

SYLLABLE STRUCTURE IS IN THE LEXICON AND NOT COMPUTED

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Consistent with theoretical knowledge from Government Phonology and using supplementary evidence from clinical aphasic studies and neuroscience, we contend that syllable structure is a representational phonological entity which is not computed. This means that syllable structure itself exists within the lexicon, and cannot be derived from online syllabification algorithms (see Scheer, 2012, n.24 for nuances regarding the syllabification algorithm specific in Government Phonology, and Scheer, 2014 on spell-out). We will argue for syllabic representations in the lexicon using supporting clinical data from aphasia and neuroscience.

Direct neurophysiological correlates of syllable structure can be observed from phase-locking behaviour with slow amplitude modulations at 4-7kHz in brain oscillations (Pelle *et al.*, 2012; Poeppel, 2003; Giraud & Poeppel, 2012). Contrary to this, tonotopicity has been shown for language-specific segments and their primitive representation (Mesgarani *et al.*, 2014). Melodic primes being stored through spatial cortical selectivity indicate that a very different representational mechanism is employed for segments, as opposed to the frequency-based oscillations of syllable structure representations. Furthermore, event-related potentials to phonotactic violations are either identical or very similar in the temporal plane as lexical retrieval.

In addition, there is now an increasing amount of cross-linguistic clinical data in French, Spanish, Italian, English and Hindi (Nespoulous *et al.*, 2013; Romani & Calabrese, 1998; Romani *et al.*, 2011; Ramoo, 2014) which indicate that, in production tasks, aphasic patients perform modifications which are informed by syllable structure, or preserve syllable structure even if modifications are made to segmental content (Prince, to appear; Durand & Prince, 2015). In the cases where deletions and substitutions are made, there persists a principled preservation of syllabic structure. This points to the necessity of representing syllable structure in the lexicon.