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Abstract

Listeners are sensitive to the frequency at which speakers produce sociolinguistic features in utterances, and this can influence their social evaluations of those speakers. Instances of metalinguistic discourse also shows that women's voices face greater social scrutiny than men's voices. However, the ways that a speaker's gender may modulate a listener's sensitivity to the frequency of sociolinguistic variants remains to be explored. Using the stable, well studied sociolinguistic variable (ING) (ex. "running" versus "runnin"), a matched-guise task was conducted to compare listeners' evaluations of male and female speakers producing varying proportions of the "non-standard" '-in' variant, investigating whether listeners evaluate men and women differently for using '-in' at the same rates of production. Findings show that speakers' greater usage of the '-in' variant faces more negative evaluations from listeners on a series of social attribute scales, but this trend did not differ between different speaker genders. We ultimately suggest that notions of binary gender may not exhibit a straight-forward effect in processes in sociolinguistic perception and evaluations. Rather, investigations of listeners' evaluations of speakers using stigmatized features may be conditioned by the ways in which individual speakers' voices uniquely package together socially indexical linguistic features in performances of their own gender identity.

Investigations of the Sociolinguistic Monitor and Perceived Gender Identity

Amelia Stecker*

1 Introduction

Listeners engage their sociolinguistic knowledge in speech perception and social evaluations of speakers (Niedzielski 1999, Strand 1999, Hay et al. 2006, Campbell-Kibler 2007, Koops et al. 2008, Drager 2011, D’Onofrio 2018). Through these processes, listeners use their knowledge of socially meaningful linguistic features and the ways in which speakers may recruit them to index social meaning throughout an interaction (e.g. Eckert 2008, Levon 2014). In particular, a listener’s ideas about a speaker may guide how their utterances are perceived in lower-level speech processing as well as in evaluations of a speaker (e.g. Campbell-Kibler 2007, 2008).

With respect to gender as a component of a speaker’s perceived identity, variation in sociolinguistic perception may be structured by a listeners’ knowledge of gender as a factor in social expectations of voices (Strand 1999). Previous work has also discussed the extent to which women’s voices face higher degrees of scrutiny than men’s voices in metalinguistic commentary (Eckert and McConnell-Ginet 2003, Lakoff and Bucholtz 2004, Inoue 2006, Hachimi 2016, Slobe 2016, Slobe 2018). Findings from this body of work suggest that a speaker’s gender, and listeners’ expectations of gendered voices, inform processes in speech perception and evaluation. Using an experimental paradigm, this study tests one angle of the reality of these differences between evaluations of men’s and women’s voices when using socially meaningful linguistic features.

Furthermore, listeners have been shown to be sensitive to the frequency with which speakers produce socially meaningful linguistic variants in speech (Labov et al. 2006, 2011). To some extent, listeners notice the linguistic choices made by a speaker—whether they produce one sociolinguistic variant over another, and how often this occurs. Listeners’ abilities to track sociolinguistic variation has been shown to affect the ways in which they evaluate a speaker, contingent on other social factors, such as the salience of the sociolinguistic variable in question, linguistic constraints on the production of the variable, and individual differences across listeners (Wagner and Hesson 2014, Levon and Fox 2014, Levon and Buchstaller 2015, Freitag 2019). The current study explores the ways in which a speaker’s perceived gender and the frequency with which they produce the alveolar variant *-in* of the (ING) sociolinguistic variable (Labov 1972, Campbell-Kibler 2007) influence how they may be socially evaluated by listeners, examining whether listeners asymmetrically evaluate men and women speakers across different rates of using stigmatized features. While this study’s findings replicate trends found in previous work (Labov et al. 2011), in that the frequency of *-in* production does impact social evaluations of a speaker, no significant gender differences emerged. These results illustrate that listeners’ evaluations of socially meaningful linguistic behavior may be conditioned by the ways in which individual voices enact their gender identity and uniquely contextualize social meanings of linguistic features.

2 Social Evaluations of Language

2.1 The Sociolinguistic Monitor

Labov et al. (2006, 2011) describe a cognitive mechanism at work in linguistic processes, such as sociolinguistic perception and social evaluations of speakers. Defined as the sociolinguistic monitor (SLM), they propose this device as a means for listeners to glean social information from language. In particular, the SLM may account for the ways in which listeners are sensitive to the frequency with which a speaker produces one sociolinguistic variant over another.

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In their investigation of the SLM, Labov et al. (2011) conducted a matched-guise task, instructing participants to listen to a speaker who was applying to be a TV newscaster and to rate how professional they perceived them to be. Listeners heard a passage of news headlines that included 10 instances of the sociolinguistic variable (ING). Participants heard the same passage with different frequencies of the (ING) variable realized as its alveolar variant *-in* (*runnin', goin'*), which is ideologically associated with Southern-ness, lower degrees of education, formality, professionalism, and lower socioeconomic status (e.g. Labov 1972, Campbell-Kibler 2007). Labov et al. (2011) found that when a speaker produced higher frequencies of *-in*, they were rated as sounding less professional by listeners. Analyzing this correlation more closely, Labov et al. (2011) found that listeners' evaluations produced a logarithmic pattern, in which differences in lower *-in* frequencies exhibited sharper shifts in professionalism ratings, and higher frequencies produced a ceiling effect, yielding smaller differences between *-in* frequencies of 50% or greater.

Other studies have examined this effect, expanding on Labov et al.'s (2011) findings to investigate other potential factors, including the salience of the variable in question (Levon and Fox 2014); linguistic variables that operate on different levels of linguistic structure, such as phonological and syntactic features (Levon and Buchstaller 2015); the phonological context of the variable (Freitag 2019); and cognitive and social listener attributes (Wagner and Hesson 2014, Freitag 2019). This body of research has developed an experimental paradigm to explore the potential factors, and the relationship between them, that condition listeners' evaluations of speakers. However, the vast majority of these previous studies have analyzed this effect by using only one or two speakers as stimuli. The current study adapts methodologies of these previous analyses primarily to understand the ways in which speaker identity, and the ideological expectations it may entail, may influence the effect of variant frequency on listeners' social evaluations of speakers. In particular, I ask how multiple performances of gender provided by a series of speakers may affect how the frequency of a sociolinguistic variant operates in this context.

2.2 Evaluations of Gendered Voices in Metalinguistic Commentary

Metalinguistic commentary illustrates the ways in which women often experience greater degrees of linguistic policing in contrast to men (Gross 2015, Morgan 2015, Hachimi 2016). Men's voices are, to some degree, afforded greater flexibility to use socially stigmatized features, in contrast to women's voices, which may be penalized for the same behavior. In this way, a speaker's ability to use certain socially meaningful features, and for them to be interpreted as intended, is constrained by structures of societal power that regulate sociolinguistic practice (Eckert 1989, Eckert and McConnell-Ginet 2003). For example, uptalk is a prosodic feature in which a speaker produces a rising tone at the end of a declarative sentence in American English (e.g. Tyler 2015, Warren 2016) and has been shown to have discursive functions such as turn-taking negotiation or floor-holding (McLemore 1991, Carlson et al. 2001, Di Gioacchino and Jessop 2010). However, it also bears associations with sounding "uncertain," or "affirmation-seeking," evident in instances of metalinguistic commentary (e.g. Davis 2010). Relatedly, men's and women's usage of uptalk is asymmetrically evaluated, in that women's usage of this feature faces heavier scrutiny than men's voices (Lebowitz 2015).

In another example, Slobe's (2018) analysis of *Mock White Girl* style explores discourses in which girls' voices are a site for parody. In her analysis, Slobe (2018) found that gendered features including uptalk and creak were meaningful elements for YouTube young male performers to imitate personae embodying young, affluent, white, female speakers. In doing so, these speakers construct a *Mock White Girl* style in a stylized personification of these attributes. These moments illustrate the ways in which speakers semiotically link attributes such as unprofessionalism, naivety, and stupidity to the qualities of female voices, with the purpose of commenting on a caricatured notion of femininity.

It is possible that expectations that women should refrain from using stigmatized linguistic features is due to their less frequent use of those features; many sociolinguistic studies report greater usage of prestige-linked features by women in contrast to their male counterparts (e.g. Fischer 1958, Wolfram 1969, Labov 1972, Trudgill 1974). However, as illustrated in metalinguistic commentary and parodic performances previously discussed, the asymmetry in criticism of men's and women's voices is likely borne from underlying differences in social power that are engaged in sociolinguistic

discourse and perceptions of gendered voices. While both men and women may use stigmatized variants (e.g. Guy et al. 1986), women are often found responsible for changing their behavior in order to be perceived as more legitimate in their professional spheres (Gross 2015, Morgan 2015).

This study expands on Labov et al.'s (2011) methods to investigate the extent to which a speaker's perceived gender modulates the variant frequency effect on how they are socially evaluated by listeners. Using the well studied sociolinguistic variable (ING), this study first tests whether speakers will be more negatively evaluated for professionalism, among other social attributes, when producing greater frequencies of the *-in* alveolar variant. Second, this study investigates how the perceived gender of a speaker may affect the impact of this frequency effect on social evaluations, given that metalinguistic commentary illustrates the ways in which women's and men's voices face asymmetrical allotments of penalty for using stigmatized linguistic features. Expanding on previous work, this study modified the construction and presentation of stimuli, design, and procedure methods from Labov et al. (2011).

3 Methods

3.1 Stimuli

As one of the primary goals of this study was to examine differences in evaluations of multiple speakers, five men and five women were included as stimuli for this experiment. All speakers were native American English speakers. In line with Labov et al. (2011) and others, all 10 speakers were recorded reading the same passage aloud, consisting of 10 newscast headlines regarding potential American political and economic events (preliminarily normed for political charge and bias). Each headline contained one token of (ING), positioned in different high-frequency verbal progressive participle carrier words. Each word's frequency was calculated using the SUBTLEX-US corpus (Brysbaert and New 2009). Each word that was used to carry a token had a count greater than 2,800 within the corpus. This was to mitigate any frequency effect in which the production of the (ING) alveolar variant was more salient to speakers when uttered in low-frequent carrier words versus in high-frequent carrier words (ex. *manufacturin'* versus *makin'*).

Stimulus passages varying in the frequency of (ING) variants were constructed following Labov et al. (2011) and Levon and Fox (2014), with some modifications. A continuum of the 10 proportions of the alveolar *-in* variant to the velar *-ing* variant across the 10 (ING) tokens (henceforth *-in frequency* or *-in percentage*) in the stimulus passage was constructed for each speaker. To construct this continuum, each speaker was recorded producing all tokens as *-ing*, then all tokens produced as *-in*. Speakers were not given any directions other than to use their "natural voice," and to imitate the same rate of speech as a provided model. All 10 headline utterances were concatenated in the same order. This yielded 100 different stimulus items derived from the same news headline reading passage: 10 *-in* frequencies for 10 speakers.

Stimuli were created through digital splicing, using the cut and paste functions in Praat. To create the *-in* versions of each sentence, an *-in* token was spliced from one sentence into another production of the same sentence by the same speaker. Spliced tokens of *-in* or *-ing* were always chosen from different productions of the same headlines, and all tokens (both *-in* and *-ing*) were spliced in order to prevent any naturalness differences among the stimuli sentences (following Campbell-Kibler 2007). The sentences were then concatenated in order to produce the particular overall frequency of the variants of ING. Differing from previous studies using this paradigm, the pattern of *-in* and *-ing* occurrences for each *-in* frequency was constructed as follows, repeated for each speaker: the assembly started with the all *-ing* passage, and the middle-most token was manipulated to be produced as *-in*, constructing the 10% *-in* frequency, then moving outward for greater frequencies. The 20% and 30% *-in* frequencies were constructed by replacing the third, then the third and the seventh tokens as *-in* (respectively), and so on. These steps to manipulate more intervals along the continuum of *-in* frequencies were taken to prevent the occurrence of *-in* clusters in the low *-in* frequency passages, and not to have the *-in* variant be the first token that was heard by listeners in low *-in* frequency passages as well. As findings from Labov et al. (2011) illustrated greater differences in social evaluations between lower *-in* frequencies, the only missing percentage step in the frequency continuum was the 90% *-in* frequency passage.

3.2 Design

Following Labov et al. (2011), a matched-guise task was conducted in which participants listened to a series of auditory passages and provided ratings for each item. Since this study entailed 100 stimuli passages, this was divided among participants. Each participant heard 10 passages: one from every speaker, and one at every *-in* frequency, balanced across participants. The pairings of speaker selected with *-in* frequency were assigned to 10 different lists using a Latin Square design. For each list, male and female speakers were balanced, alternating across each successive frequency manipulation so that there were no lists that paired one speaker gender with *-in* frequencies on one end of the continuum with the other gender at the other end. During the procedure of the experiment, the order in which the 10 passages were presented to each participant were randomized.

3.3 Procedure

This study was executed on Qualtrics, an online survey platform, which was accessible through Amazon Mechanical Turk (AMT), an online platform that crowd-sources users to participate in online tasks via their remote location. Each participant was told that they would hear a group of people auditioning to be news broadcasters (Labov et al. 2011), and was told to answer some questions about each of them. After listening to each passage, participants were then presented with four 7-point Likert scales for the following social attributes: professionalism, likability, likelihood of being a real-life broadcaster, and intelligence. Expanding the matched-guise paradigm to other social qualities beyond professionalism enabled the study to draw some insights on how the effect of variant frequency may be different when rating a speaker along other attributes that have been identified in the indexical field of (ING) (Campbell-Kibler 2008, Eckert 2008). Concerning evaluations for speakers' likelihood of being a broadcaster, this attribute was chosen to observe whether listeners keyed into any knowledge of a "broadcaster" persona, which exudes particular qualities linked with "standard-ness" or mastery of mainstream American English.

After providing ratings for each of the 10 speakers, participants answered a questionnaire about their own demographic background, and also answered two open-ended questions that asked how they individually would define "professionalism" as it operated in the task, and whether they noticed any features of speech uttered in the recordings and used them to gauge speakers' perceived professionalism. The purpose of these questions was to observe how participants defined this attribute in relation to a speaker's language, as it was also the only social attribute previously tested by Labov et al. (2011). Nearly all participants provided some insight, with the exception of five participants, who did not comment. Participants also answered two forced-choice attention-check questions pertaining to the content of stimulus headlines to determine whether they were paying attention to the audio clips.

3.4 Participants

For the main task of this study, 270 participants were recruited through AMT. However, data from 84 participants were excluded due to failure to correctly answer attention-check questions, self-reporting language and/or hearing impairments, or indicating a background noise level of 80 or greater on a 100-point scale. This left 186 participants whose data were analyzed.

3.5 Analysis

For each social attribute assessed in the matched guise task (professionalism, likability, intelligence, and likelihood of being a real-life broadcaster), linear mixed effects models were built in R (R Core Team 2016) to test whether the effects of *-in* frequency, gender of the speaker, and the interaction between the two significantly predicted the attribute ratings of speakers. Scaled *-in* frequency was included as a linear predictor, and speaker gender was included as a binary categorical predictor. Their interaction was also tested. Rather than normalizing participants' ratings, participant (listener) and speaker were included as random intercepts to control for how participants interacted with the 7-point scale. Scaled frequency by speaker, and speaker gender by participant were included as random slopes. Participant (listener) gender and region of origin (Southern US versus non-Southern)

were tested as categorical main effects but were excluded, as they did not improve the fit of the model, and were removed in the final models for each social attribute.

In the final models, data from participants' responses of one of the five male speakers was removed. In the data collection phase, it was discovered that one of the five male speakers produced his difference between the *-ing* and *-in* variants not by changing the place of articulation of the nasal, but instead in qualities of the vowel, retaining the alveolar nasal sound in both variants, which was different than all other speakers. Since there was no way to remove the possibility that listeners' evaluations of this speaker were not from this unique distinction between the two variants, responses to this speaker's stimuli were eliminated prior to the construction of the final models, leaving four men and five women to be analyzed in the following results.

4 Results

Attribute rating	Regression coefficient	Standard error	t-value	p-value
Professionalism				
<i>-in</i> percentage	-0.27	0.09	-3.10	0.002**
Speaker gender	0.25	0.33	0.77	0.46
Likability				
<i>-in</i> percentage	0.001	0.0009	1.10	0.31
Speaker gender	0.14	0.25	0.58	0.58
Likelihood of being a real-life broadcaster				
<i>-in</i> percentage	-0.32	0.12	-2.60	0.04*
Speaker gender	0.28	0.45	0.631	0.54
Intelligence				
<i>-in</i> percentage	-0.23	0.07	-3.23	0.001**
Speaker gender	0.18	0.24	0.72	0.49

Table 1: Regression summaries for four social attribute models (professionalism, likability, likelihood of being a real-life broadcaster, and intelligence); N=1674; * = $p < 0.05$; ** = $p < 0.005$.

First, the proportion of *-in* produced by a speaker was a significant predictor of overall professionalism ratings, intelligence ratings, and ratings of likelihood that the speaker was a real-life broadcaster (Table 1). Specifically, these data exhibited inverse correlations, in that greater *-in* percentages produced by speakers led to lower ratings evaluated by the listeners on each of these scales (Figure 1).

Shown by Figure 1, findings in the relationship between professionalism ratings and *-in* frequencies replicated the trend found by Labov et al. (2011) in which greater *-in* frequencies invoked lower speaker ratings for professionalism. Furthermore, concerning ratings of the other social attributes, as speakers produced more *-in*, participants on average rated them as sounding significantly less intelligent, in line with previous findings from Campbell-Kibler (2008), and less likely to be a real-life broadcaster. However, in contrast to these three social attribute scales, likability was not found to be significantly predicted by *-in* frequency (Figure 1). As speakers produced more *-in* versus *-ing* in the stimulus passage, this did not significantly change how participants rated how likable they sounded. As an important note, listeners provided averaged ratings on the positive half of each social attribute scale, with all of their mean ratings greater than 4 on the 7-point Likert scale.

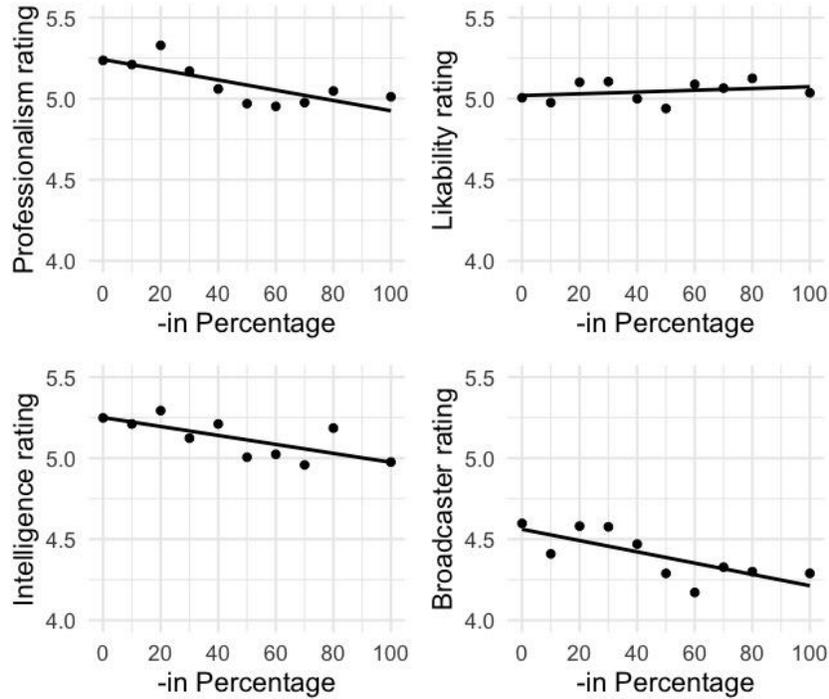


Figure 1: Average speaker ratings for professionalism (top left), likability (top right), intelligence (bottom left), and likelihood of being a real-life broadcaster (bottom right) across *-in* percentages.

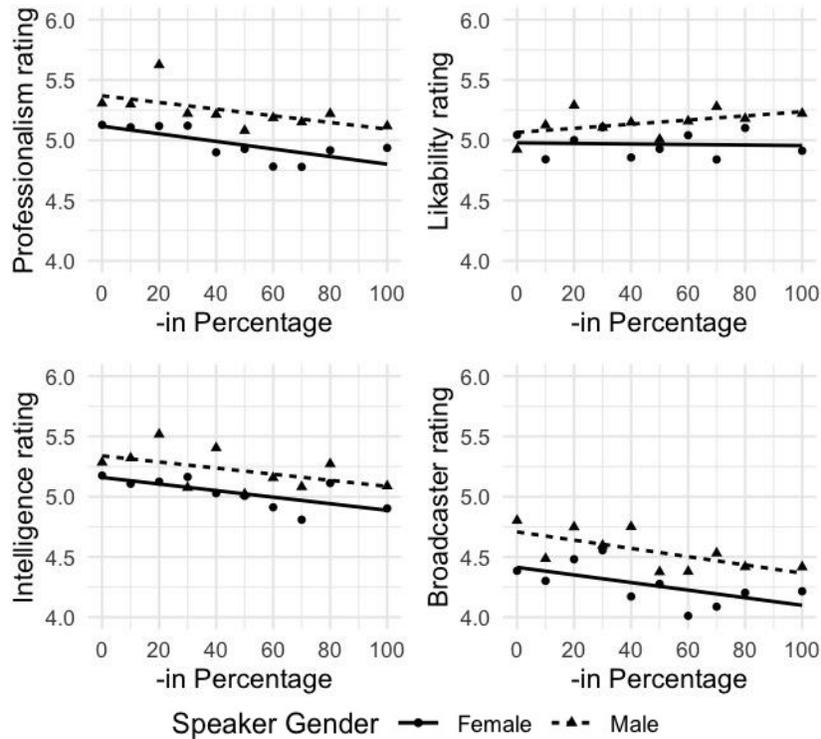


Figure 2: Average ratings by speaker gender for professionalism (top left), likability (top right), intelligence (bottom left), and likelihood of being a real-life broadcaster (bottom right) across *-in* percentages.

Second, speaker gender was not found to be a significant predictor of any of the four rating scales (Table 1) nor was its interaction with *-in* percentage found to improve model fit for any social attribute. In other words, ratings of male and female speakers were not significantly different from each other overall for any attribute, nor were there any significant differences in male speakers' and female speakers' correlations between their social ratings and their usage of *-in* in the passage (Figure 2). This interaction was therefore not included in any final model, as shown by Table 1. While differences between evaluations of individual speakers illustrated qualitative differences, no differences in how speakers in different gendered groups were evaluated across different *-in* frequencies were significant.

Furthermore, I tested whether these correlations between each social attribute scale and *-in* frequency can be modeled by a logarithmic regression, which was found by Labov et al. (2011). To do this, I compared the marginal and conditional R-squared values of the linear mixed effect model to those of a log-transformed mixed effects model. While both R-squared values are very low, both R-squared values were larger for the linear mixed effects model (0.011, 0.466) in contrast to those of the log-transformed model (0.008, 0.464). This indicates that the data is best fit by a linear regression rather than a log-transformed regression.

5 Discussion

While these findings provide support for conclusions drawn by previous work (Labov et al. 2011), they also show some differences, which may reflect methodological differences between this study and previous implementations of this paradigm. First, these results suggest that listeners' social evaluations are sensitive to the frequency with which speakers use a sociolinguistic variant. These trends replicate previous findings by Labov et al. (2011) and other studies that have found this effect (e.g. Wagner and Hesson 2014, Levon and Buchstaller 2015, Freitag 2019). The correlation between a speaker's frequency of using *-in* over *-ing* and ratings of professionalism, intelligence, and likelihood of being a broadcaster were similar in their shape and direction: as discussed above, when speakers produced more *-in* in a passage, listeners rated them more negatively along the scales of these social attributes. In this way, the choice to include more than one social attribute scale illustrates the co-activation of social meanings that share indexical links to the same linguistic feature. Here, qualities of professionalism, intelligence, and the broadcaster persona share semiotic links embedded in the indexical field of (ING), illustrated by the comparable social evaluations listeners drew when hearing speakers produce this feature at different rates (Campbell-Kibler 2007, Eckert 2008, Eckert 2012).

Importantly, the lack of a significant correlation between *-in* frequency and likability ratings is also telling of the ways in which social meanings of a linguistic feature are linked, although a null result should not be over-interpreted. Here, it is important to consider how the context in which the potential social meaning linked to this linguistic feature is instantiated. As listeners were told that they were going to be hearing a speaker who is applying to be a TV newscaster, this context may foreground other relevant expectations of more standard registers, authenticity, and formality, and whether or not a speaker is likable in this particular context may not be as relevant in comparison to these other social qualities.

Additionally, listeners' social evaluations of speakers producing varying frequencies of *-in* were not found to be significantly predicted by speaker gender. While metalinguistic discourses illustrate asymmetrical expectations of men's and women's voices that manifest in greater degrees of scrutiny toward women than men, listeners do not appear to be following these gendered lines in their social evaluations of this variable in this task. Although I predicted that such metalinguistic practice could manifest in a significant difference between listeners' social evaluations of men speakers' and women speakers' use of a stigmatized feature at different rates, such that I predicted women's voices to be penalized earlier (as in when producing *-in* at a lower rate) and more harshly for their use of *-in* in contrast to men's voices, these findings did not exhibit this effect.

One possibility for these findings lies within the nature of the sociolinguistic variable in question, (ING), and how it was operationalized in this task. Although previous sociolinguistic work reports greater use of the stigmatized *-in* variant by men in contrast to women, listeners' evaluations of this feature when produced at different frequencies by speakers may not be drawing on this

gendered contrast, and gendered social meaning of this variable may not be accessible to listeners in this task. In contrast, other variables such as creaky voice (e.g. Mendoza-Denton 2011) or uptalk (e.g. Warren 2016, Tyler 2015) may engage listeners' gendered expectations of speakers' use of sociolinguistic features and lead to gendered trends in listeners' evaluations of speakers.

A second possibility to consider is that binary gender may not structure listeners' evaluations of speakers in as much of an explicit, straight-forward way. As a speaker's linguistic style comprises unique clusters of socially meaningful features (e.g. Zhang 2008, Moore and Podesva 2009, Eckert 2012), components of their identity, such as gender, are enacted differently by individuals through such sociolinguistic means. Speakers' linguistic behavior operates beyond binary constructions of gender, and evaluations of each individual voice are likely derived from components from the context, including the speaker's unique performance of gender, and the listener's individualized understandings of it, interacting with other factors of identity, such as class, sexuality, and race (Bing and Bergvall 1996, McElhinny 2003, Zimman 2017). This would yield not a straightforward gender effect, but more complex effects across individual speakers and listeners, since listeners are asked to keep track not only of differences between frequencies of (ING) variants, but also of different speakers, who may differ in features other than binary gender identity. In this way, listeners may not be evaluating speakers exclusively along gendered lines, and this may account for the variation of speakers' social evaluations in these findings.

6 Conclusion

This study illustrates that listeners are sensitive to the rate at which speakers use socially meaningful features, and this may affect the ways in which speakers are socially evaluated by listeners. Furthermore, evaluations of men's and women's voices are not significantly predicted by notions of binary gender. I first suggest that listeners' evaluations of speakers along different social attributes may illustrate the indexical linkage between social meanings that are embedded in a linguistic variable's indexical field. Second, I argue that the effect of speaker gender on listeners' social evaluations in a matched-guise task may not neatly follow patterns exhibited in metalinguistic commentary—though women's voices often face greater degrees of policing in contrast to men's voices, such a distinction is not manifested in listeners' evaluations in this experiment. In this way, in explorations of sociolinguistic perception and evaluation, it is worth considering what factors may affect listeners' evaluations of speakers, such as the variables produced in question, at what frequency, and by whom, in order to make sense of listeners' attitudes toward speakers and their voices that package together socially indexical linguistic features.

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