Domain final lengthening is a widely accepted phenomenon where the rime and coda of the final syllable is longer at the end of prosodic domains in comparison to domain-medial positions (Turk and Shattuck-Hufnagel, 2007), and lengthening is greater at higher domain boundaries (Wightman et al., 1992). However, most previous experiments investigating this lengthening typically used unnatural stimuli or experimental instructions that result in unnatural speech patterns, such as carrier phrases creating pauses. Cambier-Langeveld et al. (1997), who used naturalistic stimuli in Dutch to look at multiple types of prosodic domains, found lengthening only in the Intonational Phrase and Utterance final positions; however, these are both boundaries correlated with pauses. This raises the question whether the lengthening is really due to prosodic boundaries or due to pauses. Here I present experimental evidence from English showing first that without pauses, lengthening does not occur at the end of the prosodic domains lower than the Intonational Phrase, and showing second that in conditions intended to create pauses, the coda durations increase with increased duration of the following pause. From this, I conclude that domain-final lengthening would be more accurately characterized as pre-pausal lengthening.

Ten native speakers of Michigan English read two blocks of sentences, recorded in Psychopy. The first block contained naturalistic sentences where monosyllabic target items ending in either a nasal or a stop were located at the end of a Phonological Word domain (compound-medial; e.g., she’s applying for her dream job this week), a Phonological Phrase domain (verb before object; e.g., winners can claim prizes in the office after noon), and an Intonational Phrase domain (e.g., subject before verb, e.g., Mike cleaned his room, Tom said) (n=18). [Note: Prosodic boundaries based on Nespor and Vogel (1986).] This block was read in a randomized order 2 times. The second block consisted of three carrier phrases, where the test items appeared in PW, PhP, and IP positions (e.g., I saw the home team compete). Fillers appeared in each carrier phrase in the test position multiple times before any test items did, to acclimate the participant to the sentence (n=12 + 12 fillers). This block was repeated 4 times. The key comparisons were whether naturalistic sentences without any pauses showed greater coda durations at larger prosodic domain boundaries, and whether coda durations at the same size domain boundary increased in duration with following pauses.

Figure 1 shows the rime duration for both fricative and nasal coda conditions at all three domain boundaries, excluding data where a pause could be clearly identified. In both cases, coda duration does not increase from the Phonological Word to the Phonological Phrase condition, showing a lack of cumulative boundary-final lengthening. There is an increase in duration at the Intonational Phrase, the domain boundary correlated with a pause. The IP data here might show lengthening at the IP domain boundary, or it might show that there was pre-pausal lengthening in tokens where the pause was too small to mark with certainty.
strong evidence for lengthening being caused not by the prosodic domain boundaries, but rather by the pauses the often follow them.

One final point that Figure 2 illustrates is that all of the carrier phrase conditions incurred some amount of pauses in positions that naturalistic sentences did not, indicating that while carrier phrases control for some variables, they may also introduce new variables. Previous experiments which found final lengthening may have introduced confounds of pauses due to repetitive carrier phrases, unnatural stimuli, and inclusion of IP and U domains which naturally correlate with pauses. Here I presented experimental results showing that boundary final lengthening does not occur in naturalistic stimuli in English below the IP when controlling for pauses. Given that there is a consistent absence of domain-final lengthening below the IP, it is unlikely that domain-final lengthening is caused by prosodic structure. I have also provided experimental evidence showing a correlation between rime duration and the duration of the following pause, indicating that pauses are likely to be the cause of the lengthening that has been previously attributed to prosodic domains.

References