# Interactions across Linguistic Domains: Individual Differences in Processing Morphological and Prosodic Cues

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Behavioural and neural evidence suggest that morphemes and syllables influence visual lexical access in functionally distinct ways: while morphological overlap generally facilitates processing due to shared meaning, syllables, operating within the prosodic domain, slow down recognition due to the activation of a syllable search (Domínguez et al., 1997, 2006). However, it is unclear whether and how elements of separate linguistic domains interact in lexical access, especially since morpheme and syllable boundaries do not always align. For example, many English speakers syllabify the *-ing* inflected word SELECTING as [se][lec][ting] (Levelt, 1999). Such cases of misalignment might lead to interference, which could explain why morphological priming effects are sometimes absent.

The present study addresses this by testing the influence of syllable boundaries on inflectional suffix priming in the visual modality. Participants were presented with *-ing* inflected target words (e.g. FLOWING), preceded either by a baseline string, the morpheme-prime (*-ing*), or a form prime for 150ms (Table 1). In Condition I, syllable and morpheme boundaries align orthographically (syllable structure [flow][ing] = morpheme structure FLOW-ING); in Condition II, syllable and morpheme boundaries do not match, i.e. the *-ing* suffix does not align with the syllable boundaries of the respective word (syllable structure [foa][ming] / [foa[m]ing] vs. morpheme structure FOAM-ING). This analysis of words with word-medial consonant was based on formal prosodic theories (Kenstowicz, 1994; Kahn, 1976) and a syllable-judgment test that we ran prior to the perception experiment.

Given the evidence that morphemes and syllables influence lexical access in functionally different ways, we hypothesize that a morphological priming effect will only surface when an inflectional morpheme prime aligns with the target's syllable boundary. The manipulation allows us to compare this prediction against competing theories which suggest that (1) syllables, but not inflections, facilitate lexical access (Emmorey, 1989); (2) morphological access operates independent of prosodic structure (Clahsen et al., 2001); (3) neither morphemes nor syllables play a crucial role in word access (Baayen et al., 2011).

The distinct functions of syllables and morphemes can be tested further by considering how reading skill could modulate the reliance on each type of cue. Medeiros & Duñabeitia (2016) found evidence that suffix priming effects are stronger for slower readers and attributed this to a stronger reliance on morpho-semantic information given their lower orthographic skills. In line with these findings, we hypothesize that participants with lower reading skill will show stronger morphological priming since they are likely to benefit more from the pre-activation of the inflection as a semantic cue. Phonological priming should be unaffected by this since syllables do not have meaning associated with them.

The study was pre-registered on OSF with a target sample size of 84 native English speakers. Data have been fully collected. Responses will be analyzed with linear mixed effect models with random intercepts (subjects and items). The main predictors of interest are the effects of syllable-morpheme match (Condition I / II), prime type (baseline / morph-prime / form-prime), and their interaction. In addition, we will include a number of control variables (surface frequency, bigram frequency, N letters, N orthographic neighbours). Finally, we will investigate the effects of reading skill on morphological priming with planned median-split models (fast vs. slow responders; high vs. low error rate).

Overall, the results will provide new information on integrating multiple linguistic cues in single word processing, modulated by language-specific structure and individual differences, and potentially provide an explanation for the absence of morphological priming effects in specific phonological environments.

Table 1. Conditions

| Conditions | Primes | | | Targets |
|---|---|---|---|---|
| | Baseline (unprimed) | Morph-Prime | Form-Prime | |
| **I. Morpheme-syllable match** | XXXXXXX | XXXXing<br><br>*(prime matches morpheme and syllable)* | XXXXwing<br><br>*(prime matches neither morph. nor syll.)* | [FLOW][ING] |
| **II. Morpheme-syllable mismatch** | XXXXXXX | XXXXing<br><br>*(prime matches morpheme, but not syllable)* | XXXXming<br><br>*(prime matches syllable, but not morpheme)* | [FOA][MING] |

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