

Do readers obtain preview benefit from transposed words in English?

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In most languages, the word order in a sentence carries crucial information about the sentence's syntax and meaning. Despite this, whether readers always identify words in the order they are printed is still debated. Kennedy and Pynte (2008) claimed that readers can identify words out of order and maintain word order through a separate process, while Reichle, Liversedge, Pollatsek, and Rayner (2008) argued that readers always identify words in canonical order. Yang (2010) reported a gaze-contingent boundary (Rayner, 1975) experiment in Chinese in which the character order of the preview for a two-character word was manipulated so that it could be either correct or transposed. Readers obtained the same amount of preview benefit from a transposed preview as from the correct preview, as long as the transposed characters (morphemes) plausibly fit into the sentence context.

In line with these findings, Angele and Rayner (2012) found that readers obtain preview benefit from a transposed preview in English, when the transposed units were constituents of a compound word (e.g., *cowboy*). Taken together, these data point to a morphological source of transposed preview benefits within words: both constituents may be activated parafoveally, leading to facilitation once the word is fixated, with plausibility playing a significant role at least in Chinese. Importantly, in both experiments, the target was a single word, leading to it being processed as a unitary whole. The question, then, is whether transposition effects occur across two words (i.e., letter strings separated by spaces) and, if so, how plausibility contributes to the benefit a transposed preview provides.

In the present study, we used the boundary paradigm to manipulate the preview for a two-word target region (e.g. *meat rare* in "The chef cooked the meat rare for the couple"). Readers received an identical (*meat rare*), transposed (*rare meat*) or unrelated preview (*moon wood*). Importantly, both the identical and the transposed preview were plausible within the sentence context while the unrelated preview was not. If the transposed word preview provided a benefit, it might suggest that readers could identify words out of order. If this were the case, however, we would see preview benefits for the transposed preview across the whole target region. On the other hand, if the transposed preview benefit effect simply reflects the result of a parafoveal plausibility check, the effect should only appear on the first word.

Mean go-past time in the target region was shortest (522 ms) in the control condition, but also significantly shorter in the transposed condition (567 ms) than in the unrelated condition (647 ms). Separate analyses on the two target words showed that this effect originated from fixations on the first word (identical 297 ms, transposed 319 ms, unrelated 354 ms), while the second word did not show a significant difference (identical 329 ms, transposed 366 ms, unrelated 389 ms). Because the transposed preview benefit only appeared on the first word, this effect may be due to plausibility rather than identifying words out of order.

References

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