THE PERFECTNESS OF THE SENTENTIAL PARTICLE *LE* IN MANDARIN CHINESE

Wan-Ling Tsai
National Tsing Hua University

Abstract: This paper aims to explain the different interpretations of the sentential particle *le* with a unified account. Due to its different interpretations in different contexts, it is labelled as different identities, such as an inchoative marker (Chao 1968), a perfect aspect marker (Li et al. 1982) and a marker of change (Soh 2009). Having examined the theories mentioned above, we find that the most functions of the sentential particle *le* is similar to the perfect aspect. Hence, I agree with Li et al.'s proposal that the sentential particle *le* is a perfect aspect marker. This paper firstly presents the functions of the sentential particle *le* and shows that these functions result from the properties of the perfect aspect. In addition, I compare the English perfect aspect with the sentential particle *le*. The purpose of this comparison is to show that the sentential particle *le* is similar to the perfect aspect, but also to show that the differences, i.e. the present perfect puzzle and the change of state reading, do not matter to the proposal that the sentential particle *le* is a perfect aspect marker. Finally, I provide further evidence from the study of two particles which denotes a change of state reading, *jiu* and *cai,* to illustrate that the change-of-state property of the sentential particle *le* is also part of the properties of the perfect aspect even though the English perfect does not yield a change of state reading.

1. Introduction

The study of the Mandarin aspectual markers has been one of the hotly-debated issues, especially the sentential particle *le*. This particle is used frequently in the daily conversations. However, its status is still not well-defined because its semantic properties give rise to different interpretations in different contexts. In sentence (1), for instance, the sentential particle *le* entails a past event related to the present time, while in sentence (2), it denotes a changing state. In sentence (3), however, the sentential *le* marks neither anteriority nor change of state, but refers to a command.

(1)   Zhangsan xiewan   jintian   de   zuoye   le
        Zhangsan finish   today   of   assignment LE[1]
        'Zhangsan has finished today's assignment.'
(2)   Xia   yu   le.
        fall rain LE
        ' It's raining.'

---

[1] In this paper, LE refers to the sentential particle *le*.

(3)   Chi fan   le[2]
        eat   food   LE
        'Let's eat now.'

In sentence (1), the sentential particle *le* appears to behave like a perfect marker since it functions to signal the time of a completed event prior to Reference Time, which is Speech Time.[3] In sentence (2), it conveys a sense of change of state and hence appears to be a marker of change. In sentence (3), the sentential particle *le* seems to denote a command, with the emergence of a new situation. This paper aims to provide a consistent account for the different interpretations of the sentential *le* and make a comparison between the properties of the perfect aspect in other languages and the properties of the sentential particle le.

The paper is organized as follows. In second 2, I summarize the previous analyses of the sentential le. In section 3, the definition of the perfect aspect is introduced. In section 4, I provide a unified analysis for the properties of the sentential *le* mentioned in section 2 and compare them with the properties of the perfect aspect in German, Sweden and English. In section 5, further evidence is given from the study of two particles which bear a change of state reading, *cai* and *jiu*. Section 6 is the conclusion.

2. Previous work

2.1 Chao (1968)

Chao claims that the sentential particle *le* serves as an inchoative particle which is used to indicate the appearance of a new situation (p.798).[4] According to him, the sentential particle *le* has the following functions.

First, it expresses change of state. For example, sentence (4) implies that the weather changes, and it starts raining. Note that this sentence need not be uttered at the beginning moment of raining. It can be uttered at the moment when the speaker realized that the weather changed.

(4)   Xia yu   le.
        fall rain LE
        ' It's raining.'

Second, the sentential particle le may convey not only a sense of excessiveness, in addition to the change of state reading, when it co-occurs with an adjective predicate (p.691-692), such as sentence (5).

---

[2] The sentences in (2) and (3) are from Chao (1968:798).

[3] The basic function of perfect is to signal the precedence relation holding between Event Time and Reference Time. See more detailed discussion in section 3.

[4] Note that although the inchoative reading is only one of the functions of the sentential particle *le* in his description, Chao terms it the "inchoative sentence particle *le*" when distinguishing it from the complement *le* and word suffix –*le* (p.450:note 46). Moreover, the same term is used when he describes the function that expresses a progress in a story (p.88).

(5)   Tang   xian le.
        soup   salty LE
        (a) 'The soup is too salty.'
        (b) 'The soup became salty.'

Third, when the sentential particle *le* occurs in the imperative mood, the command is made in relation to the appearance of a new situation. Like sentence (6), the order is given to inform that it is time to eat now.

(6)   Chi   fan   le
        eat   food   LE
        'Let's eat now.'

Fourth, the sentential particle *le* can be used in stories to indicate a progressing event, illustrated in example (7).

(7)   Houlai   tian jiu qing le
        then   sky   JIU[5] clear LE
        'And then the weather cleared.'

Fifth, the sentential particle *le* can be used to relate a completed event to the present time, as shown in sentence (8).

 (8)   Wo   hui-lai   le
        I   come-back   LE
        'I have come back.'

Sixth, the sentential particle *le* can be used to express a consequent situation, illustrated with the following example.

(9)   Na   wo jiu bu   zou le
        that I   JIU not go   LE
        'In that case, I won't go, then.'

Seventh, the sentential particle le can be used to indicate an "isolated event in the past" (p.798), such as the sentence below.

(10) Na-tian   wo   ye   qu   ting le
        that day   I   too go   listen LE
        'That day, I went to listen, too.'

The last function of the sentential particle *le* is to indicate "obviousness;" that is, the sentential particle *le* expresses a situation which is easy to understand. Sentence (11) demonstrates this use.

---

[5] *Jiu* is a particle which presuppose change of state in Mandarin Chinese. We will turn to it in later discussion.

(11) Zai-hao   mei-you   le
     better no   more   LE
     'Nothing can be better than that!'

In Chao's descriptions, no matter which function it is in, the sentential particle *le* is basically used to yield a new situation.

2.2 Li *et al.* (1982)

Li *et al.* investigate the properties of the sentential particle *le* in terms of discourse functions. They claim that the sentential *le* is basically used to signal a currently relevant state. That is, the sentential particle *le* entails that the situation described in the utterance is related to the current time (p.23), relevant to the topic of the dialogue (p.24), and seen as a state (p.25). For example, Zhangsan's friend makes a phone call to him. However, he is going out for shopping. Then the person who answers the phone will utter sentence (13), rather than (12).

(12) Ta   qu   mai   dongxi.
     he   go   buy   thing
     "He's shopping."
(13) Ta   qu   mai   dongxi   le.[6]
     he   go   buy   thing LE
     "He's gone shopping."

The most significant difference between (12) and (13) is the focus of the information. While (12) makes the hearer focus on the action of Zhangsan's going out for shopping, sentence (13) makes the hearer focus on the current state that Zhangsan is going out for shopping and hence implies that Zhangsan cannot answer the phone.

    The authors, following Hopper's (1979) explanation of how the perfective aspect differs from the imperfective aspect,[7] propose that the perfect aspect differs from the imperfective aspect and the perfective aspect in the discourse function, which is "to relate some state of affairs to the 'current' time" (p.22). Therefore, the sentential particle *le* can be seen as a perfect aspect marker since both the sentential particle *le* and the perfect aspect have a discourse function which is to make the situations relevant to the current time.

2.3 Soh (2009)

Soh claims that the sentential particle *le* is "a marker of change" (644). According to her, no matter which situation type the sentential particle *le* occurs

---

[6] This sentence is from Li *et al* (1982:23).
[7] Hopper claims that the perfective aspect differs from the imperfective aspect in their discourse function. While the former is used to narrate single events, the latter is used to provide background information for the event conveyed.

with, it yields both a "change of state" reading and a "contrary to expectation" reading. The cited examples are shown below.

(14) Ta   xiang   baba   le.   (Stative)
     he   resemble   father   LE
     'He resembles his father (, which he did not before/ contrary to what one may expect.)'

(15) Zhe-pian   xigua   hen   tian   le.   Bu   bi   jia   tang.
     this slice   watermelon   very   tian   LE   no   need   add   sugar
     'This watermelon is sweet (contrary to what one may expect). It is not necessary to add sugar.'

(16) Diqiu   rao   taiyang   xuanzhuan le.   (Activity)
     earth   circle sun   turn   LE
     'The Earth circles around the Sun (, which it did not before/ contrary to what one may expect).'

(17) Tamen   ganggang   daodashan-ding   le.   (Achievement)
     they   just   reach mountain-top   LE
     'They just reached the top of the mountain(, which they hadn't done before/ contrary to what one may expect).'

(18) Ta   chi   liang-ge   dangao   le.   (Accomplishment)
     he   eat   two-CL   cake   LE
     'He ate two cakes(, which he had not done before/ contrary to what one may expect).'

Although the sentential particle *le* can yield both a change of state reading and a contrary to expectation reading, in some cases, one of the readings is more salient than the other. For instance, the change of state reading is more salient in (14) than in (15). In contrast, the contrary to expectation reading is more salient in (15) than in (14).

2.4 The problems of Chao's work

Chao proposes that the sentential particle *le* is an inchoative marker introducing a new situation. According to him, the new situation can be either the emergence of a new state of the situation itself or the new state which the speaker just realized. However, in the following sentence, neither interpretation is available.

(19) 1500 nian, Gelunbu   faxian   xin-dalu   ba-nian-*(le)
     1500 year Columbus discover   new-continent   eight-year-LE
     'Until 1500, Columbus had discovered the new continent for eight years.'

This example is cited from Liao (2004, ch3:68). According to him, the sentential particle *le* indicates the relation between Event Time and Reference Time, which is the property of an aspect marker. In the case of (19), the sentential particle *le*, taking 1500 as a reference point, indicates that the time at which Columbus discovered the new continent is in 1492. If the sentential particle *le* is regarded

as an inchoative marker, it will not be able to denote the relation between Event Time and Reference Time.

Moreover, Chao simply lists the distributions of the sentential particle *le*. He does not further elaborate on how the readings are expressed by sentential particle *le*. Therefore, it is hard to say those different readings are directly caused by it.

2.5 The problems of Li *et al*'s work

Li *et al* claim that the sentential particle *le* can be seen as a perfect aspect marker in terms of discourse functions. Yet, the function to signal a currently relevant state is not the whole story. Consider the sentences in (20).

(20) a.   Zhangsan zhu Taipei   le
             Zhangsan live Taipei   LE
             'Zhangsan lives in Taipei now'
     b.   Zhangsan zhu Taipei
             Zhangsan live Taipei
             'Zhangsan lives in Taipei.'

There is no problem to say that the sentential particle *le* in (20a) signals a currently relevant state, but, if compared with the sentence in (20b), it also has a change of state reading. However, in English, the perfect aspect does not yield a change of state reading. The sentence in (21)

(21)   John has lived in Taipei.

(21) indicates a state in which John lives in Taipei and no dynamic reading is obtained. The corresponding Mandarin Chinese translation of (21) is (20b), rather than (20a). Therefore, in the theory of Li *et al*, how to yield a change of state reading remains a puzzle.

2.6 The problems of Soh's work

Soh argues that the sentential particle *le* is a marker of change, the function of which is to give rise both a change of state reading and a contrary to expectation reading. However, as mentioned in section 2.4, not every sentence containing the sentential particle *le* conveys these two readings, as shown in (19), repeated in (22).

(22) 1500 nian, Gelunbu   faxian   xin-dalu   ba-nian-*(le)
       1500 year Columbus discover   new-continent   eight-year-LE
       'Until 1500, Columbus had discovered the new continent for eight years.'

In addition, Soh mentions that sometimes one of the readings will be more salient than the other. If so, these two readings seem to be determined by the

context, rather than the sentential particle *le*. For example, with the same structure as the sentence in (15), the sentential particle *le* shows no contrary to expectation reading in (23), and even worse, results in ungrammaticality in (24).

(23) Hua   hen   hong le.
     flower   very red   LE
     'Flowers are very red.'
(24) * Zuotian-de   wanfan   hen   haochi   le[8].
        yesterday-of dinner   very delicious LE
        'The dinner yesterday had been very good.'

To explain this phenomenon, Shen (2004) claims that "sentence final particles (SFP) in Chinese agree with predicates in aspectuality." That is to say, the sentential particle *le*, encoded with a feature [+dynamic], only co-occurs with dynamic predicates, so it will make the sentence ungrammatical when it occurs with a static predicate, such as (24). As for the static predicate in (23), according to Shen, it undergoes a process of coercion, shifting to a dynamic predicate. Hence, it is compatible with the sentential particle *le*.

Soh's proposal that the sentential particle *le* conveys a contrary to expectation reading based on such a marked construction as (15), therefore, is problematic.

3 Definition of perfect aspect

The description of the perfect aspect is based on Reichenbach's (1947) framework. He establishes three notions of tense, that is, Speech Time, Event Time and Reference Time[9]. The past differs from the perfect in that the past indicates that Event Time is prior to Speech Time, whereas the perfect indicates that Event Time is prior to Reference Time. Following Reichenbach's theory and elaborating Friedrich's (1974) concept of the perfect, Li *et al.* (1982:19) state that the perfect "is more than simple stativity: the essence of the Perfect is its function of relating events/states to a Reference Time, either to the time of the narrative or to the time of the speech act." Similarly, Binnick (1991) asserts that "aspect has to do with the relationship of the event time E to the reference frame R; complexive (perfective) aspect has E within R, imperfective has E and R overlapping, and perfect has E preceding R" (458).

While the definition of perfect, i.e. Event Time preceding Reference Time, comes to be standard, Hatav (1997) observes that in biblical Hebrew, the perfect can be used to indicate not only the precedence relation of Event Time and Reference Time, but also the simultaneity relation of Event Time and Reference

---

[8] This example is from Shen (2004).

[9] Speech Time stands for the time of utterance; Event Time stands for the time when the situation is located. Reference Time stands for the time from which the situation is viewed. Event Time is generally represented by the situation types, whereas Reference Time anchors temporal adverbials. If there is no explicit temporal adverbial, Reference Time refers to Speech Time.

Time; that is, Event Time can overlap with Reference Time.

Portner (2003) views the perfect aspect in terms of its semantic interpretation and its pragmatic contribution. Following the general idea of the Extended Now Theory, he proposes that the perfect aspect functions to include the time of a past event in the interval of Reference Time. He also mentions that the perfect aspect differs from the past tense in the pragmatic contribution. The perfect aspect entails a presupposition of a discourse topic. That is, unlike the past time, the perfect aspect does not simply narrate a truth, but rather presuppose there is an answer to the topic query. When the hearer receives an utterance in perfect aspect form, he knows that this utterance is relevant to the topic they are talking about.

To sum up, the basic function of the perfect is to indicate that Event Time is either preceding or overlapping with Reference Time. In the next section, I will show that the sentential particle le does bear this characteristic.

4. The status of the sentential *le*

As mentioned in section 2, the sentential particle *le* has the following properties: it relates Event Time to Reference Time (Chao, Li *et al*), it expresses a command with a new situation (Chao), it signals a currently relevant state (Li *et al*), it expresses excessiveness (Chao, Soh), and it denotes change of state (Chao, Soh). In this section, following Li *et al*, I propose that the sentential particle *le* is a perfect aspect marker. The properties listed here are discussed on the basis of this proposal.
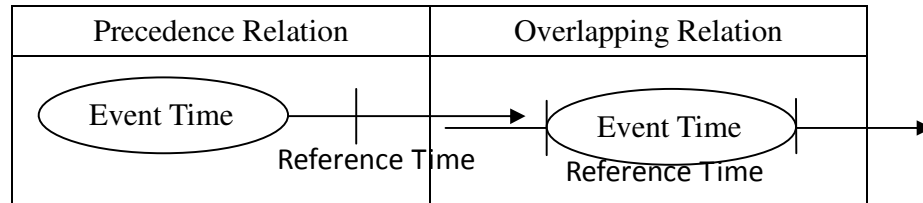
4.1 Relating Event Time to Reference Time

It is observed that the sentential particle *le* can relate Event Time to Reference Time. Consider the following example.

(25) Wo   hui-lai   le
     I   come-back LE
     'I have come back.'

This sentence can be uttered under two kinds of situations, that is, either after the time of coming back or at the time of coming back. Either way, Reference Time is the time of utterance since there is no other time adverbial phrase. In the case of (25), the sentential particle *le* indicates that the time of coming back (Event Time) is either preceding or identical to the time of utterance (Reference Time). This property is exactly what the perfect aspect is expected to show in sentences. See the following figure.

Figure 1. The function of the perfect aspect

Precedence Relation	Overlapping Relation
Event Time — Reference Time	→ Event Time — Reference Time →

As illustrated in Figure 1, the perfect aspect points out the relation between Event Time and Reference Time and this is what the sentential particle *le* performs in (25). Accordingly, the sentential particle *le* can be seen to have the property of a perfect aspect marker.

4.2 Signaling a currently relevant state

In English, the current relevant effect exists in the present perfect, as shown below.

(26) a. ??Einstein has visited Princeton.
      b.   Princeton has been visited by Einstein.

To explain this phenomenon, Portner (2003) adopts the general idea of Extended Now Theory and Inoue's view of topicality. He claims that in English, the perfect pragmatically contributes a presupposition which provides an answer to the discourse topic. He states: "The perfect's presupposition functions to highlight the fact that B's utterance, in context, serves to imply an answer to A's question. It does not only provide an answer; it even presupposes that it provides an answer." (601) For example, while (27) presupposes the speaker is still ill now, (28) just narrates a story.

(27) I have been diagnosed with cancer.
(28) I was diagnosed with cancer.

According to Portner, the event of diagnosis in sentence (27) should be relevant to the speaker's intended discourse topic. However, (28) does not have to. Similarly, the sentence in (26a) is not felicitous if it is uttered out of blue. Since Einstein is already dead, it is not appropriate to extend the time span from the utterance time to the time of his visiting Princeton. However, (26a) is felicitous if it serves as an answer to a question such as "*Which Nobel Lauretes have visited Princeton?*"

In the case of Mandarin, the sentential particle *le* has the similar function, illustrated by (29).

(29) Zhangsan   qu   mai   dongxi   le
     Zhangsan   go   buy   thing   LE
     'Zhangsan has gone shopping.'
(30) Zhangsan   qu   mai   dongxi
     Zhangsan   go   buy   thing
     'Zhangsan went shopping.'

The sentence (29) may be uttered to answer the hearer's question while the sentence in (30), without the sentential particle *le*, simply narrates the event. In terms of current relevance, both English perfect and the sentential particle *le* in Mandarin behave the same way.

4.3 Expressing commands

Chao mentions that when the sentential particle *le* appears in the imperative mood, the command is encoded with the emergence of a new situation. The contrast can be seen in sentence (31) and (32).

(31) Chi   fan.
     eat   food
     ' Eat.'
(32) Chi   fan   le.
     eat   food   LE
     'Let's eat now.'

The sentence in (31) is purely an order while the sentence in (32) conveys the information that it is time to implement the order. In this case, the sentential particle *le* cannot be regarded as an expression of command. Rather, it indicates that it is time to have a meal. More precisely, we can say that the time of carrying out the order (Event Time) is identical to, or maybe prior to, the time of utterance (Reference Time). The sentential particle *le* in (32) still behaves as a perfect aspect marker.

4.4 Expressing excessiveness

Chao argues that the sentential *le* expresses excessiveness, as shown in (33).

(33) Tang xian   le.
     soup salty   LE
     'a) The soup is too salty.'
     'b) The soup became salty.'

However, I argue that it is the context, rather than the sentential *le*, that triggers the excessiveness interpretation. Note that sentence (33) is ambiguous. It can be uttered when the soup became salty. This interpretation is actually more salient than the interpretation of (33a). Moreover, when the predicate of (33) is replaced

by *liang* "cool," the excessiveness interpretation vanishes, illustrated in sentence (34). More examples are given in (35) and (36).

(34) Tang   liang le.
      soupcool LE
      'The soup became cool,'
(35) Hua   hong le.
      flower   red   LE
      'The flower be came red.'
(36) Xigua   shou   le
      watermelon   mature   LE
      'The watermelon became mature.'

These sentences have the change of state meaning only; hence, it is inappropriate to conclude that the sentential *le* expresses excessiveness.

      To solve the excessiveness interpretation in (33), I refer to world knowledge. That is, the soup is naturally expected to be salty. Therefore, when the speaker asserts that the soup is salty, the hearer may consider that the sentence (33) implies that the soup is much saltier than expected, consequently yielding the excessiveness reading.

With respect to the change of state reading, it is the topic of the next subsection.

4.5 Denoting change of state

Both Chao and Soh claim that the sentential particle *le* denotes change of state. Especially in Soh's work, she argues that in all kinds of situation type, the sentential particle *le* yields a change of state reading. The examples of statives and activities are given below, but the accomplishments and achievements are not discussed here since the change of state reading is already encoded in the lexicon.

(37) Ta   xiang baba   le.
      he   resemble fatherLE
      'He resembles his father now.'
(38) Hua   hong le.
      flower   red   LE
      'The flower became red.'
(39) Zhangsan zhu   Taipei   le
      Zhangsan live Taipei   LE
      'Zhangsan lives in Taipei now'

All the sentences in (37) to (39) have a change of state reading; that is, the state, which does not exist before, now emerges. This dynamic reading is not found in the English perfect aspect.

(40) *He has resembled his father.
(41)   The flower has been red.

(42)   John has lived in Taipei.

The sentence in (41) conveys the information that the flower is always red. The sentence in (42) means that John has been living in Taipei for a certain stretch of time. The sentence in (39) is simply ungrammatical. Thus, the English perfect construction seems to be different from the Mandarin Chinese perfect construction.

     To account for this change of state reading, I adopt Shen's (2004) theory; that is, the aspect in Mandarin Chinese sentences exhibits agreement with the predicate. He classifies the Mandarin aspects with the feature,[±dynamic]. The sentential particle *le* is [+dynamic]. Therefore, it cannot occur with a stative verb. The examples that Shen gives are shown below.

(43) Zhe-ke   shu   dao   *(le)
       this-CL   tree   fall   LE
       'This tree has fallen down.'
(44) Zuotian-de wanfan   hen   haochi   (*le)
       yesterday-Gen   dinner   very   delicious
       'The dinner yesterday was very good.'

According to Shen, the predicate *dao* in (43) is a dynamic verb, so the sentential particle *le* is compatible with it. And dropping the sentential particle *le* will result in ungrammaticality. On the other hand, the predicate *haochi* is stative; thus adding the sentential particle *le* causes ungrammaticality.
The sentences in (37) to (39) seem to be counterexamples of Shen's theory. As a matter of fact, those predicates in (37) to (39) have undergone a process of coercion. That is, without the sentential particle *le*, those predicates simply narrate a fact or an event. With the sentential particle *le* attached, the aspectual head will choose a dynamic light verb as its complement. Therefore, the stative predicate will be encoded with a dynamic meaning and then yield a change of state reading.
Although this change of state reading is not found in English perfect, the perfect construction in German does yield a change of state reading. See the following examples.

(45) Schau   mal   an,   es   hat   geschneit.[10]   (German)
       Look   at   that   it   has   snowed
       'Look at that, it is snowing.'
(46) Xiaxue   le   (Mandarin)
       snow   Le
       'It is snowing.'

As the examples in (45) and (46) show, both the German perfect aspect and the sentential particle *le* can be used to indicate a changing state. Hence, this

----

[10] This example is from Klein (2000).

property cannot be a counterexample against the assumption that the sentential particle *le* is a perfect aspect marker.

4.6 Further comparison

Portner (2003) mentions several phenomena which are directly related to the perfect aspect, such as the current relevance effect, the present perfect puzzle effect and so on. The current relevance effect has been discussed in section 4.2. In this subsection, I explore two more phenomena which the perfect aspect yields in English, that is, the present perfect puzzle and stativity. The purpose is to show that the sentential particle *le* is a perfect aspect marker because it behaves like a perfect aspect in these respects.

4.6.1 The present perfect puzzle

One may say that the sentential particle *le* differs from the English perfect in the phenomenon of the present perfect puzzle. That is, English present perfect is not compatible with the past time adverbials while there is no restriction on the sentential particle *le*, illustrated in (47) and (48).

(47)   *John has gone shopping yesterday.
(48)   Zhangsan   zuo-tian   qu   mai   dongxi   le
          Zhangsan   yesterday go   buy   thing LE
          '*Zhangsan has gone shopping yesterday.'

Yet, this seems to be a problem related to the English present tense. The past time adverbials co-occur freely with the English past perfect or tenseless perfect, as shown in (49) and (50).

(49)   John had gone shopping yesterday.
(50)   Having gone shopping yesterday, John bought me a gift.

Furthermore, we find that in German, the present perfect is compatible with the past time adverbials, shown as (51).

(51)   Sigurd ist gestern gekommen.[11]
          Sigurd is yesterday come.
          'Sigurd has come yesterday.'

The German present perfect shows that the incompatibility of English present perfect with the past time adverbials cannot be the reason to reject the proposal that the sentential particle *le* is a perfect marker. Rather, the present perfect puzzle is parametric.

---

[11]   This example is cited from Rothstein (2008).

4.6.2 Stativity

It is said that the present perfect is a stative construction. This point has been made with many pieces of evidence from English, French and German. Rothstein (2008) mentions a "how long" test.[12] This test is based on the situation type. the static verbs and activity verbs can appear in a how-long question, whereas the dynamic verbs such as accomplishment verbs or achievement verbs cannot. However, it is found that the achievement verbs can appear in a how-long question when it is in the perfect construction. By contrast, it will result in ungrammaticality if the achievement verbs in the past tense form appear in a how-long question (p.42). The following sentences illustrate this point.

(52)   a. ?*Wie lange entdeckte Hans die Formel (schon)?   (German)[13]
                 how long discovered Hans the formula (already)
         b.   Wie lange hat Hans die Formel (schon) entdeckt?
                 how long has Hans the formula (already) discovered
(53)   a. ?*Hur lange upptackte Hans redan formeln?   (Swedish)
                 how long discovered Hans already formula-the
         b. ? Hur lange har Hans redan   upptackt   formeln?
                 how long has Hans already discovered formula-the
(54)   a. ?* How long did Hans already discover the formula?   (English)
         b. ?   How long has Hans already discovered the formula?

The examples (a) of (52) to (54) are in the past form, but it is ungrammatical to make a *how long* question with achievement predicates. However, when the achievement predicates are in the present perfect form as the examples (b) of (52) to (54), making a question with *how long* does not result in ungrammaticality. Note that the *how long* question is only possible with state and activity predicates. Therefore, we may claim that the achievement predicates in the present perfect form have undergone type shifting to state predicates.
Interestingly, this pattern is also found in Mandarin Chinese. This phenomenon is shown as follows.

(55) a. * ta   yijing   faxian   le   zhege   gongshi   duo-jiu? (Mandarin)
            he   already discover LE   this   formula   how-long
            '* How long did he already discover the formula?'
     b.   ta   yijing   faxian   zhege   gongshi   duo-jiu le?
            he   already   discover   this   formula   how-long LE
            '? How long has he already discovered the formula?'

The sentence in (55a) is in the past form, hence resulting in ungrammaticality when asking a *how long* question. However, adding a sentential particle *le* turns

---

[12] This test is cited from Parsons (1990:36) by Rothstein (2008:42).

[13] The examples (52) to (54) come from Rothstein's (2008).

the sentence grammatical, as in (55b). Patterning with the perfect form of other languages, the sentential particle *le* is obviously a perfect aspect marker.

Note that this phenomenon is not contradictory to the dynamic feature of the sentential particle *le*. Rothstein states that "the German present perfect has both a stative and a non-stative use" (p.41). Therefore, the dynamic feature of the sentential particle *le* will not affect our assumption that it is a perfect aspect marker.

5. Further evidence: the study of *cai* and *jiu*

In this section, the question of why the sentential particle *le* can co-occur with one particle presupposing change of state, *jiu*, but not with another one, *cai*, is discussed. The result of this study will provide another piece of evidence for our assumption. To start with, I briefly introduce Lai's (1999) analysis of these two particles *cai* and *jiu*. Next I present the problem of the incompatibility of *cai* with the sentential particle *le*, and provide a solution for it. I will show how this study supports our assumption.

5.1 *Cai* and *jiu*[14]

Lai (1999) classifies *cai* and *jiu* into four main uses: the temporal, restrictive, conditional, and emphatic uses, as follows.

(56) a. Zhangsan wu dian cai lai. (the temporal use)
Zhangsan five o'clock CAI come.
'Zhangsan did not appear until five o'clock.'
(In this sense, Zhangsan is expected to appear earlier than five o'clock.)

b. Zhangsan wu dian jiu lai le.
Zhangsan five o'clock JIU come LE.
'* Zhangsan has already appeared at five o'clock.'
(In this sense, Zhangsan is expected to appear later than five o'clock; however, Zhangsan did appear either at five o'clock or earlier than five o'clock.)

(57) a. Ta chi le san ge pingguo cai bao. (the restrictive use)
he eat PFTV three CL apple then full
'He became full only after eating three apples.'

b. Ta chi san ge pingguo jiu bao le.
he eat three CL apple then full LE
'He became full after only eating three apples.'

(58) a. Zhangsan qu Lisi cai qu. (the conditional use)
Zhangsan go Lisi then go
'Lisi will go only if Zhangsan goes.'

---

[14] Both CAI and JIU are particles which presuppose change of state in Mandarin Chinese.

     b.   Zhangsan   qu   Lisi jiu   qu.
          Zhangsan   go   Lisi then go
          'Lisi will go if Zhangsan goes.'

(59) a.   Lisi cai shi wo yao zhao   de   ren. (the emphatic use)
          Lisi just be I   want look-for COMP[15] person
          'It is LISI who I am looking for.'

       b.   Lisi jiu   shi wo yao zhao   de   ren.
          Lisi exactly be I   want look-for COMP person
          'Lisi is exactly the person that I am looking for.'

Lai argues that *cai* and *jiu* contrast in the scale of expectation. The sentence in (56a), for example, presupposes the asserted time is later than the expected time whereas the sentence in (56b) presupposes the asserted time is earlier than the expected time. Likewise, with respect to the sentences in (57), with *cai*, the amount *three* is more than the speaker's expectation, while it is less than the speaker's expectation with *jiu*. With respect to the conditional use, it is generally assumed that *cai* provides a necessary condition while *jiu* provides a sufficient condition. With regard to the emphatic use, Lai agrees with Biq's claim (1984, 1988) that both *cai* and *jiu* are focus adverbs. The difference between them is that *cai* emphasizes the refutation to expectation but *jiu* denotes a straight emphasis.

In sum, the use of *cai* and *jiu* can be seen as expressing change of state. Compare the sentences in (60). The sentence in (60a) and (60b) show the state changing from Zhangsan not coming to Zhangsan coming, while the sentence in (60c), without *cai* or *jiu*, does not convey a change of state reading.

(60) a.   Zhangsan   wu   dian   cai   lai.
          Zhangsan   five o'clock   CAI   come.
          'Zhangsan did not appear until five o'clock.'
       b.   Zhangsan   wu   dian   jiu   lai   le.
          Zhangsan   five o'clock   JIU   come LE.
          'At five o'clock, Zhangsan has already appeared.'
       c.   Zhangsan wu dian   lai.
          Zhangsan five o'clock   come
          'Zhangsan appeared at five.'

5.2 The (in)compatibility of the sentential *le* with *cai* and *jiu*

One of the functions of the sentential particle *le* is to denote a change of state reading. For example, the sentence in (61a) expresses a general truth while the sentence (61b) conveys a change of state reading due to the contribution of the sentential particle *le*.

---

[15] COMP refers to complementizers.

(61) a. Wo   zhidao.
   I   know
         'I know that.'
     b. Wo   zhidao   le.
         I   know   LE
         'It has been the case that I know it.'
         (In this case, I did not know it before uttering this sentence)

Soh says that the sentential particle *le* conveys a change of state reading and contrary to expectation reading; hence, it is a marker of change. Nevertheless, while both *cai* and *jiu* also denote a change of state reading, the sentential particle *le* can only co-occur with *jiu* but not with *cai*. This incompatibility effect cannot be accounted by Soh's analysis since *cai* also bears a change of state reading, shown as follows.

(62) a. Zhangsan   wu   dian   cai   lai   (*le).
         Zhangsan   five   o'clock   CAI   come (*LE).
         'Zhangsan did not appear until five o'clock.'
     b. Zhangsan   wu   dian   jiu   lai   le.
         Zhangsan   five   o'clock   JIU   come LE.
         'At five o'clock, Zhangsan has already appeared.'

(63) a. Ta   chi   le   san   ge pingguo   cai   bao   (*le).
         he   eat   PFTV three CL apple   then full   LE
         'He became full only after eating three apples.'
     b. Ta   chi   san   ge   pingguo   jiu   bao   le.
         he   eat   three CL   apple   then full   LE
         'He became full after only eating three apples.'

The sentences in (62a) and (63a) are ungrammatical as *cai* co-occurs with the sentential particle *le*. On the other hand, the sentences in (62b) and (63b) are grammatical as *jiu* co-occurs with the sentential particle *le*.
To account for this phenomenon, I adopt Lai's analysis of *jiu* and *cai*. That is, they differ in the opposite changing point according to the reference point, as illustrated in Figure 2.
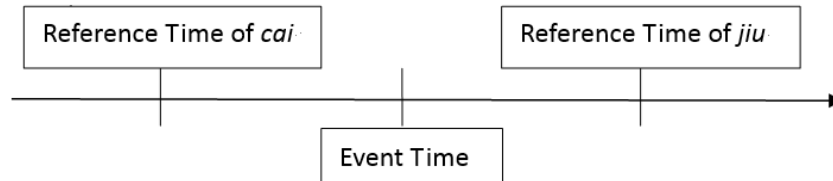
Figure 2.
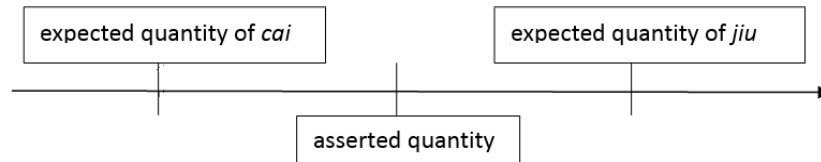
This figure shows that *cai* presupposes that an expected changing point is prior to the asserted point whereas *jiu* presupposes that an expected changing point follows the asserted point. To explain the incompatibility effect, this figure

should be treated as a temporal relation between Event Time and Reference Time. In other words, the asserted point can be regarded as Event Time and the expected changing point as Reference Time, shown in Figure 3.

Figure 3.

The reason to treat *cai* and *jiu* in this way is because the sentential particle *le*, as mentioned above, indicates a relation between Event Time and Reference Time. Therefore, treating *cai* and *jiu* in the same way makes it easy to figure out what causes the incompatibility effect. Now consider the sentence in (60a), *Zhangsan wu dian cai lai*, 'Zhangsan did not appear until five o'clock.' *Cai* presupposes that Zhangsan is expected to come earlier than five o'clock. Therefore, the expected changing time (Reference Time) is earlier than the asserted time (Event Time). On the other hand, in sentence (60b), *Zhangsan wu dian jiu lai le*, 'At five o'clock, Zhangsan has already appeared,' *jiu* presupposes that Zhangsan should appear after five o'clock. Hence, the expected changing time (Reference Time) is later than the asserted time (Event Time). As a result, the time of Zhangsan coming takes place before Reference Time. This shows that both *jiu* and the sentential particle *le* indicates that Event Time precedes Reference Time while *cai* indicates that Event Time follows Reference Time. Accordingly, *cai* cannot co-occur with the sentential particle *le* because their semantic frames are contradictory.

5.3 The perfect aspectual property of the sentential particle *le*

As the discussion in 5.2 shows, both *jiu* and the sentential particle *le* indicates that Event Time is prior to Reference Time so that they can co-occur in the sentence. On the other hand, *cai* indicates that Event Time is following Reference Time so that it cannot co-occur with the sentential particle *le*. This, again, proves that the sentential particle *le* performs the function of a perfect aspect marker which indicates the relation between Event Time and Reference Time.

A related piece of evidence is with regard to another property of the perfect aspect, that is, to indicate the overlapping relation between Event Time and Reference Time, termed "simultaneity" by Galia Hatav.[16] With the same example illustrated in sentence (60b), *Zhangsan wu dian jiu lai le,* 'At five o'clock, Zhangsan has already appeared,' it is possible to anchor Reference Time

---

[16] See Galia Hatav 1997.

on Event Time (five o'clcok) since Zhangsan could arrive exactly at five o'clock.

6.Conclusion

I have shown that the various functions of the sentential particle *le* come from its perfect aspectual property, specifically the semantic interpretation of the temporal relation between Event Time and Reference Time, and its pragmatic contribution, which patterns with that of the perfect form in other languages. At first glance, one may say that the sentential particle *le* differs from the English perfect aspect because it can denote a change of state reading. However, the study of incompatibility of *cai* with the sentential particle *le* poses a problem if it is regarded as a change of state marker. On the other hand, the assumption that the sentential particle *le* is a perfect aspect marker accounts for all the phenomena. In addition, an examination of the properties of the perfect in other languages reveals that the sentential particle *le* behaves the same way, too. Therefore, we conclude that *le* is a perfect aspect marker.

However, there are still unsolved problems. For example, it is unclear what role the sentential particle *le* plays in such sentences as shown in (64).

(64) a.　　Zhangsan　tai　　ai　　　　le
　　　　　　Zhangsan　too　short　　　LE
　　　　　　'Zhangsan is too short.'
　　　b.　　Zhangsan　tai　　gao　le
　　　　　　Zhangsan　too　tall　LE
　　　　　　'Zhangsan is too tall.'

For the case of (64), let's assume that Zhangsan is expected to be 170 centimeters tall. The sentence in (64a) will be uttered if Zhangsan is only 150 centimeters tall. On the other hand, the sentence in (64b) will be uttered if Zhangsan is 190 centimeters tall. If we treat the sentential particle *le* as a perfect aspect marker, the question how it works in such sentences will need further research.

References

Binnick, Robert I. 1991. *Time and the verb: A guide to tense & aspect*. New York: Oxford University Press.

Chao, Yuen-Ren. 1968. *A grammar of spoken Chinese.* Berkeley: The University of California Press.

Friedrich, Paul. 1974. On Aspect Theory and Homeric Aspect, *IJAL*, 40.4, Part 2, Memoir #28.

Galia Hatav. 1997. *The Semantics of Aspect and Modality: Evidence from English and biblical Hebrew*. Studies in Language Companion Series 34. John Benjamins Publishing Co.

Hopper, Paul J. 1979. Some Observations on the Typology of Focus and Aspect in Narrative Language. *Studies in Language* 3.1: 37-64.

Klein, Wolfgang 2000. An Analysis of the German Perfekt. *Language* 76/2:358-382

Lai, Huei-Ling. 1999. Rejected Expectations: the Scalar Particles Cai and Jiu in Mandarin Chinese. *Linguistics* 37 (4), 625-661.

Li, Charles N./ R. McMillan Thompson, and Sandra A. Thompson. 1982. The Discourse Basis of the Perfect Aspect: The Mandarin Particle le. In Paul J. Hopper, ed., *Tense and Aspect. Between semantics and pragmatics.* Amsterdam: John Benjamins, 19-44.

Liao, Wei-Wen 2004. *The Architecture of Aspect and Duration*. Hsinchu, Taiwan: National Tsing Hua University MA thesis.

Portner, Paul 2003. The (Temporal) Semantics and (Modal) Pragmatics of the Perfect. *Linguistics and Philosophy* 26: 495-510.

Reichenback, Hans. 1947. *Elements of Symbolic Logic*. New York: Free Press.

Rothstein, Bjorn. 2008. *The perfect time span: On the present perfect in German, Swedish and English*. John Benjamins Publishing Company.

Soh, Hooi Ling. 2009. Speaker presupposition and Mandarin Chinese sentence-final -*le*: a unified analysis of the "change of state" and the "contrary to expectation" reading. *Nat Lang Linguist Theory* 27:623-657.

Shen, Li 2004. Aspect Agreement and light verbs in Chinese: A comparison with Japanese. *Journal of East Asian Linguistics* 13, 141-179.

Contact Information
Graduate Institute of Linguistics
National Tsing Hua University
101, Section 2 Kuang Fu Road, Hsinchu,Taiwan 30013

Email: smilepomme@hotmail.com