Predicting object states in Mandarin Chinese – insights from the bā-construction

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Introduction

Mandarin Chinese offers an interesting case for studying how structural and content meaning is integrated in a comprehender’s situation model. To explicitly express that an object affected by an action is in a resultant state, Mandarin speakers use the so-called bā-construction (S-bā V; canonical is S-V-C; cf. Li & Thompson 1981). Because the processor attempts the fullest interpretation possible at all times (Altmann & Mikolov 2009), we may expect that the particle bā triggers visual attention to objects depicted in a resultant state even before that object is mentioned, or a verb specifies the quality of any object states.

Method

Two visual world experiments with Mandarin native speakers N=26/ N=20; students at Heidelberg University: low to medium knowledge of German

Materials Experiment 1 (Exp1): Sentences pairs (N=12) of the following type:
critical: ta bā xiăo shū shì hùa le (He bā novel rip apart) /
control: ta de xiăo shū bā sī hùa le (He de-His novel was ripped apart)
Visual stimuli showed 3 objects. The target was unambiguously depicted in a resultant state, e.g., a torn book, the other two were distractors. Positions of targets were counterbalanced.

Visual stimuli showed 3 objects. The target was never depicted in a resultant state, instead, a resultant state competitor was present (critical), or not (control).

Results Exp1

Design: Only one pair per randomized list (4 lists). Subjects listened and clicked on targets (Exp1), or say whether the object in the sentence was present in the display, or not (Exp2)

Results Exp2

Hypotheses:

Exp1: more anticipatory looks to the visual target object (reslutant state) in the critical (bā) than in the control (de) condition.
Exp2: more attention to competitor in critical condition; later consistent target in critical (reslutant state competitor present)

Discussion

The particle bā clearly drives attention to objects that visually appear in a resultant state. This shows as a prediction effect, if the noun following bā is the target (Exp1), as well as increased costs for integration, if the noun following bā is not the target (Exp2).

We interpret these findings to show that the structural properties of an event, at least partially, can be activated independently of specific objects and their qualities. Assuming that a resultant state is logically always preceded by a poor state, bā alone makes all abstract object states available that can be qualitatively specified by the main verb (later in the sentence).

Structural properties of an event may be conceptualized as a “grid” that binds individual objects, different states of the same objects (cf. Hindy et al. 2012), as well as the relations between different object states (temporal and causal).

Our findings demonstrate a special type of incremental processing in language comprehension, that has not been reported previously.

References


Mirman, Dan (2011). Growth Curve and Visualization Using R. Chapman and HallCRC.