English Speech Timing:
A Domain and Locus Approach

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Abstract

This dissertation presents a descriptive framework for suprasyllabic processes in speech timing, and describes speech production experiments that investigate durational processes at the word level and the utterance level and the interaction of these processes with the effects of pitch accent. The experimental evidence suggests a model of a speech timing comprised of localised effects, in contrast with the diffuse processes typical of accounts that focus on the rhythmic organisation of speech.

Within the descriptive framework, two types of process are associated with the domain, a familiar concept in prosodic phonology. Domain-edge processes lengthen segments near the initial and final boundaries of constituents: for example, word-initial lengthening and utterance-final lengthening. Domain-span processes are hypothesised to arise from an inverse relationship between the size of some constituent and the duration of some subconstituent: for example, word-span compression (polysyllabic shortening) and utterance-span compression.

The particular segments affected by each domain-edge or domain-span process are termed the ”locus”: for example, the word is a domain of initial lengthening and the locus is the word-initial syllable onset. It is hypothesised that each process is associated with a locus defined in phonological terms, and that processes may be distinguished by their distinct loci. The experimental work examines the loci of durational effects, indicating support for domain-edge processes—but not domain-span processes—at the word level and the utterance level.

Utterance-final lengthening is found to be progressive, affecting syllable codas and the final syllable nucleus within a word-rhyme locus. These results contradict the idea of a gradual deceleration in speech at the end of utterances. Utterance-initial shortening suggests that where the boundary cue is the termination of the preceding silence there is an absence of the hierarchical lengthening demonstrated word-initially and phrase-initially. There is no evidence of an utterance-span effect.

Word-initial lengthening is supported, with a syllable onset locus, as indicated by previous results. Word-initial lengthening is found not to interact with accentual lengthening, and may be attenuated in polysyllables.

Polysyllabic shortening, a domain-span process at the word level, is not supported. The previously-observed effect arises from variation in the distribution of accentual lengthening between monosyllables, disyllables and trisyllables. The locus of accentual lengthening is shown to be the word, with the greatest lengthening tending to be found at word edges. Because total lengthening is no greater in polysyllables than in monosyllables, the effect on particular subconstituents is attenuated when the word contains more syllables.

Word-rhyme compression is proposed to account for variation in nucleus duration according to the number of subsequent syllables in accented and unaccented words. Because it is the only domain-span process supported, it may be theoretically preferable to interpret word-rhyme compression as a domain-edge effect at the word level, similar to utterance-final lengthening but affecting nuclei rather than codas within the locus.

This dissertation is my own work, and describes research that I have carried out. No part of this dissertation has been submitted for any other degree or professional qualification.

Laurence White

To my Mum and my Dad
with all my love.

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