Aspectual Coercion: A New Method to Probe Aspectual Commitments

1. Introduction. Aspectual theories in semantics distinguish telic verb phrases denoting bounded events with an inherent endpoint (e.g., *draw a balloon*) from atelic verb phrases denoting unbounded events that lack an inherent endpoint (e.g., *do some drawing*; Krifka 1998; van Hout 2016). Aspectual coercion occurs when a sentence combines elements that mismatch in aspectual terms (e.g., the otherwise telic VP *draw a balloon* with a durative adverbial such as *for 10 seconds* or the atelic VP *do some drawing* with a delimited adverbial such as *in 10 seconds*). Aspectual mismatches force a reinterpretation to align temporal expectations (Jackendoff 1991; Moens & Steedman 1988). Previous research on aspectual coercion has yielded divergent results in terms of whether coercion incurs processing costs (Bott 2010, Dölling 2014, Pickering et al. 2006, Piñango et al. 1999); however, these studies primarily relied on reaction times during reading or lexical decision tasks, and have not fully addressed whether aspectual coercion leads to a true shift in event understanding (i.e., a genuine commitment to a coerced interpretation). Using a novel paradigm, here we measure event perception while viewers have to verify coerced and non-coerced aspectual sentences against dynamic visual events. This method, informed by findings on real-time event apprehension (Ji & Papafragou, 2022), reveals how people interpret sentences with mismatched linguistic aspectual cues and use them as a zoom lens to process visual events.

2. Stimuli. We created 21 videos, each featuring a woman performing an action (e.g., drawing a balloon, mean: 10.4 sec, range: 6.5-14.8 sec). Preliminary studies showed that these videos were perceived as bounded – i.e., having an inherent endpoint. Each video was edited to include a 30 ms visual interruption (one frame removed from the timeline) at either the midpoint (50%) or a late point (80%) of the action. One-third of critical events had a midpoint interruption, another third had an endpoint interruption, and the rest, as control items, had no interruptions. The logic of interruption placement is explained below.

3. Experiment 1 - telic to atelic coercion. 192 monolingual English speakers on Prolific saw a scenario where a woman, post-surgery, performed various exercises for motor skill recovery. Each trial began with a sentence describing the exercise. Three between-subjects conditions were based on the type of sentence: 'Telic' (e.g., 'Ebony should draw a balloon'), 'Telic+IN'' ('…draw a balloon in 10 seconds'), and 'Telic+FOR', or coerced atelic ('…draw a balloon for 10 seconds'). Following the video, participants were asked whether the actor did the exercise (where answers for critical items should always be *Yes*). We found that participants in all conditions indeed gave *Yes* answers to that question (Telic: 98.6%, Telic+IN: 97.8%, Telic+FOR: 94.9%). Participants were also asked whether there was a glitch in the video. Answers served as a key metric: they indicated whether participants' perception of event boundaries was influenced by the aspectual framing of the sentences, thus providing a direct link between the linguistic aspect and cognitive event processing. The placement of interruptions was crucial, as previous research has shown that, for events perceived as bounded, interruptions at late points are more likely to be missed compared to midpoints, while for unbounded events, interruption detection remains consistent across the timeline (Ji & Papafragou 2022). This is because, for bounded event construals, endpoints are important and attract attention, thereby causing failures to detect external distractors such as interruptions. Unbounded event construals, however, by definition have no canonical endpoints so there is no difference in attention allocation between midpoints and endpoints. Here, if a sentence with a coercive adverbial successfully elicited a coerced reading, the interruption detection

performance was expected to pattern with the new reading. Thus, participants in 'Telic' and 'Telic+IN' conditions were expected to perceive events as bounded, and thus be more likely to miss late-point interruptions. In contrast, participants in the 'Telic+FOR' (i.e., coerced Atelic) condition should interpret events as unbounded, and not incur a similar cost for late-point interruption detection. Indeed, we found a significant interaction between Condition and Interruption type (χ^2 = 8.39, p = 0.0151) (see Fig. 1). In both Telic and Telic+IN conditions, a marked difference in detecting midpoint and late interruptions was found (Telic: odds r. = 0.69, p = 0.04; Telic+IN: odds r. = 0.55, p = 0.0027), suggesting a bounded event interpretation. By contrast, in the Telic+FOR condition, there was no significant difference in detecting midpoint vs. late point interruptions, indicating an unbounded (coerced) event construal (odds r. = 1.29, p = 0.246).

4. Experiment 2 - atelic to telic coercion: The procedure was as in Exp. 1 with a new set of sentences. A separate group of 192 participants was assigned to one of 3 conditions: 'Atelic' (e.g., 'Ebony should do some drawing'), 'Atelic+FOR' ('...do some drawing for 10 seconds'), and 'Atelic+IN', i.e., Coerced Telic ('…do some drawing in 10 seconds'). As in Exp.1, participants always considered the woman to have done the exercise in critical trials, i.e., all sentences matched the videos (Atelic: 98.2%, Atelic+FOR: 94.1%, Atelic+IN: 97.1%). Turning to glitch detection, the hypothesis was that the IN Adverbial would result in participants perceiving events as bounded, with a lower late-point glitch detection. Conversely, the 'Atelic' and 'Atelic+FOR' conditions were expected to lead to an unbounded event interpretation, with no midpoint-late point glitch difference (see Fig. 2). Again, there was a significant interaction between Condition and Interruption type (χ^2 = 11.55, p = 0.003). In the presence of a coercive adverbial (Atelic+IN), accuracy changed between midpoint (64%) and late point (55%) interruptions, per a coerced, bounded construal (odds r. = 0.56, p = 0.002), whereas the other conditions showed more balanced detection rates (Atelic: odds ratio = 1.13, p = 0.52; Atelic+FOR: odds ratio = 1.35, p = 0.12), aligning with an unbounded event interpretation.

Figure 1 - Experiment 1

Figure 2 - Experiment 2
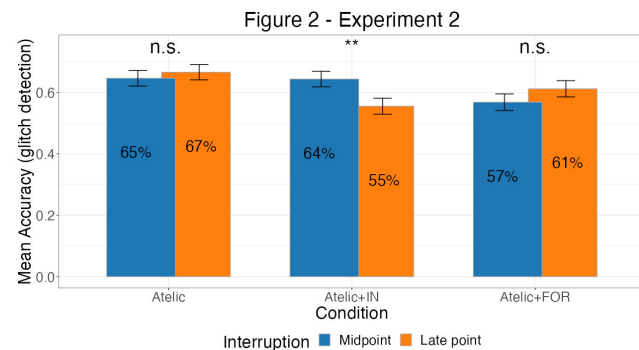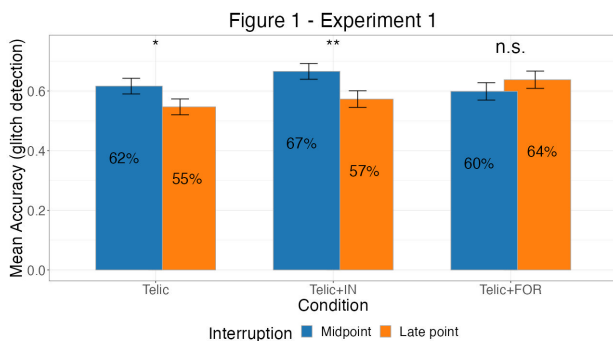
6. Conclusion. This study goes beyond traditional measures of coercion processes such as processing costs and reading times to reveal participants' commitments to aspectual meanings via a novel event perception paradigm. We find that, for both directions of aspectual coercion, people's event construals align with coerced sentence readings. By linking aspectual coercion in language to distinct patterns in visual event perception, we capture the nuanced ways people cognitively engage with and interpret linguistic cues to aspect, offering clear evidence of commitments to coerced meanings (as opposed to more open-ended, or underspecified aspectual-semantic content). **References:** Bott, O. (2010). The processing of events; Dölling, J. (2014). Topics in the semantics of verbs; Jackendoff, R. (1991). Cognition; Ji, Y. & Papafragou, A. (2022). JML; Krifka, M. (1998). Events and grammar; Moens, M. & Steedman, M. (1988). Computational Linguistics; Pickering, M. et al. (2006). Discourse Processes; Piñango, M. et al. (1999). Journal of Psycholinguistic Research