

# Cross-linguistic structural priming of relative clause attachments in Chinese depends on L2 proficiency

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## Introduction

- **Structural priming effect** refers to the phenomenon that processing one sentence could be affected by processing another sentence based on the similar syntactic structure.
- **Hierarchical structural priming effects:** when completing structurally ambiguous relative clauses (RCs) like “the servant [NP1] of the actress [NP2] who \_\_\_ [incomplete RC]”, the completed RC attachment is more likely to be structurally congruent with the preceding sentence structure (Scheepers, 2003).
- However, what is reflected in RC attachment priming? —
- **shared syntactic structures account vs. shared chunking strategies account**

- This study tested these two accounts by examining how reading unambiguous English RCs may bias subsequent Chinese RC completions

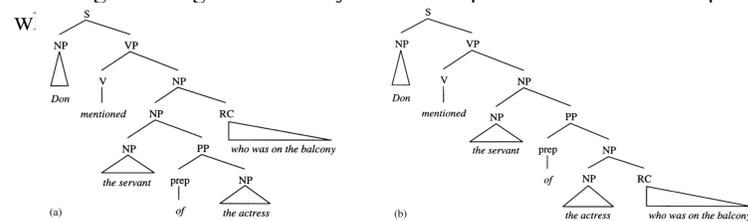


Figure 1. English and Chinese RCs show similar syntactic structures in both HA and LA sentences.

HA structure	
English	Don mentioned [the servant of the actress] [who was on the balcony].
Chinese	唐提到了 [阳台上的] [女星的] [仆人]. (Don mentioned who was on the balcony of the actress the servant)
LA structure	
English	Don mentioned [the servant] [of] [the actress who was on the balcony].
Chinese	唐提到了 [阳台上的] [女星的] [仆人]. (Don mentioned who was on the balcony of the actress the servant)

Figure 2. English and Chinese RCs show opposite chunking strategies in HA and LA sentences.

Condition	Prime sentence example
<b>Experiment 1</b>	
HA prime	他会见了被选举为人大代表的师范大学的校长。 (He met the headteacher of the university who was elected as the NPC deputy)
LA prime	他会见了专注培养小学教师的师范大学的校长。 (He met the headteacher of the university which specialized in the training of primary school teachers)
<b>Experiment 2</b>	
HA prime	He met the mayor of the city who was nominated for an OBE.
LA prime	He met the mayor of the city which was famous for its museums.

Figure 3. Experimental design

## Methods

### Experiment 1

Participants: 44 native Chinese speakers.

Design and Materials: see Figure 3.

Sentence completion task: Participants read a Chinese RC prime first and rate the readability of it, then completed a Chinese RC fragments.

### Experiment 2

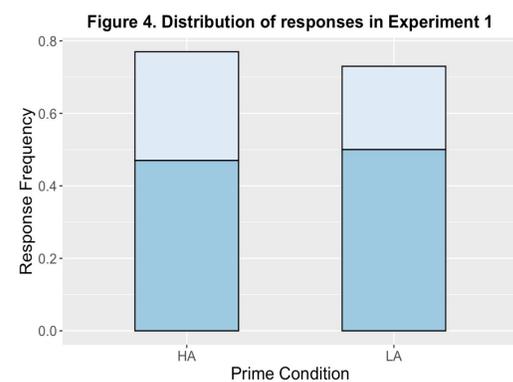
Participants: 144 English learners (56 of high proficiency, 88 of low proficiency).

Design and Materials: see Figure 3.

Sentence completion task: Participants read an English RC prime first and rate the readability of it, then completed a Chinese RC fragments.

## Results

### Experiment 1



Prime Condition	n	Rating	Target completion		
			HA	LA	UC
HA	665	66.35	202 (30.4%)	312 (46.9%)	151 (22.7%)
LA	665	70.96	152 (22.8%)	333 (50.1%)	180 (27.1%)

Table 7. (right) Distribution of the responses and the mean rating per condition in Experiment 1  
Table 8. (top left) Distribution of the responses and the mean rating per condition of high English group in Experiment 2  
Table 9. (bottom left) Distribution of the responses and the mean rating per condition of low English group in Experiment 2

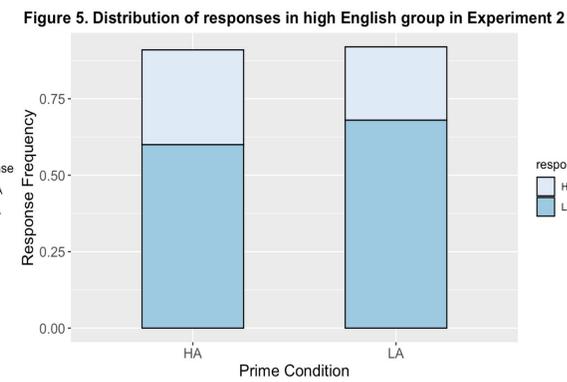
**Readability analysis** There were no significant group differences in ratings ( $p = 0.61$ ).

**RC attachment analysis** Significant structural priming effects were found in HA condition ( $p = 0.00$ ) but not in LA condition ( $p = 0.34$ ).

## Conclusion and Discussion

- Priming pattern between English and Chinese is congruent with the previous research, which indicates that the RC attachment priming is resulted from the shared syntactic structure.
- Only high proficiency group showed crosslinguistic structural priming effects, which also raises questions on the developmental trajectory of L2 structural representations.

### Experiment 2



Prime Condition	n	Rating	Target completion		
			HA	LA	UC
HA	840	67	257 (31%)	506 (60%)	77 (9%)
LA	840	66	202 (24%)	568 (68%)	70 (8%)

Prime Condition	n	Rating	Target completion		
			HA	LA	UC
HA	1320	69	366 (28%)	836 (63%)	118 (9%)
LA	1320	69	370 (28%)	845 (64%)	105 (8%)

**Readability analysis** There were no significant group differences in ratings (for English group,  $p = 0.313$ ; for prime condition,  $p = 0.875$ ), and there was no significant interaction ( $p = 0.453$ ).

**RC attachment analysis** Significant interaction was found between English group and prime condition ( $p = 0.008$ ). Post hoc comparison indicates that only participants with high English proficiency show significant structural priming effects.

## References

Scheepers, C. (2003). Syntactic priming of relative clause attachments: Persistence of structural configuration in sentence production. *Cognition*, 89(3), 179-205.