On the Syntax of Dynamic Verbs in Mandarin Chinese

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Abstract   Various approaches have been proposed to account for both the atelic and telic readings of a Chinese sentence containing an accomplishment verb when it is modified by the perfective aspect. In this paper, I contribute to the debate by providing a syntactic account, as many studies have indicated that recent linguistic work has demonstrated that syntactic operations are sensitive to the properties of different aspectual verb classes. Specifically, I demonstrate how different types of direct objects may impact the telicity of a sentence and show how this difference is reflected in the syntax. I assume that the computation of telicity is within the functional phrase between vP and VP. Under a spec-head relationship between the verb and the direct object, a sentence has a telic reading when the direct object contains a [+SQA] feature; in contrast, a sentence has an atelic reading when the direct object has a [-SQA] feature.

Keywords   Telicity, Inner Aspect Phrase, Aspectual Verb Types, Chinese Telic Events

1. Introduction

Aspectual verb classes are used to refer to aktionsart,[1] situation aspect, or event types in the literature. According to Vendler [1], verbs can be generally grouped by their aspectual properties into four classes: activity, state, accomplishment, and achievement. Verbs can be further divided into two subgroups: telic verbs include accomplishment and achievement, and atelic verbs include activity and state.

However, as argued by Verkuyl [2,3], aspectual verb classes are a compositional property of a sentence, not a property of verb meaning *per se*; thus, in addition to the verb itself, other elements in the same sentence also contribute the computation of telicity. For example, in some languages, the quantity or the specificity/definiteness of the direct object determines the telicity of a sentence ([1-9]); among many others) as (1) demonstrates:

(1)　a.　John wrote a letter in 3 minutes.　　(telic)
　　　b.　John wrote the letters in 3 minutes.　(telic)
　　　c.　John wrote letters for 3 minutes.　　(atelic)

As shown, a sentence having a quantized direct object, such as 'a letter' in (1a), or a definite object, such as 'the letters' in (1b), has a telic reading; in contrast, a sentence that contains a non-quantized direct object, such as 'letters' in (1c), has an atelic reading. Although the three sentences in (1) all contain a verb phrase, (1a) and (1b) are grouped into sentences containing an accomplishment verb, while (1c) is a sentence containing an activity verb.

However, it has been claimed that Mandarin Chinese[2] is a type of atelic language in which the telicity of similar sentences is underspecified (e.g., [10-14]). (2), taken from Tai [12], provides a demonstration: [3,4]

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[2] I use Chinese to refer to Mandarin Chinese in this paper unless specified otherwise.

[3] Abbreviations: PRF: the perfective aspect marker; CL: classifiers; BA: the preposition *ba*. EXP: experiential aspect

[4] Whether the two sentences in (2) are acceptable remain controversial. As one reviewer has pointed out, they are not acceptable to some native speakers of Mandarin Chinese. This is similar to native English speakers' judgements on the telicity of different types of dynamic verbs. For example, Smollett [24] indicates that most speakers in her study allow only a telic reading in (i) and (ii):

(i) Kathleen ate an apple? for a couple of minutes. (Smollett [24], p:49)
　　　　　　　　　　in a couple of minutes.
(ii) Kathleen built a house? for a month.　　　(Smollett [24], p:49)
　　　　　　　　　　in a month.

However, it is possible for the same verb (phrase) to have an atelic reading for the same speakers if a proper context is provided as demonstrated in (iii) and (iv) below:

(iii) Kathleen ate an apple for a couple of minutes while talking on the phone. (Smollett [24], p:50)
(iv) Steven built a Lego tower for three hours. (Smollett [24], p:50)
The pheromone presented above suggests that the judgmental difference regarding the telicity of dynamic verbs also can be found in a different language and it is not an isolated incident for Mandarin Chinese.
Also, a recent study by Huang [25] claims that an 'incremental theme' verb such as *write* in English, with a definite object, has a telic reading and can be modified by the adverbial *in 30 minutes* as (v) shows. However, in a sentence that contains the verb's Chinese counterpart *xie* is not

(2) a. Wo zoutian xie-le   yi feng xin,
       I yesterday write-PRF one CL letter
       keshi mei xie-wan.
       but not write-finish
       'I wrote a letter yesterday, but I didn't finish it.'
   b. Wo zuotian hua-le   yi zhang hua,
       I yesterday draw-PRF one CL painting
       keshi mei hua-wan.
        but not paint-finish
       'I drew a painting yesterday, but I did not finish it.'

As shown, different from English, the two verb phrases 'write a letter' and 'draw a painting' in (2) may not imply the attainment of the goal when being modified by the perfective aspect; therefore, the two clauses in both sentences are not contradictory to one another.

Previous studies have provided different accounts of the phenomenon presented above. Several scholars argue that the difference between Chinese and English is due to variation in the aspectual verb types that are available in one language. Tai [12], for example, claims that Chinese does not have real accomplishment verbs; therefore, a result denoting element such as the word *wan* 'finish' must be added immediately after the verb to form a compound

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compatible with the adverbial *zai 30 fenzhong nei* '(with)in 30 minutes as (vi) demonstrates. In order for the sentence to have a telic reading, and be modified by the same temporal adverbial, the telic morpheme -*wan* must be added as (vii) shows:
(v)   John wrote the letter in 30 minutes.   (Huang [25], p:7)
(vi)   *Zhangsan zai 30 fenzhong nei, jiu xie-le   na feng xin.
        Zhangsan at 30 minute in then write-Prf that CL letter
(vii) Zhangsan zai 30 fenzhong nei, jiu xie-wan-le   na feng xin.
       Zhangsan at 30 minute   in then write-finish-Prf that CL letter
       'Zhangsan finished writing the letter in 30 minutes.'

According to Huang, the above sentences demonstrate that Chinese action (dynamic) verbs are atelic by themselves, though they may be telitcized by means of compounding or phrasal combination.
Finally, I would like to point out that grammaticality judgement on other constructions in Mandarin Chinese sometimes shows variations as well. For example, the grammaticality judgements on a sentence containing the experiential -*guo* are inconsistent among native speakers. The sentence in (viii) gives an example that contains this construction:
(viii) a. Wo qu-guo Shaolin si.
          I go-EXP Shaolin temple
      b. Wo you qu-guo   Shaolin si.
          I   have go-EXP Shaolin temple
       Both sentences: 'I've been to Shaolin Temple (at least once before).'

As (viiia) shows, the suffix -*guo* appears immediately after a verb and it indicates that the event denoted by the verb has been experienced with respect to some reference time. However, there is an alternative form that is shown by (viiib). The auxiliary verb *you* 'have' may be added before the verb expressing the same meaning. While most speakers from Southern China and Taiwan accept (viiib), the majority of the speakers from Northern China do not. This is similar to the phenomenon that some speakers accept (2) while other don't. In this paper, my main purpose is to account for the syntactic structure of those sentences, having both telic and atelic readings, which are acceptable for a certain group of speakers. For those speakers who do not accept the atelic reading of the discussed sentences, it is perhaps due to various dialects of Mandarin spoken by them.

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for a sentence to have a telic reading. Other scholars, such as Smith [13] argue that the perfective aspect in Chinese, expressed by the verbal suffix –*le*, differs from English in that this aspect signals termination but not completion.

However, both Tai's [12] and Smith's [13] approaches have been called into question. For example, Peck et al. [15] demonstrate that Chinese does in fact have accomplishment verbs, providing several examples. Additionally, Soh and Kuo [16] indicate that, in some cases, a telic reading is not available for sentences containing an accomplishment (e.g., *zuo-le yi ge dangao* 'made a cake'). Therefore, these authors claim that Chinese does in fact have accomplishment verb (phrases). In particular, the determination of the telicity is not at the verb level, but rather at the verb phrase level. This argument is in concord with previous studies that have argued for the contribution of the direct object to the telicity of a sentence (e.g., the English data presented in (1) above).

In this study, I contribute to the debate by giving a detailed analysis of aspectual verb classes in Chinese. Specifically, I give a syntactic account, as many studies, such as Rosen [17] and Travis [11], have argued that recent linguistic work has demonstrated that syntactic operations are sensitive to the properties of different aspectual verb classes. In particular, it has been argued that it is the functional categories within the extended projection of the predicate that encode the telic information. For example, Travis [11] argues that there is a functional phrase (i.e., the Inner Aspect Phrase) projected between vP and VP and that the object delimiting or measuring an event moves out of its base-generated position to this functional phrase. As we have seen, the semantic properties of Chinese noun phrases act differently with regard to their contributions to the telicity of a verb; I will show how this difference is reflected in the syntax.

This paper is organized as follows. After providing an introduction in section 1, I present some Chinese data showing the atelic reading of accomplishment verbs. In section 3, I present the theoretical background of this study. In section 4, I give a syntactic account of the Chinese data presented in section 2. Finally, in section 5, I provide a summary and present the study's conclusions.

2 Atelic Reading of Accomplishment Verbs in Chinese

As presented in section 1, accomplishment verbs (or verb phrases), such as *xie yi feng xin* 'write a letter' and *hua yi zhang hua* 'draw a painting' in (2), have both telic and atelic readings in Chinese when being modified by the perfective aspect. (3) provides an additional example:
(3)   Zhangsan sha-le Lisi liang ci,   Lisi dou mei si.
      Zhangsan kill-PRF Lisi two time Lisi all not die
      'Zhangsan killed Lisi twice, and Lisi didn't die (during both incidents.)'

As demonstrated, although the word *sha* 'kill' is an

accomplishment verb, an atelic reading is allowed. To account for this phenomenon, Tai [12] argues that Chinese does not have real accomplishment verbs and that a result denoting element, such as -*wan* 'finish', must be added to the main verb for the sentence to have a telic reading, as (4) demonstrates:

(4) a. *Wo zoutian xie-wan-le   yi feng xin,
        I yesterday write-finish-PRF one CL letter
        keshi mei xie-wan.
        but not write-finish
        'I wrote a letter yesterday, but I didn't finish it.'

   b. *Wo zuotian hua-wan-le   yi zhang hua,
        I yesterday draw-finish-PRF one CL painting
        keshi mei hua-wan.
        but   not paint-finish
        'I drew a painting yesterday, but I didn't finish it.'

As shown, with the word *wan* 'finish' appearing immediately after the verb in both sentences, an atelic reading is not possible. However, the issue of whether Chinese has accomplishment verbs remains controversial. For example, Peck et al. [15] demonstrate that Chinese does in fact have accomplishment verbs (multi-point close scalar verbs, in their terms). According to these authors, Chinese has some verbs that are accomplishments both semantically and syntactically. These verbs include motion verbs, such as *guo* 'to cross' and *hui* 'to return', and change of state verbs, such as *mai* 'to sell' and *mai* 'to buy'.

Differently from Tai [12], Smith [13] claims that the reason Chinese accomplishment verbs act differently from those in English is because these two languages have different perfective viewpoint aspects. According to Smith [13], Chinese perfective aspect, expressed by the suffix -*le*, only signals termination but not completion. This explains why (2) can have an atelic reading.

However, Soh and Kuo [16] call into question that Chinese does not have accomplishments verbs and that the perfective aspect in Chinese expresses only termination. Observe (5) below:

(5) a. *Ta zuo-le yi ge dangao,   keshi mei zuo-hao.
         he bake-PRF one CL cake but not bake-finish
         'He baked a cake but did not finish it.'

   b. *Ta zao-le   yi jian fangzi/ yi zuo qiao,
        he build-PRF one CL house/one CL bridge
        keshi mei zao-hao.
        but not build-finish
        'He built a house/a bridge but did not finish it.'

As shown, although both (5a) and (5b) contain a creation verb similar to those in (2), nevertheless, an atelic reading is not possible. Soh and Kuo [16] argue that this is due to the semantic property of the direct object of a creation verb (i.e., a created object). These authors claim that Chinese has two classes of creation objects: (a) No Partial Object (NPO), and (b) Allow Partial Object (APO). An NPO is a type of creation object that cannot be considered the relevant object until the process of creation has reached its inherent endpoint. For instance, *yi ge dangao* 'a cake' in a cake-baking event in (5a) cannot be considered a cake until the whole baking process is complete and there is a real cake as a result of the baking event. In contrast, an APO is a type of object that can be considered the relevant object before the inherent endpoint of the event is reached. Such objects as *yi feng xin* 'a letter' in (2a) and *yi fu hua* 'a painting' are two examples.

Thus, based on Soh and Kuo's [16] analysis, Chinese does in fact have accomplishment verbs/sentences, and the Chinese perfective aspect, the primary function of which is to indicate completion of a sentence containing a telic verb and termination of an activity verb, is similar to that of English.

In addition to creation objects, Soh and Kuo [16] also indicate that numeral and demonstrative objects act differently in a sentence with a dynamic verb that is modified by the perfective aspect. (6) Demonstrates the contrast:

(6) a. *Ta chi-le liang ge dangao, keshi mei chi-wan.
         he eat-PRF two CL cake but not eat-finish
         'He ate two cakes but did not finish them.'

   b. Ta chi-le na ge dangao, keshi mei chi-wan.
        he eat-PRF that CL cake but not eat-finish
        'He ate that cake but did not finish it.'

When a sentence such as (6a) contains a numeral noun phrase (*liang ge dandao* 'two apples'), the sentence has only a telic reading. This constraint is similar to that of a sentence containing an NPO. In contrast, a sentence such as (6b) that has a demonstrative object (*na ge dangao* 'that cake), an atelic reading is possible. According to Soh and Kuo [16], the difference in reading between these two types of sentences is due to the semantic properties of numerals and demonstratives. I will give more details in session 3 when presenting the theoretical background.

3 Theoretical Backgrounds

Following Smith [13], I assume that there are two types of aspect in nature language: situation aspect and viewpoint. Situation aspect concerns the telicity of an event, while viewpoint aspect concerns the perfectivity of a given sentence. I also follow such studies as Travis [10,11] and assume that both types of aspect are projected in the syntax. In this section, I provide the theoretical tools that are used in this study.

3.1 Semantics of Verb Classes

As I have presented in section 1, verbs can be generally grouped by their semantic properties into four classes: activity, state, accomplishment, and achievement. These verbs can be further divided into subcategories. For example, these verbs can be grouped into stative and dynamic verbs. Dynamic verbs include all types of verbs

except for stative ones. A stative verb is static; it occurs in time, but it does not take time. In contrast, dynamic verbs are continually subject to new input of energy [18].

Dowty [19] suggests several tests that can distinguish these two types of verb. For example, one test states that only dynamic verbs may naturally take the progressive aspect, as (7) shows:

(7) a. *John is knowing the answer. (State)
     b. John is running. (Activity)
     c. John is building a house. (Accomplishment)

A stative verb such as 'know' in (7a) does not take the progressive aspect. In contrast, an activity verb such as 'run' in (7b) and an accomplishment verb such as 'build a house' in (7c) are naturally compatible with the progressive aspect.[5]

These four classes of verb can also be divided into another two subgroups based on their telicity, which mainly concerns whether an event contains a natural endpoint [13]. For example, activity and state verbs are *atelic* as they do not have a natural endpoint. (8a) and (8b) represent an activity verb and a stative one, respectively:

(8) a. He ran last night. (activity)
     b. He knew the person. (state)

The 'running' event in (8a) can be interpreted as terminated, and the notion of completion is irrelevant. Pragmatically, it would be odd for someone to run forever, but the sentence itself does not entail the completion of the 'running' event. Similarly, in (8b) the event occurred before the utterance time, but it does not say whether the event holds at the current moment; therefore, it is felicitous to say *He knew the person and still knows him very well now* or *He knew the person but does not know him anymore*.

A useful test that can be applied to distinguish atelic and telic verbs is to examine the verbs compatibility with *for X-time* and *in X-time* adverbials. (9) Provides two examples including these two adverbials:

 (9) a. John walked to the park in an hour/*for an hour. (telic)
     b. John walked for an hour/*in an hour. (atelic)

According to Dowty [19], telic verbs permit the adverbial *in X-time* but not *for X-time*. (9a) demonstrates this property, but the situation is reversed for atelic verbs, such as the verb 'walk' in (9b), which permit *for X-time* but not *in X-time*.[6]

The properties of the object of a transitive verb may also affect aspectual interpretation in English (e.g., [2,3,5,6]), and we have seen several examples in (1) presented in section 1. The fact that the quantity of the direct object determines the telicity of a verb, as suggested by Verkuyl [2,3], is often identified as *Verkuyl's Generalization* in the literature. The generalization is summarized in (10):

(10) *Verkuyl's Generalization*:

Telic interpretation can only emerge in the context of a direct argument with the property α.

To capture the compositionality of aspect, Verkuyl [3] proposes that nouns contain the feature *Specified Quantity of A* ([SQA]), which can reflect either a positive or negative value. The feature [+SQA] is present if a noun is introduced by quantifiers, such as cardinal numbers, including *one*, *three*, *more than two but less than four*, or by a definite article, such as *the*. Similarly, verbs also include information on whether they can build on a telic eventuality. A lexical verb contains the feature [ADD TO]. For Verkuyl, this feature signals whether the verb contains a certain process, which is a consequence of a verb's denotation involving a certain dynamic. With a positive value, the verb may be partially responsible for a telic reading as the feature in the structural arguments is also responsible for the aspectual computation; however, the feature [-ADD TO] will cause an atelic reading without controversies. One major difference between the two sets of features is that [± SQA] are determined in the functional domain, whereas [± ADD TO] are determined by the lexical meaning of a verb. According to Verkuyl [2,3], for a verb (phrase) to be telic, both of the features [SQA] on the structural arguments and [ADD TO] on the verb must have a positive value. This is referred to as *The Plus Principle* and is illustrated by the telicity of the sentences in (11):

(11) a. John ate a sandwich.
         [+SQA] [+ADD TO] [+SQA] = [+Telic]
     b. John ate sandwiches.
         [+SQA] [+ADD TO] [-SQA] = [-Telic]
     c. John disliked a sandwich.
         [+SQA] [-ADD TO] [+SQA] = [-Telic]
     d. John disliked sandwiches
         [+SQA] [-ADD TO] [-SQA] = [-Telic]

In the examples above, the only telic sentence is (11a), in which all of the values are positive. With one minus value such as (11b) and (11c) or more than one such as (11d), the sentences are atelic.

However, as presented in section 2, the nominal system of Chinese acts differently from that of English, and Verkuyl's [SQA] feature on nouns in Chinese therefore needs a modification in order for us to account for the syntax of different types of dynamic verbs. Thus, following Soh and Kuo [16], I also assume the following rules in (12)

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[5] However, it is not the case that a stative verb can never take the progressive aspect. When the context allows, a stative event can be coerced into a dynamic one. According to Smith [13], when a stative event takes the progressive form (a *marked aspectual choice* in her term), it is more 'vivid' and has an emotional color that is lacking in neutral presentations of state. The sentence in (i) provides an example:
John was really liking the play [13, p.174].
[6] Note that the sentence *John walked to the park for an hour* has an iterative reading in which John walked to the park, left the park, walked to the park again and performed the same action for an hour. This

exemplifies the issue of *aspectual coercion*. See de Swart [20], Moens [21], and Travis [11] for relevant discussions.

when discussing the properties of nominal objects:[7]

(12) a. Chinese numerals may change [-SQA] to [+SQA]

    b. Chinese demonstratives may change [-SQA] to [±SQA]

(12a) states that a cardinal number such as *yi* 'one' or *liang* 'two' may change the [-SQA] feature to [+SQA]. In other words, a nominal object modified by a numeral may have only [+SQA] features. Moreover, (12b) indicates that a demonstrative (e.g., *na* 'that' and *zhe* 'this') can either change the [-SQA] feature on the noun phrase to [+SQA] or keep the minus value unchanged. In other words, a nominal object modified by a demonstrative in Chinese may have both [-SQA] and [+SQA] features.

3.2. Syntax of Verb Classes

I also assume in this study that the two types of aspect are projected in the syntax. Viewpoint aspect is syntactically projected in the functional domain above vP and situation aspect is projected inside the lexical domain. I follow such studies as Ritter and Rosen [9], Travis [10,11,23] and Slabakova [8], which have provided a syntactic account to the telicity of different types of verb. Despite some differences in their analyses, it is generally agreed by these scholars that there is a functional phrase that is responsible for the computation of telicity in the lexical domain. This functional phrase, the Inner Aspect Phrase, is syntactically situated between vP and VP and is semantically encoded with information about telicity. Therefore, I assume the syntactic structure in (13) below:

(13)
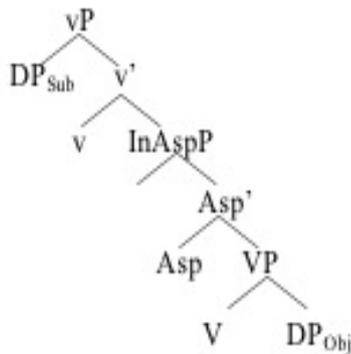
As shown, the functional phrase, Inner Aspect Phrase, is syntactically situated between vP and VP, and the computation of telicity is inside this functional phrase.

However, language uses different mechanisms to

compute telicity. For example, the telicity of languages such as English depends on the quantity or specificity of the direct object, as shown in (1). According to Slabakova [8], dynamic verbs such as accomplishment and activity verbs contain the feature [α telic]. For the feature to have a value, the quantity/specificity of the direct object plays an important role. The telicity of a verb is computed under a spec-head relation between the verb and the direct object. The verb first moves to the head of InAspP and then the object to the specifier of this functional phrase. The verb is given the value of [+telic] when the direct object has the feature [+SQA]; in contrast, the verb is assigned with a minus value when the object has the feature [-SQA]. After the verb is assigned a value, it further moves to little vP. Note that according to such studies as Tenny [5,6], it is the affected argument that delimits an event. In other words, those objects that delimit an event must be affected and undergo some sort of change of state over the course of the event.

## 4 Proposal and Analyses

4.1 On the Syntax of NPOs

In this subsection, I discuss the syntax of a sentence that contains a creation verb with a No Partial Object (NPO) discussed in Soh and Kuo [16]. As presented, a sentence containing this type of object can have only a telic reading when it is modified by the perfective aspect, regardless of what type of noun phrase the object may be.

I follow Slabakova's [8] and assume that dynamic verbs contain the feature [α telic], and that the feature is checked within the Inner Aspect Phrase between vP and VP. Given that the telicity of a dynamic verb is determined by the semantic properties of the direct object (if any), the value of the feature is determined by the direct object. In the spirit of Soh and Kuo [16], I propose that all NPOs contain an interpretable [$I_{nherent}$ $E_{ndpoint}$] ([IE]) feature, which states that the noun cannot be considered a 'real' object until the whole process of creation reaches its inherent endpoint. As discussed, unlike the other type of creation objects (i.e., the APOs) and consumption objects, the [SQA] feature of an NPO cannot be overridden by any functional phrases such as a demonstrative in the nominal domain (see the rules presented in (12)); therefore, this feature of must be encoded at the NP level. Thus, I claim that (14) has the structure in (15):

(14) Ta zuo-le liang/yi/na   ge dangao,

    he bake-PRF two/one/that CL cake

    keshi mei zuo-hao.

    but not bake-finish

    'He baked two/one/that cake(s) but didn't finish.'

(15)

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[7] Following Jackendoff [22], Soh and Kuo [16]. also discussed the [i] feature of the noun phrase, which indicates whether the entity has any inherent division into discrete members. However, this feature is irreverent to the current study and I did not include a discussion on this feature.
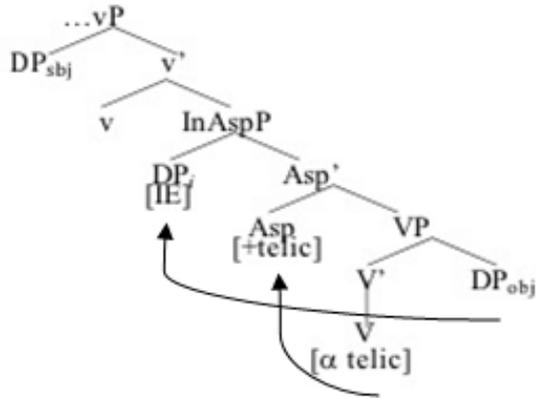
As (15) shows, dynamic verbs, such as *zuo* 'bake' in (14a) and *gai* 'build' in (14b), contain the [α telic] that needs to be valued; it first moves to the Inner Aspect Phrase, in which the telicity is computed. The direct object, with the feature [IE], then moves out of its base-generated position to the specifier of InAspP. I propose that under this spec-head relation, the verb receives the feature of [+telic] from the direct object with the feather [IE], and further moves to the little v. As the verb cluster further moves to the little v, the direct object appears after the verb although it has moved out of its merged position. Finally, given that the verb phrase is telic, the sentences in (14) are interpreted as telic.

4.2 On the Syntax of Other Types of Objects

In this subsection, I discuss the structure of other types of objects, including both APOs and consumption objects.

Recall that Soh and Kuo [16] observed sentences containing a creation verb with an APO can have both telic and atelic readings. This property is similar to a sentence that contains other types of verb such as a consumption verb (*chi* 'eat') selecting a demonstrative noun phrase (e.g., *na ge pingguo* 'that apple') as its argument. According to Soh and Kuo [16], a demonstrative noun phrase can have either [+SQA] or [-SQA] features ([±b] features in their terms). I argue that APOs also have the same features. That is, when an APO is modified by a demonstrative, both telic and atelic reading are available. Thus, I propose that sentences in (16) have the structure in (18a) and that sentences in (17) have the one in (18b):

(16) APOs and demonstrative objects with a telic reading

　　a. Zhangsan xie-le na feng xin,
　　　 Zhangsan write-PRF that CL letter
　　　　ranhou ba xin ji le.
　　　　then　BA letter send out LE
　　　　'Zhangsan wrote that letter and then sent it out
　　b. Zhangsan chi-le na ge pingguo yihou jiu likai le.
　　　 Zhangsan eat-PRF that CL apple after then leave PRF
　　　 'Zhang left after eating that apple.'

(17) APOs and demonstrative objects with an atelic

reading

　　a. Zhangsan hua-le na fu hua,
　　　 Zhangsan draw-PRF that CL painting
　　　 keshi mei hua-hao.
　　　 but not paint-finish
　　　 'Zhangsan drew that painting but didn't finishing
　　　　drawing it.'
　　b. Zhangsan chi-le na ge pingguo, keshi mei chi-wan.
　　　 Zhangsan eat-PRF that CL apple but not eat-finish
　　　 'Zhangsan ate that apple but did not finish eating it.'

(18) a.
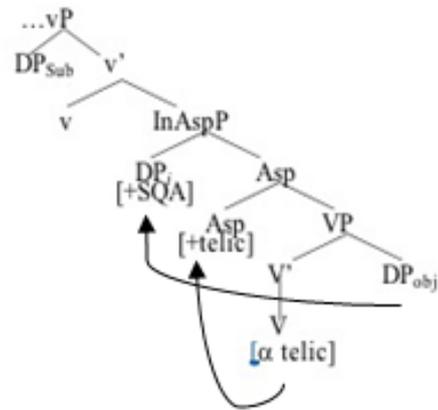
b.
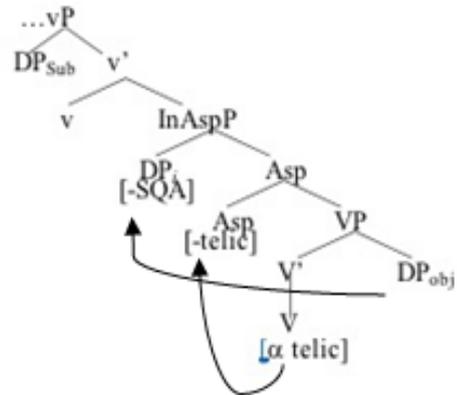
First, to account for the telic reading in (16), I argue that the direct object has a [+SQA] feature. This feature is projected in the demonstrative *na* 'that' at the DP level. Additionally, the dynamic verb contains the feature of [α telic] that needs to be valued. Both the verb and the object move to the aspectual phrase between vP and VP and under the spec-head relation, the verb is valued as [+telic]. The verb then further moves to vP and is adjoined to v.

In contrast, the sentences in (17) have an atelic reading. I follow Soh and Guo [16] and assume that the direct objects in these sentences have the [-SQA] feature, which is also projected at the DP level. Under the same mechanism as

(18a), the verb moves to the head of the aspectual phrase between vP and VP, and the direct object moves the functional phrase's specifier. Under the spec-head relation, the verb is assigned with the feature [-telic]; therefore, the sentences in (17) have an atelic reading.

Finally, according to Soh and Kuo [16], numeral objects such as *san ge pingguo* 'three apples' can only have a telic reading. Under the current analysis, this type of object contains the feature [+SQA] and the sentence has the syntactic structure in (18a). However, different from an APO or a demonstrative object, this feature is derived from the numeral phrase that is projected between the DP and the classifier phrase.

5. Conclusions

In this paper, I have proposed a syntactic analysis of the computation of the telicity of different types of verb. Specifically, I demonstrated the ways the semantic properties of the direct object impact the computation. To account for the telic-only reading of NPOs, I claimed that this type of object has the interpretable [IE] feature, which states that the noun cannot be considered a 'real' object until the whole process of creation reaches its inherent endpoint. This semantic feature is similar to the [+SQA] feature, which ensures that a sentence containing a dynamic verb has a telic reading; however, different from [+SQA], this feature cannot be overridden by any functional phrase, such as the classifier phrase (CLP) or determiner phrase (DP), in the nominal domain. Moreover, the other type of creation objects (APO) and consumption objects do not contain the interpretable [IE] feature; therefore, the telicity of sentences containing these types of objects depends solely on the semantic features projected inside the DP.

Based on the semantic features of the direct object of a dynamic verb, I proposed a syntactic account of dynamic verbs containing different types of direct object. First, I demonstrated that under the spec-head relation in the Inner Aspect Phrase, a noun phrase with the [IE] feature assigns the verb the [+telic] feature, and a sentence containing this type of object always has a telic reading. Under the same mechanism, a direct object with the feature [+SQA] assigns the verb the [+telic] feature, and the [-SQA] assigns the verb the [-telic] value.

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