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The fluency principle: Why foreign accent strength negatively biases language attitudes

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The fluency principle: Why foreign accent strength negatively biases language attitudes

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ABSTRACT

Two experiments tested the prediction that heavy foreign-accented speakers are evaluated more negatively than mild foreign-accented speakers because the former are perceived as more prototypical (i.e., representative) of their respective group and their speech disrupts listeners' processing fluency (i.e., is more difficult to process). Participants listened to a mild or heavy Punjabi- (Study 1) or Mandarin-accented (Study 2) speaker. Compared to the mild-accented speaker, the heavy-accented speaker in both studies was attributed less status (but not solidarity), was perceived as more prototypical of their respective group, disrupted listeners' processing fluency, and elicited a more negative affective reaction. The negative effects of accent strength on status were mediated by processing fluency and sequentially by processing fluency and affect, but not by prototypicality. Theoretical, methodological, and practical implications are discussed.

Foreign-accented English speakers tend to be rated less favorably on various traits (e.g., intelligence and friendliness) than native, standard-accented English speakers (Giles & Watson, 2013). Such negative *language attitudes* are consequential because they can have a number of adverse communicative and other social consequences, including discrimination in the workplace, housing, courts, and education (Dovidio & Gluszek, 2012; Gluszek & Dovidio, 2010a, 2010b; Lippi-Green, 1994, 2012). Consequently, understanding the cognitive and affective processes underlying attitudes to foreign-accented speech is of social and theoretical importance.

Language attitudes have been theorized to reflect two sequential cognitive processes: social categorization and stereotyping (Ryan, 1983). First, listeners use linguistic cues (e.g., accent) to infer which social groups (e.g., ethnicity) speakers belong to. Second, they attribute to speakers stereotypic traits associated with those (inferred) group memberships. By this account, Americans' negative evaluations of certain foreign-accented speakers reflect their negative stereotypes toward those target groups. However, and despite having received substantial empirical support over the years (see Dragojevic, 2016), this explanatory mechanism fails to fully account for the fact that language attitudes do not always reflect simple categorical judgments about group membership. Indeed,

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listeners can and do make very fine distinctions among varying *degrees* of accentedness (Brennan & Brennan, 1981a, 1981b), which can influence their evaluations of speakers. For example, Ryan, Carranza, and Moffie (1977) found that as speakers' Spanish accents became stronger, American listeners' evaluations of those speakers became proportionately less favorable, even though all speakers were presumably categorized as belonging to the *same* group. We propose two possible explanations for such findings.

First, given that most foreign accents tend to be negatively stereotyped (Giles & Watson, 2013), speakers with heavy foreign accents may be evaluated more negatively than speakers with mild foreign accents because the former are perceived as more prototypical (i.e., representative) of a negatively stereotyped group and thus more likely to be attributed the negative stereotypic traits associated with that group (Bodenhausen, Kang, & Peery, 2012; Hogg & Reid, 2006). Second, speakers with heavy foreign accents may be evaluated more negatively than speakers with mild foreign accents because the former's speech is more difficult to process (i.e., disrupts listeners' processing fluency; Cristia et al., 2012), and this communicative difficulty negatively biases listeners' evaluations. In partial support of this latter claim, in a previous study we found that noisy listening conditions engendered more negative speaker evaluations than quiet listening conditions and that this negative effect of noise was mediated by processing fluency (Dragojevic & Giles, 2016). While this research clearly demonstrates that disruptions in fluency due to environmental factors (i.e., presence of background noise) can negatively bias listeners' language attitudes, it does not directly test whether disruptions in fluency due to accent *itself* can have the same negative effect; this remains an important empirical and theoretical question.

The purpose of the present research was to test the viability of these two previously untested explanations. We contend that the two explanations are neither mutually exclusive nor contradictory and that the negative effects of foreign accent strength on language attitudes can be mediated both by perceived speaker prototypicality and by listeners' processing fluency. In what follows, we first provide an overview of the language attitudes literature, focusing on evaluations of foreign-accented speakers. Second, we discuss how foreign accent strength can influence language attitudes and present a novel theoretical model outlining the role that fluency and group prototypicality may play in this process. We then describe two experiments designed to test this model. Finally, we discuss the theoretical and practical implications of our findings and introduce what we term the *fluency principle* of language attitudes.

Attitudes toward foreign-accented speech

Language attitudes refer to evaluative reactions to different language varieties (e.g., accents, dialects) and are organized along two primary evaluative dimensions: *status* (e.g., intelligent, competent) and *solidarity* (e.g., friendly, warm) (Dragojevic, 2016; Garrett, 2010). Past research has primarily focused on documenting people's attitudes toward standard and nonstandard language varieties. Standard varieties adhere to codified norms defining "correct" usage in terms of pronunciation, grammar, and vocabulary (Milroy & Milroy, 1999); they tend to be associated with dominant socioeconomic and ethnic groups in a given society. Examples of standard varieties include Standard American English (SAE) in the U.S.A. and Received Pronunciation (RP) in the U.K.

Nonstandard varieties, in contrast, diverge from codified norms in some manner (e.g., pronunciation; St. Clair, 1982); they tend to be associated with subordinate socioeconomic and ethnic groups in a given society. Foreign accents (e.g., Spanish accent in the U.S.A.) are, by definition, nonstandard. Other examples of nonstandard varieties include most regional (e.g., American Southern English) and ethnic dialects (e.g., African-American Vernacular English).

Operating within the status and solidarity dimensions, past research has found that standard and nonstandard speakers elicit different evaluative reactions, with foreign-accented speakers typically disadvantaged on both dimensions. Specifically, foreign-accented speakers, as well as other (native) nonstandard speakers, tend to be rated less favorably on status traits than standard speakers (Fuertes, Gottdiener, Martin, Gilbert, & Giles, 2012). Although native nonstandard speakers may sometimes be upgraded by members of their ingroup on solidarity traits vis-à-vis standard speakers (e.g., Luhman, 1990), this covert prestige typically does not extend to foreign-accented speakers who tend to be downgraded on solidarity traits as well (Fuertes et al., 2012). Indeed, American listeners have been shown to negatively evaluate on one or more dimensions speakers with Spanish, Chinese (Mandarin), Japanese, Korean, and Indian (Punjabi) accents, among others (see Fuertes et al., 2012; Lippi-Green, 2012). Similar results have been obtained in other countries (see Giles & Watson, 2013). However, not all foreign-accented speakers are equally stigmatized (Lindemann, 2005). For example, Stewart, Ryan, and Giles (1985) found that Americans rated a British RP speaker *more* favorably on status traits than a SAE speaker, although they still downgraded the former on solidarity traits.

As explained earlier, language attitudes have been theorized to reflect social categorization and stereotyping (Ryan, 1983). That is, listeners use linguistic cues (e.g., accent) to infer which social group(s) speakers belong to and, based on that categorization, attribute to speakers stereotypic traits. Although this explanatory mechanism has received strong empirical support (Giles & Niedzielski, 1998), it fails to fully account for the fact that attitudes toward foreign-accented speakers do not always reflect simple categorical judgments about group membership, but rather vary as a function of the strength of speakers' foreign accents.

Foreign accent strength, prototypicality, and processing fluency

Past research has shown that listeners are highly attuned to linguistic variation and can make fine-grained distinctions among varying degrees of accentedness, which can influence their evaluations of speakers (Brennan & Brennan, 1981a, 1981b; Brennan, Ryan, & Dawson, 1975; Giles, 1972). In general, the stronger a speaker's foreign accent is, the more negatively he or she tends to be evaluated. As noted at the outset, Ryan et al. (1977) found that American listeners rated speakers with heavier Spanish accents less favorably on status and solidarity traits than speakers with milder Spanish accents (see also Carlson & McHenry, 2006). Similarly, Cargile and Giles (1998) observed that American listeners rated a speaker with a heavy Japanese accent more negatively on both status and solidarity traits than a speaker with a mild variety. Relatedly, Tsalikis, DeShields, and LaTour (1991) found that American listeners attributed less status and solidarity to a speaker with a heavy Greek accent than speakers with milder Greek accents. Similar findings have been demonstrated in other languages (see Giles & Watson, 2013).

Assuming that, in each of the studies above, the speakers with heavy and mild foreign accents were categorized as belonging to the same group, such findings cannot be fully accounted for by the two-step explanatory mechanism described earlier. If language attitudes reflected simple categorical judgments about group membership, then the strength of speakers' foreign accents would have no bearing on how they are evaluated. Clearly, however, it does. Consequently, other cognitive and/or affective processes must underlie evaluations of foreign-accented speech, in addition to simple categorical judgments about group membership. Drawing on past research in communication, psychology, and linguistics, two possible explanations emerge. These are described below and depicted visually in the theoretical model in Figure 1.

Prototypicality

The effects of foreign accent strength on language attitudes may be mediated by listeners' perceptions of speakers' prototypicality (path *ab*, Figure 1). A person's prototypicality reflects the degree to which the person is perceived to "fit" the defining features associated with a given group (Hogg & Reid, 2006). Prototypicality judgments are a fundamental part of the social categorization process: when people socially categorize someone, they not only infer which social group the person belongs to, but also assess the prototypicality of the person to that group (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Like inferences about group membership, prototypicality judgments can be based on any cue perceived to be a defining feature of social identity. The more a person is perceived to "fit" the defining characteristics associated with a given group, the more prototypical of that group he or she is likely to be perceived. Accordingly, given that accent is a defining feature of, and potent cue to, one's social identity (Giles, Taylor, & Bourhis, 1977; Rakić, Steffens, & Mummendey, 2011), we contend that people can use a speaker's accent not only to infer which group the speaker belongs to, but also to gauge how prototypical of that group the speaker is. All else equal, the stronger a speaker's foreign accent "X" is, the more prototypical of group "X" the speaker is likely to be perceived (path *a*, Figure 1).
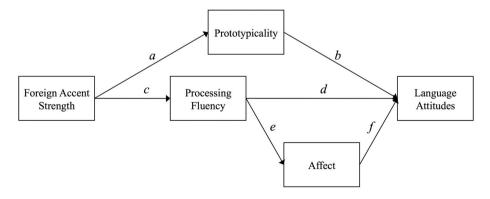

Figure 1. Theoretical model depicting the indirect effects of foreign accent strength on language attitudes via prototypicality (*ab*), processing fluency (*cd*), and sequentially via processing fluency and affect (*cef*).

Perceptions of prototypicality are important, in part, because they determine the degree of stereotype application. The more prototypical a person is perceived to be of a given social group, the more likely the person is to be attributed the stereotypic traits associated with that group (Bodenhausen et al., 2012; Hogg & Reid, 2006). Accordingly, people who belong to negatively (positively) stereotyped groups tend to be evaluated more negatively (positively) the more prototypical of those groups they are perceived to be. Consistent with this claim, Blair, Judd, Sadler, and Jenkins (2002) found that White informants rated African-American targets who had more Afrocentric facial features as more likely to possess traits stereotypic of African Americans than targets who had less Afrocentric facial features (see also Wilkins, Chan, & Kaiser, 2011). Based on this, the more prototypical a speaker is perceived to be of a negatively (positively) stereotyped group, the more negatively (positively) the speaker is likely to be evaluated (path *b*, Figure 1). To the extent that speakers with strong foreign accents are perceived as more prototypical of their respective group than speakers with mild foreign accents, then speakers who belong to negatively (positively) stereotyped groups should be evaluated more negatively (positively) the stronger their foreign accent is, and this effect should be mediated by perceived prototypicality.

Processing fluency

The effects of foreign accent strength on language attitudes might also be mediated by listeners' processing fluency (paths *cd* and *cef*, Figure 1). Processing fluency refers to the ease or difficulty people experience processing information (Alter & Oppenheimer, 2009). Any cognitive task – including speech processing – can be characterized by the amount of effort required to complete it. Some tasks are relatively effortless; others are highly effortful. The amount of effort required to complete a given task produces a corresponding metacognitive experience ranging from *highly fluent* (effortless) to *highly disfluent* (effortful).

The ease with which a given person's speech is processed depends, at least in part, on his or her accent. In general, speech produced in accents different from one's own, especially foreign or unfamiliar accents, is more difficult to process than speech produced in one's own accent, as evidenced by lower perceived comprehensibility, lower accuracy, and longer processing time (e.g., Floccia, Butler, Goslin, & Ellis, 2009; Gass & Varonis, 1984; Munro & Derwing, 1995a, 1995b). Indeed, foreign-accented speakers *themselves* frequently report that their accent causes them to experience significant communicative difficulties in their everyday lives (Gluszek & Dovidio, 2010a, 2010b). Additionally, the more a person's accent differs from one's own (e.g., the stronger a speaker's foreign accent is), the more difficult it is to process. Consistent with this claim, Lev-Ari and Keysar (2010) found that American listeners rated speakers with heavier foreign accents as more difficult to understand than speakers with milder foreign accents (see also Munro & Derwing, 1995a, 1995b). Based on this, the stronger a speaker's foreign accent is, the more difficult (i.e., less fluent) the speaker's speech will likely be to process (path *c*, Figure 1).

Listeners' metacognitive experience of fluency is important because it can be a powerful cue to judgment, *independent* of thought content (e.g., stereotypes) (for a review, see Alter & Oppenheimer, 2009). Past studies have demonstrated that high fluency promotes favorable judgments across a wide range of domains; for instance, high fluency has been shown to lead to higher ratings of truth (Reber & Schwarz, 1999), intelligence (Oppenheimer,

2006), and liking (Reber, Winkielman, & Schwarz, 1998), among others. Listeners' processing fluency can influence their language attitudes via two basic routes: naïve theories and affect (see Dragojevic & Giles, 2016).

Naïve theories

Processing fluency can have a direct effect on language attitudes through the application of naïve theories, which provide relevant inference rules (path *d*, Figure 1) (Alter & Oppenheimer, 2009; Oppenheimer, 2008). People's naïve theories about processing fluency reflect their assumptions about why information is easy or difficult to process in a particular context (Schwarz, 2004). People may have a number of context-specific naïve theories linking their experience of processing fluency to their language attitudes. For instance, rather than accepting shared and equal responsibility for the burden of communication, people often place it disproportionately (and sometimes entirely) on the speaker, believing it is primarily the speaker's responsibility to deliver his/her message in a manner they can easily comprehend (Lippi-Green, 1994, 2012). Consequently, when they experience difficulty processing a speaker's message, they may interpret that difficulty as indicative of the speaker's inability and/or unwillingness to communicate more clearly and, thus, downgrade the speaker on status and/or solidarity traits, respectively (see Dragojevic & Giles, 2016; Oppenheimer, 2006). Indeed, past studies have found that listeners often justify and rationalize their evaluative downgrading of foreign-accented speakers precisely based on fluency concerns (Shuck, 2004, 2006). From a naïve theory stance, processing fluency is *itself* a cue to language attitudes. The more difficult a speaker's speech is to process, the more negatively the speaker is likely to be evaluated (path *d*, Figure 1). To the extent that speech produced in heavy foreign accents is more difficult to process than speech produced in mild foreign accents, then the stronger a speaker's foreign accent is, the more negatively the speaker should be evaluated, and this effect should be mediated by processing fluency.

Affect

Processing fluency can also have an indirect effect on language attitudes via affect (path *ef*, Figure 1) (Dovidio & Gluszek, 2012; Reber, Schwarz, & Winkielman, 2004). Fluency provides feedback about ongoing cognitive operations and is hedonically marked because it says something about a positive or negative state of affairs within one's cognitive system (Winkielman, Schwarz, Fazendeiro, & Reber, 2003). High fluency is indicative of facilitated cognitive operations and tends to be marked with high positive affect, whereas high disfluency is indicative of hindered cognitive operations and tends to be marked with high negative affect (Schwarz & Clore, 2007). Consistent with this claim, Sebastian, Ryan, Keogh, and Schmidt (1980) found that listeners reported more negative affect after hearing a speaker over a noisy tape (disfluent condition) than after hearing the same speaker over a quiet tape (fluent condition).

Fluency-based affective reactions can, in turn, bias listeners' language attitudes. Stimuli associated with negative affect tend to be evaluated less favorably than stimuli associated with positive affect (see Clore & Huntsinger, 2007). For example, Forgas (1990) found that subjects attributed less status and solidarity to a target person when that person was associated with negative affect rather than positive or neutral affect. By this account, processing fluency can also have an indirect effect on language attitudes via affect: the more

difficult a speaker's speech is to process, the more negative affect listeners are likely to experience (path *e*, Figure 1) and, in turn, the more negatively they are likely to evaluate the speaker (path *f*, Figure 1). To the extent that speech produced in heavy foreign accents is more difficult to process than speech produced in mild foreign accents, then the stronger a speaker's foreign accent is, the more negatively the speaker should be evaluated, and this effect should be mediated sequentially by fluency and affect.

The direct and indirect routes described above are not mutually exclusive; fluency can simultaneously influence language attitudes through the application of naïve theories and affect. Irrespective of route, both accounts predict that decreased fluency should result in less favorable evaluations. Consistent with this rationale, in a previous study we manipulated listeners' fluency by having them listen to a SAE or a Punjabi-accented speaker in quiet or noisy listening conditions (Dragojevic & Giles, 2016). We found that noisier conditions reduced fluency, elicited a more negative affective reaction, and resulted in lower speaker evaluations. Moreover, the negative effects of noise on speaker evaluations were mediated by fluency and sequentially by fluency and affect. Although this research suggests that strong foreign accents should be evaluated more negatively than mild foreign accents, given that speech produced in the former is typically more difficult to process, it does not test that prediction directly. This was one goal of the present study.

Summary

In sum, two distinct processes may mediate the effects of foreign accent strength on language attitudes (see Figure 1). First, the effects may be mediated by listeners' perceptions of the speaker's prototypicality. The stronger a speaker's foreign accent "X" is, the more prototypical of group "X" the speaker is likely to be perceived (path *a*), and if group "X" is negatively (positively) stereotyped, the more negatively (positively) the speaker is likely to be evaluated (path *b*). Second, the effects may be mediated by listeners' processing fluency. The stronger a speaker's foreign accent "X" is, the more difficult (i.e., less fluent) his or her speech will likely be to process (path *c*). This communicative difficulty, in turn, can influence language attitudes directly through the application of naïve theories, with more difficult processing resulting in more negative evaluations (path *d*), as well as indirectly via affect, with more difficult processing eliciting a more negative affective reaction (path *e*) and, in turn, resulting in more negative evaluations (path *f*). To the extent that the foreign accent in question is a negatively stereotyped variety, as most foreign accents are (Giles & Watson, 2013), the prototypicality- and fluency-based explanations both yield the same prediction: speakers with heavy foreign accents are likely to be evaluated more negatively than speakers with mild foreign accents. Two experiments were conducted to test these alternate, though not mutually exclusive, explanations.

Study 1

Study 1 examined American listeners' attitudes toward mild and heavy Punjabi- (i.e., Indian-) accented English speech. The Punjabi accent was selected for a number of reasons. First, past research has shown that American listeners can reliably identify this variety (as Indian) solely from differences in pronunciation (Dragojevic & Giles, 2014). Second, many Americans frequently encounter Punjabi-accented speakers in their

everyday lives (Chand, 2009). Third, past research has shown that the Punjabi accent tends to be negatively stereotyped in the U.S.A. on both status and solidarity traits relative to SAE (Dragojevic & Giles, 2014; Lindemann, 2005).

Based on the preceding rationale and consistent with the theoretical model depicted in Figure 1, we predicted that, compared to a speaker with a mild Punjabi accent, a speaker with a heavy Punjabi accent would be attributed less status (H1a) and solidarity (H1b), be perceived as more prototypical of other Indian people (H2), reduce listeners' processing fluency (H3), and elicit a more negative affective reaction (H4). We also predicted that the negative effects of foreign accent strength on language attitudes would be mediated by prototypicality (H5a), fluency (H5b), and sequentially by fluency and affect (H5c).

Method

Participants
Participants were 96 undergraduates (81.3% women) from a large university on the West Coast of the U.S.A. They ranged in age from 18 to 25 years ($M = 19.21$) and reported their ethnicity as White (33.3%), Asian (29.2%), Hispanic (21.9%), African-American (9.4%), and other (6.2%).

Voice stimuli
Voice stimuli were produced using the matched-guise technique (MGT: Lambert, 1967; for critiques, see Garrett, 2010; Nolan, 1983). The MGT involves the same bidialectical speakers producing audio recordings of the same passage of text in different language varieties, or *guises*. This procedure ensures all extraneous speech variables that vary between speakers are held constant across the evoked guises and differences reflect only features of the language variety itself. Voice stimuli were produced by a 22-year-old male of Indian descent. He was recorded reading a short story in a mild and heavy Punjabi accent. Both recordings were 55 seconds long.

Procedure
The experiment was introduced to the participants as being concerned with how people process auditory information. The subjects were randomly assigned to listen to one of the two recordings described above. Prior to listening to the recording, the participants in both conditions were told they would hear a male speaker from India, ensuring consistent categorization across the two conditions. Having listened to the recording, the participants completed a fill-in-the-blank memory task. Specifically, they were presented with a transcript of the story they had just heard with 12 words omitted and were instructed to write in the missing words. In order to minimize guessing, all omitted words were of low predictability from the context of the story. This task was used to make the communicative consequences of speech processing more salient to the participants (see Dragojevic & Giles, 2016), as they would be in most real-world communicative interactions.

The participants then completed a questionnaire containing the dependent measures. They reported the extent to which they felt three negative (i.e., frustrated, irritated, and annoyed) and three positive emotions (i.e., happy, enthusiastic, and interested) using 5-point scales (1 = *very slightly or not at all*, 5 = *extremely*). The

three negative and three positive emotion items were averaged to form the *negative affect* ($\alpha = .84$) and *positive affect* scale ($\alpha = .78$), respectively. To assess the *overall* valence of listeners' affective responses, we calculated an affect balance score by subtracting mean negative affect from mean positive affect for each participant and adding a constant of 4 to avoid negative values (see Dragojevic & Giles, 2016). This new scale had a theoretical range from 0 (*high negative affect*) to 8 (*high positive affect*) ($M = 4.86$; $SD = 1.05$).

The participants then rated the speaker on five status (i.e., successful, intelligent, smart, educated, and competent) and five solidarity traits (i.e., pleasant, nice, sociable, honest, and friendly) using 7-point scales (1 = *not at all*, 7 = *very*). The five status and five solidarity items were averaged to form the *status* ($\alpha = .94$) and the *solidarity* scale ($\alpha = .90$), respectively. Next, the participants indicated how easy to understand, clear, and comprehensible the speaker was using 7-point scales (1 = *not at all*; 7 = *very*). These three items were averaged to form the *processing fluency* scale ($\alpha = .92$). The participants then indicated how strong the speaker's accent was using a 7-point scale (1 = *not at all*; 7 = *very*) and where they thought the speaker was from using an open-ended question (i.e., *Where is the speaker you heard from?*). These items served as manipulation checks of the accent strength and categorization manipulations. The participants next indicated the extent to which the speaker was similar to, typical of, and representative of other people from India, using 7-point scales (1 = *not at all*; 7 = *very*). These items were averaged to form the *prototypicality* scale ($\alpha = .91$). Finally, the participants provided demographic information.

Results

Manipulation checks

Accent strength was manipulated successfully: the heavy-accented guise was perceived as having a stronger accent ($M = 6.00$; $SD = 0.88$) than the mild-accented guise ($M = 4.27$; $SD = 1.30$), $t(94) = -7.64$, $p < .001$, $d = -1.58$. Categorization was also manipulated successfully: All participants correctly categorized the speaker as being from India.

Focal analyses

H1–H4 were tested using a series of one-tailed planned contrasts and were largely supported. Compared to the mild-accented guise, the heavy-accented guise was attributed less status ($M_{mild} = 4.81$, $SD_{mild} = 0.80$; $M_{heavy} = 4.40$, $SD_{heavy} = 0.96$), $t(94) = 2.25$, $p = .014$, $d = 0.46$ (H1a); perceived as more prototypical of other Indian people ($M_{mild} = 4.24$, $SD_{mild} = 1.20$; $M_{heavy} = 5.24$, $SD_{heavy} = 1.29$), $t(94) = -3.93$, $p < .001$, $d = -0.81$ (H2); reduced listeners' processing fluency ($M_{mild} = 4.74$, $SD_{mild} = 1.34$; $M_{heavy} = 3.36$, $SD_{heavy} = 1.30$), $t(94) = 5.09$, $p < .001$, $d = 1.05$ (H3); and elicited a more negative affective reaction ($M_{mild} = 5.04$, $SD_{mild} = 0.93$; $M_{heavy} = 4.67$, $SD_{heavy} = 1.13$), $t(94) = 1.72$, $p = .044$, $d = 0.35$ (H4). Contrary to H1b, the two guises were attributed equal solidarity ($M_{mild} = 4.69$, $SD_{mild} = 1.05$; $M_{heavy} = 4.50$, $SD_{heavy} = 1.16$), $t(94) = 0.82$, $p = .21$.

Mediation analyses

To test whether the negative effects of foreign accent strength on status were mediated by prototypicality, processing fluency, and sequentially by processing fluency and affect, the

path model depicted in Figure 1 was specified in MPlus 7.2 (Muthén & Muthén, 1998–2014). Foreign accent strength was dummy coded (0 = mild; 1 = heavy) and all path model variables were treated as observed (using calculated scale composites). The analysis used 10,000 bootstrap resamples. A given indirect effect was considered significant if its respective confidence interval did not contain 0 (Hayes, 2013). The obtained model with corresponding path coefficients is depicted in Figure 2. Overall model fit was good: $\chi^2(4) = 1.11$, $p = .89$, root mean square error of approximation (RMSEA) = .00, comparative fit index (CFI) = 1.00, standardized root mean square residual (SRMR) = .02. All predicted paths were significant ($ps < .05$), except the path from prototypicality to status ($p = .93$). Consistent with H5b and H5c, the indirect effects of foreign accent strength on status via processing fluency ($B = -.32$, 95% CI = $-.58$, $-.13$) and sequentially via processing fluency and affect ($B = -.09$, 95% CI = $-.22$, $-.01$) were both significant. Contrary to H5a, the indirect effect of foreign accent strength on status via prototypicality was not significant ($B = -.01$, 95% CI = $-.15$, .11).[1]

Discussion

Study 1 examined the cognitive and affective processes underlying the effects of foreign accent strength on language attitudes. The participants listened to a mild or heavy Punjabi-accented speaker. Compared to the mild-accented speaker, the heavy-accented speaker was attributed less status (but not solidarity), was perceived as more prototypical of other Indian people, reduced listeners' processing fluency, and elicited a more negative affective reaction. This is the first known study to empirically demonstrate that variation in accent strength can influence group prototypicality ratings, lending additional support to the claim that accent is a defining feature of social identity (Giles et al., 1977). Mediation analyses further showed that the negative effects of foreign accent strength on status were mediated by fluency and sequentially by fluency and affect, but not by prototypicality. The zero-order correlations between prototypicality and language attitudes were nonsignificant ($r_{status} = -.12$, $p = .25$; $r_{solidarity} = .01$, $p = .89$). These results suggest that one reason speakers with heavy foreign accents tend to be evaluated more negatively than speakers
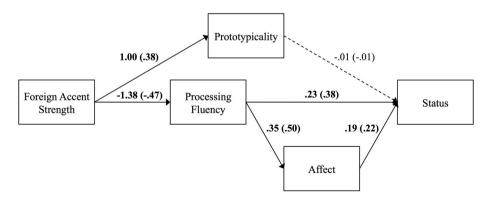

Figure 2. Obtained path model for Experiment 1 depicting the indirect effects of foreign accent strength on status ratings for the Punjabi-accented speaker. Unstandardized path coefficients are listed first, followed by standardized path coefficients in parentheses. Significant paths ($p < .05$) are denoted by solid lines and bolded coefficients. Nonsignificant paths are denoted by dashed lines.

with mild foreign accents is because the former's speech is more difficult to process, and this (communicative) difficulty negatively biases listeners' evaluations. This study has two main limitations. First, it examined the effects of foreign accent strength for only a single speaker and accent. Second, the small sample size rendered the study relatively underpowered (i.e., <.80 power to detect a medium effect size; see Cohen, 1992). Thus, the primary goal of Study 2 was to generalize these effects to a different speaker and accent using a larger sample.

Study 2

Study 2 sought to replicate the results of Study 1, using a different speaker and accent, and a different and larger sample. It examined American listeners' attitudes toward mild and heavy Mandarin- (i.e., Chinese-) accented speech. The Mandarin accent was selected because it tends to be negatively stereotyped in the U.S.A. on both status and solidarity traits relative to SAE (Cargile, 1997; Lindemann, 2005) and is a variety many Americans encounter in their daily lives. Consistent with the theoretical model in Figure 1, we predicted that, compared to a speaker with a mild Mandarin accent, a speaker with a heavy Mandarin accent would be attributed less status (H1a) and solidarity (H1b), be perceived as more prototypical of other Chinese people (H2), reduce listeners' processing fluency (H3), and elicit a more negative affective reaction (H4). We also predicted that the negative effects of foreign accent strength on language attitudes would be mediated by prototypicality (H5a), fluency (H5b), and sequentially by fluency and affect (H5c).

Method

Participants
Participants were 197 undergraduate students from a large Southern university in the U.S.A. Eighteen participants were excluded from all analyses because they miscategorized the speaker as being from a country other than China.[2] The final sample consisted of 179 participants (64.2% women). They ranged in age from 18 to 65 years old ($M = 20.42$) and reported their ethnicity as White (81.6%), African-American (11.2%), Hispanic (2.2%), Asian (2.2%), and other (2.8%).

Voice stimuli
Study 2 also employed the MGT. Voice stimuli were produced by a 32-year-old male of Chinese descent. He was recorded reading the same story used in Study 1 in a mild and heavy Mandarin accent. The two recordings were of similar length (mild = 70 seconds; heavy = 75 seconds).

Procedure
The experiment followed the same procedure employed in Study 1. The subjects were randomly assigned to listen to one of the two recordings described above. Prior to listening to the recording, all participants were told they would hear a male speaker from China, ensuring consistent categorization across the two conditions. Having listened to the recording, the participants completed the same fill-in-the-blank memory task and

dependent measures as in Study 1. All scales were reliable: *negative affect* (α = .85), *positive affect* (α = .72), *status* (α = .94), *solidarity* (α = .91), *processing fluency* (α = .89), and *prototypicality* (α = .90). An affect balance score was calculated by subtracting mean negative affect from mean positive affect for each participant and adding a constant of 4 to avoid negative values (*M* = 4.78; SD = 1.32).

Power

All tests had sufficient power (>.80; see Cohen, 1992), assuming a one-tailed α of .05 and a medium effect size (i.e., *d* = 0.5).

Results

Manipulation checks

The accent strength manipulation was successful: the participants rated the heavy-accented guise as having a stronger accent (*M* = 5.31, SD = 1.02) than the mild-accented guise (*M* = 3.94, SD = 1.34), *t*(177) = −7.67, *p* < .001, *d* = −1.15. All participants retained in the sample (90.9% of the original sample, see above) correctly categorized the speaker as being from China.

Focal analyses

H1–H4 were tested using one-tailed planned contrasts and were largely supported. Compared to the mild-accented guise, the heavy-accented guise was attributed less status (M_{mild} = 4.58, SD_{mild} = 1.14; M_{heavy} = 4.32, SD_{heavy} = 1.01), *t*(177) = 1.66, *p* = .049, *d* = 0.25 (H1a); was perceived as more prototypical of other Chinese people (M_{mild} = 4.03, SD_{mild} = 1.37; M_{heavy} = 5.06, SD_{heavy} = 1.18), *t*(177) = −5.38, *p* < .001, *d* = −0.81 (H2); reduced listeners' processing fluency (M_{mild} = 4.69, SD_{mild} = 1.31; M_{heavy} = 3.90, SD_{heavy} = 1.12), *t*(177) = 4.31, *p* < .001, *d* = −0.65 (H3); and elicited a more negative affective reaction (M_{mild} = 4.99, SD_{mild} = 1.26; M_{heavy} = 4.57, SD_{heavy} = 1.35), *t*(177) = 2.13, *p* = .018, *d* = 32 (H$_4$). Contrary to H1b, the two guises were attributed equal solidarity (M_{mild} = 4.99; SD_{mild} = 1.12; M_{heavy} = 4.80, SD_{heavy} = 1.12), *t*(177) = 1.17, *p* = .12.

Mediation analyses

Mediation was tested using the same procedures described in Study 1. The obtained model with corresponding path coefficients is depicted in Figure 3. Overall model fit was acceptable: $\chi^2(4)$ = 8.04, *p* = .09, RMSEA = .075, CFI = 0.96, SRMR = .045. All predicted paths were significant (*ps* < .05), except the path from prototypicality to status (*p* = .29). Consistent with H5b and H5c, the indirect effects of foreign accent strength on status via processing fluency (*B* = −.27, 95% CI = −.46, −.13) and sequentially via fluency and affect (*B* = −.03, 95% CI = −.08, −.01) were both significant. Contrary to H5a, the indirect effect of foreign accent strength on status via prototypicality was not significant (*B* = .06, 95% CI = −.05, .20).[3]

Discussion

The second investigation sought to extend the findings of Study 1 to a different speaker and accent, using a different and larger sample. The participants listened to a mild or
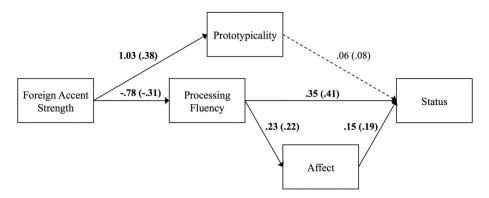
Figure 3. Obtained path model for Experiment 2 depicting the indirect effects of foreign accent strength on status ratings for the Mandarin-accented speaker. Unstandardized path coefficients are listed first, followed by standardized path coefficients in parentheses. Significant paths ($p < .05$) are denoted by solid lines and bolded coefficients. Nonsignificant paths are denoted by dashed lines.

heavy Mandarin-accented speaker. An identical pattern of results emerged as in Study 1. Compared to the mild-accented speaker, the heavy-accented speaker was attributed less status (but not solidarity), was perceived as more prototypical of other Chinese people, reduced listeners' processing fluency, and elicited a more negative affective reaction. The negative effects of foreign accent strength on status ratings were mediated by processing fluency and sequentially by processing fluency and affect, but not by prototypicality. Correlations between prototypicality and language attitudes were, again, nonsignificant ($r_{status} = -.04$, $p = .57$; $r_{solidarity} = -.09$, $p = .26$). These results lend further support to the claim that heavy foreign-accented speakers are evaluated more negatively than mild foreign-accented speakers because the former's speech is more difficult to process.

General discussion

Past research on language attitudes has shown that speakers with heavy foreign accents tend to be rated less favorably on various traits than speakers with mild foreign accents (e.g., Ryan et al., 1977). The present research examined the cognitive and affective processes underlying such evaluative downgrading by testing a novel theoretical model. The participants listened to a male speaker reading a short story in either a mild or a heavy Punjabi (Study 1) or Mandarin (Study 2) accent, both of which tend to be negatively stereotyped varieties in the U.S.A. (e.g., Lindemann, 2005). Both studies yielded an identical pattern of results. Compared to the mild-accented speakers, the heavy-accented speakers were attributed less status (but not solidarity), were perceived as more prototypical of their respective group (i.e., other Indian or Chinese people), reduced listeners' processing fluency, and elicited a more negative affective reaction. The negative effects of foreign accent strength on status were mediated by fluency and sequentially by fluency and affect, but not by prototypicality. In other words, the heavy-accented speakers were evaluated more negatively than the mild-accented speakers *because* the former's speech was more difficult to process and this communicative difficulty, along with its associated negative affective reaction, negatively biased listeners' evaluations. Given that in both studies listeners heard the same speaker and categorized him in the same manner

across the two accent strength conditions, these results cannot be attributed to differences in categorization or stereotypes.

Theoretical implications

Language attitudes have typically been explained with reference to social categorization and stereotyping (for an overview of existing models, see Giles & Marlow, 2011). However, this stereotype-based account of the language attitudes process fails to fully explain why heavy and mild foreign-accented speakers sometimes elicit different evaluative reactions, even when they are categorized as belonging to the *same* social group. Results of the present research provide evidence for an *additional* explanatory mechanism by showing that negative attitudes toward a particular accent can be triggered simply by the difficulty associated with processing speech produced in that accent, *independent* of stereotyping. As such, they show that one reason speakers with heavy foreign accents tend to elicit more negative evaluations than speakers with mild foreign accents is simply because the former's speech is more difficult to process. Whereas in past research we have shown that disruptions in listeners' fluency due to environmental factors, such as the presence of background white noise, can negatively bias their ratings of speakers' status (Dragojevic & Giles, 2016), this is the first known research to demonstrate that disruptions in listeners' fluency due to accent *itself* can have the same negative consequences. Collectively, this and related studies (Hansen & Dovidio, 2016; Lev-Ari & Keysar, 2010) provide compelling evidence that processing fluency is a general metacognitive cue to language attitudes, *regardless* of how it is engendered, and that factors that disrupt listeners' fluency (e.g., background noise and speakers' accents) can also exert a negative effect on listeners' language attitudes, *independent* of thought content (e.g., stereotypes) (see also Alter & Oppenheimer, 2009). These findings also suggest that one reason foreign-accented speakers, more generally, tend to be evaluated less favorably than native-accented speakers is because the former's speech is more difficult to process (Cristia et al., 2012). Indeed, such evaluative downgrading is likely to emerge even in the *absence* of negative stereotypes (see also Dragojevic & Giles, 2016).

Such a fluency-based account of the language attitudes process is not incompatible with the stereotype-based account described earlier. Rather, both processes are likely to operate simultaneously. In other words, listeners may base their language attitudes on *both* (a) their inferences about speakers' social group membership(s) and corresponding stereotypes, and (b) their metacognitive experience of fluency. Sometimes these cues may complement and reinforce one another, such as when the speech of a speaker who belongs to a negatively stereotyped group is difficult to process. Other times they may contradict and attenuate one another, such as when the speech of a speaker who belongs to a positively stereotyped group is difficult to process.

The relative influence of processing fluency on listeners' language attitudes is likely to vary from one context to the next. Processing difficulties may be especially likely to negatively bias attitudes when listeners perceive those difficulties as communicatively significant – that is, impair their ability to successfully complete a communicative task (Dragojevic & Giles, 2016). Accordingly, we would expect disruptions of greater magnitude and those occurring in more formal contexts (e.g., employment) to have a stronger

effect on language attitudes than disruptions of lesser magnitude or those occurring in less formal contexts (e.g., social gatherings). Disruptions in fluency may also have a stronger effect on status than solidarity attributions. In the present research, heavy-accented speakers were attributed less status than mild-accented speakers; however, the two groups of speakers were attributed equal solidarity. Similarly, in previous research (Dragojevic & Giles, 2016), we found that disruptions in listeners' fluency due to background noise negatively biased their ratings of speakers' status consistently (in both studies), but their ratings of speakers' solidarity only inconsistently (only in Study 1). One possible explanation for these findings is that people's naïve theories about processing fluency may be more strongly tied to inferences about status than solidarity (Dragojevic & Giles, 2016). That is, people may be more inclined to interpret any difficulties they experience processing a speaker's message as indicative of the speaker's low competence (i.e., status) rather than lack of goodwill (i.e., solidarity).

In a recent overview of the language attitudes literature, Dragojevic, Giles, and Watson (2013) proposed several heuristic Principles of Language Attitudes, which were further refined by Giles and Rakić (2014) and Dragojevic (2016). Collectively, these principles identify some of the main processes underlying language attitudes and capture many of the key empirical findings in this research domain. In light of the present study's findings and related research (e.g., Dragojevic & Giles, 2016; Hansen & Dovidio, 2016; Lev-Ari & Keysar, 2010), we propose the addition of the following *fluency principle*:

> Listeners' processing fluency (i.e., the ease with which listeners process a speaker's speech) is a general metacognitive cue to their language attitudes: Disruptions in listeners' processing fluency – due to environmental factors (e.g., background noise) or a speaker's language (e.g., accent) – can negatively bias their language attitudes (especially ratings of speakers' status), independent of stereotyping.

Future research on the role of fluency in the language attitudes process will undoubtedly lead to further refinements of this principle, including the specification of possible boundary conditions.

In addition to being more difficult to understand, the heavy-accented speakers in the present research were also perceived as more prototypical of their respective group than the mild-accented speakers. This is the first known research to empirically demonstrate that variation in accent strength can influence group prototypicality ratings and, as such, lends further support to the claim that one's accent is a defining feature of one's social identity (Giles et al., 1977; Rakić et al., 2011). However, contrary to past studies that have shown that people who are perceived as more prototypical of a given group are more likely to be attributed the stereotypic traits associated with that group (e.g., Blair et al., 2002), prototypicality ratings did not mediate the effects of foreign accent strength on language attitudes. Indeed, the zero-order correlations between prototypicality and language attitudes were nonsignificant in both studies. One possible explanation for these null findings is that listeners in the present research may have had relatively undifferentiated stereotypes toward the two groups in question and thus attributed to the speakers their corresponding group stereotype in a purely categorical manner. Had the speakers belonged to groups listeners were more familiar with, or had they been ingroup members, perhaps prototypicality ratings would have had a bearing on listeners' attitudes. This interpretation is consistent with research on the *outgroup homogeneity effect*, which has

shown that people are more likely to homogenize outgroup members than ingroup members (Mullen & Hu, 1989; Voci, 2000). Another (and related) possibility is that the participants in the present study were simply unmotivated to make differentiated impressions of the outgroup speakers because it was not functional to do so. Consistent with this claim, recent research suggests that perceivers are more likely to form differentiated impressions of outgroup members when outgroup members appear – based on superficial characteristics or the environmental setting – relevant to the perceivers' functional outcomes (e.g., outgroup poses a clear threat). In contrast, when outgroup members do not appear functionally significant, perceivers tend to homogenize them (e.g., Ackerman et al., 2006). Thus, had participants been asked to evaluate the speakers in a context in which the speakers were clearly relevant to the participants' functional outcomes, perhaps prototypicality would have influenced their evaluations. Future research should investigate the role prototypicality plays in the language attitudes process for a wider range of accents.

Practical implications

Our findings also have important practical implications. As noted at the outset, people's negative attitudes toward foreign accents can have a number of adverse consequences for users of those forms. As such, identifying effective interventions to reduce accent-based prejudice and discrimination is important. Whereas past research has shown that government language policies aimed at changing existing stereotypes can produce language attitude change (Woolard & Gahng, 1990), our findings suggest that language attitude change can also occur due to changes in listeners' fluency. Namely, more favorable attitudes toward a particular accent may be achieved by increasing the ease with which listeners process speech produced in that accent. Past research has shown that mere exposure to a given foreign accent can facilitate later processing of that accent (Gass & Varonis, 1984). Accordingly, intergroup contact (Allport, 1954) with foreign-accented speakers – provided that it is not negative (for an overview of necessary conditions, see Harwood & Joyce, 2012; Pettigrew, 1998) – may be one way to engender more favorable evaluations of those speakers, not only because of its potential to improve existing stereotypes, but also because of its potential to increase the ease with which listeners process speech produced by those speakers. Such fluency-based interventions aimed at reducing accent-based prejudice and discrimination represent an important avenue for future research.

Limitations and future directions

This research has several limitations. First, it examined the effects of accent strength on language attitudes for only two accents. Future research should investigate whether the results obtained herein extend to other accents as well. Second, and related, both of the accents examined in the present research were *foreign*. Past research has found that the negative effects of accent strength on language attitudes can extend to native varieties as well. For instance, Giles (1972) found that heavy British regional accents engendered more negative evaluations among British listeners than mild British regional accents. Given that any accent that is different from one's own, whether foreign or native, can

disrupt listeners' processing fluency (Cristia et al., 2012), future research should examine whether the same cognitive and affective processes that underlie the negative effects of accent strength on language attitudes for foreign accents do so for native accents as well. Third, both of the accents examined in the present research tend to be negatively stereotyped in the U.S.A. (Lindemann, 2005). Future studies should examine how accent strength influences evaluations of positively stereotyped varieties as well, such as British RP in the U.S.A. (Stewart et al., 1985). Whereas for negatively stereotyped varieties the prototypicality- and fluency-based accounts yield the same prediction (i.e., stronger accents should be evaluated more negatively), for positively stereotyped varieties the two accounts yield opposite predictions. Specifically, the fluency-based account predicts that stronger accents should be evaluated more negatively, whereas the prototypicality-based account predicts that stronger accents should be evaluated more positively. Given that both processes may operate simultaneously, the net effect of accent strength on attitudes may be positive, negative, or null, depending on the relative weight of the different paths. Future studies should investigate this complexity.

Fourth, both studies used a male speaker. Past research has found that speaker gender can influence listeners' language attitudes (e.g., Lambert, 1967), arguably by activating different stereotypes. Although theoretically disruptions in listeners' fluency due to foreign accent strength should bias their language attitudes regardless of speakers' gender, future research should nonetheless extend these findings to female speakers as well. Fifth, our sample was composed primarily of White, college-aged women. Theoretically, disruptions in fluency should influence listeners' language attitudes regardless of their social affiliations; nonetheless, future studies should attempt to replicate these results with a more diverse sample. Finally, the present study utilized a fill-in-the-blank memory task to make the communicative consequences of speech processing more salient to participants. Although such a task is conceivable in many real-world situations (e.g., instructional context), future research may want to extend these findings to more common (and arguably naturalistic) communicative situations (e.g., face-to-face interactions).

Conclusion

Decades of research has shown that people's attitudes toward different language varieties reflect, at least in part, their stereotypes toward different linguistic groups (Giles & Watson, 2013). The present research contributes to this substantive literature by showing that, in addition to stereotypes, listeners' attitudes toward a particular language variety can be influenced simply by the ease or difficulty associated with processing speech produced in that variety. Although in past research we have shown that disruptions in listeners' fluency due to environmental factors (e.g., background noise) can negatively influence their ratings of speakers' status (Dragojevic & Giles, 2016), this is the first known study to empirically demonstrate that disruptions in fluency due to speakers' accent *itself* can have the same negative evaluative consequences. The fluency-based account of the language attitudes process advanced herein and elsewhere (e.g., Dragojevic & Giles, 2016; Hansen & Dovidio, 2016; Lev-Ari & Keysar, 2010) represents an important new direction of research, not only because it offers a more fine-grained understanding of the language attitudes process, but also because of its potential to inform the design of novel and effective interventions aimed at reducing language-based prejudice and discrimination.

Notes

1. We also ran an alternate model, which additionally tested the indirect effect of accent strength on status sequentially via prototypicality and affect – that is, the more prototypical a speaker is perceived to be of a negatively stereotyped group, the more negative affect they may elicit, which, in turn, may negatively bias listeners' ratings. This model also provided a good fit to the data, $\chi^2(3) = 1.05$, $p = .79$, RMSEA = .00, CFI = 1.00, SRMR = .02, and revealed an identical pattern of results: the indirect effects of accent strength on status via fluency ($B = -.32$, 95% CI: $-.58$, $-.13$) and sequentially via fluency and affect ($B = -.09$, 95% CI: $-.22$, $-.02$) were both significant, whereas the indirect effects via prototypicality ($B = -.01$, 95% CI = $-.15$, .11) and sequentially via prototypicality and affect ($B = .003$, 95% CI: $-.02$, .05) were not. This lends further credence to the argument that the effects of foreign accent strength on status are mediated by fluency and sequentially by fluency and affect, not by prototypicality.
2. The 18 excluded participants were approximately evenly distributed across the two experimental conditions ($n_{mild} = 11$; $n_{heavy} = 7$), $\chi^2(1) = 0.85$, $p = .36$.
3. We again ran an alternate model, which additionally tested the indirect effect of accent strength on status sequentially via prototypicality and affect. This model provided a worse fit to the data, $\chi^2(3) = 8.02$, $p = .05$, RMSEA = .10, CFI = 0.95, SRMR = .046. Nonetheless, it revealed the same pattern of results: the indirect effects of accent strength on status via fluency ($B = -.27$, 95% CI = $-.46$, $-.13$) and sequentially via fluency and affect ($B = -.03$, 95% CI = $-.09$, $-.01$) were both significant, whereas the indirect effects via prototypicality ($B = .06$, 95% CI = $-.05$, .20) and sequentially via prototypicality and affect ($B = .002$, 95% CI = $-.02$, .03) were not.

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References

Ackerman, J. M., Shapiro, J. R., Neuberg, S. L., Kenrick, D. T., Becker, D. V., Griskevicius, … Schaller, M. (2006). They all look the same to me (unless they're angry): From out-group homogeneity to out-group heterogeneity. *Psychological Science*, *17*, 836–840. doi:10.1111/j.1467-9280.2006.01790.x

Allport, G. W. (1954). *The nature of prejudice*. Reading, MA: Addison-Wesley.

Alter, A. L., & Oppenheimer D. M. (2009). Uniting the tribes of fluency to form a metacognitive nation. *Personality and Social Psychology Review*, *13*, 219–235. doi:10.1177/1088868309341564

Blair, I. V., Judd, C. M., Sadler, M. S., & Jenkins, C. (2002). The role of Afrocentric features in person perception: Judging by features and categories. *Journal of Personality and Social Psychology*, *83*, 5–25. doi:10.1.1.492.3610

Bodenhausen, G. V., Kang, S. K., & Peery, D. (2012). Social categorization and the perception of social groups. In S. T. Fiske & C. N. Macrae (Eds.), *The sage handbook of social cognition* (pp. 311–329). Thousand Oaks, CA: Sage.

Brennan, E. M., & Brennan, J. S. (1981a). Accent scaling and language attitudes: Reactions to Mexican American English speech. *Language and Speech*, *24*, 207–221. doi:10.1177/002383098102400301

Brennan, E. M., & Brennan, J. S. (1981b). Measurement of accent and attitude toward Mexican-American speech. *Journal of Psycholinguistic Research*, *10*, 487–501. doi:10.1007/BF01076735

Brennan, E. M., Ryan, E. B., & Dawson, W. E. (1975). Scaling of apparent accentedness by magnitude estimation and sensory modality matching. *Journal of Psycholinguistic Research*, *4*, 27–36. doi:10.1007/BF01066988

Cargile, A. C. (1997). Attitudes toward Chinese-accented speech: An investigation in two contexts. *Journal of Language and Social Psychology*, *16*, 434–443. doi:10.1177/0261927X970164004

Cargile, A. C., & Giles, H. (1998). Language attitudes toward varieties of English: An American-Japanese contexts. *Journal of Applied Communication Research*, *26*, 338–356. doi:10.1080/00909889809365511

Carlson, H. K., & McHenry, M. A. (2006). Effect of accent and dialect on employability. *Journal of Employment Counseling*, *43*, 70–83. doi:10.1002/j.2161-1920.2006.tb00008.x

Chand, V. (2009). [V]at is going on? Local and global ideologies about Indian English. *Language in Society*, *38*, 393–419. doi:10.1017/S0047404509990200

Clore, G. L., & Huntsinger, J. R. (2007). How emotions inform judgment and regulate thought. *Trends in Cognitive Science*, *11*, 393–399. doi:10.1016/j.tics.2007.08.005

Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*, 155–159. doi:10.1037/0033-2909.11.1-55

Cristia, A., Seidl, A., Vaughn, C., Schmale, R., Bradlow, A., & Floccia, C. (2012). Linguistic processing of accented speech across the lifespan. *Frontiers in Psychology*, *3*, 1–15. doi:10.3389/fpsyg.2012.00479

Dovidio, J. F., & Gluszek, A. (2012). Accent, nonverbal behavior, and intergroup bias. In H. Giles (Ed.), *The handbook of intergroup communication* (pp. 87–99). New York, NY: Routledge.

Dragojevic, M. (2016). Language attitudes as intergroup terrain. In H. Giles & A. Maass (Eds.), *Advances in intergroup communication* (pp. 51–66). New York, NY: Peter Lang.

Dragojevic, M., & Giles, H. (2014). The reference frame effect: An intergroup perspective on language attitudes. *Human Communication Research*, *40*, 91–111. doi:10.1111.hcre.12017

Dragojevic, M., & Giles, H. (2016). I don't like you because you're hard to understand: The role of processing fluency in the language attitudes process. *Human Communication Research*, *42*, 396–420. doi:10.1111/hcre.12079

Dragojevic, M., Giles, H., & Watson, B. (2013). Language ideologies and attitudes: A dynamic foundational framework. In H. Giles & B. Watson (Eds.), *The social meanings of accents and dialects: An international perspective* (pp. 1–25). New York: Peter Lang.

Floccia, C., Butler, J., Goslin, J., & Ellis, L. (2009). Regional and foreign accent processing in English: Can listeners adapt? *Journal of Psycholinguistic Research*, *38*, 379–412. doi:10.1007/s10936-008-9097-8

Forgas, J. P. (1990). Affective influences on individual and group judgments. *European Journal of Social Psychology*, *20*, 441–453. doi:10.1002/ejsp.2420200506

Fuertes, J. N., Gottdiener, W., Martin, H., Gilbert, T. C., & Giles, H. (2012). A meta-analysis of the effects of speakers' accents on interpersonal evaluations. *European Journal of Social Psychology*, *42*, 120–133. doi:10.1002/ejsp.862

Garrett, P. (2010). *Attitudes to language*. Cambridge: University Press.

Gass, S., & Varonis, E. M. (1984). The effect of familiarity on the comprehensibility of nonnative speech. *Language Learning*, *34*, 65–89. doi:10.1111/j.1467-1770.1984.tb00996.x

Giles, H. (1972). The effect of mildness-broadness in the evaluation of accents. *Language and Speech*, *15*, 262–269. doi:10.1177/002383097201500304

Giles, H., & Marlow, M. (2011). Theorizing language attitudes: Existing frameworks, an integrative model, and new directions. In C. Salmon (Ed.), *Communication yearbook 35* (pp. 161–197). Thousand Oaks, CA: Sage.

Giles, H., & Niedzielski, N. (1998). Italian is beautiful, German is ugly. In L. Bauer & P. Trudgill (Eds.), *Language myths* (pp. 85–93). London: Penguin Books.

Giles, H., & Rakić, T. (2014). Language attitudes: Social determinants and consequences of language variation. In T. M. Holtgraves (Ed.), *The Oxford handbook of language and social psychology* (pp. 11–26). New York, NY: Oxford University Press.

Giles, H., Taylor, D. M., & Bourhis, R. Y. (1977). Dimensions of Welsh identity. *European Journal of Social Psychology*, 7, 165–174. doi:10.1002/ejsp.2420070205

Giles, H., & Watson, B. (Eds.). (2013). *The social meanings of language, dialect, and accent: International perspectives on speech styles*. New York, NY: Peter Lang.

Gluszek, A., & Dovidio, F. J. (2010a). Speaking with a nonnative accent: Perception of bias, communication difficulties, and belonging in the United States. *Journal of Language and Social Psychology*, 29, 224–234. doi:10.1177/0261927X09359590

Gluszek, A., & Dovidio, J. F. (2010b). The way they speak: A social psychological perspective on the stigma of nonnative accents in communication. *Personality and Social Psychology Review*, 14, 214–237. doi:10.1177/1088868309359288

Hansen, K., & Dovidio, J. F. (2016). Social dominance orientation, nonnative accents, and hiring recommendations. *Cultural Diversity and Ethnic Minority Psychology*. doi:10.1037/cdp0000101

Harwood, J., & Joyce, N. (2012). Communication and intergroup contact. In H. Giles (Ed.), *Handbook of intergroup communication* (pp. 167–168). New York, NY: Routledge.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.

Hogg, M. A., & Reid, S. A. (2006). Social identity, self-categorization, and the communication of group norms. *Communication Theory*, 16, 7–30. doi:10.1111/j.1468-2885.2006.00003.x

Lambert, W. E. (1967). A social psychology of bilingualism. *Journal of Social Issues*, 23, 91–109. doi:10.1111/j.1540-4560.1967.tb00578.x

Lev-Ari, S., & Keysar, B. (2010). Why don't we believe non-native speakers? The influence of accent on credibility. *Journal of Experimental Social Psychology*, 46, 1093–1096. doi:10.1016/j.jesp.2010.05.025

Lindemann, S. (2005). Who speaks "broken English"? U.S. undergraduates' perceptions of non-native English. *International Journal of Applied Linguistics*, 15, 187–212. doi:10.1111/j.1473-4192.2005.00087.x

Lippi-Green, R. (1994). Accent, standard language ideology, and discriminatory pretext in the courts. *Language in Society*, 23, 163–198. doi:10.1017/S0047404500017826

Lippi-Green, R. (2012). *English with an accent* (2nd ed.). London: Routledge.

Luhman, R. (1990). Appalachian English stereotypes: Language attitudes in Kentucky. *Language in Society*, 19, 331–348. doi:10.1017/S0047404500014548

Milroy, J., & Milroy, L. (1999). *Authority in language: Investigating standard English* (3rd. ed.). New York, NY: Routledge.

Mullen, B., & Hu, L. (1989). Perception of ingroup and outgroup variability: A meta-analytic integration. *Basic and Applied Social Psychology*, 10, 233–252. doi:10.1207/s15324834basp1003_3

Munro, M. J., & Derwing, T. M. (1995a). Foreign accent, comprehensibility, and intelligibility in the speech of second language learners. *Language Learning*, 45, 73–97. doi:10.1111/j.1467-1770.1995.tb00963.x

Munro, M. J., & Derwing, T. M. (1995b). Processing time, accent, and comprehensibility in the perception of native and foreign-accented speech. *Language and Speech*, 38, 289–306. doi:10.1177/002383099503800305

Muthén, B., & Muthén, L. (1998–2014). *Mplus user's guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.

Nolan, F. (1983). *The phonetic basis of speaker recognition*. Cambridge: Cambridge University Press.

Oppenheimer, D. M. (2006). Consequences of erudite vernacular utilized irrespective of necessity: Problems with using long words needlessly. *Applied Cognitive Psychology*, 20, 139–156. doi:10.1002/acp.1178

Oppenheimer, D. M. (2008). The secret life of fluency. *Trends in Cognitive Science*, 12, 237–241. doi:10.1016/j.tics.2008.02.014

Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology*, 49, 65–85. *Psychology*, 100, 16–29. doi:10.1146/annurev.psych.49.1.65

Rakić, T., Steffens, M. C., & Mummendey, A. (2011). Blinded by the accent! The minor role of looks in ethnic categorization. *Journal of Personality and Social Psychology*, 100, 16–29. doi:10.1037/a0021522

Reber, R., & Schwarz, N. (1999). Effects of perceptual fluency on judgments of truth. *Consciousness and Cognition*, 8, 338–342. doi:10.1006/ccog.1999.0386

Reber, R., Schwarz, N., & Winkielman, P. (2004). Processing fluency and aesthetic pleasure: Is beauty in the perceiver's processing experience? *Personality and Social Psychology Review*, 8, 364–382. doi:10.1207/s15327957pspr0804_3

Reber, R., Winkielman, P., & Schwarz, N. (1998). Effects of perceptual fluency on affective judgments. *Psychological Science*, 9, 45–48. doi:10.1111/1467-9280.00008

Ryan, E. B. (1983). Social psychological mechanisms underlying native speaker evaluations of nonnative speech. *Studies in Second Language Acquisition*, 5, 148–159. doi:10.1017/S0272263100004824

Ryan, E. B., Carranza, M. A., & Moffie, R. W. (1977). Reactions toward varying degrees of accentedness in the speech of Spanish-English bilinguals. *Language and Speech*, 20, 267–273. doi:10.1177/002383097702000308

Schwarz, N. (2004). Metacognitive experiences in consumer judgment and decision making. *Journal of Consumers Psychology*, 14, 332–348. doi:10.1111/j.1467-8721.2006.00430.x

Schwarz, N., & Clore, G. L. (2007). Feelings and phenomenal experiences. In A. Kruglanski, & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (2nd ed., pp. 385–407). New York, NY: Guilford.

Sebastian, R. J., Ryan, E. B., Keogh, T., & Schmidt, A. (1980). The effects of negative affect arousal on reactions to speakers. In H. Giles, W. P. Robinson, & P. M. Smith (Eds.), *Language: Social psychological perspectives* (pp. 203–208). Oxford: Pergamon.

Shuck, G. (2004). Conversational performance and the poetic construction of ideology. *Language in Society*, 33, 195–222. doi:10.1017/S0047404504332021

Shuck, G. (2006). Racializing the nonnative English speaker. *Journal of Language, Identity, and Education*, 5, 259–276. doi:10.1207/s15327701jlie0504_1

St. Clair, R. N. (1982). From social history to language attitudes. In E. B. Ryan & H. Giles (Eds.), *Attitudes towards language variation: Social and applied contexts* (pp. 164–174). London: Edward Arnold.

Stewart, M. A., Ryan, E. B., & Giles, H. (1985). Accent and social class effects on status and solidarity evaluations. *Personality and Social Psychology Bulletin*, 11, 98–105. doi:10.1177/0146167285111009

Tsalikis, J., DeShields, O. W., & LaTour, M. S. (1991). The role of accent on the credibility and effectiveness of the salesperson. *Journal of Personal Selling and Sales Management*, 11, 31–41. doi:10.1080/08853134.1991.10753857

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering social groups: A self-categorization theory*. Oxford: Blackwell.

Voci, A. (2000). Perceived group variability and the salience of personal and social identity. *European Review of Social Psychology*, 11, 177–221. doi:10.1080/14792772043000031

Wilkins, C. L., Chan, J. F., & Kaiser, C. R. (2011). Racial stereotypes and interracial attraction: Phenotypic prototypicality and perceived attractiveness of Asians. *Cultural Diversity and Ethnic Minority Psychology*, 17, 427–431. doi:10.1037/a0024733

Winkielman, P., Schwarz, N., Fazendeiro, T. A., & Reber, R. (2003). The hedonic marking of processing fluency: Implications for evaluative judgment. In J. Musch & K. C. Klauer (Eds.), *The psychology of evaluation: Affective processes in cognition and emotion* (pp. 195–225). Mahwah, NJ: Lawrence Erlbaum.

Woolard, K. A., & Gahng, T. (1990). Changing language policies and attitudes in autonomous Catalonia. *Language in Society*, 19, 311–330. doi:10.1017/S0047404500014536