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Perception of reduced speech: Approximated stops

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Natural, spontaneous speech often shows extreme reductions of many speech segments, to the point of apparent deletion. Where the flap allophone of /t/ and /d/ is expected in American English, one frequently sees an approximant-like or even vocalic pattern, rather than a clear flap. Still, such tokens are usually perceived as containing a /t/ or /d/ (e.g. 'needle' even with a very reduced /d/ is usually not perceived as 'kneel'). The current work identifies acoustic characteristics of reduced 'flaps' and presents phonetic identification data for continua that manipulate these characteristics. Presence vs. absence of a dip in intensity, duration of that dip, and degree of that dip in decibels are manipulated. Degree of intensity dip has the strongest effect, with a minimal dip in intensity more likely to be perceived as 'kneel' and a strong dip in intensity more likely to be perceived as 'needle.' The results indicate that all three of these characteristics do affect listeners' percept of a consonant, but not sufficiently to completely account for the percept. Listeners are sensitive to the acoustic characteristics of consonant reduction, but they are also very skilled at evaluating variability along the acoustic dimensions that realize reduction.