

## Mandarin Intransitive Verbs and Their Objects at the Syntax-Information Structure Interface<sup>1</sup>

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This paper proposes a syntax-information structure interface account to the object-taking intransitive constructions in Chinese. On the basis of an analysis assumed in Huang (1990) and Wang (1965), we propose that there is an abstract verb, represented as HAVE, in the relevant constructions. We argue that this abstract verb can be realized as either an inner *v*P aspectual head selecting a VP as its complement or a lexical verb selecting a TP as its complement. It is assumed that if the abstract verb is merged with a VP projected from an unergative verb, then the sole argument of VP is the underlying subject of VP, which must be raised in accordance with the relevant verb raising if it is definite. It is claimed that the movement of the definite VP-subject to the clausal subject position is motivated by the partitioning of information as required by the information structure. Under this analysis, if the sole argument of VP is an underlying indefinite subject (as in the case of unergativity), it may stay within its VP-subject position and ultimately function as the object of the sentence after the verb is raised to HAVE, as its movement is not required by the partitioning of information. The present analysis relies crucially on the interaction between syntax and information structure. The key point is that the non-canonical order of arguments in the above well-formed structures is often a reflex of the informational status of the relevant NPs and their configurational properties.

### 1. Intransitive Verbs and Their Objects in Mandarin

It has been noted that in Mandarin Chinese some intransitive verbs can take objects like transitive ones, but they are not used as causative verbs when they take two arguments, deriving a SVO structure, as shown in (1b):

- (1) a. Wang Mian de fuqin si le  
Wang Mian DE father die ASP  
'Wang Mian's father died.'

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- b. Wang Mian *si* le fuqin  
 die ASP father  
 ‘Wang Mian lost his father.’

The intransitive verb *si* ‘die’ takes one argument in (1a), but two in (1b). Although it takes two arguments in (1b), it is not transitivized in the usual sense and thus exhibits fundamental difference from the causative verb in (2b) which may be considered as derived from the intransitive one in (2a) through a process of causativization.

- (2) a. Fan re le  
 rice hot ASP  
 ‘The rice is hot now.’  
 b. Wo qu re fan  
 I go hot rice  
 ‘I will go and heat the rice.’  
 (Teng 1974: 464)

In (2b) *re* ‘heat’ is a causativized verb and thus becomes transitive. However, in (1b) causativization does not occur with *si*, which is still used intransitively. It is unclear why the Chinese intransitive verb *si* ‘die’ can occur with both an object, its thematic argument, and an extra argument as its subject, which bears no thematic relation with it in (1b). Of course, not all intransitives can occur in the structure, as given in (1b). For instance, the sentence would become ungrammatical if the intransitive *si* is replaced by *bing* ‘ill’, as shown below:

- (3) \*Wang Mian *bing* le fuqin  
 ill ASP father  
 ‘Wang Mian’s father was ill.’

To account for the difference between (1b) and (3), different approaches have been proposed in the generative paradigm (cf. Li 1990; Tan 1991; Pan 1997; Pan and Han 2005; Xu 1999, 2001; Hole 2006; Huang 2007). From the perspective of split intransitivity, a reasonable hypothesis is to assume that only unaccusative verbs can occur in the structure, as shown in (1b) in Chinese. Assuming that intransitives can be split into unaccusatives and unergatives (Perlmutter 1978; Burzio 1981, 1986; Belletti 1988; Levin and Rappaport 1995), then we may label *si* as an unaccusative and *bing* as an unergative. If the different syntactic behavior of the two verbs is assumed to root in their unaccusative-unergative distinction, then the acceptability difference between (1b) and (3) can be accounted for. Following this line of analysis, we may say that the acceptability difference between (1b) and (3) does not lie in the possible occurrence of the extra argument in their respective structures since both (1b) and (3) are external possessive sentences with an extra possessor argument, but in the possibility of the inversion between the verb and its sole argument in syntax. That is, the sole argument of

the unergative verb cannot occur in the object position. Unaccusatives can have its sole argument placed in the object position because it originates in the object position in underlying structure. Hence, the issue raised with the unaccusativity is not why its sole argument can occur in the object position, but why it need not move to the surface subject position in some cases, exhibiting surface unaccusativity (Levin & Rappaport 1995). Huang (2008) claims that the postverbal argument in (1b) need not move to the subject position in modern Chinese because modern Chinese TP does not have [+EPP] feature. What is more, since in Chinese all verbs can assign an inherent Case in addition to their structural Case, the sole argument of *si* in (1b) can get an inherent Case at its underlying object position.

Although the unaccusative-unergative distinction account may shed some light on our understanding of a number of issues related to the so-called surface unaccusativity phenomenon, it alone, however, may not solve all the problems pertaining to the argument inversion. For instance, the unaccusativity analysis will inevitably run into problems when accounting for the acceptability of the following sentence:

- (4) Wang Mian jia bing le yi-ge ren  
 Wang Mian home ill ASP one-CL person  
 ‘A person was ill at Wang Mian’s home.’  
 (Shen 2006: 295)

## 2. A Syntax-Information Structure Interface Account

The above discussion shows that the problematic issues raised by the Mandarin object-taking intransitive constructions cannot be simply explained away by the unaccusativity account. In this section, we show that it is the interaction between syntax and information structure that determines the possible derivation of the relevant constructions. Our account consists of two parts. In the first part, we postulate an aspectual light verb for the constructions under discussion, and in the second part, we show how information structure plays a role in the ordering of arguments in syntactic structures.

We propose that there is an abstract light verb HAVE expressing the meaning of EXIST in the relevant constructions, which can be realized either as an aspectual verbal suffix or as an overt raising verb, be it an unaccusative or unergative structure. We assume that the aspectual light verb in Chinese always selects a VP as its complement, and in case there is an agentive light verb *v* which projects a *v*P above VP, the aspectual light verb will occur inside this *v*P projection. In this case, there will be two layers of light verb projections, with the aspectual light verb heading a lower *v* projection below the agentive *v*P, but above the VP. In case no agentivity is involved and thus there is no agentive *v*, then the aspectual light verb itself heads a single *v*P projection. Under this analysis, the abstract verb HAVE is realized as an aspectual verbal suffix *-le* if it occurs below an agentive *v*P and is adjoined by a lexical verb. We argue that the abstract verb HAVE can also occur as an overt raising verb, which is realized as *YOU* ‘have’ if it

selects a TP as its complement (cf. Huang 1990). On this analysis, (1b) may have an underlying structure as follows:

(5) [TP e [<sub>VP</sub> [<sub>V'</sub> HAVE [<sub>VP</sub> si fuqin]]]]

The function of this abstract verb HAVE is to assert the existence of an event/state denoted by its VP complement (cf. Huang 1987, 1990). In case this abstract verb is merged with an unaccusative VP such as the one given in (5), the VP head will be raised to the abstract verb HAVE, which is realized as *-le* (cf., Wang 1965) after the raised verb is head-adjoined to it.

(6) Wang Mian [<sub>VP</sub> [<sub>V'</sub> si-le [<sub>VP</sub> ~~si~~ fuqin]]]

In (6), the sole object argument of VP need not move, given that Mandarin can be viewed as a surface unaccusative language. The reason why surface unaccusativity can occur in Mandarin Chinese so as to produce a structure like (6) above is still a puzzle in theoretical analysis. The usual way to account for this postverbal phenomenon is to resort to the theory of Case. However, we think that the above structure should be better viewed as resulting from the interaction of syntax with the partitioning of information. In the underlying syntactic structure, the sole argument of the unaccusative construction occurs postverbally. Hence, it is thematically licensed at its object position. In the information structure, the postverbal NP carries new information. If the sole argument of the unaccusative remains in its postverbal position in the surface structure, then its staying in-situ might be required by the partitioning of information. Xu (1999) argues that the sole argument of the unaccusative verb receives an inherent partitive Case. However, such a partitive Case account may encounter problems in accounting for the following sentence (cf. Pan and Han 2005):

(7) Wang Mian diao le suoyou de yachi  
 Wang Mian fall ASP all DE tooth  
 ‘Wang Mian has all of his teeth fallen.’

In (7) the postverbal NP cannot be accounted by the partitive Case account, though it can be easily accounted for in a theory of information structure since it, though non-indefinite, conveys new information in the postverbal position. Huang (2008) argues that TP in Chinese lacks [+EPP]. If this analysis is adopted, then the optional movement of the postverbal NP to the clausal subject position may not be motivated by syntax. We assume that its movement may be motivated by the partitioning of information. The underlying object of the unaccusative verb will move to the preverbal position only if it is assigned the [+Specific] feature, as will be detailed below. We further assume that the sentence-initial NP in (6) actually occupies a non-thematic subject position provided by TP. Of

course, the non-thematic subject position in (6) can also be filled by the thematic argument of the predicate, as shown below:

(8) [<sub>TopP</sub> Wang Mian [<sub>TP</sub> fuqin [<sub>VP</sub> [<sub>v'</sub> si-le [<sub>VP</sub> ~~si fuqin~~]]]]]

In (8) the possessor of the argument of the predicate is assumed to occupy the topic position under the present analysis. Since it is not syntactically related to the predicate in question, it should be analyzed as a dangling topic (cf. Pan and Hu, in press).

Different from (1b), (3) is ungrammatical. We assume that in (3) there is also an abstract verb HAVE, which is merged with a projection associated with the unergative verb. The difference between (1b) and (3) lies in the fact that the sole argument of the verb in (3) is the underlying subject, but not the object, of the predicate. Notice that the unergative verb *bing* 'ill' is a stative verb. On an analysis discussed in Hale and Keyser (2002), one may assume that stative verbs have a structure like the one below:

(9) [<sub>P</sub> D [<sub>P</sub> [D ]]]

But in this paper, a more traditional analysis of stative verbs will be adopted. We assume that stative verbs have the following structure in Chinese:

(10) [<sub>VP</sub> NP [V [N ]]]

In (10) N provides the phonological content for the stative while V, besides projecting the categorial feature, relates the stative with its subject through predication.<sup>2</sup> Under the present analysis, the difference between stative unergative verbs and active unergative verbs lies in the fact that active unergative verbs have a light verb *v* expressing the notion of agentivity whereas such a light verb is lacking in the projection of stative unergative verbs. As stative unergative verbs head a VP projection, the light verb HAVE can be merged with this projection. Under this analysis, (3) may have an underlying structure below:

(11) Wang Mian [<sub>VP</sub> e [<sub>v'</sub> HAVE [<sub>VP</sub> fuqin [<sub>v'</sub> V [N bing]]]]]

To derive (3), *bing* will first move to V in (11) and then the *bing*-V complex will move to the light verb HAVE, as shown below.

(12) [<sub>TopP</sub> Wang Mian [<sub>TP</sub> e [<sub>VP</sub> e [<sub>v'</sub> bing-V-le [<sub>VP</sub> fuqin [<sub>v'</sub> ~~bing-V~~ [N ~~bing~~]]]]]]]

<sup>2</sup> V in statives may be viewed as a relator as defined in Dikken (2006), which we assume may relate N in the stative with a subject as in (10).

In the above structure *fuqin* ‘father’ originates in the [Spec, VP] position. Assume that a DP with a zero D will be assigned the feature [+Specific] when occurring in the [Spec, VP], i.e., the predicate-internal subject position.<sup>3</sup> Let’s further assume that the predicate-internal subject must be raised to the sentence-level subject position in accordance with the raising of the relevant verb if it has a feature [+Specific]. The raising of the predicate-internal subject to the clausal subject position might be required by the EPP feature. However, if it is really the case that the TP in Chinese lacks an EPP feature, as claimed by Huang (2008), then its raising might not be motivated by EPP. Let us assume that the raising of the predicate-internal subject is not motivated by EPP, but by the partitioning of information, as required by the information structure. If this is the case, then the ungrammaticality of (3) might result from the fact that the VP-internal subject in (3), as a specific NP, fails to move to the sentence subject position to satisfy the relevant requirement imposed on it by the information structure. If it meets the condition imposed on it by the information structure and moves to the clausal subject position, it will derive a sentence like *Wang Mian fuqing bing-le*. To capture this generalization, we may stipulate the following condition to account for the fact that the predicate-internal subject with a [+Specific] feature in Mandarin must move to the clausal subject position.

- (13) A predicate-internal subject with the feature [+Specific] must move to the clausal subject position to satisfy the requirement of information structure in the partitioning of information.

Notice that in (12) *Wang Mian* is placed at the topic position rather than the subject position. Also as noted earlier, the sentence given in (4), different from the one in (3), is grammatical, though it also involves the use of the unergative verb *bing*. We assume that (4) is derived through a process like the one given below:

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<sup>3</sup> An NP with a zero D is syntactically defined as specific in subject positions, be it a clausal subject or a VP subject. It is reasonable to assume that the subject position can license a zero D as specific as it has a strong topic feature. This is the reason why an NP with a zero D appearing in a subject, but not object, position must be interpreted as specific. For instance, in the following example, the NP with a zero D must be interpreted as specific when occurring in the subject position:

- (i) Keren lai le  
 guest come ASP  
 ‘The guests have come.’

Since [Spec, VP] is a subject position, *fuqin* ‘father’ in this position in (12) will be assigned the feature [+Specific]. Once this feature is assigned, it should be preserved. To be in harmony with the information structure so as to facilitate the partitioning of information, the VP subject must move to the clausal subject position after the raising of the verb. However, if it does not move to the clausal subject position in overt syntax, it cannot have an adequate interpretation since, as a specific NP, it is arranged in an order that does not conform to the information structure.

- (14) Wang Mian Jia [<sub>VP</sub> [<sub>v</sub>' bing-le [<sub>VP</sub> yi-ge ren [<sub>v</sub>' ~~bing~~]]]]  
 Wang Mian home ill ASP one-CL man  
 'A person was ill at Wang Mian's home.'

In (14), the verb *bing* moves to *v* through the head-to-head movement, and the VP-internal subject stays in-situ. (14) differs from (3) in that its predicate-internal subject is non-specific in reference. Since it is non-specific, it does not need to move to the clausal subject position. Hence, no violation of the condition (13) occurs. In this case, it may stay within its predicate-internal position and ultimately function as the object of the sentence after the verb is raised to HAVE, as its movement is not required by the partitioning of information.

Although an unergative stative verb such as *bing* may sometimes precede its sole argument in a structure like (14), an unergative activity verb like *xiao* 'laugh' cannot occur before its argument as shown below.

- (15) \*Wang Mian Jia xiao-le yi-ge ren  
 Wang Mian home laugh ASP one-CL man  
 'A person laughed at Wang Mian's home.'

Following Hale and Keyser (2002), we assume that the active unergative verb *xiao* 'laugh' has a lexical structure like the following:

- (16) [<sub>v</sub> V [<sub>N</sub> xiao ]]

Under Hale and Keyser's (2002) analysis, the actual verb is derived by conflation, which introduces the phonological matrix of the N complement into the empty matrix of the head V. Hale and Keyser (2002) further assumes that active unergatives lack a specifier. On this analysis, active unergatives may not have an external argument associated with the verb per se. Let us assume the external argument of an active unergative structure is licensed by a functional category generated above VP (Marantz 1984; Kratzer 1996; Collins 1997). Let us further assume that this functional category is an agentive light verb *v* (Chomsky 1993; Hale and Keyser 1993). If the abstract verb HAVE occurs inside *v*P, as proposed in this paper, then we have two light verbs in (15): one is the agentive outer verb and the other is the aspectual light verb. The underlying structure of (15) can be represented as (17) below:

- (17) [<sub>TopP</sub> Wang Mian Jia [<sub>TP</sub> e [<sub>VP</sub> yi-ge ren [<sub>v</sub>' v [<sub>v</sub>' HAVE [<sub>v</sub> V [<sub>N</sub> xiao ]]]]]]]]]

Starting from (17), the following derivations might apply:

- (18) a. [<sub>TopP</sub> Wang Mian Jia [<sub>TP</sub> e [<sub>vP</sub> yi-ge ren [<sub>v'</sub> v [<sub>v'</sub> HAVE [<sub>V</sub> xiao-V [<sub>N</sub> ~~xiao~~ ]]]]]]]]]  
 b. [<sub>TopP</sub> Wang Mian Jia [<sub>TP</sub> e [<sub>vP</sub> yi-ge ren [<sub>v'</sub> v [<sub>v'</sub> xiao-V-le [<sub>V</sub> ~~xiao-V~~ [<sub>N</sub> ~~xiao~~ ]]]]]]]]]

In (18a), *xiao* ‘laugh’ moves to V, and then in (18b) the *xiao-V* complex moves to the functional head *v*, i.e., HAVE, which is realized as *-le* after it is head-adjoined. The outer light verb *v* represents the originator of the event, which can be viewed as the source of the activity reading associated with the active unergative verb *xiao*. The inner light verb heads an aspectual projection. The structures given in (17) and (18) show that there is no way to derive a surface structure like (15). To derive (15) the *xiao-V-le* complex must move to a position preceding the [Spec, *vP*], but such a position is not available as shown in (18). Notice that in (18) there is a T projection, which might make one wonder what factors can prohibit the *xiao-V-le* complex from moving to it so as to derive the surface structure, as shown in (15). We think that the *xiao-V-le* complex cannot move to T in this instance since it has been argued by many researchers that V-to-T movement does not exist in Mandarin Chinese (cf. Tang 2001). In a word, (15) is ungrammatical because there is no possible legitimate way to derive it. One may also wonder if it is possible to insert a raising verb HAVE into (18b) so as to derive (15), as shown below:

- (19) [<sub>TopP</sub> Wang Mian Jia [<sub>TP</sub> e [<sub>T'</sub> HAVE [<sub>TP</sub> e [<sub>vP</sub> yi-ge ren [<sub>v'</sub> v [<sub>v'</sub> xiao-V-le [<sub>V</sub> ~~xiao-V~~ [<sub>N</sub> ~~xiao~~ ]]]]]]]]]]]

One may think that in (19) the *xiao-V-le* complex can move to the matrix HAVE so as to derive (15). However, such a head movement is illicit since it violates the locality condition imposed on it by the clausal boundary. In addition to the violation of the locality condition, the assumed movement can also be excluded by a prohibition against the raising of a lexical verb to a raising verb. Following Huang (1990), we assume that HAVE in (19) is a raising verb which selects a TP as its complement. Since the movement of a lexical verb to a raising verb in overt syntax is generally prohibited, the assumed movement of the *xiao-V-le* complex to HAVE in (19) cannot derive a grammatical sentence. The only legitimate output for (19) to generate is a string like the following:

- (20) Wang Mian Jia you yi-ge ren xiao-le  
 Wang Mian Jia have one-CL person laugh-ASP  
 ‘There is a man laughing at Wang Mian’s home.’

In (20) HAVE is realized as *YOU*, which is a raising verb selecting a clause as its complement. The above analysis shows that (4) and (15) have different syntactic structures, which



can help account for their difference in acceptability. However, if we extend our analysis of (4), as shown in (14), to the following sentence, problems arise.

- (21) ??Wang Mian bing-le yi-ge ren  
 Wang Mian ill-ASP one-CL man  
 ‘Wang Mian had a person who was ill.’

Different from (4), (21) is less acceptable. The sentence-initial element in (21) is an NP rather than a locative phrase, as in (4). One possible way to account for the acceptability difference between (4) and (21) is to say that the locative phrase in (4) is part of the argument structure of the verb in question, as it has a locative role, while the name in (21) is not part of the argument structure. However, such an account may fail to explain why the following sentence becomes acceptable, though its sentence-initial element is not a locative phrase.

- (22) Wang Mian bing-le yi-ge gongren  
 Wang Mian ill-ASP one-CL worker  
 ‘Wang Mian had a worker who was ill.’

The above sentence can be understood in a scenario in which *Wang Mian* is a boss who has several workers working for him. In this scenario, the use of (22) will be felicitous if one of his workers is sick and thus cannot work at the moment of speaking. Since (22) is acceptable, the acceptability difference between (4) and (21) may not lie in their difference in argument structure. We think that their difference lies in the licensing of the topic. The sentence-initial element in (4) can naturally function as a topic since, as a locative phrase, it can be used to delimit the space in which an event may occur, whereas the sentence-initial element in (21) needs some licensing if it is intended to be interpreted as a topic. The sentence-initial element in (21) is a dangling topic, which cannot be licensed by a syntactic variable, as it is not available. The only possible way for it to be licensed is to seek some semantic variable (Pan and Hu, in press). To establish a possessive relationship between the dangling topic as the possessor and some NP in the sentence as the possessum is a possible way to provide a semantic variable to license the dangling topic. Since such a variable can be easily accommodated in (22), (22) is acceptable. Since such a variable cannot be easily accommodated in (21), (21) does not have a natural interpretation. Notice that the acceptability difference between (21) and (22) is still there even if their postverbal arguments are fronted to the preverbal position.

- (23) ??Wang Mian, yi-ge ren bing-le  
 Wang Mian one-CL man ill-ASP  
 ‘Wang Mian had a person who was ill.’

- (24) Wang Mian, yi-ge gongren bing-le  
 Wang Mian one-CL worker ill-ASP  
 ‘Wang Mian had a worker who was ill.’

The above examples involve double-nominative constructions. In these constructions, the two preverbal NPs can be linked by a linker –DE. However, low acceptability remains when the two preverbal NPs in (23) are linked by –DE. The difference between the following two sentences shows that the low acceptability of (21) does not result from syntax.

- (25) ??Wang Mian de yi-ge ren bing-le  
 Wang Mian DE one-CL man ill-ASP  
 ‘One of Wang Mian’s men was ill.’

- (26) Wang Mian de yi-ge gongren bing-le  
 Wang Mian DE one-CL worker ill-ASP  
 ‘One of Wang Mian’s workers was ill.’

### 3. Conclusion

In this paper we have discussed under what condition an intransitive verb may precede its sole argument, appearing in a non-canonical order. The idea is that the inversion between the intransitive verb and its argument is determined by the postulation of an abstract verb HAVE and the interaction of syntax with information structure. The key point is that the non-canonical order of the intransitive verb and its argument in the well-formed intransitive structures is often a reflex of the informational status of the relevant NPs and their configurational properties.

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