A Time-relational Approach to Aspect in Mandarin Chinese and English

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July 22, 2008
Motivation

Both English and Mandarin Chinese have (grammatical) aspect, but the former is tensed and the latter tenseless. We compute the semantics of Chinese aspect marking of simple isolated sentences in a time-relational framework (Reichenbach 1947) and compare it with that of English.
Structure of the Talk

1. Introducing Chinese Aspect
2. English Tense & Aspect
3. Chinese Aspect
   - Zero Marking
   - The Four Aspect Markers
4. Conclusion
Overview

Mandarin Chinese has a rich aspectual system.

verb root: *du* ‘read’

- φ
- *du-φ*
- LE
- *du-le*
- GUO
- *du-guo*
- ZAI
- *zai-du*
- ZHE
- *du-zhe*
- Remnant ASPs
- *du-qilai* (inchoative)
  ...

Mingya Liu (Tübingen)
Zero Marking vs. Aspect Markers

- With Zero Marking, the temporal properties of a sentence are expressed by time adverbials (if there is none, then time is located at the present) and the inherent temporal properties of the verbal predicate (Vendler 1967).

- With aspect markers, the temporal properties of a sentence are conveyed by time adverbials, inherent verb meaning and aspect.

- We will leave out time adverbials and only discuss how aspect interacts with inherent verb meaning.
‘Perfective Marker’ *le*

*Le* marks a termination of an event, but not necessarily a completion.

(1) a. *wo zuo-le zuo-ye.*
   ‘I did my homework.’

   b. *ta zuo-le zuo-ye, dan-shi hai-mei zuo-wan.*
   ‘He did his homework, but didn’t finish doing it yet.’

   c. *wo zuo-wan-le zuo-ye.* (completion indicated by resultative verb constructions, RVCs)
   ‘I finished doing my homework.’

   d. *nana pang-le.* (Inchoativity if combined with states)
   ‘Nana gained weight.’
‘Experiential Marker’ *guo*

*Guo* means that some event takes place at least once, which requires that the event indicated by the predicate should be repeatable.

(2) a. ?ta si-guo.
   ‘He died once.’

b. ta chi-guo kimchi.
   ‘He has eaten kimchi (once).’

c. ?ta chi-guo mi-fan.
   ‘He has eaten rice (once).’
‘Imperfective Markers’ zai, zhe

‘Progressive Marker’ zai

(3) a. *ta zai zhi-dao.
   ‘He is knowing.’
b. ta zai tiao-wu.
   ‘He is dancing.’
c. *ta zai-yin.
   ‘He is winning.’

‘Stative Imperfective Marker’ zhe indicates continuation either of an action or a resultant state from an action.

(4) a. ta zai-chuan yi-jian da-yi.
   ‘He is putting on a coat.’
b. ta chuan-zhe yi-jian da-yi.
   ‘He is wearing a coat.’
c. *ta dao-zhe.
   ‘He arrive-ZHE.’
d. ta ting-zhe ying-yue tiao-wu.
   ‘He dances while listening to the music.’
Interaction with Verbal Classes

<table>
<thead>
<tr>
<th></th>
<th>$\phi$</th>
<th>$le$</th>
<th>$guo$</th>
<th>$zai$</th>
<th>$zhe$</th>
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<tbody>
<tr>
<td>States</td>
<td>+</td>
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<td>Activities</td>
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<tr>
<td>Accomplishments</td>
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<tr>
<td>Achievements</td>
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- Some state verbs can be combined with $le$ to indicate inchoativity. State verbs, when combined with $zai$, are coerced into activities.
- Activities are available with any aspect marking.
- Accomplishments are available with any aspect marking. However, with $le$ and $guo$, the accomplishment is indicated as complete, while with $zai$ and $zhe$ it is still ongoing; with zero marking, the sentence is aspectually ambiguous.
- Achievements are only compatible with $le$. 
Reichenbach (1947)

Three notions of time:

- speech time ($T_S$): the time when the utterance is made
- event time ($T_E$): the time when the event described in the utterance obtains
- reference time ($T_R$): the time from which the event is seen

Definitions:

- Tense: $\text{REL}(T_R, T_S)$
- Aspect: $\text{REL}(T_R, T_E)$
Temporal Relations

We apply the notion of intervals of time instead of points of time and three kinds of temporal relations:

- Temporal precedence: \( T_1 < T_2 \) iff \( t_1 < t_2 \) for every \( t_1 \in T_1 \) and every \( t_2 \in T_2 \)
- Temporal overlap: \( T_1 \cap T_2 \) is nonempty
- Temporal inclusion: \( T_1 \subseteq T_2 \) iff \( T_1 \subseteq T_2 \)

Carpenter (1997: p.413)

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<tbody>
<tr>
<td>PAST</td>
<td>$T_R &lt; T_S$</td>
<td>$T_R &lt; T_S$</td>
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<tr>
<td>PRESENT</td>
<td>$T_S = T_R$</td>
<td>$T_S \subseteq T_R$</td>
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<tr>
<td>FUTURE</td>
<td>$T_S &lt; T_R$</td>
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<tbody>
<tr>
<td>SIMPLE</td>
<td>$T_E = T_R$</td>
<td>$T_E \subseteq T_R$</td>
</tr>
<tr>
<td>PROGRESSIVE</td>
<td>For some $t$ in $T_E$, $T_R &lt; t$</td>
<td>$T_R \subset T_E$</td>
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<tr>
<td>PERFECT</td>
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(5)  

a. Mary has long hair. (PRESENT: $T_S \subseteq T_R$)  
b. Tom works / Tom worked. (SIMPLE: $T_E \subseteq T_R$)
## An Example

<table>
<thead>
<tr>
<th></th>
<th>±Perfect</th>
<th>±Progressive</th>
<th>Time Relations</th>
<th>Examples</th>
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<tbody>
<tr>
<td><strong>Past</strong></td>
<td>+</td>
<td>−</td>
<td>$T_R &lt; T_S$, $T_E &lt; T_R$</td>
<td>Anna had met Peter.</td>
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<td></td>
<td>−</td>
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<td>$T_R &lt; T_S$, $T_E \subseteq T_R$</td>
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<td></td>
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<td><strong>Present</strong></td>
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<td><strong>Future</strong></td>
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Lin (2006): “default viewpoint aspect”

 [...] the temporal interpretation of sentences without any temporal adverbs or aspectual markers is determined via their viewpoint aspect. Namely, a sentence with imperfective viewpoint aspect has a present interpretation, whereas a sentence with perfective viewpoint has a past interpretation.

(Lin 2006: p.4)

Question: How, with no aspect marker, is the default perfective distinguished from the default imperfective aspect?
Our claim

- The most essential temporal properties of an event lie in the verb (plus its arguments) above all.

- Zero marking in Mandarin Chinese has the semantics of either simple/perfective or perfect in English, depending on Vendlerian class of the verbal predicate.

- RVCs are achievements in nature. They do appear with zero marking.
Time Relations with zero marking

- **States**: \([T_R \subseteq T_S, T_E \subseteq T_R]\)
  
  (6) ma-li hen gao.
  ‘Mary is very tall.’

- **Activities**: \([T_R \subseteq T_S, T_E \subseteq T_R]\)
  
  (7) ma-li tiao-wu.
  ‘Mary dances.’

- **Accomplishments**: \([T_R \subseteq T_S, T_E \subseteq T_R]\) or \([T_R \subseteq T_S, T_E < T_R]\)
  
  (8) ma-li hua yi-fu hua.
  ‘Mary draws/has drawn a picture.’

- **Achievements (RVCs)**: \([T_R \subseteq T_S, T_E < T_R]\)
  
  (9) ma-li si-diao.
  ‘Mary has died.’
Klein et al. (2000): DP

Klein’s (1994) three kinds of lexical contents:

- 0-phase: factual/atemporal statements
- 1-phase: Vendler’s states and activities or atelic/Krifka’s (1989) homogeneous predicates
- 2-phase: Vendler’s accomplishments and achievements or telic/Krifka’s quantized predicates

The distinguished phase (DP):

- DP is the chosen phase to which reference time (topic time or time of assertion) is related.
- DP is the only phase for 1-phase contents and for 2-phase contents e.g. <Mary die> with a source phase <Mary be not dead> and a target phase <Mary be dead>.
- Chinese takes the target phase as DP.
Klein et al. (2000): Definition

- le: \( T_R \) O PRETIME \( T_{DP} \) and \( T_{DP} \)
- guo: \( T_{DP} < T_R \)
- zai: \( T_R \subset T_{DP} \)
- zhe: \( T_R \subset T_{DP} \)
Is DP necessary to define *le*?

(10) a. ma-li pang-le. [ ++++]  
    ‘Mary gained weight.’

b. ma-li tiao-wu-le. [ ++] ++ or [ ++++]
    ‘Mary danced.’

c. ma-li hua-le yi-fu hua. − − [− − ++] ++ or − − [− − ++++]
    ‘Mary drew a picture.’

d. ma-li si-le. − − [− − ++++]
    ‘Mary died.’

++ for DP, − for the source phase of 2-phase contents and [] for reference time

- For 1-phase contents, $T_{DP}$ is $T_E$, thus
  ‘$T_R O PRETIME T_{DP}$ and $T_{DP}$’ = ‘$T_R O PRETIME T_E$ and $T_E$’.

- For 2-phase contents, the target phase is DP, and “as a consequence, the source phase is the pretime of DP” (Klein et al. 2000: p.758), so altogether $T_E$.

- It seems difficult to tell the two phases apart for e.g $< Mary draw a picture >$. 
The Four Aspect Markers

Our definition of *le*

- With $T_E$ and $T_R$ as intervals $[t_1, t_2]$ and $[t_3, t_4]$, (10) shows four kinds of temporal relations, $t_3 < t_1 < t_4 < t_2$, $t_3 < t_1 < t_2 \leq t_4$, $t_1 < t_3 < t_4 < t_2$ and $t_1 < t_3 < t_2 \leq t_4$. All including ‘$t_1 < t_4$’.

  *le*: ‘InitialPoint $T_E < $ FinalPoint $T_R$’.

- The reason why we did not pick ‘$t_3 < t_2$’ i.e. ‘InitialPoint $T_R < $ FinalPoint $T_E$’, is that the former perfectly explains the fact that *le* does not indicate completion itself. As our redefinition shows, *le* focuses on the relation between the initial point of $T_E$ and the final point of $T_R$ while the final point of $T_E$, which determines the completion of an event, is left unspecified.
guo: perfect marker

- For 1-phase contents, $T_{DP}$ is $T_E$.

- For 2-phase contents, ‘$T_{DP} < T_R$’ says nothing more than ‘$T_E < T_R$’, because DP in Chinese, i.e. the target phase is evidently the latter part of a 2-phase content.

Conclusion: guo indicates ‘$T_E < T_R$’ just like the English perfect. DP is not necessary, either.
zai and zhe

- Both zai and zhe appear with 1-phase contents for which $T_{DP}$ is $T_E$.

- Achievements do not occur with zai or zhe, while accomplishments like *hua yi-fu hua* ‘draw a picture’ can be combined with either of them, but then they behave rather like activities, because the resulting state i.e. DP, is not relevant or realized.

Conclusion: it is unnecessary to distinguish the source phase and DP for zai and zhe. They indicate ‘$T_R \subset T_E$’ as the English progressive.
## Chinese and English Aspect

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<th>English</th>
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<tr>
<td><strong>Zero marking:</strong></td>
<td><strong>SIMPLE:</strong></td>
</tr>
<tr>
<td>$T_E \subseteq T_R$ or $T_E &lt; T_R$</td>
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Aspect in both Mandarin Chinese and English indicates a relation between $T_E$ and $T_R$, either of temporal precedence or temporal inclusion, except for some minor differences. How about other languages?
References

Many Thanks especially to Regine Eckardt and also to Götz Keydana and Janino Radó.


