Novel impact pathways in variationist linguistics:
Learning for and from specific societal contexts

Labov's (1982: 173) "principle of debt incurred" and Wolfram's (1993: 227) "principle of linguistic gratuity" compel variationist linguists to use the data and knowledge acquired from their research for the benefit of the communities studied. Application of these principles has largely focused on developing dialect awareness projects and devising educational materials (see, *inter alia*, Cheshire et al. 2012; Charity Hudley & Mallinson 2013; Wolfram et al. 2005). Yet with increasing pressure from funding councils to demonstrate the social and economic impact value of variationist research, it is necessary to develop alternative but equally relevant and valuable impact pathways which allow us to expand the reach of variationist work to a diverse set of new beneficiaries while simultaneously yielding new theoretically relevant insights into the nature of language variation. This panel introduces a diversity of such strategies:

- an analysis of discourse-pragmatic variation in US-based mental health consultations demonstrates the diagnostic relevance of form-function correlations in discourse and provides new insights into the context-dependency of linguistic variation;
- an ultra-sound tongue imaging study modelling Scottish English indexical phonetic variants uncovers the factors affecting variable articulatory responses to auditory stimuli and has the potential to enhance the techniques used in speech therapy;
- a matched-guise experiment testing US listeners' real-time judgments of phonological and discourse-pragmatic variation yields new insights to further current theories of the sociolinguistic monitor and to develop software applications for use in commercial contexts (e.g. to train sales personnel);
- a corpus project of NZ earthquake stories demonstrates how sociolinguistic data compilation and archiving techniques can benefit e.g. disaster management research, and shows how novel data collection methods facilitate analysis of intra-speaker priming effects in phonological variation.

By introducing the aforementioned projects, this panel calls attention to the most innovative cross-disciplinary, application-oriented and theoretically relevant work currently underway in variationist sociolinguistics.

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Discourse-pragmatic variation in healthcare settings:
Form-function correlations in the use of I DON'T KNOW

Previous studies of I DON'T KNOW (henceforth IDK) in legal and casual interactions have highlighted the construction's dual role as a claim to a cognitive state of insufficient knowledge and as a non-cognitive interactional device (Beach & Metzger 1997; Tsui 1999). Moreover, analyses of IDK in informal conversations and sociolinguistic interviews have uncovered a strong correlation between IDK's cognitive vs. non-cognitive uses and its phonetic realization as non-reduced vs. reduced (see, *inter alia*, Bybee & Scheibman 1999). This paper extends the analysis of IDK to paediatric health-care interactions with the aim of demonstrating how a variationist analysis of its context-specific usage and variation patterns can generate meaningful insights for health-care practitioners as well as new empirically based and theoretically relevant findings for variationist sociolinguists.

Our systematic analysis of 376 tokens of IDK in paediatric healthcare consultations drawn from the Verilogue corpus, a large US-wide database of physician-patient interactions (Kozloff & Barnett 2006), confirms the functional versatility of IDK and its strategic use by children to resist talk on sensitive but therapeutically relevant topics (see also Hutchby 2002). Multiple logistic regression analysis of the data reveals robust form-function correlations that can guide physicians' correct interpretation of young patients' IDK use: tokens signalling a cognitive claim are strongly associated with non-reduced realization, modification through interpolation, prosodic stress and syntactic dependency; by contrast, resistive tokens of IDK are strongly associated with reduced realization, lack of modification/prosodic stress, and syntactic independence. Yet despite confirming previous findings about the multifunctionality of IDK and consistent functional split between its variants, our results caution against generalising discourse-pragmatic variation patterns across datasets. Comparison with Bybee & Scheibman (1999) and other sources reveals that phonetic variants and functional categories occur with at times vastly differential frequencies across casual, interview and institutional contexts: full form tokens constitute the majority variant only in medical data; the frequency of referential tokens fluctuates notably across contexts, and the relative importance of interpersonal (face-saving) and textual (discourse-controlling) uses is interchanged across medical and sociolinguistic interviews. The differential formal and functional distribution of IDK across contexts highlights the importance of macro-pragmatic context in discourse-pragmatic variation: the situational roles and interpersonal (as well as institutional) goals that emerge in a given genre of interaction impact the functional and distributional qualities of discourse-pragmatic variables.

Our analysis of IDK in paediatric health-care interactions thus demonstrates how the variationist analysis of site-particular communicative practices can uncover language variation patterns which: improve diagnostic practice and therapeutic success; and further current understanding of the context-dependency of discourse-pragmatic variation.

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Seeing the links in the speaker-hearer chain:
Accent-feature acquisition and modelling in speech therapy

The distribution of very fine-grained phonetic variation can be observed in the speech of members of well-defined social groups (e.g. Docherty & Foulkes 1999). It is evident that such variation must somehow be able to propagate through a speech community from speaker to hearer. However, technological barriers to progress have meant that close and direct study of the articulatory links of this speaker-hearer chain (Denes & Pinson 1993) has not to date been possible. Analysis is traditionally carried out at a remove - either at the auditory or at the acoustic level, which inevitably limits the researcher's ability to model the propagation of indexical phonetic variants to cases that are easily analysable from auditory and acoustic data. Recently, viable techniques to observe speaker-hearer interaction at the articulatory level have become available. Specifically, ultrasound tongue imaging (UTI) enables the study of the speaker-hearer chain up close and in detail.

In our study we investigate whether listeners are able to copy the lingual movements of another speaker when they are given an auditory input only. Lingual movements of both speaker and hearer have been recorded (using UTI) during conscious adaptation to an audio stimulus containing socially-salient coda /r/ variants in Scottish English with different kinds of "covert" lingual gestures (delayed tongue tip raising and tongue bunching). These particular articulatory features were chosen for study and are called "covert" here because even after decades of postvocalic /r/-research in Scotland (Johnston 1997; Romaine 1978; Speitel & Johnston 1983), their discovery was surprising to the phonetic and sociolinguistic research community. Nevertheless, articulatory-based studies of speech in multiple communities in Central Scotland have shown consistent social stratification of these "covert" articulatory features, suggesting that these gestures are perceptible or recoverable. Our study of nine female speakers reveals a range of articulatory responses to auditory stimuli containing underlying "covert" articulatory features.

Our results have implications beyond the field of sociolinguistics, as the experimental recording scenario of our study mirrors what happens continually during Speech Therapy sessions. A typical remediation tool employed in Speech Therapy is to model pronunciation to the client, i.e., producing a speech sound for the client to listen to and repeat. Modelling is believed to be efficacious, but there is little research to explain the mechanisms behind remediation through modelling, nor is there data to show differences between normative and disordered responses to modelled speech. In the case of young clients, it is theorised that learning occurs through the observation of the communication attempts of others and through the positive reinforcement modelling provides (Circle Collaboration 2009: 34-35). Our study provides invaluable data regarding normative adaptation strategies given audio-only input, as well as showing potential factors that might increase or decrease articulatory adaptation. Our study will also help assess the need for visual biofeedback techniques such as electropalatography and ultrasound tongue imaging in speech therapy.

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Measuring real-time judgments in sociolinguistics and beyond

The "principle of debt incurred" (Labov 1982:173) is well known among sociolinguists. Less known, however, is how to remain funded in research which satisfies this "debt," while still seeking to be theoretically motivated. This paper presents a new methodology which aims to answer this call.

In a matched-guise task on discourse marker *like* (DML), we utilized a continuous rating device to track participants' real-time judgments. Collecting an unprecedented amount of detail, we demonstrated that a single instance of DML caused listeners to rate a speaker as significantly less intelligent and less friendly (though the latter was found to be a transient effect). We propose that the process of linguistic evaluation is more complex than previously described and better understood by the nuanced detail gathered from this new methodology. We also show that listeners with high social aptitude react to DML differently than less socially aware listeners, indicating that participants do not uniformly react to discourse-pragmatic variation. We put forward participants' cognitive processing style as one possible explanation. More specifically, our results suggest an interplay between unconscious, automatic reaction (potentially drawing from ideologies surrounding global demographic trends) and conscious, meta-cognitive correction (which may involve considerations of local identity construction). If correct, our results could reveal important implications for theories like the sociolinguistic monitor (Labov 1972).

Our methodology enabled us to make several theoretical contributions with respect to DML. Building on these findings, we are now considering other levels of the grammar, as well as different types of variables (e.g. ING). However, we have also demonstrated that our research, and specifically our methods, is relevant outside of academia. With the support of a large medical consulting firm, we are creating an iPad app which aims to bring our methods mobile. The firm will begin using the app internally to rate sales pitch quality assurance and presentations to clients, as well as enhance the data collected during focus groups. The firm also recognizes the external use of the app and plans to sell it in the commercial market. In addition, we intend to disseminate the app within academia.

Apart from consulting firms, the methods put forth in this paper, specifically the ability to continuously measure contextually-situated perception in real-time, are of potential use in any public speaking context where moment-by-moment judgments are at play (e.g., politics, law, teaching, advertising, medicine, business, etc.). In essence, the potential number of impact pathways associated with our research methodology is only constrained by the imagination of those utilizing it.

This paper aims to summarize the work we have already completed, as well as present potential avenues for future work and its real-world applications.

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Investigating within-speaker variation in the QuakeBox Canterbury earthquake stories

In the aftermath of the Canterbury earthquakes of 2010-2011, everyone who had experienced the quakes had stories to tell. People's experiences were diverse, and often dramatic. In the months following the quakes, people would tell their "Earthquake story" often. We wanted to create a collection of these stories. Our motivations were threefold. First, many people felt strongly that they wanted their stories to become a part of the public record, and be available for subsequent generations to learn from. We felt that capturing, transcribing, and making available these stories would be an important community service. Second, a collection of recorded earthquake stories would provide a valuable research content repository for researchers across many disciplines interested in investigating the manifold personal and societal impacts of the earthquakes. Third, a research archive containing many 'danger of death'-like monologues, all describing the same time and event, would be of particular value for sociolinguistic analysis.

The UC QuakeBox project was therefore formed as part of a collaborative project between the New Zealand Institute of Language, Brain and Behaviour and the UC CEISMIC group. The QuakeBox was a shipping container, which was converted for use as a transportable recording studio. We positioned the QuakeBox at various locations in and around the city of Christchurch, and invited the public to record stories of their experiences of the 2010-2011 Canterbury earthquakes. By the end of 2012 the QuakeBox project had recorded 722 earthquake stories.

These recordings have been carefully transcribed and time-aligned in ELAN (at the utterance level), and then force-aligned with HTK (at the phoneme level). The corpus in its entirety contains approximately 120 hours of recordings, with many participants treating the QuakeBox as an opportunity to speak candidly. Consistent with our impression that many people wanted to share their stories publicly, a total of 576 of the 722 stories were flagged by participants for full video release on the publicly-accessible UC CEISMIC Canterbury Earthquake Digital Archive website. The collection is a remarkable set of highly engaged and engaging stories, delivered by speakers who enthusiastically volunteered to contribute their story to the archive.

In this paper, we introduce and demonstrate the QuakeBox corpus, and outline some of the rewards and challenges associated with collecting stories in a manner that was purposefully and saliently in the public eye. We also present the results of the first linguistic analysis conducted on the corpus. This is a careful variationist study of medial /t/, the realization of which varies considerably in NZ English. We focus particularly on patterns of phonological repetition or priming within speakers, a topic which has received little attention in variationist sociolinguistics but which the QuakeBox corpus is particularly well suited to addressing, as it contains a series of unusually long and engaged monologues. This presents the opportunity to investigate patterns of variation within individual speakers in a way that is not affected by interaction patterns with interlocutors, nor by rapidly changing topics.