The development of aspect marking in L1 and L2 Chinese

Limin Jin and Henriëtte Hendriks
Research Centre for English and Applied Linguistics

Introduction

Over the last twenty-five years, it has been found that in both L1 and L2 interlanguage verb inflections emerge in an observable restricted pattern that deviates, more or less importantly, from the target (See Andersen and Shirai 1994, 1996, and Bardovi-Harlig 1999, 2000 for very good reviews). Past tense or perfective marking tends to associate first with only Achievement and Accomplishment predicates whereas progressive marking is used exclusively on Activities. In languages that grammaticalise the distinction between the perfective and the imperfective, perfective past precedes imperfective past, and the latter starts with States and Activities. Progressive marking never generalises to States in L1, but it does in L2 although very rarely, as pointed out by Bardovi-Harlig (1999, 2000). Such a pattern has been labelled as the Aspect Hypothesis (AH) because both the L1 and L2 learners seem to be initially ‘influenced by the inherent semantic aspect of verbs or predicates in the acquisition of tense and aspect markers’ (Andersen and Shirai 1994:133).

Although the Aspect Hypothesis has been well-attested in research on L1 and L2 acquisition of such Indo-European languages as English, French, German, Italian and Spanish, studies to test the Aspect Hypothesis in the L1 and L2 acquisition of Chinese have been scarce. This paper attempts to fill this gap. Moreover, the present study, by using the same elicitation material for both L1 and L2 learner groups, aims at finding out whether aspect markers are used in the same way in L1 and L2 Chinese and at providing an explanation for the similarities and differences.

This paper is organised in the following way: The next section provides a linguistic background to aspect in general and the Chinese aspectual system in particular; the following one reviews findings from previous studies about the development of tense-aspectual marking, focusing on the research in L1 and L2 Chinese; a further section reports on the present study and its findings, followed by a discussion section. Conclusion can be found in the final section.

We would like to thank Dr Maya Hickmann for letting us use the data from her project and the two sets of pictures in the elicitation of the L2 data. Thanks also go to all the participants who took part in the project and to Daming Wu and Szu-Chi Chen for helping with the organisation of some L2 experiments. The PhD project of Limin Jin is funded by Cambridge Overseas Trust, Gonville and Caius College and the Research Centre for English and Applied Linguistics at the University of Cambridge.
Aspect and the Chinese aspectual system

Aspect

‘Aspect’ in this paper refers to not only viewpoint aspect, or grammatical aspect, but also situation aspect, or lexical aspect. We follow Smith’s (1991/1997) and define aspect as an interaction between these two components.

The classification of situation aspect has been heavily influenced by Vendler’s (1967) philosophical typology of the time schemata of verbs although it has been pointed out that situation aspect is expressed not only by the verb but by the whole predicate which includes the arguments of the verbs (Mourelatos 1978, Dowty 1979, Smith 1997). Vendler has identified four situation types: States (e.g. know, like), Activities (e.g. run, chat), Accomplishments (e.g. read a book, build a house) and Achievements (e.g. arrive, lose). The temporal features of these situation types are listed in (1).

(1) Temporal features of situation types

<table>
<thead>
<tr>
<th>Situations</th>
<th>Stative</th>
<th>Durative</th>
<th>Telic</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Activity</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Accomplishment</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Achievement</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

(Adapted from Smith 1997: 20)

Viewpoint aspect, on the other hand, expresses the ‘different ways of viewing the internal temporal constituency of a situation’ (Comrie 1976:3). It includes the perfective and the imperfective aspect. The difference between them lies in that the imperfective makes ‘explicit reference to the internal temporal structure’ of a situation whereas the perfective treats the situation as a complete whole (Ibid: 16-24).

In English the imperfective is expressed through the progressive suffix –ing as in We’re chatting whereas the perfective is inferred from the past tense –ed and

---

2 Zeno Vendler’s ‘Verbs and Times’ first appeared in 1957 in The Philosophical Review 66: 143-60. It was later republished with minor changes as chapter 4 of Linguistics in Philosophy in 1967. The discussion here is based on the latter version.
the past participle –en. The progressive suffix associates mainly with Activities and Accomplishments, but can also be used with States of postures, such as stand and sit, and Achievements. When it interacts with an Achievement predicate, it presents the preparatory stage leading to the punctual and telic situation as in We’re reaching the top of the hill.

The Chinese aspectual system

Unlike English, which is a ‘tense language’, Chinese is an aspect-prominent language. Its deictic temporal relations are expressed through temporal adverbials rather than verb inflections. With regard to situation aspect\(^1\), Chinese has examples for all the Vendlerian categories. In addition, Chinese has two special classes of verbs, RVCs and MSTs. RVC stands for Resultative Verb Compounds in Li and Thompson (1981) or Resultative Verb Complements in Smith (1997). An RVC is a verb compound that can take the form of V+Adj as in (2a) or V+V as in (2b).

(2) Resultative Verb Compounds (RVCs)
   a. xi ganjing (wash clean); xiuli hao (repair ready)
   b. xuehui (study-know); kandong (read-understand)

The uniqueness of these predicates is that although they are composed of an activity verb and a resultative complement, they do not, as Accomplishments, depict a process with an inherent endpoint. Rather they present the result from a process and, consequently, behave like Achievements. Tai (1984) has found that many of the English Achievements are translated into Chinese RVCs.

Another special group of verbs is what Li (1990) classifies as ‘Mixed Stative-Telic verbs’ (MSTs) listed in (3).

(3) Mixed Stative-Telic verbs (MSTs)
   chuan (put on/wear); na (take/hold); ti (pick up/carry); gua (hang/is hanging)

The uniqueness of these verbs is that they can describe both the action, punctual or durative, and the stative result of the action. Therefore, they have different meanings when they are combined with the progressive marker ‘zai’

\(^1\) Klein et al (2000) has proposed an interesting, but completely different (from Vendler’s system), framework for analysing the temporal features of the lexical content of verbs and verb phrases. Here we have decided to follow the Vendlerian framework so as to make the results from the present study comparable with previous studies on the L2 acquisition of tense and aspect most of which follow this framework.
and the durative marker ‘zhe’ as illustrated in (4).

(4) a. Ta zai chuan pi xie.
    he/she ZAI put-on leather shoe
    ‘He/She is putting on a pair of leather shoes’.

b. Ta chuan zhe pi xie.
    he/she wear ZHE leather shoe
    ‘He/She is wearing a pair of leather shoes’.

The Chinese viewpoint aspect is expressed through a small group of aspect markers, with le, guo, zhe and zai as the most important ones. It is essential to note that these markers are not obligatory as the English tense markers are. Le and guo are perfective markers. Le can appear in verb-final (VF-le), sentence-final (SF-le), and both verb-final and sentence-final (VF/SF-le) positions as in (5).

(5) a. Wo kan-le zhege dianying.  
    I see-LE this-CL film  
    ‘I saw this film’.

b. Wo chiwan fan le.  
    I eat-finish meal LE  
    ‘I have eaten’.

c. Mama zou le.  
    Mum leave LE  
    ‘Mum has left’.

Chao (1968) speculates that VF/SF-le is a combination of VF-le and SF-le through haplology. The VF-le, a weakened form of the homographic verb liao meaning ‘finish’ (Ibid.), is unanimously recognised as a perfective marker signalling the completion or arbitrary termination of a situation and can appear in sentences with reference time in the past, present and future although in the futurate sentences it can only present the earlier of the two situations as in (6).

(6) Ta mingtian chi-le fan jiu qu zhao ni.  
    he/she tomorrow eat-LE meal then go find you.  
    ‘He/She’ll go to see you after having his/her meal tomorrow’.

The difference between VF-le and SF-le lies in that sentences like (5a) present a past event whereas in (5b) the SF-le relates that past event to the present (Chao 1968, Li and Thompson 1981 and Zhu 1982) or any reference time, similar to the English perfect (Smith 1997). The semantic contribution of SF-le can be seen more clearly in (7) from Chao (1968).
De is a very complicated functional word in Chinese. Li and Thompson (1981) identify it as an associate phrase which links the noun with its modifiers.
the proposition that Mary has the experience of going to the US in the past although this does not exclude the possibility of her being in the US now on another visit.

(9) a. Mali qu meiguo le.
    Mary go US LE
    ‘Mary has gone to the US’.

b. Mali qu guo meiguo.
    Mary go GUO US
    ‘Mary has been to the US’.

Consequently, *guo* can only be used with repeatable situations, which makes the sentence in (10) anomalous.

(10) *Ta si guo.
    he/she die GUO
    ‘He has died (once)’.

The imperfective markers in Chinese are *zhe*, which appears after the verb, and *zai*, before the verb. *Zai*, the short form for *zhengzai*, is often considered the progressive marker in Chinese. It presents an internal interval of a durative but non-stative event and, consequently, States and Achievements with the progressive are ungrammatical, as illustrated in (11).

    I ZAI like Cambridge
    ‘I’m liking Cambridge’.

b. Wo zai youyong.
    I ZAI swim
    ‘I’m swimming’.

c. Wo zai kan yi ben shu.
    I ZAI read one CL book
    ‘I’m reading a book’.

* *d. Wo zai xiuli hao zixingche.
    I ZAI repair ready bicycle
    *‘I’m having repaired the bicycle’.

---

1 The only difference between *zai* and *zhengzai* is that *zhengzai* presents one instance of a dynamic and durative situation whereas *zai* can represent the continuousness of such a situation. Therefore, *zai* predicates can be modified by adverbs such as *jingchang* (often) and *yichi* (all the time) whereas *zhengzai* predicates cannot. While *Wo yichi zai deng ni* (*I’ve been waiting for you all the time*) is grammatical, *Wo yichi zhengzai deng ni* is anomalous.

2 CL=classifier
The other imperfective marker *zhe* presents a situation as continuous and stable. It is often called the durative marker (Li 1990, Lee 1996) because it represents a resultative state rather than the subinterval of a dynamic event as in (12a) and (12b). However, it cannot associate with Achievement predicates as in (12c).

(12)

(a) Zheli zhu zhe yi-ge waiguo ren. (State)
   here live ZHE one CL foreign person
   ‘There’s a foreigner living here’.

(b) Ta chang zhe ge zoujin jiaoshi. (Activity)
   he/she sing ZHE song walk-into classroom
   ‘He/She walked into the classroom while singing’.

(c) *Ta si zhe. (Achievement)
   he/she die ZHE.
   ‘He/She is dying’.

The difference between these two imperfective markers can be illustrated more clearly with the Mixed Stative-Telic verbs as in (4). Since the MSTs depict both the action and its resultative state, when they occur with *zai*, the activity part is presented, and when they are followed by *zhe*, the resultative state is portrayed.

**Acquisition of tense and aspect**

**Explanations for the Aspect Hypothesis (AH)**

Since the phenomenon verbalized in the Aspect Hypothesis was first discovered in L1 studies such as Bronchart & Sinclair (1973), Antinucci & Miller (1976) and Bloom et al (1980), it was suggested that the cause lies in the cognitive deficiency of young children who do not have the concept of tense, i.e. temporal deixis. Therefore, they use past tense markers to indicate observable results of past actions on the present. However, apart from findings from Weist et al (1984) which clearly indicated that Polish speaking children marked both tense and aspect from a very early stage, the fact that AH also holds in L2 acquisition challenges the explanatory power of this proposal since adult L2 learners are believed not to be subject to cognitive limitations.

Another explanation for the Aspect Hypothesis resorts to cognitive predisposition, such as in Bickerton’s Bioprogram and Slobin’s Basic Child Grammar. Based on his study of Creole languages, Bickerton (1981) proposes that the ‘punctual-nonpunctual’ and ‘state-process’ distinctions are innate and children will mark them when the input does not provide adequate information
about the existing tense-aspect system. Therefore, their perfective marking starts with Achievements and their progressive marking never generalises to States. Slobin (1985), on the other hand, proposes that children are more sensitive to the process-result distinction in which 'result' is more salient. Li (1990) tested these two hypotheses and found support for Slobin’s Basic Child Grammar with L1 Chinese learners’ data. No prediction has been made with regard to L2 acquisition of tense-aspect marking by these hypotheses.

Contradictory to the above nativist explications, the Distributional Bias Hypothesis put forward by Andersen (1990, 1993) proposes input as the cause for AH. Andersen & Shirai (1994:137) observe that ‘native speakers in normal interaction with other native speakers tend to use each verb morpheme with a specific class of verbs, also following the [A]spect [H]ypothesis’. The difference between native speakers and the learners, however, lies in that the distributional bias that the former ‘exhibit in relative quantitative terms’ is ‘found in more absolute terms in the acquisition data’ (Andersen 1993:320).

Stephany (1981) collected data of child-directed motherese as well as adult-directed speech by the same mothers. She found that child-directed speech is more consistent with the distribution predicted by AH than adult-directed speech.

In relation to the Distributional Bias Hypothesis, Li and Shirai (2000) used a connectionist network to model the acquisition of aspect in L1 and concluded that such a process is ‘a correlational, statistical procedure in which the learner implicitly tallies and registers the frequency of co-occurrences or the occurrence constraints among morphemes, features, and verbs’ (Ibid: 155). They argue strongly against cognitive predisposition as the cause for the phenomenon defined as AH because when trained with caretakers’ and mothers’ speeches from the CHILDES corpus, the network, which clearly does not have cognitive predisposition, produced a pattern that resembled that of AH closely.

The acquisition of aspect in L1 and L2 Chinese

As mentioned earlier, research in the acquisition of aspect in L1 and L2 Chinese has been sparse. To our knowledge studies in aspect development in L1 Chinese include Erbaugh (1978, 1982), Kong (1993), Li (1990) the data from which have been reported with new analyses in Li and Bowerman (1998) and Li and Shirai (2000), Hendriks et al (1998) and Hendriks (1999). These

---

1 The article was first published in IDEAL 3: 111-38 in 1988. It was reprinted in B. VanPatten and J. F. Lee (Eds.) in 1990. The reference here is the 1990 version.
studies have found that SF-le and VF/SF-le appear earlier in L1 Chinese than VF-le, and that the acquisition of aspect markers is influenced by the situation aspect of the predicates, although the telic-atelic distinction is more important than the state-process or the punctual-nonpunctual distinctions.

Erbaugh (1978) reports a longitudinal study of aspect marking in the interlanguage of 4 Mandarin speaking children. She has found that le emerges first and appears at sentence-final position to represent the change of state not only for changes that have already taken place but also for desired changes, sometimes inappropriately in imperatives. Erbaugh (1982, reviewed in Lee 1998) also found that the imperfective markers zai and zhe emerge later than le. Kong’s (1993, reviewed in Teng 1999) study of 90 children aging from 1 to 5 years old has confirmed the finding that le first appeared in sentence-final position and then, only after 2 years and 6 months did the children start to use le at the verb-final position. Neither Erbaugh’s nor Kong’s studies looked at the interaction between viewpoint aspect and situation aspect.

Li (1990) presents an experimental study on the comprehension and production of the perfective VF-le and the imperfective zai, zhe and ne. The results from the study, i.e. children tend to associate the perfective marker with telic verbs and the imperfective markers with atelic verbs, lend support for Slobin’s proposal that children are more sensitive to the process-result distinction rather than Bickerton’s state-process and punctual-nonpunctual distinctions. Li and Bowerman (1998), and later Li and Shirai (2000), based on the same results, point out that it is possible to explain such results with the Prototype Hypothesis proposed by Shirai and Andersen (1995) and the connectionist model both of which lay emphasis on the input without assuming the existence of cognitive predisposition.

Hendriks et al (1998) and Hendriks (1999) used two sets of pictures to elicit story-telling data and found the same results with slightly older children than those in Li (1990). That is, le, divided into VF-le, SF-le and VF/SF-le, is often used with bounded (telic) predicates whereas the imperfective zhe and ne often appear with unbounded (atelic) predicates. In comparison with data from L1 German, French and English children, it has been found that the association of the perfective with bounded predicates is most striking in Chinese. Moreover, ‘discourse factors also have a strong impact on the uses of particles [in Chinese]’ (Hendriks et al 1998:241).

Studies on the L2 acquisition of the Chinese aspectual system started with longitudinal case studies such as Sun (1993) and Zhao (1996), focusing on the use of le in the interlanguage. Both studies observed beginning learners and
found an overuse of le. Since the learners in both studies are English native speakers, the overuse of le has been attributed to the interference of learners’ L1. That is, they treated le₁ as an equivalent of the English past tense marker –ed. Sun (1993) has also found that le₂ (SF-le or VF/SF-le) appeared earlier than le₁ (VF-le). Teng (1999) found that there are more occurrences of SF-le or VF/SF-le (le₂, 67%\(^1\)) than VF-le (le₁, 32%) in the written L2 corpus under examination, and the rate of correct use for SF-le or VF/SF-le (69%) was also much higher than that for VF-le (30%). Neither of these studies reported the interaction between verb semantics and the acquisition of le.

Wen (1995) carried out a cross-sectional study on the acquisition of le by English native speakers and found that le₁ was acquired before le₂, the opposite of Teng’s (1999) findings. The percentages of correct use of le₁ and le₂ by the beginning learners are respectively 75% and 41.5%, whereas those for the more advanced learners are 82.7% and 77.3%. She also reported an overuse of le₁, which resembled the English past tense marker, and concluded that L1 interference played a role in the L2 acquisition of Chinese aspectual markers. Wen (1997) focused only on le₁ and also included guo and zhe in the investigation. It was found that le₁ and guo were acquired before zhe and that the elementary learners were more subject to the influence of verb semantics in their acquisition of the aspect markers: le₁ occurred more with predicates that ‘have a clear-cut end point’ (Ibid: 20) and zhe more with durative predicates.

Yang et al (1999) reported on a cross-sectional study of the acquisition of le₁, guo and zhe by English native speakers. It was found that for the elementary learners, guo seems to be the most difficult and le₁ the least difficult to learn. However, le₁ continued to pose problems for even the advanced learners. Moreover, the acquisition of le₁ and zhe was influenced by lexical aspect. Yang et al (2000) examined the acquisition of le₁, guo and zhe by native Korean or Japanese speakers. Apart from repeating the finding in Yang et al (1999) that le₁ continues to be the problem for all levels of learners although improvements can be observed with the advance of the proficiency level, they have also found both overuse and underuse of aspectual markers. The causes for these problems can be attributed to the influence of situation aspect, syntactic structures, phonological environment and discourse structures.

---

\(^1\) In Chinese linguistics there has been a tradition of labeling VF-le as le₁ and SF-le as le₂. VF/SF-le is often classified as le₂. In fact most of the research in L1 and L2 acquisition of Chinese reviewed here does not make a distinction between SF-le and VF/SF-le. Consequently, we will use the original terms, le₁ and le₂, in the review of these studies.

\(^{11}\) The study has another category of double le sentences, with both VF-le and SF-le. Hence the addition of the percentages for le₁ and le₂ is not 100%.
To sum up, in studies of L2 Chinese the overuse of VF-le has been repeatedly reported and conflicting results have been found with regard to whether le₁ (VF-le) or le₂ (SF-le or VF/SF-le) is acquired first. The acquisition of aspect markers in L2 Chinese has been found influenced by the situation aspect, and the lower level learners are more prone to this effect.

The present study

The L2 data in this study were collected for the PhD project¹¹ of the first author whereas the Chinese adults’ and L1 learners’ data are from a larger database obtained for a previous project led by M. Hickmann. In order to make the data from these two projects comparable, the predicates from the earlier study have been recoded according to the diagnostic tests designed for the present study¹². The research questions the present study tries to address are:

1. Is the Aspect Hypothesis supported by the L1 and L2 data?
2. Are there any observable patterns in the development of aspect marking in terms of the interaction between the situation aspect and the viewpoint aspect? Are these two patterns (L1 and L2) the same? If they are, why? Is there any difference in the two patterns? If there is, what can be the cause for such a difference?

Participants

Thirty L2 Chinese learners, thirty L1 Chinese learners and ten Chinese adults have participated in the research. They form seven groups, with ten participants in each group. The L2 learners are all English native speakers registered in the Chinese programmes in the University of Cambridge (UK), the University of Leeds (UK), Beijing Foreign Studies University (China) or Beijing Language and Culture University (China). They have all studied Chinese under instruction for at least 6 months and lived in a native Mandarin-speaking environment, i.e. mainland China or Taiwan, for more than a month. They are divided into Lower Intermediate (LI), Intermediate (IN) and Upper

---

¹¹The project is on the development of aspect marking in L2 Chinese by English native speakers, focusing on the acquisition of le, zhe, guo and zai. A grammaticality judgement task has also been used since the production tasks are unable to elicit a balanced number of different situation types and the elicitation of guo is extremely difficult in the production data. Results from the grammaticality judgement task have been partly reported in Jin (2002).

¹²Predicates in the Hickmann’s study were coded according to the durative/punctual and bounded/unbounded distinctions. Such a system does not distinguish between States and Activities. In order to make the L1 data comparable with the L2 data the predicates in which have been classified into the four Vendlerian types, the L1 data have been recoded according to the diagnostic tests designed for the L2 data.
Intermediate (UI) groups based on their scores from a cloze test. The L1 learners are divided into 3 age groups: the 5 year olds (5yr; mean: 5, range: 4:2-5:4), the 7 year olds (7yr; mean: 7:3, range: 7:0-7:6) and the 10 year olds (10yr; mean: 10:6, range: 10:2-10:9). The Chinese adults (CA) serve as controls.

Material and procedure

Data have been elicited with two sets of picture sequences: the Horse Story and the Cat Story (See Appendix 1 for the pictures). The participants were instructed to tell a story based on each set of pictures to either a blind-folded interlocutor (L1 learners) or an imagined interlocutor who cannot see the pictures (L2 learners and the adult native speakers) so that they would rely on linguistic rather than paralinguistic means to communicate the information. Half of the subjects told the Cat Story first whereas the other half began with the Horse Story. In this paper the results from both stories for each group are collapsed and presented as one corpus unless otherwise indicated.

Coding of predicates

The predicates in the stories are classified into five groups: States (STA), Activities (ACT), Accomplishments (ACC), Achievements (ACH) and Cognitive-Modal predicates (VCM). The last category includes modals such as keyi (can), dei (have to), hui (will), nenggou (can), yao (will/want) and yinggai (must), and predicates that describe cognitive processes such as juede (feel), jueding (decide), zhidaodao (know), xiang (think/want) or xiang-related predicates such as xiang qilai (suddenly remember). VCMs have been excluded in the final analysis because modal verbs do not associate with aspect markers in any context and cognitive verbs produce complicated consequences in their co-occurrence with aspect markers. This results in the exclusion of 62 out of 701 (9%) predicates for the Chinese adults, 34/348 (10%) for the 5 year olds, 21/326 (6%) for the 7 year olds, 44/420 (11%) for the 10 year olds, 58/431 (14%) for the L2 LI, 98/597 (16%) for the IN and 103/618 (17%) for the UI.

The rest of the predicates have been classified into the four Vendlerian situation types by using diagnostic tests adapted from Shirai and Andersen (1995) and Shirai (1998) (See Appendix II for the tests).
Results

Distribution of situation types

Although all the stories are based on the same two sets of pictures, the distributions of situation types vary. The L1 learners generally use more Achievements than the adult native speakers. The percentages of Achievements used by the L1 speakers are 49% for the adults, 58% for both the 5 and 7 year olds and 56% for the 10 year olds. The percentages for the L2 groups are slightly lower. On the other hand, the L2 learners use more stative predicates than the Chinese adults whereas the L1 learners use slightly fewer except for the 7yr. The distribution of the four situation types in different groups can be found in Table 1.

Table 1: The distribution of situation types

<table>
<thead>
<tr>
<th>2 Stories</th>
<th>Control</th>
<th>L1 learners</th>
<th>L2 learners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CA</td>
<td>5yr</td>
<td>7yr</td>
</tr>
<tr>
<td>STA</td>
<td>22%</td>
<td>20%</td>
<td>23%</td>
</tr>
<tr>
<td>ACT</td>
<td>20%</td>
<td>15%</td>
<td>11%</td>
</tr>
<tr>
<td>ACC</td>
<td>9%</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>ACH</td>
<td>49%</td>
<td>58%</td>
<td>58%</td>
</tr>
<tr>
<td>Token</td>
<td>639</td>
<td>314</td>
<td>305</td>
</tr>
</tbody>
</table>

A close examination of the stative predicates shows that although the L2 learners use more predicates of this category, the presentational structure with you (have), such as in (13), actually constitutes more than half of them in all the L2 learners’ data. This means that their stories contain more description about what exists in the pictures. The percentage of you is also over 50% in the 7yr and 10yr data. Table 2 shows the percentage of you among stative predicates.

(13) Tianye li you yi pi ma.
    field in YOU one CL horse
    ‘There is a horse in the field’.
Table 2: The percentage of you among stative predicates

<table>
<thead>
<tr>
<th>2 Stories</th>
<th>Control CA</th>
<th>L1 learners</th>
<th>L2 learners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5yr</td>
<td>7yr</td>
<td>10yr</td>
</tr>
<tr>
<td>No of you</td>
<td>54</td>
<td>24</td>
<td>37</td>
</tr>
<tr>
<td>No of STA</td>
<td>141</td>
<td>64</td>
<td>69</td>
</tr>
<tr>
<td>% of you</td>
<td>38%</td>
<td>38%</td>
<td>54%</td>
</tr>
</tbody>
</table>

Although the percentage of you for the 5yr is the same as that for the CA, the latter use a larger variety of States (38 types, including you, in the Horse Story and 21 types in the Cat Story) than the 5yr and all the other learner groups, except for the UI in the Cat Story, as shown in Table 3. In the stories, apart from stative background description triggered by the pictures, stative predicates have also been used to capture the mood of a story and the imagined personality of the characters, which makes the story more vivid. The fact that the 7yr and the IN L2 learners in the Cat Story use fewer types of stative predicates does reflect the general impression that these stories are less interesting than the others.

Table 3: Types of stative predicates used

<table>
<thead>
<tr>
<th>2 Stories</th>
<th>Control CA</th>
<th>L1 learners</th>
<th>L2 learners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5yr</td>
<td>7yr</td>
<td>10yr</td>
</tr>
<tr>
<td>Horse</td>
<td>38</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Cat</td>
<td>21</td>
<td>16</td>
<td>10</td>
</tr>
</tbody>
</table>

If we collapse States with Activities and Accomplishments with Achievements in Table 1, another interesting pattern appears. Although more telic than atelic predicates have been used by all groups, the L1 learners use fewer atelic predicates than the Chinese adults whereas the L2 learners employ more or less the same amount. The percentages of atelic predicates used by different groups are 42% for the CA, 35% for the 5yr, 34% for the 7yr, 33% for the 10yr, 47% for the LI, 42% for the IN and 43% for the UI. Such a pattern might possibly be attributed to the general belief that children are more interested in results in their perception and presentation of events.
Use of aspect markers

For all the learner groups and the controls, more than 60% of the predicates are used without any aspect markers. The temporal relationship is expressed through the means of temporal adverbials and discourse organisation. The percentage of predicates without an aspect marker in each group in the order of CA, 5yr, 7yr, 10yr, LI, IN and UI are 65%, 63%, 61%, 61%, 77%, 82% and 79% as illustrated in Figure 1.

Interestingly, while the L1 learners use slightly more predicates with aspect markers than the Chinese adults, the L2 learners use much fewer aspect markers than all the L1 groups.

Among the predicates with aspect markers, Achievements attract more than 60% of the aspect markers, which is true of all groups. For the L2 learners, a clearer developmental pattern can be seen: the L2 learners tend to use more aspect markers on Achievements at the beginning and gradually, with the development in proficiency level, learn to use them with other types of predicates. The L1 learners, on the other hand, demonstrate a similar pattern but less clear. Table 4 shows the distribution of different predicates with aspect markers.
Table 4: Distribution of predicate types with aspect markers

<table>
<thead>
<tr>
<th>2 Stories</th>
<th>Control</th>
<th>L1 learners</th>
<th>L2 learners</th>
</tr>
</thead>
<tbody>
<tr>
<td>STA</td>
<td>CA</td>
<td>5yr  7yr  10yr</td>
<td>LI  IN  UI</td>
</tr>
<tr>
<td>ACT</td>
<td>15%</td>
<td>13%  11%  12%</td>
<td>7%  16%  14%</td>
</tr>
<tr>
<td>ACC</td>
<td>14%</td>
<td>9%   10%  10%</td>
<td>7%  12%  16%</td>
</tr>
<tr>
<td>ACH</td>
<td>5%</td>
<td>6%   3%   13%</td>
<td>3%  7%   7%</td>
</tr>
<tr>
<td>Token</td>
<td>223</td>
<td>117  118  147</td>
<td>86  91   108</td>
</tr>
</tbody>
</table>

Now let us look more closely at the different aspect markers used. In all the stories, only one instance of *guo* has been found in the Chinese adult corpus. Therefore, *guo* is omitted from the analysis. Figure 2 shows the percentages of different *le*’s, including VF-*le*, SF-*le* and VF/SF-*le*, among all the predicates with aspect markers, which include also *zai*, *zhe* and *zai&zhe*.

Figure 2: The percentage of *le* among predicates with aspect markers

In general, the perfective markers are much more often used than the imperfective markers. The percentage of predicates with *le* makes up 77% of all the predicates with aspect markers by the Chinese adults. Except for the UI learners, the other 5 groups of learners have all used more *le* than the Chinese adults. The L2 learners show a very clear developmental pattern in that they tend to use much more perfective than imperfective markers at the beginning:

\[\text{This} \text{ refers to sentences in which } zai \text{ and } zhe \text{ appear together as in } \text{Wo zai kan zhe ta} \text{ (I’m looking at him/her), which is grammatical in Chinese. They are not discussed in the analysis as the occurrences are few.}\]
94% of all the tokens of aspect markers are _le_ for the LI. They gradually learn to use the imperfective markers and, therefore, a decline in the percentage of perfective marking with the advance of proficiency level can be observed.

A further analysis of the three types of _le_, _zai_ and _zhe_ used by different groups of participants has revealed some interesting findings. Table 5 shows the break-up of the total percentage of predicates with aspect markers. The numbers in brackets represent the occurrences of each aspect marker.

Table 5: The percentage of _le_’s, _zai_ and _zhe_ among predicates with aspect markers

<table>
<thead>
<tr>
<th>2 Stories</th>
<th>Control</th>
<th>L1 learners</th>
<th>L2 learners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CA</td>
<td>5yr</td>
<td>7yr</td>
</tr>
<tr>
<td>VF-le</td>
<td>32% (72)</td>
<td>11% (12)</td>
<td>15% (18)</td>
</tr>
<tr>
<td>SF-le</td>
<td>4% (9)</td>
<td>3% (4)</td>
<td>1% (1)</td>
</tr>
<tr>
<td>VF/SF-le</td>
<td>40% (90)</td>
<td>69% (81)</td>
<td>65% (76)</td>
</tr>
<tr>
<td><em>zai</em></td>
<td>3% (6)</td>
<td>4% (5)</td>
<td>4% (5)</td>
</tr>
<tr>
<td><em>zhe</em></td>
<td>19% (42)</td>
<td>12% (14)</td>
<td>15% (18)</td>
</tr>
<tr>
<td><em>zai&amp;zhe</em></td>
<td>2% (4)</td>
<td>1% (1)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>Token</td>
<td>223</td>
<td>117</td>
<td>118</td>
</tr>
</tbody>
</table>

It is clear from Table 5 that the Chinese adults use slightly more VF/SF-le than VF-le and the occurrences of SF-le are scarce. The L1 and L2 learners’ data present very interestingly opposite patterns: the L1 learners start with using much more VF/SF-le than VF-le whereas the L2 learners begin with more VF-le than VF/SF-le. The developmental pattern in the L1 data is very clear: with the advance in age there is a decline in the percentage of VF/SF-le and an increase in the use of VF-le. The developmental pattern in the L2 data is not a linear one. After a start with more VF-le, there is a big increase in the percentage of VF/SF-le in the IN data. At the Upper Intermediate level, with an increase in the use of imperfective markers, there is a decrease in the percentage of VF/SF-le whereas the percentage of VF-le stays more or less the same as that for the IN.

With regard to the imperfective markers, the percentage of _zhe_ is much higher than that of _zai_, which might indicate that _zhe_ is more often used for background description in narration. The occurrences of _zai_ are generally very low, not more than 9% of all the predicates with aspect markers. No clear developmental pattern can be observed in either the L1 or the L2 data. As for _zhe_, all the learner groups use fewer _zhe_ than the Chinese adults. The L2 learners, however, use even fewer _zhe_ than the L1 learners, and a noticeable
development from zero occurrences in the L1 data to 13% in the UI data can be seen.

To sum up, more than 60% of the predicates in the data are without aspect markers. While the L1 learners tend to use slightly more aspect markers than the Chinese adults, the L2 learners are more reserved in this aspect. Among the predicates with aspect markers, more than 60% of them fall into the Achievement category. Both the L1 and the L2 learners show a development of spreading aspectual marking from Achievements to the other three types of situation. Moreover, more than 3/4 of the predicates with aspect markers appear with le at one of the three positions, VF-le, SF-le and VF/SF-le. While the L1 learners demonstrate a preference of VF/SF-le, the L2 learners seem to favour VF-le at the beginning. The L1 data reveal a linear pattern of decrease in VF/SF-le and increase in VF-le with the advance in age whereas the L2 learners demonstrate a drastic deviation from the target by the IN learners. With regard to the imperfective markers, zhe is used more often than zai and sees a linear developmental pattern nearing the target in the L2 data.

Up to now we have only looked at the percentages of different aspect markers used, without analysing whether the usages are correct or not. An examination of all the mistakes identified, based on native speaker judgement, with regard to the use of aspect markers, instances of both overuse (where there should be no aspect marker) and underuse (where there should be an aspect marker) have been found. Table 6 lists all the instances of overuse and underuse in each group in terms of different aspect markers. The percentage in the brackets indicates the proportion of overuse within tokens of each aspect marker the number of which can be found in Table 5.

Apart from overuse and underuse, in the 5yr data, one instance of VF/SF-le is used wrongly in the place of zhe and one zhe wrongly in the place of VF-le, as shown in (14) and (15). Although the 10yr group have not produced any instances of overuse and underuse, there is one zhe that should be replaced by VF-le, as shown in (16). Although (14) may be acceptable as an independent sentence, it does not fit in the context it has appeared in.

(14) *Houlai…gou kan zhe-ge niaowo le.
later dog protect this-CL bird-nest LE
‘Later the dog guarded the bird nest’.

(15) *Houlai ne, lai zhe yi-zhi niu.
later come ZHE one-CL cow
‘Later came a cow’.

Apart from overuse and underuse, in the 5yr data, one instance of VF/SF-le is used wrongly in the place of zhe and one zhe wrongly in the place of VF-le, as shown in (14) and (15). Although the 10yr group have not produced any instances of overuse and underuse, there is one zhe that should be replaced by VF-le, as shown in (16). Although (14) may be acceptable as an independent sentence, it does not fit in the context it has appeared in.
*Zhe shi da gou ba da mao chen zhe xialai.
this moment big dog BA big cat pull ZHE down-come
‘At this moment the big dog has pulled the big cat down’.

The percentages of mistakes, including overuse and underuse, within all the predicates used by each group are: 5yr: 3%; 7yr: 1%; LI: 4%; IN: 5%; UI: 4%, which shows that the L1 learners, by the age of 7, have already mastered the functions of aspect markers in discourse. L2 learners, on the other hand, stay more or less the same from LI to UI although a decrease in the overuse of VF-le and an increase of the underuse of VF/SF-le can be observed.

Table 6: Idiosyncratic uses of aspect markers

<table>
<thead>
<tr>
<th>2 Stories</th>
<th>Control CA 5yr over/under</th>
<th>5yr over/under</th>
<th>L1 learners</th>
<th>10yr over/under</th>
<th>L2 learners</th>
<th>10yr over/under</th>
<th>10yr over/under</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF-le</td>
<td>0 0 (0%) / 0 0 (0%) / 0 0 4 (9%) / 2</td>
<td>4 (9%) / 2</td>
<td>3 (10%) / 4</td>
<td>1 (3%) / 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VF/SF-le</td>
<td>0 1 (1%) / 2 1 (1%) / 1 0 1 (3%) / 4</td>
<td>1 (3%) / 4</td>
<td>2 (4%) / 10</td>
<td>0 (0%) / 10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>zai</td>
<td>0 0 (0%) / 2 0 (0%) / 0 0 2 (40%) / 0</td>
<td>2 (40%) / 0</td>
<td>0 (0%) / 10</td>
<td>3 (30%) / 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>zhe</td>
<td>0 0 (0%) / 2 0 (0%) / 0 0 0 (0%) / 0</td>
<td>0 (0%) / 3</td>
<td>0 (0%) / 4</td>
<td>0 (0%) / 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0 1 (1%) / 6 1 (1%) / 1 0 7 (8%) / 9</td>
<td>7 (8%) / 9</td>
<td>5 (6%) / 18</td>
<td>4 (4%) / 14</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Interaction of viewpoint aspect and situation aspect

Since the occurrences of SF-le and zai&zhe are sparse in the data, the following analysis of the interaction between viewpoint and situation aspect will focus on VF-le and VF/SF-le for the perfective aspect, and zai and zhe, used separately, for the imperfective aspect. Table 7 shows a comparison of the percentages of VF-le and VF/SF-le in their interaction with the different situation types. VF stands for VF-le and VSF for VF/SF-le.

For the Chinese adults, VF-le is used mostly with Achievements, and occasionally with Accomplishments and Activities. The two instances of VF-le with Activities by the Chinese adults are used between a verb and a temporal adverbial, such as youyu le pianke (hesitate for a little while), which poses an arbitrary endpoint to an Activity situation. This means that [+telic] is an important feature that VF-le marks in the predicates.

---

14 A BA-construction allows a definite or generic object to appear before the verb, contrary to the basic SVO word order in Chinese.
Table 7: The interaction of VF-le and VF/SF-le with situation types

<table>
<thead>
<tr>
<th>2 Stories</th>
<th>Control</th>
<th>L1 learners</th>
<th>L2 learners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CA</td>
<td>5yr</td>
<td>7yr</td>
</tr>
<tr>
<td></td>
<td>VF / VSF</td>
<td>VF / VSF</td>
<td>VF / VSF</td>
</tr>
<tr>
<td>STA</td>
<td>0% / 10%</td>
<td>0% / 5%</td>
<td>0% / 4%</td>
</tr>
<tr>
<td>ACT</td>
<td>3% / 2%</td>
<td>0% / 4%</td>
<td>0% / 1%</td>
</tr>
<tr>
<td>ACC</td>
<td>8% / 1%</td>
<td>42% / 2%</td>
<td>22% / 0%</td>
</tr>
<tr>
<td>ACH</td>
<td>89% / 87%</td>
<td>58% / 89%</td>
<td>78% / 95%</td>
</tr>
<tr>
<td>Token</td>
<td>72 / 90</td>
<td>13 / 81</td>
<td>18 / 76</td>
</tr>
</tbody>
</table>

In the L1 learners’ data, VF-le is used exclusively with Achievements and Accomplishments for the 5yr and 7yr. The 10yr learn to spread VF-le to Activities and States with termination expressed, i.e. a temporal adverbial is used to create an arbitrary endpoint to an atelic situation. This means that they have grasped the [+telic] feature marked by le although it takes time for them to learn to use it with the creation of an arbitrary endpoint.

The L2 learners start by using VF-le with all situation types except States although the association is largely with Achievements. The development in the proficiency level is accompanied by a decrease of VF-le with Achievements but an increase of its use with other situation types. Note that the percentages of VF-le with Activities in the L2 data, though low in general, are higher than those in the L1 data. Moreover, all the tokens of VF-le with Activities in the L2 data are used wrongly. Among them all the 3 instances of VF-le with Activities in the L1 data, 2 out of 4 instances in the IN data and all the 2 instances in the UI data are of the same kind, i.e. the use of kan (see/look) with VF-le to indicate the past tense of ‘see’ which, in Chinese, can only be expressed with the RVC kandao or kanjian. This indicates that they have problems with the difference between activity verbs and their RVC partners on the one hand and, probably, the [+telic] feature that goes with VF-le marking on the other.

With regard to VF/SF-le, the Chinese adults prefer to use it largely with Achievements and then States, but possible with all situation types. The L1 learners, especially the 7year olds, prefer to use it more with Achievements. The L2 learners, on the other hand, seem to resemble the Chinese adults’ pattern better though the percentage of its association with States is higher than the control group, indicating their slightly stronger preference of the inchoative use of VF/SF-le.
As for the imperfective aspect, illustrated in Table 8, the Chinese adults use *zai* mostly with Activities and occasionally with Accomplishments, demonstrating that the features of the predicates marked by *zai* are [+dynamic] and [+durative]. They use *zhe* mostly with States and Activities, indicating that the features preferred by *zhe* are [+durative] and [-telic].

The L1 learners use *zai* mostly with activities as well, but also accept the interaction of States and *zai* except for the 7yr, showing that they have not grasped the [+dynamic] feature marked by *zai*. The L2 learners also use *zai* mostly with Activities, but, in addition, accept, wrongly, the interaction of *zai* with Achievements except the Intermediate learners who have not used *zai* at all.

Table 8: Interaction of *zai* and *zhe* with situation types

<table>
<thead>
<tr>
<th>2 Stories</th>
<th>Control</th>
<th>L1 learners</th>
<th>L2 learners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CA</td>
<td>5yr</td>
<td>7yr</td>
</tr>
<tr>
<td></td>
<td><em>zai</em> / <em>zhe</em></td>
<td><em>zai</em> / <em>zhe</em></td>
<td><em>zai</em> / <em>zhe</em></td>
</tr>
<tr>
<td>STA</td>
<td>0% / 53%</td>
<td>20% / 57%</td>
<td>0% / 56%</td>
</tr>
<tr>
<td>ACT</td>
<td>83% / 45%</td>
<td>80% / 29%</td>
<td>100% / 33%</td>
</tr>
<tr>
<td>ACC</td>
<td>17% / 2%</td>
<td>0% / 0%</td>
<td>0% / 0%</td>
</tr>
<tr>
<td>ACH</td>
<td>0% / 0%</td>
<td>0% / 14%</td>
<td>0% / 11%</td>
</tr>
<tr>
<td>Token</td>
<td>6 / 42</td>
<td>5 / 14</td>
<td>5 / 18</td>
</tr>
</tbody>
</table>

With regard to *zhe*, in the L1 learners’ data an increase of the association between *zhe* and Activities can be observed although its interaction with States is almost target-like from the beginning. Among all the 5 instances of *zhe* with Achievements in the L1 data, 3 of them are used with *yao* (bite) to mean ‘hold between the teeth’ as in *yao zhe yi ge chongzi* (holding a worm between the teeth). In fact the more often used verb in this context is *diao* (hold between the teeth). Since *yao* is generally used to depict a punctual situation, it has been classified as an Achievement. The L1 learners are using it as a Mixed-State-Telic verb to portray the resultative state by associating it with *zhe*. The other two instances are idiosyncratic uses of *zhe* with Achievements, one in the 5yr data and one in the 10yr data, which should be replaced by VF-*le*, as shown in (15) and (16).

L2 learners, on the other hand, find *zhe* rather difficult at the beginning. There is not a single instance of *zhe* in the L1 data. They then treat *zhe* as similar to *zai*, a progressive marker, and use it more with Activities. Later they have understood the durative nature of *zhe* and use it in equal proportion with States.
To sum up, the Chinese adults tend to use VF-le with telic predicates, Accomplishments, Achievements and Activities with an arbitrary endpoint. They use VF/SF-le mostly with Achievements and States though its interaction with other situation types is also possible. The L1 learners start using VF-le only with inherently telic situations and learn to create arbitrary termination to an atelic situation at the age of 10. Both the L1 and L2 learners use VF-le with Achievements largely, but to a lesser extent than the Chinese adults. No clear developmental pattern can be observed. Zai is used only with durative and dynamic situations in the Chinese adults’ data. The learners, though both prefer to associate it with Activities, experience different problems: the L1 learners with the [+dynamic] feature whereas the L2 learners with the [+durative] feature. With regard to zhe, the saliency of its durative nature is clearly shown in the Chinese adult data though the association with Accomplishments is very low. The L1 learners have the tendency to spread zhe to Achievements though 60% of the instances were cases where an Achievement was used as an MST and the association with zhe presented the durative resultative state of the punctual event. The L2 learners do not use zhe at all at the beginning, which indicates that zhe is acquired later in the development of aspect marking in L2 Chinese. When it does appear, it is used exclusively with States and Activities.

Discussion

The aims of this study are, as mentioned at the beginning of Section 4, to test the prediction of Aspect Hypothesis and to discover the similarities and differences in the development of aspect marking in L1 and L2 Chinese. The discussion in this section is organized around these two themes.

The Aspect Hypothesis

The Aspect Hypothesis (Cf. Section 1) predicts that the lower level learners of both L1 and L2 Chinese will start using the perfective le with Achievements and Accomplishments and then spread it to Activities and States. It also predicts that these learners will use the progressive zai exclusively with Activities and the durative zhe with States and Activities. There may be a possibility of generalisation of the progressive zai to States in L2.

As can be seen in Tables 7 and 8, for the L1 learners, the 5yr and 7yr use VF-le with solely Achievements and Accomplishments. Only the 10yr have learned to spread the use of VF-le to States and Activities by establishing an arbitrary endpoint. With regard to the imperfective markers, zai is used mostly with
Activities and zhe with States and Activities. All this confirms the prediction of the Aspect Hypothesis. However, we do have found some sporadic cases of over generalisation of zai to States and zhe to Achievements. Remember also that 60% of the Achievements with zhe are ‘yao’ (bite) treated as the stative phase of an MST. This, together with the pattern for VF-le, seems to suggest that the [+telic] distinction is crucial in the L1 acquisition of Chinese aspect markers. The importance of telicity in the acquisition of tense and perfective aspect has been well documented (Bronckart & Sinclair 1973, Antinucci & Miller 1976, and Stoll 1998). What is interesting here is that it also affects, to a lesser extent, the acquisition of zai, the progressive marker. This can probably prove again, as results from Li’s (1990) study, that Slobin’s process-result distinction is more primitive than Bickerton’s (1980) state-process and punctual-nonpunctual distinctions.

For the L2 learners, their preference of the association of VF-le with Achievements is much stronger at the beginning than the youngest L1 group and the spread of its use to Activities appear from the beginning though the percentage is rather low. As pointed out earlier, 78% of the VF-le with activities are in the form of kan (see/look) + VF-le to mean ‘saw’, the past tense of ‘see’, which is expressed in Chinese by the RVC kanjian or kandao. L2 acquisition of zai follows more or less the prediction of the Aspect Hypothesis, but it does spread, wrongly, to Achievements, even in the UI data. This over generalisation of zai to Achievements, together with the idiosyncratic use of ‘kan (see/look) + VF-le’, strongly indicates an influence of the learners’ L1, English. Evidence for possible L1 transfer in terms of acceptable or unacceptable association between tense/aspect markers and predicates of different situation types has also been found in the results from a grammaticality judgement test reported in Jin (2002). However, the conclusion can only be speculative here. A comparative study of learners from different language backgrounds is needed to pinpoint L1 transfer as the cause, such as Slabakova (2000) though in a completely different theoretical framework.

A conclusion, therefore, can be drawn from the findings that both the L1 and L2 Chinese learners in this study behave more or less in the same way as predicted by the Aspect Hypothesis. Telicity seems to be playing a vitally important role in the L1 acquisition of Chinese aspect markers. Its importance in the L2 acquisition of these aspect markers is partly obscured by evidence indicating the influence of the learners’ L1, English.

Apart from the support for a possible primitive process-result distinction in the L1 data and L1 interference in the L2 data, results from this study can well be
explained by the Distributional Bias Hypothesis. An examination of the Chinese adults’ data shows that the target association of situation and viewpoint aspect is more or less as restricted as that in the Aspect Hypothesis. In fact Li and Shirai (2000) and Yang et al (2000) have made similar observations. This may also explain the finding in Hendriks et al (1998) that the association of the perfective aspect and bounded (telic) situations is most striking in L1 Chinese as compared with L1 German, French and English since the perfective in German, French and English is inferred from the past tense morphology, which can associate with all situation types, whereas in Chinese, the perfective VF-le always appear with telic situations. This can in turn support the argument that input is the cause for the restricted pattern recorded by the Aspect Hypothesis.

**Developmental patterns in L1 and L2 Chinese aspectual system**

Although all the learners used the same two sets of pictures, they did not produce the same proportion of different types of predicates. Moreover, these predicates were not associated in the same way with different aspect markers.

As shown in Table 1, although Achievements are the most preferred situation type in discourse, the L1 learners have produced relatively more Achievements than the Chinese adults whereas the L2 learners less. This may show a preference in the organisation of discourse. While the L1 learners are more interested in presenting what has happened, hence the use of Achievement predicates, the L2 learners are also concerned with the background against which things have happened. Another possible explanation for such a difference is that the adult L2 learners are better at imagining and interpreting the protagonists’ feelings, mood and intentions than the child L1 learners.

With regard to aspect markers, the L1 learners in the study behave almost native-like in terms of the amount of predicates with aspect markers and the proportion of the perfective and imperfective markers (Figures 1 and 2). By the age of 7 they make almost no mistakes in their use of aspect markers (Table 6). However, conclusion should not be drawn from such results that the L1 learners do not experience problems in their acquisition of aspect markers. Note that the L1 learners in the study are generally older than those in Erbaugh (1978) and Li (1990), which means that we may have missed the earlier developmental stages of L1 aspectual marking.

The L2 learners, on the other hand, are very cautious in their use of aspect markers in general (Figure 1), which also implies their realisation that aspect marking is not obligatory in Chinese. In the limited amount of predicates with
aspect markers they have produced (Figure 2), there is a clear developmental pattern of a strong preference of *le* (94%) at the beginning and an increase in the use of imperfective markers, *zhe* in particular (Tables 5 and 8) as it starts to appear in the IN data. This may suggest that the L2 learners have realised aspectual marking being a problematic area in Chinese and have tried to explore the use of temporal adverbials and discoursal means to avoid the use of aspect markers. A possible order in the appearance of aspect markers in L2 Chinese can also be detected: first *le* (most probably VF-*le*), then *zai* and finally *zhe*.

Another very interesting difference between the L1 and L2 data is that the L1 learners prefer to use VF/SF-*le* whereas the L2 learners VF-*le* at an earlier stage. And the advance in the L1 learners’ age is accompanied by a decrease in the use of VF/SF-*le* and an increase in VF-*le* (Table 5). Although the development in the L2 data in relation to proficiency level is not linear, a tendency in the reversed direction can still be seen. A close examination of the syntactic structures employed by the two groups of learners in the Horse Story has revealed a potential partial explanation for such a difference in the L1 and L2 use of VF-*le* and VF/SF-*le*.

We have divided the sentence structures in the Horse Story into two groups: (1) the verb-final structures, X-V, and (2) the non-verb-final structures, (X)-V-X, where V stands for verb and X can be any syntactic element. Table 9 shows the distribution of these two structures in each group. The comparison of preferred syntactic structures by the two groups is more clearly illustrated in Figure 3.

Table 9: The distribution of syntactic structures

<table>
<thead>
<tr>
<th>Horse Story</th>
<th>Control CA</th>
<th>L1 learners</th>
<th>L2 learners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>5yr</td>
<td>7yr</td>
</tr>
<tr>
<td>X-V</td>
<td>61%</td>
<td>69%</td>
<td>65%</td>
</tr>
<tr>
<td>(X)-V-X</td>
<td>39%</td>
<td>31%</td>
<td>35%</td>
</tr>
<tr>
<td>Token</td>
<td>195</td>
<td>127</td>
<td>126</td>
</tr>
</tbody>
</table>

It is clear from Table 9 that the L1 learners have a preference of the X-V structure whereas the L2 learners favour the (X)-V-X structure. Since an X-V structure is prerequisite for the use of VF/SF-*le* and a(n) (X)-V-X structure a precondition for the occurrence of VF-*le*, the contrast in the preference of syntactic structures by L1 and L2 learners provides a possible account for the

---

13 The brackets here indicates that the preverbal X is optional as subjects can be omitted in Chinese.
observation that L1 learners in general use more VF/SF-le than the L2 learners (Table 5). However, the pattern of increase in the use of VF-le and decrease in that of VF/SF-le in the L1 data and the reversed pattern in the L2 data still cannot be accounted for. Nevertheless, note that Table 9 reports only the data of one story. A complete analysis of the syntactic structures in all the data may bring about a possible explanation for the pattern.

Figure 3: Comparison of syntactic structures used

<table>
<thead>
<tr>
<th>Structures</th>
<th>X-V</th>
<th>X-V-X</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>5yr</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>7yr</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>10yr</td>
<td>80%</td>
<td></td>
</tr>
<tr>
<td>L1</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>LN</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>UI</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

Conclusion

In this study we have tried to investigate into the development of aspect marking in L1 and L2 Chinese to find out (1) if the well-attested Aspect Hypothesis also applies to the Chinese acquisition data and (2) whether there are any similarities and differences in the L1 and L2 pattern. The aspect markers under investigation are le, zai and zhe. Although the results from the study confirm Aspect Hypothesis with both L1 and L2 data, L1 interference can be observed in the L2 data and telicity plays a more important role in the L1 acquisition of these markers.

With regard to the similarities and differences in the L1 and L2 acquisition of Chinese aspect markers, it has been found that the L1 learners in this study may have already passed the initial stage since their aspect marking is in general target (Chinese adults)-like. The L2 learners demonstrate an order of acquisition from VF-le, VF/SF-le, zai and then zhe. Note that although le may be the first aspect marker to appear in L2 Chinese, it continues to pose problems, both overuse and underuse at the beginning and mainly underuse at the later stage, even at the UI level. It has also been found that the L1 learners prefer to use VF/SF-le at an earlier stage of acquisition and with the age
development a decrease in VF/SF-le and an increase in VF-le can be observed. The L2 learners, however, demonstrate a reversed pattern. Apart from a possible influence of L1 for the L2 learners, the difference in their preference of syntactic structures may provide a partial explanation.
REFERENCES


Appendix 1: Horse and Cat story

The horse story

1. There’s a horse running in a meadow in the direction of a fence. There’s a bird on that fence and a cow on the other side of it.
2. The horse arrives at the fence and comes to a halt.
3. The horse jumps over the fence.
4. The horse has fallen on the other side of the fence. The fence is broken.
5. The bird brings a red cross box and the cow bandages the horse’s legs.

The cat story

1. There’s a nest in a tree. In the nest there are three baby birds and a mother bird.
2. A cat arrives at the bottom of the tree while the mother bird flies off.
3. The cat sits down and looks up at the nest.
4. The cat climbs up the tree and at that moment a dog appears at the bottom of the tree.
5. The cat has almost reached the nest, the dog pulls him down by his tail, and at that moment the mother bird comes back with food for the baby birds.
6. The dog chases the cat while the mother bird feeds the baby birds.
Appendix II: Diagnostic tests for predicate coding

**Step 1: State or Non-state (stative or dynamic)**
Can the predicate present state in a simple present statement without having a habitual or vivid present interpretation?
If yes, it is State. e.g. *Shu shang you yi ge niaowo.* (There’s a nest in the tree.)
If no, it is Non-state. e.g. *Niu zai kan xiaoma.* (The cow is watching the little horse.)
    Go to step 2.

**Step 2: Activity or non-activity (atelic or telic)**
If you stop in the middle of the action, does that entail that you did it?
If yes, it is Activity. e.g. *bengpao* (run)
If no, it is Non-activity. e.g. *baozha shangkou* (bandage the wound)
    Go to step 3.

**Step 3: Accomplishment or Achievement (nonpunctual or punctual)**
Does Y zhinei X V-le (Y=time, e.g. 10 minutes) entail that X was involved in V-ing in that time?
If yes, it is Accomplishment. e.g. *Lao niu shi fenzhong zhinei baozha le ma de tui.* (The cow bandaged the horse’s leg in 10 minutes.)
If no, it is Achievement. e.g. *Mama niao shi fenzhong zhinei feizou le.* (The mother bird flew away in 10 minutes.)