Introduction: Questions

- Speech sounds are often reduced, especially in spontaneous speech. Expected stops and flaps may be approximants.
- How often are they reduced, in what ways? What factors determine how strongly they are reduced?
- Spontaneous speech looks very different from careful speech, yet sounds fine. How often do listeners hear such reductions?

Methods

- 13 young-adult native English speakers, recorded in sound booth.
- Phone conversation with friend/family, story-reading, isolated word-list reading; ~700 stop/flap tokens per speaker.
- Measured intervocalic /p, t, k, b, d, g/ before unstressed vowel (flapping environment).
- Word-list and story reading had the target consonants in six segmental/word-boundary environments (e.g. _a (status), _i (pretty), _V (…write a…)) and two stress environments (post-stress, status, inter-unstressed, limited).
- Measured consonant duration, intensity drop relative to V_V maxima, absence of burst, continuation of voicing, presence of formants (strong or weak). 6 dependent variables.

Results

- Fig. 2: There are significant but inconsistent patterns of reduction depending on segmental/word-boundary environment: consonants may reduce less or differently before /V/, and /t, d/ only may reduce more before syllabic /I/.
- Fig. 2: There is a lot of reduction overall, even in careful speech. Even /p, k/ sometimes have formants, /b, g/ often do.
- Fig. 3: Post-stress vs. inter-unstressed has little or no effect.
- Fig. 4: Reduction is greater in casual speech. The two connected speech styles may group together.
- Fig. 5: Higher frequency words and phrases show slightly more reduction (significant in multiple regression).
- Fig. 6: Speakers who mispronounce more words during reading may reduce more (only on two measures). They might have weaker access to the orthographic representation.

Discussion

- Phoneme identity, speech style, word frequency, and perhaps speaker characteristics determine how strongly consonants are reduced, but stress does not.
- Reduction of consonants, as in Fig. 1, is gradient, pervasive, and not limited to casual speech. Listeners encounter reduced forms extremely often, so parsing reduction is the norm.

References