

The limits of perception, Kevin B. McGowan, University of Kentucky

We have learned, from the last roughly 70 years of speech perception research, that variation is an often-useful aspect of a richly structured speech signal. Much of what used to be considered overwhelming to listeners or a troubling source of noise is now understood to be informative: whether variation is attributable to phonetic context (e.g. Beddor, McGowan, Coetzee, Boland, and Brasher 2013), talker differences (e.g. Nygaard and Pisoni 1998), or social information (e.g. Mack & Munson 2011; Sumner, Kim, King, and McGowan 2014). Listeners' knowledge of the sources of variability gives structure to the variation in speech and allows for the once bafflingly consistent percepts we observe across listeners. In this talk I will address an apparent paradox in the perception literature: that expert listeners are somehow simultaneously expert ignorers of and exquisite attenders to fine phonetic detail.

Every speech sound has multiple phonetic cues that listeners can use during perception. Many of these cues are sufficient to allow a particular percept, but none is indispensable. Lisker (1986), for example, offers 16 distinct acoustic features which can differentiate word-medial voiced and voiceless stops (but none of which, including the presence of voicing, is required for a voiced percept). Beddor has suggested that groups of listeners in a population will covertly attend to cues to the presence of a nasal consonant differently (Beddor 2009). And, indeed, the same speech sound in the same language will be cued differently for different listeners (Beddor et al 2013), and these differences are linked to how those same listeners then produce these phonetic cues when they take their turn as talkers (Beddor et al 2018).

Becoming an expert listener, either via L1 or L2 acquisition, has been construed as a systematic process of becoming an expert ignorer of cues and variation that are irrelevant to the speech sounds of one's target language. We see this in children (Narayan et al. 2010; Werker et al. 2012), bilingual adults (Schulman 1983), and we see it reflected in the difficulties people have acquiring new distinctions in an L2 (e.g. Baese Berk et al. 2020).

At the same time, listeners will use perceived (or implied) gender (Strand & Johnson 1996, Hay et al 2019), sexuality (Mack & Munson 2011), nationality (Niedzielski 1999, McGowan 2015; Gnevsheva 2017), emotion (Kim & Sumner 2017), age (Drager 2011, Hay et al. 2019), persona (D'Onofrio, 2015), or identity (McGowan & Babel 2020) conveyed by 'irrelevant' or sub-categorical phonetic information to inform perceptions of speech sounds and will use perceptions of speech sounds, interactively, to inform perceptions of social category (e.g. Lambert et al. 1960; Sumner et al. 2014).

Given the multiplicity of cues that exist for each category, the ways in which these cues overlap, and the ways in which these cues interact, we don't yet have a theory of language that allows us to refer to some speech cues as "linguistic" and to others as "non-linguistic" with any kind of confidence or rigor. Just as traditional speech perception had to let go of the idea of particular, invariant cues to each speech sound category, sociophonetic speech perception needs to let go of the idea that there are particular cues to social categories.

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When your brain tricks your ear
Nancy Niedzielski
Rice University

This paper reports on several experimental techniques that allow researchers to determine how and to what degree language attitudes underlie speech perception. These techniques have revealed complementary processes: first, expectations regarding features that listeners believe should be present, based on phenomena such as visual cues or knowledge of speaker social categories, can lead to the perception of those features, regardless of whether or not they actually occur in the stimuli. Experiments based on the well-known McGurk Effect, whereby visual cues regarding consonant production influence and can even override auditory cues, reveal that speech perception is more than a matter of acoustic processing. We are not surprised, then, when other types of information are integrated with auditory information. Numerous types of experiments reveal that information regarding speaker age, gender, ethnicity, and region can affect how speech stimuli is perceived. For instance, different photographs presented in conjunction with the same auditory stimuli can tell us how preconceived beliefs regarding who is producing that stimuli affects its perception. Thus, beliefs and attitudes affect how listeners interpret acoustic signals, which can help listeners to retrieve acoustic information that is, for instance, masked by noise, but can also lead to perceptions that do not match the actual acoustics present in the signal.

These perceptual experiments can reveal that the reverse is also possible: various techniques can reveal cases where, on the one hand, language attitudes research suggests that listeners are not aware of acoustic features, but experimental tests show that these same listeners in fact are aware of them. Respondents may suggest, for instance, that they are unaware of vowel differences between speakers of different social groups, or that they do not notice features such as mergers, while in perceptual tests, knowledge of such phenomena is uncovered. That is, listeners often have an implicit knowledge of features in speakers' varieties that they are unable to report explicitly. We discuss the findings and implications of previous work on how attitudes towards and beliefs about language variation affect perceptual processes and also suggest new ways that this might be explored, including how older techniques might be modified to gain an even greater understanding of the integration of the social with other types of information involved in human speech perception.

What lies underneath: Silversteinian nths, indexical fields, sociolinguistic monitors, and attitudinal cognitoria, Dennis R Preston, University of Kentucky

Only a few proposals have been advanced for cognitive or procedural models of the relationship between the perception of linguistic facts and nonlinguistic ones. One reason for this is surely the fact that most studies that integrate features from demography, identity, style, and stance in variationist studies have done so with a production bias, although there are increasing studies of perception within the variation and change paradigm.

This paper outlines the theoretical underpinnings of some of those few proposals, taking into consideration the preceding papers in this session that have touched on basic aspects of speech perception, indexicalities, and misdirection (“priming”). The ones examined, including discussion of their considerable overlap, are the following:

- 1) Silverstein’s (linguistic anthropological) notion of indexicality (2003), including the Irvine-Gal model of iconization (Irvine 2001) and Eckert’s notion of an “indexical field” (2008), the latter exemplified experimentally and in discourse in Campbell-Kibler’s 2008 -ING study
- 2) Social psychological and folk linguistic accounts of attitudes and language regard, particularly Niedzielski & Preston’s “folk linguistic triangle” (2000) and Preston’s elaboration of it as an “attitudinal cognitorium,” exemplified from experimental and discursal evidence in, e.g., Preston 2010,
- 3) Labov’s “sociolinguistic monitor,” outlined in detail and updated in Levon and Fox 2014.

This outline concludes by proposing some “best-practices” (and “new opportunities”) considerations of what is at stake:

- 1) Careful distinctions must be made between what is to be processed (the “attitude object”) and how the processing is triggered (“noticing”) and takes place, including consideration of more and less conscious operations as well as looking more closely at the multiple levels of consciousness and number of underlying beliefs that may be involved in only one response or characterization.
- 2) Careful consideration must be given to the granularity of the linguistic object considered, including attention to the possibilities of “inadvertent priming,” both in accompanying linguistic information as well as in the task itself in an experimental setting
- 3) Greater reliance should be made on what is revealed about the relationship of social to linguistic meanings as revealed in discourse, not just in overt metalinguistic talk but in the subtler pragmatic characteristics of such talk (e.g., implication, presupposition, entailment) that may reveal underlying attitudinal or regard features involved in such processing (e.g., Rodgers 2016).