

Word Order and Event Structure in Mandarin Chinese

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1. Introduction

In this material we are going to explore the word order phenomena in Mandarin Chinese (henceforth MC), and try to provide an explanation for them. It will cover the following issues -

- Basic facts about the word order phenomena in MC.
- The headedness problem of MC – whether it is head-initial or head-final. It will be shown that the syntactic constructions in MC, in fact, are largely head-final.
- The nature of the head-finality in MC. Even though many syntactic constructions in MC are head-final, they are not of the kind as in head-final languages such as Japanese. They conform to Kayne’s (1994) Linear Correspondence Axiom (LCA).
- A brief introduction of event semantics and the use of event predicates in syntax. In particular, it will be shown that an event-based approach to MC syntax captures the “Davidsonian nature” of the MC sentences.
- An attempt to derive the “Kaynean character” of MC word order phenomena – incorporation of the LCA, the event-based approach to MC syntax, and Escribano’s (2004) theory of adjunction.

2. Basic facts about the word order in MC

2.1 Basic word order phenomena

1. Basic word order in MC, English, and Japanese

- MC is an SVO language. Thus it is similar to English and unlike Japanese

(1) John ate a burger. (SVO)

(2) Zhangsan chi-le yi-ge hanbao. (SVO)
Zhangsan eat-Perf one-Cl burger
'Zhangsan ate a burger.'

(3) Taroo-wa hambaagaa-o tabe-ta. (SOV)
Taroo-Top burger-Acc eat-Past
'Taroo ate a burger.'

- But the word order of the modifiers is different. Modifiers in MC must precede the modified. The other order is unacceptable. This makes MC similar to Japanese but not to English.

(4) John ran quickly. (Modified-Modifier)

(5) Zhangsan henkai-di pao. (Modifier-Modified)
Zhangsan quick-ly run
'Zhangsan ran quickly.'

(6) John-wa haya-ku hasitte-i-ta. (Modifier-Modified)
John-Top quick-ly run-Prog-Past
'John ran quickly.'

- As a result, MC is similar to both English and Japanese, but in different respects. MC shares with English in VO only; it shares with Japanese the Modifier-Modified order. This, in effect, makes MC pretty much like Japanese.

- (7) John studied English hard in the library yesterday.
- (8) Zhangsan zuotian zai tushuguan yonggong-di nian Yingwen.
 Zhangsan yesterday at library hard study English
 ‘Zhangsan studied English hard in the library yesterday.’
- (9) Taroo-wa kinoo toshokan-de issyoukenmei-ni Eigo-o bekyoo-si-ta.
 Taroo-Top yesterday library-at hard-Dat English-Acc study-do-Past
 ‘Taroo studied English hard in the library yesterday.’

2. VO or OV?

- Li and Thompson (1974) argue that Chinese has been undergoing a word order change from SVO to SOV. In their view, MC is changing to the SOV order and stops being a SVO language. The evidence referred to includes the emergence of the disposal (*ba*) construction, the *bei* passive construction, the shift from V-PP (in Archaic Chinese) to PP-V (in Modern Mandarin), and so on.
- Many researchers in Chinese grammar have provided empirical evidence against the “VO to OV” proposal, thus Li and Thompson’s (1974) hypothesis cannot be maintained (see S. Huang 1978, Sun and Givon 1985, and Peyraube 1994). But it is indeed the case that MC has some OV constructions that need to be clarified.

- (10) Zhangsan chi-le hanbao.
 Zhangsan eat-Perf burger
 ‘Zhangsan ate the burger.’
- (11) Zhangsan ba hanbao chi-le. (The disposal (*ba*) construction)
 Zhangsan Disp burger eat-Perf
 ‘Zhangsan ate the burger.’
- (12) Zhangsan hanbao chi-le. (The object-shift construction)
 Zhangsan burger eat-Perf
 ‘Zhangsan ate the burger.’

- The *ba* construction (a.k.a. the disposal construction) is a construction in which the object of the sentence is fronted to the pre-verbal position marked by the element (or disposal marker) *ba*. Several considerations indicate that it cannot be a simple OV construction.

-- First, some have shown that the element *ba* (be it a verb or a functional category) is a head with selectional properties (Sybesma 1992, Zou 1995, Lin 2001, etc.). Thus it cannot be a simple object marker that marks the pre-verbal object.

-- Second, the formation of the *ba* construction is subject to specific semantic conditions.

The verb must be dynamic (13)-(14); the predicate must be telic (15)-(16); the predicate must yield a resultative state that the object ends up in (17)-(20).

- (13) Zhangsan xihuan Lisi.
 Zhangsan like Lisi
 ‘Zhangsan likes Lisi.’
- (14) *Zhangsan ba Lisi xihuan.
 Zhangsan Disp Lisi like
- (15) Zhangsan xiao Lisi
 Zhangsan laugh.at Lisi
 ‘Zhangsan laughed at Lisi.’
- (16) *Zhangsan ba Lisi xiao
 Zhangsan Disp Lisi laugh.at
- (17) Zhangsan qi-huan-le motuoche.
 Zhangsan ride-broken-Perf motorcycle
 ‘Zhangsan rode the motorcycle [and as a result] made it broken.’
- (18) Zhangsan qi-lei-le motuoche.
 Zhangsan ride-tired-Perf motorcycle
 ‘Zhangsan rode the motorcycle [and as a result] made himself tired.’
- (19) Zhangsan ba motuoche qi-huai-le.
 Zhangsan Disp motorcycle ride-broken-Perf
 ‘Zhangsan rode the motorcycle [and as a result] made it broken.’
- (20) *Zhangsan ba motuoche qi-lei-le.
 Zhangsan Disp motorcycle ride-tired-Perf

- The object-shift construction in MC is not a simple OV construction either. There is evidence indicating that it is derived by A-movement (Shyu 2001). It observes strict locality requirements; that is, it is clause bound (21)-(23). It is permitted only in a finite clause (24)-(26). It exhibits island effects (27)-(28).

- (21) Zhangsan renwei [Lisi mei-chi yao].
 Zhangsan think Lisi not-eat medicine
 ‘Zhangsan thinks Lisi didn’t take the medicine.’
- (22) Zhangsan renwei [Lisi yao mei-chi ___].
 Zhangsan think Lisi medicine not-eat
 ‘Zhangsan thinks Lisi didn’t take the medicine.’
- (23) *Zhangsan yao renwei [Lisi mei-chi ___].
 Zhangsan medicine think Lisi not-eat
- (24) Zhangsan dasuan [PRO nian-wan na-ben shu].
 Zhangsan plan read-finish that-Cl book
 ‘Zhangsan plans to finish reading that book.’
- (25) *Zhangsan dasuan [PRO na-ben shu nian-wan ___].
 Zhangsan plan that-Cl book read-finish
- (26) Zhangsan naben-shu dasuan [PRO nian-wan ___].
 Zhangsan that-book plan read-finish
 ‘Zhangsan plans to finish reading that book.’
- (27) Wo [zai Lisi jiao-chu kaojuan zhihou] cai likai.
 I when Lisi submit-out exam.sheet after thenleave
 ‘I left after Lisi submitted the exam-sheet.’
- (28) *Wo kaojuan [zai Lisi jiao-chu ___ zhihou] cai likai.
 I exam-sheet when Lisi submit-out after then leave

- Conclusion: MC is indeed a VO language. All non-VO structures are derived.

2.2 More on the word order of MC

1. The word order of major categories in MC

- In MC, VP and PP are head-initial, and all other categories (and syntactic constructions) are head-final.

- (34) V-NP
- a. chi hanbao
eat burger
'eat a burger'
 - b. kai che
drive car
'drive a car'
 - c. ti zuqiu
kick soccer.ball
'kick the soccer ball'
- (35) P-NP
- a. zai bangongshi (-li)
at office in
'in the office'
 - b. cong Taibei
from Taipei
'from Taipei'
 - c. xiang Zhangsan
toward Zhangsan
'toward Zhangsan'
- (36) Adv-A
- a. hen piaoliang
very beautiful
'very beautiful'
 - b. feichang youqian
extremely rich
'extremely rich''
 - c. tebie chang
particularly long
'particularly long'
- (37) XP-N
- a. hen gui de yifu
very expensive Mod cloth
'very expensive cloth'

- b. wo zuotian yudao de jingcha
 I yesterday meet Mod policeman
 ‘the policeman that I met yesterday’
- c. Zhangsan de taidu
 Zhangsan Mod attitude
 ‘Zhangsan’s attitude’

- From the above, it appears that MC exhibit split headedness in terms of its word order. That is, it exhibits both head-initial and head-final properties. Some languages in the world exhibit such split headedness, like Persian (Comrie 1989).

2. Further examination of the headedness of MC

- Carstens (2002) lists a number of phenomena indicating head-finality of a language. As expected, MC matches many of them.
 - Postpositions.
 - The verb follows its modifiers.
 - Nouns follow adjectives and demonstratives.
 - Nouns precede determiners and quantifiers.
 - Internally headed relatives.
 - Relative clauses precede the heads.
 - Sentence-final interrogative particles.
 - In-situ wh-phrases.
 - Final clausal subordinators.
 - The adjunct clause precedes the main clause.
 - Coordination of the form *X-and Y-and*.
- MC has prepositions but no postpositions.¹
- In MC, nouns follow adjectives and demonstratives.

¹ In MC a noun can be appended with a “localizer” and turned into a locative nominal:

- | | |
|------------------------------------|--|
| (i) zhuozi ‘table’
yizi ‘chair’ | (ii) zhuozi-shang ‘on the table’
yizi-xia ‘under the chair’ |
|------------------------------------|--|

The “localizers” *-li*, *-xia* and so on are not postpositions. When they are appended to a noun, the resulting expression is still a nominal. See Li 1990.

- (38) a. na-duo hua
 that-Cl flower
 ‘that flower’
- b. hong de hua²
 red Mod flower
 ‘red flower’

- In MC, nouns do not precede determiners/quantifiers.

- (39) meige ren
 every person
 ‘every person’

- MC doesn’t have internally headed relatives.
- In MC relative clauses precede the heads.

- (40) [Zhangsan zuotian mai __] de shu
 Zhangsan yesterday buy Mod book
 ‘the book that Zhangsan bought yesterday’

- MC has sentence-final interrogative particles, which it uses to form question sentences. There are two of them, *ma* (for yes-no question) and *ne* (for other types of question).

² In MC an adjectival phrase cannot modify a head noun directly without the “intercession” of the modification marker *de*.

- (i) hen hong de hua
 very red Mod flower
 ‘very red flower’
- (ii) hen hong hua
 very red flower
 ‘(Intended) very red flower’

This raises a question: If MC has adjectives, why can’t an adjectival phrase modify a head noun directly, just like the case of English such as *very red flowers*? The ungrammaticality of (ii) and similar examples then seem to indicate that there is no real adjectival modification in MC; what looks like adjectival modification is in fact an instance of relativization, as relative modification in MC invariably needs *de*. See Simpson 2003 and Saito et al 2008. (An alternative is to make the adjective and head noun into a compound, as in *hong-hua* ‘red flower’. But in that case degree adverbs cannot be used, as the ungrammaticality of (ii) shows.)

- (41) Zhangsan xihuan Lisi ma? (Yes-no question)
 Zhangsan like Lisi Q
 ‘Does Zhangsan like Lisi?’
- (42) Zhangsan xihuan shei ne? (Wh-question)
 Zhangsan like who Q
 ‘Who does Zhangsan like?’
- (43) Zhangsan xi-bu-xihuan Lisi ne? (“A-not-A” yes-no question)
 Zhangsan Red-not-like Lisi Q

- The wh-phrases in MC stay in-situ in overt syntax.

- (43) Zhangsan xihuan shei? (Wh-argument in situ)
 Zhangsan like who
 ‘Who does Zhangsan like?’
- (44) Zhangsan zai jia-li zenmeyang xiu che? (Wh-adverb in-situ)
 Zhangsan at home-in how repair car
 ‘How does Zhangsan repair the car at home?’

- MC has both sentence-initial and sentence-final clausal subordinators. So MC does have sentence-final clausal subordinators.

- (45) Ruguo Zhangsan lai, Lisi jiu bu lai.
 If Zhangsan come Lisi then not come
 ‘If Zhangsan comes, then Lisi will not come.’
- (46) Dang ni jing jiaoshi, yiding yao da-kai deng.
 when you enter classroom definitely have.to turn-on light
 ‘When you enter the classroom, you definitely have to turn on the light.’
- (47) Zhangsan lai dehua, Lisi jiu bu lai.
 Zhangsan come if Lisi then not come
 ‘If Zhangsan comes, then Lisi will not come.’
- (48) Ni jing jiaoshi shi, yiding yao da-kai deng.
 you enter classroom when definitely have.to turn-on light
 ‘When you enter the classroom, you definitely have to turn on the light.’

- In MC, the adjunct clause always precedes the main clause (or the main predicate).

(49) Zhangsan jin fangjian shi, Lisi zai shuijiao.

Zhangsan enter room when, Lisi at sleep

‘When Zhangsan entered the room, Lisi was in sleep.’

(50) *Lisi zai shuijiao, Zhangsan jin fangjian shi.

Lisi at sleep Zhangsan enter room when,

‘(Intended) Lisi was in sleep when Zhangsan entered the room.’

(51) Suiran Zhangsan xihuan Lisi, ta meiyou rang Lisi canjia huiyi.

though Zhangsan like Lisi he has.not allow Lisi join meeting

‘Though Zhangsan likes Lisi, he did not allow him to join the meeting.’

(52) *Zhangsan meiyou rang Lisi canjia huiyi, suiran ta xihuan Lisi.³

Zhangsan has.not allow Lisi join meeting though he like Lisi

‘(Intended) Zhangsan didn’t allow Lisi to join the meeting, though he likes Lisi.’

- The coordination structures in MC are of the form *X and Y*.

(53) Zhangsan he Lisi

Zhangsan and Lisi

‘Zhangsan and Lisi’

- Summary:

³ (52) may sound acceptable if there is a major pause between the two clauses. If that case the concessive clause is an epenthetical expression added to the sentence as an “afterthought.”

(53) Head-final properties in Japanese, MC, and English

<i>Phenomena</i>	<i>Japanese</i>	<i>MC</i>	<i>English</i>
Postposition	√	×	×
The verb follows its modifiers	√	√	√
Nouns follow adjectives and demonstratives	√	√	√
Nouns precede determiners and quantifiers	√	×	×
Internally headed relatives	√	×	×
Relative clauses precede the heads	√	√	×
Sentence-final interrogative particles	√	√	×
In-situ wh-phrases	√	√	×
Final clausal subordinators	√	√	×
The adjunct clause precedes the main clause	√	√	×
Coordination of the form <i>X-and Y-and</i>	√	×	×

- The above table shows that MC, as a matter of fact, is largely head-final. Thus MC is not only split-headed; actually it is prone to head-finality. It is, in a manner of speaking, a *head-final language*. This is somewhat surprising since it is contrary to the stereotypical impression that many people have about the word order of MC, namely it is an SVO, hence a head-initial, language.

2.3 Earlier theories on the word order of MC

1. *Huang 1982*

- The X' Structure Condition (Huang 1982: 41):

(54) The X' structure of Chinese is of the form:

- [_{Xⁿ} Xⁿ⁻¹ YP*] iff n = 1 and X ≠ n
- [_{Xⁿ} YP* Xⁿ⁻¹] otherwise

- According to this condition, MC is head-initial only when the head is $V^0/P^0/A^0$. In all other cases the structure is head-final. Again, this condition shows that MC is prone to head-finality.
- Two interesting cases: nominals and predicates.
- Nominals: “In general, nominal modifiers may occur in free word order among themselves. This fact might be taken to indicate that there is no internal structure within a noun phrase other than the minimal structure that specifies the head to follow all of its modifiers.” (Huang 1982: 63)

(55) $N' \rightarrow XP^* N$

(56) Zhangsan de san-ben Lisi zuotian mai de shu
 Zhangsan Mod three-Cl Lisi yesterday buy Mod book
 ‘Zhangsan’s three books which Lisi bought yesterday’

(57) Lisi zuotian mai de san-ben Zhangsan de shu
 Lisi yesterday buy Mod three-Cl Zhangsan Mod book
 ‘three of Zhangsan’s books which Lisi bought yesterday’

(58) san-ben Lisi zuotian mai de Zhangsan de shu
 three-Cl Lisi yesterday buy Mod Zhangsan Mod book
 ‘three of Zhangsa’s books which Lisi bought yesterday’

- Predicates: “Like the pronominal modifiers ... preverbal modifiers may also occur in free word order with respect to each other so long as they precede their head V’...” (Huang 1982: 73)

(59) Wo zai xuexiao changchang ma ta.
 I at school often scold him
 ‘At school I often scold him.’

(60) Wo changchang zai xuexiao ma ta.
 I often at school scold him
 ‘Often I scold him at school.’

- In a footnote (note 10, p.93) Huang considers the possibility of accounting for the word order phenomena in MC by means of Case assignment: “Suppose that all the categories V, A, P are

Case assigners, but not N. Then a post-nominal NP will be excluded by the Case filter...”

But Huang also notes that there would be problems if this approach is taken. First, complement clauses cannot follow a head noun, even though clauses don't need Case (61)-(62). Second, MC doesn't permit post-nominal NP introduced by a preposition such as *of* in English (63)-(66). Even when the preposition *dui* 'to' is employed, the argument NP still has to be preverbal (67).

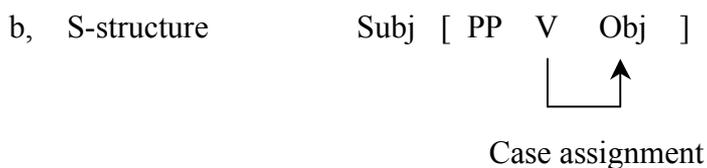
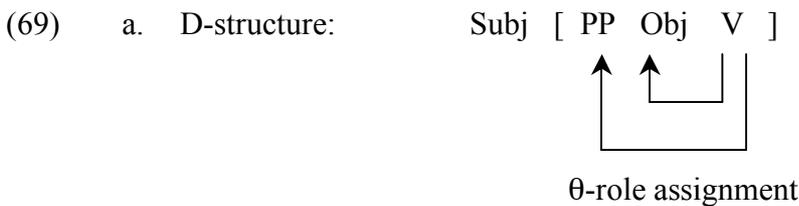
- (61) [ta lai-bu-lai de] wenti
 he come-not-come Mod question
 'the question he will come or not.'
- (62) *wenti [ta lai-bu-lai]
 question he come-not-come
 '(Intended) the question he will come or not'
- (63) *the destruction the city
- (64) the destruction of the city
- (65) *manzu de huimie chengshi
 barbarian Mod destruction city
 '(Intended) the barbarians' destruction of the city'
 [Fine as a gerundive expression, but not as a derived nominal]
- (66) *manzu de huimie dui chengshi
 barbarian Mod destruction to city
 '(Intended) the barbarians' destruction of the city'
- (67) manzu dui chengshi de huimie
 barbarian to city Mod destruction
 'the barbarians' destruction of the city'

2. Li 1985, 1990

- The Case approach is taken up by Li (1985, 1990). Li (1985) follows Koopman 1983 and assumes that the directionality of Case and θ -role assignment determines the word order of a language. It is assumed that in MC Case assignment goes from left to right, while θ -role assignment goes from right to left.

- (68) i. Chinese is head-final unless required by Case assignment.
 ii. Case assignment is from left to right in Chinese.
 (Li 1985: 96)

- Li (1985) says: “The [above statement] means that if an element is assigned Case, it occurs to the right of the Case assigner; otherwise it appears to the left of the assigner. This is to say that Chinese is basically head-final and theta-roles are assigned to the left.” (Li 1985: 97)
- Thus the general head-finality of the phrase structures in MC is attributed to θ -role assignment, which is from right to left. According to Li, this is why all adverbials or adjuncts occur pre-verbally, because they receive θ -roles from the verb. On the other hand, the object NP receives the θ -role from the verb from the right as well, but it also needs to receive Case from the verb, which is from left to right. So nontrivial mapping between the D-structure and the S-structure is inevitable. (Li doesn’t clearly say that it is movement, but it is hard to imagine it could be otherwise.)



- Important consequences follow from this theory. Suppose that a Case assigner, say a verb, assigns one and only one Case; furthermore, it must assign the Case. This may account for some intriguing syntactic constructions in MC, according to Li’s analysis.
- The verb-copying construction.** In MC when a verb takes an object and an additional complement, the verb must be reduplicated. The following examples show that the verb *chi* ‘eat’ can take a regular object and a resultative *de* complement (70)-(71). However, the two post-verbal elements cannot occur after the same verb, in whatever order (72). To save the

sentence, the verb *chi* ‘eat’ is copied and the new copy *chi* ‘eat’ take the object, while the original copy takes the *de* complement (73).⁴

- (70) Zhangsan chi niupai.
 Zhangsan eat steak
 ‘Zhangsan ate a steak.’
- (71) Zhangsan chi de hen lei.
 Zhangsan eat Ext very tired
 ‘Zhangsan became tired from eating.’
- (72) *Zhangsan chi niupai de hen lei / de hen lei niupai.
 Zhangsan eat steak Ext very tired Ext very tired steak
 ‘(Intended) Zhangsan became very tired from eating the steak.’
- (73) Zhangsan chi niupai chi de hen lei.⁵
 Zhangsan eat steak eat Ext very tired
 ‘Zhangsan became very tired from eating the steak.’

- But Li’s Case approach faces some problems. First, why is it that the word order has to be such that the first *chi* ‘eat’ takes the object and the second *chi* ‘eat’ takes the *de* resultative complement? Why is the opposite word order bad? (One might say that this is because the result naturally comes after the action – some kind of iconicity. But remember that MC is generally head-final, and hence Subject-Result-Verb should have been possible.)

⁴ In what follows the element *de* is glossed as ‘Ext’, the abbreviation for ‘extent marker’. The reason for this gloss is that *de* can be understood as meaning ‘...to the extent that...’.

⁵ Another way to make the sentence grammatical is to shift the object to the preverbal position, without verb-copying:

- (i) Zhangsan niupai chi de hen lei.
 Zhangsan steak eat Ext very tired
 ‘Zhangsan became very tired from eating the steak.’

This seems to indicate that the real cause for the verb-copying phenomenon is that two elements compete for one postverbal position. As long as one of the elements (e.g. the object) is allocated to a different position, the other may legitimately stay in the postverbal position. In the case of (i), the object ‘steak’ can be thought to be in Spec of VP, and thus doesn’t compete with the *de* complement for the postverbal position. If this is indeed the case, structural Case doesn’t seem to play a role, since the Case assignment of the object ‘steak’ would be problematic.

(74) *Zhangsan chi de hen lei chi niupai.
 Zhangsan eat Ext very tired eat steak
 '(Intended) Zhangsan became very tired from eating the steak.'

- Second, Li's analysis presupposes that the *de* complement requires Case. This is problematic. -- In addition to the *de* complement, some other post-verbal complements may trigger verb-copying as well, such as the duration and frequency phrases (75)-(76). The duration and frequency phrases are nominals and hence need Case. But the *de* complements are not nominals; why do they need Case? (The head of the *de* complement, *de*, means 'acquire, get'; it is not a noun and doesn't have nominal properties.)

(75) Zhangsan chi niupai chi-le san-ge xiaoshi. (The duration complement)
 Zhangsan eat steak eat-Perf three-Cl hour
 'Zhangsan ate the steak for three hours'

(76) Zhangsan chi niupai chi-le san ci. (The frequency complement)
 Zhangsan eat steak eat-Perf three time
 'Zhangsan ate the steak for three times.'

-- There are two types of *de* complement: the descriptive *de* complement, which denotes the manner or mode of an event as it is in progress (77), and the resultative *de* complement, which denotes the resultative state that follows from an event (78). Both occur in the verb-copying construction. The problem, however, is that they can occur with intransitive verbs as well (79)-(80). In Li's theory, that means that the intransitive verb also assigns Case to the *de* complement. This assumption is unusual to say the least.

(77) Zhangsan chi na-kuai niupai chi de hen kuai. (Descriptive)
 Zhangsan eat that-Cl steak eat Ext very fast
 'Zhangsan was fast in eating that steak'

(78) Zhangsan chi na-kuai niupai chi de hen lei. (Resultative)
 Zhangsan eat that-Cl steak eat Ext very tired
 'Zhangsan became tired as a result of eating that steak'

- (79) Zhangsan pao de hen kuai. (Descriptive)
 Zhangsan run Ext very fast
 ‘Zhangsan runs fast.’
- (80) Zhangsan pao de hen lei. (Resultative)
 Zhangsan run Ext very tired
 ‘Zhangsan ran himself tired.’

-- Also, the selection of the verb needs to be accounted for. Why can it take the *de* complement instead of its object?

3. Conclusion

- Huang’s (1982) X’-structure condition is descriptive, and Li’s (1985, 1990) Case approach faces difficult problems. But they have one thing in common: both theories notice that MC is in fact more head-final than head-initial.

Appendix: Remarks on the verb-copying construction

- For a satisfactory account of the verb-copying construction in MC, one needs to take the following two factors into consideration.⁶
 -- First, the first VP appears to be an adverbial; it can move around (1)-(2) and can be embedded within a temporal adverbial clause (3).

- (1) Zhangsan chi niupai chi de hen lei.
 Zhangsan eat steak eat Ext very tired
 ‘Zhangsan became tired from eating the steak.’
- (2) Chi niupai Zhangsan chi de hen lei.
 eat steak Zhangsan eat Ext very tired
 ‘As to eating steak, Zhangsan became tired from it.’
- (3) Na tian chi niupai de-shihui Zhangsan chi de hen lei.
 that day eat steak when Zhangsan eat Ext verytired
 ‘Zhangsan became tired that day when he was eating the steak.’

⁶ See Huang 1982, 1988 for relevant discussion.

-- Second, the main verb, namely the second copy of the verb, doesn't take the object it is supposed to take. Thus in (1) the second copy of the verb *chi* 'eat' doesn't take the object 'steak' but the resultative complement 'very tired'.

- These considerations lead to the following analysis. In the verb-copying construction of the form [Subj VP1 VP2], VP1 is an adverbial with the function to restrict the predication domain of the main predicate, which is VP2. The fact that the verb of VP2 doesn't take the object it is supposed to ceases being a puzzle once we adopt Lin's (2001) proposal that the action verbs in MC don't have their own argument. Since the verb *chi* 'eat' doesn't select a patient/object to start with, it is not strange at all that it takes a *de* resultative expression rather than 'steak' as its complement.
- In fact the verb-copying construction is just a sub-case of a larger group of sentences. The following sentence also has the form [Subj VP1 VP2], though the verbs in the two VPs are not identical as in the verb-copying construction.

(4) Zhangsan nien Yingwen hen zhuanxin.
 Zhangsan study English very focused
 'Zhangsan is very focused when studying English.'

- There is evidence that VP1 in this sentence is an adverbial whose function is to restrict the predication domain of VP2 (Chen 2005).
 -- Like the verb-copying construction, VP1 can move around (5).
 -- Also, VP1 can be embedded within an adverbial clause (6).

(5) Nien Yingwen, Zhangsan hen zhuanxin.
 study English Zhangsan very focused
 '[When] studying English, Zhangsan is very focused.'

(6) Nien Yingwen de-shihou, Zhangsan hen zhuanxin.
 study English when Zhangsan very focused
 'When studying English, Zhangsan is very focused.'

-- A modal can be inserted before VP1 or before VP2 and after VP1, which indicates that VP2 is the real predicate while VP1 a left-adjoined modifier.

- (7) Zhangsan hui chi niupai chi de hen lei.
 Zhangsan will eat steak eat Ext very tired
 ‘Zhangsan will become tired from eating the steak.’
- (8) Zhangsan chi niupai hui chi de hen lei.
 Zhangsan eat steak will eat Ext very tired
 ‘Zhangsan will become tired from eating the steak.’
- (9) Zhangsan hui nien Yingwen hen zhuanxin.
 Zhangsan will study English very focused
 ‘Zhangsan will be very focused when studying English.’
- (10) Zhangsan nien Yingwen hui hen zhuanxin.
 Zhangsan study English will very focused
 ‘Zhangsan will be very focused when studying English.’

- Conclusion: both the verb-copying construction and the (4)-type of sentences have a structure in which VP1 is a (temporal) clausal adverbial and VP2 is the main predicate. Notice that in (4) the main verb isn’t copied. Thus verb-copying is not a necessary property of such sentences. It seems that there is verb copying only when the verb is eventive. It is not clear why verb copying is needed in such cases.

3. *Head-initial vs. head-final*

3.1 “Left proliferation” of MC phrase structure

1. “Head-finality” of MC phrase structures

- The previous section shows that MC is generally head-final. But there are still questions to be answered.
 - What about the “basic word order” SVO? How does it fit the general head-finality of MC?
 - What kind of head-finality does MC exhibit? Is it the same as, say, that of Japanese?
- This second point needs some elaboration. There can be different kinds of head-finality. A head-final structure [YP X] can be head-final in one of the following two ways.
 - (1) YP is the complement of X.
 - (2) YP is the specifier or adjunct of X.
- Kayne (1994) proposes that the linear order of syntactic structure is determined by the c-command relations among the constituting elements – this is the Linear Correspondence Axiom (LCA). A corollary of the LCA is that the universal word order in natural language is Specifier–Head–Complement. If the head-finality of MC is of the kind (1), it doesn’t conform to the LCA, at least not in an obvious way. If the head-finality of MC is of the kind (2), then it conforms to the LCA. Which kind is it?
- There is evidence that even though MC is a head-final language, its head-finality is of the (2) kind, rather than of the (1) kind. Investigations of a number of syntactic constructions in MC show the following:
 - (3) In an MC syntactic construction of the form [X Y]:
 - (i) Either Y is the main constituent and X is a specifier or adjunct, or
 - (ii) X is the head and Y is its complement, or
 - (iii) X and Y form a conjunction structure, of which both X and Y are conjuncts.

(iv) X cannot be a complement to Y, and Y cannot be an adjunct to X.

- Thus the phrase structure in MC is in *full compliance* with the LCA.

2. “Left proliferation”

- The three major ways for structure building in MC:
 - Head-complement
 - Left merger of specifier or left adjunction
 - Conjunction
- Head-complement structures
 - V-Object (4) (ignoring A and P)
 - V (-Object)-Nonobject complement: the resultative and duration *de* complements (5), the duration and frequency complements (6), the goal *dao* ‘to’ complement (7)-(10), the location *zai* ‘at’ complement (11)-(13), the goal *gei* ‘give, to’ complement (14)-(15), the *lai*-purposive (16), and so on.

- (4) Zhangsan chi hanbao
Zhangsan eat burger
‘Zhangsan ate a burger’
- (5) Zhangsan chi de hen lei / hen kuai
Zhangsan eat Ext very tired very fast
‘Zhangsan became tired from / was fast in eating’
- (6) Zhangsan chi-le san-ge xiaoshi / san ci
Zhangsan eat-Perf three-Cl hour three time
‘Zhangsan ate for three hours / three times’
- (7) Zhangsan mai dongxi dao Lisi-jia
Zhangsan buy thing to Lisi-home
‘Zhangsan bought things and took them to Lisi’s home’
- (8) Zhangsan pao dao Lisi-jia.
Zhangsan run to Lisi-home
‘Zhangsa ran to Lisi’s home’

- (9) Zhangsan ku dao Lisi-jia
 Zhangsan cry to Lisi-home
 ‘Zhangsan cry his way to Lisi’s home’
- (10) Zhangsan gao dao keyi mo-dao tianhuaban
 Zhangsan tall to may touch-arrive ceiling
 ‘Zhangsan is tall [enough] to touch the ceiling’
- (11) Zhangsan fang shu zai zhuo-shang.
 Zhangsan put book at table-on
 ‘Zhangsan put books on the table’
- (12) Zhangsan ku zai di-shang.
 Zhangsan cry at ground-on
 ‘Zhangsan cried and fell on the ground.’
- (13) Zhangsan jian yi-tiao yu zai chufang-li.
 Zhangsan fry one-CL fish at kitchen-in
 ‘Zhangsan fried a fish and kept it in the kitchen.’
- (14) Zhangsan song yi-ben shu gei Lisi.
 Zhangsan send one-CL book give Lisi
 ‘Zhangsan sent a book to Lisi.’
- (15) Zhangsan jian yi-tiao yu gei Lisi.
 Zhangsan fry one-CL fish give Lisi
 ‘Zhangsan fried a fish [and as a result gave it] to Lisi.’
- (16) Zhangsan mai-le yi-ben shu lai du¹
 Zhangsan buy-Perf one-CL book PM read
 ‘Zhangsan bought a book to read.’

- Left merger of specifier and left adjunction:
 - Subjects (17) and topics (18)
 - Adverbials (adverbs, PPs, VPs) (19)-(20)
 - Adjectival modification (AP, relative clauses, etc.) (21)-(22)
 - The “bare” purposive (23)
 - The resultative verbal compounds (RVC) and other compounds (24)-(25)
 - Structures with sentence-final aspectual, mood, purpose particles. (26)-(28)

¹ PM in the gloss stands for “purposive marker.”

-- The conditionals, the concessives, and other adverbial clauses. (29)-(33)

- (17) Zhangsan chi-le hanbao.
 Zhangsan eat-Perf burger
 ‘Zhangsan ate the burger.’
- (18) Hanbao, Zhangsan chi-le.
 burger Zhangsan eat-Perf
 ‘The burger, Zhangsan ate’
- (19) Zhangsan zuotian zai jia-li hen renzhen-di nian shuxue.
 Zhangsan yesterday at home-in very concentrative study math
 ‘Zhangsan was studying math concentratively at home yesterday’
- (20) Zhangsan zhan-zhe chi hanbao.
 Zhangsan stand-Dur eat burger
 ‘Zhangsan ate the burger standing.’
- (21) Zhangsan chi-le yi-ge feichang gui de hanbao.
 Zhangsan eat-Perf one-Cl extremely expensive Mod burger
 ‘Zhangsan ate an extremely expensive burger.’
- (22) Zhangsan chi-le yi-ge Lisi mai de hanbao.
 Zhangsan eat-Perf one-Cl Lisi buy Mod Mod burger
 ‘Zhangsan ate a burger that Lisi bought.’
- (23) Zhangsan mai yi-ge hanbao chi.
 Zhangsan buy one-Cl burger eat
 ‘Zhangsan bought a burger to eat.’
- (24) Zhangsan ti-po men.
 Zhangsan kick-broken door
 ‘Zhangsan kicked the door and made it broken.’
- (25) Zhangsan qiang-sha Lisi.
 Zhangsan gun-kill Lisi
 ‘Zhangsan killed Lisi with a gun = Zhangsan shot Lisi dead.’
- (26) Zhangsan chi-le nage hanbao le.
 Zhangsan eat-Perf that burger Prt_{ASP}
 ‘Zhangsan has eaten that burger.’

- (27) Zhangsan mai dongxi qu.
Zhangsan buy thing Prt_{PURPOSE}
'Zhangsan went out for shopping'
- (28) Zhangsan chi hanbao le ba?
Zhangsan eat burger Prt_{ASP} Prt_{MOOD}
'Zhangsan has eaten the burger, right?'
- (29) Zhangsan qu, Lisi jiu hui qu.
Zhangsan go Lisi then will go
'If Zhangsan goes, Lisi will go.'
- (30) Suiran Zhangsan bu qu, Lisi haishi yao qu.
though Zhangsan not go Lisi still want go
'Though Zhangsan will not go, Lisi still wants to go.'
- (31) Yinwei Zhangsan yao qu, suoyi Lisi ye hui qu.
because Zhangsan want go so Lisi too will go
'Because Zhangsan wants to go, Lisi will go too.'
- (32) Lisi hui qu, yinwei Zhangsan yao qu.
Lisi will go because Zhangsan want go
'Lisi will go, because Zhangsan wants to go.'
- (33) Chufei Zhangsan qu, fouze Lisi bu qu.
unless Zhangsan go otherwise Lisi not go
'Lisi will not go unless Zhangsan goes.'

▪ Conjunction

-- Coordination of nominals, clauses, etc. (34)-(35)

-- The *hao* purposive (36)

- (34) Zhangsan he Lisi qu kan dianying.
Zhangsan and Lisi go watch movie
'Zhangsan and Lisi went out to a movie.'
- (35) Zhangsan hui qu, erqie / danshi Lisi ye xiang qu.
Zhangsan will go and but Lisi too want go
'Zhangsan will go, and / but Lisi wants to go too.'

(36) Zhangsan mai-le yi-ben shu, hao quyue Lisi.
 Zhangsan buy-Perf one-Cl book PM please Lisi
 ‘Zhangsan bought a book, so as to please Lisi.’

- The above examples indicate that head-complement merger and the left merger of specifier / left adjunction are the major ways for MC to build structures. Conjunction plays a minor role. Remember that MC is head-initial only with (non-nominal) X^0 ; it is head-final at all higher X' -structural level. Thus it is easy for an MC syntactic construction to have a prolific left edge. I call this phenomenon the *left proliferation* of MC syntax.
- A very interesting consequence of the phenomenon of left proliferation is that, MC has structures which at the first sight appear to be head-final but in fact are underlyingly head-initial; there are also constructions which seem to involve right adjunction but actually involve left adjunction. This is in sharp contrast to the case of English.

(37) John bought a necklace to please Mary only to realize that she does not like jewelry.


(38) Zhangsan mai-le yi-tiao xianglian lai taohao Ahua, cai faxian ta bu xihuan zhubao.
 Zhangsan buy-Perf one-Cl necklace PM please Ahua only find she not like jewelry


- In conclusion: MC is in full compliance with the LCA, and its head-finality is the kind that is consistent with Kayne’s approach to word order. In what follows we will see more syntactic constructions that at the first sight seem to violate the LCA but in fact observe it.

3.2 The purposive constructions

1. Three types of purposive constructions in MC

- There are three types of purposive in MC: the “bare” purposive (39), the *lai* purposive (40), and the *hao* purposive (41). They may occur in one and the same sentence, in the fixed order Bare–*Lai*–*Hao* (42). Other orders are not permitted. (PM = purposive marker.)

(39) Zhangsan mai-le yi-ben xiaoshuo du.
 Zhangsan buy-Perf one-Cl novel read
 ‘Zhangsan bought a novel to read.’

(40) Zhangsan mai-le yi-ben xiaoshuo lai quyue Lisi.
 Zhangsan buy-Perf one-Cl novel PM please Lisi
 ‘Zhangsan bought a novel to please Lisi.’

(41) Zhangsan mai-le yi-ben xiaoshuo hao zhengming
 Zhangsan buy-Perf one-Cl novel PM prove
ta dong wenxue.
 he understand literature
 ‘Zhangsan bought a novel to so as to prove that he understands literature.’

(42) Zhangsan mai-le yi-ben xiaoshuo du
 Zhangsan buy-Perf one-Cl novel read
lai quyue Lisi, hao zhengming ta dong wenxue.
 PM please Lisi PM prove he understand literature
 ‘Zhangsan bought a novel to read so as to please Lisi, in order to prove that he understands literature.’

- These purposive clauses occur at the right end of the sentence. As such they look very similar to the infinitival purposive clauses in English (43)-(47) (Whelpton 1995),² which are instances of right adjunction. So, can it be that the purposive clauses in MC are also cases of right adjunction to the main body of the structure?

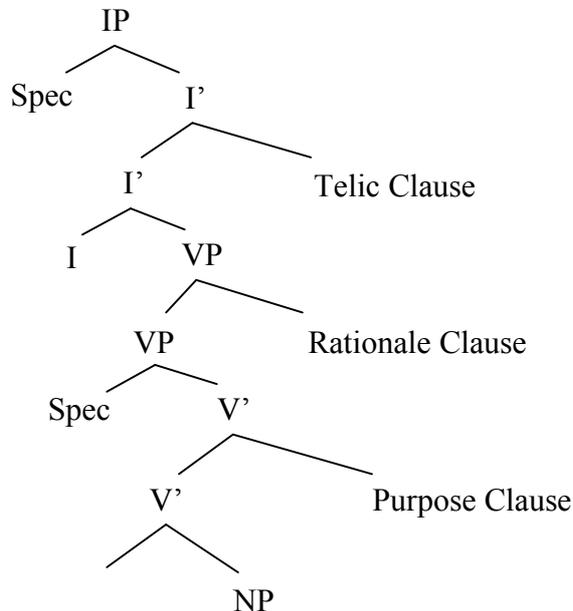
(43) John bought a burger to eat.

(44) John bought a burger to please his wife.

² Also see Browning 1987.

- (45) John bought a burger, (only) to find that his wife had already had lunch.
- (46) John bought a book on the special theory of relativity to read to show that he was knowledgeable, only to realize that he couldn't understand it at all.

(47)



- The answer to the above question is no. The purposives in MC do not involve right adjunction.
 - The *lai* purposive clause is a complement of the main verb of the sentence.
 - The *hao* purposive involves conjunction of two independent clauses.
 - The bare purposive clause is left-adjoined to the main predicate of the sentence.

2. The *lai* purposive

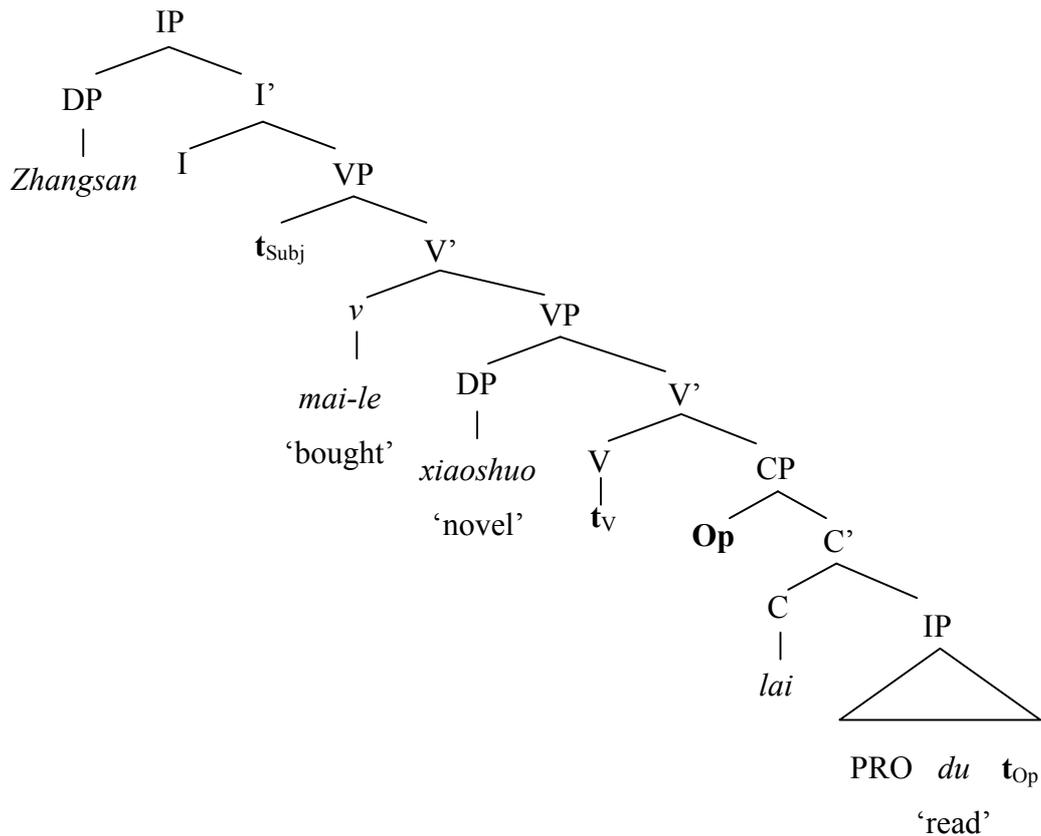
- The properties of the *lai* purposive:
 - The purpose clause (that introduced by *lai*) cannot take a lexical subject (48).
 - The object of the purpose clause may be optionally gapped (49)-(50).
 - Island conditions are observed (51).
 - The negation in the main predicate scopes over the purpose clause (52).
 - The purpose clause is compatible with the disposal (*ba*) construction (53).
 - The purpose clause is compatible with the passive (*bei*) construction (54).
 - The purpose clause permits in-situ wh-adverb and hence is not a CED island (55).

- (48) Zhangsan mai-le yi-ge hanbao lai (*Lisi) chi.
 Zhangsan buy-Perf one-Cl burger PM Lisi eat
 ‘Zhangsan bought a burger (*for Lisi) to eat.’
- (49) Zhangsan mai-le yi-ge hanbao lai chi [e].
 Zhangsan buy-Perf one-Cl burger PM eat
 ‘Zhangsan bought a burger to eat.’
- (50) Zhangsan mai-le yi-ge hanbao lai quyue Lisi.
 Zhangsan buy-Perf one-Cl burger PM please Lisi
 ‘Zhangsan bought a burger to please Lisi.’
- (51) *Zhangsan mai-le yi-ben xiaoshuo lai rang Lisi
 Zhangsan buy-Perf one-Cl novel PM make Lisi
 xiangxin Wangwu du-le [e] de shuofa.
 believe Wangwu read-Perf Mod claim
 ‘(Intended) Zhangsan bought a novel to make Lisi believe the claim that Wangwu read.’
- (52) Zhangsan meiyou / bu mai hanbao lai chi.
 Zhangsan haven’t not buy burger PM eat
 ‘Zhangsan has not bought / does not buy a burger to eat.’
- (53) Zhangsan ba na-ben xiaoshuo mai lai du.
 Zhangsan Disp that-Cl novel buy PM read
 ‘Zhangsan bought that novel to read.’
- (54) Na-ben xiaoshuo bei Zhangsan mai lai du.
 that-Cl novel Pass Zhangsan buy PM read
 ‘That novel was bought by Zhangsan to read.’
- (55) Zhangsan mai shu lai zenyang quyue Lisi?
 Zhangsan buy book PM how please Lisi
 ‘What is the manner such that Zhangsan bought books to please Lisi in that manner?’

▪ The analysis:

- (56) Zhangsan mai-le xiaoshuo lai du.
 Zhangsan buy-Perf novel PM read
 ‘Zhangsan bought novels to read.’

(57)



- The account of the properties:
 - The purpose clause cannot take a lexical subject because it is nonfinite with a PRO subject.
 - The moved Op can be argumental or adverbial; in the former case there is object gap, and in the latter, there isn't. The movement observes locality constraints.
 - The negation in the main predicate scope over the purpose clause because it c-commands the purpose clause.
 - The purpose clause is compatible with the disposal (*ba*) construction because it is the complement of the verb. It adds the required telic bound to the predicate for the formation of the *ba* construction (Liao 2004).
 - The purpose clause is compatible with the passive (*bei*) construction because it is the complement of the verb. It adds the required telic bound to the predicate for the formation of the *bei* passive construction.³
 - The purpose clause permits in-situ wh-adverb because it is a complement.⁴

³ It is well known that the *ba* disposal construction requires that its predicate be telic. However, the *bei* passive also requires a telic predicate (Li and Thompson 1981), though not as much as the *ba* disposal construction.

3. *The bare purposive*

▪ The properties:

- The purpose clause cannot take a lexical subject (58).
- The object of the purpose clause may be optionally gapped (59).
- Island conditions are observed (60).
- The negation in the main predicate scopes over the purpose clause (61).
- The purpose clause may not be compatible with the *ba* and *bei* constructions (62)-(65).
- The purpose clause doesn't permit in-situ wh-adverb (66).

- (58) Zhangsan mai-le yi-ben xiaoshuo (*Lisi) du.
 Zhangsan buy-Perf one-Cl novel Lisi read
 'Zhangsan bought a novel (*for Lisi) to read.'
- (59) Zhangsan mai-le yi-ba chuzi qiao tieding.
 Zhangsan buy-Perf one-Cl hammer hit nail
 'Zhangsan bought a hammer to hammer the nail.'
- (60) *Zhangsan mai-le yi-ben xiaoshuo rang Lisi xiangxin
 Zhangsan buy-Perf one-Cl novel let Lisi believe
 Wangwu du-le [e] de shuofa.
 Wangwu read-Perf Mod claim
 'Zhangsan bought a novel to make Lisi believe the claim that Wangwu has read it.'
- (61) Zhangsan bu / meiyou mai xiaoshuo du.
 Zhangsan not haven't buy novel read
 'Zhangsan doesn't buy / hasn't bought a novel to read.'

⁴ I assume that the CED constrains LF movement. No matter what, it is a fact that in MC the syntactic islands do not permit in-situ wh-adverbs, which move in LF to CP according to Tsai 1994.

- (ii) *Zhangsan chi-le [Lisi zenyang dun e_i de] niurou_i?
 Zhangsan eat-PERF Lisi how stew MOD beef
 '(Intended) What is the manner/means x such that Zhangsan ate beef which Lisi stewed in x ?'
 (iv) *[Zhangsan zenyang ma-le Lisi de] yaoyan
 Zhangsan how scold-PERF Lisi MOD rumor
 chuan-pien-le xuexiao?
 spread-over-PERF school
 '(Intended) What is the manner/means x such that the rumor that Zhangsan scolded Lisi in x spread all over the school?'

- (62) *Zhangsan ba na-ben xiaoshuo mai du.
 Zhangsan Disp that-Cl novel buy read
 ‘(Intended) Zhangsan bought that novel to read.’
- (63) *Na-ben xiaoshuo bei Zhangsan mai du.
 that-Cl novel Pass Zhangsan buy read
 ‘That novel was bought by Zhangsan to read.’
- (64) Zhangsan ba na-ben xiaoshuo na chulai du.
 Zhangsan Disp that-Cl novel take out read
 ‘Zhangsan took that novel out to read.’
- (65) Na-ben xiaoshuo bei Zhangsan na chulai du.
 that-Cl novel Pass Zhangsan take out read
 ‘That novel was taken out by Zhangsan to read.’
- (66) *Zhangsan mai na-ben xiaoshuo zenyang du?
 Zhangsan buy that-Cl novel how read
 ‘What is the manner such that Zhangsan bought that novel to read with that manner?’

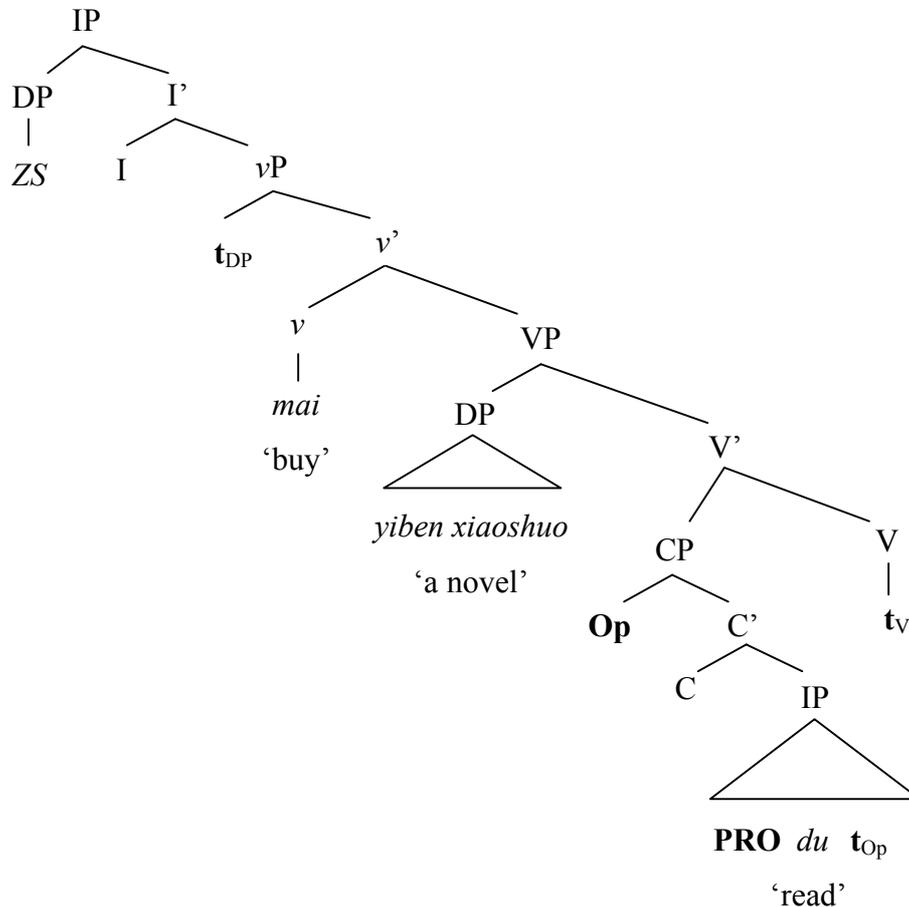
- The above properties indicate that:
 - The bare purpose clause is a nonfinite clause, with argumental or adverbial Op movement.
 - It is subordinate to the main predicate.
 - It doesn't provide a telic bound to the predicate for the formation of the *ba/bei* sentences.⁵
 - It is a CED island, and hence an adjunct.
- The analysis: the bare purpose clause is an adjunct clause left-adjoined to the predicate. It has to be left-adjunction because when it occurs with the *lai* purpose clause, it precedes the *lai* purpose clause. Since the *lai* purpose clause is the complement of the main verb, if the bare purpose clause occurs to its left, the bare purpose clause must be left-adjoined to the predicate.

- (67) Zhangsan mai-le yi-ben xiaoshuo du lai quyue Lisi.
 Zhangsan buy-Perf one-Cl novel read PM please Lisi
 ‘Zhangsan bought a novel to read so as to please Lisi.’

⁵ Thus those grammatical disposal and passive sentences with a bare purposive clause (64)-(65) already have a telic predicate by their own, the bare purposive clause being of no contribution.

(68) *Zhangsan mai-le yi-ben xiaoshuo lai quyue Lisi du.
 Zhangsan buy-Perf one-Cl novel PM please Lisi read

(69)



4. The hao purposive

- Properties:

- The purpose clause *can* take a lexical subject (70).
- Under normal circumstances, object gap is *unacceptable* (71).
- The negation in the first clause *does not* scope over the purpose clause (72).⁶
- The purpose clause may not be compatible with the *ba* and *bei* constructions (73)-(76).
- The verb in the first clause can be non-agentive (77).
- The first clause and the purpose clause both permit in-situ wh-adverb (78)-(79).
- The conjunction *ranhou* 'and then' may occur between the two clauses (80)-(81).

⁶ So the meaning of (72) is that Zhangsan's *not buying the novel* pleases Lisi.

- (70) Zhangsan ban-kai zhuozi, Lisi hao tuo diban.
 Zhangsan move-away table Lisi PM mop floor
 ‘Zhangsan moves the table away, so that Lisi can mop the floor.’
- (71) *Zhangsan mai-le yi-ben xiaoshuo hao du [e].
 Zhangsan buy-Perf one-Cl novel PM read
 ‘(Intended) Zhangsan bought a novel so as to read.’
- (72) Zhangsan meiyou / bu mai xiaoshuo hao quyue Lisi.
 Zhangsan haven’t not buy novel PM please Lisi
 ‘Zhangsan has not bought / did not buy the novel, so as to please Lisi.’
- (73) *Zhangsan ba na-ben xiaoshuo mai hao quyue Lisi.
 Zhangsan Disp that-Cl novel buy PM please Lisi
 ‘Zhangsan bought that novel so as to please Lisi.’
- (74) Zhangsan ba chuangzi dakai hao chui-chui liang feng.
 Zhangsan Disp window open PM blow-blow cold wind
 ‘Zhangsan opened the window to get some cold air.’
- (75) *Na-ben xiaoshuo bei Zhangsan mai hao quyue Lisi.
 that-CL novel Pass Zhangsan buy PM please Lisi
 ‘That novel was bought by Zhangsan so as to please Lisi.’
- (76) Gou bei guan zai yuanzi-li hao rang youchai jin-lai.
 dog Pass lock at courtyard-in PM let postman come-in
 ‘The dog is locked in the courtyard so that the postman could come in.’
- (77) Hu jie bing le hao liu bing.
 lake freeze ice SFP_{ASP} PM skate ice
 ‘The lake is frozen, so that [people] can skate.’
- (78) Zhangsan zenyang xiu che, hao sheng yi-dian qian?
 Zhangsan how repair car PM save a-little money
 ‘What is the manner such that Zhangsan repaired the car in that manner so that he can save some money?’

5. Conclusion

- None of the purposive constructions in MC involve right adjunction, even though at the first sight they look like instances of right adjunction. The structure-building strategies employed are complementation from the right, adjunction from the left, and conjunction. Each of them is consistent with the LCA.

3.3 RVCs and compounds

1. Types of verbal compounds in MC

- According to Li and Thompson 1981, verbal compounds in MC can be classified into the following types.
 - Resultative verbal compounds (RVC):
V1-V2, where V1 is an action or state and V2 the result caused by V1 (83).
 - Parallel verbal compounds (coordinated verbal compounds)
V1-V2, where V1 and V2 are identical or similar in meaning (84).
 - Modifier-Modified verbal compounds
X-V, where V is the head of the compound and X provides a modification to V (85).
 - SP (subject-predicate) compounds
N-V, where N functions as if it is the subject of the predicate P (86).
 - VO compounds
V-N, where N functions as if it is the object of V (87).

(83)	da-po hit-break 'to hit and cause to break'	ku-shi cry-wet 'to cry and cause to become wet'
(84)	pi-fa tired-exhaust 'be tired'	tong-ku painful-bitter 'be painful'
(85)	qiang-sha gun-kill 'to shoot to death'	du-chang alone-sing 'to solo'

- | | | |
|------|-------------------|------------------|
| (86) | yan-hong | xin-suan |
| | eye-red | heart-sour |
| | ‘be jealous’ | ‘be sorrowful’ |
| (87) | bi-ye | jie-hun |
| | finish-schoolwork | tie-marriage |
| | ‘to graduate’ | ‘to get married’ |

2. *The head-finality of the RVC and its syntactic nature*

- The RVCs have been the primary focus in the research of MC compounds. Most researchers conceive of them as either head-initial (V1 as head) or double-headed (the complex V1-V2 as head); see Li 1993, Cheng and Huang 1994, Feng 2002, among others. But there is evidence that in fact V2 is the head – namely, the RVC in MC is head-final (Shen 1997).
- **Evidence 1.** The negation is sensitive to V2 rather than V1. MC has two negations, the perfective *meiyou* ‘have not’ and the neutral *bu* ‘not’. Their uses are sensitive to the aspectual properties of the verb. It turns out that the selection of the negation is determined by V2 but not by V1.

- | | | | | | |
|------|---|----------|-------|----------|----------|
| (88) | Zhangsan | meiyou | / *bu | diu | qianbao. |
| | Zhangsan | have-not | not | lose | wallet |
| | ‘Zhangsan didn’t lose his wallet.’ | | | | |
| (89) | Zhangsan | meiyou | / bu | pao. | |
| | Zhangsan | have-not | not | run | |
| | ‘Zhangsan didn’t run.’ | | | | |
| (90) | Zhangsan | meiyou | / *bu | pao-diu | qianbao. |
| | Zhangsan | have-not | not | run-lose | wallet |
| | ‘Zhangsan didn’t lose his wallet due to his running.’ | | | | |

- **Evidence 2.** Likewise, adverb modification to the RVC is sensitive to V2 but not V1.

- | | | | | |
|------|---|--------------------|-------------|------|
| (91) | Zhangsan | pinming | / yizhi | pao. |
| | Zhangsan | as-much-as-one-can | continually | run |
| | ‘Zhangsan ran as much as he could / continually.’ | | | |

- (92) *Zhangsan pinming / yizhi diu qianbao.
 Zhangsan as-much-as-one-can continually lose wallet
 ‘(Intended) Zhangsan lost his wallet as much as he could / continually.’
- (93) *Zhangsan pinming / yizhi pao-diu qianbao.
 Zhangsan as-much-as-one-can continually run-lose wallet
 ‘(Intended) Zhangsan ran and lost his wallet as much as he could / continually.’

- **Evidence 3.** Again, the aspectual suffix is determined by V2 but not by V1.

- (94) Zhangsan pao-le (san tian) / pao-zhe.
 Zhangsan run-Perf three day run-Dur
 ‘Zhangsan ran for three days / was running.’
- (95) Zhangsan diu-le / *dui-zhe qianbao.
 Zhangsan lose-Perf lose-Dur wallet
 ‘Zhangsan lost his wallet / *was losing his wallet.’
- (96) Zhangsan pao-diu-le / *pao-diu-zhe qianbao.
 Zhangsan run-lose-Perf run-lose-Dur wallet
 ‘Zhangsan ran and lost his wallet / *ran and was losing his wallet.’

- There is also evidence that the RVC in MC must be formed in syntax. They are syntactic constructions rather than lexical items formed by lexical rules.
- **Evidence 1.** V1 and V2 of an RVC can be separated by syntactic elements, e.g. the modal element *de* ‘can’ and *bu* ‘cannot’, the modifier *bu tai* ‘(lit.) not too = not very much’, etc.

- (97) tui-kai
 push-open
 ‘to push and cause open’
- (98) tui-de-kai
 push-can-open
 ‘can push and cause to open’
- (99) tui-bu-kai
 push-cannot-open
 ‘cannot push and cause open’

(100) tui-bu-tai-kai
 push-not-very.much-open
 ‘cannot push and cause open very much’

- **Evidence 2.** An RVC can take arguments that are not thematically licensed by V1, even when V1 is a transitive verb. This can be explained if V1 is an adverbial and V2 a causative structure.

(101) Zhangsan qi-lei-le ma.
 Zhangsan ride-tired-Perf horse
 ‘Zhangsan rode the horse and as a result Zhangsan got tired.’

(102) Zhangsan (qi ma) qi-lei-le yi-bang-zi suicong
 Zhangsan ride horse ride-tired-Perf a-bunch-of retinue
 ‘Zhangsan (was doing horse riding) and as a result caused a bunch of his retinues tired.’

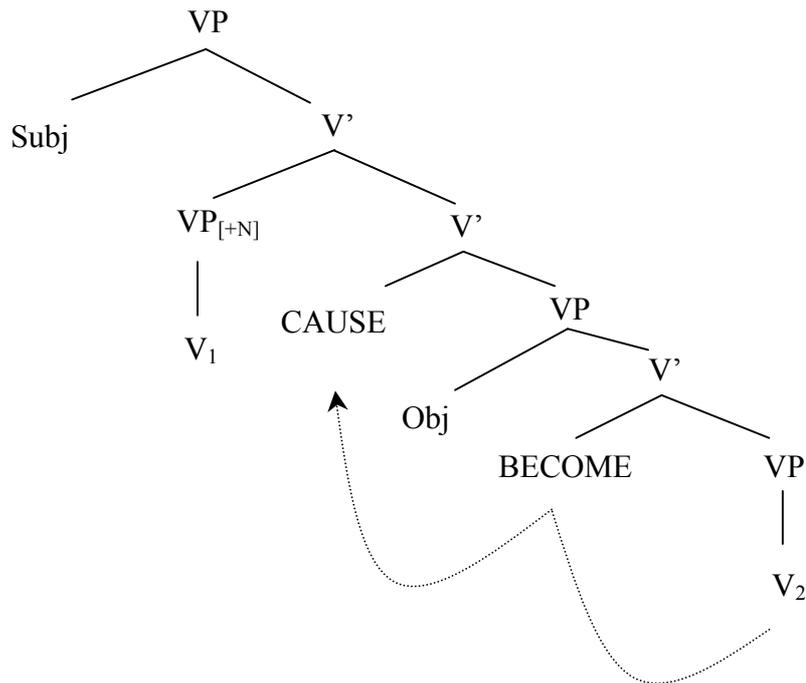
- **Evidence 3.** In the corresponding construction in Taiwanese, an overt causative morpheme occurs between V1 and V2.

(103) Ong-e (wu) sak ho meng kui.
 Ong-e have push Cause door open
 ‘Ong-e pushed the door and cause it open.’

(104) Ong-e (wu) kao ho chiugin-a dam.
 Ong-e have cry Cause handkerchief wet
 ‘Ong-e cried and cause the handkerchief wet.’

- The above evidence indicates that the RVC in MC is a head-final causative structure, with V1 an adverbial modifier (presumably a nominalized or gerundized VP) and V2 the main body of a causative predicate.

(105)



- Conclusion: The RVC in MC is head-final, in conformity with the general pattern of word order in MC. It also involves left adjunction of an adverbial, consistent with the LCA.

3. Other kinds of compounds

- Head-finality is seen in other types of compounds as well. A very good example is the Modifier-Modified compounds. They constitute the largest group of the verbal compounds in MC next to the RVCs, and they are head-final. What is more, they are very productive.

(106) The example of *sha* ‘kill’

- | | |
|--|--|
| a. an-sha
secret-kill
‘assassinate’ | b. ci-sha
stab-kill
‘kill by stabbing’ |
| c. qiang-sha
gun-kill
‘shoot to death’ | d. lei-sha
strangle-kill
‘strangle to death’ |
| e. mou-sha
conspire-kill
‘murder’ | f. ji-sha
strike-kill
‘kill by striking’ |

- | | |
|--|--|
| g. men-sha
stop.breathing-kill
'kill by stop one's breath' | h. zi-sha
self-kill
'suicide' |
| i. lie-sha
hunt-kill
'kill in hunting' | j. kan-sha
cut-kill
'to kill by knife cutting' |
| k. shuang-sha
double-kill
'double play' | l. miao-sha
second-kill
'accomplish killing in extremely short time' |

(107) The example of *chang* 'sing'

- | | |
|--|---|
| a. he-chang
collobrate-sing
'sing in chorus' | b. du-chang
alone-sing
'solo' |
| c. qi-chang
uniform-sing
'sing uniformly' | d. huan-chang
happy-sing
'sing happily' |
| e. fan-chang
translate-sing
'translate a song and sing it' | f. kai-chang
open-sing
'start singing' |
| g. xin-chang
new-sing
'sing anew' | h. dai-dong-chang
lead-move-sing
'sing with gesture and movement' |
| i. gao-chang
high-sing
'sing in an exalted mood' | j. jia-chang
fake-sing
'sing in a faking way' |
| k. shi-chang
try-sing
'try to sing' | l. luo-chang
naked-sing
'sing while being naked' |

- Other verbal compounds (the parallel verbal compounds, the SP compounds, and the OV compounds) are not necessarily head-final. However, they are limited in number and are much more idiomatic than the RVCs and the Modifier-Modified verbal compounds. They are not productive. Thus a generalization emerges:

(108) In MC, productive compounds are head-final, with the first element a modifier and the second element the head.

- This generalization appears all the more plausible when we look at the nominal compounds. X-N compounds are extremely productive in MC, and they are invariably head-final.

(109) The example of *dan* ‘projectile’

- | | |
|--|--|
| a. pao-dan
cannon-projectile
‘artillery shell’ | b. qiang-dan
gun-projectile
‘gun bullet’ |
| c. zha-dan
bomb-projectile
‘bomb’ | d. yuanzi-dan
atom-bom
‘atomic bomb’ |
| e. qi-dan
paint-projectile
‘paint bullet’ | f. yanwu-dan
smog-projectile
‘smoke grenade’ |
| g. fei-dan
fly-projectile
‘missile’ | h. wei-bao-dan
un-explode-projectile
‘unexploded bomb’ |

(110) The example of *ying* ‘camp’

- | | |
|--|---|
| a. wun-yi-ying
literature-art-camp
‘literature and art camp’ | b. jun-ying
military-camp
‘barrack’ |
| c. chengzhang-ying
growth-camp
‘growth retreat’ | d. du-jia-ying
vacation-camp
‘vacation retreat’ |
| e. tongzijun-ying
boy.scout-camp
‘boy scout camp’ | f. kuaile-ying
happy-camp
‘camp of fun’ |
| g. huodong-ying
activity-camp
‘activity camp’ | h. kexue-ying
science-camp
‘science camp’ |

(111) The example of *shu* ‘method’

- | | |
|---|---|
| a. mei-shu
beauty-method
‘art’ | b. suan-shu
count-method
‘arithmetic’ |
| c. chenggong-shu
success-method
‘method to success’ | d. wu-shu
fight-method
‘martial art’ |
| e. yuedu-shu
read-method
‘method for quick reading’ | f. du-shu
gamble-method
‘skill for gambling’ |
| g. suan-ming-shu
count-fate-method
‘skill of fortune telling’ | h. lian-jing-shu
refine-gold-method
‘alchemy’ |

- On the other hand, other non-head-final compounds are generally idiomatic or are fixed expressions. They are not productive.

(112) Adverbial compounds

- | | |
|---|---|
| a. fan-zheng
opposite-straight
‘anyway’ | b. xiang-lai
toward-come
‘all the time’ |
|---|---|

(113) Antonymous-adjective nominal compounds⁷

- | | |
|--------------------------------------|---|
| a. zhi-fei
right-wrong
‘truth’ | b. leng-re
cold-hot
‘temperature’ |
|--------------------------------------|---|

⁷ In this type of compounds two adjectives with opposite meanings are combined together and form a noun denoting the measure or dimension of which the adjectives stand for the two opposite extremes. They look productive, but in fact their productivity is more limited than those real productive head-final compounds. For example, we cannot simply take any two adjectives with opposite meanings and then form a compound e.g. *liang* ‘light’, *an* ‘dark’, but **liang-an* ‘(intended) degree of lightness’. Such feat is easier for the head-final compounds.

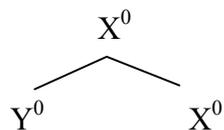
One interesting thing, though, is that the antonymous-adjective nominal compounds and the parallel verbal compounds are more productive than other types of non-head-final compounds. This may have to do with their *conjunction nature*. The examples of these two types of compounds indicate that they would be better analyzed as involving conjunction (of two heads). Since conjunction is consistent with the LCA, it is permitted as a possible means for compound formation, though it is less preferred than left adjunction of a modifier to the head. The reason is unclear; maybe it has to do with the difficulty in identifying a head for the conjunction structure. A head is important for a compound after all; a compound without a head (i.e. an exocentric compound) has a bigger chance to be treated as an idiomatic or fixed expression.

c. gao-di
high-low
'height'

d. chang-duan
long-short
'length'

- It is likely that those productive compounds are formed in narrow syntax too, on a par with the RVC, while those unproductive compounds are formed by lexical rules or are stored in lexicon as fixed expressions. The major difference between the RVCs and other productive compounds is that the latter are formed via left adjunction of a head to another head (Saito and Hoshi 1998, Roeper, Snyder, and Hiramatsu 2002).

(114)



4. Conclusion

- In MC the RVCs are head-final, and they are formed in narrow syntax. Furthermore, all productive types of compounds, namely, the Modifier-Modified verbal compounds and the X-N nominal compounds, are head-final and formed in narrow syntax as well. This is yet another case of the left proliferation of phrase structure in MC, and it also conforms to the LCA.

3.4 Sentence-final particles

1. Types of sentence-final particles

- Li and Thompson (1981) list the following sentence-final particles (SFPs) in MC.⁸

⁸ Also see Li 2006 and Hsieh and Sybesma 2007.

- (115) a. *le* Currently relevant state
 b. *ne* Response to expectation
 c. *ba* Solicit agreement
 d. *o* Friendly warning
 e. *a / ya* Reduce forcefulness
 f. *ma / ne* Question

- Most of the SFPs are markers that indicate certain mood or speech force.

- (116) Ni hui jia ba.
 you return home SFP
 ‘[Why don’t] you go home, [all right?].’
- (117) Zhangsan you san-tiao niu ne.
 Zhangsan have three-CI cow SFP
 ‘Zhangsan has three cows, [isn’t that remarkable?].’
- (118) Guo malu yao xiaoxin o!
 cross road must careful SFP
 ‘Be careful when crossing the road, [okay?].’
- (119) Zhangsan xiang qu kan dianying a!
 Zhangsan feel.like go watch movie SFP
 ‘[But] Zhangsan wants to go to a movie!’

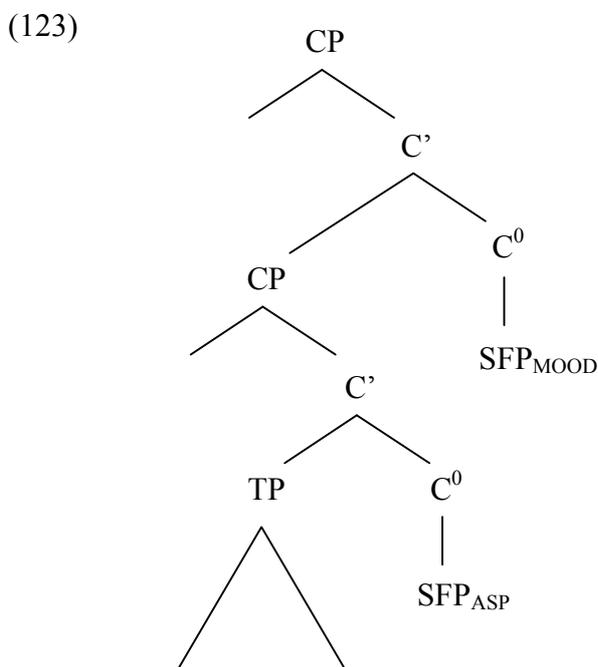
- Shen (2004) distinguishes the SFPs in MC into two kinds: the aspectual SFPs, and the mood SFPs. These two types of SFP may occur in one and the same sentence, but there are also co-occurrence restrictions.

- (120) Aspectual SFPs:
 le (perfect), *ne* (progressive), etc.
 Mood SFPs:
 ba, ma, o, a, etc.

(121) Zhangsan hui jia le ba?
 Zhangsan return home SFP_{ASP} SFP_{MOOD}
 ‘Zhangsan has return home, right?’

(122) *Zhangsan zheng chi-zhe fan ne ba.
 Zhangsan right.now eat-Dur meal SFP_{ASP} SFP_{MOOD}
 ‘(Intended) Zhangsan is eating the meal, right?’

- Since both groups of SFPs occur sentence-finally, one might suspect that they are head-final CP-level elements (such as Force or Focus).⁹



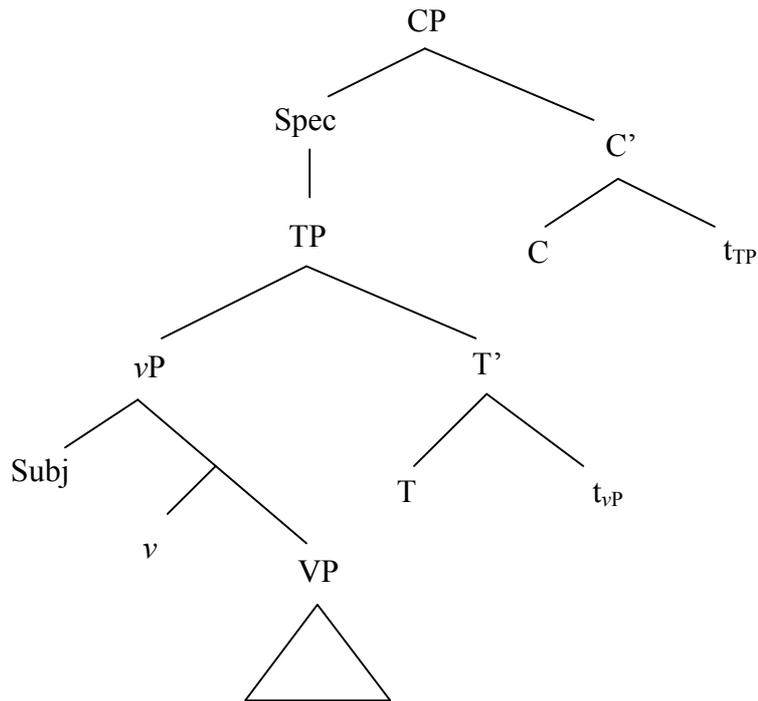
- But the SFPs in MC cannot be analyzed in such a way. They are actually sentence-initial. It is through movement that they become sentence-final.

2. *The underlying head-initiality of sentence-final functional elements*

- There have been proposals that derive surface head-finality by movement to specifier. Carstens (2002) proposes that the head-finality of Ijo be analyzed in the following way, which involves movement of TP to Spec of CP and vP to Spec of TP.

⁹ See Tang 1989.

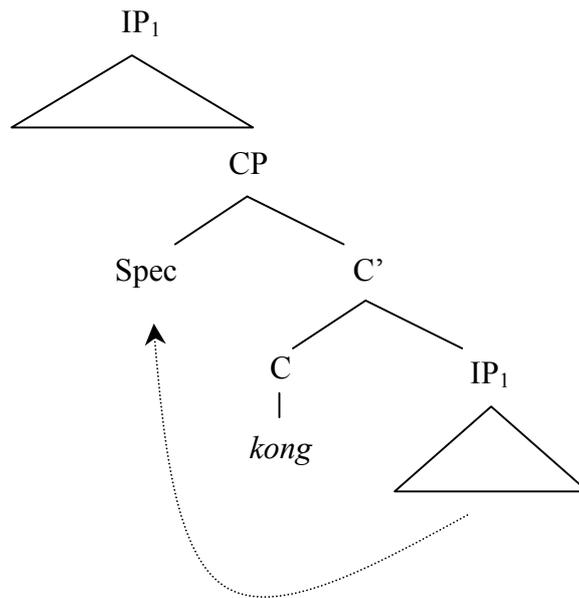
(124)



- Simpson and Wu (2002) also propose a similar analysis for the Taiwanese *kong* construction. The sentence-final element *kong* is said to be a complementizer, and it occurs sentence-finally due to movement of its IP complement to its specifier.

(125) Ahui liauchun Asin si Taipak lang kong.
Ahui thought Asin is Taipei person Comp
'Ahui thought that Asin was from Taipei.'

(126)



- The SFPs in MC are amenable to the same analysis. In other words, the SFPs in MC are underlyingly head-initial, with movement of their complement to their specifier.

3. *The head-initiality of the sentence-final particles*

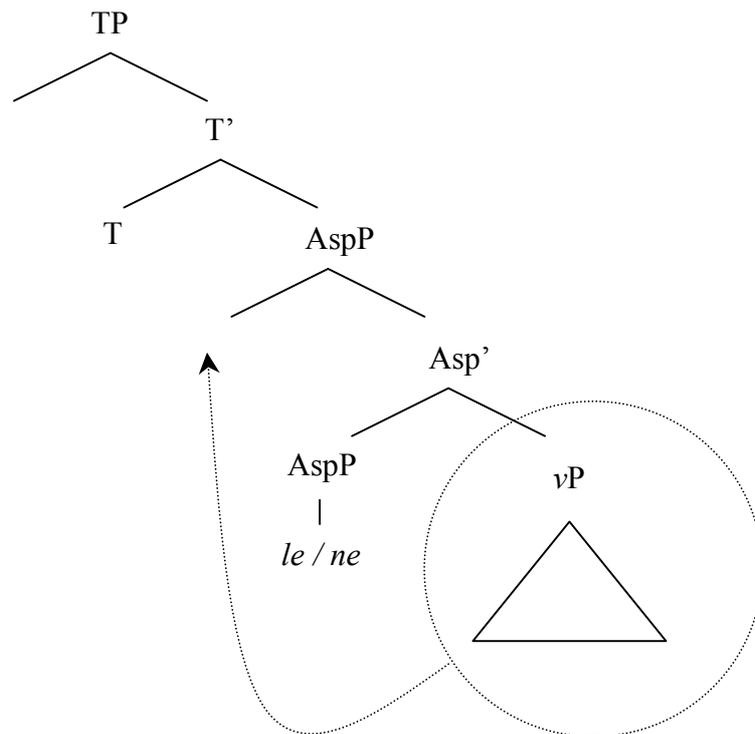
- First of all, it should be pointed out that the two kinds of SFPs, i.e. the mood SFPs and the aspectual SFPs, are not of the same structural height. The mood SFPs represent speech force and therefore should be CP-level elements. On the other hand, Shen (2004) proposes that the aspectual SFPs are lower in structure and are in fact part of the predicate.
- There is evidence that the aspectual SFP is lower than the subject and is part of the predicate.
 - The aspectual SFP is within the scope of quantificational subject.
 - It is also within the scope of sentential quantificational adverb.

(127) Meige ren dou hui jia le. ('every' > *le*)
every person all return home SFP_{ASP}
'Everyone has gone home'

(128) Zhangsan kending hui jia le. ('definitely' > *le*)
Zhangsan definitely return home SFP_{ASP}
'Zhangsan definitely has gone home.'

- Shen (2004) assumes that the aspectual SFP heads its own projection, AspectP. It is likely that this AspP is between TP and ν P. But since the aspectual SFPs are head-final, is this AspP head-final, with its head following its complement? No. There is evidence that this AspP is head-initial, only that its complement moves to its specifier, resulting in head-finality of the SFPs.

(129)



- The evidence is that the ν P in a sentence with the SFP *le* appears to be a CED island. If the ν P moves to Spec of AspP and thus is a non-complement, this phenomenon receives an explanation.
- Evidence 1.** A sentence with the aspectual SFP *le* cannot take an in-situ wh-adverb, which moves in LF. (Wh-arguments are okay, because, they can be unselectively bound. See Tsai 1994.)

(130) Zhangsan zenmeyang xiu che?
 Zhangsan how repair car
 ‘How does Zhangsan repair the car?’

(131) *Zhangsan zenmeyang xiu che le?
 Zhangsan how repair car SFP_{ASP}
 ‘How did Zhangsan repair the car?’

- **Evidence 2.** In MC the wh-adverb *zenme* can be construed as ‘how’ or ‘why’, depending on the syntactic position – if it is in the TP-zone, it is construed as ‘why’, and if it is in the vP/VP zone, it is construed as ‘how’. Now, if it occurs in a sentence without the SFP *le*, the sentence is ambiguous. If it occurs in a sentence with *le*, it can only be construed as ‘why’, but not ‘how’.

(132) Zhangsan zenme zebei Lisi?
 Zhangsan how blame Lisi
 ‘Why / How does Zhangsan blame Lisi?’

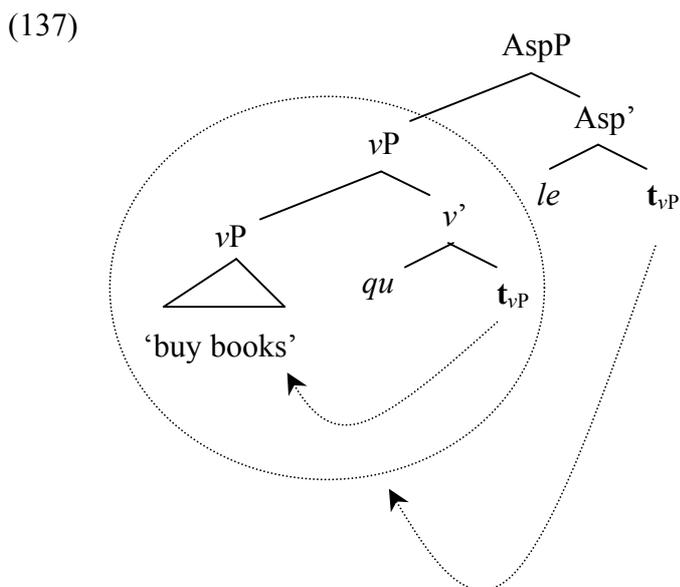
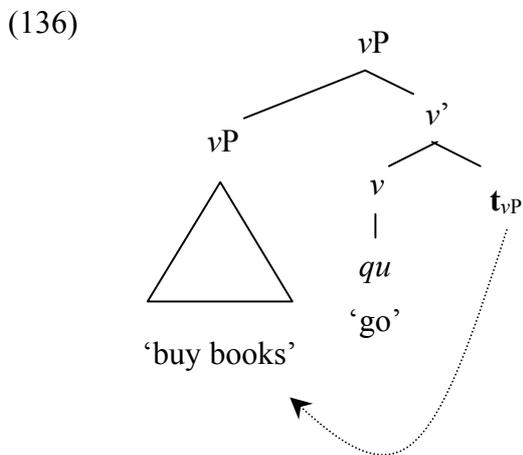
(133) Zhangsan zenme zebei Lisi le?
 Zhangsan how blame Lisi SFP_{ASP}
 ‘Why / *How does Zhangsan blame Lisi?’

- **Evidence 3.** Taiwanese doesn’t have a wh-adverb that can be construed either as ‘how’ or ‘why’. It uses two different wh-adverbs – *anchõã* ‘how’ and *si-anchõã* ‘why’. Now in a sentence without the SFP corresponding to *le*, which is *a*, either wh-adverb may occur. But in a sentence with the SFP *a*, only *si-anchõã* ‘why’ may occur.

(134) Ong-e si-anchõã / *anchõã zao-ki a?
 Ong-e why how run-away SFP
 ‘Why / *How did Ong-e run away?’

- A similar analysis may apply to other sentence-final functional elements, such as the purpose particle *qu* ‘go’. That is, *qu* comes to be in the right end of the predicate due to the movement of the complement vP. Furthermore, there can be cyclic movements to higher specifiers if there are multiple sentence-final elements.

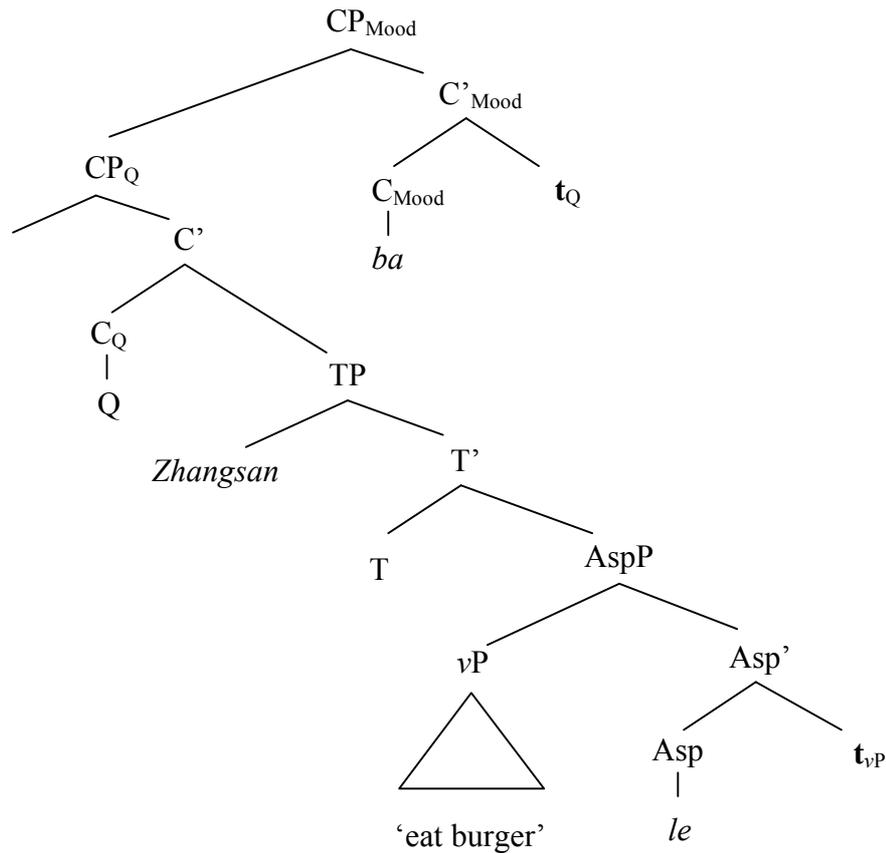
(135) Zhangsan mai shu qu.
 Zhangsan buy book go
 ‘Zhangsan went out to buy books.’



▪ This analysis can also be applied to the mood SFPs.

(138) Zhangsan chi hanbao le ba?
 Zhangsan eat burger SFP_{ASP} SFP_{MOOD}
 ‘Zhangsan has eaten the burger, [is it right]?’

(139)



4. Conclusion

- The sentence-final functional elements in MC are in fact head-initial. They come to be head-final because their complement moves to their specifier. This is, once again, in conformity with the LCA. Notice also that cyclic complement-to-specifier movements create a structure with a “heavy” left wing; this is a good illustration for the left proliferation of MC phrase structure.

3.5 Complex sentences

1. Complex sentences in MC

- Complex sentences refer to bi-clausal structures in which the two clauses are linked in a non-complementation way. In most cases they are sentences with an adverbial clause attached to a main clause. In what follows we will see two special types of complex sentences in MC,

the conditional constructions and the reason constructions, and we will see two important properties in the complex sentences in MC:

- They are strictly head-final, with the adverbial clause left-adjoined to the main clause.
- Clause connectors play a minor role in the formation of complex sentences of MC.

2. *The conditionals*

- Haegeman (2003): the conditional in English underlyingly involves adjunction to VP. Thus the conditional in English has two properties: the antecedent clause (the *if* clause) is base-generated in a position following the main (consequent) clause, and the subject of the main clause may bind a bound variable in the antecedent clause

(140) *No one_i* will answer the phone if *he_i* thinks it's his supervisor.

(141) If he thinks it's his supervisor_j, [no one will [answer the phone *t_j*]]

- The MC conditional is different. First, it only permits the antecedent clause to appear *before* the main clause (142)-(143). Second, the subject of the main clause *can* bind a bound variable in the antecedent clause (144)-(145).

(142) Ruguo Zhangsan qu, Lisi jiu hui qu.
 if Zhangsan go, Lisi then will go
 'If Zhangsan goes, Lisi will go.'

(143) *Lisi hui qu, ruguo Zhangsan qu.
 Lisi will go if Zhangsan go
 '(Intended) Lisi will go if Zhangsan goes.'

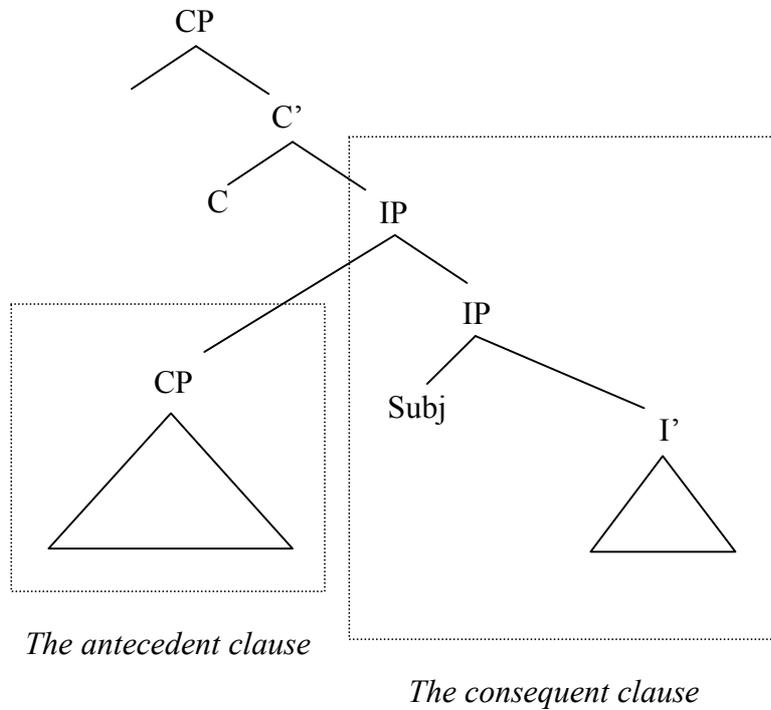
(144) Meiyou ren_i xihuan ziji_i de gongzuo bei ren piping.
 no person like self Mod work Pass people criticize
 'No one_i would be happy about his_i work being criticized by other people.'

(145) Ruguo ziji_i de gongzuo bei ren piping, meiyou ren_i hui xihuan.
 if self Mod work Pass people criticize no person will like
 'If his_i work is criticized by other people, no one_i will be happy.'

- The only feasible analysis that emerges is that the antecedent clause is base-generated preceding the consequent clause (the main clause), adjoining to IP. Since the antecedent

clause is base-generated preceding the main clause, it cannot appear after the main clause. And since it adjoins to IP, the subject of the main clause can c-command out of the main clause and into the antecedent clause, assuming the segment-based definition of c-command.

(146)



- Typically a conditional sentence in MC has the element *ruguo* ‘if’ in the antecedent clause (147). However, this element doesn’t have to occur in the initial position of the clause; it may occur between the subject and the predicate (148). What is more, it doesn’t need to occur – the element *dehua*, which also means ‘if’, may occur instead, at the end of the clause (149). The two elements, *ruguo* and *dehua*, can even occur in the same clause (150). Even more intriguing is that a conditional in MC can be formed without any introducing element like *ruguo* or *dehua* in the antecedent clause – as long as the consequent clause has the element *jiu* ‘then’, or has a modal verb, or as long as it expresses a non-assertive speech act (151)-(153).

(147) Ruguo Zhangsan lai, Lisi jiu lai.
 if Zhangsan come, Lisi then come
 ‘If Zhangsan comes, Lisi will come.’

- (148) Zhangsan ruguo lai, Lisi jiu lai.
 Zhangsan if come Lisi then come
 ‘If Zhangsan comes, Lisi will come.’
- (149) Zhangsan lai dehua, Lisi jiu lai.
 Zhangsan come if Lisi then come
 ‘If Zhangsan comes, Lisi will come.’
- (150) Ruguo Zhangsan lai dehua, Lisi jiu lai.
 if Zhangsan come if Lisi then come
 ‘If Zhangsan comes, Lisi will come.’
- (151) Zhangsan lai, Lisi jiu lai.
 Zhangsan come Lisi then come
 ‘[If] Zhangsan comes, Lisi will come.’
- (152) Zhangsan mai shu, Lisi hui fu qian.
 Zhangsan buy book Lisi will pay money
 ‘[If] Zhangsan buys books, Lisi will pay the money.’
- (153) Zhangsan bu lai, Lisi hebi lai?
 Zhangsan not come Lisi why.on.earth come
 ‘[If] Zhangsan is not coming, why on earth should Lisi come? [He should not.]’

- These examples show that the elements *ruguo* and *dehua* are not real sentence connectors like English *if*. More likely they are adverbials, because they are optional, and they can change their positions. As a result a conditional in MC can be formed without the function of a sentence connector, as long as the semantics of the main clause provides a licensing force (e.g. a certain modality). This supports the view that the antecedent clause of the MC conditional is directly adjoined to the main clause, without the help of any sentence connector.

3. *The reason constructions*

- An example of the reason construction is (154). Note that this sentence contains two “sentence connectors,” *yinwei* ‘because’ and *suoyi* ‘so’. For English such cases are not permitted (e.g. *Because John will come, (*so) Mary will come too*), but in MC this is perfectly acceptable. This seems to indicate that, like the elements *ruguo* and *dehua* in the conditionals, the elements *yinwei* ‘because’ and *suoyi* ‘so’ do not really connect clauses and hence are not genuine sentence connectors - that is, they are adverbials. This view receives

further support is we look at the bigger paradigm. If both the elements *yinwei* ‘because’ and *suoyi* ‘so’ or either one of them occur in the sentence, the reason sentence is licensed (154)-(156). If none of them occurs, the sentence cannot be a legitimate reason-construction sentence (157).

(154) Yinwei Zhangsan lai, suoyi Lisi ye lai.
 because Zhangsan come, so Lisi too come
 ‘Zhangsan comes, so Lisi comes too.’

(155) Yinwei Zhangsan lai, Lisi ye lai.
 because Zhangsan come, Lisi too come
 ‘Because Zhangsan comes, Lisi comes too.’

(156) Zhangsan lai, suoyi Lisi ye lai.
 Zhangsan come, so Lisi too come
 ‘Zhangsan comes, so Lisi comes too.’

(157) *Zhangsan lai, Lisi ye lai. (Unacceptable as reason construction)¹⁰
 Zhangsan come, Lisi too come
 ‘(Intended) Zhangsan comes, [so] Lisi comes too.’

- The element *yinwei* ‘because’ has a further option: the reason clause it introduces need not be the first clause in the construction; it can be the second clause.

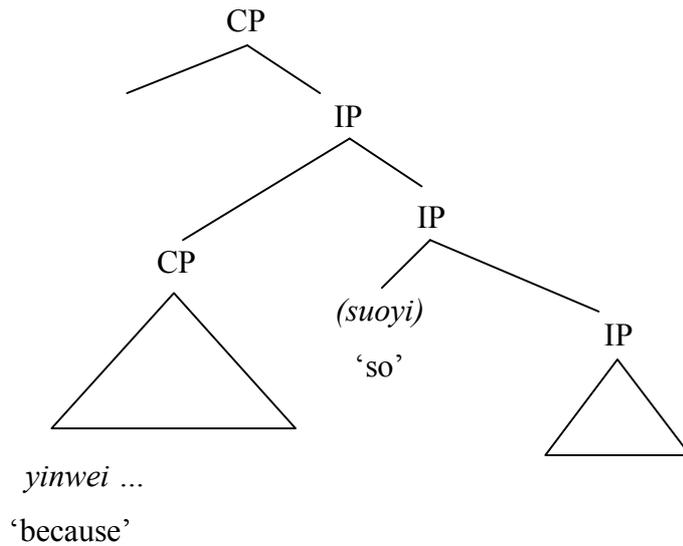
(158) Yinwei Zhangsan bu zai jia, Lisi hen haipa.
 because Zhangsan not at home Lisi very afraid
 ‘Because Zhangsan isn’t home, Lisi is afraid.’

(159) Lisi hen haipa, yinwei Zhangsan bu zai jia.
 Lisi is afraid because Zhangsan not at home
 ‘Lisi is afraid, because Zhangsan isn’t home.’

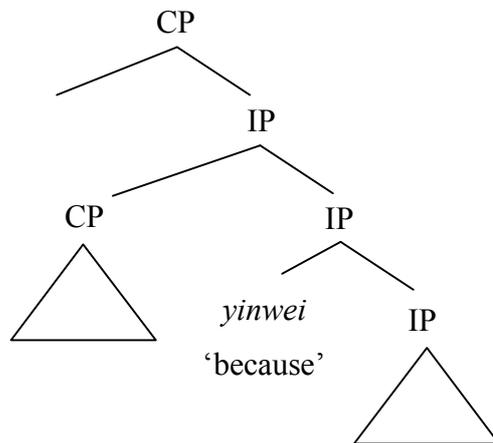
- The above examples suggest the following analyses, in which the first clause adjoins to the second clause (to IP), on a par with the conditional.

¹⁰ Irrelevantly, this sentence is acceptable as a coordination sentence. (MC permits phonetically null conjunction.)

(160)



(161)



4. Conclusion

- Once again, the conditional constructions and the reason constructions in MC are instances of left proliferation. Specifically, they involve left adjunction of an adverbial clause to the main clause.
- The above analyses show that MC is indeed following the LCA. It is primarily head-final, but its head-finality is of the kind such that the LCA is respected.

4. Event structure, light verb, and phrase structure

4.1 Event structure

1. *The origin of the notion of event argument*

- In Montague semantics only individuals, predicates, and time instants and possible worlds are primitives, thus there is no distinction between different types of verbs - they are all the same, being collections of time instants and nothing more. But we know that verbs can be distinguished into different types – states, activities, accomplishments, and achievements (Vendler 1967). They may have very different internal temporal properties. Simply regarding them as collections of time instants doesn't help. Thus it is necessary to see the denotation of a verb in a more holistic way.

(1) States: Atemporal properties.

Activities: Temporal properties without change of resultant state.

Accomplishments: Temporal properties with developmental change of resultant state.

Achievements: Temporal properties with punctual change of resultant state.

- Donald Davidson (1967) proposes that an action sentence in English has an argument place called “event.” The sentence in (2), therefore, should be represented as in (3). There are two reasons.

-- Look at the PP *to the Morning Star* in (2). Our semantic intuition tells us that it is a goal phrase. But what is it a goal of? Is it the goal of *I*, or is it the goal of *my spaceship*? No, it is not the goal of *I* or *my spaceship*. To be precise the PP *to the Morning Star* is the goal of the action of *flying*, and *I* is only the performer of the action, and *my spaceship*, the vessel that carries out the action. We need to incorporate this intuition into the semantics of the sentence (2). Thus the postulation of an event argument in such a sentence, as in (3), is appropriate and necessary.

-- With a representation like (3), the inferences in (4)-(5) can be legitimately obtained.

- (2) I flew my spaceship to the Morning Star.
- (3) $(\exists x)(\text{Flew}(I, \text{my spaceship}, x) \ \& \ \text{To}(\text{the Morning Star}, x))$
 ‘There is an event x such that x is a flying of my spaceship by me and x is to the Morning Star.’
- (4) $(\exists x)(\text{Flew}(I, \text{my spaceship}, x))$
 ‘I flew my spaceship.’
- (5) $(\exists x)(\text{To}(\text{the Morning Star}, x))$
 ‘There was a flight to the Morning Star.’

2. *Event predicates*

- Dowty (1979) incorporates the Davidsonian event semantics into the Montague grammar, postulating *event predicates* as primitive in grammar.

- (6) Simple stative
 $\pi_n(\alpha_1 \dots \alpha_n)$
 (e.g. *John knows the answer.*)
- (7) Simple activity
 $\text{DO}(\alpha_1, [\pi_n(\alpha_1 \dots \alpha_n)])$
 (e.g. *John is walking.*)
- (8) Simple achievement
 $\text{BECOME}[\pi_n(\alpha_1 \dots \alpha_n)]$
 (e.g. *John discovered the solution.*)
- (9) Non-intentional accomplishment
 $[[\text{DO}(\alpha_1, [\pi_n(\alpha_1 \dots \alpha_n)])] \text{ CAUSE } [\text{BECOME}[\pi_n(\alpha_1 \dots \alpha_n)]]]$
 (e.g. *John broke the window.*)

- Parsons (1990) also argues that the Davidsonian event argument is essential in the semantics of English sentences. He first separates different participants and predicates of an event (10), and then shows that an event-argument-based theory of semantics can capture the inferences of sentences in a desired manner (11)-(12). In particular, in natural language some semantic inference doesn't really match the format required by predicate calculus in a strict way; with

the help of the event argument, however, the inferences can be obtained legitimately and successfully (13)-(14).

(10) *Brutus stabbed Caesar.*

For some event e ,
 e is a stabbing, and
the agent of e is Brutus, and
the object of e is Caesar, and
 e culminated at some time in the past.

- (11) a. Brutus stabbed Caesar in the back with a knife.
b. Brutus stabbed Caesar in the back.
c. Brutus stabbed Caesar with a knife.
d. Brutus stabbed Caesar.

- (12) a. $(\exists e)[\text{Stabbing}(e) \ \& \ \text{Subj}(e, B) \ \& \ \text{Object}(e, C) \ \& \ \text{In}(e, b) \ \& \ \text{With}(e, k)]$
b. $(\exists e)[\text{Stabbing}(e) \ \& \ \text{Subj}(e, B) \ \& \ \text{Object}(e, C) \ \& \ \text{In}(e, b)]$
c. $(\exists e)[\text{Stabbing}(e) \ \& \ \text{Subj}(e, B) \ \& \ \text{Object}(e, C) \ \& \ \text{With}(e, k)]$
d. $(\exists e)[\text{Stabbing}(e) \ \& \ \text{Subj}(e, B) \ \& \ \text{Object}(e, C)]$

- (13) a. In every burning, oxygen is consumed.
b. Agatha burned the wood.
c. Oxygen was consumed.

- (14) a. $(e)[\text{Burning}(e) \ \rightarrow \ (\exists e')[\text{Consuming}(e') \ \& \ \text{Obj}(e', O_2) \ \& \ \text{In}(e, e')]]$
b. $(\exists e)[\text{Burning}(e) \ \& \ \text{Subj}(e, \text{Agatha}) \ \& \ (\text{Obj}(e, \text{wood})]$
c. $(\exists e')[\text{Consuming}(e') \ \& \ \text{Obj}(e', O_2)]$

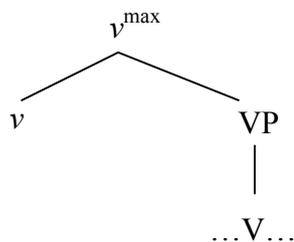
- The use of event predicates in natural language *syntax* has a long history as well. In McCawley 1968 it is proposed that *kill* be decomposed into *cause to become not alive*. In Green 1974 and many other works (e.g. Beck and Johnson 2004) it is assumed that the double-object verb *give* is underlyingly *cause to become have*. In innumerable syntactic analyses the event predicate CAUSE is employed. It will be shown that the event predicates play a crucial role in the syntax of MC as well.

4.2 Light verb and phrase structure

1. *Light verb without a concrete meaning*

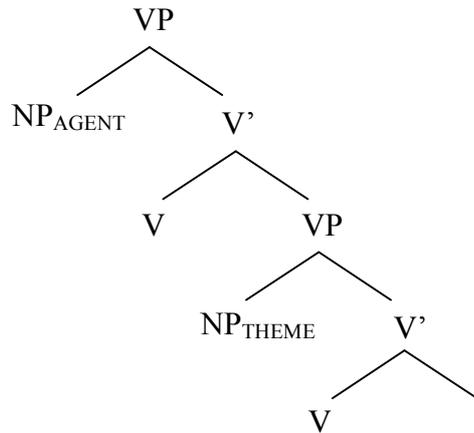
- The notion of *light verb* arises from Grimshaw and Mester 1988 and Larson 1988, in particular the latter. Larson proposes a VP-shell analysis for the double-object construction and the dative construction in English. The notion of VP shell later became the light verb v in Chomsky 1995.
- Chomsky (1995) adopts Larson's (1988) VP shell and Hale and Kayser's (1993) configurational approach to theta-roles, and assumes that the light verb v is the head of a transitive predicate: "...if a verb has several internal arguments, then we have to postulate a Larsonian shell, as in [(15)], where v is a light verb to which V overtly raises. ... The internal arguments occupy the positions of specifier and complement of V. Accordingly, the external argument cannot be lower than [Spec, v]. If it is [Spec, v] ... then the v -VP configuration can be taken to express the causative or agentive role of the external argument. It would be natural to extend the same reasoning to transitive verb constructions generally, assigning them a double-VP structure as in [(15)], the agent role being understood as the interpretation assigned to the v -VP configuration" (Chomsky 1995: 315).

(15)

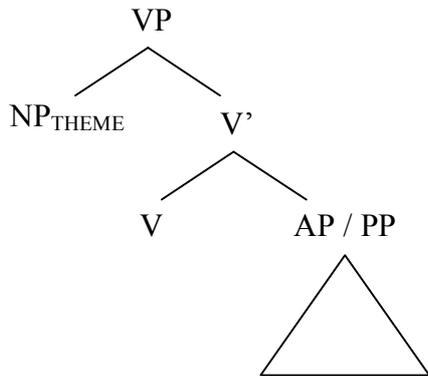


- Hale and Keyser's (1993) approach is one that considers theta-roles as derivative and dependent on the phrase structure, in particular the configuration of the predicate. For example, an agentive predicate is a structure with a VP as the complement of another VP (16), and an inchoative predicate is a structure in which a V takes an AP or a PP as complement (17). An accomplishment predicate is the fusion of both, namely a VP taking another VP as complement, the latter in turn taking an AP or PP as complement (18). An unergative is a structure in which a V takes an N as complement, which incorporates to the V (19).

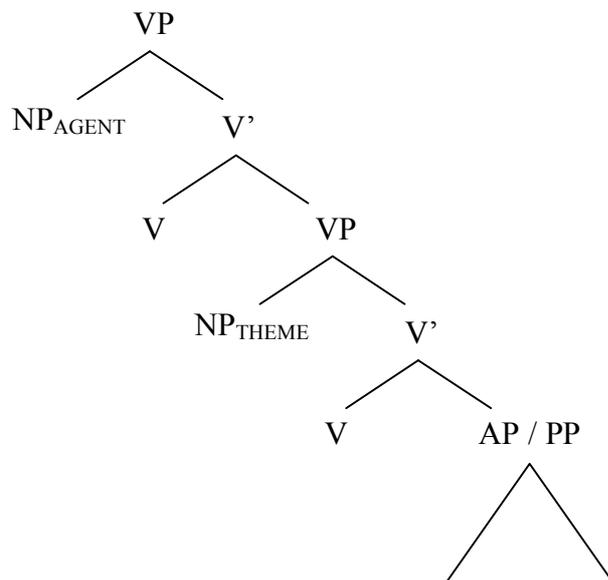
(16) John walked the dog (= John caused the dog walk)



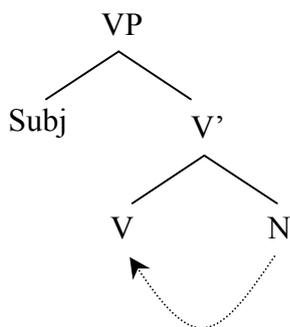
(17) The screen cleared (= The window became clear)



(18) John put a book on the table (= John caused the book to become on the table)



(19) John laughed (= John did a laughing)

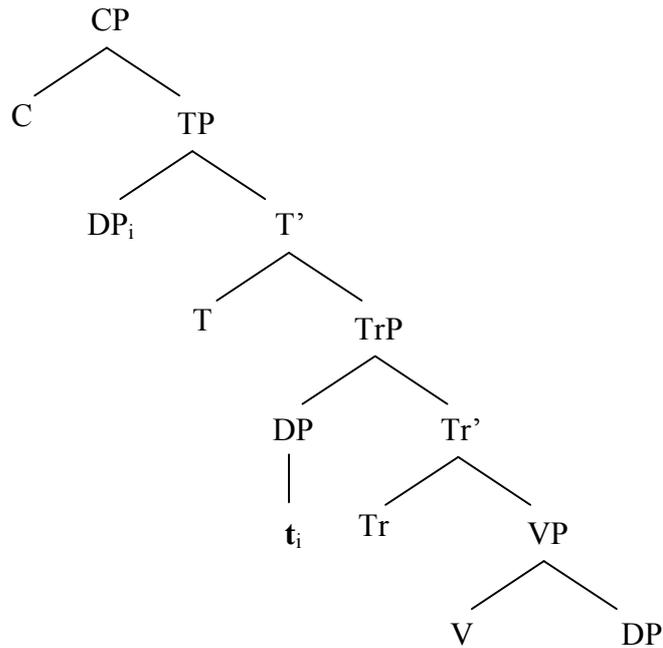


2. *Light verb with a concrete meaning*

- Chomsky's (1995 and subsequent works) notion of light verb is therefore a non-semantic one.¹ It is based on Hale and Keyser's (1993) configurational approach to theta-roles, and is a building block for particular configurations to be interpreted by the semantic component of grammar. But there are proposals which assume a "meaningful light verb."
- Collins 1997: the functional head Tr. "I will assume that the structure of the clause is basically as shown in [(20)]... This structure assumes that the external argument is not generated under the VP with the direct object but, rather, is generated as the specifier of a head that I will call Tr (transitivity). This head is a generalization of the CAUS head proposed by Collins and Thráinsson (1993, 1995) for the analysis of double object constructions... For transitive verbs, it checks accusative Case and assigns the external θ -role to its specifier. For unaccusative verbs, it is present, but it checks no accusative Case and assigns no external θ -role" (Collins 1997: 15).

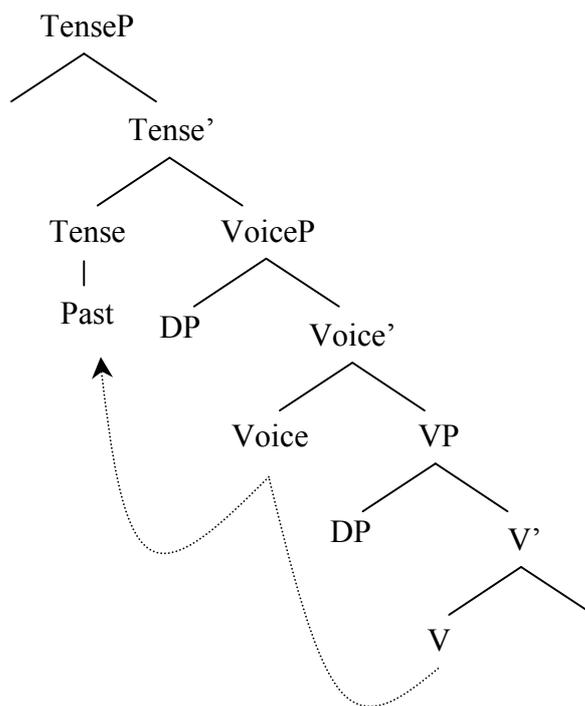
¹ To be precise, Hale and Kayser (1993) propose that the light verb only has a basic and elementary semantics. It doesn't have a concrete semantics, nor does it have a grammatical function.

(20)



- Kratzer 1996: the functional head Voice. "... [W]e may now assume that, quite generally, heads syntactically realize their arguments in their specifier position at D-structure: external arguments are arguments of Voice, and hence are base-generated in SPEC of VoiceP. Direct objects (of verbs) are arguments of V, and hence are base-generated in SPEC of VP" (Kratzer 1996: 120).

(21)



4.3 The light verb syntax of MC

1. *Unselectiveness of subject and object and event predicates*

- It appears that both approaches are correct – in some languages the light verb can be void of concrete meaning, whereas in some other languages the light verb has concrete meaning.
- MC is of the latter kind. An interesting array of phenomena called *unselectiveness of subject and object* indicate that event predicates as light verbs play a crucial role in the argument selection and structure building of MC sentences (Lin 2001).
- ***Unselectiveness of subject:*** An action verb in MC can freely take a non-agentive subject that is presumably not selected by the verb.

(22) Zhangsan kai-le yi-liang BMW. (Agentive subject)
 Zhangsan drive-Perf one-Cl BMW
 'Zhangsan drove a tank.'

(23) Gaosugonglu-shang kai-zhe yi-liang BMW. (Existential subject)
 express.way-on drive-Dur one-Cl BMW
 'There is a BMW [being driven] on the expressway.'

(24) Zhe-liang BMW kai-de wo xia-si le. (Causer subject)
 this-Cl BMW drive-Ext I scare-dead SFP
 'Driving this BMW made me scared to death.'

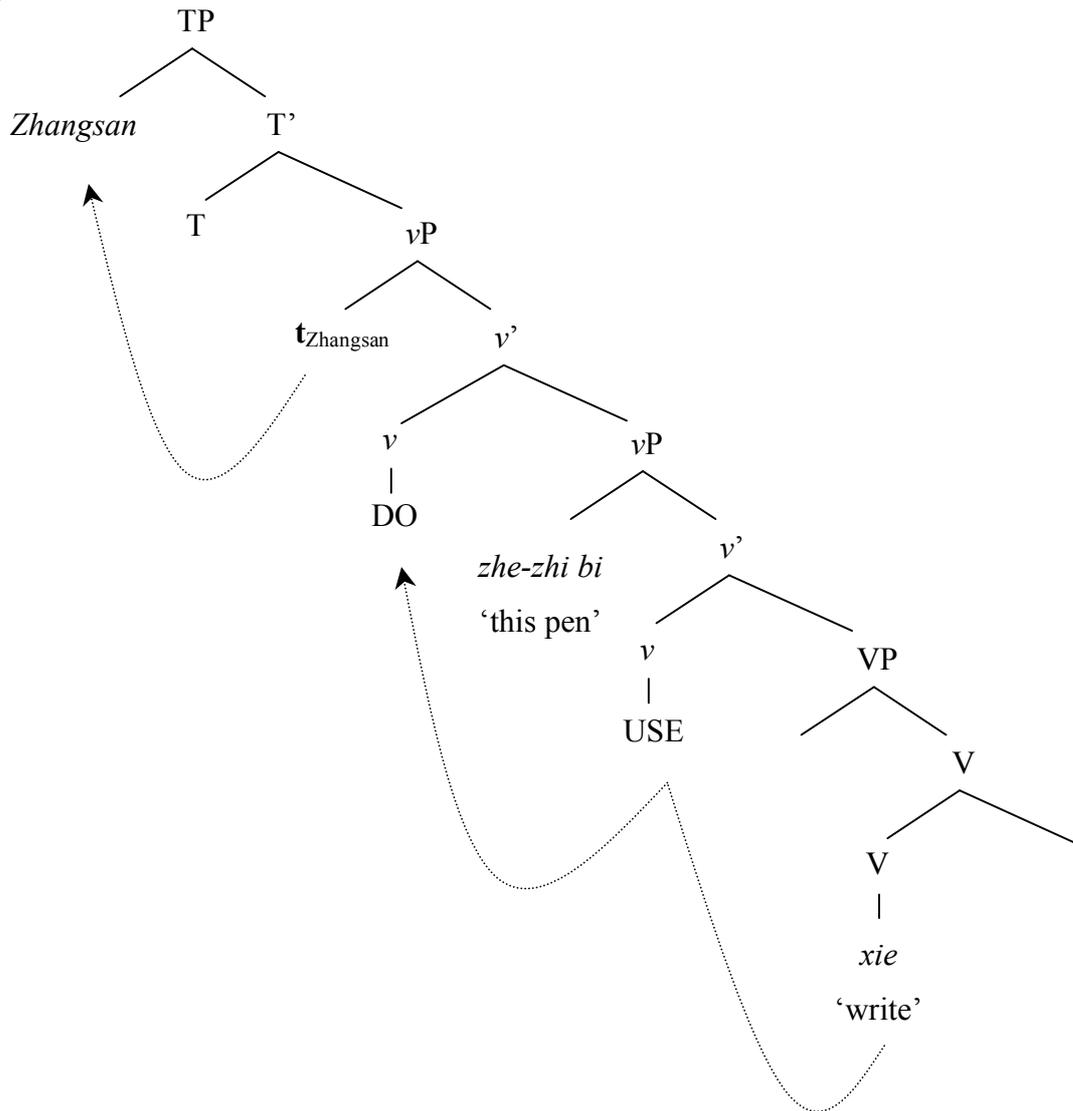
- ***Unselectiveness of object:*** An action verb in MC can freely take a non-theme/patient object that is presumably not selected by the verb.

(25) chi niu-rou mian (Theme/patient object)
 eat beef noodle
 'to eat beef noodle'

(26) chi da-wan (Instrument object)
 eat big-bowl
 'to eat with a big bowl'

(27) chi guanzi (Location object)
 eat restaurant
 'to dine at a restaurant'

(32)



2. The Lexicalization Parameter

- This theory can also account for the fact that an action verb in MC often can assume different event properties. A good example is the verb *fang* 'put'. It can assume the accomplishment-causative use (33), the activity use (34), and the stative use (35)

(33) Zhangsan fang-le yi-ben shu zai zhuo-shang.
Zhangsan put-Perf one-Cl book at table-on
'Zhangsan put a book on the table.'

- (34) Zhangsan zai fang xingli, (mashang jiu huilai.)
 Zhangsan at put luggage right-away then come.back
 ‘Zhangsan is having his luggage taken care of, and will come back right away.’
- (35) Qian fan zai zhuo-shang, meiyou ren dong-quo.
 money put at table-on no person touch-Exp
 ‘The money is on the table; nobody has ever touched it.’

- Such phenomena are expected if verbs in MC count on the event predicates in syntax for the construction of event structure and introduction of arguments. Since a verb in MC can be freely merged with different kinds of event predicates in syntax, it naturally can assume different event properties.

(36) [_{VP} Zhangsan CAUSE [_{VP} book BECOME [_{VP} fang [_{PP} on the table]]]]



(37) [_{VP} Zhangsan DO [_{VP} luggage UPON [_{VP} fang]]]]



(38) [_{VP} book BE [_{VP} fang [on the table]]]]



- On the other hand, it is clear that English doesn't have such flexibility in the event property of the verb.

- (39) John put a book on the table.
 (40) *John is putting the luggage.
 (41) *The money puts on the table, and no one has ever touched it.

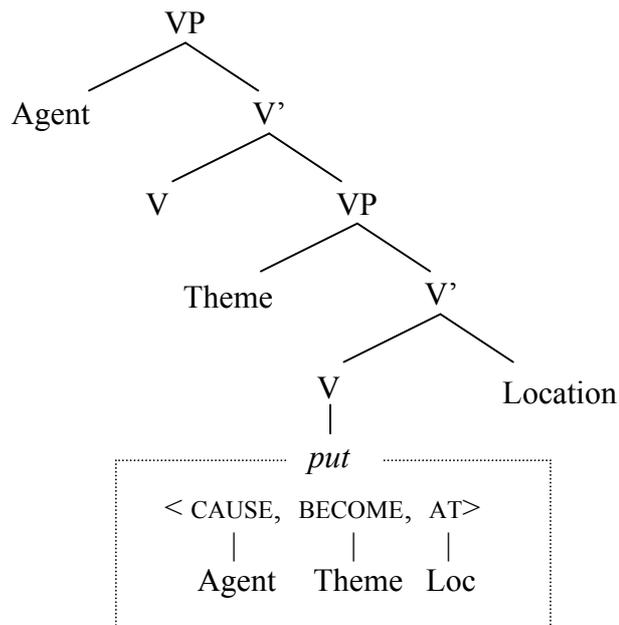
- Lin (2001) proposes that this is the result of a parameter, the *Lexicalization Parameter*. In English, much or most event information is lexicalized into the verbs, and hence the event properties have become unchangeable lexical properties of verbs. This is why the uses of the verbs in English are rigid and strict. On the other hand, the event information in MC is sent

directly to narrow syntax (in the form of event predicates) and gets merged with verbs. Thus the MC verbs can freely assume different event properties and show great variability.

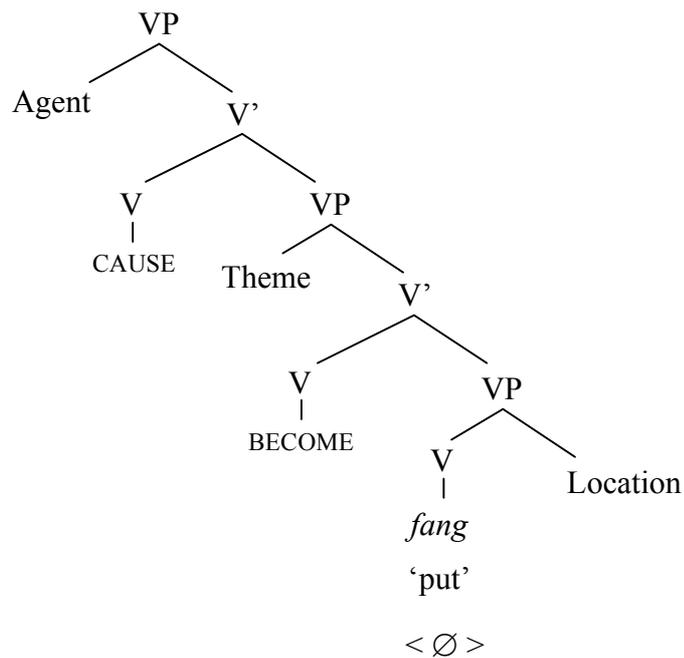
(42) *Lexicalization Parameter*

Language may differ to the extent to which event information is lexicalization into individual words.

(43) English



(44) MC



- MC is a typical case where the light verbs have concrete semantic meanings. The light verbs are event predicates, which introduce arguments and are the building blocks of the sentences. The light verbs in English, on the other hand, are VP shells without concrete meaning. Their primary function is to host arguments, which are checked against the event property / argument structure of the verb in the process of verb raising.
- An important consequence of this theory is: what MC does in syntax corresponds to what English does in lexicon. MC is, in effect, *forming argument structure in narrow syntax*. Thus there is *no clear distinction between the lexical component and syntactic component* in terms of argument structure formation and event structure building. This will be important in the discussion to follow.

5. *Event structure and word order*

5.1 Introduction

- In this last section we will relate all the above together and propose a theory for the word order phenomena in MC, in particular its “Kaynean” character. This theory will incorporate the following elements:
 - The conformity to the LCA of MC syntactic constructions.
 - The proposal that MC verbs don’t have their own arguments.
 - The proposal that MC forms argument structure in narrow syntax.
- In what follows we will show that MC permits merger of an element not selected by the head. This is not only for the object (as shown in the unselectiveness of object) but also for modifiers. This has to do with the operation Merge and the way it is operated in MC. It has been implicitly or explicitly assumed that if X is merged with Y, then X must be licensed by the argument structure of Y (Saito 2003, Collins 2004). But in MC Merge doesn’t work this way. MC permits merger of a modifier to a verb and make it a complement to the verb. This is a result of the proposal that MC forms argument structure in syntax, and, furthermore, is the key to the word order phenomena of MC sentences.

5.2 Two word order asymmetries

1. *Two asymmetries related to modifiers*

- Here we will look at two word order asymmetries related to adverbials in MC. It has been pointed out above that in MC adverbials can only occur before the verb. Here we recap the phenomena.
- ***The adjunct/complement asymmetry.*** In MC a locative expression is an adjunct in preverbal position, but it becomes a complement in postverbal position (Tai 1975).

(1) Houzi zai ma-bei-shang tiao. (Adjunct, location)
 monkey at horse-back-on jump
 ‘The monkey is jumping on the horse back.’

(2) Houzi tiao zai ma-bei-shang. (Complement, goal)
 monkey jump at horse-back-on
 ‘The monkey jumped onto the horse back.’

- This asymmetry isn’t limited to the *zai* ‘at’ locative expression. It is seen with the *dao* ‘arrive’ goal expression and the *gei* ‘give’ expression too. The complementhood of these expressions can be tested with the disposal *ba* construction: if a postverbal expression is compatible with the *ba* construction, it is a complement. (This is so because the *ba* construction requires the predicates to be telic and resultative. The postverbal expression has to be a complement to meet such requirements.)¹

(3) Zhangsan dao Lisi-jia mai dongxi. (Adjunct, location)
 Zhangsan to Lisi-home buy thing
 ‘Zhangsan bought things at Lisi’s home.’

(4) Zhangsan mai dongxi dao Lisi-jia. (Complement, goal)
 Zhangsan buy thing to Lisi-home
 ‘Zhangsan bought things [and as a result brought them] to Lisi’s home.’

(5) Zhangsan ba dongxi mai dao Lisi-jia. (The *ba* construction)
 Zhangsan Disp thing buy to Lisi-home
 ‘Zhangsan bought [those] things [and as a result brought them] to Lisi’s home.’

(6) Zhangsan gei Lisi kao yi-tiao yu. (Adjunct, benefactive)
 Zhangsan giveLisi grill one- Cl fish
 ‘Zhangsan grilled a fish for Lisi.’

(7) Zhangsan kao yi-tao yu gei Lisi. (Complement, goal)
 Zhangsan grill one- Cl fish giveLisi
 ‘Zhangsan grilled a fish [and as a result gave it] to Lisi’

¹ Also see the discussion in 3.2.

- (8) Zhangsan ba yu kao gei Lisi. (The *ba* construction)
 Zhangsan Disp fish grill giveLisi
 ‘Zhangsan grilled the fish [and as a result gave it] to Lisi’

- In the traditional conception a complement is licensed by the argument structure of the head that selects it. Clearly MC permits complementation without such licensing. How is this possible?
- **The preverbal/postverbal asymmetry.** In MC an adverbial can only be preverbal.

- (9) Zuotian Zhangsan mai-le yi-ben shu.
 yesterday Zhangsan buy-Perf one-CL book
 ‘Yesterday Zhangsan bought a book.’

- (10) *Zhangsan mai-le yi-ben shu zuotian.
 Zhangsan buy-PERF one- Cl book yesterday
 ‘Zhangsan bought a book yesterday.’

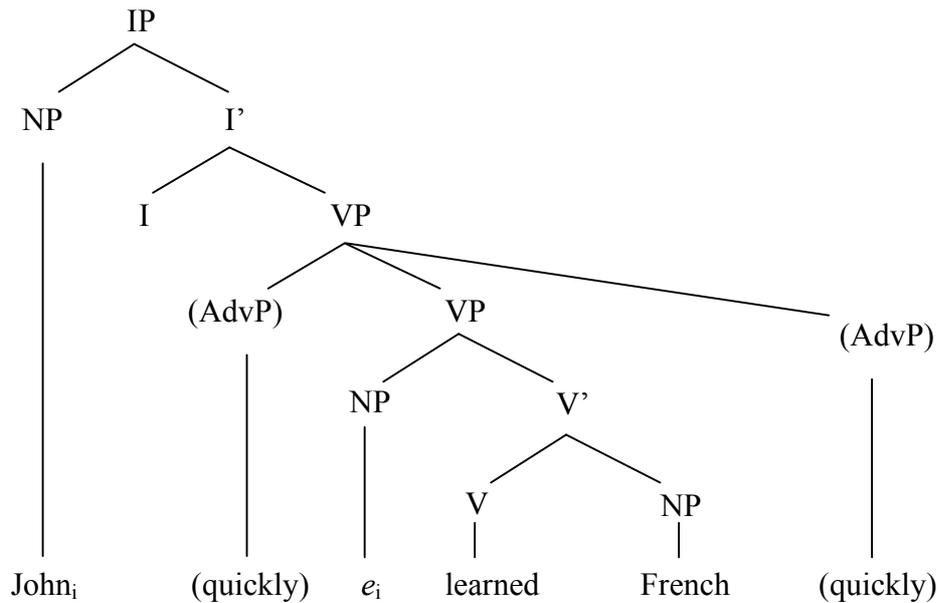
- (11) Zhangsan xiaoxin-di chaichu jiqi.
 Zhangsan careully dismantle machine
 ‘Zhangsan carefully dismantled the machine.’

- (12) *Zhangsan chaichu jiqi xiaoxin-di.
 Zhangsan dismantle machine carefully
 ‘Zhangsan dismantled the machine carefully.’

- Why can’t MC be like English, which permits (surface) left- or right-adjunction of adverbials (cf. Bowers 1993)?²

² The structure in (13) is used simply as an illustration; this doesn’t mean that Bower’s theory is correct. If the LCA is a UG principle or theorem, there will not be right adjunction of adverbials, and structures such as (13) cannot be maintained.

(13)



2. Questions

- All the above, as we have repeated emphasized, are fully consistent with the LCA – all modifiers precede the modified, and all complements follow the heads. MC goes one step further: any element that is postverbal is automatically made a complement, or else is excluded.
- But questions remain. What makes it possible for MC to “adopt” postverbal (un- θ -marked) XP as complement? Why is MC so “Kaynean”? How is the crosslinguistic variation accounted for?

5.3 Forming argument structure in syntax

1. Syntactic structure as event structure

- We have pointed out that what syntax does in MC is very much parallel to what lexicon does in English (Lin and Liu 2005). The syntactic representation of an MC sentence *is* its lexical representation. There is no distinction between the two. The “argument structure” in MC is assembled/formed in narrow syntax, subject to semantic factors and world knowledge. On the other hand, in languages like English these two representations are distinct. The lexical properties of individual words mandates the way a sentence structure is built.

- Thus in MC, as long as two things are cognitively compatible with each other, they can be merged together. The operation Merge doesn't need licensing from argument structure.

2. Example 1: the *gei* complement

- The element *gei* '(lit.) give' occurs in a number of contexts (14)-(16). What interests us, however, is the fact that the *gei* complement can be used to denote transaction *without* verbs of transaction (17)-(18).

- (14) Zhangsan gei Lisi yi-ben shu. (DOC)
 Zhangsan give Lisi one-CL book
 'Zhangsan gave Lisi a book.'
- (15) Zhangsan song yi-ben shu gei Lisi. (Dative)
 Zhangsan send one- Cl book give Lisi
 'Zhangsan sent a book to Lisi.'
- (16) Zhangsan gei Lisi qing chufang. (Beneficiary)
 Zhangsan give Lisi clean kitchen
 'Zhangsan cleaned the kitchen for Lisi.'
- (17) Zhangsan jian yi-tiao yu gei Lisi. (Resultative transaction)
 Zhangsan fry one- Cl fish give Lisi
 'Zhangsan fried a fish [and as a result gave it] to Lisi.'
- (18) Zhangsan sha yi-zhi ji gei Lisi. (Resultative transaction)
 Zhangsan kill one-Cl chicken give Lisi
 'Zhangsan butchered a chicken [and as a result gave it] to Lisi.'

- The postverbal *gei* expression in the above sentences is indeed a complement, since it can be converted into the *ba* construction.

- (19) Zhangsan [ba na-tiao yu [jian gei Lisi]].
 Zhangsan Disp that-Cl fish fry give Lisi
 'Zhangsan fried a fish [and as a result gave it] to Lisi.'
- (20) Zhangsan [ba na-zhi ji [sha gei Lisi]].
 Zhangsan Disp that-Cl chicken kill give Lisi
 'Zhangsan butchered a chicken [and as a result gave it] to Lisi.'

- We can single out the cognitive / semantic factor that licenses the *gei* complement. For a predicate to take the *gei* complement, it must denote an action that makes (or implies existence of) something available for transaction.

- (21) *Zhangsan pao gei Lisi.
 Zhangsan run give Lisi
- (22) *Zhangsan chi hanbao gei Lisi.
 Zhangsan eat burger give Lisi
- (23) Zhangsan zhai yi-duo hua gei Lisi.
 Zhangsan pluck one-Cl flower give Lisi
 ‘Zhangsan plucked a flower [and as a result gave it] to Lisi.’

- The cognitive nature of the complementation of the *gei* phrase can be seen in the use of the verb *sha* ‘kill’. When *sha* ‘kill’ takes *ji* ‘chicken’ as object it is understood as ‘butcher’; in this case the *gei* complement is acceptable. But if the object is *ren* ‘person’, *sha* is understood as ‘murder’, and the *gei* complement is unacceptable.

- (24) Zhangsan sha-le yi-zhi ji gei Lisi.
 Zhangsan kill-PERF one-Cl chicken give Lisi
 ‘Zhangsan butchered a chicken [and as a result gave it] to Lisi.’
- (25) *Zhangsan sha-le yi-ge ren gei Lisi.
 Zhangsan kill-PERF one-Cl person give Lisi

- In conclusion, the *gei* complement simply gets merged with a transitive verb without licensing from the argument structure of the verb. The merger is acceptable because it is cognitively or semantically “sound and fit.” The merger itself is on a par with “argument structure formation.”

3. Example 2: the *dao* complement

- The element *dao* can mean ‘arrive’ or ‘to’. The *dao* complement typically occurs with verbs of motion or verbs that imply motion or transportation (26). But again, the *dao* complement may occur with verbs having nothing to do with a goal (27)-(28). The test of the *ba* construction shows that the postverbal *dao* expression is indeed a complement (29)-(30).

- (26) Zhangsan diu yi-ge shitou dao wuding.
 Zhangsan throw one-Cl stone to roof
 ‘Zhangsan throw a stone onto the roof.’
- (27) Zhangsan mai shiwu dao Lisi-jia.
 Zhangsan buy food to Lisi-home
 ‘Zhangsan bought food [and as a result took it] to Lisi’s home.’
- (28) Zhangsan baohu Lisi dao Taipei.
 Zhangsan protect Lisi to Taipei
 ‘Zhangsan escorted Lisi to Taipei’
- (29) Zhangsan ba shiwu mai dao Lisi-jia.
 Zhangsan Disp food buy to Lisi-home
 ‘Zhangsan bought food [and as a result took it] to Lisi’s home.’
- (30) Zhangsan ba Lisi baohu dao Taipei.
 Zhangsan Disp Lisi protect to Taipei
 ‘Zhangsan escorted Lisi to Taipei’

- Again, we can single out the cognitive or semantic factor that licenses the *dao* complement. If a predicate denotes an action that, once initiated, may enact or facilitate the transportation of something, then the predicate can take the *dao* complement. Once again, there is no point in assuming that these verbs have a goal-location argument in the argument structure that licenses the *dao* complement

4. Example 3: the *zai* complement

- Tai (1975) found that the preverbal *zai* ‘at’ phrase denotes a location, whereas the postverbal *zai* phrase denotes a goal. Thus the preverbal *zai* phrase is an adverbial, but the postverbal *zai* phrase is a complement.

- (31) Houozi zai ma-bei-shang tiao. (Adjunct, location)
 monkey at horse-back-on jump
 ‘The monkey is jumping on the horse back.’

(32) Houzi tiao zai ma-bei-shang. (Complement, goal)
 monkey jump at horse-back-on
 ‘The monkey jumped onto the horse back.’

- Such adjunct/complement asymmetry is not limited to verbs of motion.

(33) Zhangsan zai shan-shang gai-le yi-dong fangzi. (Adjunct, location)
 Zhangsan at mountain-on build-Perf one-Cl house
 ‘Zhangsan built a house in the mountain.’

(34) Zhangsan gai-le yi-dong fangzi zai shan-shang. (Complement, goal)
 Zhangsan build-Perf one-Cl house at mountain-on
 ‘Zhangsan built a house in the mountain.’

(35) Zhangsan ba fangzi gai zai shan-shang. (The *ba* construction)
 Zhangsan Disp house build at mountain
 ‘Zhangsan built the house in the mountain.’

(36) Zhangsan zai guo-li zhu-le mien. (Adjunct, location)
 Zhangsan at pot-in cook-Perf noodle
 ‘Zhangsan cooked noodle in the pot.’

(37) Zhangsan zhu-le mien zai guo-li. (Complement, goal)
 Zhangsan cook-Perf noodle at pot-in
 ‘Zhangsan cooked noodle in the pot.’

(38) Zhangsan ba mien zhu zai guo-li. (The *ba* construction)
 Zhangsan Disp noodle cook at pot-in
 ‘Zhangsan cooked the noodle in the pot.’

- The cognitive or semantic factor that licenses the *zai* complement is that, if the *zai* phrase denotes the end location of something, then it can be the complement of a predicate. Once again, there is no need to conceive of the *zai* complement as licensed by the argument structure of the verb.

5. Conclusion

- We saw examples of complementation in MC that have nothing to do with the argument structure of the verbs. They indicate that merger in MC, to a great extent, is governed by

cognitive-semantic factors. In other words, merger in MC doesn't need to be for the purpose of *predicate saturation*.

5.4 Word order and event structure

1. *Escribano's theory of adjunction*

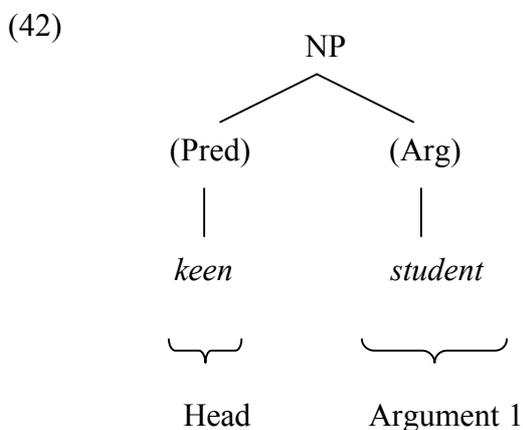
- It is known that modifiers in English don't show a fixed word order and hence pose problems for the Kaynean approach.

(39) a [_{AP} keen] student

(40) a student [_{AP} keen [_{PP} on jazz]]

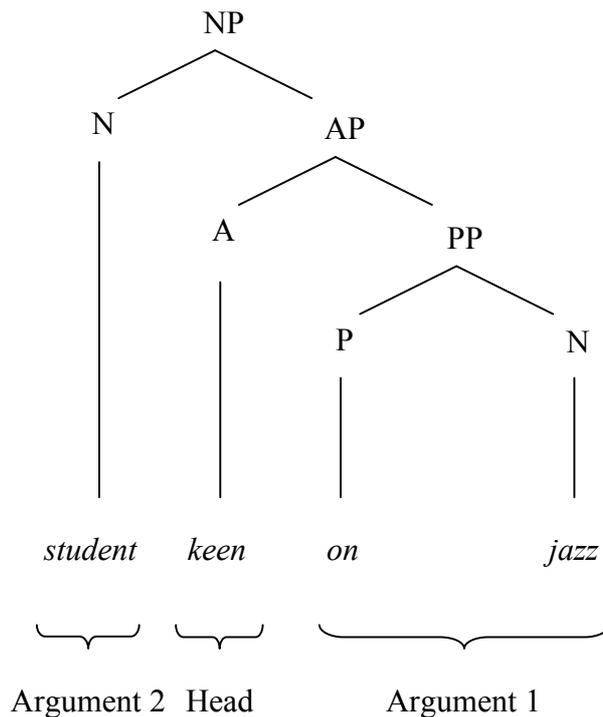
(41) *a [_{AP} keen [_{PP} on jazz]] student

- Escribano 2004:
 - Modifiers are predicates. The modified is the argument of the modifier.
 - When an argument X is merged with a predicate P, X may project. This is what ***adjunction*** is.
 - The LCA holds.
- In the case of *keen student*, *keen* is the head and *student* its argument. When the N *student* is merged with the head *keen*, *student* projects. This yields an NP rather than AdjP. And since *student* is the first argument of the head *keen*, it is merged as the complement of the head *keen*. Thus it follows the head, yielding the observed word order as mandated by the LCA.



- In the case of *student keen on Jazz*, again *keen* is the head, but in this case the head *keen* takes two arguments, the first argument being the PP *on Jazz*, and the second the N *student*. The PP *on Jazz* is merged with *keen* as the first argument, hence the complement; and then the N *student* is merged with *keen* as the second argument, hence the specifier. In the first merger the head *keen* projects, yielding an AP. In the second merger the argument *student* is projects, yielding an NP.

(43)



- Why can some adverbial in English occur preverbally or postverbally? Escrinabo suggests various possibilities for different kinds of adverbials. For example, *quickly* may be preverbal or postverbal because it can take VP or *v*P as complement. In the former case the main verb moves to *v* and leaves the adverb *quickly* behind, resulting in surface postverbal modification.
- If Escrinabo's theory is correct, then English in fact observes the LCA, only that the saturation of predicates, their projection, verb movement and so on obscure its effects.

2. Accounting for the word order phenomena in MC

- If Escrinabo's theory is correct, then English in fact observes the LCA, only that the saturation of predicates, their projection, verb movement and so on obscure its effects.

- While there are many details to be worked out, let's assume that Escribano's theory is basically on the right track. What is interesting about Escribano's theory is that it can readily applied to the case of MC. The logic is this -

(44) If in MC the predicates do not have argument structure, then the merger of elements in narrow syntax will show pure LCA effects without the intervention of obscuring factors such as saturation of predicates and their projection.

- Thus, in a sense, Escribano's theory has stronger explanatory power in MC than it is in English. Holding to this theory, we are able to account for the two word order asymmetry related to adverbials in MC.

-- **The adjunct/complement asymmetry.** In MC a modifier is an adjunct in preverbal position, but it becomes a complement in postverbal position. Suppose that an element X modifies *v*. Since *v* has VP as its first complement, X cannot be postverbal. It has to be preverbal, and is understood as an adverbial modifier. On the other hand, if the grammar chooses to merge V and X first, the LCA mandates that this be a head-compl structure, and a "complement semantics" is assigned to it. This is the origin of the adjunct/complement asymmetry.³

-- **The preverbal/postverbal asymmetry.** In MC an adverbial can only be preverbal. If semantics doesn't license an X as a complement, it cannot stay in postverbal position. Furthermore, the LCA excludes right adjunction. This is the preverbal/postverbal asymmetry.⁴

³ For this explanation to go through, one must assume that in MC adverbials are adjoined to *vP* or *v'*, but not to VP or V'.

⁴ In the above discussion we only see PP adverbials turning into complement. One may thus wonder if there are cases where a postverbal adverb is assigned a "complement semantics" and hence becomes a complement. There seem to be such cases. In MC one can say things like (i)-(ii) (at least in Taiwanese MC).

- (i) Zhangsan chi hen kuai.
 Zhangsan eat very fast
 'Zhangsan eats fast.'
- (ii) Zhangsan pao hen lei.
 Zhangsan run very tired
 'Zhangsan got tired from running.'

We may conceive of these as an adjective or adverb phrase in the complement position of a verb turned into a descriptive or resultative complement. One might object to this idea by pointing out that (i)-(ii) are similar to the *de*-complement construction and that they could be derived from *de*-complement sentences by deleting *de*, as follows.

3. Conclusion

- If the above analysis is correct, the lack of argument structure of MC verbs/predicates is the origin of the “Kaynean” character of the MC phrase structure. And MC verbs/predicates lack argument structure, because MC sentences are “Davidsonian” in nature, namely the MC sentences themselves are locus where the event information manifests and argument structure is formed. Thus the Davidsonian nature of MC sentences leads to their Kaynean character.

(iii) Zhangsan chi ~~de~~ hen kuai.
Zhangsan eat Ext very fast
'Zhangsan eats fast.'

(iv) Zhangsan pao ~~de~~ hen lei.
Zhangsan run Ext very tired
'Zhangsan got tired from running.'

But there are problems with this *de*-deletion analysis. In the real *de*-complement construction, the post-*de* expression is a clausal structure, and the clausal structure can have its own subject, as in (v). Now if the element *de* can be deleted so easily, (vi) should be grammatical, though in fact it is not. So the *de*-deletion analysis to (i)-(ii) doesn't seem correct.

(v) Zhangsan pao de Lisi hen lei.
Zhangsan run Ext Lisi very tired
'Zhangsan caused Lisi tired by his running.'

(vi) * Zhangsan pao Lisi hen lei.
Zhangsan run Lisi very tired
'(Intended) Zhangsan caused Lisi tired by his running.'

Thus (i)-(ii) can very well be cases where an adjective or adverb phrase is merged with a verb as complement, on a par with those complement PPs.

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