

The use of context in resolving syntactic ambiguities in Chinese reading

Weilin Liu and Kevin Paterson

School of Psychology and Vision Sciences, University of Leicester

In this eye-tracking study, we investigate how context influences syntactic ambiguity resolution in the globally syntactically ambiguous Chinese sentences, which can be interpreted into two different meanings. Such as “三个学校的实验员参加了培训”, which is ambiguous between, “*Technicians from three schools.....*” or “*Three technicians from the school.....*”. Moreover, investigating the processing of this ambiguity may help to distinguish among theories assuming that syntactic constraints play a privileged role in the initial structure building (Frazier and Rayner, 1982) and ones claiming contextual constraints can interact early with syntactic preferences (McRae et al., 1998) or even guide initial parsing decisions (Altmann & Steedman, 1988; Spivey-Knowlton, Tuneswell & Tanenhaus, 1993).

40 experimental sentences were adopted in this study. For each sentence, we created three different types of context: one biased towards the dominant meaning of the ambiguous phrase, another biased towards the subordinate meaning, and a neutral context. Offline rating studies were used to (a) establish the dominant interpretation per item and (b) ensure that the context manipulation worked as intended.

Our analyses focused on whether context and syntactic preferences interact early during processing (i.e., immediately upon encountering the ambiguous phrase) or with some delay (i.e., with effects observed in regions following the ambiguous phrase). Moreover, if context guides syntactic parsing, we would expect to observe no interaction between context and syntactic constraints in fixation times in any region. 72 native Chinese speakers were recruited to take part in this eye-tracking study, and three critical interest areas were created : context region, ambiguous region and post ambiguous region. We mainly analyzed the eye movement measurements as followed: *first fixation duration, gaze duration, regression path duration and total reading time*.

Our results reveal main context effects at the ambiguous regions in the late processing measures, specifically *regression path duration* and *total reading time*, while an interaction between context and syntactic constraints also was observed in late eye movement measures at the ambiguous region. The results are therefore consistent with the theoretical accounts that propose a late influence of context on structural processing decisions.

Key words: Syntactic Ambiguity Resolution; Global Ambiguity; Syntactic Processing; Context; Chinese reading;

Target sentence: 三个学校的实验员参加了这次消防技能培训及随后的演习 ↵

Three technicians from the school / Technicians from three schools ↵

took part in this fire skills training and the drills afterwards. ↵

Left biasing context: 教育局将在下周组织一场安全培训 ↵

The Education Bureau will organize a security training next week. ↵

Right biasing context: 学校将在本周三开展校内安全培训 ↵

The school will held a security training in campus this Wednesday. ↵

Neutral Context: 按照惯例每年都会举行一些消防安全培训 ↵

Every year some security trainings are held as usual. ↵

Figure 1. The red characters in the target sentence indicate the ambiguous phrase which could be interpreted either as “three technicians from the school” or “technicians from three schools” (dominate interpretation). The target sentence is preceded by one of the three types of context sentences. ↵

Reference

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