A VISUAL-WORLD INVESTIGATION INTO BOUNDEDNESS IN MANDARIN ASPECT AND MIXED TELIC-STATIVE VERBS

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In Mandarin, the progressive marker *zai* indicates ongoing action, whereas the result-state marker *-zhe*$_{(R)ESULTATIVE}$ denotes the completion state of the event. With *zai*, mixed telic-stative (MTS) verbs denote a non-homogeneous bounded event with distinct stages; with *-zhe*$_R$, MTS verbs denote a homogeneous unbounded state (Li, 1990). For instance, *Akiu **zai** chuan xie* means 'Akiu is putting on shoes,' while *Akiu chuan-**zhe** xie* means 'Akiu is wearing shoes.'

Guo (2022) found in an offline sentence-picture matching task with MTS verbs that L1 Mandarin speakers associated *-zhe*$_R$ -sentences with pictures of unbounded events and *zai*-sentences with pictures of bounded events. According to the Event Boundedness processing-based approach, processing and predicting bounded events are more challenging than unbounded events. This is because the former, unlike the latter, involve non-homogeneous event structures that unfold in distinct temporal stages (see Ji & Papafragou, 2022 for review). However, Guo's study did not explore whether participants demonstrate such processing preferences for the mapping between events related to boundedness and aspect markers.

To test whether bounded events are more challenging to process than unbounded events, this study incorporates visual-world eye tracking into a sentence-picture matching task involving MTS verbs and the two aspect markers. The objective is to compare the gaze patterns of Mandarin speakers towards pictorial representations of bounded and unbounded events while listening to sentences with *zai* and *-zhe*$_R$. Unbounded pictures depict result-states with homogenous structures, while bounded pictures illustrate ongoing actions with partial non-homogenous structures. If longer reaction times to the two pictures is observed in the *zai* condition than in the *-zhe*$_R$ -condition, it would support the Event Boundedness processing-based approach because the former denotes a complex event. Twenty-four critical items with either *zai* or *-zhe*$_R$ were divided into two lists with 12 fillers.

Results from 80 Mandarin native speakers (so far) indicate a significant **preference for selecting** bounded pictures in the *zai* condition (90%) and unbounded pictures in the *-zhe*$_R$ condition (95%). Figure 1 illustrates the mean inspection proportions over the time course of the trials using the onset of the object as the reference point (x = 0). Log-ratios of inspection proportions were calculated to quantify the fixation bias towards the bounded vs unbounded events (Barr, 2012). A **preference for inspecting** bounded events in the *zai* condition and unbounded events in the *-zhe*$_R$ condition was observed after the onset of the object (β = .16, *se* = .041, *t* = 4.0). The log-ratio was positive for *zai*, indicating more inspections towards bounded events, while it was negative for *-zhe*$_R$, suggesting more inspections towards unbounded events. Additionally, **longer reaction times** were found between the object onset and picture selection in the *zai* condition (1750 ms) compared to the *-zhe*$_R$ condition (1350 ms), *t*(204)=3.9, *p* < .001. These findings provide support for the Event Boundedness processing-based approach.
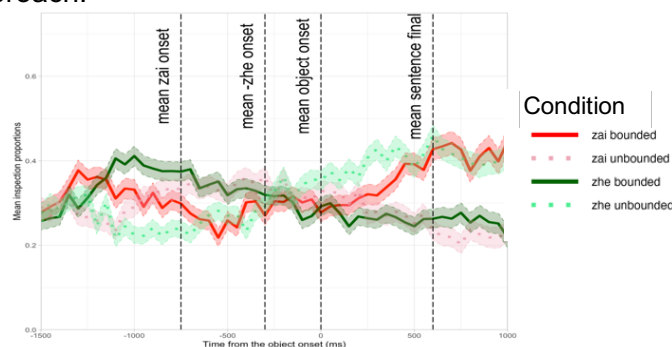

Figure 1. Mean inspection proportion (y axis) over time for each aspect marker (*zai* vs *-zhe*$_R$) and area of interest (bounded vs unbounded). Time relative to the onset of object (x axis).