Getting aspectual -guo under control in Mandarin Chinese: An experimental investigation

1 Background

Mandarin experiential aspect marker -guo is canonically used to indicate that some eventuality has occurred at least once before (see e.g. Smith 1991; Pan and Lee 2004; Lin 2006):

(1) Lisi he-guo jiu.
Lisi drink-EXP wine
‘Lisi drank wine before.’ (Lin 2006:10)

Some speakers of Mandarin accept -guo in control complements:

(2) Zhangsan quan Lisi [PRO hui(-guo) laojia].
Zhangsan urge Lisi return-EXP home
‘Zhangsan urged (persuaded?) Lisi to return home.’

Debate over the status of -guo under control:

(because Mandarin control clauses are nonfinite or reduced, hence lack a position for aspect)

→ Local realization of embedded aspect (Xu 1985–1986; Hu, Pan, and Xu 2001)
(Mandarin makes no syntactic distinction between control and non-control clauses)

Xu’s (1985–1986) argument against the matrix analysis — An interpretive contrast:

(3) Wo qing-guo ta [PRO chi fan], keshi ta mei lai.
1SG invite-EXP 3SG eat food but 3SG NEG.PRF come
‘I invited him to have a dinner, but he didn’t come.’

(4) *Wo qing ta [PRO chi-guo fan], keshi ta mei lai.
1SG invite 3SG eat-EXP food but 3SG NEG.PRF come

The data in (3)–(4) suggest that -guo in control complements triggers an actuality entailment (in the sense of Bhatt 1999; Hacquard 2006); cf. French:

(5) Jane a pu soulever cette table, #mais elle ne l’a pas soulevée.
‘Jane was able to lift this table, #but she didn’t lift it.’ (Hacquard 2006:21)

However, the empirical picture in Mandarin is complicated by two factors:

First, not all Mandarin speakers agree with the judgment in (4), and Li (1990) reports data that directly contradict the relevant generalization:

(6) a. Wo qing ta [PRO chi-guo fan], keshi ta bu yuan yi lai.
1SG invite 3SG eat-EXP food but 3SG not willing come
‘I have invited him to eat but he was not willing to come.’ (Li 1990:38)
b. Wo quan ta [PRO jie-guo yan], keshi ta bu ken jie.  
1SG urge 3SG quit-EXP cigarette but 3SG not will quit  
‘I urged him to quit smoking but he will not stop.’ (Li 1990:19)

c. Wo bi ta [PRO chi-guo yao], keshi ta bu ken chi.  
1SG force 3SG eat-EXP medicine but 3SG not will eat  
‘I forced him to take his medicine but he will not.’ (Li 1990:19)

Second, a number of Mandarin speakers we’ve spoken to report rejecting -guo under control altogether, regardless of interpretation.

This talk: Report of an acceptability experiment that targets two questions:

1. To what extent do Mandarin speakers accept -guo in control complements?
2. To what extent does -guo in control complements trigger an actuality entailment?

Preview of results: Moderate acceptability, but no evidence of an actuality entailment.

Implication: Insofar as the argument for the embedded analysis of -guo under control rests on the existence of actuality entailments, the matrix analysis seems to be supported. However, some of our other experimental findings may challenge the matrix analysis, as well.

2 Design

We constructed sentential stimuli instantiating object control with 3 ASPECT profiles . . .

(7)  
a. Zhangsan quan-guo Lisi hui laojia. ←MATRIX -GUO  
Zhangsan urge-EXP Lisi return home  
b. Zhangsan quan Lisi hui-guo laojia. ←EMBEDDED -GUO  
Zhangsan urge Lisi return-EXP home  
c. Zhangsan quan Lisi hui laojia. ←NO -GUO  
Zhangsan urge Lisi return home

. . . crossed with 2 ACTUALITY profiles presented as contexts against which the sentences are judged:

HAPPEN:

(8) Zhangsan juede Lisi yinggai hui laojia, danshi Lisi bu xiang hui, zuizhong Lisi zhao-zuo-le.  
Zhangsan feel Lisi should return home but Lisi not want return finally Lisi according-do-PRF  
‘Zhangsan thought Lisi should return home, but Lisi didn’t want to. Finally, Lisi did.’

FAIL:

(9) Zhangsan juede Lisi yinggai hui laojia, danshi Lisi bu xiang hui, zuizhong Zhangsan fangqi-le.  
Zhangsan feel Lisi should return home but Lisi not want return finally Lisi quit-PRF  
‘Zhangsan thought Lisi should return home, but Lisi didn’t want to. Finally, Zhangsan gave up.’
3 ASPECT profiles x 2 ACTUALITY profiles = 6 conditions total

Each of the 6 conditions was instantiated using 3 sentence frames, yielding 18 items total:

(10) a. Zhangsan quan Lisi **hui** laojia. ← SENTENCE FRAME 1
    Zhangsan urge Lisi return home
b. Li Laoshi quan Xiao Hua **qu yiyuan**. ← SENTENCE FRAME 2
    Li Teacher urge Little Hua go hospital
c. Wang Jingli quan Xiao Liu **xue kai che**. ← SENTENCE FRAME 3
    Wang Manager urge Little Liu learn drive car

36 native Mandarin speakers recruited at Chongqing Medical University (aged 18–24; half male, half female) each rated 6 out of the 18 test items, plus 30 fillers of similar complexity, on a 1–5 scale from least to most acceptable in the provided context. Stimuli were presented to the subjects on a computer screen, one at a time, in a pseudorandomized order.

3 Results and statistical analysis

(11) a. **Hypothesis A**: Mandarin -guo under control triggers actuality entailments.
b. **Hypothesis B**: Mandarin -guo under control does not trigger actuality entailments.

**Idealized predictions of Hypothesis A:**

<table>
<thead>
<tr>
<th></th>
<th>HAPPEN</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>matrix -guo</td>
<td>5.00</td>
<td>5.00</td>
</tr>
<tr>
<td>embedded -guo *</td>
<td>5.00</td>
<td>1.00</td>
</tr>
<tr>
<td>no -guo</td>
<td>5.00</td>
<td>5.00</td>
</tr>
</tbody>
</table>

Table 1

**Idealized predictions of Hypothesis B:**

<table>
<thead>
<tr>
<th></th>
<th>HAPPEN</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>matrix -guo</td>
<td>5.00</td>
<td>5.00</td>
</tr>
<tr>
<td>embedded -guo</td>
<td>5.00</td>
<td>5.00</td>
</tr>
<tr>
<td>no -guo</td>
<td>5.00</td>
<td>5.00</td>
</tr>
</tbody>
</table>

Table 2

**Actual mean results:**

<table>
<thead>
<tr>
<th></th>
<th>HAPPEN</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>matrix -guo</td>
<td>3.72</td>
<td>4.47</td>
</tr>
<tr>
<td>embedded -guo *</td>
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<td>3.27</td>
</tr>
<tr>
<td>no -guo</td>
<td>4.22</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Table 3

Mixed linear model statistical analysis:

- Main effect for ASPECT ($p < 0.001$): Dispreference for embedded -guo (mean = 3.29) compared to matrix -guo (mean = 4.09) and no -guo (4.11).
- Interaction between ASPECT and ACTUALITY:
  - matrix -guo x FAIL significantly higher than embedded -guo x FAIL ($p = 0.002$)
  - no -guo x HAPPEN significantly higher than embedded -guo x FAIL ($p = 0.032$)
  - no -guo x HAPPEN significantly higher than embedded -guo x HAPPEN ($p = 0.041$)
- **Crucially**: embedded -guo x FAIL not significantly higher than embedded -guo x HAPPEN ($p = 1.00$)
- **Also**: matrix -guo x FAIL not significantly higher than matrix -guo x HAPPEN ($p = 0.1555$)
4 Discussion

- We see a global **dispreference for embedded -guo** compared with matrix -guo and no -guo.
- But this dispreference is the same **regardless of interpretation**, supporting Hypothesis B (no actuality entailment).

**Remaining question:** The data suggest that although **embedded -guo** does not give rise to an actuality entailment, **matrix -guo** may in fact give rise to a **failure inference**, although the effect did not reach statistical significance \( p = 0.1555 \). But if valid, this could ultimately support the **local** analysis of aspect under control (because it shows matrix vs. embedded -guo are semantically distinct) — just not for the reason originally used to motivate this analysis.

5 Future directions

Notable limitations of this study that could be overcome via future experiments:

- Only one control verb was tested (**quan ‘urge’**). Others that could be tested: **qing ‘invite’, bi ‘force’,** as well as subject-control verbs like **dasuan ‘plan’, jueding ‘decide’**.
- Only one aspect marker was tested (**-guo ‘EXP’**). Another that could be tested is **-le ‘PFV’**.
- The between-subject design obscures any possible dialectal/idiolectal variation among speakers.

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**References**