

EEG Evidence for Different Syntactic Expectations in Parsing Chinese Subject and Object-relative Clauses

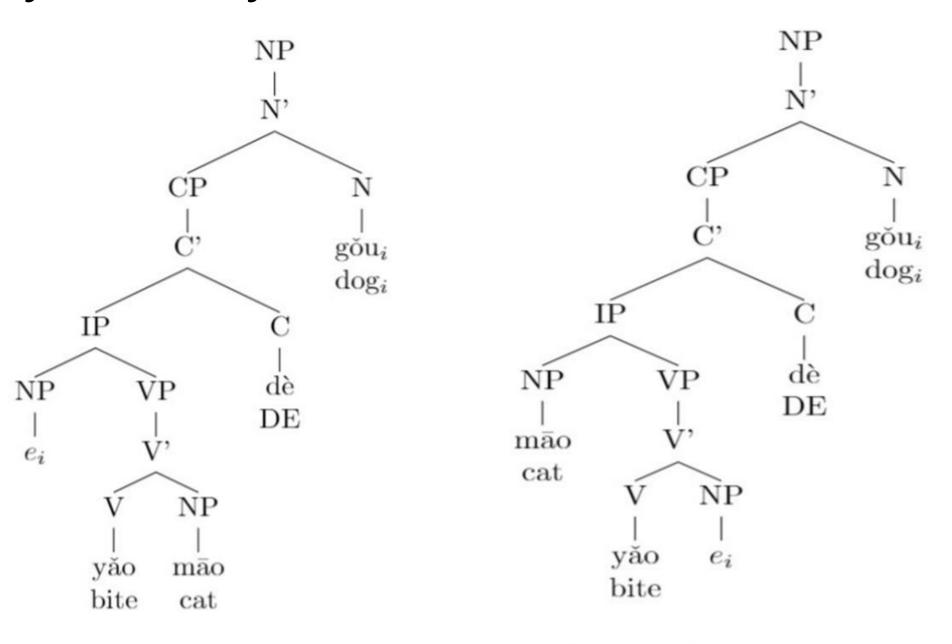
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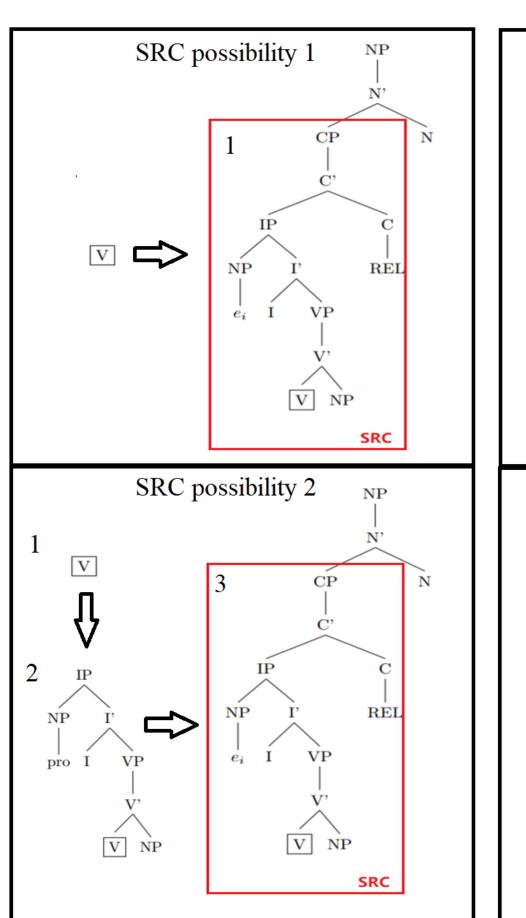
Introduction

Subject and Object Relative Clause in Chinese:

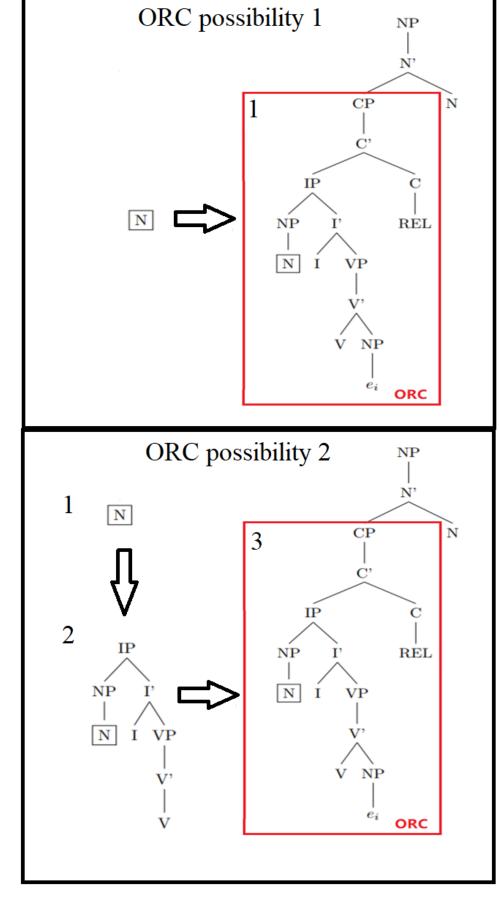


- Mixed results: increased processing costs for either subject-relative clauses or object-relative clause;

 (Hsian & Gibson 2003: Jäger Chen Li Lin & Vasishth 2015: Lin & Beyer 2006)
- Expectations for non-RC structures may play a role:



Subject-relative Clause

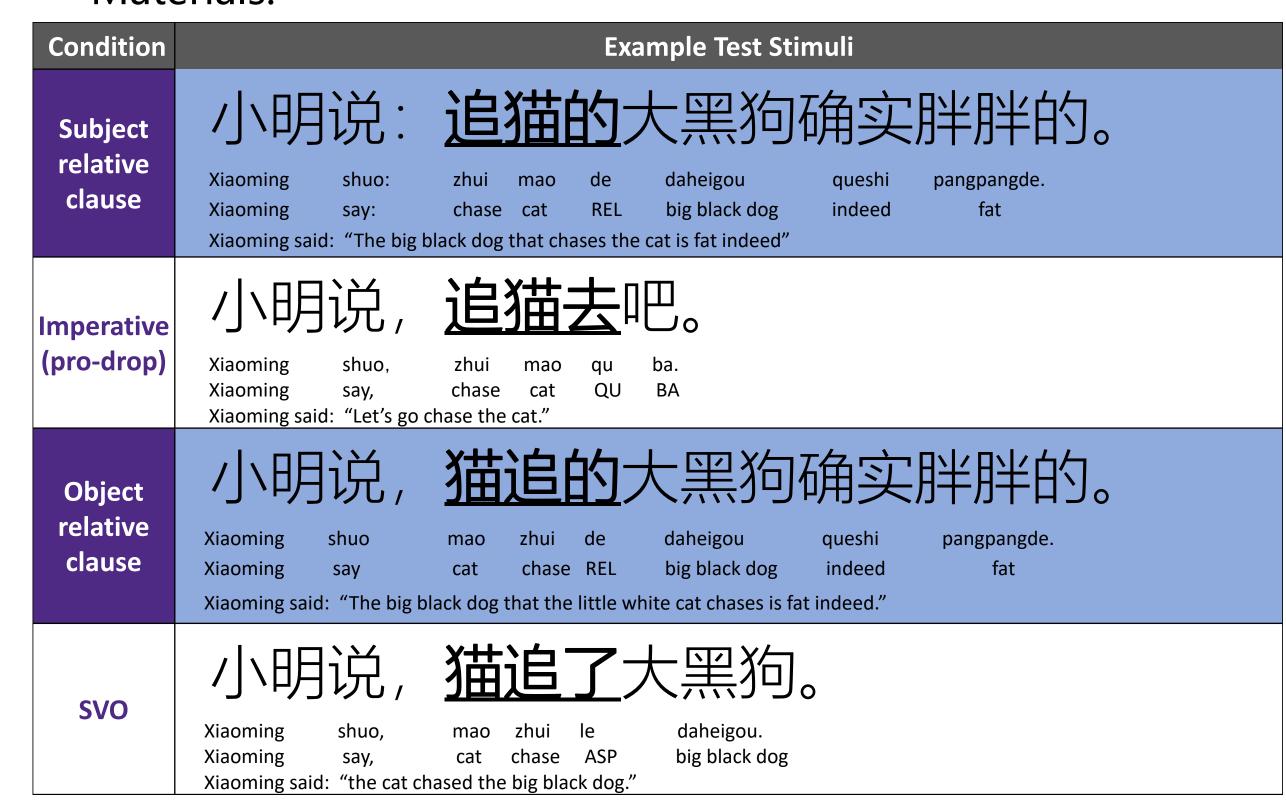


Object-relative Clause

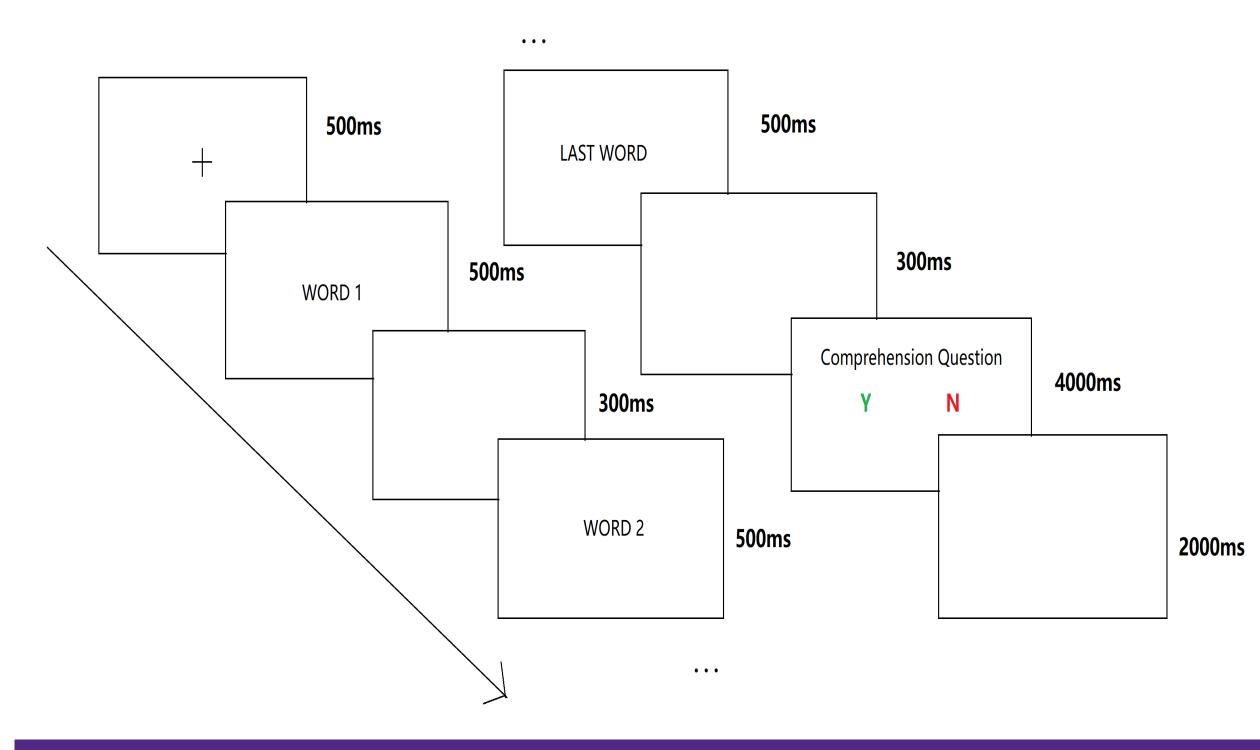
Method

• Participants: Twenty native Chinese speakers: 5 males, 15 females, age: 19.75, SD: 3.076, range: 18-32

Materials:



- Critical Regions: first words in relative clause, and relativizer (and equivalent);
- Procedure



Research Questions

- Which one of the relative clauses is easier to process?
- Do structural expectations influence processing of Chinese relative clauses?
- At what point are expectations for relative clause structures constructed?

Analysis

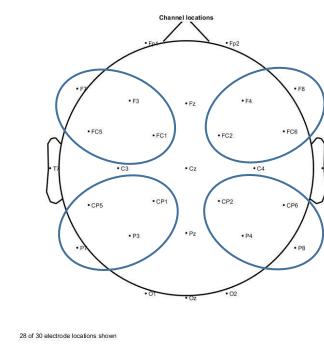
Mixed effects regression

- Fixed effects of anterior/posterior, left/right, condition, group
- Random effect of participant
- Artifacts removed with ICA

Epoch length: -100 to 2400 ms after onset of first word in relative clause (and

corresponding positions)

Voltage threshold (±75µv) epoch rejection



Results After critical word onset: 300-400ms 700-800ms 500-600ms 600-700ms 400-500ms 1. Subject-relative vs. object-relative clauses: First word 2. Subject-relative vs. object relative clauses: Relativizer 3. Subject-relative relativizer vs. SVO aspect marker 4. Object-relative relativizer vs. SVO aspect marker 5. Subject relative relativizer vs. Imperative QU Particle (main effect)

Conclusions

Processing Cost:

- Subject-relative clauses are initially more difficult to process than object-relative clauses, though they incur a similar processing cost at the relative-clause marker.
- > Structural Expectations:

*: p < 0.05; **: p < 0.01.

- Verb-initial clause triggers early expectation for a subject-relative clause structure;
- Noun-initial clause **does not** trigger expectation for object-relative clause;
- Expectation for relative clause emerge at relative clause verb in subject-relative clauses, and at relativizer in object-relative clauses
- Imperative, despite its simpler structure, was not the preferred expectation at any point in subject-relative clauses.

References

Hsiao, F., & Gibson, E. (2003). Processing Relative Clauses in Chinese, 90(1), 3–27.

Jäger, L., Chen, Z., Li, Q., Lin, C.-J. C., & Vasishth, S. (2015). The subject-relative advantage in Chinese: Evidence for expectation-based processing, 79–80, 97–120.

Lin, C. C., & Bever, T. G. (2006). Subject Preference in the Processing of Relative Clauses in Chinese (pp. 254–260).

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