Cross-linguistic variations and similarities: an ERP study of Mandarin wh-constructions

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University of Chicago  Beijing Normal University  CNS 2011

Wh-Dependencies Without Overt Displacement

A covert dependency

<table>
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<th>LF movement (Huang 1982)</th>
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<td>&quot;Which man did the police officer ask John to protect?&quot;</td>
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Unselective binding (Aoun & Li 1993; Tsai 1994)

CP [the police officer asked John to protect which man]]

Wh-in-situ questions also involve long distance dependencies between the wh-in-situ position and the clause initial position.

How are covert wh-dependencies established in real-time?

What processes are shared with overt dependency formation?

ERP Experiment (n=24)

Declarative controls (short/long)

| a/b 老师 劝说 约翰 (为了实现自己的理想) 报考 那所学校。
| "The teacher persuaded John (for realize own dream) to apply to that school."

Matrix wh-Q (short/long)

| c/d 老师 劝说 约翰 (为了实现自己的理想) 报考 哪所学校?
| "Which school did the teacher persuade John to apply to (to realize his own dreams)?"

Embedded Wh-Q (short/long)

| e/f 老师 四处打听 约翰 (为了实现自己的理想) 报考 哪所学校。
| "The teacher asked which school John applied to (to realize his own dreams)."

P600 for overt wh-dependencies:

- Kaan et al. 2000: wh-dependencies showed a larger P600 relative to the non-wh counterpart
- Fiebach et al. 2002: length of the wh-dependencies had no effect on P600 amplitude
- Phillips et al. 2005: length of the wh-dependencies affected the onset latency of the P600, but not the amplitude
- These studies also found a sustained anterior negativity that reflects the cost of holding a "filler" in working memory (also see King & Kutas 1995)

Conclusions

- Both matrix and embedded wh-in-situ questions showed a larger positivity compared to the declarative controls
- Longer length of the wh-in-situ dependency increased the amplitude of this positivity
- Considered together with Xiang et al. 2010, the sensitivity to length suggests that this positivity is NOT indexing the initial stage in which the dependency was just being established (cf. the constant rate in the SAT function). It is more likely that it is reflecting the integration over the whole dependency.

References: