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Fuzziness and indeterminacy around the phonetics / phonology interface

In this talk I'll use acoustic and articulatory data (largely from ultrasound tongue imaging "UTI") and circle around a range of phenomena at the interface between phonology and phonetics. Most of the data is drawn from experimental and single-case studies in Scottish English, with a range of collaborators, where the intention has been to explore phenomena relevant to understanding this interface. The common theme is variation and change across this interface.

One thread of work incorporates social stratification and sociophonetic variation. Specially, we have examined what seem to be changes-in-progress related to social variation in rhoticity. While ultimately such changes can result in categorically distinct phonological systems, the mechanisms themselves appear gradient. As well as ambiguity around phonologisation for changes that appear nearly complete, some observed articulatory patterns appear to be acoustically covert, suggesting that speech production targets both articulation and acoustics, rather than just audible speech.

Another thread involves clinical intervention studies with children who are typically described as having phonetic and/or phonological disorders. In this work: UTI augments clinical diagnosis; provides real-time visual bio-feedback as a novel and additional mode of feedback during the remediation of speech sound disorders; and provides data for longitudinal studies into how such children (aged between around 6-15) acquire and master new articulations for speech sounds that were previously missing from their repertoire. There are various articulatory pathways to acquisition and restructuring of systems. In previous work, we have observed cases of "covert contrast" in which children are shown to be producing phonemic distinctions in ways that their adult interlocutors cannot perceive reliably. So far, our UTI work has tended to show the opposite, for example we can demonstrate many cases of categorical congruence in tongue shape between target /k/ incorrectly realised as [t], and target /t/ which is correctly produced as [t].

Finally, some ongoing pilots will be presented which attempt to explore the interface by analysing differences between speech in a "neutral" condition vs. a "clear" condition. The assumption is that, to speak clearly, speakers of the same variety will enhance cues to phonological contrasts that may otherwise be impaired (e.g. by environmental noise). Things are turning out to be more complex.