

Acoustic duration and typing timing – same, same... but different?

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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. Comparable to acoustic duration is speech, IKIs appear 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 et al. 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. 2007; Will et al. 2006), and morphological structure (e.g., Gagné & Spalding 2016; Will et al. 2006). In other words, IKIs appear not to be determined solely by random variation or by non-linguistic factors such as typing experience or location of keys on the keyboard. Instead, existing evidence suggests that typing as a peripheral process might be comparable 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 also 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 to the domain of written language production 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 auxiliary 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 typing timing might be influenced by processing units other than morphemes. We discuss our results in relation to current theories of (written) language production.

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