

A corpus-based study of interaction between Chinese perfective *-le* and situation types

Zhonghua Xiao, Lancaster University

Mandarin Chinese as an aspect language (Norman, 1988:163) has a rich inventory of aspect markers, including perfective *-le*¹, *-guo* and imperfective *-zhe*, *zai*. Of these *-le* is the most studied marker because of its mysterious behaviors. For example, is it necessary to differentiate between the perfective *-le* and the COS *le*? Does *-le* indicate completion or termination? Are there any constraints on the interaction of *-le* with various situation types? All of these issues have aroused much controversy because different authors have invented different “acceptable” examples to support their arguments. Many of these examples, however, are rarely found in real language, though they are good for the purpose of argumentation.

In this study, I will take another approach to address these issues and find evidence from authentic language data. An L1 Chinese corpus of 124,164 *Hanzi* (Chinese characters) was compiled for this purpose. The corpus was first automatically segmented and POS-tagged, and post-editing was conducted by hand for the tagging of the marker *LE* to ensure consistency and accuracy. Then all the clauses containing *-le* and *le* are extracted into two databases and the situation type of each instance is judged on the basis of human decision. A total of 1,208 occurrences of *LE* are found in our data, of which 1019 are the perfective *-le* and 166 are the COS *le*. In the other 23 instances where *LE* appears in the sentence-final position, the morpheme has the dual function indicating both perfectivity and change of state. Other functions of *LE*, e.g., as a full verb, as a modal particle and as a bounded morpheme, are also found in the corpus. Because they are irrelevant to our study here, these functions are not counted. The high frequency of *LE* and its rich functions justify this corpus as a good basis for the case study of this morpheme, albeit the small corpus size.

This paper is concerned with the three questions raised at the beginning and is organised as follows: Section 1 discusses the one-morpheme approach vs. the two-morpheme approach; Section 2 considers the type of closure indicated by the perfective *-le*; Section 3 examines the interaction between the perfective *-le* and situation types and Section 4 concludes.

1. Verbal *-le* vs. sentential *le*

There is an unanimous agreement that *-le* is a perfective aspect marker (e.g., Chao, 1968; Henne & Rongen & Hansen, 1977; Smith, 1991, 1997; Zhang, 1995, Dai, 1997). Yet much controversy arises when it comes to whether the perfective *-le* and the COS *le* have the same functions. While the two-morpheme approach focuses on their differences in terms of syntactic distributions, semantic functions, and etymological sources, the one-morpheme approach focuses on their semantic similarities. Zhang (1995: 120), for example, supports the unified treatment of *LE* and describes its major functions as denoting a change of state by termination and establishing a boundary between two different situations. However, despite her explicit favour for the one-morpheme approach, she has to turn to the two-morpheme approach to explain the interchangeability of *-le* and *-guo* (see Zhang, 1995:217-219).

I argue in favour of the two-morpheme approach. As suggested above, the perfective *-le* and the COS *le* differ in terms of syntactic distributions, semantic functions, and etymological sources. The terms “verb-final suffix” *-le* and “sentence-final particle” *le* (Li & Thompson, 1981) best illustrate their difference in syntactic distributions. Syntactically, the perfective *-le* occurs post-verbally while the COS *le* appears in post-sentential position. However, when an intransitive verb² takes the sentence final position, we have to take into account the different semantic functions of the two morphemes to determine which *LE* we have in front of us. The perfective *-le* focuses the actualisation of a situation and presents it as a whole; the COS *le*, on the other hand, mainly indicates a change into a new situation and signals its current relevance³. There are three possibilities for *LE* taking the sentence

¹ In this study, the morpheme *LE* in the verb-final position indicating perfectivity is glossed as *-le* while that in the sentence-final position indicating change of state (COS) is glossed as *le*. The capitalised *LE* refers to either.

² As transitive verbs are always followed by their objects, they cannot possibly appear in the sentence final position.

³ “Current” should be interpreted in relation to the reference time rather than the speech time.

final position. It can be either the COS *le* if the sentence only allows a change-of-state reading, or the perfective *-le* if the sentence only has a perfective reading, or it has dual function if the sentence has both the change-of-state and perfective readings (c.f. Li & Thompson, 1981:296). In this last case, the additional COS *le* is absorbed into the first perfective *-le*, as Chinese “always avoids a repetition of the same syllable by way of haplology: *-le le*”(Chao, 1968:247)⁴.

Historically, the perfective *-le* and the COS *le* developed at different stages of evolution. The COS *le* is derived from the verb *liao* “to finish, to come to an end” (the same syllable with a different pronunciation), as in *siliao* “to settle out of court”. When its sentence-final function was well established, it also developed a use in which it appears directly after the main verb (whether or not it is sentence-final) functioning to signal perfectivity. Therefore diachronically, the COS *le* developed earlier and gave rise to the perfective *-le* (c.f. Bybee, 1993:84-85). The evolution of these two morphemes also furnishes evidence in favour of the two-morpheme approach: if they are the same and one morpheme can function adequately, why is it necessary for the other to be derived?

The differentiation between the perfective *-le* and the COS *le* is also supported by the quantitative data in our corpus. Of a total of 1,208 occurrences of *LE*, 1,019 (84.36%) are the perfective *-le*, 166 (13.74%) are the COS *le*, and in 23 instances (1.9%) the morpheme denotes both COS and perfectivity. The ratio of the perfective *-le* over the COS *le* is 6.139. The higher frequency of the former over the latter is predicated because our corpus mainly contain narrative discourses, of which the perfective aspect is a prominent syntactic feature. Our finding here is in conformity with Christensen (1994), who finds a ratio of 6.818 for the written narratives, as shown in Table 1 below:

Table 1: Frequency data for *LE*:

data	total	<i>-le</i>		<i>le</i>		dual		<i>-le/le</i>
Our corpus	1208	1019	84.36%	166	13.74%	23	1.90%	6.139
C's written	86	75	87.21%	11	12.79%	0		6.818

The table shows that the perfective *-le* is more productive than the sentential *le* and dual-function *LE*. Christensen's written data show a higher frequency of *-le* because his data are purely narrative.

It can be seen from the discussions above that the perfective *-le* is different from the COS *le* in many respects: (i) syntactically, *-le* appears in the verb-final position whereas *le* in sentence-final position; (ii) semantically, *-le* signals perfectivity whereas *le* indicates change of state; (iii) etymologically, *-le* is derived later than *le*, and (iv) empirically, *-le* is more productive than *le*. All of these argue strongly for the two-morpheme approach.

2. Completion vs. termination

Another issue which is as controversial as the one discussed above is the type of closure signalled by the perfective *-le*. Traditionally, the perfective *-le* is considered to indicate completion of the action denoted by the verb. Chao (1968:247), for example, argues that the verbal *-le* has the class meaning of “completed action”. Following Chao, Henne & Rongen & Hansen (1977:117) claim *-le* indicates “the completed action of the verb to which it is attached”. Similar views can also be found in Zhu (1981), Lü (1981:314-321) and Tiee (1986:96). But the traditional view cannot account for the puzzle in (1) below:

(1a) zhe-ben xiaoshuo wo kan-le san-tian
 this-CL novel I read-le three-day
I read the novel in three days (I finished reading it).

(1b) zhe-ben xiaoshuo wo kan-le san-tian le
 this-CL book I read-le three-day le
I have been reading this book for three days (I haven't finished reading it).

⁴ According to Chao (1968), in certain dialects such as Cantonese and the Wu dialects, there are separate morphemes to indicate actuality and change-of-state which can co-occur contiguously. Haplology of *-le* only occurs in the Mandarin Chinese (*putonghua* “the common language”).

Clearly (1a) and (1b) have different aspectual meanings. While the former indicates the completion of the reading event, the latter gives no such indication. If *LE* indicates completion, “why a completed reading is derived when one *LE* is used, but it is not allowed when an additional *LE* is used?”⁵

Interestingly, all of the scholars quoted above relate completion to the *action of a verb* rather than a situation. Their approach is clearly incompatible with the definition of the aspect⁶. In fact, the compositional nature of aspect is widely observed in the literature (e.g., Verkuyl, 1972; 1993; Smith, 1991; 1997; Brinton, 1988). Therefore the aspectual value of a situation is contributed to by the semantic features of all sentential elements, though a verb plays an important role.

More recent studies, however, realize that the perfective *-le* does not necessarily indicate completion. While perfectives with a resultative verb complement (RVC) unequivocally indicate completion, “simple perfectives” (Smith, 1997:264) — sentences with *-le* alone but without RVCs — only present situations without indication of the closure type⁷ (Smith, 1988:216,218; Tai, 1984:291-292; Chu, 1976: 48). This view has won growing popularity in the literature (e.g., Li & Thompson, 1981:215-216; Zhang, 1995: 115-116; Christensen, 1994; Smith, 1997: 264-265; Dai, 1997: 21).

While I agree to this recent view in principle, I argue that the type of closure indicated by *-le* is not so arbitrary as Smith (1988:228) claims: “Semantically, sentences without completive RVCs do not present a completed event; but pragmatically, they often do just that.” Such arbitrariness has led to much confusion in her own studies. Let us consider Smith’s examples (1988:218-219):

- (2a) wo zuotian xie-le yi-feng xin
I yesterday write-le one-CL letter
I wrote a letter yesterday.
- (2b) *wo zuotian xie-le yi-feng xin, keshi mei xie-wan
I yesterday write-le one-CL letter, but not write-finish
Lit.: *I wrote a letter yesterday, but didn't finish it.*
- (2c) wo zuotian xie-wan-le yi-feng xin
I yesterday write-finish-le one-CL letter
I finished writing a letter yesterday.

Smith (1988:218) argues that sentences like (2a) “present events as terminated but not necessarily completed”, but in Smith (1997) she contradicts her own assertion by admitting that in fact, the most natural interpretation of (2a) would be that the letter was finished, though in order to remedy the self-contradiction, she adds immediately that “the completive interpretation is conversationally only: it can be cancelled by other information” (1997:265), as shown in (2b). But I argue that (2b) in fact sounds unacceptable semantically, if not grammatically, to a native ear (c.f. also Teng, 1986). And like (2c) in which *-le* co-occurs with the RVC *-wan* “to finish”, (2a) also indicates the completion of the writing event, i.e., the letter was finished. If we followed Smith’s assumption that completive readings denoted by “simple perfectives” can be cancelled, we would have the following absurd situation:

- (3) *shanggeyue ta sheng-le yi-ge nanhai, keshi mei sheng-wan
last month she give:birth-le one-CL boy but not give:birth-finish
Lit.: *Last month, she gave birth to a baby boy, but did not finish it.*

It is true that “simple perfectives” may indicate either completion or termination, but the type of closure depends on the type of situation. That is, telic situations⁸ are presented as completed whereas atelic situations are presented as terminated. When a telic situation is presented perfectly as a single unanalysable whole, its inherent final endpoint is naturally included, thus resulting in a completive reading. On the other hand, an atelic situation does not have an inherent end point, so when it is presented perfectly, only an arbitrary final endpoint is included, and thus a terminated reading is appropriate. (2b) above will become acceptable if the quantified direct object is replaced by a bare noun⁹, as shown in (4):

⁵ Translated from Dai’s (1997:21) quotation of Lü (1961) “The current task for researchers of Mandarin Chinese.”

⁶ In our model, we follow Smith’s (1997:1) and define aspect as “the semantic domain of the temporal structure of situations and their presentation.”

⁷ Chu (1976), in his study of action verbs, also finds that the structure of “action verb+*-le*” only indicates *active attempt* and *actual performance* rather than *attainment of goal*, while the structure of “action verb+RVC” indicates all of the three.

⁸ Telic/atelic distinction is an important distinguishing feature for aspectual classification. A situation is telic if it has an inherent spatial final endpoint.

⁹ As there is no articles in Chinese, and the plural suffix *-men* is syntactically optional, bare nouns in Chinese can be regarded as bare plurals in English.

- (4) wo zuotian xie-le xin, keshi mei xie-wan
 I yesterday write-le letters but not write-finish
I wrote letters yesterday, but I didn't finish them.

The acceptability of (4) can be explained as follows. In this sentence, the object *xin* “letters” is a bare noun, which is at best ambiguous between specific and non-specific readings. When it interacts with the accomplishment verb *xie* “to write”, the resulting situation can be naturally understood as atelic. Thus the situation conveyed by the first clause in (4) has a terminated reading and further assertion can be made that the letters were not finished.

The above analysis suggests that the type of closure indicated by the perfective *-le* is related to situation types. Smith (1988: 218) also realizes this point when she claims:

The choice between termination and completion arises only with telic events, of course. Atelic events have no other possibility besides termination.¹⁰

While agreeing to the second part of this claim, I argue that no choice is open to telic situations either. That is, for telic situations, only completive readings are possible. Let us examine the three examples¹¹ Smith (1988) uses to support her claim.

- (5a) Zhangsan xue-le Fawen, keshi mei xue-hui
 Zhangsan study-le French but not learn-know
Zhangsan studied French, but he still didn't know it.
- (5b) *wo mai-le san-ben shu, keshi mei mai-dao
 I buy-le three-CL book but not buy-succeed
 Lit.: *I bought three books, but I didn't buy them.*
- (5c) Zhangsan zhao-le ta de shoubiao, keshi mei zhao-dao
 Zhangsan look:for-le he DE watch but not look:for-succeed
Zhangsan looked for his watch, but he didn't find it.

The first point to be noted here is that Smith asserts that completive readings in (5a)-(5c) are cancelled by the conjuncts (Smith, 1988:288). On a closer examination, however, we find *xue Fawen* “study French” and *zhao ta de shoubiao* “look for his watch” are both atelic events, because only *xue-hui Fawen* “to learn French” and *zhao-dao tade shoubiao* “to find his watch” are telic (c.f. Smith, 1988:220, 234; Tai, 1988: 290). If in (5a) and (5c) *-le* did signal completive readings which were cancelled by the conjuncts, Smith would be contradicting her own claim quoted above that only termination is possible for atelic situations. Secondly, while Smith is right in saying that the first clauses in (5a) and (5c) do not have completive readings, she is wrong in the case of (5b). For the same reason discussed in the analysis for (2) above, *mai san-ben shu* “buy three books” in (5b) is a telic event, and thus its completive reading cannot be cancelled. Therefore, this is an invalid example to serve her purpose. Smith is on the right track when she realizes that “because telic events involve completion, they may be used to implicate completion” (Smith, 1988:228). But regrettably, she attributes the final decisive role of the closure type to pragmatics.

Tai (1984: 291-292) also observes that “Vendler’s examples of accomplishment expressions such as ‘to paint a picture’ and ‘to write a letter’ may or may not imply attainment of goal in Chinese” (*ibid*:291). Tai’s observation is true to the fact, but the reason he provides for this — “depending on the particular context which a native speaker happens to be in” (*ibid*:291) — is not. It is argued here that the closure types of these situations depend on how we translate these phrases. If we translate “to paint a picture” as *huahua* and “to write a letter” as *xiexin*, then they are atelic. When they are presented perfectly with the verbal *-le*, only terminated readings are possible; but if we translate “to paint a picture” as *hua yi-fu hua* and “to write a letter” as *xie yi-feng xin*, then they are telic situations and only allow completive readings when presented perfectly¹².

Tai (1984:291) argues that sentences like (2a) may imply the attainment of goal “for many native speakers”, but sentences like (2b) “suffice to show the implication is not absolute.” Tai’s argument is

¹⁰ But regrettably, even this claim is negated later by herself: “But in Chinese perfectives termination and completion are expressed separately for all situation types” (1997:73), which in turn is contradicted by her own assertion that accomplishments may be either terminated or completed with simple perfective viewpoint (1997:264).

¹¹ This pair of examples are taken from (Smith 1988:220). But the English translations of (a) and (c) are modified, because in (a), according to Tai (1984:290-291), *xue* and *xue-hui* in Chinese can find equivalents in English: “study” for *xue* and “learn” for *xue-hui*. While *xue* and “study” are atelic, *xue-hui* and “learn” are telic. In (c), the same applies: while *zhao* and “look for” are atelic, *zhao-dao* and “find” are telic.

¹² These two translations are both possible because Chinese has no articles.

even less convincing than Smith's claim that "the completive interpretation is conversational only" (1997:265). One problem with Tai's argument is its unreliable theoretical basis. "For many native speakers" is a rather vague concept: how many? what percentage? Unfortunately Tai has not made a demographic survey. Another problem is the acceptability of his counter-examples. As noted above, sentences like (2b) are in fact unacceptable semantically. If Tai had followed the convention of treating Chinese as a "non-article" language and had not translated these two phrases so literally, he might have come to the point.

Our argument for the correlation between closure type and situation type¹³ does not go far away from Smith (1988:218), because she also agrees that atelic events¹⁴ can only be interpreted as terminated. We differ in our treatment of telic events. Smith's accomplishments are of two types: one is the simple form like *xie yi-feng xin* "to write a letter", the other is the RVC form like *xie-wan yi-feng xin* "to write-finish a letter". Her second type of accomplishment falls within the category of achievements in our model¹⁵. As an achievement encodes result in itself and is punctual by nature, it is expected that once such a situation is realised, it is completed. This prediction is supported by the empirical evidence. Of the 510 achievements taking the perfective *-le* found in our corpus, all have completive readings without exception. Here are some examples:

- (6a) na jiahuo shao-cheng-le hui, wo ye neng ren-chulai (File 9558601)
 that guy burn-become-le ash I too can recognise
Even if that guy was burnt into ashes, I would recognize him.
- (6b) ta...zhidao yu-shang-le gaoshou (File 9560501)
 he...know encounter-le master-hand
He knew that he had encountered a master-hand.

Our difference with Smith in this respect revolves around the closure type of accomplishments (her simple form accomplishments) when they take the perfective *-le*. My argument is that accomplishments can only be interpreted as completed, whereas Smith assumes that this type of situation may have a choice between termination and completion. This assumption, however, is ungrounded, because the counter-examples she uses for the contradiction test, e.g., (2b) and (5b), are semantically unacceptable. Smith's assumption also lacks empirical evidence. Even if her intuition is correct when she invents such examples, these utterances are not supposed to be found in real language. In our corpus data, all of the 326 accomplishments taking the perfective *-le* can only allow completive readings. Let us consider an example cited from the corpus:

- (7a) wo jimang yi gaojia zhu-le yiliang Beijing jipuche, zhishi Wangzhuang (File 9560601)
 I hurriedly with high:price hire-le one-CL Beijing jeep direct:drive Wangzhuang
I hurriedly hired a "Beijing" jeep at a high price, and headed direct for Wangzhuang.
- (7b) *wo jimang yi gaojia zhu-le yiliang Beijing jipuche, keshi mei zhu-dao
 I hurriedly with high:price hire-le one-CL Beijing jeep but not hire-succeed
 Lit.: *I hurriedly hired a "Beijing" jeep at a high price, but didn't succeed hiring it.*

The situation "I hired a Beijing jeep" in (7a) is an accomplishment presented perfectly. (7b) shows that even if a conjoined second clause could cancel its completive reading, the second clause would clash with some other sentential element, i.e., "at a high price". We normally assume that when the price is settled, the deal is done. Furthermore, if the completive reading of the actualised accomplishment could be cancelled, there would be no subsequent event "headed for Wangzhuang". Therefore, our argument for the positive relation between telicity value of a situation and its closure type is supported by both theoretical analysis and empirical evidence.

3. Interaction between *-le* and situation types

Before we go on to examine the interaction between the perfective *-le* and situation types, it is necessary to make a brief introduction to our aspect model. Following Smith (1991; 1997), aspect is taken to have two components, namely, situation aspect and viewpoint aspect. The former is concerned with the inherent temporal features of a situation while the latter provides a perspective to view the situation. Aspect is the synthetic result of these two components.

¹³ Pan (1993) also observes that "different situation types influence the interpretation of perfective", with an accomplishment, *-le* indicates that the event started and finished later; with an activity, *-le* indicates it started and terminated later.

¹⁴ Smith argues that the perfective does not interact with statives in Chinese, which, according to our data, is not true (see Section 3).

¹⁵ In our model, all verbs that encode result are classified as achievements (See Section 3).

In our model, situation aspect is concerned with both the lexical and the sentential levels. This two-level approach is different from Vendler (1967) and Smith (1991, 1997). At the lexical level, verbs are grouped into six classes based on five distinguishing features¹⁶, as shown in Table 2:

Table 2: Feature matrix system of verb classes:

classes	[±dynamic]	[±durative]	[±bounded]	[±telic]	[±result]
activities	+	+	–	–	–
semelfactives	+	–	±	–	–
accomplishments	+	+	+	+	–
achievements	+	–	+	+	+
individual-level states	–	+	–	–	–
stage-level states	±	+	–	–	–

These verb classes interact with their arguments and adjuncts at three different levels according to the following rules:

A: Lexical level:

Rule 1: $Verb_{[-telic/\pm bounded]} + RVCs \Rightarrow Derived\ Verb_{[+result/+telic]}$

Rule 2: $Verb_{[-telic/\pm bounded]} + reduplicant \Rightarrow Derived\ Verb_{[+bounded]}$

B: Core sentence level:

Rule 3: $NP + Verb_{[+telic]} + NP_{[\alpha count]} \Rightarrow Situation_{[\alpha telic]}$ ¹⁷

Rule 4: $NP_{[\alpha count]} + Verb_{[+telic]} (+ NP) \Rightarrow Situation_{[\alpha telic]}$

Rule 5: $NP + Verb_{[-telic]} + PP_{[Goal]} \Rightarrow Situation_{[+telic]}$

C: Full sentence level:

Rule 6: $Core-sentence_{[-bounded]} + for-PP/from...to \Rightarrow Full-sentence_{[+bounded]}$

Rule 7: $Core-sentence_{[+telic]} + for-PP/from...to \Rightarrow Full-sentence_{[-telic]}$

Rule 8: $Core-sentence_{[\pm bounded]} + Quantity\ NPs \Rightarrow Full-sentence_{[+bounded]}$

Rule 9: $Core-sentence_{[+telic]} + Progressive \Rightarrow Full-sentence_{[-telic]}$

Rule 10: $Core-sentence_{[-result]} + ba/bei-construction \Rightarrow Full-sentence_{[+result]}$

The interaction at these levels result in six basic situation types and five derived types as shown below:

Table 3: Feature matrix of situation types:

Situation Types		[±dynamic]	[±durative]	[±bounded]	[±telic]	[±result]
ILS	basic	–	+	–	–	–
	derived	–	+	+	–	–
SLS	basic	±	+	–	–	–
	derived	±	±	+	–	–
ACC		+	+	+	+	–
ACT	basic	+	+	–	–	–
	derived	+	+	± ¹⁸	–	–
SEM	basic	+	–	±	–	–
	derived	+	+	±	–	–
ACH	basic	+	–	+	+	+
	derived	+	+	+	+	+

¹⁶ In addition to the three traditional ones, two new features, [±bounded] and [±result], are introduced to separate verb classes from situation types. Both telicity and boundedness are related to final endpoint, but the former is spatially defined while the latter is temporally defined. The feature of [±result] refers to whether or not a verb encodes result in itself.

¹⁷ α is a variable with the value of either plus or minus. +Count] NPs should be understood as singular or specific plural countable NPs or “quantised” arguments in Krifka’s (1987, 1989) terms, while [-count] NPs include mass nouns and bare plurals. The [±count] distinction is similar to Smith’s count/mass opposition or Verkuyl’s (1993) [±SQA].

¹⁸ Derived activities have the value of [±bounded] because they represent a complicated categories. When basic activities are delimited by specific time frame, they are [+bounded]; when accomplishment verbs take [-count] NPs or the progressive, or when semelfactives allow indefinite multiple event readings, they are derived activities with the value of [–bounded].

It should be noted that situations types discussed here are the final result of composition processes at the full-sentence level. When basic states and activities are temporally bounded by delimiting mechanisms, bounded states and bounded activities come as a result. Derived activities can also be obtained from accomplishments taking the progressive, semelfactives occurring the progressive or temporal adverbials indicating indefinite time frame, and achievements taking the progressive or [-count] NPs. Accomplishments do not have derived situation type¹⁹. The basic semelfactives have single-event reading; when they occur with quantity NPs or temporal adverbials indicating definite time frame, they become derived semelfactives. When basic achievements take [+count] NPs, derived achievements come as a result. Having discussed the temporal features of situation types, we are now in a position to examine the interaction between the perfective *-le* and situation types.

More recently, this topic has attracted much interest. Smith (1997:70,264) and Pan (1993), for example, assert that the perfective *-le* is not available to states. Pan (1998) becomes aware of the distinction between stage-level and individual-level predicates and corrects his generalization as “perfective marker *-le* can be used only with stage-level predicates which include some of the statives”. “Some of the statives” here refer to stage-level states (SLS) like *ta bing-le san-tian* “He was ill for three days”. Smith and Pan’s assertions suggest that the perfective *-le* is sensitive to the feature of dynamicity.

On the other hand, Li (1999) argues that the perfective *-le* only appears in telic situations²⁰ like accomplishments and achievements, but not in atelic situations like states and activities²¹. Yang (1995) is aware of the different natures of spatial and temporal endpoints. She argues that all situations with a spatial final endpoint (i.e., telic situations) can be presented with the perfective viewpoint marked by *-le*. In addition, atelic situations (including states), when they are temporally bounded by delimiting mechanisms, can also take the perfective *-le*. But without such delimiting devices providing a temporal boundary, atelic situations cannot felicitously co-occur with *-le*. The arguments made by these two authors suggest that the perfective *-le* is sensitive to spatial or temporal endpoint.

Yang’s observations appear to be closer to the fact, but her categorical statement that no [-bounded] situation can take *-le* (*ibid*:115) is arguable, because our data does not allow for a clear-cut distinction. Based on our corpus data, I argue the perfective *-le* is more sensitive to the feature of telicity and boundedness than to dynamicity as Smith and Pan suggest. But the sensitivity is rather a matter of degree. As can be seen in Table 3, activities and two types of states are inherently [-bounded] and [-telic], while accomplishments and achievements are intrinsically [+bounded] and [+telic]. Semelfactives are [-telic] but shift between [+bounded] and [-bounded]. Therefore, we expect the perfective *-le* to be more likely to co-occur with accomplishments and achievements. This prediction is in fact borne out of the corpus data. A breakdown of the situations taking *-le* in the corpus is given as follows:

Table 4: A breakdown of situations taking the verbal *-le*:

ILS	SLS	ACT	SEM	ACC	ACH	Total
29	19	109	26	326	510	1019
2.85%	1.86%	10.70%	2.55%	31.99%	50.05%	100%

From these figures, it is clear that more than 80% of the total are telic situations. Furthermore, of the atelic situations (accounting for around 18% of the total), more than half involve a temporal boundary provided by delimiting devices. Specifically, 82 out of 109 activities, 16 out of 26 semelfactives, and 2 out of 19 SLS are temporally bounded, taking up 9.81% of the total. When these [+telic] and [+bounded] situations are taken together, they account for more than 90% of the situations taking the perfective *-le* in our data. The chi-square test shows that our result is highly significant. This indicates

¹⁹ Because the derived situation types of accomplishments have exactly the same feature values as their basic types, these two are combined into one.

²⁰ Although Li (1999) also uses the term “bounded”, she actually intends the term to mean “telic”, because in her model, “boundedness” actually refers to “the natural final point signaling change of state”.

²¹ Li (1999) does not differentiate between achievements and semelfactives, nor is she aware of the distinction between SLS and ILS.

a strong tendency for *-le* to occur with situations with spatial or temporal endpoints. In what follows, we'll discuss the interaction of the perfective *-le* with various situation types.

States may hold for an indefinite interval and are therefore intrinsically open-ended. This feature explains their relatively low co-occurrence frequency with the perfective *-le*. ILS verbs are predicated of the more permanent dispositions or “properties” of an individual. Because *-le* only functions to present a situation in its entirety but does not provide any endpoint, the mere addition of *-le* to ILS *normally* does not result in grammatical sentences unless a temporal boundary is explicitly provided by an extra delimiting device. But this requirement is not absolute. Here are some corpus examples, in which ILS verbs are italicised.

- (8a) Yindu he Bajisitan ye *you-le* he nengli (File 9558801)
 India and Pakistan also have-le nuclear capacity
India and Pakistan also had nuclear capacities.
- (8b) Yang Qinxian jiu *jubei-le* zhe-lei renwu de quanbu tezheng (File 9559901)
 Yang Qinxian then possess-le this-type people DE all characteristics
Yang Qinxian bears all of the characteristics of a dangerous person.

In both sentences, ILS situations are not bounded. The perfective *-le* indicates that these situations are presented as a single whole. But it should be noted that *-le* in these sentences can be omitted without significant change in meanings. This shows that ILS behave quite differently from other situation types in respect of aspectual marking: while the latter have to be marked aspectually, either overtly or covertly, to have a specific closed reading, the former do not have this requirement (c.f. also Yang, 1995:108; Moens, 1987). In this respect, SLS are more “event-like” because they also have to be marked aspectually. Compare the acceptability of the following:

- (9a) yi-ge laotaipo chulai, jian shi ji-ge jingcha, dunshi *huang-le* shen (File 9560701)
 one-CL old woman come:out see be some-CL police at:once scare-le spirit
An old woman came out. She was scared out of her wits when she found the visitors were some policemen.
- (9b) shuo dao zher, Zhang Dandan *shiran-le* (File 9561301)
 say reach here Zhang Dandan at:ease-le
Having said these, Zhang Dandan felt at ease.

These two sentences denote SLS. If the perfective *-le* was removed, they would become ungrammatical. In this sense, SLS are more akin to non-statives than to ILS.

Activities are intrinsically neither telic nor bounded unless there is an extra delimiting device providing them with a temporal boundary. Because the perfective *-le* is sensitive to endpoint, we predict activities taking *-le* are more likely to be temporally bounded. This prediction is in fact supported by our empirical data. Out of the 109 activities taking the perfective *-le* found in our corpus, 82 have a temporal endpoint provided by some delimiting mechanism, accounting for more than three quarters of the total. This piece of evidence also tells against the claim made by some scholars (e.g., Yang, 1995:116 and Li, 1999:216) that atelic or unbounded situations can never take *-le*. Rather, our data show that the compatibility is merely a matter of tendency. Consider the following corpus examples:

- (10a) ta *pai-le* wushu-ge huaqian-yuexia de baima-wangzi (File 9560301)
 he act-le countless-CL romantic DE white knight
He has acted countless romantic white knights.
- (10b) yi-ge xiao nühai... beishang de *ku-le* qilai²² (File 9560701)
 one-CL little girl sadly DE cry-le start
A little girl began to cry sadly.

The situations described in (10) are both unbounded activities, but it is not hard to find them in real language. The verb *pai* “to play the part, act” in (10a) is an accomplishment verb, but its interaction with a [-count] object NP (modified by *wushu-ge* “countless”) results in an atelic situation; *ku* “to cry” in (10b) is also an activity with no endpoint. In these cases, the perfective *-le* simply focuses on the realisation of these situations and gathers them in their entirety. In comparison, bounded activities take the perfective *-le* more easily. Our data register a ratio of 3.04:1 between bounded and unbounded

²² The suffix *-qilai* is an imperfective aspect marker indicating inceptiveness.

activities. As activities are inherently unbounded, their temporal final endpoint is normally provided by an extra delimiting mechanism. Consider the following examples:

- (11a) xingxun yanxu-le san-ge xiaoshi (File 9556901)
 inquisition by torture last-le three-CL hour
The inquisition by torture lasted as long as three hours.
- (11b) na hanzi zuoyou xunshi-le yi-fan, disheng dao... (File 9557601)
 that man left:right look-le one-CL low:voice say
The man cast his eyes around, and said in a low voice...
- (11c) wo huitou wang-le wang zhe-ge popo-lanlan de jia (File 9560701)
 I turn:around look-le look this-CL worn out DE home
I turned around and took a brief look at this run-down home.

The activities denoted in the above sentences are bounded respectively by a temporal NP (11a), a quantity NP (11b) and a verb reduplicant (11c). It is clear that the aspect marker *-le* does not provide any endpoint information, rather it only indicates the occurrence or realisation of a situation.

Because their inherent temporal boundary can be easily overridden when they shift from the single-event reading to the multiple-event reading, semelfactives pattern with activities. But semelfactives differ from activities in that they *may* have the feature of [+bounded] even without an extra delimiting mechanism. Therefore we predict that semelfactives can take the perfective *-le* more freely. This prediction is supported by our data. Of the 26 occurrences of semelfactives taking *-le*, 16 are bounded by extra delimiting mechanisms, with a ratio of 1.6:1, lower than the ratio for activities 3.04:1. Our observations on the behavior of semelfactives also run against Yang (1995:118), who assumes that “delimiting mechanisms *have to be employed* to provide specific closed readings out of semelfactives.” Here is a corpus example of semelfactives without an extra delimiting device:

- (12) Fu Yiwei de xiao guzi da-le Chen Hua (File 9559301)
 Fu Yiwei de younger sister-in law beat-le Chen Hua
Fu Yiwei's younger sister-in-law beat Chen Hua.

When a semelfactive needs to be bounded, the same three delimiting devices also apply, as shown in the following examples:

- (13a) (tamen) da-le ni ji-tian? (File 9556901)
 they beat-le you how many-days (Temporal NP)
For how many days did they beat you?
- (13b) Yang Qinxian zhui-shang-le ta, ju dao lian chi-le liu-xia (File 9559701)
 Yang Qinxian chase-up-le him raise knife successively stab-le six-CL (Quantity NP)
Yang Qinxian caught up with him and stabbed him six times with his knife.
- (13c) laoren xiao-zhe dou-le dou shou (File 9560501)
 old man smile-DUR shake-le shake hand (Reduplicant)
The old man shook his hand with a smile.

While the interaction of the perfective *-le* with all other situation types is an issue that has aroused hot debate, there is an unanimous agreement that accomplishments and achievements can take *-le* without any trouble (e.g., Smith, 1997; Pan, 1998; Yang, 1995; Li, 1999). Accomplishments and achievements are both telic situations, this means that they have both spatial final endpoint and temporal boundary even without the help of an extra delimiting mechanism. As such, these two situation types interact with the perfective *-le* most naturally. From Table 4 above, we see that accomplishments and achievements combined account for more than 80% of the total number of situations taking the perfective *-le* found in our corpus data. This furnishes empirical evidence in favour of our assumption that the perfective *-le* is sensitive to endpoint, but the sensitivity is merely a matter of degree. In the following examples, situations in (14) are accomplishments and those in (14) are achievements.

- (14a) women you kaifa-le yixilie xin chanpin (File 9561401)
 we also develop-le a:series:of new product
 We also developed a series of new products.
- (14b) qunian shiyue, Yang Bingming xie-le liang-feng xin (File 9560401)
 last year October Yang Bingming write-le two-CL letter
 Last October, Yang Bingming wrote two letters.
- (15a) (tamen) di'er tian shangwu shi dian jiu dida-le mudidi (File 9558001)
 they 2nd day morning 10 o'clock already reach-le destination

- They arrived at their destination at 10 o'clock the next morning.
 (15b) wo haishi kan-chu-le pozhan (File 9557301)
 wo still see-out-le weak:point
 But I still spotted his weakness.

It should be noted that although accomplishments and achievements have both spatial and temporal endpoints, these endpoints are either encoded in basic or derived verbs themselves (achievements) or provided by their arguments or adjuncts (accomplishments). In other words, *-le* interacting with these two situation types only present them as an unanalysable whole. As with all other situation types, *-le* does not provide any endpoint.

Summing up, it is clear that (1) the perfective *-le* interacts with all situation types in Chinese; (2) there is a strong tendency for *-le* to co-occur with spatially or temporally bounded situations; (3) as a perfective aspect marker, *-le* only focuses on the totality of a situation but does not provide any endpoint.

4. Conclusion

In this study, we have cleared away some confusion over the perfective *-le* with empirical evidence from a Chinese corpus. Based on the discussions above, our answers to the three questions raised at the beginning are clear enough. First, as a perfective aspect marker, *-le* is different from the COS *le*. Their differences in respect of syntactic distribution, semantic function, etymological source, and productivity in the natural language all evidence that this is an unarguable linguistic fact. Second, the perfective viewpoint marked by *-le* can present a situation either as completed or as terminated. The perfective *-le* only gathers a situation as a whole but does not provide any endpoint, so the closure type depends upon situation types. That is, telic situations are presented as completed whereas atelic situations are presented as terminated. Third, the perfective *-le* can interact with all situation types, but it demonstrates a strong tendency to co-occur with spatially or temporally situations.

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