

Seeing Stems Everywhere and Being Blind to Affixes: Positional Constraints on Morpheme Identification

Recent evidence has shown that suffixes are identified within nonwords only when they follow an existing stem (e.g., in 'shootment', but not in 'mentshoot'), thus suggesting that their mental representation is position-locked (Crepaldi, Rastle & Davis, 2010). These results highlight the important issue of morpheme position coding. Though it is clear that morphemes are somehow coded for position in the word identification system (or otherwise we could not distinguish between words like 'overhang' and 'hangover'), even the most recent theories of morphological processing (e.g., Crepaldi, Rastle, Coltheart & Nickels, 2010; Taft, 2006) have not considered how that position specificity might be implemented.

In this study we ask whether stem and prefix identification is sensitive to positional constraints (as has been observed in suffix identification). To address this question we carried out two lexical decision experiments capitalizing on the well-established morpheme interference effect as a diagnostic for morpheme identification (e.g., Taft & Forster, 1975); this effect refers to the fact that nonwords comprising existing morphemes (e.g., 'shootment') are rejected more slowly than nonwords that do not have a morphological structure (e.g., 'shootmant').

In Experiment 1 we show that the rejection time of reversed compounds (e.g., 'moonhoney') is longer than that of matched control nonwords (e.g., 'moonbasin'). Because it has been shown that non-morphological transposed-halves nonwords (e.g., 'dulesche') do not activate the representation of their corresponding words (e.g., 'schedule'), this effect must be morphological in nature; readers must have thus identified 'honey' and 'moon' within 'moonhoney', and the representations of these morphemes must have activated (at least partially) the word 'honeymoon'. This account implies that stem identification is position-independent.

In Experiment 2 we show that the rejection time of pseudo-prefixed nonwords (e.g., 'predrink') is longer than that of matched control nonwords (e.g., 'pledink'), thus replicating the morpheme interference effect described in previous studies. Crucially, however, we also show that this effect disappears when the relative order of the prefixes and the stems is reversed; nonwords like 'drinkpre' are as difficult to reject as nonwords like 'drinkple', indicating that 'pre' has not been identified as a prefix in these stimuli.

These results extend previous findings (that were limited to suffixes) and allow a strong and general conclusion on the position specificity of morpheme representations: stem identification is position-independent, whereas affix identification is position-specific. We discuss how the characteristics of the orthographic input might give rise to this difference in the recognition system.

References

- Crepaldi, D., Rastle, K., & Davis, C. J. (2010). Morphemes in their place: evidence for position-specific identification of suffixes. *Memory and Cognition*, 38(3), 312-321.
- Crepaldi, D., Rastle, K., Coltheart, M., & Nickels, L. (2010). 'Fell' primes 'fall', but does 'bell' prime 'ball'? Masked priming with irregularly-inflected primes. *Journal of Memory and Language*, 63, 83-99.
- Taft, M. (2006). A localist-cum-distributed (LCD) framework for lexical processing. In S.M. Andrews. *From inkmarks to ideas: Current issues in lexical processing*. Psychology Press.
- Taft, M. & Forster, K.I. (1975). Lexical storage and retrieval of prefixed words. *Journal of Verbal Learning and Verbal Behavior*, 14, 638-647.