

**Word Recognition during Sentence Processing:
Lexical Effects on Parafoveal Preview Processing during Reading**
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Word skipping during reading has been a crucial dependent measure for studying the relationship between word recognition and eye movement control because it reflects natural reading processes and because it allows insight into how both the targeting and timing of eye movements are influenced by the process of word recognition during sentence processing. The main purpose of this study is to investigate the extent to which lexical processing influences word skipping, a question which has been central in debates about how language processing influences eye-movement control during reading (Brysbaert and Vitu, 1998; Engbert et al., 2005; Pollastek et al., 2006).

Two experiments were designed to examine how lexical information in parafoveal preview affects the targeting of saccades during reading. A boundary technique (Rayner, 1975) was implemented to vary the quality of linguistic information of letter string in parafoveal preview.

Experiment 1 (see 1a and 1b) was designed to examine whether the effect of word frequency information emerges when nonwords (created by letter transposition) are presented in parafoveal preview during sentence reading. Skipping occurred more frequently for high-frequency target words (e.g. north) as compared to low-frequency target words (e.g. blink) when the target word was fully presented in parafoveal preview but not when parafoveal preview consisted of nonwords created by transposing the position of two word-internal letters (e.g. nroth and bilnk respectively). [The interaction between word frequency and preview type was significant, $F(1, 23) = 7.35$, $p < 0.05$; $F(1, 111) = 5.47$, $p < 0.05$]. This result is consistent with models in which word skipping occurs when the letter string in parafoveal preview is completely recognized because the word-frequency effect was observed only with valid preview, not in transposed-letter nonword preview, meaning that lexical information in parafoveal preview is processed fully enough to determine that transposing two word-internal letters has created a nonword which is recognized as such.

Experiment 2 (see 2a and 2b) was designed to examine whether the effect of word repetition can be produced when transposed-letter word neighbors are presented in parafoveal preview. Within a TL neighbor pair (e.g., scared/sacred), the higher frequency word (e.g., scared) was always used as the target and the lower frequency word (e.g., sacred) was used as the TL preview word. The result demonstrated that higher rate of word skipping was observed in full-preview condition, which had a high-frequency preview word, than in the TL-preview condition, which had a lower frequency preview word. In addition, a higher rate of word skipping was observed when the target word was repeated as compared to when it was not repeated. Both experiments support the view that word skipping occurs based on complete recognition of the letter string in parafoveal preview because the skipping rates were modulated by the ease of lexical processing of the preview word (e.g. word frequency, word repetition).

Sentence examples

- 1(a) The visitors saw that the base was slightly [*north/nroth*: **north**] of their current location.
[High-frequency target word with full or TL preview]
- 1(b) The only sign of life was the momentary [*blink/bilnk*: **blink**] of his left eye.
[Low-frequency target word with full or TL preview]
- 2(a) Zach isn't scared of bugs, but he is definitely [*scared/sacred*: **scared**] of the snakes in the forest.
[Repeated condition with full or TL preview]

- 2(b) Zach isn't scared of bugs, but he is definitely [*scared/sacred*: **scared**] of the snakes in forest.
[New condition with full or TL preview]

References

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