

## Typing /s/ – Morphology between the keys?

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In recent years, evidence has been accumulated that both response latencies and within-word interkeystroke intervals (IKI), i.e., the time that elapses between the pressing of two keys, are influenced by lexical and sub-lexical variables. Typing timing appears to be susceptible to manipulations of, for example, word-, constituent-, bi- and trigram-frequencies (e.g., Baus et al. 2013; Bertram et al. 2015; Bonin & Fayol 2000, 2002; Sahel et al. 2008; Scaltritti et al. 2016), semantic transparency (e.g., Gagné & Spalding 2016; Libben & Weber 2014), prosodic boundaries (e.g., Fuchs & Krivokapic 2016), syllable structure (e.g., Nottbusch et al. 2005; Weingarten et al. 2004; Will et al. 2006), or morphological structure (e.g., Gagné & Spalding 2016; Will et al. 2006). In other words, IKIs in typing appear not to be determined solely by random variation or by non-linguistic factors such as typing experience or location on the keyboard. Instead, existing evidence suggests a rather complex interaction of writing and the linguistic processing units involved, which appears to be comparable to what we find in speech. Typing as a peripheral process might be similar to articulation in being a window into the processing architecture involved in language production and the interaction of central and peripheral production stages in general. Despite the obvious commonalities, however, research on durational differences in typing has remained largely independent of research on durational differences in pronunciation. This lack of direct comparison has left unanswered many questions regarding the similarities – and differences – of the two language production modes.

This paper presents such a direct comparison. Our approach tests the generalizability of results from the articulatory domain with a well-researched phenomenon: word-final /s/ in English. Recent research has repeatedly demonstrated that word-final /s/ in English differs in duration depending on its morphological status (Zimmermann 2016; Plag et al. 2017; Plag et al. 2020; Schmitz et al. 2021; Tomaschek et al. 2019). In an extensive online typing study using the experimental design of Schmitz et al. (2021), we test their results for transferability to the written domain. Specifically, our study investigates whether language users type word-final /s/ in English pseudowords at different internal boundaries – non-morphemic, plural, auxiliary has-clitic and is-clitic – with differing speeds and how our results compare to those found by Schmitz et al. (2021). For acoustic duration, the authors report that non-morphemic /s/ is longer than plural /s/, which in turn is longer than the auxiliary clitic /s/.

Analyzing our data with generalized additive mixed models (Wood 2017), we find that the influence of morphological structure on articulation and typing timing does not follow an identical principle. Participants in our experiment type non-morphemic /s/ and plural /s/ at almost identical speed. A significant difference emerges, however, for the typing of auxiliary clitics. Our results suggest that processing units other than morphemes might be dominant in written language production, which we discuss in relation to current theories of (written) language processing.

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