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The sound of im/politeness

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ABSTRACT

Until recently, research on im/politeness has primarily focused on the role of linguistic strategies while neglecting the contributions of prosody and acoustic cues for communicating politeness. Here, we analyzed a large set of recordings — verbal requests spoken in a direct manner (*Lend me a nickel*), preceded by the word "*Please*", or in a conventionally-indirect manner (*Can you*) — which were known to convey polite or rude impressions on the listener. The pragmatic imposition of the request was also manipulated (*Lend me a nickel vs. hundred*). Fundamental frequency (f0: mean, range, contour shape), duration, and voice quality (harmonics-to-noise ratio) were measured over the whole utterance and for key constituents within the utterance. Differences in perceived politeness corresponded with systematic differences in continuous utterance measures as well as local acoustic adjustments, defined by both categorical and graded vocal contrasts. Compared to polite utterances, rude requests displayed a slower speech rate, lower pitch, and tended to fall in pitch (or rise less markedly in the context of yes-no questions). The high versus low imposition of a request separately influenced the acoustic structure of requests, with evidence of these effects right at utterance-onset. Results are consistent with theoretical proposals about how prosody functions to convey speaker politeness as one facet of emotive communication. It is suggested that while a specific "prosody of politeness" may not exist, prosodic cues routinely and potently interact with other sources of information to allow listeners to generate inferences about im/politeness.

1. Introduction

From its beginnings, politeness research has emphasized the social interaction component of language. It has been proposed that politeness is fundamental for human communication insofar as it regulates social interaction and allows a smooth, easy communication, as well as avoiding interpersonal problems and establishing close relationships (Brunet et al., 2012; Huang, 2008; Izadi, 2013; Leech, 2014; Ofuka et al., 2000). Failures to appropriately convey politeness lead to social interaction difficulties, misunderstandings, and even conflict, both within and across cultural contexts (Kecskes, 2015; Limberg, 2009). However, the rich history of politeness research has assigned almost exclusive importance to linguistic cues or strategies, largely neglecting the role of vocal speech cues in communicating im/politeness (for an exception, see Arndt and Janney, 1987). While perceptual studies confirm that prosody contributes greatly to impressions of im/politeness (Ambady et al., 1996; Trees and Manusov, 1998; LaPlante and Ambady, 2003), only recently have scholars started to investigate how specific acoustic cues contribute to impressions of politeness or impoliteness (e.g. Hidalgo Navarro, 2014, for romance languages). Our study sought to systematically define acoustic cues that mark polite and impolite attitudes for English requests, in contexts that vary the linguistic structure of an utterance and its imposition on the listener.

1.1. Theoretical approaches to politeness and the role of acoustic cues

According to Brown and Levinson's influential approach to politeness (1978/1987; henceforth, Brown and Levinson, 1987), when interacting with others, people are motivated to keep face, that is, to maintain and protect a public self-image which is emotionally invested. Brown and Levinson (1987) distinguish between positive face, the positive self-image that people want others to recognize and approve of, and negative face, the desire to be left free of imposition. Certain speech acts (e.g., requests) inherently threaten the face of speakers and listeners, opening the possibility for social conflict; the function of politeness strategies is to deal with this problem. The level of threat can be modulated by three social dimensions: the distance between interlocutors (e.g., friends vs. strangers); the power relation between them

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(e.g., employer vs. employee); and the level of imposition (e.g., asking somebody for 1 dollar or 100 dollars). According to Brown and Levinson (1987), as the level of threat associated with a speech act increases, speakers are likely to employ more polite strategies in communication, although these ideas were formulated almost exclusively on evidence of linguistic strategies¹ (e.g., conventional indirectness).

A more comprehensive model of how prosody affects attitudinal meanings, and specifically politeness, was proposed by Arndt and Janney 1985,1987,1991). They conceive politeness as a part of emotive communication -- "the communication of transitory attitudes, feelings and other affective states" - and describe how linguistic, prosodic, and kinesic cues may be associated with particular emotive meanings. Notably, they argue that the absence of expected prosodic contours in certain utterance types can produce inferences about the speaker's attitude toward the listener; for example, an unexpected rise in vocal pitch when issuing a command (as opposed to an expected fall) may result in more polite impressions of the speaker. This example underscores that the meanings of prosodic contours and other acoustic cues that encode a speaker's interpersonal stance towards the listener, such as im/politeness, must be specified in the contexts in which people actually perform and interpret them (Arndt and Janney, 1987), taking into account prosodic, linguistic, and situational cues (Culpeper, 2011a; Culpeper et al., 2003; Wichmann, 2000,2002). Accordingly, we investigated the interaction of prosody and linguistic form by restricting our purview to the situation of a request between two friends, allowing us to identify which global and local suprasegmental acoustic parameters (Scherer et al., 1984) correspond with inferences about speaker im/politeness in this ubiquitous context.

Note that, although the models we just described have been very influential and useful in their own right, more recent approaches (e.g., Mills, 2003; Watts, 2003) -the so-called Politeness1 (Watts et al., 1992) or discursive turn in politeness studies (Haugh, 2007)- have drawn attention from speaker-centric notions of politeness to hearer evaluations (see Kadar and Haugh, 2013; Terkourafi, 2005, for reviews). These approaches have suggested that the researcher's analytical schemas need to take into account the conceptualizations and perceptions of these behaviors by the participants themselves, in addition to the variability (within a culture, a language or even a social group) that potentially accompany these perceptions. As we will see in the Methods section, the way we constructed one of our dependent variables (i.e. asking naive listeners to give us their impression of how polite an utterance is) reflects this more modern approach by taking into account the hearer's evaluations (see Holtgraves and Bonnefon, 2017 for a review of methodological approaches).

1.2. Perceptual-acoustic studies on the role of prosody in communicating *im/politeness*

Empirically, how prosodic variations affect impressions of im/politeness and how they interact with other variables is still not well understood. However, analysis of the literature illuminates diverse perceptual-acoustic cues that seem to be relevant in the communication of politeness.

Several studies report that rising pitch contours at the end of the utterance convey polite impressions, whereas falling contours convey impoliteness (Culpeper et al., 2003; Ofuka et al., 2000; Orozco, 2008;

Wichmann, 2004; c.f. Nadeu and Prieto, 2011; Scherer et al., 1984). Note, however, that concurrent variables can influence the role of final contours in politeness assessments; for example, speakers can convey rudeness with a rising contour in combination with other prosodic cues such as increased intensity (Culpeper et al., 2003). Moreover, although rising contours typically produce impressions of higher politeness, these perceptual effects can be constrained by the utterance type and its implications for the listener; for example, simple declarative statements can be perceived as 'pleasant' with either a falling or rising pitch at the end, but questions and commands tend to be considered pleasant only when they exhibit a final rise (Uldall, 1960). In addition, it has recently been reported that social power and distance differences can modulate the choice of intonational contours (Borràs-Comes et al., 2015; Astruc-Aguilera et al., 2016). These data emphasize that categorical distinctions in the shape of pitch contours are often important for communicating politeness while underscoring the dynamic interplay between linguistic and pragmatic factors and prosodic variables in how politeness impressions are formed.

In contrast with pitch contours, which are often considered discrete local distinctions (i.e. categorical in nature), continuous prosodic features also play a role in communicating im/politeness, especially global level measures referred to the speaker's mean pitch and pitch range (Culpeper et al., 2003; Lin et al., 2006; Orozco, 2008; Winter and Grawunder, 2012). For pitch range, some studies report that increased pitch range is perceived as more polite (Orozco, 2008), whereas narrower pitch range is perceived as rude (Uldall, 1960), although this pattern may not be universal (see Winter and Grawunder, 2012, who report narrower range for formal speech in Korean). Generally, it is considered that higher pitch at the utterance level can signal politeness across different languages (Gussenhoven, 2002,2004; Brown and Prieto, 2017; Hübscher et al., 2017), although some exceptions exist; for example, when mean pitch was examined in Korean (Winter and Grawunder, 2012), and pitch register in Taiwanese Mandarin (Lin et al., 2006), greater politeness was associated with lower measures (c.f. Brown and Prieto, 2017). These findings, while not always convergent, highlight the importance of global pitch settings in the conveyance of im/polite attitudes, in addition to discrete, local pitch contours. To a lesser extent, temporal variables, such as speech rate and the duration of particular constituents, have been identified as important cues; for instance, shorter final-word duration has been associated with more politeness in Taiwanese Mandarin (Lin et al., 2006) and Ofuka et al. (2000) reported that slower speech rate is associated with increased politeness in Japanese. Moreover, it has been suggested that polite utterances may be produced with a "clearer" voice quality, as they display a higher Harmonics-to-Noise Ratio (Winter and Grawunder, 2012). Additionally, focusing specifically on impolite exchanges, Culpeper et al. (2003) note that higher intensity in combination with increased pitch seems to be a prosodic strategy for transmitting impoliteness, and similar observations are reported by Hidalgo Navarro (2009) in Spanish, along with some observations of the role of voice register, and continuous measures of f0 and duration in conveying (im)politeness. Taken together, these findings argue that global properties of an utterance contribute in a significant manner to how im/ politeness is conveyed.

1.3. Effects of categorical vs. continuous acoustics parameters

A relevant proposal to understand how prosody affects the perception of pragmatic meanings such as politeness has been advanced by Scherer et al. (1984). They explored which of two models better accounts for the relation of acoustic variables (mainly f0) to subjective ratings of vocal affect: the covariance model, which assumes that prosodic cues are distributed across an utterance and convey affect independently of verbal content; or the configuration model, which assumes that categorical prosodic contrasts determine the perception of vocal affect in interaction with the specific verbal content. The

¹ Brown and Levinson (1987) briefly discuss the effect of prosodic cues on politeness impressions: one positive politeness strategy is achieved with "exaggerated intonation, stress and other aspects of prosodics" (1987: 104–106). They also briefly discuss high pitch as associated with tentativeness, which can be employed as a prosodic hedge or device to display deference toward the listener (a proposed negative politeness strategy) (1987: 172). Or, for example, creaky voice "having as a natural source low speech energy, can implicate calmness and assurance and thence comfort and commiseration" (1987: 268).

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