Modificational and Predicate Adjunct Uses of the Mandarin Locative Preposition \textit{zài}

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1 Introduction

Crosslinguistically, imperfective semantics is often expressible using a locative preposition (Bybee et al. 1994; Comrie 1976; Barrie and Spreng 2009; Boogaart 1991; Laka 2006; Salanova 2007; Thrainsson 1979; Jóhannsdóttir 2011; Wood 2012; Bolinger 1971a,b; Kayne 2015; Nagano 2014).

\begin{itemize}
\item \textbf{(1)} Zhāngsān \textit{zài} túsūguān
Zhangsan ZÀI library
‘Zhangsan is at the library’
\item \textbf{(2)} Zhāngsān \textit{zài} kàn shū
Zhangsan ZÀI read book
‘Zhangsan is reading’
\item \textbf{(3)} \textit{zài} túsūguān Zhāngsān kàn le yi-bèn-shū
ZÀI library Zhangsan look \textit{LE}\textsubscript{perf} one-CL-book
(perf.) ‘Zhangsan read a book in the library’
\item \textbf{(4)} \textit{zài} Lìsì zuò fàn de shìhòu Zhāngsān kàn le yi-bèn-shū
ZÀI Lisi do food DE time, Zhangsan look \textit{LE}\textsubscript{perf} one-CL-book
(perf.) ‘At the time when Lisi was making food, Zhangsan read a book’
\end{itemize}

In this talk, I will argue that \textit{zài} is always a preposition, which has two main uses:

1. The modificational use is formed by adjoining the PP above vP

2. The predicative use features small clause predicate adjuncts which are base-generated in the specifier of inner aspect (explaining the connection between locative \textit{zài} and Progressive Aspect).

- Deep similarity between locative predicates and progressive aspect by postulating that the two share an underlying syntactico-semantic similarity: Figure-Ground (in the sense of Talmy 2011; Svenonius 2006, 2004; Demirdache and Uribe-Etxebarria 2004; Hale 1986; Talmy 1978 i.a.)

\begin{itemize}
\item (5)
\end{itemize}

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zài takes the ground as its innermost argument. The figure is supplied by another head.

small clause analysis of predicative PPs (Roy 2013; Bowers 2011; Svenonius 2004; Bowers 1993, i.a.)

(6) Predicative

(7) Modificational

The layout of the talk goes as follows:

1. Distributional Data — zài is a preposition
2. Diagnostics for Progressive
   (a) Perfective le
   (b) Again & Again — yòu and zài
   (c) Anti-stativity
3. Proposal — Modificational v. Predicative zài

2 The Distribution of Imperfective zài

2.1 Imperfective zài has a different syntactic distribution from other aspectual markers

zài is a preposition

– Distinguishable from verbs, since it cannot cleft, inflect for aspect, or reduplicate (see Wu 2015)
– Distinguishable from aspect, since doesn’t distribute like aspect

No consensus about the category of the aspectual use. It has been analyzed as some type of aspectual marker (Huang et al. 2009; Liu 2009; Lin and Liu 2004; Klein et al. 2000; Li 1993; Chen 1978) or as a (serial) verb (Woo 2010; Chao 1968)

Elements from the purported class Mandarin prepositional phrases are not uniform (McCawley and Ma 1992, Li and Thompson 1974)

Consensus seems to be that prepositional phrases (e.g. zài- and gěi-phrases) generally fall between the subject noun phrase and the verb (Cheung pear, Huang et al. 2009, Li and Thompson 1974, a.o.):

(8) Subject + [Preposition (+ Noun Phrase)] + Verb (+ Noun Phrase)

Since zài can be used both as a modificational preposition, and as some sort of predicative preposition (either locative or progressive), we should take a moment to situate it within the broader context of Mandarin Aspect.
Mandarin has a couple of elements that exhibit aspecual behavior: \textit{zài}; \textit{zhe}, an imperfective marker; \textit{le}, which has a range of perfective meanings; and \textit{guò}, an experiential perfective (Klein et al. 2000, Lin 2004, Huang et al. 2009, Li 2012); only \textit{zài} occurs preverbally and cannot appear postverbally (without a complement):

\begin{itemize}
  \item (9) \textit{Zhāngsān zài xuéxì}
  \textit{Zhangsan ZÀI study}
  ‘Zhangsan is studying’
  \item (10) * \textit{Zhāngsān xuéxì zài}
  Zhangsan study ZÀI
  (int.) ‘Zhangsan is studying’
  \item (11) * \textit{Zhāngsān zhe xuéxì}
  Zhangsan ASP study
  (int.) ‘Zhangsan is studying’
  \item (12) \textit{Zhāngsān xuéxì zhe}
  Zhangsan study ASP
  ‘Zhangsan is studying’
  \item (13) * \textit{Zhāngsān guò kan zhè-bèn-shū}
  Zhangsan ASP saw this-CL-book
  (int.) ‘Zhangsan is finished reading this book’
  \item (14) \textit{Zhāngsān kan guò zhè-bèn-shū}
  Zhangsan saw ASP this-CL-book
  ‘Zhangsan is finished reading this book’
  \item (15) * \textit{Zhāngsān le kàn zhè-bèn-shū}
  Zhangsan ASP read this-CL-book
  (int.) ‘Zhangsan read this book’
  \item (16) \textit{Zhāngsān kàn le zhè-bèn-shū}
  Zhangsan read ASP this-CL-book
  ‘Zhangsan read this book’
\end{itemize}

2.2 Selectional restrictions on the predicative \textit{zài} — diagnostics for two separate structures

- Modificational \textit{zài} has no selectional restrictions
- Predicative \textit{zài} is incompatible with: Perfective \textit{le}, States and Static ‘Again’

Imperfective aspect picks out an internal portion of an interval (usually an event or time interval), leaving out initial and final points or states (Smith 1991, 1997; Klein 1994):

\begin{itemize}
  \item (17) \texttt{[\textit{initial} \ldots \texttt{IIIIIIII} \ldots \textit{final}]}\texttt{final}
\end{itemize}
2.2.1 Incompatible with perfective le

In Mandarin, there are two kinds of morphological le-marking: perfective le immediately follows the verb, while inchoative le is sentence final.

(18) wǒ dú le zhè-bēn-shū
I read LE_{perf} this-CL-book
‘I read this book’

(19) wǒ dú le zhè-bēn-shū le
I read LE_{perf} one-CL-book LE_{incho}
‘I read this book (I’ve just finished the whole book)’

- Both kinds of zài are compatible with inchoative le
- Modificational zài are compatible with perfective le
- Predicative zài is incompatible with perfective le, for semantic reasons
- I use double instances of le as the diagnostic to factor our confusion with sentence-finality

(20) Zhāngsān zài túshūguǎn ba zhè-bēn-shū dú le (dì-èr-cì le)
Zhangsan ZÀI library BA_{App} this-CL-book read LE_{perf} (ordinal-2-time LE_{incho})
‘Zhangsan read this book (for the 2nd time) in the library’

(21) Zhāngsān zài Lìsī zuò-fàn de shíhòu ba zhè-bēn-shū dú le (dì-èr-cì le)
Zhangsan ZÀI Lìsī do-food DE time BA_{App} this-CL-book read LE_{perf} (ordinal-2-time LE_{incho})
‘Zhangsan read this book (for the 2nd time), at the time when Lisi was making food

Predicative Progressive Uses

(22) Zhāngsān zài dú zhè-bēn-shū
Zhangsan ZÀI read this-CL-book
(prog.) ‘Zhangsan is reading this book’

(23) Zhāngsān zài dú zhè-bēn-shū le
Zhangsan ZÀI read this-CL-book LE_{incho}
(incho.) ‘Zhangsan just started reading this book (and is still reading it)’
*(perf) ‘Zhangsan was reading this book’

(24) Zhāngsān zài dú zhè-bēn-shū dì-èr-cì le
Zhangsan ZÀI read this-CL-book ordinal-2-time LE_{incho}
%(incho.) ‘Zhangsan is reading this book and it’s the second time he’s doing so’
*(perf.) ‘Zhangsan read this book a second time’

<table>
<thead>
<tr>
<th>Temporal modifier</th>
<th>Perfective le</th>
<th>Stative ‘Again’</th>
<th>Stative Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spatial modifier</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Locative predicate</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Progressive predicate</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 1: Differences between Modificational and Predicative Uses of zài
Zhāngsān yǐjīng dì-èr-cì zài dú zhè-běn-shū le
Zhāngsān already ordinal-2-time ZÀI read this-CL-book LE_{incho}
(incho.) ‘Zhāngsān reading this book and it’s the second time he’s doing so’
*(perf.) ‘Zhāngsān read this book a second time’

* Zhāngsān zài dú le (zhè-běn-shū dì-èr-cì le)
Zhāngsān ZÀI read LE_{past} this-CL-book ordinal-2-time LE_{incho}
(perf. + incho.) ‘Zhāngsān started reading this book for the 2nd time (and finished it)’

**Predicative Locative Uses**

(27) Zhāngsān zài tūshūguān
Zhāngsān ZÀI library
(prog.) ‘Zhāngsān is at the library’

(28) Zhāngsān zài tūshūguān le
Zhāngsān ZÀI library LE_{incho}
(incho.) ‘Zhāngsān just arrived at the library (and he’s still at the library)’
*(perf.) ‘Zhāngsān was at the library’

(29) Zhāngsān zài tūshūguān yì-gè-xǐao-shí le
Zhāngsān ZÀI library one-CL-small-time LE_{incho}
(incho.) ‘Zhāngsān is at the library and it’s been an hour’
*(perf.) ‘Zhāngsān was at the library for an hour’

(30) * Zhāngsān zài tūshūguān le (yì-gè-xǐao-shí le)
Zhāngsān ZÀI library LE_{perf} one-CL-small-time LE_{incho}
(perf. + incho.) ‘Zhāngsān was at the library for an hour (and he’s no longer at the library)’

**2.2.2 Incompatible with stative ‘again’**

Repetitive elements in Mandarin Chinese differ based on their aspectual selectional restrictions (Lin and Liu 2009, but see Lü 1980; Tang 1984):

(31) yòu : Dynamic

(32) zài : Static

- Modificational zài prepositions are grammatical with zài_{again} and with yòu
- Predicational zài prepositions are grammatical with yòu

(33) tiānqì huì zài rè
weather will again hot
‘The weather will be warm again’ Lin and Liu (2009)

(34) zài Zhōngguó, tiānqì huì zài rè
ZÀI China, weather will again hot
‘The weather will be warm again in China’

(35) zài Lìsì zuò fàn de shíhòu, tiānqì huì zài rè
ZÀI Lìsì do food de time, weather will again hot
‘The weather will be warm again at the time when Lìsì makes food’
(36) Xiaoming zuótiān yòu qu tái běi
Xiaoming yesterday again go Taipei
‘Xiaoming went to Taipei again yesterday’

(37) * Tā zài zài pǎobù
He again ZĀI run (… or He ZĀI again run)
(int.) ‘He is running again’

(38) Tā yòu zài pǎobù
He again ZĀI run
‘He is running again’

(39) * Tā zài zài tūshūguān
He again ZĀI library
(int.) ‘He is at the library again’

(40) Tā yòu zài tūshūguān
He again ZĀI library
‘He is at the library again’

Predicative zài is compatible with the stative version of ‘again’ for selectional reasons.

2.2.3 Incompatible with states

The Mandarin progressive zài is incompatible with all states, regardless of being stage-level or individual level, while the other Mandarin progressive zhe is compatible with stage-level states (Smith 1991, 1997; Yeh 1993).

(41) zài: Dynamic
(42) zhe: Static

Predicative progressive zài is incompatible with events that are non-dynamic (i.e. are stative or have a result state). Predicative locative zài has no lower event to test.

(43) * qiáng shàng zài imperf. guā yi-fú-huā
    wall on ZĀI hang one-CL-picture
    (int.) A picture hangs on the wall’
(44) qiáng shàng guā zhe yi-fú-huā
    wall on hang ASPimperf. one-CL-picture
    ‘A picture hangs on the wall’
(45) * Zhāngsān zài imperf. huō/shuǐ
    Zhangsan ZĀI live/sleep
    ‘(int.) Zhangsan is alive/sleeping’
(46) Zhāngsān huō/shuǐ zhe
    Zhangsan live/sleep ASPimperf.
    ‘Zhangsan is alive/sleeping’

The difference between imperfective zhe and imperfective zài is that they impose different semantic requirements on their verb (Huang et al. 2009; Smith 1991), so zàiaspect and zhe should never appear together.

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1 It has been suggested that the incompatibility of the progressive zài ‘again’ derives from the unfortunate fact that they are homophonous. However, I will follow Lin and Liu (2009) which argues that the two ‘again’ actually differ aspectually.
2 Interestingly, there are some cases when imperfective aspect can be doubled, although this is in dialectal variation.
3 Proposal — Modification versus Predicate Adjuncts

3.1 Modificational Uses — Habitual and Perfective

Habitual and Perfective sentences can be modified with zài phrases, but they are incompatible with predicative zài. The habitual in Mandarin is morphologically null.

(50) Wǒ xué fā-wén
I study France-language
(hab.) ‘I study French’

(51) Lǐsì zài tūshūguǎn kàn le yī-běn-shū
Lisi ZÀI library read LEperf one-CL-book
(perf.) ‘Lisi read a book in the library’

(53) Lǐsì zài tūshūguǎn kàn shū
Lisi ZÀI library read book
(hab.) ‘Lisi reads in the library’

(52) Lǐsì zài tūshūguǎn kàn le yī-běn-shū
Lisi ZÀI library read LEperf one-CL-book
(perf.) ‘Lisi read a book in the library’

(54) Lǐsì zài tūshūguǎn kàn shū
Lisi ZÀI library read book
(hab.) ‘Lisi reads in the library’

- Many scholars of Mandarin have analyzed post-verbal aspect markers as the heads of outer aspect, since their semantics provides a temporal perspective on events (Woo 2013; Tsai 2008; Smith 1991).
- However, these elements also have some of the hallmarks of situational aspect or aktionsart (i.e. the aspect which is related to internal temporal constituency of events, see (Klein 1994; Vendler 1967).

Importantly, (53) is interestingly ambiguous.
3.2 Modificational Uses — Temporal Modifiers

The PP-adjunct acts as the ground; the event is the figure (Demirdache and Uribe-Etxebarria 2007).

- Base-generated temporal event-modifying elements in the low TP-domain (Cheung 2012, 2013, 2015)
- Base-generated in the specifier of OuterAspP following (Todorović and Wurmbrand 2015; Demirdache and Uribe-Etxebarria 2004, i.a.)

(55) zài Lìsì zuò fàn de shíhòu Zhāngsān kàn le yī-běn-shū
    ZÀI LÌSÌ zuò fàn de shíhòu Zhāngsān kàn le yī-běn-shū
    ‘At the time when Lisi was making food, Zhangsan read a book.’

Only the highest PP element can topicalize to PP-topic position (Rizzi 2004, 1997 i.a.).

(56) zài Lìsì zuò fàn de shíhòu Zhāngsān zài tūshūguăn kàn le yī-běn-shū
    ZÀI LÌSÌ zuò fàn de shíhòu Zhāngsān ZÀI tūshūguăn kàn le yī-běn-shū
    ‘At the time when Lisi was making food, Zhangsan read a book at the library.’

(57) *zài tūshūguăn zài Lìsì zuò fàn de shíhòu Zhāngsān kàn le yī-běn-shū
    ZÀI tūshūguăn ZÀI LÌSÌ zuò fàn de shíhòu Zhāngsān kàn le yī-běn-shū
    ‘At the time when Lisi was making food, Zhangsan read a book at the library.’

(58) However, if we try to modify a progressive sentence with a spatial modifier, we only get the predicative reading. No double zài is possible with a spatial modifier.

3.3 Only one overt instance of predicative zài

- If there is a predicative zài, you can only have one zài preposition; There are two ways to be predicative:
  - Predicate Adjunct — see (64) and (66) below
  - Small Clause Main Predicate — see (68) below

If the prepositional phrase were a simple adjunct, one might expect that you would have multiple instances of zài. This is not possible.
A compatible alternative to PRO-binding would be adopting "delayed gratification" Myler (2014), which allows the matrix subject to act as the subject of the small clause PP via semantic means.
4 Interim Summary — Comparison with prior work

Woo (2013) postulates a null event as the complement of the prepositional head.

- Semantically, it’s not clear that there is any implied event present in examples like (69)-(71).
- To postulate a null event, one would have to ensure that it is dynamic so that it is compatible with the selectional restrictions of zài.

(69) wǒmén zài chī fàn
we ZÀI eat food
‘We are eating’

(71) wǒmén zài chī fàn
we ZÀI eat food
‘We are eating’ Woo 2013, (97)

(70) DP_subject

(72) DP_subject

(73) Lísi zài túshūguān kàn shū
Lisi ZÀI library read book
‘Lisi is reading in the library’

(75) Lísi zài túshūguān kàn shū
Lisi ZÀI library read book
‘Lisi is reading in the library’
(adapted from Woo 2013)

(74) OuterAsp

(76) OuterAsp

My account assumes a null ground nominal in sentences where one is not overtly present, following Woo (2013); Chao (1968).
5  A Consequence — Small-clause-selecting verbs in Mandarin Chinese

If we follow a small clause PP analysis as in the above sections, we would expect to find something akin to the following small clause structure in Mandarin:

(77) Mary is writing letters on the train (i.e. they end up on the side of the train).

(78)

\[
\begin{array}{c}
\text{vP} \\
\text{DP}_{\text{subject}} \quad \text{Mary} \\
\text{v'} \\
\text{InnerAspP} \\
\text{VP} \\
\text{pP} \\
\text{p} \\
\text{PP} \\
\text{DP} \\
\text{the train} \quad \text{on} \\
\text{DP} \\
\text{letters} \\
\text{V} \quad \text{write} \\
\text{InnerAsp} \quad \text{[prog.]} \\
\text{\textit{\text{-ing}}} \\
\text{is} \\
\text{DP} \\
\text{subject} \\
\end{array}
\]

Li (2014) analyzes classical examples of PP structural ambiguity from Zhu (1981a,b) by suggesting that verbs that select for prepositional phrases exist in Mandarin:

(79) Zhāngsān zài huǒchē shàng xiě zì
Zhangsan ZÀI train on write character(s)
(a) Zhangsan is/was/will be writing characters onto the train (i.e. the letters end up on the train)
(b) Zhangsan is/was/will be on the train and he is/was/will be writing characters

(80) Mèili xiě zì zài huǒchē shàng
Mary write character(s) ZÀI train on
(a) Mary is/was/will be writing characters onto the train (i.e. the letters end up on the train)
(b) *Mary is/was/will be on the train and she is/was/will be writing characters

Combining these two ideas together, we can analyze all of the readings of the sentences above by adopting the following:

- A certain subset of verbs selects for prepositions
- pP small clauses are base-generated at different heights in the tree
  - (a)-readings base-generate pP small clause as complement to V
  - (b)-readings base-generate pP small clause in the specifier of InnerAspP (see sections above)
- Mandarin has an adjunction site (PlaceP) above Inner Aspect (see sections above)
- Mandarin can move PPs into PlaceP from any position PlaceP c-commands

Since the account put forth in this talk base-generates the predicative adjunct pP in spec. InnerAspP, it predicts that the structural ambiguity present in PP-selecting verbs will not be available for the PP-final sentences like in (80).
(81) (a) reading for (79):

(82)

(83) (a) reading for (80):

(84)

(85) (b) reading for (79):

(85)
6 Conclusion

(86) **Modificational**

\[
\begin{array}{c}
\text{PP} \\
\text{P} \quad \text{DP}_{\text{ground}} \\
\text{ZAI}
\end{array}
\]

(87) **Predicative**

\[
\begin{array}{c}
pP \\
p \quad \text{DP}_{\text{subject}} \\
p' \quad \text{PP} \\
P \quad \text{DP}_{\text{ground}} \\
\text{ZAI}
\end{array}
\]

(88) \text{zài tushuguàn} Lìsì kàn le
\text{PREP library} Lisi look \text{LE}_{\text{perf}}
yì-bēn-shū
one-CL-book
(perf.) ‘Lisi read a book in the library’

(89) \text{zài Lìsì zuò fàn de shíhòu} Zhāngsān
\text{PREP Lisi do food DE time} Zhangsan
kàn le yì-bēn-shū
look \text{LE}_{\text{perf}} one-CL-book
(perf.) ‘At the time when Lisi was making food, Zhangsan read a book.’

(90) Lìsì \text{zài tushuguàn kàn-shū}
Lisi \text{PREP library} read-book
(hab.) ‘Zhangsan reads in the library’

(91) Lìsì \text{zài tushuguàn kàn le}
Lisi \text{PREP library} read \text{LE}_{\text{perf}}.
yì-bēn-shū
one-CL-book
(perf.) ‘Zhangsan read a book in the library’

Benefits of my analysis:

1. Ground Uniformly Encoded as Innermost Argument
2. Uniform Category Selection by Aspect-head and P-head
   - Aspect-head takes a vP complement
   - P-head takes an nP complement
3. No null events
4. Base-generation of pP in spec InnerAspP explains why we have an obligatory progressive interpretation
5. Small clause analysis predicts behavior of preposition-selecting verbs

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