的“闹飞”是动结式，“闹”是个泛义动词。如果人们主要想表达动作造成的结果而不在意是什么具体动作，就可以在动结式中用“弄、闹、搞”之类的泛义动词，如“弄坏了我的大事”和“坏了我的大事”意思一样，因此似乎也不妨说例（16c）是（16b）的省略。相应地例（16a）中的动词“病”前面也可以加上“弄、闹”之类泛义动词，构成“弄病了”、“闹病了”的动结式。换言之，按蒋绍愚（1997）的分析，（16）句子的原型似乎应可以是“偏又把凤丫头（弄）病了”，“把只煮熟的鸭子（闹）飞了”，而按我们的分析，（16a/c）都是隐含了结果 V2 的动结式，即“偏又把凤丫头病（倒）了”，“把只煮熟的鸭子飞（走）了”。至少前一种说法也不无不可。

但按照“动词泛化”的说法也并不能够解释动作 V1 省略的动结式现象。至少存在着两点问题：首先，省略了泛化动词 V1 和隐含了虚化结果 V2 之后的两种单动词结构，其结构意义的性质并不相同。隐含结果 V2 的单动词结构与原形动结式结构所表达的意义基本一致，甚至完全同义；但省略了泛化动词之后的单动词结构却与原形动结式结构却并非严格同义。例如“病了”所表达的意义并不等于“弄病了”，而应当与“病倒了”同义。其次，根据语义缺省推理机制，仅仅从结果 V2 是无法推出泛化的动作 V1 的，如单纯从“病了”、“飞了”是无法推出“弄病了”、“闹飞了”的，不能认为前者是后者的省略；而由于典型的作格动词都在本身内在地隐含着结果，因此自然可以从动作 V1 推导出隐含的结果 V2，如“小鸟飞了”可以很自然地推导出“小鸟飞（走/掉）了”等。由此看来，泛化动词仅仅

是能够在一些结果 V2 之前添加本身不强调具体动作的述语动词 V1，其自身的意义和词形是无法被结果 V2 吸收和合并的，也就不可能存在隐含和省略的现象。

最后还有一种对于省略动作 V1 的动结式的可能解释可以叫做“结构不变说”。这种观点认为隐含结果 V2 和省略动作 V1 的单动词结构是共存的，二者都是原形动结式的变体结构，其结构性质完全相同。

但据我们的分析，上文所引的很多看上去类似于省略动作 V1 的动结式的结构实际上并非隐含动结式现象，这些结构的性质也就自然与结果 V2 隐含的动结式完全不同。具体来说，例如“凤丫头病了”、“小鸟飞了”这一类单动词结构，可以通过双动词和双事件系统（CAUSE 系统）的句法标记测试，可以加上“给”和“把”（如“一大家子事把凤丫头给病了”、“爷爷一不留神把小鸟给跑了”），因此仍然属于双动词系统的基础结构，是动结式的变体结构。但这些结构并非省略了动作 V1，而是省略了结果 V2，结构中的“病”、“飞”在这里仍然是动作 V1，而相应的结果 V2“倒”和“走”隐含。而诸如“肚子饱了”、“他醉了”之类的单动词结构，则无法通过双动词和双事件系统（CAUSE 系统）的句法标记测试，都不能加上“给”和“把”（如“[8]把肚子给饱了”、“*把爸爸给醉了”），因此也就不属于双动词系统。这些结构仅仅表示结果状态，并不表达动作行为，结构中也不同时包含致使-结果两个事件，当然也不存在动作 V1 和结果 V2 两个动词，这样的动词结构都已经进入单动词和单事件系统（DO 系统）结构。事实上，相关文献中大多数所谓的省略动作 V1 的单动词结构如“孩子（长）胖了”、“水烧）开了”等都已经不能再加上“给”和“把”，已经改变了动结式的结构和意义，不是“动作-结果”的双动词结构，也都不再具有“致使-结果”的双事件意义。

4. 动结式中谓词隐含的历时发展和“单动致使结构”的类型归属

值得注意的是，近代汉语中的确存在一种表示致使事件谓词（V1）隐含的“把”字句，而对这种结构的产生和历时发展过程的分析也能够帮助我们进一步地理解隐含动结式的句法条件。上文曾提到郭锐（2003）在文末附注中提到，表示致使事件谓词（V1）隐含的“把”字句在现代汉语中已不多见，但在近代汉语中却较多见。他举出的例子如：

（17）

a. 徐宁道：“你这厮把我这副甲哪里去了？”（《水浒传》百回本第 56 回）

b. 妇人听得此言，便把脸通红了……（《金瓶梅》崇祯本第 4 回）

c. 把众人都笑了。（《金瓶梅》崇祯本第 15 回）

d. 李纨笑道：“…你只把我的事完了我好歇着去…”（《红楼梦》第 45 回）

e. 那鼻涕眼泪把一个砌花锦边的褥子已湿了碗大的一片。（《红楼梦》第 97 回）

已有一些学者注意到了这类特殊的“把”字句并进行了相关研究。汉语史的研究者将这一类特殊的“把”字句称为致使性处置式，属于汉语处置式的一种，并认为这类格式并不是述补结构的省略，而是一种有着独立来源的结构，是在典型处置式的功能类推作用下产生的。这种格式较为后起，宋元以后较为多见，但仅在近代汉语中活跃，现代汉语中已基本不见。

据蒋绍愚（1997、1999）的研究，从历史上看，最初的“把”字句动词都比较简单，大都能和动宾句互相转换。但是当“把”字句形成以后，人们一般都把它作为一种独立的句式来使用，“把”字句也就按着它自身的规律发展。这种致使性处置式的特点是介词“把”之后的名词性成分是谓语动词的施事或当事，去掉介词“把”之后剩余部分可以是独立的一般施事/当事主语句，且句子表达的通常是一种致使义。从来源上看，这类致使性处置式是由带使动意义的动宾句转化而来的。例如：

（18）a1. 林黛玉只是禁不住把脸红涨了。（《石头记》第 25 回）
←a2. 宝玉红涨了脸。（《石头记》第 6 回）
b1. 把我的新裙子也脏了。（《石头记》第 62 回）
←b2. 可惜污了他的新裙子了。（《石头记》第 62 回）
c1. 竟越发把眼花了。（《石头记》第 41 回）
←c2. 花了眼。
d1. 早又把眼睛圈儿红了。（《石头记》第 23 回）
←d2. 红了眼睛圈儿。

另外，在汉语史上还有另一类把字句中，“把”字后面是个施事主语句，“把”可用“使、让、弄得”等代替，但句中的动词不带使动意义，而是一般动词。这类把字句也有表致使的功能，这是由上述（18）类结构的功能扩展而来的。例如：

（19）a. 怎么忽然把个晴雯姐姐也没了。（《石头记》第 79 回）
b. 也等把这气下去了。（《石头记》第 31 回）
c. 把林四娘等一个不曾留下。（《石头记》第 78 回）
d. 既把身子落在这等地方。（《儿女英雄传》第 7 回）
e. 把张一团青白煞气的脸渐渐的红晕过来。（《儿女英雄传》第 18 回）

《元曲选》中也有相应的例子。例如：

（20）a1.把那毡帘来低簌。（渔樵记，一，曲）

←a2.看这等凛洌寒天，低簌毡帘。（渔樵记，一，白）
b. 他把这粉颈舒长。（魔合罗，三，曲）
c. 乱蓬蓬把鬓发婆娑。（赚蒯通，三，曲）

观察这些致使性处置式的例子可以看出，这些由单个动词或形容词充当“把”字句谓语的格式，大多数在现代汉语中是不成立的，即致使性处置式只是近代汉语发展过程中产生的一种特殊格式，在现代汉语中已不存在。本文同意蒋绍愚对这一类致使性处置式来源的分析，即也认为这种特殊格式的形成与汉语使动动词结构密切相关。以上所引的所有致使性处置式的例子都是由单一动词或形容词（均为非作格动词）充当“把”字句谓语的格式，且皆由使动动词结构变化扩展而来。

由于这类致使性处置式在现代汉语中已大多都不能成立，并且被认为是一种具有独立来源和独立发展轨迹的特殊格式，因此就不能认为我们这里讨论的动结式隐含动作 V1 的现象来源于此或与此相关。实际上这两种格式是各自独立的，致使性处置式均为“把”字句形式，而如上文分析所示，所谓的省略动作 V1 的单动词结构均不能进入“把”字句，已不属于汉语双动词 CAUSE 系统。但是我们发现，汉语史上动词或形容词的使动用法的发展与现代汉语中类似省略动作 V1 的单动词结构之间也具有一定联系，或者说后者与古代汉语中的使动动词的意义和作用大致相同。

根据很多学者的研究，汉语动结式（又叫“使成式”（王力 1943、1958、1980））的产生与使动形态的衰落相关。动结式所表示的语法意义在上古本是由使动词来表达的，动结式是伴随着上古使动形态的衰落与消亡而逐渐语法化出来的。动结式是以句法形式代替词汇形式表示动作行为及其结果状态（洪波 2003）。上古汉语中往往以单个动词或形容词活用作使动词，表示通过某种动作行为而使某个对象处于的结果状态，这种用法一直延续下来，但不断衰落；衰落的原因就在于单个使动词只能表达动作行为造成的结果状态，而不能指明是哪一种具体的动作行为，语言表达的精确性促使用双动词构成的动结式产生，代替单个使动词表达使成含义。而如果人们主要想表达动作造成的结果，而不在意是什么具体动作，就可以使用表达结果状态的单动词结构，而这种类似省略动作 V1 的单动词结构实际上和使动动词的作用是一样的，省略 V1 之后剩下的结果动词 V2 往往都带有使动意义。通过考察这些结构中的补语动词在古代汉语中的用法，我们发现，基本上这些补语都曾经具有使动用法，可以活用作使动词。例如典型的补语动词“饱”（“我（吃）饱了”）、“醉”（“爸爸（喝）醉了”）、“高”（“孩子（长）高了”）等，都在文献中存在使动用法的例句。例如：

（21）a．饱——其达士，洁其居，美其服，饱其食，而摩厉之于义。（国语越语上）

[使其食饱，使他们吃饱]

b．醉——乃与赵衰等谋醉重耳，载以行。（史记晋世家）

[使重耳醉，把重耳灌醉]

c．高——上九，不事王侯，高尚其事。（周易易经）

[使其事高，使其事尚]

因此可以认为，只有那些在汉语史上曾具有使动用法和表达使动意义的动词，才有可能在现代汉语中构成看上去类似于省略了动作 V1 的单动词动结式结构。

主要参考文献：

郭 锐（1993）汉语动词的过程结构，《中国语文》第 6 期。
郭 锐（2003）把字句的语义构造和论元结构，《语言学论丛》第 28 辑，商务印书馆。
洪 波（2003）使动形态的消亡与动结式的语法化，《语法化与语法研究》，商务印书馆。
蒋绍愚（1994 / 2005）《近代汉语研究概况》，北京大学出版社。
蒋绍愚（1997）把字句略论——兼论功能扩展，《中国语文》第 4 期。
蒋绍愚（1999）汉语动结式产生的时代，《国学研究》第六卷。
蒋绍愚（1999）《元曲选》中的把字句——把字句再论，《语言研究》第 1 期。
李锦姬（2003）《现代汉语补语研究》，复旦大学博士学位论文。
李临定（1984）究竟哪个补哪个——动补格关系再议，《汉语学习》第 4 期。
李临定（1992）从简单到复杂的分析方法—结果补语句构造分析，《世界汉语教学》第 3 期。
刘丹青（1994）“唯补词”初探，《汉语学习》第 3 期。
刘子瑜（2004）汉语动结式述补结构的历史发展，《语言学论丛》第 30 辑，商务印书馆。
陆俭明（1990）述补结构的复杂性，《语言教学与研究》第 1 期。
吕叔湘（主编 1980/2006）《现代汉语八百词》，商务印书馆。
吕叔湘（1987）说“胜”和“败”，《中国语文》第 1 期。
马庆株（1988）自主动词和非自主动词，《中国语言学报》第 3 期，商务印书馆。
沈 阳（1997）名词短语的多重移位形式及把字句的构造过程与语义解释，《中国语文》第 6 期。
沈 阳（2003）动结式补语动词的虚化和弱化形式，《纪念王力先生诞辰 100 周年学术论文集》，商务印
书馆。
沈 阳（2009）“词义吸收”、“词形合并”与汉语双宾结构的句法构造，《世界汉语教学》第 2 期。
沈 阳、玄 玥（2009）“完结短语”及汉语结果补语的语法化和完成体标记的演变过程，庆祝贝罗贝教授
65 周年华诞纪念文集。
沈阳、司马翎（2010）句法结构标记“给”和动词结构的衍生关系，《中国语文》第 3 期。
司马翎、沈 阳（2006）结果补语小句分析和小句的内部结构，《华中科技大学学报·社会科学版》第 4 期。

太田辰夫（1958）《中国语历史文法》，蒋绍愚、徐昌华译，北京大学出版社（1987）。
汤廷池（1991）汉语述补式复合动词的结构、功能与起源，载《汉语词法句法四集》，台湾：学生书局。
王 力（1944）《中国语法理论》，收入《王力文集》第 1 卷，山东教育出版社（1984）。
王 力（1958）《汉语史稿》（合订本），商务印书馆（1980）。
吴福祥（1998）重谈“动+了+宾”格式的来源和完成体助词“了”的产生，《中国语文》第 6 期。
玄 玥（2005）论汉语结果补语小句与完成体标记——从三种“V 成”式动词短语说起，第 13 届江南语言
学研讨会（SoY－13）（荷兰：莱顿大学）。
玄 玥（2008）《完结短语假设和汉语虚化结果补语研究——兼论汉语结果补语、体标记和趋向补语的句
法问题》，北京大学博士学位论文。
薛凤生（1987）试论“把”字句的语义特性，《语言教学与研究》第 1 期。
薛 红（1985）后项虚化的动补格，《汉语学习》第 4 期。
张伯江（2001）被动句和把字句的对称与不对称，《中国语文》第 6 期。
张伯江（2007）《施事和受事的语义语用特征及其在句式中的实现》，复旦大学博士学位论文。
曾立英（2006）《现代汉语作格现象研究》，北京大学博士学位论文。
Cheng, Lisa Lai-Shen & Huang, C.-T. James. 1994 On the argument structure of resultative compounds. In
Matthew Y. Chen & Ovid J.L. Tzeng (eds): In honor of William S-Y. Wang: Interdisciplinary Studies on
Language and Language Change. Taipei: Pryamid Press.
Crystal, David. 1997 A Dictionary of Linguistics and Phonetics. Blackwell Publishers Ltd 1997 第四版，中译本：
《现代语言学词典》沈家煊译，北京：商务印书馆（2000）。
Keyser, S. Jay. & Roeper, T. 1984. On the middle and ergative construction in English. Linguistic Inquiry, Vol. 15.
3: 381-416.

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Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 372-384.

Interaction between structural positions and interpretations: Evidence from Chinese modal *neng, keneng* and Vietnamese modal *có thể*

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By contrasting semantic and syntactic characterizations of three modals *neng, keneng* and *có thể*, I would like to make a typological study on Vietnamese and Mandarin Chinese modals. I found that, in different structural positions, the scope of these modals with other grammatical elements will change, and their meanings will also change from a modal meaning to another modal meaning. To investigate the interaction between structural positions and interpretations of these modals, I test the hierarchical relationship between modal verbs, main verbs and other elements, such as negation, adverb *only*, tense markers and aspect marker.

1. Introduction

This paper is about the contrastive analysis between two Chinese modals *neng, keneng* and a Vietnamese modal *có thể*. One of the reasons why this issue is remarkable is that these modals mean different things in different structural positions. Another reason is that the modal meanings of *có thể* are a meaning set of *neng* and *keneng*. *Neng* mainly contains deontic and ability meaning, *keneng* contains epistemic meaning, but, *có thể* includes all these three modal meanings. Here are some examples:

(1a) 事情做好後，你就**能**/*<u>**可能**</u>回去了。→ Deontic
(1b) Sau khi làm xong việc, cậu **<u>có thể</u>** về. → Deontic
After when do finish thing, you can go
'When things are done, you can/may go home.'
(2a) 他**能**/*<u>**可能**</u>說三種語言。→ Ability
(2b) Anh ấy **<u>có thể</u>** nói ba thứ tiếng. → Ability
He that can speak three CL language
'He can speak three languages.'
(3a) 他**可能**去台北了。→ Epistemic
(3b) 他**能**去台北了。→ Deontic/Ability
(3c) Anh ấy **<u>có thể</u>** đã đi Đài-Bắc rồi. → Epistemic
He that can TP go Taipei Asp

'It's possible that he already went to Taipei.'

(3d) Anh ấy đã **có thể** đi Đài Bắc rồi. → Deontic/Ability
He that TP can go Taipei Asp
'It was the case that he could go to Taipei.'

In above examples, *có thể* means deontic, ability and epistemic, respectively, corresponding to *neng* and *keneng*. Especially, (3c) and (3d) show different interpretations of *có thể*, when it occurs in different structural positions (in (3c), CÓ THỂ>RỒI, but in (3d), RỒI>CÓ THỂ). Although *neng* and *keneng* in (3a), (3b) seemingly occur in the same positions, they actually show different syntactic hierarchies (in (3a), KENENG>LE, but (3b) shows the scope relation LE>NENG).

It's noteworthy that *neng* also has epistemic modal meaning, indicates value or possibility, as in (4), (5). Nevertheless, epistemic modal *neng* can not totally replace *keneng*, and vice versa. This is the fact that in some sentences, if we replace *keneng* with *neng*, the modal meaning will switch from epistemic to deontic or ability (see example (3a) and (3b)).

(4) 我猜也不**能**是什麼好人！(Possibility)
(5) 這個工作**能**/*<u>**可能**</u>做。(Value)

In order to investigate the interaction between structural positions and interpretations of these modals, we will test the hierarchical relationship between modal verbs, main verbs and other elements, such as negation (*bu, mei* and không, chưa), adverb of scope *only* (*zhi* in Chinese and *chỉ* in Vietnamese), tense markers like *yijing* or *đã*, aspect marker *le* or *rồi* .

This paper is organized as follows. In section Two, we introduce the meanings of *có thể*, since Vietnamese maybe not familiar with most people. In section Three, we examine the three modals in interaction relationship with negation, tense marker, aspect marker and adverb *only*, respectively. The co-occurrence between these modals will be also discussed. Section Four is the conclusion of this paper.

2. Vietnamese modal *có thể*

Following is the modal meanings of *có thể*, corresponding to Chinese modals *neng, keyi, hui*, respectively.

2.1 'To be able to, have capability of'. Mandarin Chinese (henceforth MC) often use *neng*. Apparently, this is a kind of ability modal meaning. See some examples.

(6) Tôi **có thể** chạy 10 cây số.
I can run 10 kilometers
'I can run 10 kms.'

(7) - Cậu **có thể** trả lời câu hỏi này không? - Không (thể).
You can answer question Det[1] QP[2] Not (can)
'Are you able to answer this question?' 'No.'

It's possible if you put another modal - *được* after the main verb, original meaning of the sentence will not change.

(6') Tôi **có thể** chạy **được** 10 cây số.

2.2 'Be allowed to do something (in accordance with regulations), be endowed with some certain authorities.' MC uses *neng* or *keyi*. See the following examples.

(8) Ai cũng **có thể** mượn sách ở thư viện này.
Who also can borrow book at library Det
'Anyone can borrow books from this library.'
(9) Câu này **có thể** chuyển thành câu bị động không?
Sentence Det can change into sentence passive QP
'Is it possible to change this sentence into passive voice?'

2.3 'Be permitted to do something.' With this meaning, *có thể* is interchangeable with *được*. MC often use *keyi*. When we change into negative form, *có thể* will turn into *không được*, rather than *không thể.*

(10) Mẹ nói hôm nay tôi **có thể**[E] ra ngoài chơi.
Mother say today I can go out play
'Mother says today I can go out and have fun.'
(11) Em **có thể** ngồi xuống rồi.
You can sit down Asp
'Now you can sit down.'

2.2 and 2.3 are deontic meanings of *có thể.*

2.4 'Estimation of certain possibility'. It corresponds to modal *hui* or *keneng* in MC, indicates epistemic modal meaning, as it should be.

(12) Cảnh sát tìm tôi **có thể** có việc gì nhỉ?
Police call on I may have affair what MP[3]

[1] Det for Determiner
[2] QP for question particle
[3] MP for modal particle

'Is it possible the case that something happens, because the police called on me.'

(13) Theo tôi biết, việc này **có thể** là thật đấy.
As I know affair Det should be true MP
'As I know, this (event) should be true.'

3. Interaction between structural positions and interpretations

3.1 Interaction between modals and negation

First of all, we will examine the situation of interaction between three modal auxiliaries *neng, keneng, có thể* and two kinds of negative: *mei, bu* in Chinese and *chưa, không* in Vietnamese.

3.1.1 *Mei, bu* with *keneng, neng*

Mei is realis negative. We found that this kind of negative can not scope over epistemic modals, as shown in contrastive sentences in (14a, b), (15a, b).

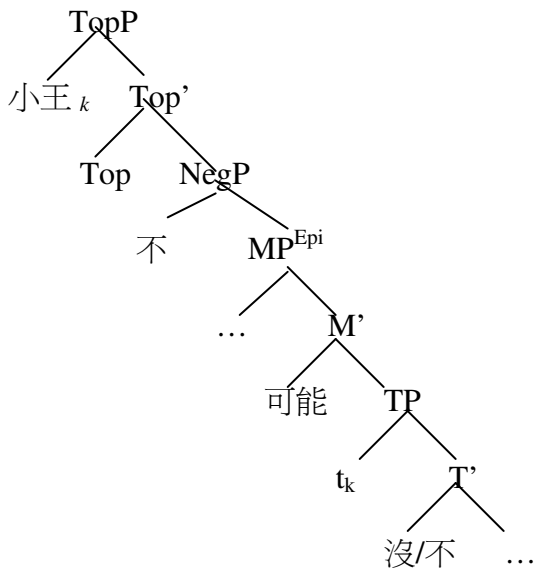
(14) a. 他**可能**沒收到我的信。(Epistemic modal > realis negative)
b.* 他沒**可能**收到我的信。(*Realis negative > Epistemic modal)
(15) a. 他**可能**沒去看醫生。 (Epistemic modal > realis negative)
b.* 他沒**可能**去看醫生。 (*Realis negative > Epistemic modal)

However, this restriction doesn't exist with irrealis negative *bu*: *bu* can scope over epistemic modals and vice versa. Example (16a, b) and (17a, b) indicate that the change of positions between *bu* and epistemic modal *keneng* do not invite any ungrammatical problem; but then because the change of negative scope, there are differences in semantic interpretations of these sentences, obviously.

(16) a. 小王**可能**不去美國。 (Epistemic modal > irrealis negative)
b. 小王不**可能**去美國。 (Irrealis negative > epistemic modal)
(17) a. 他**可能**不知道這件事。(Epistemic modal > irrealis negative)
b. 他不**可能**知道這件事。 (Irrealis negative > epistemic modal)

To sum up, we can use following tree-form construction showing hierarchies of MC epistemic modal *keneng* and realis negative *mei*: Because *mei* is related closely to two categories tense and aspect, it is tied together with tense phrases in sentences, thus it can only be under epistemic modals. In contrast with *mei*, *bu* doesn't have so restriction, it can either precede or succeed epistemic modals. (MP^{Epi}: epistemic modal phrase; NegP: Negative phrase)

(18)



Example (19) shows us other ample evidences on the scopal interaction between two negatives and epistemic modal *keneng*: *bu* both precedes and succeeds *keneng,* reveals unrestrained character of its distribution (see (19a)). In the other side, *mei* is restricted by tense phrase, thus, can only succeed epistemic modal, as shown in (19b). This also explains why (19c,d) are ungrammatical.

(19) a. 他不**可能**不去美國。(irrealis negative > epistemic modal > irrealis negative)
b. 他不**可能**沒去美國。(irrealis negative > epistemic modal > realis negative)
c.* 他沒**可能**沒去美國。(*realis negative > epistemic modal > realis negative)
d.*他沒**可能**不去美國。(*realis negative>epistemic modal > irrealis negative)

Secondly, we found that MC deontic modals can not co-occur with realis negative, absolutely, as demonstrated in (20a-d); but irrealis negative still shows us its unrestraint, can either precede or succeed deontic modal, see (21a-d) for demonstration.

(20) a.* 小王**可以**沒去美國。 (*deontic modal > realis negative)
b.* 小王**能** D 沒去美國。 (*deontic modal > realis negative)
c.* 小王沒**可以**去美國。 (*realis negative > deontic modal)
d.* 小王沒**能** D 去美國。 (*realis negative > deontic modal)
(21) a. 小王**可以**不去美國。 (deontic modal > irrealis negative)
b. 小王**能** D 不去美國。 (deontic modal > irrealis negative)
c. 小王不**可以**去美國。 (irrealis negative > deontic modal)
d. 小王不**能** D 去美國。 (irrealis negative > deontic modal)

In my point of view, this asymmetry may originate from the hypothesis that syntactic range of deontic modal is closed to realis negative, therefore occurs mutual reject effect (see more details in section 3.2).

The distribution of ability modal in sentences is absolutely opposite to epistemic modal's distribution, i.e. ability modal *neng* can only succeed realis negative *mei*, as in (22a); however, it can not precede *mei,* see (22b).

(22) a. 他沒**能**^{A}去美國。(realis negative > ability modal)
b.* 他**能**^{A}沒去美國。(*ability modal > realis negative)

(23a,b) reveal, again, that irrealis negative *bu* is almost omnipresent. *Bu* can occur either in front of or behind ability modal.

(23) a. 他不**能**^{A}去美國。 (Irrealis negative > ability modal)
b. 他**能**三天不睡。(Ability modal > irrealis negative)

The hierarchy of these modals and negation is summarized as following feature:

(24) $\boxed{Neg_I > M^E > M^D/Neg_R > M^A > Neg_I}$

3.1.2 Vietnamese negatives *không* and *chưa*

The two most general forms of negation in Vietnamese are *không* and *chưa*. See following examples.

(25) Nó **không** dự buổi tiệc đó.
He NEG attend CL party that
'He did not attend that party.'
(26) Nó **chưa** làm bài tập.
He NEG do homework
'He hasn't done homework.'

The discrimination between MC negatives *bu* and *mei* involves the concept of "completion": "Given that *mei (you)*, but not *bu*, is used to deny the completion of an event" [4]. The two Vietnamese negatives, however, do not use "completion" as a distinguishing mark. *Không* indicates absolute negation of actions or states, expresses certain action/event does not happen, or certain state doesn't occur; *chưa* is relative

[4] Li, C.N. & Thompson, S.A., *Mandarin Chinese: A Function Reference Grammar* (Berkeley: University of California Press, 1981), pp. 424.

negative, indicates certain action or event hasn't happened, or certain state hasn't occurred, but they're possible to happen or occur in the future. *Chưa* is equal to "*hai + bu/mei (you)*" in Chinese. See the comparison table below.

Vietnamese	Mandarin Chinese
Anh ấy **không** đi. Anh ấy **chưa** đi.	他**不**去。 他**還沒**去。
Thầy giáo **không** giảng ngữ pháp. Thầy giáo **chưa** giảng ngữ pháp.	老師**不**講語法。 老師**還沒**講語法。
Anh ấy **không** phải là đoàn viên. Anh ấy **chưa** phải là đoàn viên.	他**不**是團員。 他**還不**是團員。
Tôi **không** rõ lắm. Tôi **chưa** rõ lắm.	我**不**大清楚。 我**還不**大清楚。

We can see, from the above table, that *không* and *chưa* are not restricted by tense element. *Không* can negate both future events and past events, and so can *chưa. Không* and *chưa* are not corresponding one by one to *bu* and *mei.* If one wants to express an event happened in the past, MC will use the adverb *hai* to distinguish *không* and *chưa*. See following examples for demonstration.

(27) a. Nó **<u>không</u>** làm bài tập.
He not do homework
'(Yesterday) He didn't do homework.'
b. Nó **<u>chưa</u>** làm bài tập.
He not do homework
'(Till now) He hasn't done homework yet.'

To sum up, we can not simply call two Vietnamese negatives *không* and *chưa* as realis versus irrealis negative, because their tense-related character is not absolute, both of them can be used to indicate an event/action that happens in the past or in the future. Because the main discrimination between them is "completion", thus, in this paper, I temporarily name *không* as denial negative and *chưa* as delay negative.

3.1.3 *không, chưa* with *có thể*

In general, the interaction relationship between negatives *không, chưa* and *có thể* is basically similar with the interaction between *mei, bu* and *keneng, neng*, i.e. delay negative *chưa* can not scope over epistemic modal *có thể*, it can only be under the range of epistemic modal *có thể*; while denial negative *không* unrestrictedly precedes or follows epistemic modal *có thể*. The case of ability modal *có thể* is mostly the same with the case of ability modal *neng*: delay negative *chưa* doesn't follow ability modal *có thể*, but vice

versa; denial negative *không* doesn't have this restriction. See the feature below for summary.

(28) a. Denial negative > epistemic modal > denial negative
b. Denial negative > epistemic modal > delay negative
c.* Delay negative > epistemic modal > delay negative
d.* Delay negative > epistemic modal > denial negative
e. Ability modal > denial negative
f. Denial negative > ability modal
g. Delay negative > ability modal
h.* Ability modal > delay negative

(29) a. Anh ấy **có thể không** tới. (Epistemic modal > denial negative)
He may not come
'He may not come.'
b. Nó **không thể**[5] còn sống. (Denial negative > epistemic modal)
He not can still alive
'It's not possible that he's still alive.'
c. **Có thể** nó **chưa** từng đi Mỹ. (Epistemic modal > delay negative)
Maybe he not yet ever go America
'Maybe he has not ever been to America.'
d.* Nó **chưa thể**[E] tới. (Delay negative > epistemic modal)
He not yet possible come

(29d) is ungrammatical with epistemic meaning of *có thể*, but the ability modal meaning is acceptable.

(30) a. Tôi **có thể**[A] **không** ăn, nhưng **không thể**[A] **không** ngủ. (Ability modal > denial negative)
I able not eat but not able not sleep
'I'm able not to eat, but not able not to sleep.'
b. Nó **không thể** chạy 10 cây số. (Denial negative > ability modal)
He not able run 10 kilometer
'He's not able to run 10 kilometers.'
c. Cô ấy **chưa thể** tự đứng dậy. (Delay negative > ability modal)
She not yet able RP[6] stand up
'She's still not able to stand up by herself.' (Because of illness)
d.* Cô ấy **có thể**[A] **chưa** tự đứng dậy. (Ability modal > delay negative)

[5] In Vietnamese, when *có thể* changes into negative form, *có* is removed and replaced by the negative *không* or *chưa.*
[6] RP for 'Reflexive pronoun'

She able not yet RP stand up

There exists a difference in the interaction between Vietnamese negatives and deontic modal *có thể*, in comparison with the hierarchical relationship between MC negatives and deontic modal *neng* that we discussed above, i.e. MC deontic modals can not co-occur with realis negative, absolutely (see example (20a-d) again). By contrast, Vietnamese delay negative can precede deontic modal *có thể*, while MC realis negative *mei* can not either precede or succeed any deontic modal. As for denial negative *không,* it's relatively free to combine with deontic modal, like MC irrealis negative *bu*. Following examples are illustration.

(31) a. Cậu **có thể^{D} không** tới dự buổi họp này. (Deontic modal > denial negative)
You can^{D} not come attend CL meeting Det
'You're permitted not to come to attend this meeting.'
b. Cậu **không thể^{D}** tới dự buổi họp này. (Denial negative > deontic modal)
You not can come attend CL meeting Det
'You're not permitted to attend this meeting.'
c. Anh ấy **chưa thể^{D}** kết hôn. (Delay negative > deontic modal)
He not yet able married
'He still can not get married.' (because of his age)
d.* Nó **có thể^{D} chưa** đi làm. (Deontic modal > delay negative)
He/she can not yet go work

This discrimination may be caused by the different nature of MC realis negative *mei* and Vietnamese delay negative *chưa*. Because realis negative *mei* is closely related to tense and aspect element, thus it is tied together with the head of tense phrase (TP) of sentence. In other hand, syntactic range of deontic modal is closed to realis negative, therefore *mei* can not occur simultaneously with deontic modal. But, Vietnamese delay negative *chưa* is just refer to the "level" of negative (absolute or relative), thus, it is not affected by tense and aspect element, like *mei.*

The hierarchy of *có thể* and Vietnamese negation is demonstrated as follows:

(32) $\boxed{Neg_{denial} > M^{E} > Neg_{delay} > M^{D} > M^{A} > Neg_{denial}}$

3.2 Interaction between modals and tense and aspect

The analysis of this paper can also get evidences from the interaction between modals and tense – aspect elements: only epistemic modal can be followed by action-completed marker *le* (*le$_1$*), as in (33a); but deontic modal can not, as in (33b).

(33) a. 他**可能**去了台北。(Epistemic modal > *le*)
b.* 他**能**[D]去了台北。 (*Deontic modal > *le*)

This is because structural position of epistemic modal is above tense phrase, and the range of deontic modal is under tense phrase. Besides, aspect phrase is under deontic modal, thus the movement of aspect marker to the head of tense phrase will jump directly over deontic modal, and violate the Head Movement Constraint (Travis, 1984). The sentence is only grammatical if aspect phrase keeps being above the range of deontic modal, as in (34).

(34) 他**能**[D]去台北了。(*le* > deontic modal)

The same case happens to Vietnamese modals, as shown in examples (3) above, repeated below.

(35) a. Anh ấy **có thể**[E] đã đi Đài-Bắc rồi. (Epistemic modal > Asp)
He can TP go Taipei Asp
'It's possible that he already went to Taipei.'
b. Anh ấy đã **có thể**[D/A] đi Đài Bắc rồi. (Asp > deontic modal/ability modal)
He TP can go Taipei Asp
'It was the case that he could go to Taipei.'

These restrictions on the arrangements of modals and aspect and tense elements in Vietnamese clearly indicate that there is a hierarchy of modals in the syntactic structure of Vietnamese sentences. The hierarchy is as follows:

(36) Epistemic modal > TP > AspP > deontic modal > ability modal

There is one thing particularly noteworthy here, namely, in example (35), if we remove past tense marker *đã*, this sentence can be interpreted as both epistemic modal meaning and deontic or ability meaning.

(37) Anh ấy **có thể** đi Đài Bắc rồi. → epistemic/deontic/ability
He can go Taipei Asp
'It's possible that he went to Taipei.' (Epistemic meaning)
'He was allowed to go to Taipei.' (Deontic meaning)
'(Now) He's able to go to Taipei.' (Ability meaning)

Once tense marker *đã* occurs, it's easier to distinguish the modal meaning of *có thể* in (37), basing on the position of *đã*. It can be said that this tense marker is an important sign to demarcate epistemic modal and ability/deontic modal in Vietnamese.

3.3 Co-occurrence of *có thể* and modal *được*

In section 2.1, we referred to a Vietnamese modal – *được*: When we use *có thể* as a ability modal, we can put *được* after the main verb without any change in original modal meaning. Actually, *được* put right after the main verb makes the ability modal meaning of sentence clearer. See the examples below for comparison.

(38) a. Nam **có thể** trả lời câu hỏi đó. → Deontic/Ability
Nam can answer question Det
'Nam is able to answer that question.' Or 'Nam can^{D} answer that question.'
b. Nam **có thể** trả lời **được** câu hỏi đó. → Ability
Nam can answer PVM[7] question that
'Nam is able to answer that question.'

Được also often occurs in the negative form of *có thể*, both epistemic and root modals.

(39) Anh ta **không thể** còn sống **được**. → Epistemic
He not possible still alive PVM
'It's not possible that he's still alive.'
(40) Không có vé thì **không thể** vào **được**. → Deontic
Not have ticket Conj not can enter PVM
'If you don't have ticket, you can not enter this place.'
(41) Tôi **không thể** trả lời **được** câu hỏi của cậu. → Ability
I not able answer PVM question of you
'I'm not able to answer your question.'

We should note here, that *được* can either precede or succeed main verbs of sentences, but it absolutely can not precede *có thể*, but just follow *có thể*. This is because *được* doesn't have epistemic modal meaning, *có thể*, however, does have. Thus, its structural position must be above the syntactic range of *được*.

In MC, two modals *neng* and *keneng* can also co-occur like those in Vietnamese, but there must be certain restriction on their combination, namely, *neng* must follow *keneng*. The reason of this restriction is the same with that of Vietnamese modals. See following examples for demonstration.

[7] PVM for 'Post-verbal modal'

(42) 他**可能能**[D]結婚了（，因爲年紀夠大了）。
(43) 他**可能能**[A]修車。

The examples above are other evidences of hierarchical interrelationship between modals.

3.4 Interaction between modals and adverb *only*

In Mandarin Chinese, when epistemic modal *keneng* change position with adverb *only*, its epistemic meaning is still remained. But in Vietnamese, when you move *có thể* from the beginning of the sentence, like (47), to the position after *chỉ* as in (48), its modal meaning will change from epistemic to deontic or ability meaning.

(44) 可能只有他去台北。(Epistemic modal > *only*)
(45) 只有他**可能**去台北。(Epistemic modal > *only*)
(46) 只有他**能**去台北。(*only* > deontic/ability modal)
(47) **Có thể chỉ** có Nam đi Đài Bắc. (Epistemic modal > *only*)
M[E] only have Nam go Taipei
'It's possible that only Nam go to Taipei.'
(48) **Chỉ** có Nam **có thể** đi Đài Bắc. (*only* > deontic/ability modal)
Only have Nam M[D/A] go Taipei
'Only Nam can go to Taipei.'

However, so long as you add future tense marker *sẽ* right after *có thể* as in (49), this *có thể* denotes epistemic meaning again.

(49) **Chỉ** có Nam **có thể** **sẽ** đi Đài Bắc. (epistemic modal > *only*)
Only have Nam M[E] will go Taipei
'It's possible that only Nam will go to Taipei.'

Once again, we can see that tense marker helps demarcate epistemic meaning and root meaning of the same modal *có thể*.

4. Conclusion

This paper is a contrastive analysis on MC modals *neng, keneng* and Vietnamese modal *có thể*. Through testing the interaction between these modals and other elements (negation, tense marker and aspect marker), we found out the hierarchical structures of MC modals and Vietnamese modals, and the corresponding relationship between their distributions and interpretations. In general, both in MC and Vietnamese, the range of epistemic modals is highest, then deontic modals, and ability modals are the lowest. This conclusion also exhibits cross-linguistic universality.

References

1. 丁聲樹等. 1961.《現代漢語語法講話》。北平：商務印書館。
2. 呂叔湘. 1999. 《現代漢語八百詞》。北京：商務印書館。
3. Laurence, C. Thompson. 1965. *A Vietnamese Grammar*. Seattle: University of Washington Press.
4. Li, N. Charles; Thompson, A. Sandra. 1983. *Mandarin Chinese: A Functional Reference Grammar*. Taipei: The Crane Publishing Co., Ltd.
5. Palmer, F.R. 1986. *Mood and modality*. Cambridge: Cambridge University Press.
6. Vietnamese Social Sciences Committee. 1983. *Vietnamese Grammar*. Hanoi: Social Sciences Publisher.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 385-394.

The Nature of the Empty Subject in Gapless *Bei* Sentences in Early Mandarin*

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This paper investigates a special type of *bei* construction in Early Mandarin. Both Yu (1989) and Yu and Ueda (1999) assume that such 'subjectless' and gapless *bei* sentences are not derived by eliding a referential subject NP. I will argue against this claim and propose that the empty subject may be referential or non-referential, based on statistics results obtained from several classical novels. The referential empty subject is recoverable and thus can be treated as a subtype of gapless *bei* sentences with referential subjects. The non-referential empty subject, on the other hand, is akin to the expletive subject of the impersonal passives in languages like Dutch and Welsh. I propose that *bei* in the stage of Early Mandarin acquired new features of [+Experiencer/ --Passivization] and [--Experiencer/ --Passivization, yielding the gapless passives with a referential and non-referential grammatical subject respectively.

1. Introduction

In this paper, I will investigate a special type of *bei* construction in Early Mandarin, which is labeled as the *bei* construction with zero subjects by Yu and Ueda (1999). The goal of this paper is to identify the nature of the empty subjects in this construction. Furthermore, I will also propose syntactic structures of such special *bei* sentences where the empty subjects are licensed.

2. Facts and previous analysis of gapless *bei* sentences with empty subjects in Early Mandarin

Following Jiang (1994) and Feng (2000), the period of Early Mandarin is defined as dating from Tang and Five Dynasties to Ming and Qing Dynasty. As is well-known, starting from Sui and Tang Dynasty, the *bei* construction became the dominant form of passives in

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Chinese, as in (1) and (2). These canonical passives are all gapped.

(1) a.舍長官禁貴人，汝亦被拘斜？（晉書元帝紀）
b.桑落之敗，藩艦被燒（南史胡藩傳）
c. 這李小二先前在東京時，不合偷了店主人家財，被捉住了，要送官司問罪。（水滸傳）
(2) a. 谷深而背陽，被前岩遮，日光不曾照著。（入唐求法巡禮行記卷三）
b. . 行至小江，遂被狂賊侵欺。（伍子胥變文）
c. 今日小弟陳達不聽好言，誤犯虎威，已被英雄擒捉在貴莊。（水滸傳）

However, as first observed by Wang (1958), Early Mandarin also exhibits a special type of *bei* sentences, which obviously do not behave on a par with canonical *bei* sentences. This is illustrated in (3).

(3) a. 被我咬斷繩索，到得這裡。（水滸傳）
b. 至神廟五里以來，泥神被北方大王唱一聲。（水滸傳）

It is necessary to note that these *bei* sentences are all gapless. According to him, one subtype (3a) could have an alternative word order with the patient NP in the subject position while the other subtype (3b) could not.

Yu (1989) and Yu and Ueda (1999) further focus on such special *bei* sentences that have no (overt) subject as illustrated in (4) and (5).

(4) a. 被月在下面遮了日 （朱子語類輯略）
b. 奈何緣被人識得伊 （祖堂集索引）
c. 被小夫人引了我魂靈 （元刊雜劇詐妮子調風月）
(5) a. 被猴行者化一團大石，在肚內漸漸會大。（大唐三藏取經詩話第六）
b. 二將奏曰：被漢將詐宣我王有旨。（變文：漢將王陵）

Similar to Wang (1958), they divide such *bei* sentences into those that could have an alternative word order with the patient NP being in the grammatical subject position as in (4) or those that could not as in (5). Both Yu (1989) and Yu and Ueda (1999) assume that such 'subjectless' *bei* sentences are not derived by eliding a referential subject NP.

Recast under the framework of generative grammar, Yu and Ueda's claim amounts to indicating that the empty subject in gapless *bei* sentences is not a referential empty category. I will argue against this claim and propose that the empty subject may be referential or non-referential.

3. Referential and non-referential empty subjects in gapless *bei* sentences

As Early Mandarin independently allows gapless *bei* sentences with overt surface subjects, shown in (3b) and (6), it is perfectly feasible to claim that one type of empty subject at issue is the null counterpart of a referential subject in *bei* sentences. The overt surface subjects in (6a-c) are 娘子, 那隻猛虎 and 小行者 respectively.

(6) a. 直至東京城內殿帥府前，尋到張教頭家，聞說娘子被高太尉威逼親事，自縊身死，已故半載。（水滸傳）
b. 當下景陽岡上那隻猛虎，被武松沒頓飯之間，一頓拳腳，打得那大蟲動彈不得，諕得口裏兀自氣喘。（水滸傳）
c. 然小行者被他作法，變做一個驢兒，吊在廳前。 （大唐三藏取經詩話第五）

This claim is supported by the fact that some empty subjects at issue are interpreted as referring back to an antecedent in the preceding texts and have an anaphoric construal as illustrated in (7). The antecedents for the empty subject in (7a-c) are 兩個公人, 黃安 and 我們 respectively.

(7) a. 兩個公人聽了道：….正在途中，___被魯智深要行便行，要歇便歇，那裏敢扭他？(水滸傳九回)
b. 黃安把船儘力搖過蘆葦岸邊，_____卻被兩邊小港裏鑽出四五十隻小船來。（水滸傳二十回）
c. 我們急把船回時，來到窄狹港口，只見岸上約有二三十人，兩頭牽一條大篾索，橫截在水面上。卻待向前看索時，____又 被 他岸上灰瓶石子，如雨點一般打將來。（水滸傳二十回）

To facilitate discussion, this EC will also be referred to as pro, given its similarity with the syntactic distribution of the referential empty pronouns in Chinese (Wei-Tien Tsai, p.c.), though no part of the analysis in this paper depends on its precise classification.

However, are all the empty subjects referential in gapless *bei* sentences? I argue that the answer is negative; some empty subjects in gapless *bei* sentences in Early Mandarin must be non-referential. In other words, Yu and Ueda (1999) are correct in claiming the existence of a non-referencial empty subject in this special type of *bei* construction in Early Mandarin. Consider the examples with the resumptive NPs as labeled by Tang (1988) in (8). The so-called resumptive NPs illustrated in (8a-c) are 這廝, 常氏 and 阿里罕 respectively.

(8) a. 教授不知，這廝夜來赤條條地睡在靈官廟裏， ___被我們拿了這廝，帶到晁保正莊上。(水滸傳)

b. 常氏將飯食送往田間，___在中路忽被大風將常氏吹過隔岸龍歸村（新編五代史平話）
c. 阿里罕…..郭威待至二更後，___被郭威將阿里罕殺了。（新編五代史平話）

Take (8a) as an example: the most felicitous referent of the empty subject is這廝 'this guy' from the preceding discourse. This construal, however, would induce a Binding Principle C violation because the NP 'this guy' occurs after *bei* in the same sentence and would be bound by the co-referential empty subject.

The existence of a non-referential empty subject in the construction at issue is further supported by statistics results from several classical novels. As shown in Table 1, the percentage of empty subjects in gapless *bei* sentences is much higher than that in canonical, gapped *bei* sentences, whether the gapped *bei* sentences have an overt logical subject or not.

Table 1 Frequency and ratio of the empty subject in *bei* sentences in Early Mandarin

	水滸傳 (1-40 回)	西遊記 (1-50 回)	金瓶梅 (1-20 回)	紅樓夢 (1-40 回)
Gapped-Short	17 / 28 (61%)	1 / 1 (100%)	3 / 4 (75%)	0 / 4 (0%)
Gapped-Long	103 / 143 (72%)	38 / 68 (57%)	43 / 59 (73%)	29 / 43 (67%)
Gapless	43 / 49 (88%)	15 / 17 (88%)	14 / 15 (93%)	3 / 3 (100%)

Assuming that the frequency of dropping a recoverable grammatical subject due to pragmatic or discourse factors is the same in both gapped and gapless *bei* sentences, then the higher percentage of an empty subject in gapless *bei* sentences than in gapped *bei* sentences suggests that not all empty subjects in gapless *bei* sentences are recoverable and that some of them must be base-generated as a non-referential EC. I thus conclude that in addition to a referential pro subject, gapless *bei* sentences in Early Mandarin could also have a non-referential empty subject.

4. Structures of gapless *bei* sentences where the empty subjects are licensed

I shall now turn to the syntactic structures where the empty subjects of gapless *bei* sentences in Early Mandarin are licensed. Since *bei* sentences are productive in Modern Chinese, it is instructive to first consider the analysis of the *bei* constructions in Modern Chinese. I assume a non-unified analysis of the *bei* sentences in Modern Chinese as proposed by Ting (1998) and Huang (1999). Under this approach, long *bei* sentences involve an A'-chain as in (9) whereas short *bei* sentences involve A movement as in (10).

(9) Long passives: A'-chain
a. 張三$_i$ [$_{VP}$ 被 [$_{IP}$ Op$_i$ [$_{IP}$ 李四批評了 t_i]]
b. 張三$_i$ [$_{VP}$ 被 [$_{IP}$ Op $_i$ [$_{IP}$ 李四批評了 他$_i$一頓]]
c. The book$_i$ is tough [OP$_i$ PRO to read t_i]
d. The book$_i$ is too long [OP$_i$ PRO to read t_i]
e. The book$_i$ is too long [OP$_i$ PRO to read it$_i$]
(10) Short passives: A movement
a. 張三$_i$ [$_{VP}$ 被 [PRO$_i$ 批評了 t_i]]
b. *Get* passives in English: Hoshi (1994)
John$_i$ [$_{VP}$ got [PRO$_i$ hit t_i]]

In both long and short *bei* sentences in Modern Chinese, the surface subject position is claimed to be a theta position and *bei* assigns an external theta role to the surface subject NP, given the possible occurrence of a subject-oriented adverb like 'deliberately' in *bei* sentences as in (11).

(11) 張三故意被(李四)批評了
(12) a. *John was hit on purpose.
b. John got hit on purpose.

However, I claim that the *bei* sentences in Modern Chinese should not always have a theta subject, as evidenced by the fact that idiom chunks may serve as the surface subject of the *bei* sentence as observed by Li (1990) in examples like (13).

(13) a. 這個刀被他開壞了
b. 這個默被他幽壞了
(Li 1990, 165)
(14) a. The hatchet is hard to bury after long years of war. (Berman 1973, Goh 2000, Hicks 2009)
b. The hatchet was buried after long years of war.

I propose that in addition to being base-generated, the surface subject of *bei* sentences in Modern Chinese can also be derived by movement and can be in a non-theta position, as shown in (15a) and (15b). In (15a), long passives in Modern Chinese are derived by null operator movement on a par with the derivation of the tough constructions as proposed by Hicks (2009). In (15b), short passives in Modern Chinese are derived by A movement as proposed by Ting (1995).

(15) a. Long passive in Modern Chinese
張三$_i$ [$_{VP}$被 [$_{IP}$ [Op t_i] $_k$ [$_{IP}$ 李四批評了 t_k]]
(cf. Hicks' 2009 analysis of the *tough* construction)
b. Short passive in Modern Chinese
張三$_i$ [$_{VP}$被 [$_{VP}$ 批評了 t_i]] (Ting 1995)

Although not all *bei* sentences in Modern Chinese involve external theta role suppression and accusative Case absorption as in English-type passives, they are construed as passives by Chinese speakers because, according to Huang (1999), they exhibit properties of passivization, such as intransitivization, argument promotion and a missing NP position in the predicate coindexed with the subject as in (16).

(16) properties of passivization under a universal notion of passives (Huang 1999)
a. intransitivization
b. argument promotion
c. a missing NP position in the predicate coindexed with the subject

This analysis of gapped *bei* sentences in Modern Chinese can be directly carried over to gapped *bei* sentences in Early Mandarin. On the other hand, regarding gapless *bei* sentences with a referential subject in Early Mandarin, I propose that they have structures as in (17).

(17) a. [娘子[$_{VP}$ 被 [$_{IP}$ 高太尉威逼親事]]] ，自縊身死，已故半載。
b. 我們$_i$ 急把船回時，….. 卻待向前看索時，[pro$_i$ 又 [$_{VP}$ 被 [$_{IP}$ 他岸上灰瓶石子，如雨點一般打將來]]。

In gapless *bei* sentences with a referential subject in Early Mandarin, *bei* is an ECM-type of verb, assigning Case to the logical subject and assigning an external theta role to the surface subject. The surface subject can be overt or non-overt. The embedded verb can assign an external theta role and accusative Case. No gap is created in such *bei* sentences. In other words, *bei* does not trigger passivization in any form, not even in the Chinese style.

Regarding gapless *bei* sentences with a non-referential subject, I propose that they have a structure as in (18).

(18) [pro$_{expl}$ [$_{VP}$ 被 [$_{IP}$ 我們拿了這廝]]]

The empty subject is analogous to the expletive subject in impersonal passives that are found in languages like German, Dutch, Welsh, Norwegian and Hebrew as illustrated in (19).

(19) a. Dutch (Kitagawa 1997)
Er weid eer boek gelezen door Karel
there was a book read by Karel
'A book was read by Karel.'
b. Welsh (Perlmutter and Postal 1984)
Lladdwyd dyn (gam ddraig)
kill-pass man by dragon
'A man was killed (by a dragon).'

Bei, as an ECM-type of verb, assigns Case to the logical subject, but crucially it does not assign an external theta role to the surface subject. As in gapless *bei* sentences with a referential subject we have seen, there is no gap created in the predicate and *bei* does not trigger passivization in any form.

One may wonder about the function of the gapless *bei* sentences in Early Mandarin. As is well-noted in the literature (Yu and Ueda 1999, Jiang 1994), an important function of gapless *bei* sentences is to create discourse coherence. I propose that those with a referential subject have this function. As illustrated in (20a), with the use of a gapless *bei* construction, the discourse topic would remain on the NP 小人 *xiaoren* 'I' . In contrast, if a canonical gapped *bei* construction is used as in (20b), the discourse topic would shift to the NP 相公的馬 *xianggong de ma* 'your horse'.

(20) a. 酒保道：「小人起來上草，只見籬笆推翻，____*被人將相公的馬偷將去了*。」（水滸傳五十三回）
b. 酒保道：「小人起來上草，只見籬笆推翻，*相公的馬被人偷將去了*。」

On the other hand, I propose that those with a non-referential subject have a construal analogous to "impersonal passives" in other languages. In such passives, the prominence of the activity is particularly enhanced (Blevens 2006). Since none of the participants is focused, the event is characterized by low salience (Sanso 2006). With a function of serving as backgrounding clauses, this account explains why *bei* in gapless *bei* sentences is often construed as meaning 'because' (cf. Yu and Ueda 1999), as illustrated in (21).

(21) a. 今日被你不長進，敗得一個也沒了。（警世通言卷四十）
b. 太公道：「老漢止有這個小女，如今方得一十九歲。被此間有座山，喚做桃花山，近來山上有兩個大王…..見了老漢女兒…..選著今夜好日…..因此煩惱，非是爭師父一個人。」（水滸傳五回）
c. 近來被這個營內張團練，新從東路州來，帶一人到此。那廝姓蔣名忠…..（水滸傳二十九回）

Interestingly, the two characteristics of gapless passives in Early Mandarin, namely that *bei* does not assign an external theta role to the surface subject and does not trigger passivization in any form, would make such *bei* sentences a type of passive that is claimed not to exist by Hoshi (1994).

Table 2 Features of *–rare* and the resulting passives in Japanese

	+Exp	-- Exp
+Pass	*ni* direct passives	*ni yotte* passives
--Pass	*ni* indirect passives	**Non-existent**

As indicated in Table 2, the Japanese passive morpheme *-rare* may have features [+/--Experiencer] and [+/--Passivization]. Although the feature combinations yield three types of Japanese passives, the fourth type with [-- Experiencer/ -Passivization] *rare* is claimed not to exist "because of the Principle of Morphological Nonredundancy, which prohibits a passive verb with no positive feature from surfacing." (Hoshi 1994, 161)

In gapless *bei* sentences with a non-referential subject, *bei* assigns a theta role to its surface subject but does not trigger passivization. This is exactly the type of passives that is expected to be ruled out by Zubizarreta's (1985) Principle of Morphological Nonredundancy if Hoshi's account is correct. Therefore, I conclude that the absence of the fourth type of passives in Modern Japanese may simply be an accidental gap.

Along the lines of Hoshi (1994), I propose that gapped and gapless *bei* sentences in Early Mandarin are derived by *bei* with different feature specifications as indicated in (22) and (23) respectively.

(22) Gapped *bei* sentences
bei: [+Experiencer/ + Passivization]
bei: [--Experiencer/ + Passivization]
(23) Gapless *bei* sentences
bei: [+Experiencer/ --Passivization]
bei: [--Experiencer/ --Passivization]

Gapped *bei* sentences in Early Mandarin are derived by *bei* with [+Experiencer/ + Passivization] and *bei* with [--Experiencer/ + Passivization]. Gapless *bei* sentences, on the other hand, are derived by *bei* with [+Experiencer/ --Passivization] and *bei* with [--Experiencer/ --Passivization].

On this analysis, the emergence of gapless *bei* sentences in Early Mandarin is attributed to *bei* acquiring new lexical features at this stage. Therefore this fact should not

be characterized as *bei* being "grammaticalized" as claimed by Yu and Ueda (1999) but rather as *bei* undergoing a change of acquiring different lexical properties (cf. Roberts 2007).

5. Concluding remarks

Kitagawa (1997) (cf. Hoshi 1994) proposes that to pursue a universal characterization of passives, selectional properties of passive morphemes should be considered. Facts of *bei* sentences in Early Mandarin provide further support for this approach that makes special reference to the passive morpheme's selectional properties. Noteworthy is that the type of *bei* sentences with a non-referential empty subject fills in the gap of Hoshi's (1994) system of passivization in the sense that they provide evidence for the existence of a type of passives in the universal grammar that are claimed not to exist.

References:

Chinese

馮春田 (Feng, Chuntian). 2000. 近代漢語語法研究。山東：山東教育出版社。

蔣紹愚 (Jiang, Shaoyu). 1994. 近代漢語研究概況。北京：北京大學出版社。

唐鈺明 (Tang, Yuming). 1988. 唐至清的"被"字句.中國語文6, 459-468.

王力 (Wang, Li). 1958. 漢語史稿。香港：波文書局。

俞光中 (Yu, Guangzhong). 1989. 零主語被字句。語言研究，1989年第二期。

俞光中&植田均 (Yu, Guangzhong & Hitoshi Ueda). 1999. 近代漢語語法研究。上海：學林出版社。

English

Berman, Arlene. 1973. A constraint on tough-movement. *Papers from the Ninth Regional Meeting of the Chicago Linguistic Society*, 34-43.

Blevins, J. P. 2006. Passive and impersonal constructions. In E. K. Brown ed., *Encyclopedia of Language and Linguistics*, 2nd edn,Vol. 9, 236-39. Oxford: Elsevier.

Goh, Gwang-Yoon. 2000. Is the tough-subject thematic? Paper presented at the Annual Meeting of the Linguistic Society of America, Chicago, IL.

Hicks, Glyn. 2009. *Tough* Constructions and their derivation, *Linguistic Inquiry* 40, 535-566.

Hoshi, Hiroto. 1994. Theta-role assignment, passivization and excorporation, *Journal of East Asian Linguistics* 3, 147-178.

Huang, C.-T. James. 1999. Chinese passives in comparative perspective. *Tsing Hua Journal of Chinese Studies* 29(4), 423-509.

Kitagawa, Yoshi. 1997. *Excorporation: A Generalized Minimalist Approach to Morphology-Syntax Interaction*, ms. Indiana University at Bloomington.
Li, Y.-H. Audrey 1990. *Order and constituency in Mandarin Chinese*. Dordrecht: Kluwer.
Perlmutter, D. M. and P. M. Postal. 1984. Impersonal passives and some relational laws. In Perlmutter, D. M. & C. G. Rosen, eds. *Studies in Relational Grammar 2*, 126-170. Chicago: University of Chicago Press.
Roberts, Ian. 2007. *Diachronic syntax*. New York: Oxford University Press.
Sanso, Andrea. 2006. 'Agent defocusing' revisited: passive and impersonal constructions in some European languages. In Werner Abraham and Larisa Leisio, eds. *Passivization and Typology*, 232-273. John Benjamins.
Ting, Jen. 1995. *A non-uniform analysis of the passive construction in Mandarin Chinese*. Doctoral dissertation, University of Rochester.
Ting, Jen. 1998. Deriving the *bei*-construction in Mandarin Chinese. *Journal of East Asian Linguistics* 7, 319-354.
Zubizarreta, Maria Luisa. 1985. The relation between morphophonology and morpho-syntax: the case of Romance causatives. *Linguistic Inquiry* 16, 247-289.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 395-407.

A Post-Syntactic Approach to the A-not-A Questions

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This paper proposes a post-syntactic analysis for the A-not-A questions in Mandarin Chinese. The operation that forms the A-not-A questions consists of two M-merger stages. First, Lowering attaches the A-not-A operator to the target. Second, Local Dislocation triggers reduplication. Lowering of the A-not-A OP targets is the Morphosyntactic Word that is closest to it. Adjoined modifiers do not block the lowering. On the other hand, Local Dislocation only picks up the adjacent Morphosyntactic Word for reduplication. Different reduplication domains derive the different subtypes of A-not-A questions, such as A-not-AB and AB-not-A. In this way, the A-not-A constructions are analyzed in a unified fashion.

1. Introduction

This paper proposes a unified analysis for the various subtypes of the A-not-A construction in Mandarin Chinese. In this paper, the A-not-A construction is analyzed in the post-syntactic approach (Embick & Noyer, 2001). It is proposed that the various subtypes of the A-not-A construction are phonologically triggered and built through post-syntactic movements in PF. Since the formation of the A-not-A question is sensitive to the hierarchical structure and locality conditions, we propose that the A-not-A construction is derived in two stages. First, the A-not-A operator attaches to its target by Lowering, and then, Local Dislocation triggers reduplication to produce the surface form of the A-not-A question.

This paper is organized as follows. In section 2 we introduce the post-syntactic approach that we employ. In section 3 we demonstrate how Lowering works. In section 4, we show the processes that derive the different reduplication patterns of the A-not-A construction. Section 5 is the conclusion.

2. Post-syntactic movement

Embick and Noyer (2001) argue for two operations for Morphological Merger (M-merger hereafter), Lowering and Local Dislocation. Lowering is downward movement in PF. Local Dislocation changes the adjacency of two elements after the linearization of the structure.

Lowering is sensitive to syntactic headedness, and is non-local. An intervening adjoined element does not block Lowering. Take the definite marker in Bulgarian as an example (Embick & Noyer 2001: 568-9):

(1)	a.	kniga-ta		
		book-DEF		
	b.	xubava-ta		kniga
		nice-DEF		book
	c.	dosta	glupava-ta	zabeležka
		quite	stupid-DEF	remark
	d.	*mnog-ət	star	teatər
		very-DEF	old	theater

The definite marker *-ta* in Bulgarin is suffixed to either a nominal or an adjective. When a nominal is modified by adjectives, the definite marker *-ta* is suffixed to the first adjective in the sequence. The marker *–ta* picks up the head of its complement as the target and M-merges with it by Lowering. For example, *kniga* 'book' in (1a) is a nominal and *xubava* 'nice' in (1b) is the first adjective in the sequence; therefore, *–ta* lowers to *kniga* 'book' in (1a) and *xubava* 'nice' in (1b) respectively. Because of the non-local characteristics of Lowering, intervening elements like the adjunct modifier *dosta* 'quite' in (1c) do not prevent DEF *–ta* from combining with the head of AP *glupava* 'stupid'. However, adverbs are adjuncts and cannot be targeted by the definite marker, as in (1d). All this shows that Lowering is sensitive to the syntactic structure.

Local Dislocation applies after linearization; therefore, it is sensitive to linear relations, such as adjacency and precedence. Two elements can change the adjacency and precedence relations by Local Dislocation. Local Dislocation is local. When it applies, intervening adjuncts cannot be bypassed. Take the superlatives in English as an example (Embick & Noyer, 2001: 564-5):

(2) a. John is the smart-est student.
b. John is the –est smart student.
c. John is the most amazingly smart student.
d. *John is the t amazingly smart-est student.

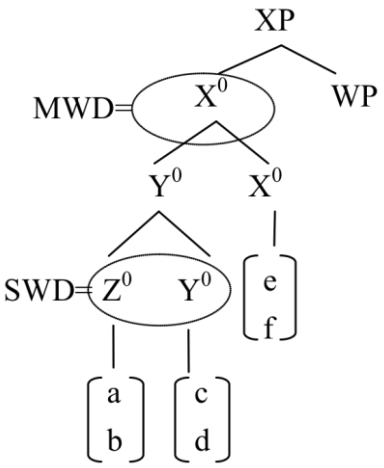
The underlying structure of (2a) is (2b). The superlative morpheme precedes the adjective *smart*. In (2a), there is no modifier between the adjective *smart* and superlative morpheme *–est*; as a result, the superlative morpheme can M-merge with the adjective *smart* by Local Dislocation. The linear order of the superlative morpheme is changed. The adjective becomes precedent to the superlative morpheme *–est*. In (2c), the superlative marker *–est* cannot M-merge with *smart* because it is not adjacent to *smart*. The adverb *amazingly* intervenes between the superlative marker *–est* and the adjective

student. Thus *most* is inserted to express superlativeness. If the superlative marker *–est* goes across the adjunct *amazingly* and M-merges with the adjective *smart*, the sentence is ungrammatical, as in (2d).

The elements that undergo post-syntactic movement are Morphosyntactic words (MWd) and Subwords (SWd). The definitions and structure of MWd and SWd are as follows (Embick and Noyer 2001:574):

(3) a. A node X^0 is an MWd iff X^0 is the highest segment and X^0 is not contained in another X^0.
b. A node X^0 is an SWd if X^0 is a terminal node and not an MWd.

(4)



In (4), X^0 is the highest segment and is not contained in another terminal node. X^0 is dominated by itself. Therefore, X^0 is an MWd. Y^0 is dominated by X^0 and Z^0 is contained in Y^0. Therefore, neither Y^0 nor Z^0 is an MWd. Both Y^0 and Z^0 are SWds.

3. Forming the A-not-A questions

3.1 Some properties of the A-not-A construction

According to Huang (1991), the A-not-A operator (the A-not-A OP hereafter) is generated in INFL. We follow this proposal and assume that the A-not-A OP is generated under the head T. In previous studies, the subtypes of A-not-A questions are assumed to be produced either through reduplication in PF (Huang 1991) or ellipsis of VP in narrow syntax (Huang 1991 and Huang 2008). However, we propose that the A-not-A questions can be generated just through lowering of the A-not-A OP and reduplication in PF.

Guo (1992) mentions that the A-not-A OP applies to [+V] elements like verbs and adjectives, as in (5a) and (5b). But actually it can apply to preposition-like elements, as (5c), or even nominals, as (5d).

(5) a. Zhangsan chi-bu-chi hanbao?
ZS eat-not-eat hamburger
'Does Zhangsan eat hamburger or not?'

b. Zhangsan gao-bu-gao?
ZS high-not-high
'Is Zhangsan high or not?'

c. Zhangsan zai-bu-zai tushuguan?
ZS in-not-in library
'Is Zhangsan in the library or not?'

d. Lü-bu-lü ka bu zhongiao
green card-not-green card not important
'It's not important whether one has the Permanent Resident Card of the U.S.'

Thus, any syntactic category that is the closest MWd to the A-not-A OP can be its target.

3.2 Lowering of the A-not-A Operator

The formation of the A-not-A question consists of two M-merging operations, Lowering and Local Dislocation. In this section we look at Lowering. Lowering M-merges the A-not-A OP to the target, the MWd that is the closest to it. Intervening modifiers do not block the lowering.

Along the following procedure, the A-not-A OP targets a head and lowers to it.

(6) a. The A-not-A OP targets the closest MWd.

b. Closeness of the MWd is defined as follows:
X is the closest to Y iff X is the MWd c-commanded by Y with the fewest intervening maximal projections.

c. The target of the A-not-A OP must have overt phonological realization.

Following this procedure, the examples in (7) can be accounted for:

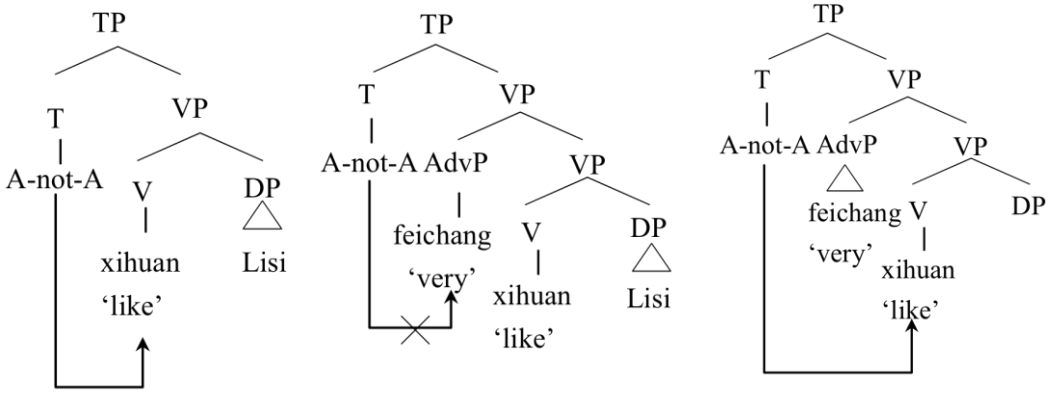
(7) a. Zhangsan xihuan-bu-xihuan Lisi?
ZS like-not-like Ls
'Does Zhangsan like Lisi or not?'

b. *Zhangsan feichang-bu-feichang xihuan Lisi?
ZS very-not-very like LS

c. *Zhangsan feichang xihuan-bu-xihuan Lisi?
ZS very like-not-like LS

In (7a), *xihuan* ‘like’ is the closest MWd to the A-not-A OP. As a result, the A-not-A OP M-merges with *xihuan* ‘like’ and turns it into the A-not-A form. On the other hand, the adverb *feichang* ‘very’ in (7b) cannot be the target of the A-not-A OP. It is an MWd, but not the closest one to the A-not-A OP, because it is contained in an adverbial phrase and is separated from A-not-A OP by two maximal projections. Lowering of the A-not-A OP to *feichang* ‘very’, therefore, is ungrammatical. In (7c), since the adverb *feichang* ‘very’ is adjoined to VP, the A-not-A OP presumably can cross it and lowers to the verb *xihuan* ‘like’, as Lowering is non-local. However, (7c) is unacceptable. This is because the presence of a positive-degree modifier such as *feichang* ‘very’ in the A-not-A questions causes semantic conflict. That is, if X likes Y very much, then necessarily X likes Y; as a result, the questioning of *xihuan* ‘like’ by the A-not-A OP contradicts the entailed truth of the proposition *Zhangsan xihuan Lisi* ‘Zhangsan likes Lisi’. Thus (7c) is actually syntactically grammatical, though it is semantically unacceptable. The derivations of (7a-c) are as (8a-c).

(8) a. b. c.



There is evidence that an intervening modifier indeed doesn't block the lowering of the A-not-A OP to its target. In (9a), the PP *dui Lisi* ‘to Lisi’ doesn't block the lowering of the A-not-A OP with the verb *danxin* 'worry'. That the PP *dui Lisi* is indeed an adjoined modifier can be seen in (9b), which is ungrammatical due to the lowering of the A-not-A OP to *dui* ‘to’.

(9)	a.	Zhangsan	dui	Lisi	dan-bu-danxin?
		ZS	to	LS	worry-not-worry
		'Is Zhangsan worried about Lisi or not?'			
	b.	*Zhangsan	dui-bu-dui	Lisi	danxin?
		ZS	to-not-to	LS	worry

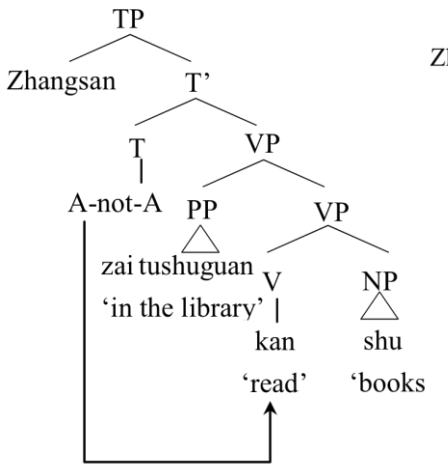
The above discussions show that an adjoined modifier cannot be the target of the A-not-A OP, and that a positive-degree modifier causes semantic conflict. However, (10a-b) seems to be counterexamples to this generalization. In (10a-b), the A-not-A OP can M-merge with either the verb *kan* 'read' or the preposition *zai* 'at'.

(10) a. Zhangsan zai tushuguan kan-bu-kan shu?
ZS in library read-not-read book
'In the library, does Zhangsan study or not?'

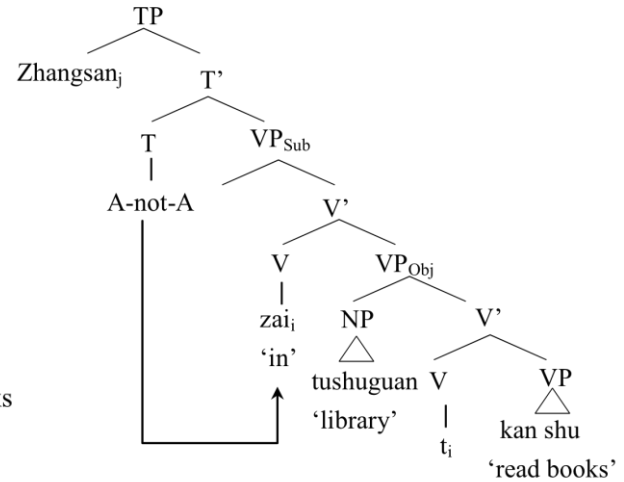
b. Zhangsan zai-bu-zai tushuguan kan shu?
ZS in-not-in library read book
'Does Zhangsan study in the library or not?'

Under the lowering analysis of the A-not-A OP, there is in fact a plausible solution for (10a-b): they must have distinct syntactic structures. In (10a), *kan* 'read' is the closest MWd to the A-not-A OP; in (10b), *zai* 'at' is. The structure of (10a) and (10b) are as (11a) and (11b).

(11) a.



b.



In (11a), *zai tushuguan* 'in the library' is a PP; the A-not-A OP can skip it and lower to the closest MWd *kan* 'read', as in (10a). On the other hand, in (11b), *zai tushuguan* 'in the library' is not a modifier but the main predicate. Li & Thompson (1981) point out that prepositions in Mandarin Chinese retain verbal characteristics, called coverbs. *Zai* 'in' in (11b) is a coverb taking the NP *tushuguan* 'library' as specifier and the VP *kan shu* 'read the book' as complement. Then it moves to the higher light verb (V_{Sub} in (11b)). The A-not-A OP then lowers to it, deriving the A-not-A question in (10b).

3.3 A-not-A Operator and adverbial-like elements

The above discussions show that adverbials cannot be the target of the A-not-A OP. However, (12a-b) seem to be counterexamples.

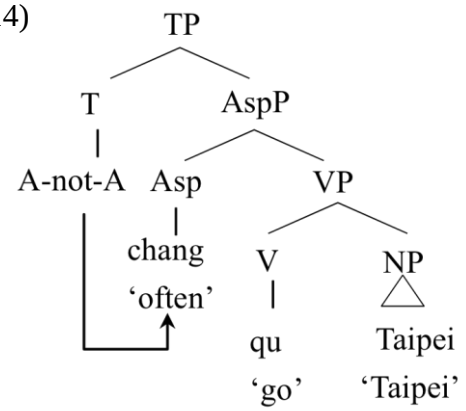
(12)	a.	Zhangsan	chang-bu-chang	qu Taipei?
		ZS	often-not-often	go Taipei
		'Does Zhangsan often go to Taipei or not?'		
	b.	Zhangsan	ceng-bu-ceng qu Taipei?	
		ZS	ever-not-ever go Taipei	
		'Has Zhangsan ever been to Taipei or not?'		

But there is evidence that (12a-b) are not real counterexamples. If we compare *chang* 'often' and *ceng* 'ever' in (12) with the real adverbs *changchang* 'often' and *cengjin* 'ever' in (13a-b), we find that the elements *chang* 'often' and *ceng* 'ever' in (12) and the adverbs in (13) may have distinct categorial status. In (13a-b), the A-not-A forms of the adverbs *changchang* and *cengjing* are ungrammatical. If *chang* and *ceng* in (12a-b) are also adverbs, the contrast between (12a-b) and (13a-b) is hard to explain.

(13)	a.	*Zhangsan	changchang-bu-changchang	qu Taipei
		ZS	often-not-often	go Taipei
	b.	*Zhangsan	cengjing-bu-cengjing	qu Taipei
		ZS	ever-not-ever	go Taipei

Changchang 'usually' and *cengjin* 'ever' are adverbs, so the ungrammaticality of (13a-b) is expected. If so, then *chang* 'often' and *ceng* 'ever' in (12a-b) cannot be adverbs. We propose that they are aspectual elements generated in Asp^0. Thus *chang* 'often' and *ceng* 'ever' are the closest MWd to the A-not-A OP, and the lowering of the A-not-A OP to *chang* 'often' and *ceng* 'ever' is grammatical. See (14) for illustration.

(14)



3.4 A-not-A Operator and nominals

In certain cases, the A-not-A OP can even M-merge with a nominal, as in (15a). (This is a sentence excerpted from a real conversation.) However, the application of the A-not-A OP to a nominal is not always acceptable, as the ungrammaticality of (15b) shows. Notice that in Mandarin Chinese, a bare nominal can appear in the predicate of the sentence without an overt verb, as (15c).

(15) a. Lü-bu-lüka bu zhongiao.
green card-not-green card not important
'It's not important whether one has the green card.'

b. *Zhangsan niuroumian-bu-niuroumian.
ZS beef noodle-not-beef noodle

c. Zhangsan niuroumian.
ZS beef noodle
'Zhangsan [wants] beef noodle.'

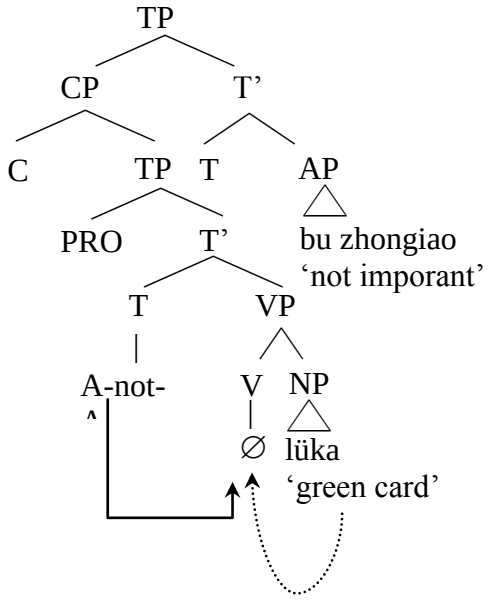
According to Tang (2003), a sentence like (15c) has a phonetically empty verb, which takes the nominal as object. Thus the nominal *lüka* 'green card' in (15a) can be regarded as the object of an empty verb in a sentential subject. Comparing (16a) and (16b), it is very likely that *lüka* 'green card' in (15a) may not be just a nominal but a reduced clause.

(16) a. lü-bu-lüka bu zhongiao
green card-not-green card not important
'It's not important whether you have the green card or not'

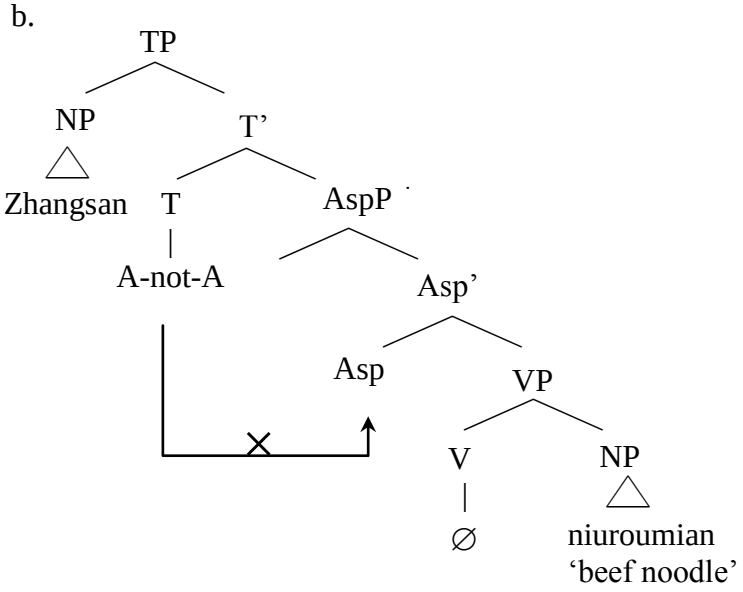
b. You-mei-you lüka bu zhongiao
have-not-have green card not important
'It's not important whether one has the green card or not.'

We propose that in (15a), *lüka* 'green card' incorporates to an empty verb. See (17a) and (17b).

(17) a.


TP
CP
T'
C
TP
T
AP
PRO
T'
bu zhongiao
'not imporant'
T
VP
A-not-
^
V
NP
∅
lüka
'green card'

b.


TP
NP
T'
Zhangsan
T
AspP
A-not-A
Asp'
Asp
VP
V
NP
∅
niuroumian
'beef noodle'

The sentential subject in (17a) lacks AspP but the structure in (17b) has it. The NP *lüka* in (17a) 'green card' incorporates to the empty verb and becomes the closest MWd to the A-not-A OP. This is why (17a) is grammatical. In (17b), *niuroumian* 'beef noodle' is not the closest MWd to the A-not-A OP, even if it incorporates to the empty verb. The closest MWd to the A-not-A OP is the aspectual head Asp. This is why (15b) is ungrammatical. But the A-not-A OP cannot target Asp either, because the target must have overt phonetic content. Thus (17b) is ungrammatical too.

4. Local Dislocation and reduplication

After Lowering, Local Dislocation triggers reduplication. The A-not-A OP determines the reduplication domain, makes reduplication, and Local Dislocates the reduplicated material to the left or right of the base. The reduplication domain can be the first syllable of the target, the target itself, or the maximal projection of the target. The process strictly follows the linear order.

4.1 The A-not-AB questions

The subtype A-not-AB construction is derived by the following procedure:

(18) a. The A-not-A OP targets its adjacent element in the left-to-right manner and determines the reduplication domain, which can be:
   (i) The first syllable of the adjacent MWd (= (19a));
   (ii) The adjacent MWd (= (19b));
   (iii) The maximal projection of the adjacent MWd (= (19c)).
   b. The A-not-A OP copies the material.
   c. The reduplicated material is Local Dislocated to the LEFT of the base.
   d. The negation *bu* or *mei* is inserted between the reduplicated material and the base.

(19) a. Zhangsan **<u>tao</u>**-bu-**<u>tao</u>**yan Lisi ?
   ZS hate-not-hate LS
   'Does Zhangsan hate Lisi or not?'
   b. Zhangsan **<u>taoyan</u>**-bu-**<u>taoyan</u>** Lisi ?
   ZS hate-not-hate LS
   'Does Zhangsan hate Lisi or not?'
   c. Zhangsan taoyan Lisi bu taoian Lisi ?
   ZS hate LS not hate LS
   'Does Zhangsan hate Lisi or not?'

We assume that the A-not-A OP is like a scan-and-copy machine. In (19a), the A-not-A OP scans rightward over the first syllable of the MWd *taoyan* 'hate', and copies it. Then

the reduplicated material *tao* is located at the left of the base *taoyan* 'hate'. After this the negation *bu* is inserted, deriving the surface form. Similarly, in (19b) and (19c), the A-not-A OP scans and copies the MWd *taoyan* 'hate' and the maximal projection of the MWd *taoyan Lisi* 'hate Lisi', respectively. The reduplicated material is located at the left of the base and the negation *bu* is inserted. See (20a-c) for the derivations ('⊕' = the precedence relation):

(20) a. A-not-A OP scans and copies the first syllable of the adjacent MWd
1. [A-not-A]⊕ [[$_{V}$ *taoyan* 'hate']⊕[$_{NP}$ *Lisi*]]
2. [A-not-A]⊕ [[$_{V}$ ***tao****yan* 'hate']⊕[$_{NP}$ *Lisi*]]
(Scan and copy the first syllable)
3. [$_{\textbf{copy}}$ ***tao***]⊕[A-not-A] ⊕ [[$_{V}$ ***tao****yan* 'hate']⊕[$_{NP}$ *Lisi*]]
(Locate the copy at the left of the base)
4. [$_{\textbf{copy}}$ ***tao***] + [**bu**] + [[$_{V}$ ***tao****yan* 'hate']+[$_{NP}$ *Lisi*]]
(Insert the negation)

b. A-not-A OP scans and copies the adjacent MWd
1. [A-not-A]⊕ [[$_{V}$ *taoyan* 'hate']⊕[$_{NP}$ *Lisi*]]
2. [A-not-A]⊕ [[$_{V}$ ***taoyan*** 'hate']⊕[$_{NP}$ *Lisi*]]
(Scan and copy the MWd)
3. [$_{\textbf{copy}}$ ***taoyan***]⊕[A-not-A] ⊕ [[$_{V}$ ***taoyan*** 'hate']⊕[$_{NP}$ *Lisi*]]
(Locate the copy at the left of the base)
4. [$_{\textbf{copy}}$ ***taoyan***] + [**bu**] + [[$_{V}$ ***taoyan*** 'hate']+[$_{NP}$ *Lisi*]]
(Insert the negation)

c. A-not-A OP scans and copies the maximal projection of the adjacent MWd
1. [A-not-A]⊕ [[$_{V}$ *taoyan* 'hate']⊕[$_{NP}$ *Lisi*]]
2. [A-not-A]⊕ [[$_{V}$ ***taoyan*** 'hate']⊕[$_{NP}$ ***Lisi***]]
(Scan and copy the maximal projection of the MWd)
3. [$_{\textbf{copy}}$ ***taoyan Lisi***]⊕[A-not-A] ⊕ [[$_{V}$ ***taoyan*** 'hate']⊕[$_{NP}$ ***Lisi***]]
(Locate the copy at the left of the base)
4. [$_{\textbf{copy}}$ ***taoyan*** *'hate'* ***Lisi***] + [**bu**] + [[$_{V}$ ***taoyan*** 'hate']+[$_{NP}$ ***Lisi***]]
(Insert the negation)

4.2 The AB-not-A questions

The other subtype, the AB-not-A construction is derived by the following procedure:

(21) a. The A-not-A OP targets its adjacent element in the left-to-right manner and determines the reduplication domain, which can be:
(i) The maximal projection of the adjacent MWd (= (22a));
(ii) The adjacent MWd (= (22b)).

b. The A-not-A OP copies the material.

c. The reduplicated material is Local Dislocated at the RIGHT of the maximal projection that contains the targeted MWd.

d. Negation *bu* or *mei* is inserted between the reduplicated material and the base.

(22) a. Zhangsan **taoyan** Lisi bu **taoyan**
ZS hate LS not hate
'Does Zhangsan quite hate Lisi or not?'

b. Zhangsan taoyan Lisi bu taoyan Lisi
ZS hate LS not hate LS
'Does Zhangsan hate Lisi or not?'

In (22a) and (22b), the A-not-A OP scans rightward and copies the adjacent MWd *taoyan* 'hate' and the maximal projection of the MWd *taoyan Lisi* 'hate Lisi', respectively. The reduplicated material is located at the right of the predicate and the negation *bu* is inserted. The derivations are as (23a-b).

(23) a. A-not-A OP scans and copies the adjacent MWd

1. [A-not-A]⊕ [[$_{v}$ *taoyan* 'hate']⊕[$_{NP}$ *Lisi*]]
2. [A-not-A]⊕[[$_{v}$ ***taoyan*** 'hate']⊕[$_{NP}$ *Lisi*]]
(Scan and copy the MWd)
3. [[$_{v}$ ***taoyan*** 'hate']⊕[$_{NP}$ ***Lisi***]] ⊕[A-not-A]⊕[$_{\mathbf{copy}}$ ***taoyan***]
(Locate the copy on the right of the base)
4. [[$_{v}$ ***taoyan*** 'hate']+[$_{NP}$ ***Lisi***]] + [**bu**] + [$_{\mathbf{copy}}$ ***taoyan*** *'hate'*]
(Insert the negation)

b. A-not-A OP scans and copies the maximal projection of the adjacent MWd

1. [A-not-A]⊕ [[$_{v}$ *taoyan* 'hate']⊕[$_{NP}$ *Lisi*]]
2. [A-not-A]⊕ [[$_{v}$ ***taoyan*** 'hate']⊕[$_{NP}$ ***Lisi***]]
(Scan and copy the maximal projection of the MWd)
3. [[$_{v}$ ***taoyan*** 'hate']⊕[$_{NP}$ ***Lisi***]] ⊕ [A-not-A]⊕[$_{\mathbf{copy}}$ ***taoyan Lisi***]
(Locate the copy on the right of the base)
4. [[$_{v}$ ***taoyan*** 'hate']+[$_{NP}$ ***Lisi***]] + [**bu**] + [$_{\mathbf{copy}}$ ***taoyan*** *'hate'* ***Lisi***]
(Insert the negation)

5. Conclusion

In this study, we propose a post-syntactic approach to the A-not-A questions. First, the A-not-A OP targets the closest MWd and moves to it by Lowering. Second, the A-not-A OP performs Local Dislocation through reduplication. Different subtypes are derived on different reduplication domains and the left/right Local Dislocation. In this way, the A-not-A questions are analyzed in a unified manner.

There are still questions that need to be investigated. For example, if the reduplicated material is located to the right of the base, then the reduplication domain cannot be a syllable; compare (18a) and (21a). At the present it is not clear why this is the case. Also, we do not discuss questions about the interaction between the A-not-A OP and different aspect markers (the perfective marker *-le*, the experiential marker *-guo*, etc). We leave these questions to future study.

References

Embick, David, and Rolf Noyer. 2001. Movement Operation after Syntax. Linguistic Inquiry 32. 555-95.

Guo, Chin-Man. 1992. A-not-A Questions in Mandarin Chinese, M.A. thesis, National Tsing-Hua University, Taiwan.

Huang, C.-T. James. 1991. Modularity and Chinese A-not-A Questions. Interdisciplinary Approaches to Language, ed. By Carol Georgopoulos and Roberta Ishihara. 305-22. Dordrecht: Kluwer.

Huang, Rui-Heng. 2008. On Licensing Alternative WH in Mandarin Chinese. Paper presented at 16th IACL, Peking.

Li, Charles N. and Sandra A. Thompson. 1981. Mandarin Chinese. Berkeley and LosAngeles: University of California Press..

Tang, Sze-Wing. 2003. Verbless Adverbial Clause and Economy. Chinese Syntax and Semantics, ed. by Xu Jie, Donghong Ji and Lua Kim Teng. 157-76. Singapore: Parson Education Asia.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 408-416.

Null Subject Revisited

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National United University

This study starts from a previously unnoticed observation on Chinese null subjects, which does not fit in with what has been perceived about the identification of them. Specifically, an interesting contrast on the presence/absence of overt topic phrases with respect to island effects for the null subjects brings out the main thread. We suggest that such distribution can be easily accounted for by assuming a [+Top] feature at the matrix C-head which has to be checked either by merging an overt topic phrase to CP or by the covert (or feature) movement of the null subject to CP when no overt topic phrase is available.

1. Introduction

It is well known that Chinese, being a topic-prominent language, allows empty subjects as in (1)) whose referents can be identified either by an overt topic phrase or by a null one as long as it is prominent in the discourse.

(1) (Zhangsan$_i$ a), e_i lai le.
Zhangsan Top come Perf.
'(Zhangsan$_i$), (he$_i$) has come.'

Since Huang's (1984) pioneering work on the distribution and reference of empty pronouns in Chinese, there have been debates over the status of the null object (Xu & Langendoen 1985, Xu 1986, Hunag 1989, 1991, Liu 2004, Li 2007). Nonetheless, it is generally agreed that the categorical status of the null subject remains stable. That is, it can be either a pronominal or a variable. As (2)) shows, the embedded null subject can be coindexed with the matrix subject, a property of A-bound pronominal, while it can also be coindexed with an empty topic, a property of A'-bound variable, referring to a pragmatically salient referent in the discourse.[1]

[1] Because our main concern here is the null subjects, we won't discuss the null objects and leave them to further research.

(2) Zhangsan$_i$ suo [$e_{i/j}$ bu renshi Lisi].
Zhangsan say not know Lisi
'Zhangsan$_i$ said (he$_{i/j}$) did not know Lisi.'

However, an interesting distribution observed below shows that there is more to it than what we previously perceived about Chinese null subjects. In (3)) when a null subject is embedded within a complex NP, the sentence is illformed (cf. (1))).

(3) a. *[$_{DP}$ xuduo [$_{CP}$ *e* xie] de shu] dou mai de hen hao.
many write DE book all sell DE very well
'Many books that (he) writes sell very well.'
b. *[$_{DP}$ [$_{CP}$ *e* xihuan nanren] de yaoyan] man-tien fei.
like man DE rumor full-day fly
'The rumor that (he) likes men is everywhere.'

The empty subject in (3)) can in principle be a pronominal which is immune to island effects as its overt counterpart shows in (4)). This suggests that the null subject and its overt realization do not only differ in their phonetic content.

(4) a. [$_{DP}$xuduo [$_{CP}$ ta xie] de shu] dou mai de hen hao.
many he write DE book all sell DE very well
'Many books that he writes sell very well.'
b. [$_{DP}$[$_{CP}$ ta xihuan nanren] de yaoyan] man-tien fei.
he like man DE rumor full-day fly
'The rumor that he likes men is everywhere.'

Such an observation is puzzling since we have no idea why the pronominal status of the null subject is gone in the island construction. Even if there is a salient referent in the previous discourse, the sentence is still awkward as the following examples show.

(5) Speaker A: Zhangsan$_i$ hen you tianfen.
Zhangsan a very have talent
'Zhangsan is very talented.'
Speaker B: *Shi a, [$_{DP}$ xuduo [$_{CP}$ e_i xie] de shu] dou mai de hen hao.
be Top many write DE book all sell DE very well
'Yes, many books that (he$_i$) writes sell very well.'

(6) Speaker A: Zhangsan$_i$ zuijin jiehuen le.
Zhangsan recently marry Perf.
'Zhangsan got married recently.'
Speaker B: *Keshi, [$_{DP}$ [$_{CP}$ e_i xihuan nanren] de yaoyen] haishi man-tien fei.
but like man DE rumor still full-day fly
'But, the rumor that (he$_i$) likes men is still everywhere.'

This study will center upon this issue and try to bring forth a solution to it. Section 2 discusses cases of identification violation as predicted by Huang (1984) and shows that with careful inspection there are still some other cases that need further exploration. Section 3 observes the definiteness requirement of the null subject and how it may be derived syntactically. Section 4 suggests that the puzzling cases can be attributed to the checking of the [+Top] feature on the matrix C-head, as is inspired by the definiteness requirement of the null subject. Section 5 concludes the discussion.

2. Movement vs. Non-movement

To identify the null subject, particularly the subject *pro*, Huang proposes the Generalized Control Rule:

(7) The Generalized Control Rule (GCR, Huang 1984, 1989, Huang, Li, & Li 2009)[2]
Coindex an empty pronoun with the closest nominal element.

In a construction like (2)), when the null subject is a *pro*, it is coindexed with the matrix subject, being the closest nominal element by GCR; when the null subject is a variable, it is not subject to GCR and is coindexed with a zero topic, hence the ambiguity.

Huang's GCR further accounts for the following contrast when an empty subject within islands refers to an overt topic phrase. Take (8)) for illustration. In (8)a) the coindexation between the null subject and the topic phrase is possible because the latter is the closest nominal element.[3] In (8)b), however, the coindexation is blocked by an intervening nominal element, leading to ungrammaticality.

(8) a. Zhangsan$_i$, [$_{DP}$ xuduo [$_{CP}$ e_i xie] de shu] dou hen changxiao.
Zhangsan many write DE book all very well.sell
'Zhangsan$_i$, many books that (he$_i$) wrote sell very well.'

[2] In Huang (1989), he has a revised version as in (i) from his (1984) work to include the occurrence of arbitrary PROs and to exclude the obligatory requite for a *pro* to be controlled everywhere in Chinese as denoted by the (1984) version. In this study we adopt the version in Huang (1984) for simplicity.

(i) An empty pronominal is controlled in its control domain (if it has one).

[3] The variable status is blocked by the island constraint.

b. *Zhangsan$_i$, wo du-le [$_{DP}$ xuduo [$_{CP}$ e_i xie] de shu].
Zhangsan I read-Perf. many write DE book
'Zhangsan$_i$, I have read many books that (he$_i$) wrote.'

Likewise, the following examples are also ruled out due to GCR violation. That is, the coindexation between the null subject and the empty discourse topic is blocked by a closer NP: (see also Aoun & Li 2008)

(9) a. *Laoshi$_j$ [yinwei e_i mei lai shangxue] hen shengqi.
teacher because not come go.to.school very upset
'Because (he$_i$) didn't come to the school, the teacher$_j$ was very upset.'
b. *Women$_j$ [meidang e_i du shu shi] dou bu neng chu sheng.
we whenever read book then all not can make noise
'Whenever (he) is studying, we cannot make noise.'

Nonetheless, we find that even if the GCR violation is carefully avoided, these sentences are still illformed. As the examples in (10)-11)) show, no intervening element would block the coindexation between the null subject and the discourse topic (being empty here) and these examples are still ruled out.

(10) a. *[Yinwei e_i mei lai shangxue], laoshi$_j$ hen shengqi.
because not come go.to.school teacher very upset
'Because (he$_i$) didn't come to the school, the teacher$_j$ was very upset.'
b. *[Meidang e_i du shu shi], women$_j$ dou bu neng chu sheng.
whenever read book then we all not can make noise
'Whenever (he) is studying, we cannot make noise.'

(11) a. *[$_{DP}$ xuduo [$_{CP}$ *e* xie] de shu] dou mai de hen hao. (=(3)a))
many write DE book all sell DE very well
'Many books that (he) writes sell very well.'
b. *[$_{DP}$ [$_{CP}$ *e* xihuan nanren] de yaoyan] man-tien fei. (=(3)b))
like man DE rumor full-day fly
'The rumor that (he) likes men is everywhere.'

This is quite puzzling because the null subject should in principle be able to refer to a null topic as in (12)) (see also (1))).

(12) [Null Topic]$_i$, e_i lai le.
come Perf.
'(Someone) came.'

Long-distance licensing from the null topic is also possible:

(13) [Null Topic]$_i$, [wo jide [Lisi shuo [e_i hui lai]]].
I remember Lisi say will come
'I remember Lisi said (he$_i$) would come.

Therefore, the ungrammatical examples in (10)-11)) seem to have something to do with islands. Now, if a topic is overtly realized, the sentence turns out to be fine:

(14) a. Zhangsan$_i$ a, [$_{DP}$ xuduo [$_{CP}$ e_i xie] de shu] dou hen changxiao.
Zhangsan Top many write DE book all very well.sell
'Zhangsan, many books that (he) wrote sell very well.'

b. Zhangsan$_i$ yinwei e_i mei lai shangxue, laoshi$_j$ hen shengqi.
Zhangsan because not come go.to.school teacher very upset
'Because Zhangsan didn't come to the school, the teacher was very upset.'

In sum, the null subject investigated in this section exhibits the following nature:

1) With the overt topic phrase, the null subject is like a pronoun and no island effect is observed (see (14))). This amounts to saying that no movement is involved.
2) Without the overt topic phrase, the null subject somehow needs to "escape" the island when embedded in island constructions (see (10)-11))), a property of movement.

3. Definiteness

One interesting observation on null subjects is that their referents are typically definite. For a modal construction like (15)a) where the subject is exclusively nonspecific (Tsai 2001), a follow-up utterance with a null subject referring to the previous nonspecific referents as in (15)b) is pretty much weird.

(15) a. San-ge ren tai-de-chi yi-tai gangqin.
three-Cl person lift-DE-up one-Cl piano
'Three men can lift up one piano.'

b. #Xia-ci *e* yao tai kache.
next-time will lift truck
'Next time, (they) will lift a truck.'

In Chinese there are at least two ways to syntactically derive the definiteness. One is by way of object fronting. It has been suggested that object fronting targets somewhere between TP and *v*P and the fronted object denotes a strong sense of definiteness (Diesing 1992, Shyu 1995, 2001, Paul 2002).

(16) a. Ta huan shu le.
he return book Perf.
'He has returned the/a book.'
b. Ta $\underline{shu_i}$ [$_{vP}$ huan e_i] le.
he book return Perf.
'He has returned the book.'

The other is via topicalization which targets CP. Either the object or the subject can be topicalized.

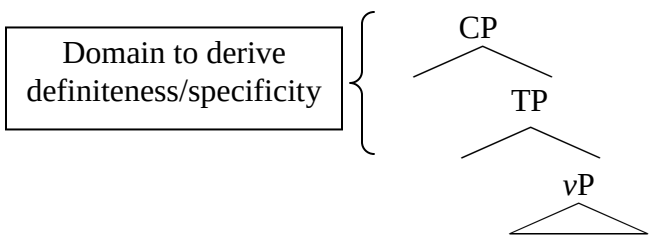
(17) a. $\underline{Shu_i}$ ta huan e_i le.
book he return Perf.
'He returned the book.'
b. $\underline{Lisi_i}$, Zhangsan suo e_i xihuan Wangwu.
Lisi Zhangsan say like Wangwu
'Lisi, Zhangsan said (he) liked Wangwu.'

Meanwhile, the subject itself also exhibits a strong sense of definiteness/specificity.[4]

(18) a. <u>Ren</u> lai le.
person come Perf.
'The person came.'
b. <u>Gou</u> zai jiao.
dog Prog. bark
'The dog is barking.'

The above demonstration shows that the definiteness has much to do with the functional layers above *v*P as shown in (19)). Given this, the null subjects should also have some connections with this domain so that they exhibit the same definiteness requirement.

(19)



[4] We do not distinguish the difference between these two notions. What is crucial is that the referents have to be mentioned and remain salient in the discourse.

4. Checking the [+Top] Feature

4.1 Null subjects with overt topic phrases

According to the paradigm illustrated above, when an overt topic phrase is present, no island effect is observed and the null subject behaves like a pronoun. In fact, with evidence from the lack of strong crossover effects in Chinese, Huang (1984) has shown that the Chinese null subject should be considered as a "zero pronoun", i.e., *pro*.

(20) a. *John$_i$, he$_i$ said e_i saw Bill.
b. *Who$_i$ did he$_i$ say e_i saw Bill?

(21) Zhangsan$_i$, ta$_i$ shuo e_i mei kanjian Lisi.
Zhangsan he say no see Lisi
'Zhangsan$_i$, he$_i$ said that (he$_i$) didn't see Lisi.'

Independent evidence from anaphoric binding also suggests that the null subject should be a *pro* so that only the strict reading is allowed in (23)):

(data from Miyagawa (2009) handout, due to Audrey Li's work)
Empty Object
(22) Zhangsan hen xihuan ziji de mama, Lisi bu xihuan *e*.
Zhangsan very like self Poss mother Lisi not like
'Zhangsan likes self's mother, Lisi does not like *e* (=self's mother)'

Empty Subject
(23) Zhangsan yiwei [ziji de haizi xihuan yingwen]; Lisi yiwei [*e* xihuan fawen]
Zhangsan think self Poss child like English Lisi think like French
'Zhangsan thought that self's child liked English; Lisi thought e liked French.'

($e \neq$ self's child)

Now, since the null subjects are strongly related to the definiteness, I suggest that they be also licensed in the function domain of CP. More specifically, I suggest that the definiteness requirement be due to the [+Top] feature at the matrix C-head which is very much speaker-oriented and related to discourse topics. Furthermore, since there is no island effect observed for the null subject with an overt topic phrase, it is plausible that the topic phrase should be directly merged to CP, checking the [+Top] feature at C.

4.2 Null subjects without overt topic phrases

When no overt topic phrases available for the checking of the [+Top] feature at C, we have two alternatives. The first one is to assume that the [+Top] feature at C may be

further transferred to T in a feature inheritance fashion (Chomsky 2005, 2008). In fact, Miyagawa (2009) suggests that following the same vein of Chomsky (2005, 2008) the functional relation established by the C-to-T feature inheritance system in the agreement languages can also be applied to the agreementless, discourse configurational languages such as Japanese, only that in the former it is the phi-features that are at work whereas in the latter it is the topic/focus feature that serves the purpose. The island effect occurs when the [+Top] feature at the matrix C is passed down to the island.

One problem arises with this approach if we apply it to Chinese. That is, the feature inheritance should be "local" in the sense that it operates within the domain of C-to-T. This may explain the island effects observed before. Yet, the "non-local" licensing of the embedded null subject as in (24)) will be "from the matrix C to the embedded T, which seems to be undesirable if we assume the C-to-T feature inheritance framework.

(24) [Null Topic]$_j$, Zhangsan$_i$ shuo e_j bu xihuan Lisi.
Zhangsan say not like Lisi
'Zhangsan$_i$ said that (he$_j$) didn't like Lisi.'

Or we may further assume that the null topic itself introduces another null topic to the embedded CP so that further C-to-T inheritance may be substantiated.

The second alternative is simply to assume that the [+Top] remains at C (Miyagawa 2009 also suggests so for Chinese). When no overt topic phrase is available, the null subject, then, has to move to CP to check the [+Top] feature at C-head. The island effects hence follow from this and the long distance licensing in (13)) is also possible under this approach (in the same vein of *wh*-movement).

5. Concluding Remarks

Huang (1984, 1989) clearly addresses the GCR in regulating the empty pronouns in Chinese. In this study, we find cases of island effects where no GCR is violated whereas the sentences are still ruled out. We suggest that the GCR is irrelevant in these cases. What is at issue here should be the checking of [+Top] feature at C. More specifically, we attribute the above cases of island effects to the [+Top] feature at C which can be checked either by directly merging an overt topic to it or by attracting the subject *pro* upward (or transferring the [Top] feature downward) when no overt topic is available. The latter derivation, hence, triggers island effects.

References:

Aoun, Joseph. & Yen-hui Audrey Li. 2008. Ellipsis and missing objects. Foundational issues in linguistic theory: Essays in Honor of Jean-Roger Vergnaud. In Robert Freidin, Carlos P. Otero and Maria Luisa Zubizarreta (eds.), 251-274. Cambridge, MA: MIT Press.

Chomsky, Noam. 2005. Three factors in language design. Linguistic Inquiry 36.1–23.

Chomsky, Noam. 2008. On phases. In Robert Freidin, Carlos Otero, and Maria-Luisa Zubizaretta, eds., Foundational issues in linguistic theory, 133–166. Cambridge, MA: MIT Press.

Diesing, Molly. 1992. Indefinites. Cambridge, MA: MIT Press.

Huang, Cheng-Teh James. 1984. On the distribution and reference of empty pronouns. Linguistic Inquiry 15.531-574.

Huang, Cheng-Teh James. 1989. Pro-drop in Chinese: a generalized control theory. In Osvaldo Jaeggli and Kenneth Safir (eds.), The null Subject parameter, 185-214. Dordrecht: Kluwer.

Huang, Cheng-Teh James. 1991. Remarks on the status of the null object, in R. Freidin (ed.), Principles and parameters in comparative grammar: 56-76. Cambridge, MA: MIT Press.

Li, Yen-Hui Audrey. 2007. Theories of empty categories and Chinese null elements. Yuyan Kexue [Linguistic Sciences] 6.37-47.

Liu, Chen-Sheng Luther. 2004. Antilogophoricity, epithets and the empty antilogophor in Chinese. Journal of East Asian Linguistics 13.3.257-287.

Miyagawa, Shigeru. 2009. Why Agree? Why Move? Unifying agreement- based and discourse configurational languages. Cambridge, Mass.: MIT Press.

Paul, Waltraud. 2002. Sentence-internal topics in Mandarin Chinese: the case of object preposing. Language and Linguistics 3.4.

Shyu, Shu-ying. 1995. The syntax of focus and topic. Los Angeles: University of Southern California dissertation.

Shyu, Shu-ying. 2001. Remarks on object movement in Mandarin SOV Order. Language and Linguistics 2.1.93-124.

Tsai, Wei-Tien Dylan. 2001. On subject specificity and theory of syntax-semantics interface, Journal of East Asian Linguistics 10.129-168.

Xu, Liejiong. 1986. Free empty category. Linguistic Inquiry 17.75-95.

Xu, Liejiong and D. Terence Langendoen. 1985. Topic structures in Chinese, Language 61.1-27.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 417-429.

On the Cleft Construction in Mandarin Chinese

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This paper intends to investigate the cleft construction in Mandarin Chinese (MC hereafter). First, we try to delve into the syntactic structure of the cleft construction. We propose that *shi*, a focus marker, occupies the Foc^0 head position. Elements preceding *shi*, if any, are base-generated in Spec, TopP. Second, we deal with the puzzle with regard to object uncleftability. We here argue that the phenomenon leads to violation of Relativized Minimality (Rizzi 1990), as the verb, base-generated in V^0 head, must move across *shi* in Foc^0 head so as to derive the surface order. Third, we also manage to provide a cartographic approach concerning the syntactic positions of clefts and modals. It is found that epistemic modals must precede *shi* in MC, which means that ModP must be higher than FocP. By contrast, *shi* cannot follow deontic modals, which further evidences that *shi* is situated in the CP level.

1. Introduction

This paper intends to investigate the cleft construction in Mandarin Chinese (MC hereafter) (see (1)). Three issues will be discussed in this paper. First, I try to delve into the syntactic structure of the cleft construction. Following Rizzi's (1997) left periphery analysis, which divides CP into several functional projections, I propose that *shi*, a focus marker, occupies the Foc^0 head position. Elements preceding *shi*, if any, are base-generated in Spec, TopP, a functional projection above FocP. Besides, I contend that there is no TopP below FocP in MC (see (2)).

(1) a. Zhangsan shi zuotian qu Taibei de.
Zhangsan SHI yesterday go Taipei DE
'It is yesterday that Zhangsan went to Taipei.'
b. Shi Zhangsan zuotian qu Taibei de.
SHI Zhangsan yesterday go Taipei DE
'It is Zhangsan that went to Taipei yesterday.'

(2) a. Lisi a mingtian shi yao chuguo de.
Lisi TOP tomorrow SHI want go abroad DE
'Lisi, it is go abroad that he will do tomorrow.'

b. *Shi Lisi mingtian a yao chuguo de.
SHI Lisi tomorrow TOP want go abroad DE
'It is Lisi tomorrow, that will go abroad'

Second, I will deal with the puzzle with regard to object uncleftability (see (3)), a less mentioned subject in the literature. I here argue that the reason lies in the fact that when an object is cleft, a situation in which *shi* intervenes between the verb and the object, it would lead to violation of Relativized Minimality (Rizzi 1990), as the verb, base-generated in V^0 head, must move across *shi* in FOC^0 head to an unknown functional head so as to derive the surface order.

(3) a. Shi Akiu zuotian qu Taibei de.
SHI Akiu yesterday go Taipei DE
'It is Akiu that went to Taipei yesterday.'
b. *Akiu zuotian qu shi Taibei de.
Akiu yesterday go SHI Taipei DE
'It is Taipei that Akiu went to yesterday.'

Third, based on Tsai's (2010) modality spectrum, I will provide a cartographic approach concerning the relative syntactic positions between clefts and modals. It is found that epistemic modals, such as *dagai* 'possibly', must precede *shi* in MC (see (4)), which means that MODP must be higher than FOCP. By contrast, *shi* cannot follow deontic modals, e.g. *bixu* 'must' (see (5)), which further evidences that *shi* is situated in the CP level.

(4) a. Xiaodi dagai shi qu Taibei de.
Xiaodi probably SHI go Taipei DE
'It is go to Taipei that Xiaodi probably will do.'
b. *Xiaodi shi dagai qu Taibei de.
Xiaodi SHI probably go Taipei DE
'It is probably that Xiaodi will go to Taipei.'

(5) a. *Xiaodi bixu shi qu Taibei de.
Xiaodi must SHI go Taiepi DE
'It is go to Taipei that Xiaodi must do.'
b. Xiaodi shi bixu qu Taibei de.
Xiaodi SHI must go Taipei DE
'It is must that Xiaodi go to Taipei.'

2. Literature Review

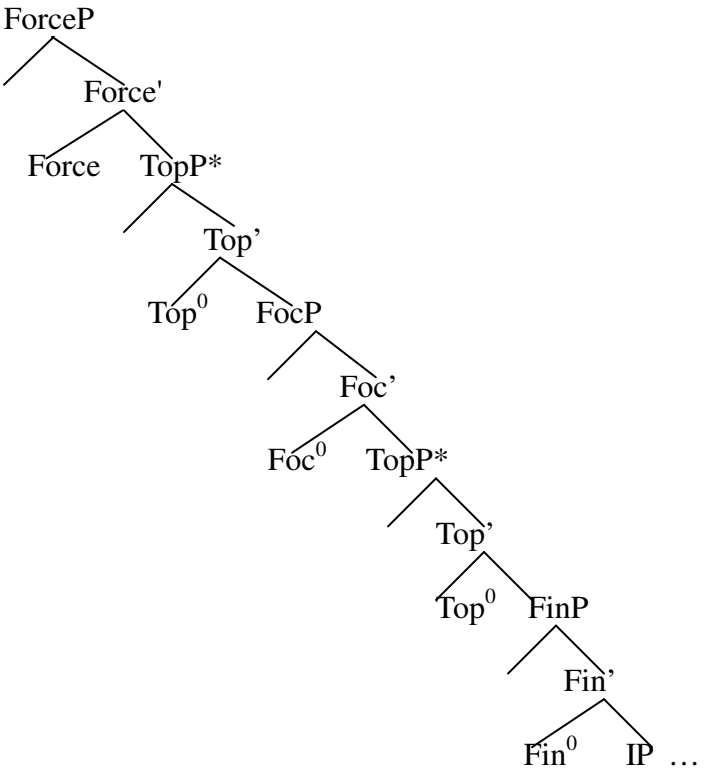
In this section I will discuss some related works on the cleft construction in MC

as well as the theoretical framework I will adopt in this paper.

2.1. Rizzi's (1997) Structure of the Left Periphery

In his "The Fine Structure of the Left Periphery," Rizzi (1997) examines the syntactic structures of Italian and some other European languages and points out that there should be layered functional projections within the complementizer domain of a tree structure, as schematized below.

(6)

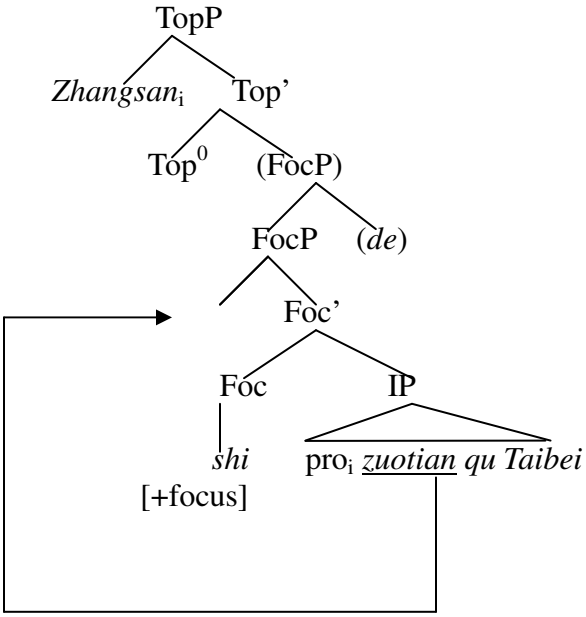


2.2. *On Chinese Focus and Cleft Constructions* (Lee 2005)

As seen above, Rizzi suggests that the structure of CP can be parsed into several functional projections. Based on this, Lee in her doctoral dissertation analyzes the syntactic structure of the cleft construction in MC and argues that *shi*, a focus marker, occupies the FOC^0 head position and that the focalized element will undergo LF movement to Spec, FOCP. Sentence (1a) is reproduced in (7a), and its tree structure is given in (7b) below.

(7) a. Zhangsan shi zuotian qu Taibei de.
Zhangsan SHI yesterday go Taipei DE
'It is yesterday that Zhangsan went to Taipei.'

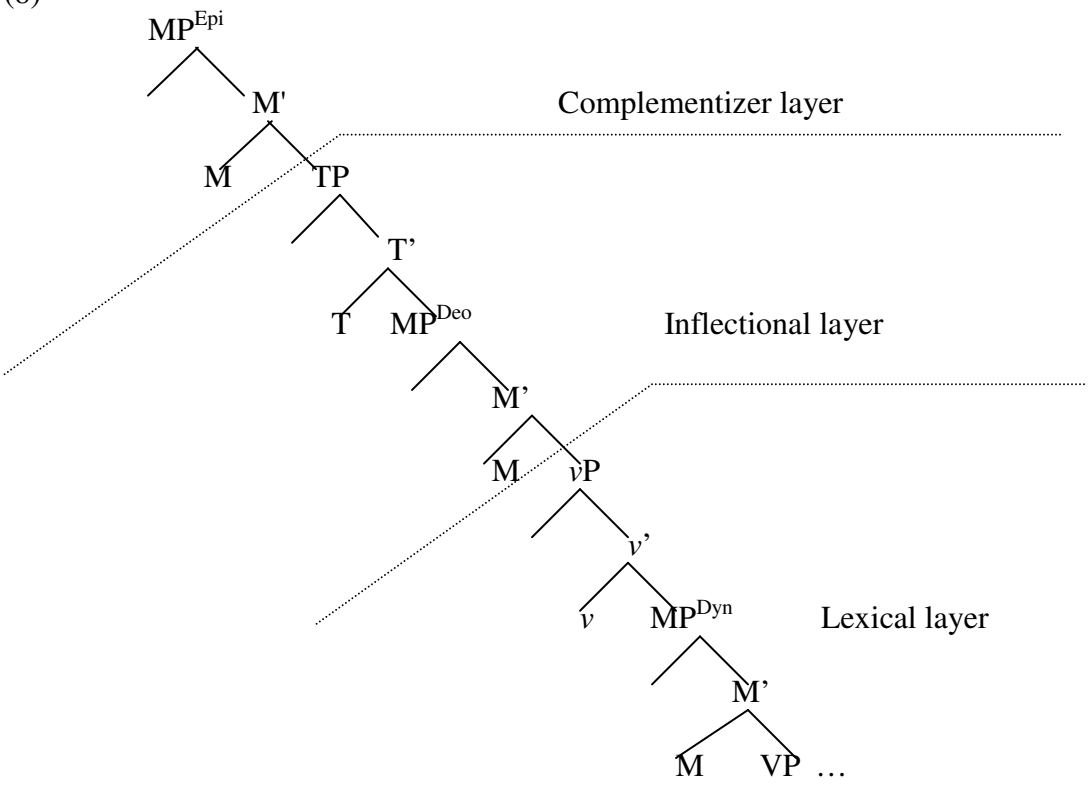
b.



2.3. Tsai's (2010) Modality Spectrum

Following the spirit of the layered structure of the left periphery analysis in Rizzi (1997), Tsai (2010) postulates a "modality spectrum" which divides the various types of modals into three hierarchically distinct layers, i.e. epistemics, deontics, and dynamics, which correspond to the complementizer, inflectional, and lexical layer, respectively in Rizzi's (1997) sense. The modality spectrum in Tsai (2010) is schematized below in (8).

(8)



In this paper, I will assume Tsai's modality spectrum and discuss where *shi*, which heads FocP, should be located in the above structure.

3. Cleft Construction in MC

In this section I will discuss the syntactic structure and some of the relevant issues concerning the cleft construction in MC.

3.1. The Syntactic Structure of the Cleft Construction in MC

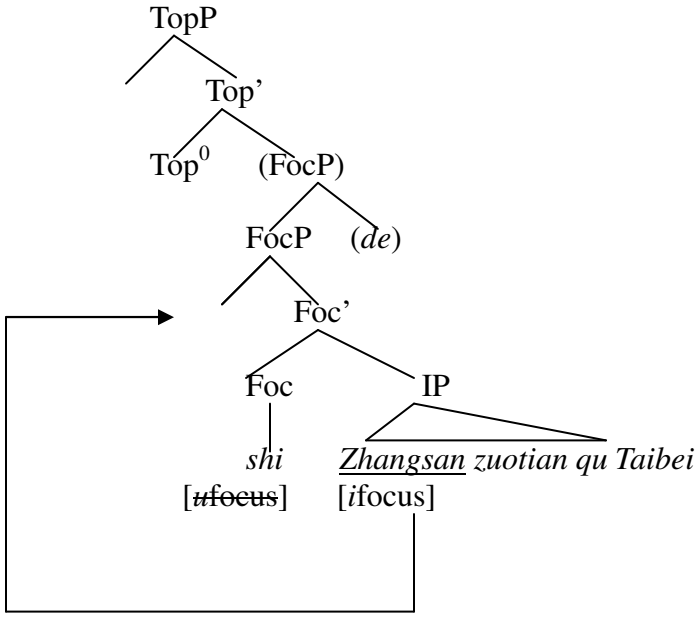
Let us begin by delving into the syntactic structure of the cleft construction in MC. Basically I follow Lee's (2005) analysis which treats *shi* as a focus marker occupying the Foc^0 head position. Moreover, I further assume that *shi*, containing an [*u*focus] feature, will probe an [*i*focus] phrasal element and such element will subsequently moves to Spec, FocP in LF to check off the [*u*focus] feature on Foc^0.

(9) a. Zhangsan zuotian qu-le Taibei.
Zhangsan yesterday go-ASP Taipei
'Zhangsan went to Taipei yesterday.'

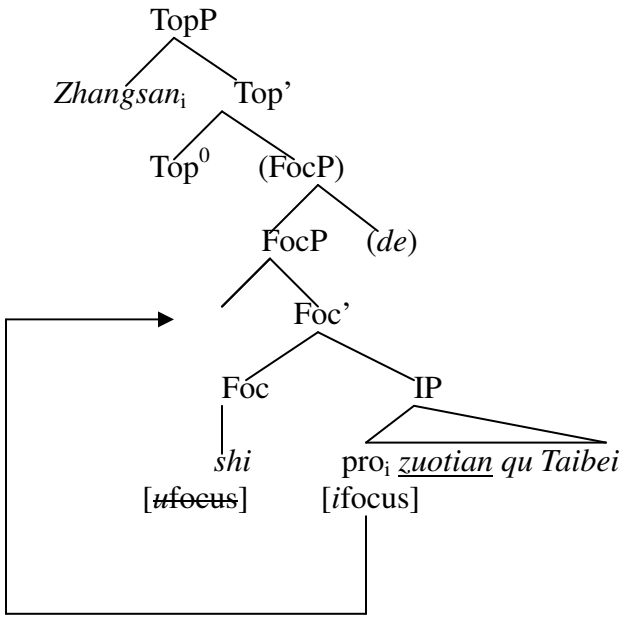
b. Shi Zhangsan zuotian qu Taibei de.
SHI Zhangsan yesterday go Taipei DE
'It is Zhangsan that went to Taipei yesterday.'
c. Zhangsan shi zuotian qu Taibei de.
Zhangsan SHI yesterday go Taipei DE
'It is yesterday that Zhangsan went to Taipei.'
d. Zhangsan zuotian shi qu Taibei de.
Zhangsan yesterday SHI go Taipei DE
'It is went to Taipei that Zhangsan did yesterday.'

For instance, (9a) is the ordinary declarative counterpart sentence of the three cleft sentences (9b-d). Sentence (9b) exhibits a situation where the subject is focalized. (9c), on the other hand, is a situation where an adverbial/adjunct is focalized. And sentence (9d) is a situation in which the full verb phrase/predicate is being focalized. The syntactic structures of (9b), (9c), and (9d) are given in (10a), (10b), and (10c), respectively.

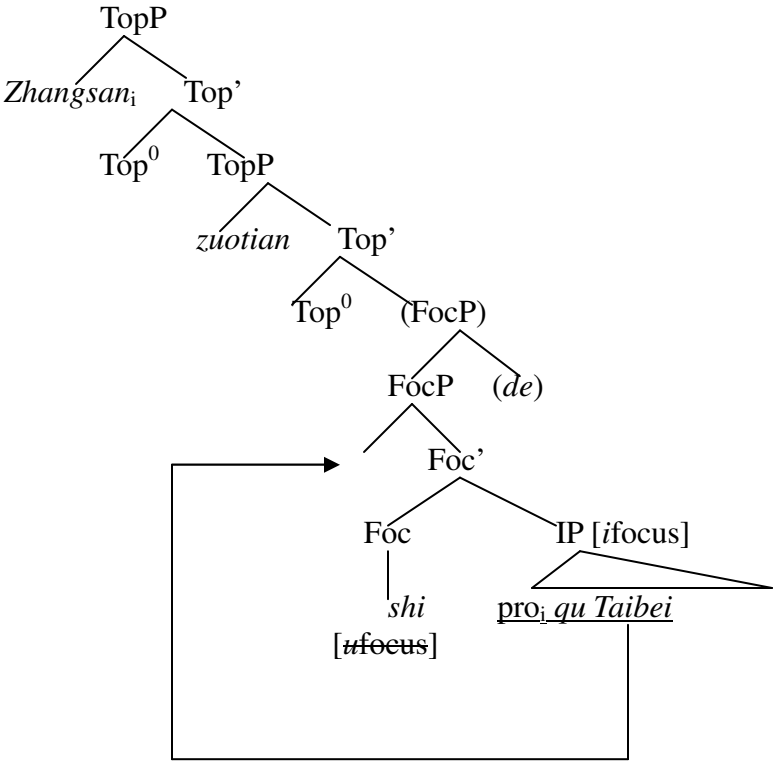
(10) a.



b.


TopP
Zhangsan$_i$
Top'
Top^0
(FocP)
FocP
(de)
Foc'
Foc
IP
shi
[ufocus]
pro$_i$ zuotian qu Taibei
[ifocus]

c.


TopP
Zhangsan$_i$
Top'
Top^0
TopP
zuotian
Top'
Top^0
(FocP)
FocP
(de)
Foc'
Foc
IP [ifocus]
shi
[ufocus]
pro$_i$ qu Taibei

Sentence (9d) and its structure shown in (10c) especially back up Rizzi's structure of left periphery in (6) in that Chinese also allows multiple topics. However, in comparison with Italian, I contend that there is no TopP below FocP in MC, as evidenced by the deviance of (11b) below.

(11) a. Lisi a mingtian shi yao chuguo de.
Lisi TOP tomorrow SHI want go abroad DE
'Lisi, it is go abroad that he will do tomorrow.'

b. *Shi Lisi mingtian a yao chuguo de.
SHI Lisi tomorrow TOP want go abroad DE
'It is Lisi tomorrow, that will go abroad'

3.2. Object Uncleftability

This section deals with the puzzle with regard to object uncleftability in MC, a less mentioned issue in the literature. Compared with English, which allows the object of a sentence to be cleft, in MC, however, cleft objects are generally blocked, as illustrated below.

(12) English
a. It is John that went to Taipei yesterday. (cleft subject)
b. It is Taipei that John went to yesterday. (cleft object)

(13) Mandarin Chinese
a. Shi Akiu zuotian qu Taibei de. (cleft subject)
SHI Akiu yesterday go Taipei DE
'It is Akiu that went to Taipei yesterday.'
b. *Akiu zuotian qu shi Taibei de. (*cleft object)
Akiu yesterday go SHI Taipei DE
'It is Taipei that Akiu went to yesterday.'

Here I propose that this has to do with the Relativized Minimality (Rizzi 1990), which can be defined as follows.

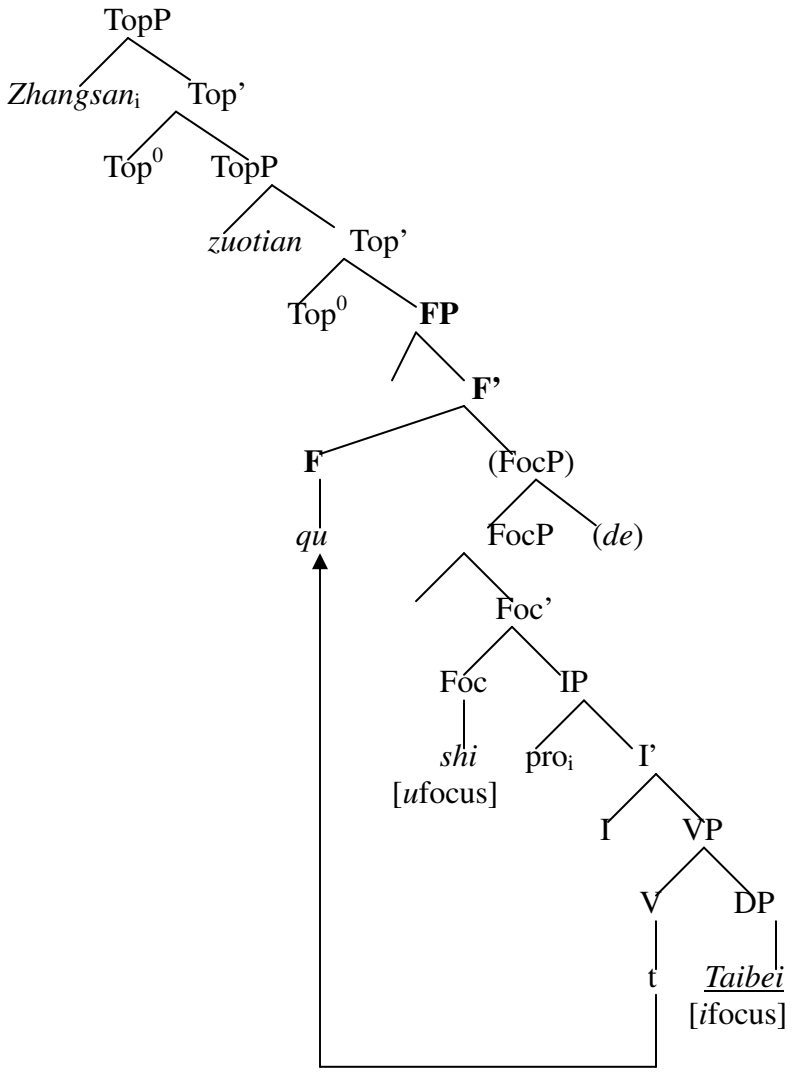
(14) **Relativized Minimality (RM)**

α antecedent-governs β only if there is no γ such that

(i) γ is a typical potential antecedent-governor for β
(ii) γ c-commands β and does not c-command α.

More specifically, the reason why objects cannot be cleft lies in the fact that when an object is cleft, a situation in which *shi* intervenes between the verb and the object, then the verb, base-generated in V^0 head, must move across *shi* in Foc^0 head to an unknown functional head (I will not intend to specify the functional projection here) so as to derive the surface order. Consequently, *shi*, which occupies the Foc^0 head position, will become a typical potential antecedent-governor for the trace left by the moved V^0 head, hence resulting in violation of RM. The derivation of (13b) is given in (15) below.

(15)



3.3. Clefts and Modals

This section provides a cartographic approach concerning the relative syntactic positions between clefts and modals. As mentioned above, Tsai (2010) proposes a three-layered analysis of Chinese modals, namely, epistemics, deontics, and dynamics, each mapping into the CP layer, IP layer, and *v*P layer, respectively. It is curious where *shi* should be located in Tsai's modality spectrum compared with epistemic modals within the complementizer layer.

To begin with, it is found that epistemic modals, such as *dagai* 'possibly', must precede *shi* in MC, as exemplified in (4). By contrast, *shi* cannot follow deontic modals, e.g. *bixu* 'must', as shown in (5). Sentences (4) and (5) are again repeated here in (16) and (17) below for the sake of convenience.

(16) a. Xiaodi dagai shi qu Taibei de.
Xiaodi probably SHI go Taipei DE
'It is go to Taipei that Xiaodi probably will do.'
b. *Xiaodi shi dagai qu Taibei de.
Xiaodi SHI probably go Taipei DE
'It is probably that Xiaodi will go to Taipei.'

(17) a. *Xiaodi bixu shi qu Taibei de.
Xiaodi must SHI go Taiepi DE
'It is go to Taipei that Xiaodi must do.'
b. Xiaodi shi bixu qu Taibei de.
Xiaodi SHI must go Taipei DE
'It is must that Xiaodi go to Taipei.'

Although one might attribute the ungrammaticality of (17a) to the nature of *shi* that it can never appear after a verb (otherwise RM will play a role), there are two pieces of evidence to infer that both the epistemic modal *dagai* 'possibly' and the deontic modal *bixu* 'must' are adverbs rather than auxiliary verbs. One is VP-fronting. If we assume that VP-fronting can be implemented only under head-government (Huang 1993), it follows that only auxiliary verbs can license VP-fronting, as in (18b). On the other hand, modal adverbs, being XP adjuncts/adverbs, are not qualified to do so. This prediction is borne out, as evidenced by (18c).

(18) a. Zhangsan dagai hui qu Taibei.
Zhangsan probably will go Taipei
'Zhangsan probably will go to Taipei.'
b. Qu Taibei, Zhangsan dagai hui.
go Taipei Zhangsan probably will
'Go to Taipei, Zhangsan probably will.'

c. *Hui qu Taibei, Zhangsan dagai.
will go Taipei Zhangsan probably
'Will go to Taipei, Zhangsan probably.'

The same pattern is obtained for deontic adverbs and deontic auxiliary verbs, as illustrated by the contrast between (19b) and (19c).

(19) a. Zhangsan bixu yao qu Taibei.
Zhangsan must have to go Taipei
'Zhangsan must have to go to Taipei.'
b. Qu Taibei, Zhangsan bixu yao.
go Taipei Zhangsan must have to
'Go to Taipei, Zhangsan must have to.'
c. *Yao qu Taibei, Zhangsan bixu.
have to go Taipei Zhangsan must
'Have to go to Taipei, Zhangsan must.'

The other evidence comes from VP ellipsis. Again, if we assume that VP ellipses can be implemented only under head-government (cf. Wu 2002), it follows that only auxiliary verbs, but not adverbs, can license VP ellipses. Our prediction is again borne out, epistemics and deontics alike, as evidenced by the contrasts of (20a,b) and (21a,b).

(20) a. Zhangsan dagai hui qu Taibei, Lisi ye dagai hui.
Zhangsan probably will go Taipei Lisi also probably will
'Zhangsan probably will go to Taipei, and Lisi probably will, too.'
b. *Zhangsan dagai hui qu Taibei, Lisi ye dagai.
Zhangsan probably will go Taipei Lisi also probably
'Zhangsan probably will go to Taipei, and Lisi probably, too.'

(21) a. Zhangsan bixu yao qu Taibei, Lisi ye bixu yao.
Zhangsan must have to go Taipei Lisi also must have to
'Zhangsan must have to go to Taipei, and Lisi must have to, too.'
b. *Zhangsan bixu yao qu Taibei, Lisi ye bixu.
Zhangsan must have to go Taipei Lisi also must
'Zhangsan must have to go to Taipei, and Lisi must, too.'

As shown in the sentences from (18) to (21) above, we can conclude that both *dagai* 'possibly' and *bixu* 'must' are undoubtedly adverbs rather than auxiliary verbs. And since *bixu* is an adverb, the ungrammaticality of (17a) cannot be a result of violation of RM as no head movement is involved here.

Therefore, here I argue that the ungrammaticality of (17a) is supporting evidence of Tsai's modality spectrum. Since *shi* occupies the Foc^0 head position in CP level, it follows that it can never occur after *bixu*, which is a deontic adverb situated below TP in Tsai's modality spectrum. As for the contrast between (16a) and (16b), since *dagai* 'possibly' must precede *shi*, it suggests that MP^{Epi} must be higher than FocP.

4. Conclusion

This paper examines the cleft construction in Mandarin Chinese. Three issues have been discussed in this paper. First, I delved into the syntactic structure of the cleft construction. Following Rizzi's (1997) left periphery analysis, which divides CP into several functional projections, I propose that *shi*, a focus marker, occupies the Foc^0 head position and that *shi*, containing an [*u*focus] feature, will probe an [*i*focus] phrasal element and such element will subsequently moves to Spec, FocP in LF to check off the [*u*focus] feature on Foc^0. Besides, I contend that there is no TopP below FocP in Mandarin Chinese.

Second, I dealt with the puzzle with regard to object uncleftability, a less mentioned subject in the literature. I here argue that the reason lies in the fact that when an object is cleft, a situation in which *shi* intervenes between the verb and the object, this would lead to violation of Relativized Minimality (Rizzi 1990), as the verb, base-generated in V^0 head, must move across *shi* in Foc^0 head so as to derive the surface order.

Third, based on Tsai's modality spectrum, I also managed to provide a cartographic approach concerning the syntactic position of clefts and modals. It is found that epistemic modals, such as *dagai* 'possibly', must precede *shi* in Mandarin Chinese, which means that MP^{Epi} must be higher than FocP. By contrast, *shi* cannot follow deontic modals, e.g. *bixu* 'must', which further evidences that *shi* is situated in the CP level.

To conclude, the structure of the complementizer layer in Mandarin Chinese can be schematized as follows.

(22) [TopP *Akiu* [Top' Top [MP^{Epi} *dagai* [M' M [FocP [Foc' Foc *shi* [TP *qu Taibei* ...
Akiu probably SHI go Taipei
'It is go to Taipei that Akiu probably will do.'

Selected References:

Chomsky, N. 1995. *The minimalist program*. Cambridge, Mass.: The MIT Press.

Chomsky, N. 2000. Minimalist inquiries: the framework. In R. Martin, D. Michaels and J. Uriagereka eds. *Step by step: essays in minimalist syntax in honor of Howard Lasnik*. Cambridge, Mass.: The MIT Press,

Chomsky, N. 2001. Derivation by phase. In M. Kenstowicz ed., Ken Hale: *A life in language*. Cambridge, Mass.: The MIT Press.

Huang, C-T. James. 1981/82. Move Wh in a language without Wh-movement. *The Linguistic Review* 1: 369-416.

Huang, C.-T. James. 1982. *Logical Relations in Chinese and the Theory of Grammar*. Ph. D. dissertation, Massachusetts Institute of Technology.

Huang, C.-T. James. 1988. On 'Be' and 'Have' in Chinese (Shuo Shi he You). *The Bulletin of the Institute of History and Philosophy* Vol. LIX, Part I. Taipei: Academica Sinica.

Huang, C.-T. James. 1993. Reconstruction and the Structure of VP: Some Theoretical Consequences. *Linguistic Inquiry* 24: 103-138.

Lee, Hui-chi. 2005. *On Chinese focus and cleft constructions*. Ph.D. dissertation, National Tsing Hua University.

Lin, T.-H. Jonah. 2007. Multiple-Modal Constructions in Mandarin Chinese and Their Finiteness Properties. Ms. National Tsing Hua University.

Luo, Cheng. 1991. The Accessibility hierarchy and Cleftability: The Chinese Puzzle. Annual Conference of the Canadian Linguistic Association. 195-207.

Rizzi, Luigi. 1990. *Relativized Minimality*. MIT Press, Cambridge, MA.

Rizzi, Luigi. 1997. The Fine Structure of the Left Periphery. In *Elements of Grammar*, ed. by L. Haegeman. 281-338. Dordrecht: Kluwer.

Shi, Ding-xu. 1994. The Nature of Chinese Emphatic Sentences. *Journal of East Asian Linguistics* 3: 81-100.

Wu, Iris. 2002. *On Ellipsis and Gapping in Mandarin Chinese*. MA Thesis, National Tsing Hua University.

Yang, Barry Chung-Yu. 2008. *Intervention Effects and the Covert Component of Grammar*. Ph.D. dissertation, National Tsing Hua University.

蔡維天. 2010. <談漢語模態詞其分佈與詮釋的對應關係>,《中國語文》第 3 期.

Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 430-447.

Event Structure, Unaccusativity, and Locative Inversion

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This paper attempts to account for why Chinese locative inversion exhibits crosslinguistically peculiar distributional properties. I argue that the attested crosslinguistic differences are attributed to the differences in the way the so-called "state subevent condition" (Nakajima 2001) is satisfied. Specifically, I claim that it is an operation on the event structure that allows certain non-passivized transitive verbs to meet the condition. The analysis also receives crosslinguistic support from the Japanese *-te aru* construction.

1. Introduction

The locative inversion construction has often been discussed in support of the Unaccusative Hypothesis (Perlmutter 1978) because it is a crosslinguistically robust fact that the verbs attested in this construction are typically unaccusative and passive verbs, both of which lack an external argument (Bresnan and Kanerva 1989; Coopmans 1989; Hoekstra and Mulder 1990, among others). However, Levin and Rappaport Hovav (henceforth L&RH) (1995) cast doubt on the view that locative inversion is associated with unaccusativity, partly because certain subclasses of unergative verbs do occur in English locative inversion. The unaccusative analysis also faces serious challenges from languages like Chinese because not only unaccusative verbs but also certain non-passivized transitive verbs can appear in the locative inversion construction (Pan 1996). The question therefore arises as to why locative inversion constructions display broadly similar distributional patterns across languages but at the same time allow for a limited degree of variation. In this paper, I will argue that the attested crosslinguistic differences are due to the differences in the way the so-called "state subevent condition" (Nakajima 2001) is met. In particular, I will claim that it is the Head Shift operation (Sugioka 2001; cf. Bassac and Bouillon 2002) that enables certain transitive verbs to satisfy the state subevent condition.

* I would like to express my gratitude to Takane Ito for reading and making comments on an earlier draft of this paper. I am also grateful to the audience at IACL-18 and NACCL-22 for helpful comments and suggestions. Any remaining errors are my own.

2. Chinese locative inversion

2.1. Two types of locative inversion in Chinese

Chinese locative inversion arguably comes in two varieties (see Pan 1996; Du 1999; Liu 2007). One type involves the perfective aspect marker *le*, and the other, the imperfective aspect marker *zhe*. Examples of each type are given below.

(1) a. Qian-mian zuo le yi ge ren.
front sit PERF one CL person
'In the front is sitting one person.'

b. Benzi-shang ji le ta de dianhuahaoma.
notebook-on write PERF 3sg GEN phone.number
'On the notebook was written his phone number.'

(2) a. Qian-mian zuo zhe yi ge ren.
front sit DUR one CL person
'In the front is sitting one person.'

b. Benzi-shang ji zhe ta de dianhuahaoma.
notebook-on write DUR 3sg GEN phone.number
'On the notebook is written his phone number.'

While both types of locative inversion take the form "LocP-V-Asp-NP", they behave differently in some respects. For example, the *le* locative inversion construction is compatible with passivization, whereas the *zhe* locative inversion construction generally fails to undergo passivization.

(3) a. Benzi-shang bei Zhangsan ji le ta de dianhuahaoma.
notebook-on by Zhangsan write PERF 3sg GEN phone.number
'On the notebook was written his phone number by Zhangsan.'

b. *Benzi-shang bei Zhangsan ji zhe ta de dianhuahaoma.
notebook-on by Zhangsan write DUR 3sg GEN phone.number

In addition, the *le* locative inversion construction can co-occur with an agent argument, whereas the *zhe* locative inversion construction disallows the presence of an agent, as illustrated by the contrast between (4a) and (4b) below.

(4) a. Zhuozi-shang (Zhangsan) fang le yi ben shu.
table-on Zhangsan put PERF one CL book
'On the table Zhangsan put a book.'

b. Zhuozi-shang (*Zhangsan) fang zhe yi ben shu.
table-on Zhangsan put DUR one CL book
'On the table was put a book (by Zhangsan)'

The agent *Zhangsan* can optionally appear in (4a), where the perfective aspect *le* is attached to the verb. The sentence with *zhe* in (4b), on the other hand, becomes ungrammatical in the presence of the agent. These observations suggest that the derivations of the two constructions follow different routes. Following Pan (1996: 424), I assume that the *le* locative inversion construction is derived through the process of argument dropping, and should be separated from the *zhe* locative inversion construction. For this reason, this paper homes in on the *zhe* locative inversion construction, which I take to be a true instance of locative inversion.

2.2. Properties of the zhe locative inversion construction

Let us first investigate the distributional properties of the *zhe* locative inversion construction. As in many other languages, unaccusative verbs are found in the *zhe* locative inversion construction.[1]

(5) a. Chuang-shang tang zhe yi ge bingren.
bed-top lie DUR one CL patient
'In the bed lies a patient.'

b. Guangchang-shang shuli zhe yi zuo tongxiang.
square-top stand DUR one CL bronze.statue
'In the square stands a bronze statue.'

c. Tai-shang zuo zhe zhuxituan.
stage-top sit DUR committee
'On the stage is sitting the committee.'

What is crosslinguistically peculiar about the *zhe* locative inversion construction is that some non-passivized transitive verbs such as *fang* 'put', *xie* 'write', *ke* 'carve', *yin* 'print', *gua* 'hang', and *tie* 'stick' can enter into locative inversion. These transitive verbs fall

[1] Notice that the verbs in (5) always receive non-agentive interpretations when they exhibit locative inversion. In other words, none of the locative inversion sentences in (5) describes a situation in which an entity comes to be in a certain position under its control.

into the class of accomplishment verbs with the argument structure <*agent*, *theme*, *location*> (Pan 1996: 414).

(6) a. Heiban-shang xie zhe yi ge zi.
blackboard-on write DUR one CL character
'On the blackboard is written a character.'

b. Mingpian-shang yin zhe san ge dianhuahaoma.
name.card-on print DUR three CL phone-number
'On the name card are printed three phone numbers.'

As pointed out by Liu (2007: 192), intransitive verbs of volitional process (i.e. unergative verbs) generally fail to undergo locative inversion.[2]

(7) a. *Yaolan-li ku zhe yi ge xiao yinger.
crib-in cry DUR one CL small infant
'In the crib is crying a small infant.'

b. *Chi-li you zhe yi ge nianqing ren.
pool-in swim DUR one CL young man
'In the pool is swimming a young man.'

c. *Caochang-shang tiao zhe yi ge xuesheng.
field-on jump DUR one CL student
'In the field is jumping a student.'

Having seen the distributional properties of the *zhe* locative inversion construction, we now turn to other characteristics of this construction. As we observed earlier, it is impossible to project an agent argument in the *zhe* locative inversion construction.

(8) Zhuozi-shang (*Zhangsan) fang zhe yi ben shu.
table-on Zhangsan put DUR one CL book
'On the table was put a book (by Zhangsan).'

In addition, modifying elements such as manner adverbs and agent-oriented modifiers are not allowed to appear in the *zhe* locative inversion construction (Gu 1992: 185; Pan 1996: 430).

[2] There are two exceptions reported in the literature, namely, *pao* 'run' and *zou* 'walk' (Liu 2007: 193). I leave this issue for future research.

(9) a. Zhuozi-shang (*guyi) fang zhe yi ben shu.
table-on intentionally put DUR one CL book
'On the table was put a book (intentionally).'

b. Zhuozi-shang (*manmande) fang zhe yi ben shu.
table-on slowly put DUR one CL book
'On the table was put a book (slowly).'

Furthermore, as in many other languages, the inverted locative phrase is always predicated of the theme argument (Tan 1991; Pan 1996; cf. Bresnan and Kanerva 1989; Coopmans 1989; Hoekstra and Mulder 1990; Bresnan 1994, among others). Consider the following example.

(10) Che-shang xie zhe san ge zi.
car-on write DUR three CL character
'On the car are written three characters.' (adapted from Liu 2007: 185)

In (10), the locative phrase *che-shang* 'on the car' is predicated of the theme *san ge zi* 'three characters', and it cannot be interpreted as describing the place where the action of writing was carried out. Thus, it would be infelicitous to utter the sentence in (10) in the context of describing a situation where somebody wrote three characters while he was in the car.

3. Japanese *-te aru* construction

In this section, I will show that the so-called *-te aru* construction in Japanese bears a striking resemblance to the *zhe* locative inversion construction in Chinese. It has been noted in the literature (Yamamoto 199; Nakajima 2001: fn.7) that the *-te aru* construction exhibits properties typically found in locative inversion sentences. However, these authors just cited focus on another construction referred to as the *-te iru* construction, which is considered to be the Japanese counterpart to English locative inversion. To my knowledge, there has been no substantive discussion of the *-te aru* construction in connection with locative inversion (see Iwamoto and Kuwabara 1996; Yamamoto 1997; Nakajima 2001; Ono 2001, 2005 for discussions of the *-te iru* construction).

The *-te aru* construction takes the form "LocP-*ni*-(Top)-NP-V-*te*-*aru*", where *te* is a conjunctive particle and *aru* is an aspectual auxiliary. Since Japanese is a strict verb-final language, it is not clear whether this construction actually involves inversion. As we will see, however, this construction is uncannily similar to the *zhe* locative invertion construction.

First of all, the underlying object of the verb in the *-te aru* construction is marked with nominative case, and the agent argument of the main verb cannot be syntactically realized.[3]

(11) Reezooko-ni-(wa) (*otoosan-ga) biiru-ga hiyasi-te-aru.
fridge-LOC-TOP dad-NOM beer-NOM cool-PART-AUX
'In the fridge are cooled some bottles of beer (by Dad).'

Secondly, the *-te aru* construction is not compatible with agent-oriented modifiers or manner adverbials.

(12) a. Manaita-no ue-ni takusanno kudamono-ga kit-te-aru.
chopping.board-GEN top-LOC many fruit-NOM cut-PART-AUX
'On the chopping board is cut lots of fruit.'

b. *Manaita-no ue-ni-(wa) takusannno kudamono-ga
chopping.board-GEN top-LOC-TOP many fruit-NOM
issyookenmei kit-te-aru.
diligently cut-PART-AUX
'On the chopping board is cut lots of fruit diligently.'

c. *Manaita-no ue-ni-(wa) takusannno kudamono-ga
chopping.board-GEN top-LOC-TOP many fruit-NOM
yukkuri kit-te-aru.
slowly cut-PART-AUX
'On the chopping board is cut lots of fruit slowly.'

Thirdly, only accomplishment verbs can appear in the *-te aru* construction (see Masuoka 1987, among many others). Hence verbs that do not entail a change of state are not found in this construction.

(13) *Kono niwa-ni-(wa) booru-ga ket-te-aru.
this garden-LOC-TOP ball-NOM kick-PART-AUX
'In this garden is kicked a ball.'

Fourthly, the inverted locative phrase in the *-te aru* locative construction must be predicated of the theme argument. In Japanese, locatives exhibit different morphological markings, depending on whether they are arguments or adjuncts. To be more specific,

[3] Note that this construction is different from another variant of the *-te aru* construction called *possessive resultative* (Martin 1975), in which the agent is syntactically realized, and the theme is marked with accusative case. See Martin (1975) and Matsumoto (1990) for details.

locative arguments are marked with *-ni*, whereas locative adjuncts are marked with *-de* (Nakau and Nishimura 1998; see also. Takezawa 1993). The sentence below demonstrates that a *ni*-marked locative phrase, but not a de-marked locative phrase, is allowed to appear in the *-te aru* construction. This means that in the *-te aru* construction, the inverted locative phrase is an argument which discribes the place of the theme.

(14) Manaita-no ue{-ni/*-de} takusanno kudamono-ga kit-te-aru.
chopping.board-GEN top-LOC many fruit-NOM cut-PART-AUX
'On the chopping board is cut lots of fruit.'

Thus, the locative phrase in (14) cannot be interpreted as expressing the place where the action of chopping took place.

These observations lead us to speculate that the same processes are at work in the formation of Chinese *zhe* locative inversion and the Japanese *-te aru* locative construction. It should be noted here that there are some differences between the two constructions. For one thing, the *-te aru* construction is only compatible with transitive verbs. The contrast in (15) demonstrates that *-te aru* is compatible with the transitive verb *hiyasu* 'cool', while it cannot occur with the intransitive verb *hieru* 'get cold'.

(15) a. Reezooko-ni-(wa) biiru-ga hiyasi-te-aru.
fridge-LOC-TOP beer-NOM cool-PART-AUX
'In the fridge are cooled some bottles of beer.'

b. *Reezooko-ni-(wa) biiru-ga hie-te-aru.
fridge-LOC-TOP beer-NOM get.cold-PART-AUX
'In the fridge got cold some bottles of beer.'

Another difference lies in the fact that while verbs found in the Chinese *zhe* locative inversion construction are restricted to accomplishment verbs with the argument structure <*agent, theme, location*>, it is not necessary for the verb in the Japanese *-te aru* construction to include *location* in its argument structure. For example, *katameru* 'harden' has the argument structure <*agent, theme*>, and does not take location as its argument, as illustrated by (16a) below. However, the sentence in (16b) demonstrates that the verb can occur in the *-te aru* locative construction. Notice that the locative phrase is marked with *-ni* when it occurs in the *-te aru* construction.

(16) a. Hanako-wa yooki-no-naka{*-ni/-de} nendo-o katame-ta.
Hanako-TOP container-GEN-inside-LOC clay-ACC harden-PAST
'Hanako hardened clay in the container.'

b. Yooki-no-naka{-ni/*-de}-(wa) nendo-ga katame-te-aru.
container-GEN-inside-LOC clay-NOM harden-PART-AUX
'In the container is hardened clay.'

Informally, sentences like (16b) mean not only that a certain entity has undergone a change of state, but also that the entity exists at some location.

4. Previous studies

In this section, we will briefly discuss some of the previous analyses that attempt to explain the distributional properties of the locative inversion construction.

4.1 The discourse functional account

L&RH (1995) deny that the locative inversion construction is an unaccusative diagnostic, claiming instead that its distributional properties are attributed to the discourse function of the construction. The relevant discourse function is "presentational focus" (Bolinger 1977; Rochemont 1986; Rochemont and Culicover 1990; Bresnan 1994, among others), which serves to introduce the referent of the postverbal NP on the scene. This function, L&RH claim, requires that the verb in the locative inversion construction be "informationally light" (Birner 1994, 1995, among others). If the verb conveyed discourse-new information, the presentational focus function would not be fulfilled because the information provided by the verb "would detract from the newness of the information conveyed by the postverbal NP" (L&RH 1995: 230). Given the requirement that the verb in the locative inversion construction be informationally light, it is reasonable that certain verbs are preferred in this construction. Verbs of existence and appearance, for example, are inherently informationally light in the sense that they contribute no discourse-new information to the information imparted by the preverbal PP, and hence they are eligible for locative inversion. Indeed, they are among the most frequently observed verbs in locative inversion.

L&RH (1995: 233) further claim that this restriction explains the virtual absence of externally caused verbs of change of state. Externally caused verbs of change of state such as *melt* and *dry* provide discourse-new information because what they describe is an externally caused, and therefore unpredictable, change of state. As such, they are not compatible with the informational lightness condition, and cannot occur in the locative inversion construction.

It should be noted here that some *internally* caused verbs of change of state are found in locative inversion. This is exemplified by the following excerpts from naturally occurring sentences (L&RH 1995: 235).

(17) a. In the garden may bloom the Christmas plant …
b. Next door, to the east, decays Ablett Village …

Unlike externally caused verbs of change of state, internally caused verbs of change of state describe a change of state that is inherent to the natural course of development of a certain entity. According to L&RH, many internally caused verbs of change of state are ambiguous between a change-of-state interpretation and a 'be in state' interpretation. Importantly, these verbs are found in the locative inversion construction only in their 'be in state' reading. To illustrate this, L&RH (1995: 236) report that the verb *grow*, which means either 'live rootedly' or 'increase in size or maturity', yields only the former reading when it appears in the locative inversion construction (see also Milsark 1974).

(18) a. In our garden grew a very hardy and pest-resistant variety of corn. ('live rootedly')
b. *In Massachusetts grows corn very slowly. ('increase in size or maturity')

Under the 'live rootedly' interpretation, the verb *grow* expresses the existence of a certain entity, and it is therefore fair to say that the verb is informationally light. Thus, the presence of internally caused verbs of change of state in the locative inversion construction does not really argue against the discourse functional analysis so long as they occur in their existence/coming-into-existence interpretation.

Convincing though it is, L&RH's proposal cannot be automatically applied to Chinese and Japanese locative inversion. Under their analysis, it is not expected that non-passivized transitive verbs enter into locative inversion. Indeed, L&RH assume that apart from some idiomatic phrases, transitive verbs are excluded from the locative inversion construction (L&RH 1995: 223). One might nevertheless argue that the transitive verbs found in Chinese and Japanese locative inversion are informationally lighter than those found in canonical sentences. However, such an argument would still beg the question of how informationally light is light enough for a verb to occur in the locative inversion construction.

4.2. The alternation account

One might also explore the possibility that what appear to be transitive verbs have undergone causative/inchoative alternation. Indeed, some researchers assume that Chinese verbs like *fang* 'put' are unaccusative when they occur in the locative inversion construction (cf. Huang 1987; Li 1990; Gu 1992). This line of approach circumvents the question of why certain transitive verbs can occur in the locative inversion construction. However, as pointed out by Pan (1996), such an analysis is highly suspect, since there is no independent evidence in support of the claim that those verbs actually have intransitive uses. It should also be noted that this approach is not feasible in the analysis of the Japanese locative inversion construction, either. This is because the intransitive/transitive distinction is morphologically manifested in Japanese, and hence it would be an unreasonable claim to say that those (morphologically) transitive verbs are unaccusatives.

All things considered, the obvious question that needs to be answered is why certain non-passivized transitive verbs are found in Chinese and Japanese locative inversion, despite the fact that transitive verbs are conspicuously absent in locative inversion sentences across languages. In the next subsection, I will review Pan's (1996) analysis, which attempts to account for the presence of transitive verbs in Chinese locative inversion.

4.3. The morphological operation account

Pan (1996) claims that in Chinese, transitive verbs acquire unaccusativity as a result of a morphological operation that is induced by the morpheme *zhe*. This morphological process, which he terms the "*zhe* operation", deletes the agent role of a verb with the argument structure <*agent, theme, location*>.

(19) *Zhe* Operation: <*agent, theme, location*> → <*theme, location*> (Pan 1996: 427)

Pan further states that in order for the *zhe* operation to apply, the following conditions must be met.

(20) Conditions on the application of the *zhe* operation
The *zhe* operation applies if (a) the verb in question is an accomplishment verb with the argument structure: <*agent, theme, location*> and (b) the location is predicated of the theme. (Pan 1996: 426)

Under the conditions stated in (20), the *zhe* operation changes the argument structure of the verb to which *zhe* is attached. The resulting argument structure is on a par with that of an existential (therefore unaccusative) verb: <*theme, location*>. In this way, Pan maintains the idea that unaccusativity is a necessary condition for locative inversion. However, although this analysis does cover a wide range of empirical data, the *zhe* operation seems to be a rather arbitrary rule. To the extent that the operation is postulated just to account for the peculiar behavior of the *zhe* construction, the analysis is hardly more than a mere restatement of the facts. Indeed, a number of questions are left unanswered under Pan's approach. For example, Pan's analysis does not provide an explanation for the question of why the *zhe* operation is only applicable to the class of accomplishment verbs. It is also unclear why the locative phrase must be predicated of the theme in the *zhe* locative inversion construction.

4.4. The event structural account

Let us next consider the event structural account proposed by Nakajima (2001). Within the framework of Generative Lexicon (Pustejovsky 1995), Nakajima (2001) attempts to formally define the necessary condition for a verb to undergo locative inversion. Before examining Nakajima's analysis, let us briefly look at how a generative

lexicon is characterized. A generative lexicon can be described as a computational system which involves multiple levels of semantic representations. Included in these levels of representations are the *argument structure* (ARGSTR), which contains information on the number and type of arguments a predicate takes, the *event structure* (EVENTSTR), which characterizes the event type of a lexical item and a phrase, and the *qualia structure* (QUALIA), which represents the essential characteristics or properties (attributes) of a word's meaning. Of these three levels of representations, let us discuss the event structure in more detail.

(21) *Event Structure* (Pustejovsky 1991, 1995)
   a. STATE:
      e_1: state
   b. ACTIVITY:
      e_1: process
   c. ACHIEVEMENT:
      [$_{e0}$ e_1: process e_2*: state]
   d. ACCOMPLISHMENT:
      [$_{e0}$ e_1*: process e_2: state]

As illustrated above, states and activities denote single eventualities (Vendler 1967; Dowty 1979, among others). Achievements and accomplishments are both analyzed as having a complex event structure consisting of two subevents: process and state. In addition to the process/state distinction, Pustejovsky postulates headedness as part of an event structure, and distinguishes achievements and accomplishments in terms thereof. Event headedness rsepresents prominence of a subevent; that is, a headed subevent can be viewed as the most prominent part of the whole event denoted by a predicate. According to Pustejovsky, achievements involve a structure in which the final state subevent is headed, whereas accomplishments have a structure where the initial process is headed.[4] The subevent marked with an asterisk (e_1* or e_2*) in (21) indicates that it is headed.

Nakajima (2001) argues that in order for a verb to occur in the locative inversion construction, the following condition, which he terms the "state subevent condition", must be satisfied.

(22) Verbs can occur in locative inversion constructions only if their lexical representations (or those of the verb phrases containing them) involve the headed final subevent structure designating a state, the quale for which means that something is AT some place, with AT being an operator indicating locational prepositions. (Nakajima 2001: 46)

[4] For motivations for postulating event headedness, see Pustejovky (1995) and references therein.

Verbs of appearance and existence are subsumed under the condition in (22). In addition, the condition is compatible with unaccusative verbs in general. This is because unaccusative verbs generally correspond to achievement verbs, and, as mentioned above, achievements are analyzed as involving a complex event structure whose final subevent has a head value. Nakajima further argues that the presence of certain unergative verbs in the locative inversion construction is attributed to an operation called co-composition. I will not recapitulate his analysis here. For details, see Nakajima (2001).

Nakajima's analysis, as it stands, is confronted with two potential problems. For one thing, the state subevent condition potentially allows for gross overgeneration because the condition by itself does not say much about crosslinguistic variation. For another, the presence of transitive verbs in the locative inversion construction is problematic for his analysis because transitive verbs generally do not involve a headed state subevent. The first point seems less of an issue, given that the condition is a necessary, rather than sufficient, condition for a verb to enter into locative inversion. The second problem is more critical because the condition incorrectly rules out those transitive verbs which can undergo locative inversion.

In the next section, I will propose an alternative analysis that integrates the morphological operation approach into the event structural approach, and attempt to account for why Chinese and Japanese locative inversion display crosslinguistically peculiar distributional patterns. Assuming, despite apparent counterexamples, that the state subevent condition proposed by Nakajima (2001) accurately defines the necessary condition for verbs to enter into locative inversion, I argue that the observed crosslinguistic differences are attributed to the differences in the way the condition is met. It should be noted at this point that unlike the analysis proposed by Pan (1996), the morphological operation postulated here is an independently motivated mechanism that operates on the event structure rather than on the argument structure of a verb, and no ad hoc argument-structure-changing mechanisms would be needed to accommodate the observed facts.

5. An alternative analysis

I claim that it is an operation on the event structure rather than on the argument structure of a verb that is responsible for the presence of transitive verbs in locative inversion. More specifically, I argue that the so-called Head Shift operation (Sugioka 2001; cf. Bassac & Bouillon 2002) enables certain transitive verbs to occur in the locative inversion construction.

Recall Pustejovsky's event structure, repeated here as (23) below.

(23) *Event Structure* (Pustejovsky 1991, 1995)
  a. STATE:
    e_1: state

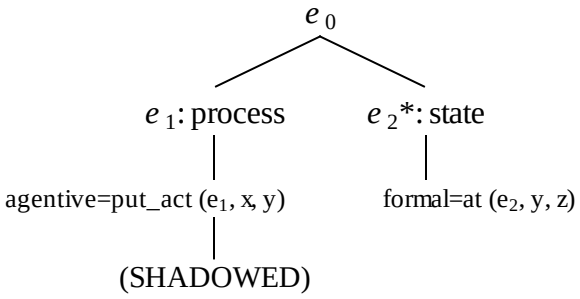
b. ACTIVITY:
   e_1: process
c. ACHIEVEMENT:
   [$_{e0}$ e_1: process e_2*: state]
d. ACCOMPLISHMENT:
   [$_{e0}$ e_1*: process e_2: state]

As mentioned above, achievements and accomplishments are both analyzed as having a complex event structure consisting of the initial process and the final state, and are distinguished in terms of event headedness. Head Shift is an operation that changes a left-headed complex event structure to a right-headed one, and, as a result, shadows the initial process subevent and foregrounds the final state subevent (see Sugioka 2001; Bassac & Bouillon 2002 for details), as schematically illustrated below.

(24) *The Head Shift Operation*
[$_{e0}$ e_1*: process e_2: state] ⟶ [$_{e0}$ ~~e_1: process~~ (SHADOWED) e_2*: state]

With this in mind, let us assume that the Chinese affix *zhe* may optionally trigger Head Shift. This means that once *zhe* attaches to a verb, it may trigger the Head Shift operation. If the V-*zhe* complex undergoes this operation, the initial process subevent is shadowed, and the final subevent receives a head value. For example, the Chinese verb *fang* 'put' originally has a left-headed complex event structure, but if the verb is attached to *zhe* and undergoes Head Shift, its left-headed event structure shifts into a right-headed one, as shown below.

(25)



Since the Head Shift operation shadows the initial process subevent and foregrounds the final state subevent, the resulting *fang-zhe* complex acquires passive-like properties and satisfies the state subevent condition.

In a similar vein, suppose that the Japanese auxiliary *-te aru* obligatorily triggers Head Shift. In other words, once *-te aru* attaches to a verb, it must trigger the Head Shift operation. As with the Chinese V-*zhe*, the resulting V-*te aru* complex acquires passive-

like properties without recourse to passivization, and conforms to the state subevent condition. What makes the Chinese suffix *zhe* distinct from the Japanese auxiliary *-te aru* is that the application of Head Shift is optional in the case of *zhe* but is obligatorily enforced by *-te aru*.

The analysis proposed here not only accounts for the presence of transitive verbs in Chinese and Japanese locative inversion but also provides an explanation for the differences between the Chinese *zhe* construction the Japanese *-te aru* construction. Given that the Japanese auxiliary *-te aru* obligatorily triggers Head Shift, and that no vacuous application is permitted, it automatically follows that the original event structure of a verb to which *-te aru* is attached must be left-headed because Head Shift is, by definition, an operation that changes a left-headed event structure into a right-headed one. This in turn means that only accomplishment verbs, which involve left-headed complex event structures, can occur in the Japanese *-te aru* construction. By contrast, given that the Chinese affix *zhe* optionally triggers Head Shift, it follows that both unaccusative and accomplishment verbs are allowed to appear in the *zhe* locative inversion construction. More specifically, unaccusative and accomplishment verbs meet the state subevent condition in different ways; for unaccusatives, the condition is satisfied by default, while for accomplishments, it is satisfied only by resorting to the Head Shift operation.

Let us further explore the consequences that ensue from the present analysis. As mentioned earlier, both the Chinese *zhe* construction and the Japanese *-te aru* construction prohibit the syntactic realization of the agent argument.

(26) *Chinese*

Zhuozishang	(*Zhangsan)	fang	zhe	yi	ben	shu.
table-on	Zhangsan	put	DUR	one	CL	book

'On the table was put a book (by Zhangsan).'

(27) *Japanese*

Reezooko-ni-(wa)	(*otoosan-ga)	takusanno	biiru-ga	hiyasi-te-aru.
fridge-LOC-TOP	dad-NOM	many	beer-NOM	cool-PART-AUX

'In the fridge are cooled many bottles of beer (by Dad).'

The fact that the two constructions are constrained in the same way with respect to argument realization can now be seen as a corollary of the Head Shift operation, rather than as a sheer coincidence. That is, since the process subevent is shadowed through Head Shift, it is impossible to make reference to the agent, which is an element bound within the process event.

The same reasoning applies to the ban on the presence of modifying elements related to an action. Recall that manner adverbs and agent-oriented modifiers are incompatible with the Chinese *zhe* construction and the Japanese *-te aru* construction.

(28) *Chinese*

a. Zhuozishang (*guyi) fang zhe yi ben shu.
table-on intentionally put DUR one CL book
'*On the table was put a book (intentionally).'

b. Zhuozishang (*manmande) fang zhe yi ben shu.
table-on slowly put DUR one CL book
'*On the table was put a book (slowly).'

(29) *Japanese*

a. Manaita-no ue-ni-wa takusannno kudamono-ga
chopping.board-GEN top-LOC-TOP many fruits-NOM
(*issyookenmei) kit-te-aru.
diligently cut-PART-AUX
'On the chopping board is cut lots of fruit (diligently).'

b. Manaita-no ue-ni-wa takusannno kudamono-ga
chopping.board-GEN top-LOC-TOP many fruits-NOM
(*yukkuri) kit-te-aru.
slowly cut-PART-AUX
'On the chopping board is cut lots of fruit (slowly).'

Our analysis naturally explains the fact that modification possibilities are severely limited in the two constructions. Given that manner adverbs and agent-oriented modifiers carry out modification over the initial process subevent, it follows that these modifiers are incompatible with this construction, as the initial process subevent is shadowed through Head Shift

Another important consequence of the present analysis is that it also accounts for the fact that transitive verbs that denote simple activity are not attested in locative inversion constructions across languages. This is because these verbs cannot undergo Head Shift, and hence there is no way for them to satisfy the state subevent condition.

(30) *Chinese*

*Jiali da zhe Zhangsan.
home-inside beat DUR Zhangsan
*At home is beaten Zhangsan.' (adapted from Pan 1996: 425)

(31) *Japanese*

*Kono niwa-ni-(wa) booru-ga ket-te-aru.
this garden-LOC-TOP ball-NOM kick-PART-AUX
'In this garden is kicked a ball.'

We have seen that our analysis nicely accounts for the presence of transitive verbs in Chinese and Japanese locative inversion constructions. The question that still remains is why only accomplishment verbs with the argument structure <*agent, theme, location*> may appear in the *zhe* locative inversion construction, whereas the *-te aru* construction does not require that the verb take a locative argument. As we saw earlier, change-of-state verbs that do not originally take a locative argument can occur in the Japanese *-te aru* construction.

(32) a. Hanako-wa yooki-no-naka{*-ni/-de} nendo-o katame-ta.
Hanako-TOP container-GEN-inside-LOC clay-ACC harden-PAST
'Hanako hardened clay in the container.'

b. Yooki-no-naka{-ni/*-de}-(wa) nendo-ga katame-te-aru.
container-GEN-inside-LOC clay-NOM harden-PART-AUX
'In the container is hardened clay.'

Along the lines of Nakajima (2001), I propose that the locative argument is introduced by the aspectual auxiliary *aru*. This is not surprising, given the fact that the auxiliary *aru* is morphologically identical to the existential verb *aru*. On the other hand, the Chinese affix *zhe* simply cannot introduce a locative argument on its own.

6. Concluding remarks

This paper has investigated why Chinese locative inversion shows crosslinguistically atypical distributional properties. We have seen that it is the Head Shift operation that makes it possible for certain transitive verbs to satisfy the state subevent condition. The analysis proposed here is further corroborated by the Japanese *-te aru* construction.

References

Bassac, Christian, & Pierrette Bouillon. 2002. Middle transitive alternations in English: A generative lexicon approach. *Many morphologies*, ed. by Paul Boucher, 29-47. Somerville, MA: Cascadilla Press.

Birner, Betty. 1994. Information status & word order: An analysis of English inversion. *Language* 70.233-59.

Birner, Betty. 1995. Pragmatic constraints on the verb in English inversion. *Lingua* 97.233-256.

Bolinger, Dwight. 1977. *Meaning and form*. London and New York: Longman.

Bresnan, Joan, & Jonni M. Kanerva. 1989. Locative in version in Chichewa: A case study of factorization in grammar. *Linguistic Inquiry* 20.1-50.

Bresnan, Joan. 1994. Locative inversion and the architecture of Universal Grammar. *Language* 70.72-131.

Coopmans, Peter. 1989. Where stylistic and syntactic processes meet: Locative inversion in English. *Language* 65.728-751.

Dowty, David. 1979. *Word meaning and Montague Grammar*. Dordrecht: Reidel.

Du, Juliet Wai-hong. 1999. Locative inversion and temporal aspect in Mandarin Chinese. *Proceedings from the Panels of the Chicago Linguistic Society's 35fth Meeting*, ed. by Sabrina Billings, John Boyle, & Aaron Griffith, 339-353. Chicago, IL: Chicago Linguistic Society.

Gu, Yang. 1992. On the locative existential construction in Chinese. *Proceedings of the 10th West Coast Conference on Formal Linguistics*. ed. by Dawn Bates, 183-195. Stanford, CA: The Stanford Linguistics Association.

Hoekstra, Teun, & René Mulder. 1990. Unergatives as copular verbs: Locational and existential predication. *The Linguistic Review* 7.1-79.

Huang, C.-T. James. 1987. Existential sentences in Chinese and (in)definiteness. *The presentation of (in)definiteness*, ed. by Eric Reuland & Alice ter Meulen, 226-253. Cambridge, MA: MIT Press,

Iwamoto, Enoch, & Kazuki Kuwabara. 1996. On the aspectual property of locative inversion and the status of PP. *Studies in Linguistics and Language Teaching* 7.1-14. Kanda University of International Studies.

Levin, Beth, & Malka Rappaport Hovav. 1995. *Unaccusativity*. Cambridge, MA: MIT Press.

Li, Yen-hui Audrey. 1990. *Order and constituency in Mandarin Chinese*. Dordrecht: Kluwer Academic Publishers.

Liu, Feng-his. 2007. Auxiliary selection in Chinese. *Split auxiliary systems: A cross-linguistic perspective*, ed. by Raúl Aranovich, 181-205. Amsterdam: John Benjamins, 181-205.

Martin, Samuel. 1975. *A reference grammar of Japanese*. New Haven: Yale University Press.

Masuoka, Takashi. 1987. *Meidai no bunpou* [Grammar of proposition]. Tokyo: Kuroshio.

Matsumoto, Yo. 1990. Constraints on the 'intransitivizing' resultative *-te aru* construction in Japanese. *Japanese/Korean linguistics*, ed. by Hajime Hoji, 269-83. Stanford: CSLI.

Milsark, Gary. 1974. *Existential sentences in English*. Ph.D. dissertation, MIT.

Nakajima, Heizo. 2001. Verbs in locative constructions and the generative lexicon. *The Linguistic Review* 18.43-67.

Nakau, Minoru, & Yoshiki Nishimura. 1998. *Koobun to zisyookoozoo* [Constructions and event structure]. Tokyo: Kenkyusha.

Ono, Naoyuki. 2001. Integrating lexical meanings with constructional meanings: Locative inversion in English and Japanese. *Cognitive-functional linguistics in an East Asian context*, ed. by Kaoru Horie & Shigeru Sato, 55-79. Tokyo: Kuroshio.

Ono, Naoyuki. 2005. *Seisei goi imiron* [Generative lexical semantics]. Tokyo: Kuroshio.

Pan, Haihua. 1996. Imperfective aspect zhe, agent deletion, and locative inversion in Mandarin Chinese. *Natural Language and Linguistic Theory* 14.409-432.

Perlmutter, David. 1978. Impersonal passives and the Unaccusative Hypothesis, *Proceedings of the Fourth Annual Meeting of the Berkeley Linguistic Society*, 157-189. Berkeley Linguistic Society, University of California.

Pustejovsky, James. 1991. The syntax of event structure. *Cognition* 41.47-81.

Pustejovsky, James. 1995. *The generative lexicon*. Cambridge, MA: MIT Press.

Rochemont, Michael. 1986. *Focus in generative grammar*. Amsterdam: John Benjamins.

Rochemont, Michael S., & Peter W. Culicover. 1990. *English focus constructions and the theory of grammar*. Cambridge: Cambridge University Press.

Sugioka, Yoko. 2001. Event structure and adjuncts in Japanese deverbal compounds. *Journal of Japanese Linguistics* 17.83-108.

Takezawa, Koichi. 1993. Secondary predication and locative/goal phrases. *Japanese syntax in comparative grammar*, ed. by Nobuko Hasegawa, 45-77. Tokyo: Kuroshio.

Tan, Fu. 1991. *The notion of subject in Chinese*. Ph.D. dissertation, Stanford University.

Vendler, Zeno. 1967. *Linguistics and philosophy*. Cornell University Press.

Yamamoto, Kazuyuki. 1997. Locative inversion in English and Japanese. *Studies in English linguistics: A festschrift for Akira Ota on the occasion of his eightieth birthday*, ed. by Masatomo Ukaji, Masaru Kajita, Toshio Nakao, & Shuji Chiba, 650-664. Tokyo: Taishukan.