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# What carries greater social weight, a linguistic variant's local use or its typical use?

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## Abstract

When socially evaluating a speaker, listeners partially rely on context-dependent expectations, giving greater social penalties for using a marked form in a less expected context. The nature of listeners' expectations can be based on the context in which a form is produced in the current utterance (local use), as well as cumulative information about the context in which a form tends to be produced (typical use). This paper asks which of these kinds of expectations about the English sociolinguistic variable (ING), as in *talking* vs. *talkin*, is most relevant to listeners in making social judgments. Results indicate that (ING) words' typical grammatical functions (as a noun vs. a verb) contributed to social judgments, while the local grammatical use of (ING) words did not, supporting usage-based theories and raising new questions about the cognitive mechanisms that underlie social evaluations based on speech.

**Keywords:** sociolinguistics; social evaluation; usage-based approaches; exemplar theory; probabilistic conditioning; cumulative context effects; grammatical constraints

## Background

Many interacting factors affect how a speaker is socially evaluated based on their language use, ranging from characteristics of the speaker and listener, to constellations of co-occurring acoustic cues and linguistic variants, to individual uses of particular linguistic forms, to patterns among uses of those forms. This paper focuses on what kinds of linguistic patterns listeners use when socially evaluating a speaker, specifically listeners' expectations about the English sociolinguistic variable (ING), or the alternation between *-in* and *-ing* in words like *jumping*.

Previous work on (ING) has shown that speakers who use more marked forms (i.e., *-in*), tend to be downgraded socially (e.g., Campbell-Kibler, 2007; Labov et al., 2011). Moreover, the social and linguistic situation in which a speaker uses that form can amplify its social effect. That is, the context of a form's use factors into what is considered marked (consider the act of swearing around friends versus in a job interview, for example). The use of a marked variant in linguistic contexts where it is more marked (i.e., less attested as measured by production analyses) strengthens its social meaning to listeners. For example, copula absence in African American Language has been shown to probabilistically follow a constraint hierarchy, where absence tends to occur, for example, most often prior to "gon" and to occur least often prior to noun phrases. Bender (2005) found that the social impact of listeners' hearing copula absence in more vs.

less marked instances mirrored the constraint ranking from production; copula absence in more unexpected contexts led to stronger social penalties for speakers by listeners familiar with the variety. As another example, Podesva et al. (2015) observed that the social meaning of /t/-release was amplified for listeners when they encountered a released /t/ in word-medial (less common) than word-final (more common) contexts. Finally, Vaughn (under review) found that the social effect of hearing *-in* for *-ing* (where *-in* is the marked form) was stronger when the (ING) word was used as a noun-like form (where *-in* is less common) than verb-like form (where *-in* is more common), as long as the larger sociostylistic context was congruent with the realization. These kinds of findings suggest that listeners are sensitive to the linguistic conditions in which a variant is used, or a form's *local use* (i.e., an (ING) word realized as *-in* when used as a noun in a particular sentence, as in "The fishin was good today").

Meanwhile, usage-based and exemplar approaches (e.g., Bybee, 2006; Pierrehumbert, 2006; see Hay, 2018 for a review) find that the conditions under which a variant is typically encountered become a part of the representation of that variant, and thus become a factor in both production and perception targets. A form's use can be influenced by the typical status of the word containing that form, or its *frequency in favorable contexts* (FFC, e.g., Brown & Raymond, 2012; Bybee, 2002, 2006). Importantly, FFC can affect a form's use even when *not* used in the favorable context. For example, consonant clusters in English words that often occur in a favorable phonological or morphological context for reduction are more likely show reduction, even when the words do not locally appear in that context (e.g., Bybee, 2002; Guy, Hay, & Walker, 2008). These kinds of findings imply that listeners may also be sensitive to the typical conditions under which a variant is used across their prior experience with that variant, or a form's *typical use* (i.e., an (ING) word realized as *-in* that is most often used as a noun across the lexicon, even if not used as a noun in the particular sentence, as in "She is fishin today").

Thus, there are multiple types of information that listeners may incorporate into their probabilistic expectations about a variable's realization. Looking specifically at listeners' social evaluations of speakers, this paper asks about the nature of the knowledge that listeners use in making those judgments. Do listeners' social evaluations rely on linguistic knowledge about a form's local use, typical use, or both?

### **(ING)'s grammatical conditioning: Local & typical**

The factors that probabilistically predict when an (ING) word will be realized with *-ing* vs. *-in* have been very well described in decades of sociolinguistic work (Fischer, 1958; Forrest, 2017; Hazen, 2008; Kendall, 2013; Labov, 1966, 2001). Both social factors (e.g., speaker gender), and linguistic factors (e.g., phonological and grammatical factors), have been shown to have an effect, but across studies the most reliable linguistic predictor of (ING) realization is the grammatical category of the (ING) word. Noun-like forms (e.g., adjectival and nominal forms) have the strongest bias toward *-ing*, while verb-like forms (e.g., progressive verbs) are more likely to be realized as *-in*. Further, Vaughn and Kendall (2018) demonstrated that listeners have expectations about (ING)'s grammatical constraints when engaged in a linguistic processing task: Listeners heard sentences containing an (ING) word and were asked to report which variant they heard, *-in* or *-ing*. Participants were faster when an *-in* variant occurred in an (ING) word whose grammatical category strongly favored *-ing* (noun-like categories) compared to when it less strongly favored *-ing* (verb-like categories). Listeners have also been shown to be sensitive to (ING)'s grammatical conditioning when judging the accentedness of a stimulus (Vaughn, under review).

These prior studies have examined the local grammatical category of the (ING) word without taking into account the *typical* grammatical category of the (ING) word across the lexicon. However, Forrest (2017) examined (ING) production through the lens of (ING) words' typical grammatical function. This corpus-based study confirmed prior findings that (ING) words' local grammatical category indeed conditioned (ING) realization in production, with *-in* more common in progressive verbs than noun-like forms. Additionally, and crucial to the present study, the grammatical FFC of an (ING) word, whether it is typically used as a noun versus a verb (as measured by SUBTLEX), had a smaller but still measurable influence on a model predicting (ING) realization.

### **Rates of (ING) use and social evaluation**

In addition to the context of a marked variant's use, the rate at which a marked variant is used (compared to the use of other unmarked variant(s)) can also affect listeners' social evaluations of a speaker. For variables of sufficient salience, hearing higher proportions of the non-standard variant lowers the social esteem given to the speaker. That is, the social impact of hearing a non-standard realization is magnified when it is used more frequently. For example, Labov et al. (2011) found that listeners rated a speaker who used *-in* 30% of the time as sounding less professional than when they heard the same speaker producing the same passage but with *-in* 10%. This task has been influential in experimental sociolinguistics, with other studies using the same paradigm, most often also with the (ING) variable (e.g., Levon & Buchstaller, 2015; Levon & Fox, 2014; Wagner & Hesson, 2014). A larger goal of this research program has been to better understand the *sociolinguistic monitor*, which is

described as a module that tracks rates of variant use for purposes of social evaluation (Labov et al., 2011). However, none of the studies using this paradigm have considered the role of linguistic constraints (either local or typical), despite the fact that those constraints best predict whether *-ing* or *-in* will be used in production. The present study fills this gap by evaluating whether listeners' social evaluations of speakers, across varying rates of *-in*, are modulated by the local and/or typical grammatical use of the (ING) word.

### **This study**

The design of the study was based on Labov et al. (2011). A series of newscast passages were created, each containing 10 sentences, with one (ING) word per sentence. In a novel manipulation, between-subjects conditions varied: the grammatical FFC of the (ING) word (TypicalNoun vs. TypicalVerb), and the grammatical category of the (ING) word in the sentence (LocalNoun vs. LocalVerb). Listeners rated a speaker's level of professionalism across multiple versions of each passage that differed in *-in* rate.

Based on prior work using this paradigm, it is expected that listeners would give lower professionalism ratings with increasing rates of *-in* use. Further, based on prior work on (ING), it is expected that (ING)'s grammatical constraints will affect social evaluations. The question of interest, then, is *how* those social penalties will differ across the different grammatical conditions, revealing listeners' sensitivity to local and/or typical use. In particular, as *-in* rates increase, will professionalism ratings decrease differently depending on the (ING) word's local use and/or its typical use?

If listeners attend to the (ING) word's grammatical function in the sentence (local use), then fewer instances of *-in* would be necessary to decrease professionalism ratings when the (ING) word is used as a noun vs. a verb. And, crucially it would not matter whether the (ING) word is typically a noun or a verb in the lexicon. On the other hand, if listeners attend to the way that a word is often used across the lexicon (typical use), then fewer instances of *-in* would be necessary to decrease professionalism ratings when the (ING) word is typically a noun vs. typically a verb. And, crucially it would not matter whether the word was used as a noun or a verb in the sentence. In this way, the study considers which type of markedness is more relevant to listeners' social evaluations, when *-in* is used in (ING) words used as a noun, or when *-in* is used in (ING) words *typically* used as nouns? It is also possible, of course, that there will be contributions from both types of information, for example that (ING) words used as nouns that are typically nouns would show the largest impact on professionalism ratings at lower *-in* rates.

## **Methods**

### **Task**

Listeners were asked to listen to newscast passages under the guise that they were hearing multiple potential audition tapes that an aspiring radio newscaster was submitting as a job

application. Following Labov et al. (2011), participants heard the same passage 5 times, with increasing rates of *-in* in each passage: 0%, 30%, 50%, 70%, 100% (but omitting the 10% and 20% *-in* rates in the previous study). After hearing each version of the passage, listeners rated it for professionalism on a scale of 1-7 (1: Unprofessional, to 7: Perfectly professional). Participants were randomly assigned to one of four between-subjects conditions varying the (ING) word's local use vs. typical use, as described below.

## Materials

**Stimuli** Each participant heard one passage comprised of 10 sentences, with the passages differing across the 2x2 between-subjects conditions varying the (ING) words' local and typical grammatical use: TypicalNoun-LocalNoun, TypicalNoun-LocalVerb, TypicalVerb-LocalNoun, and TypicalVerb-LocalVerb. Thus, 40 sentences were created, in radio news style, each with one (ING) word. In order to compare across (ING) words that have different typical statistics lexicon-wide, 10 pairs of words (e.g., *fishing/wishing*, *ending/spending*, *shipping/slipping*) were created that did not significantly differ in number of syllables and preceding phonological context (1 preceding velar, 4 alveolar, and 5 bilabial contexts), with one member of each pair disproportionately used as a noun in SUBTLEX (Brysbaert & New, 2009; M = 71.2%, e.g., *ending*), the other disproportionately used as a verb (M = 81.6%, e.g., *spending*). The noun and verb lists matched in terms of overall frequency in SUBTLEX (log10 frequency: noun M = 2.52, verb M = 2.56,  $t(18) = -0.154$ ,  $p = .872$ ).

From each of these 20 words, two sentences were created, with typical nouns (e.g., *ending*) used as a noun in one sentence and as a verb in a closely related sentence, and typical verbs (e.g., *spending*) being used as a noun in one sentence and as a verb in a closely related sentence (see Figure 1). The (ING) word's location varied, but never occurred sentence-initially or sentence-finally. Most nouns either followed a determiner, determiner-modifier sequence, or a possessive, and all progressive verbs followed an auxiliary. (ING)'s following environment was matched across lists as carefully as possible, and only contained environments thought to be relatively neutral in their influence on (ING) realization in production, vowel and bilabial sounds (e.g., Forrest, 2017) (noun list = 9 following vowels, 1 following bilabial; verb list = 7 following vowels, 3 following bilabials).

Following prior work (Labov et al., 2011; Levon & Fox, 2014), the order in which each sentence appeared remained constant across the five versions of each passage (varying *-in* rates). In the present study, in the 30% *-in* version, sentences in positions #3, 5, and 7 were presented in their *-in* form, and all others *-ing*. Sentences #1 and 9 also became *-in* at 50% *-in*, and sentences #4 and 8 also became *-in* at 70% *-in*.

**Speaker** A white male actor and audiobook narrator in his early 30s, originally from Texas and currently residing in California, recorded all 40 sentences twice, once producing

each (ING) word with *-ing* and once with *-in*. Vaughn (under review) suggests that the common practice of cross-splicing variants (copying *-ing* and *-in* into the sentence originally produced as *-ing*, for example), which is done to isolate the role of the variant, necessarily introduces stylistic mismatches with other linguistic features in the sentence that are more salient to listeners in social evaluating speakers than the linguistic constraints of the (ING) variable. For this reason, the speaker's natural productions, rather than cross-spliced versions, were used here.

		Local use in sentence (current grammatical function)	
		Noun	Verb
Typical use (usual grammatical function)	Noun <i>ending</i> (70% Noun in SUBTLEX)	TypicalNoun-LocalNoun The newest Star Wars was a blockbuster hit, but the film's <b>ending (N)</b> is the center of heated debate among fans.	TypicalNoun-LocalVerb After the newest Star Wars, fans claim that they don't think the movies will be <b>ending (V)</b> any time soon.
	Verb <i>spending</i> (88% Verb in SUBTLEX)	TypicalVerb-LocalNoun Last year, the government decreased public health <b>spending (N)</b> , prompting questions from medical experts.	TypicalVerb-LocalVerb A study found that the government was <b>spending (V)</b> a lot less on public health than last year, prompting questions from medical experts.

Figure 1: Example stimulus sentences from one pair for the four between-subjects conditions.

## Participants

One-hundred and sixteen participants who learned English at age 5 or prior took part in the study (N = 55 from a US university undergraduate subject pool, and 61 Mechanical Turk workers). University students received partial course credit, and Mechanical Turk workers received financial compensation for their time. All participants accessed the study online, using the FindingFive platform (FindingFive Team, 2019). Data from additional participants was excluded for not fitting language background requirements or for not adequately responding to attention checks.

## Sentence norming for professionalism

Although stimuli were controlled extensively for many factors in advance, it was not known whether certain sentences or conditions, regardless of (ING) realization, would seem inherently more professional than others. To test this, a separate norming study was conducted with Mechanical Turk participants (N = 23). Participants read the text of the stimuli only (no audio), seeing each of the 40 sentences written with the (ING) word in its *-ing* form. They were asked to rate each news headline on a scale of 1 to 7 in terms of how professional it seemed. Results of a mixed effects linear regression model confirmed significant differences in the professionalism of the sentences across conditions ( $\chi^2 = 18.75$ ,  $p < .001$ ), with the TypicalNoun-LocalNoun (M = 5.00) sentences being rated as more professional than TypicalVerb-LocalVerb (M = 4.73), TypicalNoun-LocalVerb (M = 4.71), and TypicalVerb-LocalNoun (M = 4.53), which were not different from one

another (the comparison between TypicalNoun-LocalVerb and all other levels was only significant for TypicalNoun-LocalNoun,  $\beta = 0.296$ ,  $SE = 0.110$ ,  $p < .01$ ). Because the main study's research questions require comparing across conditions, and since norming indicated that not all conditions were equivalent in inherent professionalism, all results from the main experiment were analyzed relative to the rating of the 0% *-in* passage, on a by-participant basis. For example, a listener who gave the 0% *-in* passage a 6 rating, the 50% *-in* passage a 5, and the 70% *-in* passage a 3, would have a relative rating of -1 for the 50% *-in* passage ( $5 - 6 = -1$ ) and a relative rating of -3 ( $3 - 6 = -3$ ) for the 70% *-in* passage. In this way, the dependent measure of interest is the extent to which social penalties for higher *-in* rates differ from 0% *-in*: the more negative the relative rating, the less professional the rating was compared to the 0% *-in* condition.

### Analysis

Mixed effects linear regression modeling in R, with the lmerTest (Kuznetsova et al., 2014) and car (Fox & Weisberg, 2011) packages, was used to assess the results, with the relative rating as the dependent variable. The model included a random intercept for participant. There were three dummy-coded fixed effects: *-in* rate (0% (reference level), 30%, 50%, 70%, and 100%), local use (LocalNoun (reference level), and LocalVerb), and typical use (TypicalNoun (reference level), and TypicalVerb). Model comparison using likelihood ratio testing determined whether the interaction between *-in* rate and local use, or between *-in* rate and typical use, or the three-way interaction, significantly improved the model. The final model included only the fixed effects and an interaction between *-in* rate and typical use.

### Results

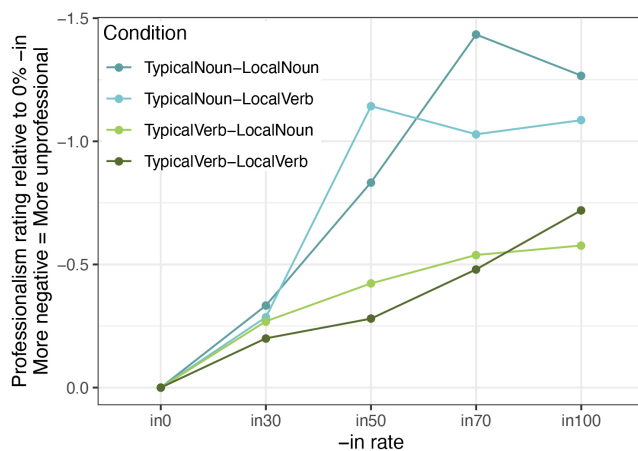


Figure 2: Relative professionalism ratings by condition and *-in* rate. Following Labov et al. (2011), the y-axis is inverted so less professional ratings are at the top.

Figure 2 displays the relative results by condition. As expected from prior work, listeners' professionalism ratings decrease as rates of *-in* increase. And across grammatical

conditions, lower professionalism ratings emerge at different rates relative to 0% *-in*, indicating that listeners are indeed sensitive to (ING)'s grammatical patterns in this task. As to which grammatical patterns are most relevant, it is clear that listeners do not use the (ING) word's local function alone, since professionalism ratings for TypicalVerb-LocalNoun and TypicalNoun-LocalNoun do not appear to pattern together across *-in* rates. Rather, the two TypicalVerb conditions seem to pattern together, as do the two TypicalNoun conditions, regardless of local grammatical use.

These observations are confirmed in the statistical results. There was a significant main effect of *-in* rate ( $\chi^2 = 69.68$ ,  $p < .001$ ), such that higher *-in* rates led to lower professionalism (more unprofessional) ratings as compared to 0% *-in* (for all *-in* rates except for 30% *-in*, which did not significantly differ from 0% *-in*). There was no significant main effect of local use ( $\chi^2 = 0.048$ ,  $p = .827$ ), and no significant main effect of typical use ( $\chi^2 = 3.227$ ,  $p = .072$ ). However, the interaction between typical use and *-in* rate was significant ( $\chi^2 = 10.98$ ,  $p = .027$ ), such that there was a smaller decrease in professionalism ratings at lower *-in* rates for the TypicalVerb compared to the TypicalNoun condition, a comparison that was significant for 50% *-in* ( $\beta = 0.647$ ,  $SE = 0.282$ ,  $p = .022$ ) and 70% *-in* ( $\beta = 0.706$ ,  $SE = 0.282$ ,  $p = .012$ ) rates, but was not significant for 30% *-in* ( $\beta = 0.072$ ,  $SE = 0.282$ ,  $p = .797$ ), and was marginal for 100% *-in* ( $\beta = 0.522$ ,  $SE = 0.282$ ,  $p = .065$ ). Put differently, when the (ING) word was typically a noun it was necessary to hear fewer instances of *-in* to decrease professionalism ratings than when the (ING) word was typically a verb.

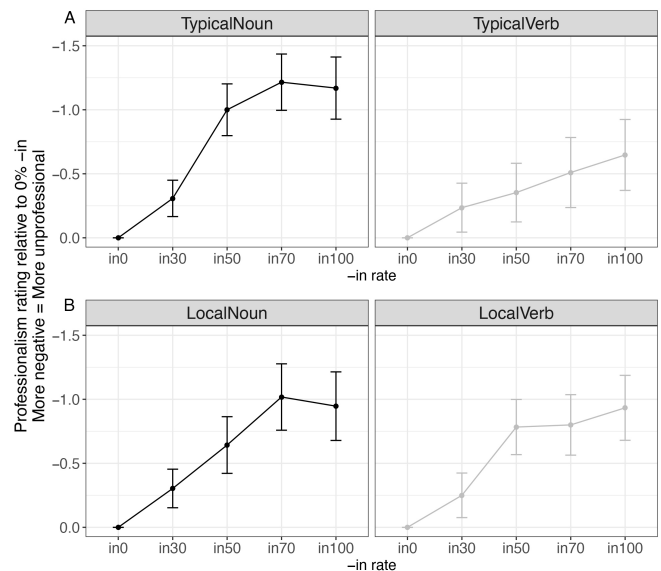


Figure 3: A. Relative professionalism ratings by typical use and *-in* rate (collapsing over local use) showing significant interaction. B. Relative professionalism ratings by local use and *-in* rate (collapsing over typical use) showing no significant interaction. Y-axis inverted.

Figure 3A plots the results collapsing over local use in order

to better visualize this significant interaction between *-in* rate and typical use. The figure illustrates that at 30% *-in*, both TypicalNouns and TypicalVerbs received ratings not that different from 0% *-in*, but the conditions diverged at 50% *-in*, with TypicalNouns produced as *-in* penalized for professionalism much more than TypicalVerbs produced as *-in*. By 100% *-in*, both conditions are penalized, though TypicalNouns (marginally) more so than TypicalVerbs. For reference, Figure 3B shows the results of local use collapsing over typical use, illustrating the near parallel patterns across LocalNoun and LocalVerb conditions (and thus the lack of a significant interaction between *-in* rate and local use). The fact that a three-way interaction between *-in* rate, typical use, and local use did not improve the model suggests that local use did not compound the effects of typical use (though note that the TypicalNoun-LocalNoun and TypicalVerb-LocalVerb conditions do show the most extreme ratings at some *-in* rates, see Figure 2).

### Discussion

This study asked whether social evaluations of a speaker producing different rates of *-in* for *-ing* would vary depending on the markedness of the marked variant *-in*, with that markedness measured in two ways: the local grammatical function of the (ING) word, and/or the typical grammatical function of the (ING) word across the lexicon. Prior work has established that *-in* is more commonly produced in verbs than nouns. The present findings indicate that an (ING) word's typical grammatical function, i.e., the grammatical context in which the *-in* variant is typically heard, contributed to listeners' social judgments, while the local grammatical function of the (ING) word in the stimulus did not. The typical grammatical function of a word affected the social rating that listeners assigned to the speaker, with greater unprofessional ratings at lower *-in* rates for (ING) words that are typically used as nouns compared to those words that are typically verbs. In exemplar terms, this is likely because listeners' representations have accumulated fewer instances of an (ING) word that is more often a noun realized as *-in* than one that is more often a verb realized as *-in*, making that context particularly marked, even if the word itself is not being used as a noun. Or, it may be that the instances of *-in* that occur in words that are typically nouns are encoded less strongly than when used as *-ing*. These findings are initial evidence that listeners have expectations based on their cumulative grammatical experience with (ING) words, and use those expectations in social processing. These results are predicted by approaches positing that expectations accumulate from exemplars of language use (e.g., Bybee, 2002; Brown & Raymond, 2012), and more broadly align with work showing listener sensitivity to cumulative context effects that are social in nature, where the typical social characteristics of speakers who often use a word or form are tracked (e.g., King & Sumner, 2014; Walker & Hay, 2011). Cumulative contexts effects are built up by amassing distributions of local usage, and the results of this study suggest that those cumulative distributions were more

relevant to listeners than the local usage itself, for this task.

It is perhaps surprising that local use did not significantly interact with *-in* rates; LocalNoun sentences were not rated as less professional than LocalVerb sentences at lower *-in* rates (though the trend went in the expected direction, as shown in Figure 3B). After all, prior work has shown the robust strength of the local grammatical category effect on (ING) production, and listeners' sensitivity to such information in perception. More specifically, Forrest (2017) found more of a role of an (ING) word's local use in predicting *-in* production, with a smaller contribution from typical use. The present study represents the first investigation of this question in perception, so caution is necessary. For example, it may be that local grammatical information is indeed relevant to listeners, but it was not measurable in the current study's design. That is, since the LocalNoun and LocalVerb conditions were necessarily comprised of different sentences, with different inherent professionalism ratings, it was not possible to compare their ratings directly (rather, only relative to the 0% *-in* rating). However, the same is true for the TypicalNoun and TypicalVerb conditions, which contained not only different sentences but also different (ING) words. In general, more work is needed to determine whether previous findings about listeners' sensitivity to local use in social evaluation (e.g., Bender, 2005; Podesva et al., 2015; Vaughn, under review) is in part based on an underlying typical use effect. In other words, it may be that typical lexical use is the operative metric in social evaluation, but the items selected for use in previous studies may have conflated typical use and local use. For example, it could be that most (ING) words that were chosen to be used as nouns in prior work also happen to be those words that tend to be nouns across the lexicon. Or, if typical use happened to be more equated in prior work, local use may have become more relevant. Future work should explore these possibilities.

If it is indeed true that cumulatively-based expectations about variants garner greater social weight than those based on the local use of a word, this suggests that markedness calculations may be weighted differently in social evaluation (toward typical use) than in production (toward local use). It could be that the process of production necessitates greater attention to a word's local grammatical use more than the process of social evaluation does, leading to the asymmetry.

More broadly, these types of findings can contribute to the refinement of theory in sociolinguistics, where typical use has been less considered. Historically in sociolinguistics, grammatical category constraints in production stemmed from the assumption that speakers apply a *variable rule*, where different constraints have different weights that probabilistically influence the variant that is produced (e.g., when producing an (ING) word as a noun, favor *-ing*). This assumption was the basis of the influential variable rule analysis methodology (e.g., Cedergren & Sankoff, 1974). Recently, sociolinguists have not been as concerned with theorizing the mechanisms behind variation in production, but rule application remains a theoretical backdrop for the field. Although not traditionally applied to perception, this

approach might assume that listeners' behavior would also involve rule application over the local grammatical category of the (ING) word (e.g., when hearing an (ING) word as a noun, expect *-ing*). However, findings that lexicon-wide typicality affect listeners' social perception suggest that rule application over a word's local grammatical category is too simplistic an account; listeners' cumulative experiences with a variant's use must also factor into their processing of variants in perception, as has been shown in production (e.g., Forrest, 2017; Guy, Hay, & Walker, 2008). The mechanisms underlying such sensitivity are not yet settled.

Extensive work in sociolinguistics has demonstrated that the social meaning of a variant is derived from its situatedness in its local context (e.g., Campbell-Kibler, 2009, 2010; Eckert, 2008). The present results emphasizing the importance of typical over local grammatical use do not suggest that listeners do not attend to local meaning in assigning social weights. Rather, these findings serve as a reminder that listeners interpret what is meaningful locally in relation to what they tend to hear more broadly. Local social impact is meaningful as it relates to global patterns.

Further, these results are relevant to a broader conversation in sociolinguistics about the role of markedness in social meaning, beyond variation in phonetic or morphophonemic variables. For example, recent findings from the socio-pragmatics literature (e.g., Acton & Potts, 2014; Beltrama & Staum Casasanto, 2021) have indicated that the social meaning of lexical variants is boosted by markedness. However, markedness in such cases is not derived from frequency but instead is linguistically based (e.g., the semantic type of the predicate that the intensifier *totally* modifies affects how much *totally* is used as a social indicator, Beltrama & Staum Casasanto, 2017). Taken together, these lines of work point to bigger picture questions about the conditions that promote the strength of a variant's social indices (e.g., Eckert, 2019). Future work considering how social judgments are affected by different types of markedness across different types of variables is necessary.

It should be noted that the effect of the markedness of (ING) words' grammatical function on social judgments was relatively modest here; the differences in professionalism ratings between grammatical conditions were much smaller than the differences in ratings between increasing rates of *-in* use. Although these findings indicate that listeners *can* use grammatical conditioning factors in social judgments (revealing that this information has indeed been tracked), these factors are only one small part of what listeners attend to and use in their social decision making.

As a final methodological point, the Labov et al. (2011) study contends that the slope of the line tracking social ratings across different *-in* rates is important. The authors of that study found that a logarithmic pattern best fit their data (again, without considering the role of constraints and testing only (ING) words that were used as verbs), and argued that it had a cognitive explanation: listeners monitor marked variants carefully at low rates, giving large decrements in professionalism ratings as *-in* rates increase. Their ratings

then quickly plateau, as listeners become less sensitive to increasing usages of marked variants; each successive usage becomes less socially consequential. Subsequent studies employing this paradigm have more often detected a linear rather than logarithmic pattern, however (Levon & Buchstaller, 2015; Levon & Fox, 2014; Wagner & Hesson, 2014). A linear pattern would suggest that finer-grained social judgments can be made even at higher *-in* rates. Interestingly, in this study (though the DV is calculated somewhat differently, in relation to 0% *-in*), Figure 3A reveals a more linear slope for TypicalVerbs (with steadily more negative ratings across each increasing rate of *-in*), but a more logarithmic-shaped pattern for TypicalNouns (with a big jump between 30% and 50% *-in*, and less stark increases at 70% and 100% *-in*). This difference suggests that by 50% *-in*, the effect of hearing TypicalNouns as *-in* was large enough as to hit a social plateau, and further increases in *-in* use did not meaningfully affect ratings, perhaps suggesting this difference in slope as another measure of listeners' sensitivity to (ING) words' typical grammatical use (with the caveat that the statistical modeling here did not compare pairwise ratings, nor did it attempt to model linear vs. logarithmic slope of the line).

However, it is important to note that the cognitive explanation for these patterns cannot be teased apart from task effects, as studies using this paradigm have always ordered the passages for participants from low to high *-in* rates (rather than randomizing *-in* rates, for example). The position of individual sentences in the passage, and the use of *-in* in individual sentences across versions varying *-in* rates, is likewise fixed. Further, this task only measures what affects listeners' ratings when their attention is drawn to the social evaluation task. Finally, the independent variable is fairly transparent after hearing several versions of the passage; most participants in this study guessed that the experiment had to do with (ING) variation. These decisions were maintained here to maximize comparability with earlier studies. However, in future work, better understanding listeners' sociolinguistic monitoring behavior will require experimental designs that address the confounds present in the much-used sociolinguistic monitor paradigm.

Ultimately, these results suggest that the mechanisms responsible for tracking probabilistic information and generating expectations about sociolinguistic variants must be sensitive to cumulative, lexicon-wide tendencies of words containing variants, not only to how those words are used locally. Moreover, this study highlights that there is much more to learn about the nature and basis of listeners' sociolinguistic expectations.

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