Investigating the comprehension and perception of reduced speech with pupillary response
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Introduction
Examine spoken word processing (as measured by pupil dilation) of words containing reduced and unreduced consonants
• Is the processing load indexed by pupil dilation sensitive to differences in reduction?
• Do the results correspond to previous results (e.g., Tucker, 2011)?
• When (if at all) do these differences emerge in time?
• Do dilation and time course reveal differences between /d/ and /g/ due to flapping, not previously observed in behavioral results?
• Will the behavioral results support the pupil dilation results?

Method
Stimuli
• Naturally produced disyllabic words (n = 80) containing word-medial /d/ and /g/ (Tucker, 2011)
  40 /d/ (e.g., ‘ready’ /ɹɛɹi/) 
  40 /g/ (e.g., ‘baggy’ /bæɡi/) 
Task
• Listen-and-repeat (similar to Zekveld et al., 2010)
  • Auditory stimulus followed by 2,500ms pause
  • A 500ms pure tone beep prompted participant to repeat the stimulus
Participants
• 39 Western Canadian English speakers
Data
• Gaze and pupil size data via Eyelink II eye-tracker (250 Hz)
• Response latency and spoken responses recorded via head-mounted microphone

Results & Discussion
Dilation
• Results indicate that reduced forms (of both /d/ and /g/) elicit greater pupillary response (Figures 3 & 4)
  • This mirrors reaction time results obtained by Tucker (2011), indicating an increased processing load is incurred for reduced forms
Timing
• Difference between reduced and unreduced forms arises after 1000 ms (about 500ms after average word offset, Figure 4)
  • Persists through the remainder of the trial
Phoneme
• No (or very little) difference found between /d/ and /g/ within reduced or unreduced forms (similar to Tucker, 2011)
Productions
• Production duration differences (Figure 1) also mirrors results from Tucker (2011)
  • Phoneme difference not previously identified (Figure 2)

REFERENCES:
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