The term grammaticalization was first proposed by French linguist Antoine Meillet in 1912 with the definition “the attribution of grammatical character to an erstwhile autonomous word.” (Hopper & Traugott 1993:19) As Hopper & Traugott point out, this proposal originates from “earlier speculations …about the evolutionary development of human speech.” These speculations do not only exist in the Indo-European linguistic history. Since the 13th century, many Chinese scholars have discussed about the theory that “empty words,” i.e. grammatical particles, come from “full words,” i.e. full lexical items such as verbs. However, it was not until the 1990s that the research on grammaticalization in the Indo-European languages attracted the attention of Chinese linguists. Since 1994, a considerable amount of study has been done on Chinese historical linguistics. Several studies were on the origins of some of the four aspect markers -le, -guo, -zhe, and zai or the aspectual system in Mandarin, for example, Li & Shi (1997), Sun (1998) and Jiang (2004, 2006). In this paper I will first give a brief account of the four markers’ usage in modern Mandarin, then discuss about the motivations, mechanisms and processes of the four markers’ grammaticalization with the help of data from Classical Chinese and theories on grammaticalization in the literature, and provide my insight in this subject.

1. The four aspect markers in modern Mandarin

The four markers are the perfective -le and -guo, and the imperfective -zhe and zai. The perfective aspect marker -le 'presents closed, non-stative situation.' (Smith 1994: 111) So is another perfective marker -guo. However, in contrast with -le, -guo emphasizes a kind of discontinuity. The suffix -guo “signals that an event has been experienced at least once at some indefinite time”. (Li & Thompson 1989:226) Thus it is also referred to as an experiential marker. Here are some examples given by Chao (1968) to compare these two:
We can see that the focus of a sentence with -le is that the event or a series of events occurred and consequently there is influence to the present time. The focus of a sentence with -guo is that the event has taken place at least once, and it is over now. Therefore -le hints a result of the event while -guo indicates the completion and discontinuity of the event.

In Chinese, pre-verbal imperfective marker zai focuses on the continuity of an action, thus also called a progressive marker. Post-verbal imperfective marker -zhe focuses on the durativity of an event, thus also called a durative marker. A major difference between these two markers are that zai cannot be used with stative verbs while -zhe is used mostly with stative verbs. This is because, as Huang et al. (1989) has observed, that zai in the sense of immediacy asserts an ongoing activity, while -zhe with its senses of remoteness emphasizes a resultant state or pragmatically that there is some kind of background information. We can see this difference of these two markers by the following examples:

(2) a. ta zai dai maozi.
   he ZAI wear hat
   “He is putting on a hat.”

   b. ta dai zhe maozi.
   he wear ZHE hat
   “He is wearing a hat.”

Table 1 presents the main functions of the four aspect markers in modern Chinese:

<table>
<thead>
<tr>
<th>Markers</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>-le</td>
<td>perfective marker “indicates a bounded event that impact the present time”</td>
</tr>
<tr>
<td>-guo</td>
<td>perfective marker “indicates the completion and discontinuity of an event”</td>
</tr>
<tr>
<td>-zhe</td>
<td>imperfective marker “focuses on the durativity of an event”</td>
</tr>
<tr>
<td>zai</td>
<td>imperfective marker “focuses on the continuity of an action”</td>
</tr>
</tbody>
</table>

2. The process of grammaticalization of the four markers

The pioneer of modern Chinese linguistics, Wang Li, stated in Wang (1958) that the appearance of verb final particle -le and -zhe was a major even in the history of Chinese grammar, because it meant that Chinese started to use grammatical
means to express tense-aspect instead of pure lexical means. In this section I will take a look at the paths that these grammatical particles go through to change in the linguistic history. First I will give the definitions of two main mechanisms of change at work here: reanalysis and analogy.

Reanalysis is defined as changing in a language structure without any immediate modification of its surface manifestation (Peyraube 1999: 191). Most grammaticalization process does involve reanalysis, although it is not obligatory. Reanalysis happens due to a basic cognitive principle: to use existing item to express new function. (Traugott & Heine 1991)

Analogy is also called extension, which refers to “the attraction of extant forms to already existing constructions” in grammatical change. (Peyraube 1999:187). As the opposite of reanalysis, analogy changes the surface structure without changing the underlying structure. Analogy is a main mechanism in connecting the original lexical item and the future grammatical morpheme. (ibid. 189)

2.1 The grammaticalization of -le

Table 2 Path of Progression for -le

<table>
<thead>
<tr>
<th>Change stages</th>
<th>Structure and Meaning</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original structure</td>
<td>NP1+V1+NP2+le (V) “to finish”</td>
<td>3rd century</td>
</tr>
<tr>
<td>1st reanalysis</td>
<td>NP1+V1+NP2+le (V/VC) “to finish”</td>
<td>10th century</td>
</tr>
<tr>
<td>1st analogy &amp; reanalysis</td>
<td>V + le (VC) “finished”</td>
<td>10th century</td>
</tr>
<tr>
<td>2nd analogy &amp; reanalysis</td>
<td>V + le (perfective marker) + NP</td>
<td>10th century</td>
</tr>
<tr>
<td>2nd reanalysis</td>
<td>NP1+V1+NP2+le (CRS*)</td>
<td>13th century</td>
</tr>
<tr>
<td></td>
<td>V + -le (perfective aspect) + (NP)</td>
<td>modern Chinese</td>
</tr>
<tr>
<td></td>
<td>Sentence +le (CRS)</td>
<td>modern Chinese</td>
</tr>
</tbody>
</table>

*CRS=“current relative state”, also called “sentence final le”, terms adopted from Li & Thompson (1997)

In the 3rd century le was a verb meaning “to finish”.

(3) gong liu wo le yi, Ming Fu bu neng zhi.  
You stay-behind I finish COM, Ming Fu no can stop  
“You just let me stay behind (then this matter will be accomplished), Ming Fu cannot stop it.”  
(Sanguozhi, 3rd century, quoted from Jiang 2004:137)

This le rarely acts alone. It usually appears in V+O+le structure as a secondary verb. In this structure, besides the object, there can be various adverbs between the verb and le. Therefore this le is regarded as a verb instead of a complement. (Li & Shi 1997)

By the 10th century, there are examples of le in V+le structure as in (4) b. and from the same text, V+Le+O structure also appears, as in (4) a. and (5). It is possible that the two structures are actually one: V+Le+O with the possibility to omit the object.
(4) a. jian le shixiong bian ru lai.
    see LE fellow apprentices then enter in
    “After seeing your fellow apprentices, then come in.”

   b. jian le chou shen bian que hui.
    see LE leave body then immediately return
    “After seeing (the person), leave immediately and return.”

   (Dunhuang bianwen, 10th century, quoted from Jiang 2004:149)

(5) lin hua xie le chun hong, tai concong.
    forest flower wither Le spring red too soon
    “The forest flowers wither after the spring red, too soon.”

   (Li Yu poem, 10th century, quoted from Jiang 2004:139)

Li & Shi (1997) find out only 5% of the cases of the V+le structure that appeared in the texts around the 10th century had adverbs between the verb and le. This demonstrates a closer and closer tie between the verb and le, which acts more like a verb complement than a verb. On the other hand, they also find that in the texts, more and more adverbs that used to appear between the verb and le in the original V+O+le moved to the front of the main verb, although data from the 7th to 10th century texts show that 70% of the V++O+le still present an adverb before le, as in (6). Therefore this le should still be considered a verb.

(6) tan zhi yi le, ni ru jing ti.
    sigh it already LE adopt into Buddhist text title
    “After a sigh about the matter, (they) adopted it into the title of the text.”

   (LiuJiang, 10th century, quoted from Li & Shi 1997: 90)

Therefore we know that in the 10th century, le existed in two structures, V+le + (O) and V+O+le. The le in the first structure acts more like a clitic that is attached to the verb, and the le in the second structure remains a verb because 70% of the cases adverbs were inserted in front of it. It is possible that during this time this le can be explained as either a verb or a verb complement. Grammaticalization is a continuum with no clear-cut borders during the changing process. Consequently the co-existence of the same morpheme with its original function and new function is common. Moreover, the coexistence is the evidence of the grammaticalization process. It is natural that there are times that it is difficult to judge the exact characteristic of the morpheme.

In the 13th century, the usage of le was very common and very close to modern usage, appearing both with and without an object in the V+ le + (O) structure as in (7) a. b. and the first le in (7) c., and also as a sentence final le as the second le in (7) c.

(7) a. bu jie shi e le xiongdi.
    not lend when repel LE brother
    “If not lend (it) to the brother, he will hate me.”

   b. wo chenyin le banshang bu yu.
    I hesitate LE half day not speak
    “I hesitated for a long time without speaking.”

   (Ma Zhiyuan poem, 13th century)
I agree with Li & Shi (1997) that in the grammatical development of *le*, there are actually two different routes that lead to the sentence-final *le* and the aspect marker -*le* in Modern Mandarin from the same verb *le*. Both routes are presented in Table 2. One is that the original structure changed through the 1st reanalysis, when although the surface structure did not change, the *le* in it can be analyzed as either a verb or verb complement, depending on if there is adverb in front of the *le*. At the same time, i.e. around the 10th century, another route started by 1st analogy & reanalysis, where *le* changed to a verb complement and the surface structure it appeared in also changed to V + *le*. Through the 2nd analogy & reanalysis, an object can be attached after this *le*. At this time the *le* has become a perfective marker. The final grammaticalization of the sentence final *le* is not finished until 2nd reanalysis happened sometime before the 13th century, when the distinction between the perfective marker -*le* and sentence final *le* is clear and settled, as exhibited in (7) c.

2.2 The grammaticalization of *-guo*

<table>
<thead>
<tr>
<th>Change stages</th>
<th>Structure and Meaning</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original structure</td>
<td>NP1+<em>guo</em> (V) “cross”+NP2</td>
<td>3rd century</td>
</tr>
<tr>
<td>Analogy</td>
<td>NP1+V+<em>guo</em> (V2) &quot;cross”+NP2</td>
<td>9th century</td>
</tr>
<tr>
<td>1st reanalysis</td>
<td>NP1+V+<em>guo</em> (V2) “action finished”+NP2</td>
<td>9th century</td>
</tr>
<tr>
<td>2nd reanalysis</td>
<td>NP1+V+<em>guo</em>(VC) “action finished”</td>
<td>9th century</td>
</tr>
<tr>
<td>3rd reanalysis</td>
<td>NP1+<em>guo</em> (perfective aspect marker)</td>
<td>14th century</td>
</tr>
<tr>
<td></td>
<td>NP1+<em>guo</em> (V) “pass, cross”+NP2</td>
<td>modern Chinese</td>
</tr>
<tr>
<td></td>
<td>NP1+V+(Adv)+<em>guo</em>(V2) “cross”</td>
<td>modern Chinese</td>
</tr>
<tr>
<td></td>
<td>NP1+V+<em>guo</em> (perfective aspect marker)</td>
<td>modern Chinese</td>
</tr>
</tbody>
</table>

The timeline for the grammaticalization of *-guo* is very similar to that of *-le*. *-Guo* appeared in the 3rd century as a transitive verb that meant “cross (space or time); exceed”. This verb *guo* is still in use today.

(8)  yu  fu  bu  gan  guo  du.
      transportation  clothes  not  dare  exceed  standard
“(He) does not dare to use excessive transportations and clothing.”

(San Guo Zhi, 3rd century)

In the 9th century the verb *guo* in (9) a. extended its function through analogy into the second verb in a serial verb construction, then through 1st reanalysis the meaning of this *guo* change to an action had happened and finished, as in (9) b. This change can be explained by pragmatic inferencing, based on its original meaning, to have crossed a space or a time could easily mean the action is
finished. The detail of the motivation of this semantic change will be discussed in section 3. Afterwards, through the 2nd reanalysis, this guo can be analyzed as a verb complement in V+ guo structure. The reason to this is that adverbs cannot be inserted in between the verb and guo in this structure.

(9) a. xiamo tiao guo que’er yu.
   toad jump cross bird bath
   “The toad jumped over the bird-bath.”
   (9th century poem, quoted from Li & Shi 1997: 91)

   b. po yun: “Shui bufang yin, po you yi wen, xu xian
   Granny say water can drink Granny have one question must first
   wen guo.”
   ask finish
   “The Granny said: “You can drink the water, but I have a question that I must ask first.”
   (9th century Buddhism text, quoted from Li & Shi 1997: 91)

Overtime the verb complement guo gradually became very attached to the verb. Li & Shi (1997) also find that only after the 13th century did V+ guo often preceede an object. They think this is the time when it finally grammaticalized into an experiential marker, when the 3rd reanalysis is completed. In modern Mandarin, the verb guo and secondary verb guo exists as well as the marker guo.

(10) sixia xian da guo ji dun.
    private first beat GUO several classifier
    “(They were) beaten up privately several time first.”
    (14th century novel, quoted from Li & Shi 1997:92)

2.3 The grammaticalization of -zhe

Table 4 Path of Progression for -zhe.

<table>
<thead>
<tr>
<th>Change stages</th>
<th>Structure and Meaning</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original structure</td>
<td>NP1+zhe (V) “attach to”</td>
<td>1st century</td>
</tr>
<tr>
<td>1st analogy &amp; reanalysis</td>
<td>NP1+V+zhe (V2) “exist”</td>
<td>5th century</td>
</tr>
<tr>
<td>2nd analogy &amp; reanalysis</td>
<td>NP1+V+NP2+zhe (V2) “reach”+NP3</td>
<td>8th century</td>
</tr>
<tr>
<td>3rd analogy &amp; reanalysis</td>
<td>NP1+zhe (aspect marker) +NP2</td>
<td>11th century</td>
</tr>
<tr>
<td></td>
<td>NP1+zhe (V) “reach”+NP2</td>
<td>modern Chinese</td>
</tr>
<tr>
<td></td>
<td>NP1+V+zhe (V)’exist’ +NP2</td>
<td>modern Chinese</td>
</tr>
<tr>
<td></td>
<td>NP1+V+zhe “durative marker” +NP2</td>
<td>modern Chinese</td>
</tr>
</tbody>
</table>

-Zhe first was a verb meaning “attach to” in the 1st century:

(11) ganlu…zhe yu shumu, bu zhe wugu.
    dew attach to tree no attach grain
    “The dew attaches to the trees, not to the grains.”
    (Lunheng, 1st century, quoted from Jiang 2006:114)

During the 5th century, the verb started to change a secondary verb that meant
“exist” in existential sentences through 1st analogy & reanalysis. Through pragmatic inferencing, when something is “attached to” something else it is likely to stay there, thus “exist”:

(12) Changwen shang xiao, zai zhe che zhong.  
“Changwen was still small and was put in a carriage.”  
*(Shishuoxingyu, 5th century, quoted from Jiang 2006:113)*

Through the 2nd analogy & reanalysis, the meaning of secondary verb *zhe* extended to “reach” followed by a receiver through inferencing principle, to be able to “attach”, one must “reach”:

(13) gen jie fei chong da zhe ren.  
“Still more, (the bird) catches flying bugs and shoots at people.”  
*(Dufu poem, 8th century, quoted from Jiang 2006:113)*

Around the 10th century, occasionally in a sentence like (14), -zhe indicates that the event continues. I think this change comes from the verb meaning “existing”. If something exists at one place, it is likely to continue to be there. In (15), the sentence with -zhe also means two actions are going on at the same time, one action exists to serve as background information. Furthermore, this *zhe* acts more like a grammatical marker than a verb because it is closely attached to the main verb. These usage of *zhe* is very close that of it in modern Mandarin. Thus we can say that the 3rd analogy & reanalysis had happened then.

(14) dui zhe huangjing wu mai chu.  
“(my) gold are piling up and yet no where to buy (it).”  
*(Wangjian poem, 10th century, quoted from Jiang 2006:113)*

(15) lei zhe gu, zhishi xiang qian qu.  
“Beating the drum, (they) are just going forward.”  
*(Zhuzi Yulei, 11th century, quoted from Jiang 2006:113)*

In the 13th century, -zhe commonly appears in sentences like (16) as an aspect marker indicating an ongoing action:

(16) Feng mama ta laorenjia, wo yangji ta chuxia shi zhe shou li.  
“About old madam Feng, she is working in the kitchen under my request.”  
*(Jing Ping Mei, 13th century, quoted from Li & Shi 1997:93)*
2.4 The grammaticalization of -zai

Table 5 Path of Progression for -zai

<table>
<thead>
<tr>
<th>Change Stages</th>
<th>Structure and Meaning</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original structure</td>
<td>NP1+zai (V) “exist”+NP2</td>
<td>10th-5th century B.C.</td>
</tr>
<tr>
<td>1st reanalysis</td>
<td>NP1+zai (prep.) “at” +NP2+V+NP3</td>
<td>10th-5th century B.C.</td>
</tr>
<tr>
<td></td>
<td>NP1+zai (V) “exist”+NP2</td>
<td>modern Chinese</td>
</tr>
<tr>
<td></td>
<td>NP1+zai (prep.) “at” +NP2+V+NP3</td>
<td>modern Chinese</td>
</tr>
<tr>
<td>2nd reanalysis &amp; analogy</td>
<td>NP1+zai (progressive marker)+V+NP2</td>
<td>modern Chinese</td>
</tr>
</tbody>
</table>

Zai is found in Shijing “the Book of Songs”, which records folk songs from about 1000 B.C. to 500 B.C.

(17) guan Guan Jujiu, zai he zhi zhou.
     guan Guan fish hawks are river GEN bank
     “Guan, Guan! Cry the fish hawks, which are by the river bank.”
     (Shijing, Zhounan, quoted from Zhao 2001:71)

Zai in this sentence is a verb meaning “to exist”. This definition of zai is further confirmed by its appearance in the following sentence from Lunyu “the Analects of Confucius”:

(18) zi yue: “wen zai, guan qi zhi; wen mo, guan qi xing.”
     Confucius say literature exist observe Pron.ambition literature die
     observe Pron action.”
     “Confucius said: “We can observe a person’s ambition through his writings, and if there is no writing then we have to observe his action.”
     (Lunyu, Xue’er, quoted from Zhao 2001:71)

Zai also appears as a preposition in the same texts.

(19) zi zai Qishao, san yue bu zhi rou wei.
     Confucius Prep. Qishao three month no know meat taste
     “Confucius didn’t eat meat for three month when he was in Qishao.”
     (Lunyu, Xue’er, quoted from Zhao 2001:71)

(20) yu zai zai zao, yi yu qi pu.
     fish exist prep. Algae attach prep its leaf
     “The fish is in the algae and is attaching to its leaves.
     (Shijing, Xiaoya, Yuzao, quoted from Zhao 2001:71)

In (19) zai could be a verb, but it is better to analyze it as a preposition leading a locative phrase. In (20) the distinction between the two zai is very clear: the first one is a verb and the second one a preposition leading a locative phrase. Shao (2005) stated that even though the usage of zai as a preposition appeared very early, it was not common until about the 10th century. Therefore I predicate that 1st reanalysis happened to change the verb zai to a preposition. This is based on the fact that as a verb meaning “exist”, it often precedes a locative phrase,
through pragmatic inferencing this *zai* can be reanalyzed as a preposition leading a locative phrase. On the other hand, *zai* as an aspect marker marking an ongoing action did not appear until early 20th century, in Lu Xun (1881-1936)’s work, who by the way is regarded as the father of modern Chinese literature. I find in his work a few examples using *zai* as an aspect marker.

(21) fangtaitai lioxiang ta shi zai nao zhe yi de wu jiaoyu.
Mrs. Fang guess he is ZAI angry ZHE she GEN no education
"Mrs Fang guessed that he was angry about her ignorance."
*(Duan Wu Jie, 1922)*

In (21), *zai* is not ‘acting along’ because it has the help of *zhe* to signal the ongoing action. But nevertheless it is an aspect marker because it is attached to the verb after it. During Lu Xun’s time, the written language was under a reform to represent more the spoken language. Moreover, never before had so much western literature been translated into Chinese. The grammaticalization of *zai* to an aspect marker could have happened at that time under the influence of the language reform and contact between Chinese and Indo-European languages.

To summarize, Liu *et al.* (1995) have identified four factors that trigger the grammaticalization of lexical items in Chinese. In my opinion these four factors can be viewed as the stages of change on the path of grammaticalization: change in syntactic position (analogy), pragmatic influence, meaning shift (reanalysis). For example, it is very common in Chinese that first a main verb becomes a secondary verb V2 in a serial verb construction, then its meaning shifts, possibly under a specific pragmatic environment, reanalysis will finally happen. As Peyraube (1999) discussed, although these factors are by no means prerequisite to the grammaticalization process, their idea is refreshing in the way that it focuses on the contexts where the grammaticalization happens rather than just the lexical item itself.

3. Motivations and mechanisms of change

Peyrube (1999:194) states that the meanings of the lexical item subject to grammaticalization are usually quite general, for example, verbs like *say, move or go*, not verbs with a specific meaning like *whisper*. Therefore typically more basic words or words that are easily accessible tend to be grammaticalized. This is true with all four markers. The reason is that language change is usually motivated by speakers’ communicative needs, which are led by human cognition process, which motivates meaning and syntactic change in the most common words. (Hopper & Trougott, 1993:66)

Cognitive strategies motivate meaning change, which is central in the early stages of grammaticalization. (Hopper & Traugott, 1993:12, 68; Peyraube, 1999:184) Why should these four specific verbs grammaticalize into aspect markers? Because they are verbs that semantically cover wide ranges, flexible in position
and therefore easy to change meaning and induce grammaticalization. Among
the four verbs, guo “cross (space)”, zhe “attach to (location)” and zai “exist (lo-
cation)” all closely related to space. Cross-linguistically there is a phenomenon
in which temporal grammatical markers often come from spatial terms (Heini et
al. 1991; Bybee et al.1994). This is because in human cognition, space and time
are very close concepts. As for le, its original meaning is “to finish; to ac-
complish”. Therefore there is a big possibility semantically it turns into a marker
marking the completion of an action.

Semantics and pragmatics are closely related. Traugott (1995:31) finds that
subjectification is most important in semantic change because “meanings be-
come increasingly based in the speaker’s subjective belief/state/attitude toward
the preposition.” So the semantic change is actually a pragmatic one and subjects
to the speaker and hearer’s interpretation. Hopper & Traugott (1993) believe that
pragmatic inferencing is a motivation for grammaticalization. The speaker and
the hearer negotiate meaning in communicative situations. The speaker’s role is
based on the economical principle, which means the speaker always tries to use
least possible words to clearly express most possible information. This is why it
is natural for spatial terms to extent to signify time.

Semantic factors are very important in syntactic change, especially in Chinese
(Liu et al. 1995). In turn the syntactic environments also influence the gram-
maticalization of the lexical items. The three verbs le, guo and zhe were all, at
one time or another, secondary verbs in serial verb constructions. When a verb
often acts as a secondary verb in a sentence, and its syntactic position is relatively
settled, it can easily become a verb complement, and eventually a grammatical
marker.

Take these markers for example. At the beginning le appeared after continu-
ous verbs signifying the ending of an action. At the end -le appeared after instant-
aneous verbs signifying the completion of an action. This is because in the mind
of language users there are not much difference between continuous verbs and
instantaneous verbs. However, for -zhe, the verbs in front of it changed from spa-
tial verbs to any verbs, the noun phrase after it changed from location phrase to
receiver of the action. This change should be explained by semantic metaphorical
extension. When verb zhe had the meaning “attach to”, it was naturally fol-
lowed by a noun signifying location. Later zhe changes from reflecting the con-
tinuity of space to that of time, thus grammaticalized into the zhe that signifies
the continuity of a state. Thus it turned into a verb complement while it is still
followed by a locative noun. Therefore its meaning changed to “existing”. On the
other hand, zhe also changes from signifying the completion of a movement in
the space to the completion of time. The change from spatial relations to time rel-
ations makes it possible to break the constrain between the verbs that can appear
before zhe and the noun phrase after zhe. The change is gradual. Thus the verb
zhe “reach” appeared much later than verb zhe “exist”. But once new combina-
tions of phrasal and syntactic structures appeared and used more and more, more
people get use to it. In turn, when a lexical item appears as a grammatical mor-
pheme again and again and is accepted in the relatively settled position, then pragmatically grammaticalization happens. Moreover, when V2 changes into a verb complement, its location make it easier for semantic change to becoming more abstract, then further develop into a grammatical marker.

In conclusion, cognitive process dominated the meaning shift. However, as Liu & Tang (2004) have argued, the grammaticalization process is not balanced, therefore some of the markers lose the original meaning, some retains; and some change meaning, some do not. When new meanings emerge, old meanings are not necessarily lost, the old and new may coexist and interact with each other. This has been proved by the four markers’ path of change.

Hopper & Traugott (1993) mentioned analogy, reanalysis, renewal, reinforcement, superposition etc. as mechanisms for grammaticalization. For these Chinese aspect markers, I identified three main mechanisms at work: reanalysis; analogy and external borrowing. Here I will discuss about how external borrowing helped the grammaticalization of -zai.

Peyraube (1999) points out that borrowing as a mechanism of change was both the least studied and the most abused. Unstudied, because historical linguists strongly favored internal mechanisms, and most abused because it was often evoked without evidence of the source of borrowing. Some universals, principles and constraints that have been proposed on borrowing are very debatable. Peyraube believed that it is best to consider borrowing triggered or accelerated a grammatical phenomenon which was already growing independently. I quite agree. And I think the grammaticalization of -zai is a good example.

It is the prepositional zai that grammaticalized into an aspect marker. Why? The prepositional zai phrase most commonly locates before the verb indicating the action happens at the place. Then it has a tendency to grammaticalize, based on its syntactic structure and meaning, as in this example:

(22)a. wo zai chufang zuo fan.
   I ZAI kitchen make dinner
   “I am making dinner in the kitchen.”

b. wo zai zuo fan.
   I ZAI make dinner
   “I am making dinner.”

Based on the economical principle of speech, it is very natural to lose the word “kitchen” in (22) a. without affecting the meaning of the sentence, thus (22) b. appears with zai no longer a preposition but a grammatical marker precedes a verb meaning action in progress. But why was there no example of aspect marker zai until the 20th century? Why did it not only appeared, but also became very common in a very short time? My hypothesis is that in spoken language by the end of the 19th century, there could already be usage of preverbal zai marking an ongoing action. It most probably appear together with aspect marker -zhe as shown in example (21). But as written language and spoken language had significant difference, it is very hard to find written records of it. In the beginning
of the 20th century, the language reform to make the written language represent
spoken language made it possible that the “informal” use of aspect marker -zai
became formal in writing. At about the same time, there was large quantity of
translations from the Indo-European literature into Chinese. Rapidity of lan-
guage change is a characteristic of borrowing. So I also assume that borrowing
of the present tense is another possibility for the mechanism of change in this
case. Most of the pioneers of modern Chinese literature, like Lu Xun himself,
studied or lived abroad, and/or heavily influenced by western language and lit-
erature. Language contact was certainly at work here. A quantitative study of zai
of the literature of the end of 19th century and beginning of 20th century could
better prove this hypothesis and find the exact source of borrowing.

In all, these three mechanisms reanalysis, analogy and borrowing were the
main mechanisms at play in the grammaticalization of these four aspect markers
in Chinese.

4. Conclusion
Grammaticalization is a complicated phenomenon and its process is closely re-
lated to human cognitive process. By testing the grammaticalization process of
the four aspect markers against some existing theories in this field, I hope this
study will lead to more understanding to language universals in the grammati-
calization process cross-linguistically.

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