Anticipatory eye-fixations guided by two grammatical aspect systems
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Background: Recent accounts of sentence processing hold that advanced adult learners differ from native speakers in the extent to which they predict upcoming information, arguably because suppressing the unused L1 system incurs additional processing costs [1]. One factor that can modulate learners’ available processing resources for prediction is typological distance between the first and second language [2]. Zooming in on verb aspect, there is accumulating evidence that speakers of languages without a grammatical marker for ongoingness (e.g. German) tend to focus on the final phases of events more than speakers whose language encodes ongoingness grammatically (e.g. English) [3, 4]. Corpus data suggests that speakers of L1 systems that have an ongoingness marker but only in combination with a subgroup of event types (e.g. with activities but not with achievements, as in Chinese) exhibit event-specific selectivity in expressing final-phase focus [5]. It remains open to inquiry whether these structural differences affect in predictable ways how learners with different source language systems integrate information from grammatical and lexical aspect to incrementally generate expectations for upcoming event phases. We explore this issue by measuring the degree to which sentences marked for ongoingness in achievements and activities (examples below) lead to anticipatory eye movements towards different event phases.

Method: Chinese and German advanced learners of English as well as English L1 controls (N=20/group) were shown three types of animations: 10 critical items with achievement-type events (cut off a branch, hang a hat on a hook), 10 controls with activity-type events (pull a suitcase, cycle on the pavement), and 20 fillers (moving 2D objects). The experimental scenario consisted of three stages. First, participants watched two animations (2.5 sec each) side by side played simultaneously three times. In each animation pair, one video was source-phase centred (with the transition point in critical items at 2.0 sec) and the other video, depicting the same event, was target-phase-centred (with the transition point in critical items at 0.5 seconds). In the second stage, participants listened to a model sentence (examples below). In the third stage, participants saw the same two videos as in stage one, this time played simultaneously twice and followed by a beep. The task was to decide after the beep which video corresponds most to the model sentence.

Results and interpretations: Integration of visual, grammatical and lexical material generated anticipatory eye-fixations to source or target phases in each group. Between-group differences emerged for critical items already during first fixations following the offset of the auxiliary verb, with significantly more first looks to source phases in English natives and Chinese learners than in German learners. However, both learner groups showed target-like preferences in decisions about sentence-to-video correspondences, overall gaze allocation during auditory processing and post-verbal video inspection, as well as in first fixations following the auxiliary verb offset in control items. These results suggest that important crosslinguistic differences arise in how rapidly learners activate knowledge about aspect-phase relationships. They are taken as a signal that incremental building of expectations about upcoming event information can vary across learner groups as a function of typological distance in grammatical aspect marking. We attribute these differences in online processing to varying cognitive demands linked to the suppression of the learners’ interfering L1 systems.

Example verbal stimuli:
[critical/achievements]: ‘The boy is … [500ms] … cutting off a branch.’
[control/activity]: ‘The boy is … [500ms] … pulling a suitcase.’
[filler]: ‘The circle is … [500ms] … orbiting a square.’
References


