DO PEOPLE PREFER TO INSPECT THE TARGET OF A RECENT ACTION?: THE CASE OF VERB-ACTION MISMATCHES

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Visual world eye-tracking studies have shown that when people saw a "recent" action (e.g. Fig. 1, 1-A) performed before they listened to a related sentence (e.g., German NP1-Verb-Adv-NP2) then they more often inspected a recent (vs. an alternative future, Fig. 1, 1-C) event target. This preference persists even when most events and sentences in the experiment were about the future, or when the actor's gaze biased towards the future target. Listeners started to look more at the future target only from the middle of adverb region. In prior research the action always matched the verb. Here we further tested the recent event preference in the verb region, by always pairing the past tense verb with an *incongruous* recent action. Future tense conditions were always followed by a *matching* action. If the recent event preference is driven by attention to the recent action target (but not language-mediated), then we should replicate it in the mismatching past-tense condition. Alternatively, if the preference is mediated by verb-action congruence, then it should decrease since the past tense verb mismatches the recently-seen action.

Participants (N=32) saw a short video where the experimenter performed one action before the sentence, (e.g., tasting strawberries, Fig. 1, 1-A) and then they saw a static photo of the experimenter and two objects on the table (see Fig. 1, 1-B); next, they listened to a sentence (either version (a) or (b) in Figure 1). In half of the trials the sentence was in the past (simple past verb plus past tense adverb) and did not match the recent action; and in the other half of the trials it was in the present tense with a future meaning (simple present tense verb plus future tense adverb) and the verb matched the future action (shown after the sentence had ended, Fig. 1, 1-C). Past and future events were shown equally.

Figure 1 (2) shows the time course of participants' eye fixations from verb onset. The dependent measure is the mean log gaze probability ratio (ln(P(recent target)/P(future target)). A positive value means more looks to the recent event target; a negative value means more looks go to the future event target. As we can see in Fig. 2, participants decreased their attention towards the recent event target at the end of verb region in the past tense condition (i.e., following the mismatch). However even in the past tense condition, the line remains above zero, meaning that people continue to preferentially inspect the recent (vs. future) event target when the verb mismatches the action (sign. Intercept during the verb and adverb). From the middle of the adverb region the lines slowly started to diverge and at the beginning of the NP2 participants began to direct more attention to the future event target in the future condition and to the recent event target in the past tense. An increased inspection of the recent event target from the end of adverb region in the past tense could be due to the fact that the object theoretically could be sugared even though the recent event did not show any sugaring action. We will discuss the extent to which incongruence of the recent event and the past tense verb modulates the recent event preference.

Fig. 1: 1) Example of experiment stimuli 2) Mean log gaze probability ratios ln(P(recent target)/P(future target)) from verb onset