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Mandarin SOV Word Order and Applicative Shift

Lei Liu
Stony Brook University

This paper shows that Mandarin SOV word order is not always related to expressive effect, thus not always derivable from topicalization or focalization, contra previous claims. Assuming a feature analysis of thematic roles (θ-roles), I argue that Mandarin SOV word order and its variants can be derived via applicative shift motivated by voice heads corresponding to thematic roles that are independently needed. The proposed treatment has a wider empirical coverage, while still capturing syntactic properties of the structure.

1. Introduction

Mandarin Chinese, a language generally considered to have SVO as its default word order, allows sentences with SOV order as well. For instance, (1) shows a Mandarin SOV sentence with its SVO counterpart:

(1) a. Zhangsan zixingche xiuhao le.
Z. bicycle fix perf
S O V
b. Zhangsan xiuhao le zixingche.
Z. fix perf bicycle
'Z. fixed the (a) bicycle.'

Discussions of SOV word order are often found in the context of expressive effect related operations such as topicalization and focalization (Xu 2006, Paul 2005, Kuo 2009, Shyu 1995; 2001, a.m.o). However, these analyses face empirical problems, as I will show later. For now, let us take a look at a simple question-answer test in (2), which suggests that sentences with SOV word order in Mandarin could be free from the above mentioned output effects:

(2) a. - Zhangsan zenme le?
Z. how perf
'What is going on with Z.?'
b. - Zhangsan zixingche xiuhao le.
Z. bicycle fix Perf
c. - Zhangsan xiuhao le zixingche.

Z. fix Perf bicycle
'Z. fixed the (a) bicycle.'

When spoken with neutral intonations, both (2b) and (2c) could be appropriate answers to (2a), a general information-seeking question about the subject. This suggests that SOV sentences can be interpreted without discourse-related readings such as topicalization or focalization.

In this paper, I argue that Mandarin SOV word order is derived via applicative shift proposed in Larson (2014), Zhang and Larson (2016). Specifically, a conspiracy of null verb heads and voice heads predicts SOV word order. The remainder of the paper is organized as follows: in section 2, I discuss two popular analyses of Mandarin SOV order and empirical problems both face. The applicative shift analysis for SOV is proposed in section 3. Predictions and consequence of the proposal is discussed in section 4. I conclude the paper in section 5.

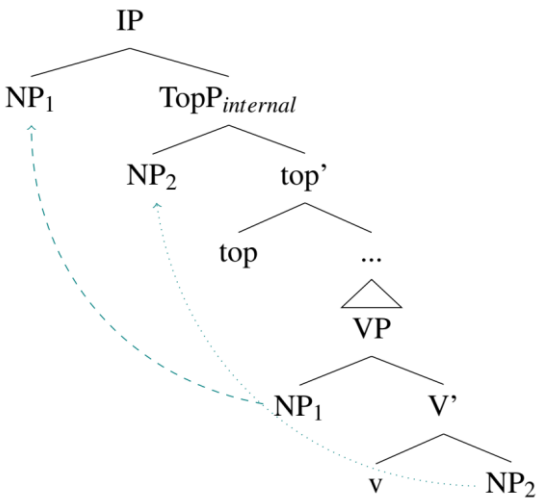
2. The Mandarin SOV puzzle

Apart from the possibility of being informationally neutral, as shown in (2), Mandarin SOV order is puzzling under the two most popular analyses, namely, the topic analysis and the focus analysis.

2.1 SOV as a result of topicalization

Objects in Mandarin SOV structures are often analyzed as IP internal topics (Paul 2005, Xu 2006, Badan 2008, among many others). A cartographic structure within IP is proposed in Paul (2005), schematized in (3):

(3)



One thing worth noting is that the movement of topic (indicated with dotted arrow) is not always assumed, instead, internal topic could be base-generated, which yields an aboutness topic structure (or SOV with an extra object, SOVO), as shown in (4):

(4) Ta	[yingyu]	kao	le	ge	[jiushi-fen].	
3SG	English	take.exam	Perf	CL	90-point	
	Topic				object	

'He obtained 90 points in the English exam.' (Paul 2005)

Adopting this view, Kuo (2009) points out that a wide range of categories found in sentence initial topics are also possible for IP internal topics, as shown in (5):

(5) a. Definite NP

Zhangsan	[**Zhe**-bu	zixingche]	xiuhao	le.
Z.	**this**-CL	bicycle	fix	Perf

'Z. fixed this bicycle.'

Cf.

[**Zhe**-bu	zixingche]	Zhangsan	xiuhao	le.
This-CL	bicycle	Z.	fix	Perf

b. Quantifier phrase

Zhangsan	[**youyixie**/**suoyou**	zixingche]	(dou)	xiuhao	le.
Z.	**some** / **all**	bicycle	(also)	fix	Perf

'Z. fixed some/all of the bicycles.'

Cf.

[**youyixie**/**suoyou**	zixingche]	Zhangsan	(dou)	xiuhao	le.
Some / **all**	bicycle	Z.	(also)	fix	Perf

c. Simple numeral NP

Zhangsan	[**san**-bu	zixingche]	xiuhao	le.
Z.	**three**-CL	bicycle	fix	Perf

'Z. fixed three bicycles.'

Cf.

[**san**-bu	zixingche]	Zhangsan	xiuhao	le.
Three-CL	bicycle	Z.	fix	Perf

However, such a similarity disappears for sentences with non-canonical objects (Li 2014), exemplified in (6):

(6) a. Zhangsan	qie	[zheba dao].	
Z.	cut	this.CLknife	

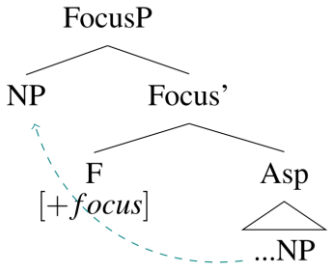
b. [Zheba dao] Zhangsan qie.
This.CL knife Z. cut
c. *Zhangsan [zheba dao] qie.
Z. this.CL knife cut
'Z. cuts with this knife.'

(6a) is a sentence with *zheba dao 'this knife'* being the object, but understood as INSTRUMENT (INST). Such objects are called "non-canonical" objects with THEME objects being canonical. External topicalization of the non-canonical object is possible as shown in (6b), while internal topicalization is not (6c). This contrast is not expected for internal topic analysis of SOV structures since there is nothing semantically or syntactically preventing the internal topic head to select the non-canonical object.

2.2 SOV as a result of focalization

Alternatively, focus analysis of the object in Mandarin SOVs is entertained by Shyu (1995), Shyu (2001). According to this analysis, objects in SOV structures are moved to a focus phrase that is post-subject and preverbal. Such a movement is caused by a strong focus feature born by a focus head. A schema of the focus analysis is shown in (7):

(7)



One piece of evidence supporting the focus analysis comes from the similarity between SOV structures and *lian...ye/dou* focus structure in terms of word order and interpretation. Such similarities are shown in (8) and (9):

(8) Zhangsan yu chi le.
Z. fish eat Perf
(9) Zhangsan **lian** yu **dou** chi le.
Z. **lian** fish **dou** eat Perf
'Z. ate even fish.' (Shyu 2001)

According to Shyu (2001), [+focus] realizes covertly in (8) and overtly as *lian...dou* in (9). Nevertheless, a unified movement analysis of SOV structures immediately faces the challenge from SOVOs, an example of which we have seen in (4). That is, if the object is

moved from post-verbal position, it is impossible for the structure to allow an extra object post-verbally, yet SOVOs are possible in this language, as shown in (10) - (12):

(10) Zhangsan [zixingche] buhao le [qianlun].
Z. bicycle fix Perf front.wheel
'Z. repaired the front wheel of the bicycle.'

(11) Ta [yingyu] kao le ge [jiushi-fen].
3SG English take.exam Perf CL 90-point
'He obtained 90 points in the English exam.'
(=(4))

(12) Zhangsan [dachengshi] xihuan [niuyue].
Z. big.city like New.York
'For big cities, Z. likes New York.'

This suggests that a unified focus movement analysis for SOV structures is not empirically adequate. I explore yet another alternative in the next section.

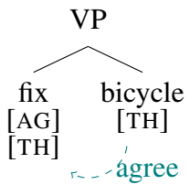
3. Deriving Mandarin SOV word order

3.1 Checking θ-features

To derive SOV word order in Mandarin, I assume a feature checking system proposed in Larson (2014), Zhang and Larson (2016). This system consists of three key mechanisms, (a) feature analysis of θ-roles, (b) distinction of features according to whether they are interpretable, valued or neither, and (c) applicative shift.

First, Larson (2014) re-analyzes θ-roles as formal features born by both predicates and arguments. Subcategorization requirements on predicates are thus understood as feature agreements. For instance, transitive verb *fix* has a set of θ-features which contains AGENT (AG) and THEME (TH). The THEME feature agrees with the one on the complement it selects (*bicycle* in this case) at the point of external merge, as shown in (13):

(13)



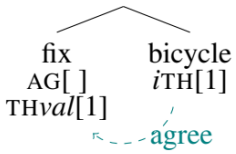
Next, formal features come in three flavors: interpretable (*i*F[ ]), valued (F*val*[ ]) and neither (F[ ]) (Larson (2014) following Pesetsky and Torrego (2007)). To successfully "check" a feature, it must have at least one interpretable instance and at least one valued instance linked by agreement. For example, (14) shows cases where a feature F is interface "legible" whereas (15) shows illegible instances.

(14) a. *i*F[n]...F*val*[n]
b. *i*F[n]...f[n]...F*val*[n]
c. *i*F[n]...f[n]...f[n]...F*val*[n]

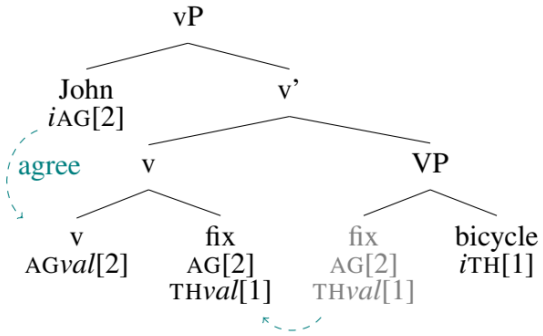
(15) a. iF[ ]
b. F*val*[ ]
c. *i*F[ ]...f[ ]
d. f[ ]...F*val*[ ]
e. *i*F[ ]...F*val*[ ] (Larson 2014)

A derivation in (16) for a simple English sentence *John fixed a bicycle* shows how the above system works for a transitive verb:

(16) a.



b.



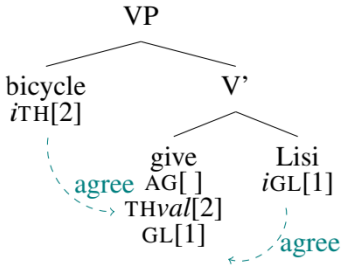
The verb enters the derivation first with a set of θ-features consisting of AG and TH*val*. It is stipulated that whenever a THEME-feature is present in the feature set of the verb, it is always valued, a point I will come back to later. When the THEME *bicycle* external merges with *fix*, THEME features on both the verb and the object agree (16a). Next, AGENT-introducing little *v* enters the derivation, to which *fix* raises to adjoin. AGENT *John* then merges and agrees with the AGENT feature on little *v* (16b). Both AGENT and THEME features have agreed instances of interpretable and valued features (indicated with agreeing numbers), the derivation is grammatical. Also, merge operations of arguments follow a low-to-high order of the θ-hierarchy.

A third mechanism of the system is applicative shift (A-shift). Applicative shift refers to raising of oblique objects attracted by applicative voice head v_{appl}. Zhang and Larson (2016) show that this analysis is applicable to Double Object Constructions

(DOCs) in both English and Chinese. (17) and (18) show an applicative shift analysis of a Mandarin ditransitive verb *song 'give'* and the DOC it forms:

(17) Zhangsan song le Lisi zixingche.
Z. give Perf L. bicycle
'Z. gave L. (a) bicycle.'

(18) a.



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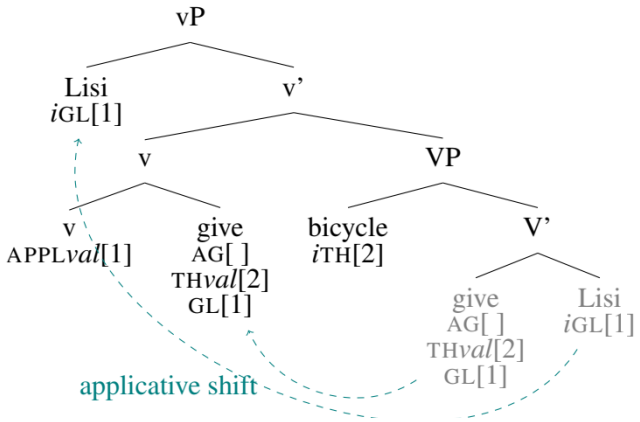

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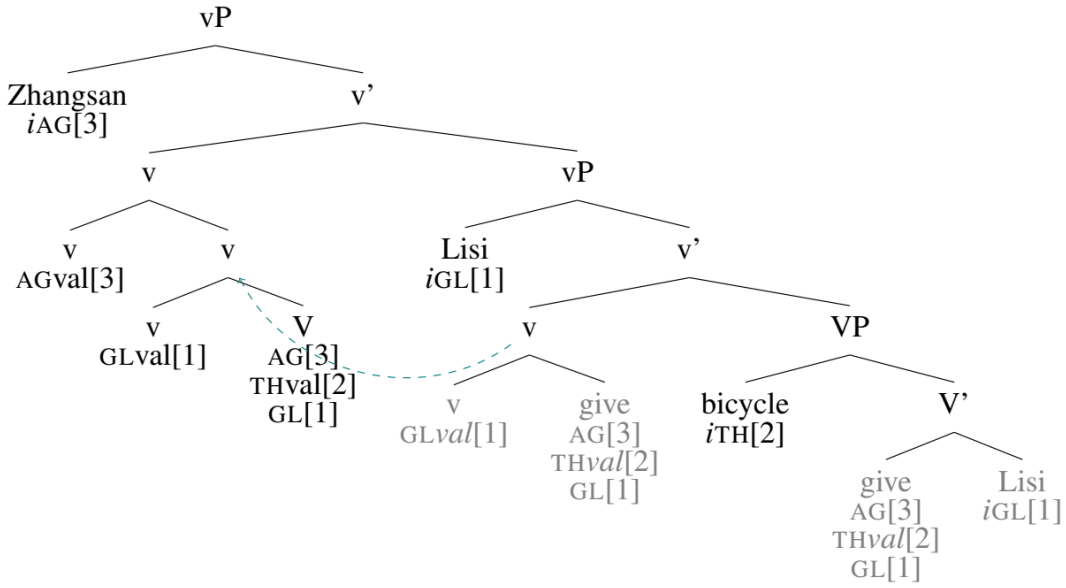


First, a VP is constructed with GOAL (GL) *Lisi* and THEME *bicycle* entering the tree following θ-hierarchy and agree with paired θ-features on the verb (18a). Next, applicative voice head v_{appl} valued for GOAL enters the tree, which attracts the verb to adjoin to its right, and causes the GOAL to applicative-shift to its spec position (18b). Finally, AGENT-introducing *v* enters the tree, lower *v* subtree adjoins to its right, AGENT *Zhangsan* then merges to its spec position (18c). All the features are surface legible under agreement (indicated with agreeing numbers).

Now, with all the tools ready, I explore derivations of Mandarin SOV word order with minimal refinements of the system.

3.2 Deriving Mandarin SOV word order

The feature checking system presented above could be applied to Mandarin SOV data with minimal refinements. Specifically, I assume a) two phonetically null *V* heads that correspond to Mandarin light verbs *ba* and *gei* respectively, b) verbs could sometimes be "THEME-less". Fortunately, both stipulations are needed for independent reasons, as I will show below.

3.2.1 Simple SOVs

To derive simple SOVs, I argue that the object in SOV sentences takes the θ-role of affected THEME (ATH). A null V_{ba} that corresponds to Mandarin light verbs *ba* is present in the structure to value relevant θ-roles. And applicative shift is responsible for deriving the correct word order.

A parallelism between SOV sentences and *ba* sentences suggests that the object could be interpreted as an affected object, thus bearing a θ-feature of ATH, as shown in (19) and (20):

(19)	Zhangsan	**ba**	zixingche	xiuhao	le.
	Z.	**BA**	bicycle	fix	Perf

(20)	Zhangsan	zixingche	xiuhao	le.
	Z.	bicycle	fix	Perf

'Z. fixed the (a) bicycle.'

An overt Mandarin *ba* takes a "deposed" or "affected" object (Huang et al. 2009). If we assume that a null V_{ba} does the same, the above parallelism is expected: (19) is a typical Mandarin *ba* sentence while (20), with similar interpretation, is its counterpart with a null V_{ba}.

Notice that the null V_{ba} is not simply treated as a phonetically suppressed form of overt *ba*, since they have different requirements on the verb following them, as shown in (21) and (22):

(21) Zhangsan [biye de shijian] zhidao le.
Z. graduation DE time know Perf.

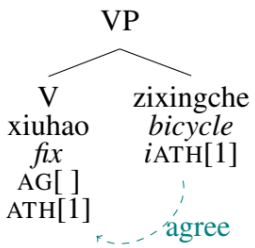
(22) *Zhangsan ba [biye de shijian] zhidao le.
Z. BA graduation DE time know Perf.
'Z. knows the time for graduation.'

The contrast in (21) and (22) suggests that the overt *ba* has stricter selectional requirements (rejecting stative verbs like *zhidao 'know'*) than the null V_{ba}. Here, I propose that the null V_{ba} is associated with AG and ATH θ-features, the same as overt *ba*, but without its selectional requirements.

Assuming a V_{ba} with its feature specified as AG and ATH , a derivation for simple SOVs such as (23) is given in (24):

(23) Zhangsan zixingche xiuhao le.
Z. bicycle fix Perf
'Z. fixed the (a) bicycle.'

(24) a.



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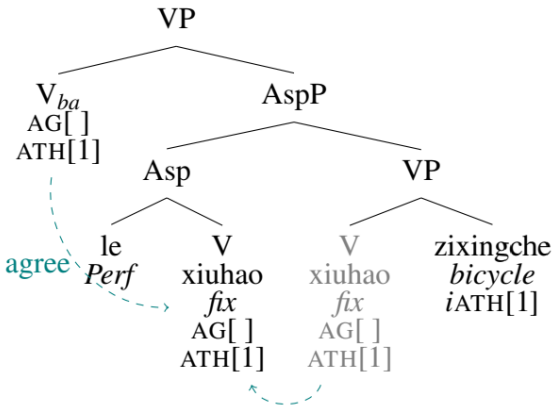

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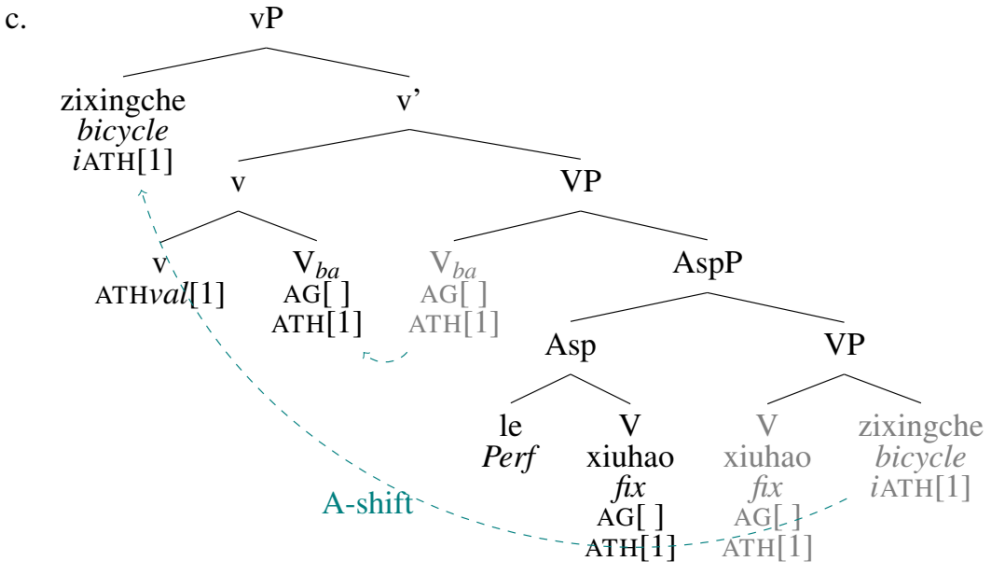
vP
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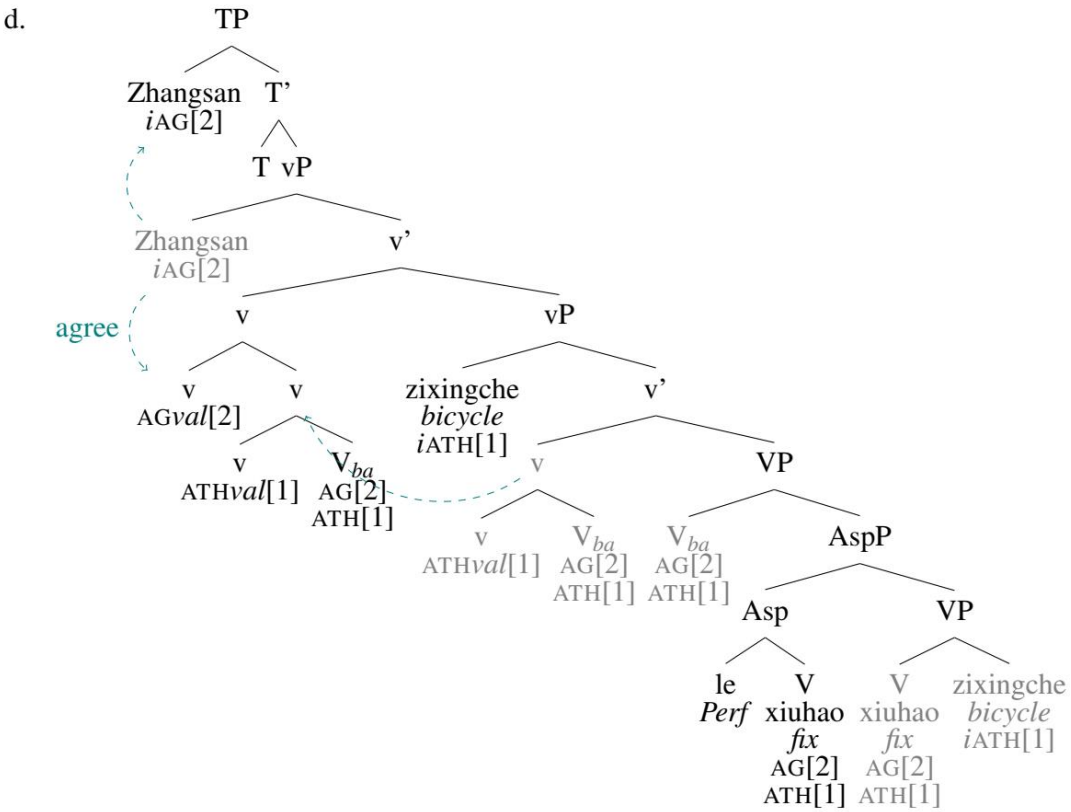
A-shift

d.


TP
Zhangsan
iAG[2]
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iAG[2]
v'
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zixingche
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xiuhao
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xiuhao
fix
AG[2]
ATH[1]
zixingche
bicycle
iATH[1]

First, a VP is constructed with the verb taking only an A-THEME *zixingche 'bicycle'* (24a); AspP is then constructed, attracting verb to head-adjoin the perfective head *le*, the constructed phrase is then taken by V_{ba} as a complement (24b); next, a voice head valued for ATH merges into the tree, which, like applicative voice heads, A-shifts the feature-agreeing object ATH to its spec position; finally, AGENT-introducing little *v* is merged, introducing the subject and checking the AG feature. In terms of cases, assume that V_{ba} does not assign case, *zixingche 'bicycle'* gets case from AGENT-introducing little *v* and *Zhangsan* from T head.

From the above derivation, notice first that there is no THEME-role present in the θ-feature set of the predicate. This is potentially desirable since many other predicates allow their θ-grid to be "THEME-less", as shown in (25):

(25) a. Zhangsan mai lubiantan.
Z. sell street.stall
AGENT LOC
'Z. sells in street.stall.'
b. Zhangsan mai wansang.
Z. sell evening
AGENT TEMPORAL
'Z. sells in the evenings.' (Li 2014)
Cf.
Zhangsan mai xiaochi.
Z. sell street.food
'Z. sells street food.'

(25a) and (25b) have LOC and TEMPORAL roles as the objects respectively. The sentences are as grammatical as the "canonical" one given in the comparison. This suggests that being able to adjust the set of θ-features a verb bears is not only possible, but also desirable for covering different facts in Mandarin.

Furthermore, the ungrammatical sentences where a non-canonical object is fronted could be explained. Consider the following contrast:

(26) a. Zhangsan **qie** [zheba dao].
Z. cut this.CL knife
INST
b. *Zhangsan [zheba dao] **qie**. (=(6c))
Z. this.CL knife cut
'Z. cut with this knife.'

(27) a. Zhangsan **qiehuai** le [zheba dao].
Z. cut.break perf this.CL knife.
ATH

b. Zhangsan [zheba dao] **qiehuai** le.
Z. this.CL knife cut.brreak Perf
Lit. 'Z cut with this knife and caused it to break.'

Notice that the predicate in (26) is *qie 'cut'*, a simple transitive verb, whereas the verb in (27) is *quehuai 'cut.break'*, a resultative verb compound. This suggests that *zhebadao 'this knife'* in (26) is understood as an INST while that in (27) is understood as an affected THEME. If this were true, then the SOV variant in (27) is derived in the same fashion as simple SOV construction, while the same ATH voice head is unable to A-shift an INST preverbally due to a feature mismatch, hence the ungrammaticality of (26b).

Moreover, the derivation in (24) predicts that extra affected objects, generally allowed in Mandarin (Huang 2016), are not allowed in SOV sentences. This prediction seems to be correct, as shown in (28) and (29):

(28) a. Zhangsan za le [yige beizi].
Z. break Perf one.CL mug
'Z. broke a mug.'
b. Zhangsan za le **Lisi** [yige beizi].
Z. broke Perf L. one.CL mug
'Z. broke a mug on Lisi.'

(29) a. Zhangsan [yige beizi] za le.
Z. one.CL mug break Perf
'Z. broke one mug.'
b. *Zhangsan [yige beizi] za le **Lisi**.
Z. one.CL mug break Perf L.
c. *Zhangsan [yige beizi] **Lisi** za le.
Z. one.CL mug L. break Perf
d. ??Zhangsan **Lisi** [yige beizi] za le.
Z. L. one.CL mug break Perf

The pair in (28) shows a Mandarin SVO sentence (28a) and its variant with an added affected object **Lisi** (28b). The sentence means that the *mug-breaking* event "affects" **Lisi** in some way. The most natural interpretation is that the *mug-breaking* event negatively affected **Lisi**, while a positive interpretation is also available given enough context.

(29b) - (29d) show that it is impossible to add an affected object before or after the verb, presumably because such an affected object position, introduced by V_{ba}, is already taken by *yige beizi 'one mug'*. Also, following the assumption that V_{ba} does not assign case, both the postverbal (29b) and the preverbal (29c) extra objects are blocked by case and the post subject **Lisi** has no head to license the movement, causing the ungrammaticality of (29d).

3.2.2 SOV with an extra argument

Mandarin SOV sentences with an extra argument (SOVO) are derived similarly to SOV cases, except that the null *V* head corresponds to *gei*, which has a feature specification of TH*val*, AG and holonym of THEME (HTH).

First, for most SOVO sentences[1] , a light verb *gei* could be added after the subject, or even in other positions in dialects spoken in Northern China without changing the meaning of the sentence, as shown in (30). This motivates the analysis of a null V_{gei} head.

(30) a. Zhangsan **gei** zixingche buhao le qianlun.
Z. **GEI** bicycle repair Perf front.wheel
b. Zhangsan zixingche **gei** buhao le qianlun. (Northern dialect)
Z. bicycle **GEI** repair Perf front.wheel
c. Zhangsan **gei** zixingche **gei** buhao le qianlun. (Northern dialect)
Z. **GEI** bicycle **GEI** repair Perf front.wheel
'Z. repaired the front wheel of the bicycle.'

Next, in SOVO sentences, the two objects stand in a part-whole relationship, as shown in (10) - (11), here repeated as (31) - (32), motivating the HTH θ-feature:

(31) Front wheel **<u>of</u>** the bicycle.
Zhangsan zixingche buhao le qianlun.
Z. bicycle repair Perf front.wheel
'Z. repaird the front wheel of the bicycle.'

(32) Points **<u>of</u>** the exam
Ta [yingyu] kao le ge [jiushi-fen]. (=(4))
3SG English take.exam Perf CL 90-pint
'He obtained 90 points in the English exam.'

Now, with the help of null V_{gei} head, we are ready to derive SOVO sentences such as (33) in (34):

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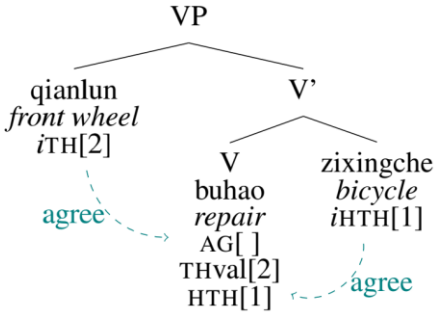
[1] Note that *gei* could not be added to SOVO sentences such as (12), here repeated as i:

i. Zhangsan (*gei) [dachengshi] xihuan [niuyue].
Z. (GEI) big.city like New.York
'For big cites, Z. likes New York.'

I suspect that a portion of sentences with SOVO word order might involve true internal topic structures, as suggested by their counterparts in other languages such as Korean. And adding *gei* might serve as a diagnostics. However, fully exploring this point is beyond the scope of this paper. I leave this to future research.

(33) Zhangsan zixingche buhao le qianlun.
Z. bicycle repair Perf front.wheel
'Z. repaird the front wheel of the bicycle.'

(34) a.



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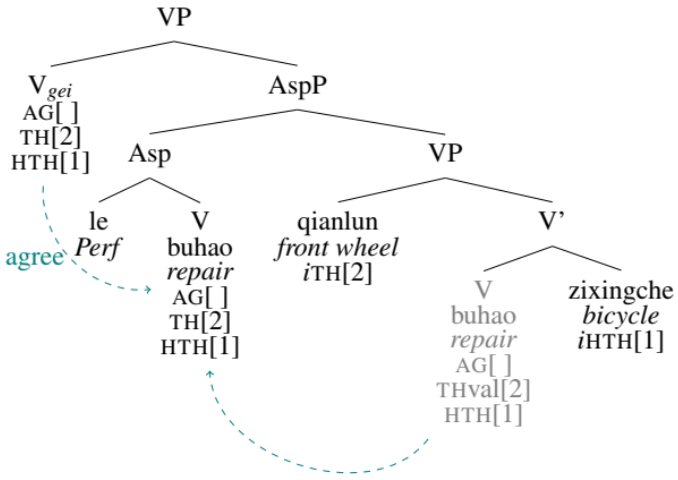
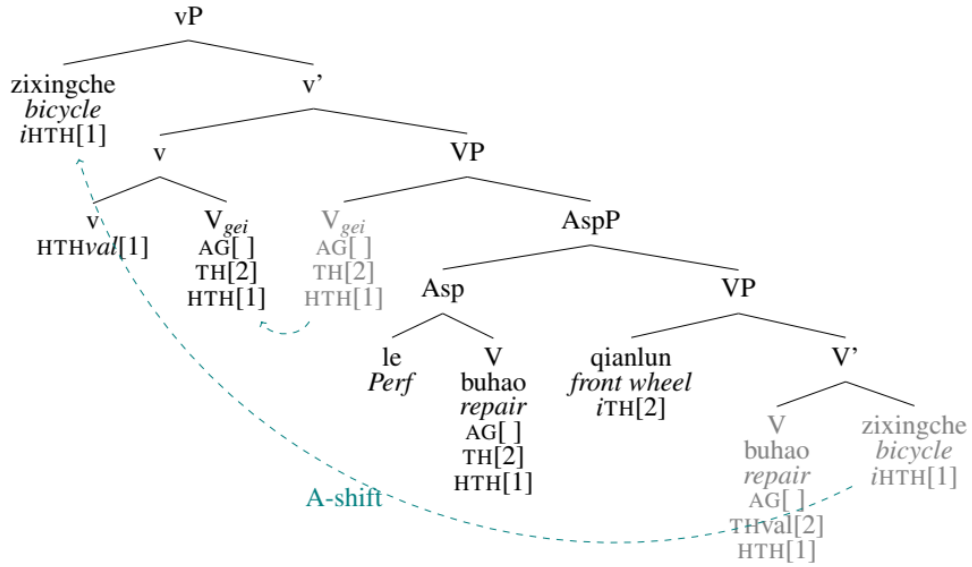
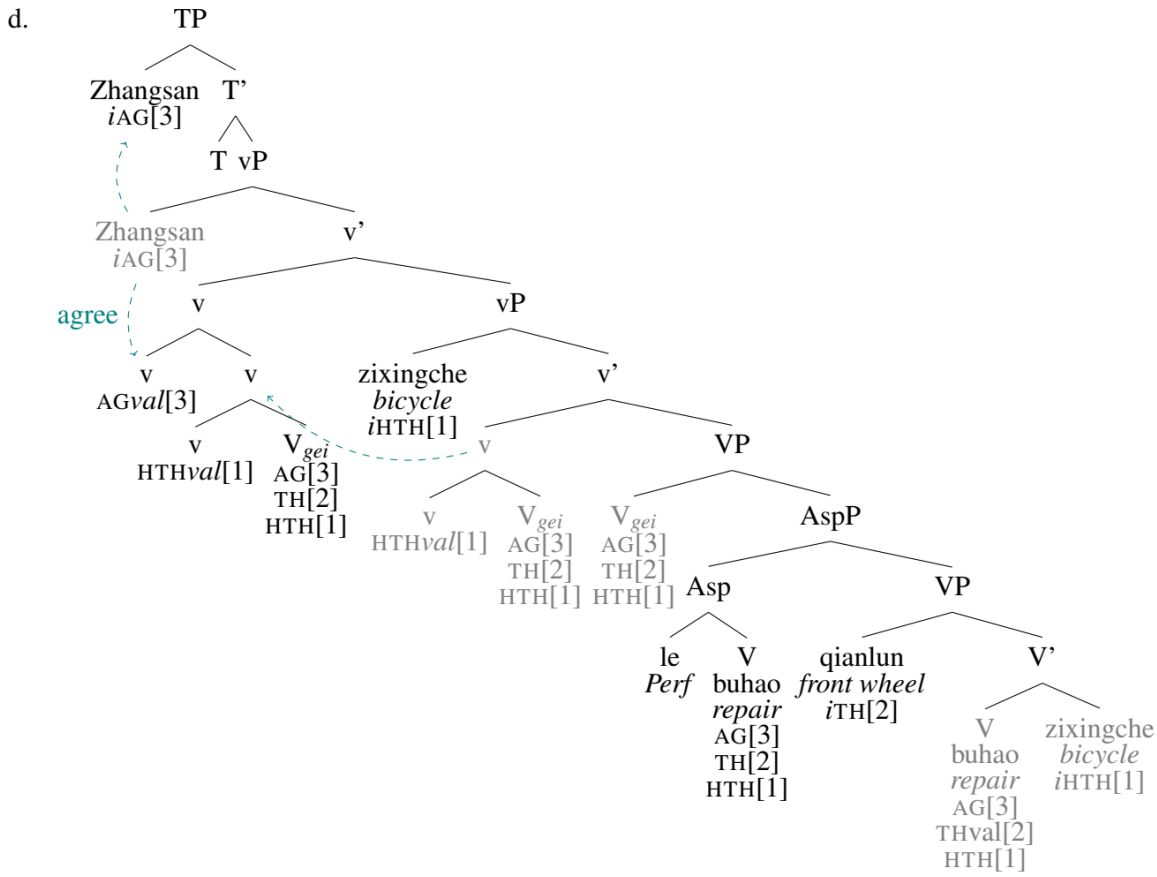


c.



d.



A shell structured VP is constructed first in a similar fashion to DOC structures (34a); (34b), (34c) and (34d) show the merge of V_{gei}, applicative shift motivated by *v* valued for HTH and the merge of AGENT respectively, similar to the derivation of SOV. In terms of case, assume that V_{gei}, unlike V_{ba}, assigns case, *qianlun "front wheel"* receives case from V_{gei}, *zixingche "bicycle"* receives case from AGENT-introducing little *v*, and *Zhangsan* gets case from T head.

4. Prediction and consequences

With the θ-feature checking system and the applicative shift analysis, we are able to correctly derive the word order of both SOV and SOVO and at the same time block non-canonical SOVs. In this section, I discuss predictions the proposed analysis makes on word order among SOVOs.

First, recall that we stipulated that only the THEME-feature is always valued whenever present on the verb. All other θ-features need a valued instance introduced by voice head *v* to be surface legible. This predicts that THEME is never fronted while other θ-roles could have free orders. This seems to be true. Li (2014) and Larson (2015) note

that it is possible to freely order LOC and TEMPORAL as shown in (35). On the other hand, (36) shows that fronting a true THEME dramatically decreases the grammaticality of the sentence:[2]

(35) a. Zhangsan lubiantan mai wanshang.
Z. street.stall sell evening
LOC TEMPORAL
b. Zhangsan wanshang mai lubiantan.
Z. evening sell street.stall
TEMPORAL LOC
'Z. sells in the street stall in the evening.'

(36) a. Zhangsan [zheba dao] qie [rou].
Z. this.CL knife cut meat
INST THEME
'Z. cuts meat with this knife.'
b. *Zhangsan [zheba dao] [rou] qie.
Z. this.CL knife meat cut
INST THEME
c. ??Zhangsan [rou] [zheba dao] qie.
Z. meat this.CL knife cut
THEME INST

Second, the proposed analysis requires movement, specifically, applicative shift, which is a case of A-movement. This predicts A-property of the moved objects, which appears to be correct. Shyu (1995), Shyu (2001) note that object preposing is clause-bound, as shown in (37):

(37) a. Zhangsan [zixingche]$_i$ xiuhao le t_i
Z. bicycle fix Perf
'Z. fixed the (a) bicycle.'
b. *Lisi [zixingche]$_i$ renwei Zhangsan xiuhao le t_i
L. bicycle think Z. fix Perf

[2] For cases like i:

i. Niuroumian chi dawan.
Beef.noodle eat big.bowl

I assume that *dawan* is THEME rather than INST. In a situation where one is eating from a big bowl of beef noodle, using a small bowl, the above sentence is still true while the true INST use of *dawan* (ii) would be false:

ii. #niuroumian yong dawan chi.
Beef.noodle use big.bowl eat
'Eat beef noodles with big bowls.'

Int. 'L. thought that Z. fixed the (a) bicycle.'

Also, the preverbal object in SOVO sentences is able to license a reciprocal, suggesting that the landing site is an A-position, as shown in (38):

(38) Zhangsan [zixingche lunfu] tiaozhenghao le [bici] de jianju.
Z. bicycle spoke adjust Perf each.other DE distance
'Z. adjusted the distance between the spookes of the (a) bike.'

5. Conclusion

In this paper, I extended the applicative shift analysis proposed in Larson (2014), Zhang and Larson (2016) to Mandarin SOV structures. Specifically, I argue that the interaction of θ-feature set on the predicate, two null *V* heads and the θ-features born by the arguments predicts different instance of SOV structures. The proposed analysis has a wider empirical coverage, while still having desirable predictions on syntactic properties of the structure.

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