Sociolectal and Dialectal Variation in Prosody

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July 26, 2022
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Abstract

As in many linguistics subfields, studies of prosody have mainly focused on majority languages and dialects and on speakers who hold power in social structures. The goal of this special issue is to diversify prosody research in terms of the languages and dialects being investigated, as well as the social structures that influence prosodic variation. The special issue brings together prosody researchers and researchers exploring sociological variation in prosody, with a focus on the prosody of marginalized dialects and on prosodic differences based on gender, sexuality, race and ethnicity. The papers in this volume not only advance our understanding of critical issues in sociolinguistics, but they also challenge some of the received wisdom in the exploration of sociolinguistic influences on prosody. Not only does this collection highlight the value of this work to informing theories of prosodic variation and change, but the collected papers also provide examples of methodological innovations in the field that will be valuable for all prosody researchers.

As in many linguistics subfields, studies of prosody have mainly focused on majority languages and dialects and on speakers who hold power in social structures (Wagner & Watson, 2010; Cole, 2015). While laboratory phonology approaches to prosody emerged from studies limited to West and North Germanic majority languages (especially Mainstream American English (MAE) or Mainstream US English (MUSE), e.g., Pierrehumbert (1980)) and Tokyo Japanese (Pierrehumbert and Beckman 1988), researchers have more recently broadened the scope of their research to include a wider variety of the world's languages, including work on understudied and endangered languages (e.g., Sun-Ah Jun's edited volumes on prosodic typology, Jun 2005; 2014). Cross-linguistic study of prosody is critically important because it enables a fuller understanding of the range of prosodic phenomena available in natural languages and reveals structural restrictions on this range of phenomena, and on typological diversity.

The same opportunities – and more – apply to cross-*dialectal* work in prosody, but work in this area has thus far lagged behind cross-linguistic prosodic work and cross-dialectal work in other linguistic areas such as syntax. The goal of this special issue is to diversify prosody research in terms of the languages and dialects being investigated, as well as the social structures that influence prosodic variation. This collection is important because socioprosodic differences reflect a variety of sociolinguistic, cultural, stylistic, and ideological differences among speakers of different social groups, and they also have social meaning (Eckert & Labov 2017). These differences can result both from processes of internal language change as well as external (contact) phenomena. Examining these cases of language contact and bilingualism provides insights on how prosodic systems develop and change over time (Gooden, Drayton, Beckman 2009).

While the methods and aims of prosody research have not traditionally been focused on interfacing with sociological variation, a total abstraction of speech from its social context constrains the descriptive and explanatory power of the very work prosody researchers set out to do (Foulkes et al. 2010; see also discussions in Holliday 2021 and Gooden 2022). The special issue brings together prosody researchers and researchers exploring sociological variation in prosody, with a focus on the prosody of marginalized dialects and on prosodic differences based on gender, sexuality, race and ethnicity.

Some of the most extensive cross-dialectal work in prosodic systems has been conducted in Swedish dialects and in other Scandinavian languages (Bruce 2007, Riad 2006), as well as Romance languages (Prieto & Roseano 2010, Frota & Prieto 2015), and varieties of English (Wolfram and Thomas, 2002; Grabe, 2004; Warren, 2005; Thomas & Carter 2006; Clopper & Smiljanic 2011). Sociolinguistic investigations of rhythm (Coggshall, 2008; Gilbers, Hoeksema, de Bot, & Lowie, 2019; Shousterman, 2015; Thomas & Carter, 2006; Torgersen & Szakay, 2012) have demonstrated that some perceived "foreign" aspects of dialects can be traced to fine-grained acoustic variation. Cruz and Woodbury (2014) explain how the breakthrough in understanding the phonetics and (morpho)phonology of complex tonal systems came from comparing tonal patterns across Chatino varieties. Cross-dialectal work also has implications for theories of prosodic interfaces: Igarashi (2014) finds evidence for cross-dialectal differences in the prosodic realization of syntactic branching in Japanese. More generally, cross-dialectal work in prosody is informative for the same reasons that

syntacticians have cited in the well-established research program of 'syntactic microvariation' (Brandner 2012; Zanuttini & Horn 2014): namely, it allows for detailed analysis of the time course of language change. Finally, 'non-standard' variants often show distinctions that are leveled out in 'standard' variants and are often the first language input that children are exposed to in language acquisition (Smith & Durham, 2019).

It is therefore critical to look at non-standardized, stigmatized, minoritized and contact varieties because in so doing we advance our understanding of prosodic variability across a wider range of language varieties. Crucially this also better positions the prosody research community to contribute meaningfully to public conversations that have profound societal implications for minoritized populations. For example, speakers of African-American English (AAE) are faced with linguistic racial discrimination and profiling in diverse contexts including educational settings, housing, employment, judicial proceedings, and encounters with police in routine traffic stops, and linguists have the opportunity to effect change in this with their research (Holliday, 2021, Rickford & King 2016, Voigt et al. 2017). Moreover, systematic analysis of these varieties helps to broaden the scope of what is 'legitimately' included in, and thus contributes to, linguistic theory.

Other important understudied factors that contribute to individual and community-level variability in prosody are gender and sexuality. The interaction of gender and sexuality with prosodic phenomena has been the source of damaging stereotypes in the broader public (Parker & Borrie, 2018). But recent work on this topic has challenged some widely held beliefs about the influence of sex and gender on prosody (Zimman, 2021). The field critically needs to move beyond a binary view of sex and gender in prosodic research because these binaries do not reflect the diversity of the lived experiences of sex and gender in the world. Indeed, there is more variation in vocal characteristics within sex groups than between them, and the strong perception of a correlation between sex and the voice is based on certain physiological properties that are not exclusively sexual in nature (Zimman, 2021). In addition, the work addressing sexuality in prosody has so far been largely limited to English, meaning that our field's understanding of variation is impoverished.

The papers in this volume address issues of gender (Passoni, et al.; Geng & Gu; Young; Nance, et al.), sexuality (Geng & Gu), race (Young), class (Young), language contact (Lai & Gooden; Hiovain, et al., Uth & Martínez), and dialectal variation (Green et al; Meer & Fuchs; Torres; Uth & García Martínez; Young). In addition, the papers here demonstrate a wide range of methods for not only recruiting participants, but also in how speech materials are collected. For example, for some of the production papers, authors focused on spontaneous speech (Meer), while others used controlled materials (Passoni, et al.), and a third group elicited semi-spontaneous productions using a game scenario or other method (Lai & Gooden; Green, et al.). In addition, studies like that by Green, et al., demonstrate the value of having a native-speaker researcher embedded in the community for doing this work. Finally, the work of Geng & Gu demonstrates the value of testing both production and perception data when making claims about prosodic phenomena.

The papers in this volume also advance our understanding of critical issues in sociolinguistics. For example, Young's work replicates prior demonstrations of working-class youth as the main drivers of language change. Lai & Gooden's work demonstrates how complex issues of language contact can be in predicting prosodic influence. Passoni, et al.'s work demonstrates that bilinguals use similar phonetic tools as monolinguals to convey social meaning. And Uth & García-Martinez's work demonstrates the interplay between identity and bilingualism in the production of intonational categories. Finally, Nance, et al.'s study demonstrates the importance of considering prosodic features when exploring dialect formation.

These collected papers are particularly valuable in that they challenge some of the received wisdom in the exploration of sociolinguistic influences on prosody. For example, Lai & Gooden's results counter prior work showing a tight connection between ethnic identity and fluency (Kulis, et al., 2013) – they show that Yami speakers' sense of Yami identity is not entirely predicted by their fluency. Results from the current collection also counter prior claims about the influence of gender – Geng & Gu demonstrate that, unlike prior work suggesting that gay-sounding speech is also more "feminine"-sounding (e.g., Smyth, Jacobs & Rogers 2003; Levon 2007), their results show that gay speech in Mandarin is more "masculine"-sounding. Relatedly, Passoni, et al.'s results challenge the claim that only females produce their non-native language with a higher pitch and narrower pitch range – their results show this effect for both male and female speakers. These results therefore demonstrate the value of studying a wide range of dialects and social groups to fully appreciate the complexity and nuances of sociolectal and dialectal influences across languages and groups. Finally, Uth & García Martínez's data supports criticisms of the assumption that a gender effect will be found, and highlights the importance of the "exact social configuration" being examined.

Despite the theoretical and methodological advances made in the papers in the current volume, we recognize some of the issues that still need to be addressed in the field. For example, many of the papers in this volume address issues of sex and gender (Lai & Gooden; Geng & Gu; Uth & García-Martínez; Nance; Hiovain) but treat these groups as categories, without acknowledging the problems with assuming a gender binarity (e.g., Zimman, 2021). But these papers also exemplify how to move beyond the binary. For example, Passoni also collected responses to two gender identity questionnaires, in order to explore the influence of gender identity as separate from biological sex. In addition, two studies in the volume adopted different types of pitch normalization techniques in an effort to deal with this challenge.

In what follows, we summarize each paper, and the contribution it makes to our understanding of prosodic variation:

Lai and Gooden investigate variation in intonation patterns of Y/N questions in Yami—a moribund indigenous Austronesian language in Taiwan. They show that differences in Yami/Mandarin proficiency can help account for speaker variation: While Taiwan Mandarin indicates unbiased information-seeking "neutral" Y/N questions with a mid-level pitch level, Yami speakers vary between using rising, falling, and mid-level pitch contours. Results show that Mandarin-dominant bilinguals are more likely to use rising contours than balanced bilinguals or Yami-dominant bilinguals. This is in part due to the Mandarin-dominant bilinguals' consistent use of rising contours to indicate light incredulity. Interestingly, this innovation in younger, Mandarin-dominant speakers of a

rising contour to indicate light incredulity uses an existing contour type in Yami Y/N questions rather than adopting a Mandarin-like high level contour, showing a hybridization of Mandarin-like syntax and Yami-like intonation. Additionally, Yami speakers overall are more likely to use a Mandarin-like mid-level intonation pattern in neutral questions than incredulity questions. Lai and Gooden argue that the growing use of the Mandarin-like mid-level pattern is a case of contact-induced change rather than language attrition. They also point out that the ongoing changes among Yami prosody in younger bilinguals is not correlated to a weakened sense of Yami identity.

Uth and Martínez demonstrate the importance of language profile (Maya-Spanish bilingual vs. Spanish monolingual) for pitch accent choice on the Yucatán Peninsula in Mexico. In a community where these balanced bilinguals show strong connections to Mayan culture and observe Mayan traditions, while monolingual Spanish speakers affiliate more with Hispanic traditions and culture, the authors hypothesized that for nuclear pitch accent choice in broad focus declaratives, Maya-Spanish balanced bilinguals would be more influenced by the standard variety of Central Mexican Spanish (i.e. L+¡H*), while Spanish monolingual speakers in this community would show more local, Yucatecan intonational features (i.e. *el descenso yucateco*). A production experiment designed to elicit broad focus declaratives showed that the balanced bilingual group used significantly more L+¡H* compared to the Spanish monolinguals, confirming the authors' hypothesis. Thus, the authors argue that the different groups' identities are apparent through their intonational choices. Given the well-known tendency for women to behave less locally than men, the authors expected this to be the case for the Spanish monolinguals, but this was not confirmed – monolingual Spanish-speaking men did not use the more standard L+¡H* even less than women. The female participants in the study showed the same language profile "split" as male participants, and the authors suggest that in this particular region, it seems that this language profile split perhaps carries more weight than gender. This throws into question common tendencies found in sociolinguistics that in fact may not hold across places and cultures.

Hiovain, Suni, Kakouros, and Šimko demonstrate how state-of-the-art machine learning methods for audio signals can be used as a starting point for investigating prosodic variation across language varieties. Using these methods, they are able to investigate the effect of language contact on the word-level prosody of two dialectal varieties of North Samí (an indigenous, endangered minority language spoken in northern Norway and Finland)—(i) even though little is known about the prosodic phonology of the language, and (ii) without labor-intensive linguistic analysis by human experts. They trained a WaveNet—a kind of deep neural network architecture designed to synthesize speech based on raw waveform input—on F0 and energy envelope signals of words from a North Samí audio corpus of read speech. The corpus contained speech from North Samí speakers bilingual in either the majority languages of Finnish or Norwegian, allowing the authors to explore the influence of the majority languages in the two dialectal varieties. Specifically, the authors are able to use vector representations of the words learned by WaveNet to compute a similarity metric between the Finnish and Norwegian variants of a particular North Samí word, and they propose the linking hypothesis that words that are less similar between the two majority

language variants show a greater majority language influence. The authors are able to validate that their similarity metric correlates with F0-based distance measures.

Torres, Fletcher, & Wigglesworth explore prosodic differences between Lifou – a French dialect spoken in New Caledonia, and Metropolitan French. The former dialect is spoken by a group who are bilingual in that they also speak Drehu, an Oceanic language. Metropolitan French (spoken in Paris and surrounding areas) is argued to be a phrase language, without pitch accents. Moreover, it has been argued that French dialects do not vary prosodically as much as the dialects of other Romance languages. On the other hand, Drehu has been attested to have lexical stress, which could influence the realization of intonational structure in Lifou French. Results demonstrate that tonal targets are aligned similarly across both dialects, but that there are phonetic differences – in terms of rise time, speaking rate, and pitch scaling – that likely contribute to perceived differences in rhythmic structure across dialects. These results support the claim that French dialects do not vary widely in terms of basic intonational structure.

Meer and Fuchs explore whether a high degree of variability in pitch contributes to the perceived 'sing-song' prosody of Trinidadian English (TrinE). They compare pitch level, range, and dynamism in TrinE to Southern Standard British (BrE) and Educated Indian English (IndE). Their findings suggest that a large pitch range could potentially be considered an endonormative feature of TrinE that distinguishes it from other varieties (BrE and IndE), at least in spontaneous speech. In addition, they show that a high degree of pitch variation is less a marker of TrinE as it is a feature of female speakers. The findings thus reveal that there is a considerable degree of systematic local differentiation in TrinE prosody. On a more general level, the findings may be taken to indicate that endonormative tendencies and sociolinguistic differentiation in TrinE prosody are interlinked.

Green et al. investigate the phonetic characteristics of the remote past marker BIN in African American English, which situates an event in the distant past. While BIN has traditionally been described as "stressed", this paper is the first to present fine-grained acoustic analysis of the form in a variety of discourse contexts. The data are from the Corpus of Regional African American Language (CORAAL) and a production study in a small AAE-speaking community in southwest Louisiana. The acoustic analysis included measures of mean/max intensity, mean/max F0 and duration across each word in an utterance as and each token of BIN. These measures were used to compare changes throughout the utterance compared to BIN itself. The analyses showed that the majority of remote-past BIN meanings were pitch accented, having a clear high F0 peak. There was also clear evidence of deaccenting after BIN. There was also a range of intonational tone choices associated with BIN as well as prosodic variability across the pre-BIN context. Finally, the paper highlights the importance of a prosodic juncture immediately preceding BIN to the percept of the remote-past meaning suggesting that speakers made use of pitch and prosodic structure to differentiate meanings.

Nance, Kirkham, Lightfoot and Carroll investigate phrase-final intonation contexts in Scouse, the urban variety of English in Liverpool in the North West of England. Via

phonological analyses of a sentence-reading task, they show that Scouse rises (L* L-H%) are absent from Manchester, a city geographically very close to Liverpool (50 miles away) and that was historically part of the same county (Lancashire). Nance and colleagues hypothesize that Liverpool's distinctive tune inventory is a product of the city's unique social history and the fact that it was a major site of in-migration of workers from around the world during the Industrial Revolution. The authors suggest that final rising tunes in Liverpool may have initially served a conversational function as a politeness device that eased communicative interaction between speakers from different linguistic backgrounds. In this way, Nance and colleagues highlight the permeable boundaries between the linguistic and paralinguistic functions of prosody, and the contribution prosodic analysis can make to studies of language change and new dialect formation.

Young explores how race and class differences influence the perceived rhythmicity of a racialized minority variety of Swedish spoken in Stockholm with a sample of diverse male speakers. He uses the normalized pairwise variability index to measure the relative duration of adjacent vowels: high duration alternation has been associated with the majority dialect, while low alternation has been associated with the minority dialect. Results demonstrate that both class and race influence rhythmic alternation in speech such that racial minorities from the working class tend to produce a "staccato" rhythmic pattern characterized by low alternation between the duration of adjacent vowels, while white men from working class backgrounds tend to produce a high alternation pattern. Surprisingly, men from higher class backgrounds, regardless of race, tend to produce an intermediate level of alternation. Moreover, the staccato rhythmic style is becoming more common for younger speakers, though less so for the white working-class. These results are somewhat similar to the case in other European cities where white upper-class speakers have adopted features of the local multiethnolect, while white working-class speakers have not.

Passoni, et al. investigate how pitch range varies between Japanese and English read speech of male and female Japanese-English sequential bilinguals residing in London, UK or Tokyo, Japan. They also explore how individual gender identity and politeness interact with this variation. Individual gender identity was operationalized via self-attribution of masculine and feminine gender traits in two gender identity questionnaires—one tailored to Western Anglophone gender norms, one to Japanese gender norms. Politeness was manipulated via illustrations of formal-looking vs. informal-looking addressees. Contra previous work that female and not male Japanese bilinguals have a higher mean fundamental frequency in Japanese than English, Passoni et al.'s study finds that their speakers use a higher mean fundamental frequency and narrower pitch span in English than Japanese across speaker sex; Passoni et al. suggest that the difference in results may be due to their speakers' lack of confidence in speaking English. Surprisingly, pitch range effects were found not only in Tokyo, but also (to a smaller degree) in London, where attrition effects due to L2 exposure might be expected. Passoni et al. also find evidence that a more masculine gender identity in females is correlated with lower mean F0 in English, but so is a more feminine gender identity in males. They suggest that lower mean F0 might index masculinity/femininity for female speakers, but politeness for males. Finally, Passoni et

al. find evidence of an interaction between sex of addressee and politeness in the mean F0 of Japanese speech of the bilinguals.

Geng and Gu examine the acoustic correlates of gay male sexuality in Mandarin, using evidence from both production and perception. In a word-reading task, the authors consider whether observable differences exist between groups of (self-identified) gay and heterosexual men for a number of prosodic and segmental features that have been widely studies in English and other European languages. Contrary to what has been found in this prior work in other contexts, Geng and Gu report that, among other findings, the gay men in their sample show significantly *lower* F0 values than the heterosexual men, significantly *narrower* F0 spans, and significantly *flatter* curves for Mandarin dynamic tones (T3 and T4). The authors suggest that this result may be due to the ongoing marginalization of gay sexuality in China, and the consequent desire among some Chinese gay men to avoid sounding stereotypically gay. This argument is important because it underscores the problem with mapping phonetic output directly onto identity categories without considering the broader social matrix within which those identities are situated. It also demonstrates the difficulty in straightforwardly generalizing from one cultural context to another.

The papers in the current volume together attest to the range of sociolinguistic and dialectal topics being explored in the field of prosody. Moreover, they demonstrate the wide range of methodological challenges that arise when exploring this kind of variation. The work here will be valuable to researchers looking to explore features of race, ethnicity, gender, sexuality, dialect, or language contact in their research. Not only does this collection highlight the value of this work to informing theories of prosodic variation and change, but the collected papers also provide examples of methodological innovations in the field that will be valuable for all prosody researchers.

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