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East End Boys and West End Girls: /s/-Fronting in Southeast England

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1 Introduction

In this paper, we revisit the impact of gender and social class on language (e.g., Eckert 1989, 2000, Labov 1990, Milroy et al. 1994, Dubois and Horvath 1999) through an investigation of /s/ in southeast England. Previous work on /s/ variation in English has suggested that, for a number of varieties, backer, more [ʃ] like variants are associated with males while more fronted realizations are associated with women, and, in some varieties, also gay men (e.g., Munson et al. 2006). Subsequent work in the UK has also indicated that for some speakers /s/ may also be associated with class (Stuart-Smith 2007). Our study contributes to this area through examining the possible interaction of class and gender with regards to /s/ realization. Our data come from two British television programs: *Made in Chelsea* and *The Only Way is Essex*. These programs are both "scripted reality" shows that follow a group of young friends in the greater London area. The class stratified sample – upper-class Chelsea and working-class Essex – provide an interesting test site for examining how gender and class based identities may manifest linguistically in the relevant communities (e.g., Schilling-Estes 1998, Coupland 2001).

2 Background

2.1 Class and Gender

Class and gender are central to the sociolinguistic study of language variation; they are the primary categories underpinning Labov's (2001) social principles of linguistic change. Labov (1990:206) identifies women as the leaders of linguistic change both in cases involving a *change from above* where a socially salient prestige feature is introduced through contact with another community, and during *changes from below* where a change operates below the level of consciousness and tends to originate from within the community itself. As well as females, Labov (2001:188) identifies the central socioeconomic groups as the leaders of linguistic change.

Over the years, research has begun explore the social mechanisms which might cause these social groups to be the vanguard of change. Many studies have shifted focus from the treatment of class and gender as large static macro-categories to smaller more dynamic micro-categories which are better understood with reference to the surrounding social climate. For example, Milroy's now seminal work during the 1980's on working-class Belfast, was possibly the first study to integrate an analysis of network structure into the study of language change (Chambers 2003:74). Milroy's investigation of a-backing showed interesting gender patterns which she argued were better interpreted in terms of 'network theory'. Milroy found that, in the Catholic community, the females were in the lead of the males; an unexpected pattern as the form was typically associated with working-class, Protestant males. Milroy (1980:159) interpreted these results in terms of the speakers' social networks where the young Catholic females, on account of their jobs in the shops that served the both the Protestant and Catholic communities, had looser multi-tie networks with a wide range of different speakers. In a sense, the Catholic females were literally bringing home the backing to the less multi-networked Catholic males who showed a greater level of unemployment than the females. In order to understand the patterns of a-backing in Belfast, it was necessary to contextualize the behavior of the speakers. The patterns of variation could not be understood in terms of male versus female or Catholic versus protestant but needed to be understood with reference to how gender functioned locally within that particular community.

Eckert's (1989) study of Belten High is another clear demonstration of how gender patterns within language need to be understood at a local level. Eckert (1989:262) showed that while the

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older, more established language changes patterned in terms of gender, the newer changes patterned in terms of social groups. These groups were constructed within the context of the local community; the academically inclined Jocks compared to the more urban leaning, underachieving Burnouts. Further to this, Eckert showed how the larger supralocal categories interacted with the local categories. For one of the newer changes, wedge-backing, Eckert found that it was the females in both social groups who showed the most extreme values; i.e. females were the most innovative and the most conservative depending on their social categories. That is the Burnout girls showed the greatest backing, followed by the Burnout boys, the Jock boys and finally the Jock girls; the girls enveloped the entire range of variation. Eckert used this *envelope effect* to support the notion that females placed greater value on symbolic social capital, in this case in the form of language, than the males, describing the situation as one where the girls were “putting these phonological resources to better use than the boys”. Despite the fact that wedge-backing was typically a Burnout feature (and one that Jocks avoided) the girls in the respective groups either used it or avoided it more because, as females, they had to rely on symbolic capital to orient themselves to particular groups. This demonstrates not only the need to understand the linguistic patterning at a local level but also to examine how social categories may interact with each other in the conditioning of variation.

2.2 Articulation and Acoustics of /s/

The present study aims to contribute to this area through an examination of /s/ realization in southeast England. In terms of articulation, /s/ is produced by bringing the tongue towards the alveolar ridge, close enough to impede air-flow but not close enough to completely stop it. The alveolar sibilant can be produced with a fronter, more dental articulation, or with a backer and more [ʃ] like quality (Catford 1988:86). This means that one parameter of /s/ variability is in terms of place, through a cline of frontness versus backness along the alveolar ridge. Acoustically, this cline can be measured through a number of spectral properties, one of which is peak spectral frequency (the measure used for the present analysis). Peak frequency is related to the length of the cavity in front of the fricative, in the case of /s/ this is the space in front of the tongue comprising part of the palate, the teeth and the lips. Shorter front cavities produce higher peak frequencies, therefore more fronted /s/ show higher hertz values (Stevens 1998, Jongman, Wayland and Wong 2000).

Given that, on average, women have smaller vocal tracts than men, it follows that they also then have smaller front cavities (Stevens 1998:398). Therefore, women would be expected to produce naturally fronter sibilants that display higher peak frequencies than men. Many studies into sex-based differences for /s/ production have shown this to be the case (e.g., Schwartz 1968, Johnson 1991; Flipsen et al. 1999, Jongman et al. 2000). However, research has also reported that the quality or the magnitude of the difference found between men and women’s sibilant production could not be accounted for by anatomical factors alone; in other words, /s/ appeared to be doing something in terms of gender.

2.3 Beyond Anatomy: Sociophonetics of /s/

A number of studies have reported that the difference between men and women’s /s/ realizations were not as simple as a correspondence between vocal tract size and sibilant quality. It appeared that /s/ production went beyond a straightforward sex-based difference and was indexing aspects of gender in some communities. For instance, Fuchs and Toda (2010:299) found that the women in their sample would ‘actively produce a more front place of articulation and shorter front cavity than men’. In an auditory analysis of sibilant production, Flipsen et al. (1999) found a greater proportion of dentalized or fronted tokens in the speech of females compared to males. Gender based differences in /s/ have not been limited to analyses of production. In a perceptual study, Strand (1999:90) found that women with fronter /s/’s were perceived as being more feminine. Munson (2007:130) reported a similar result in his research into the perception of /s/ and gender when he found that fronter /s/’s were associated with femininity.

Stuart-Smith (2007) investigated the patterning of /s/ in terms of class, gender and the interaction of these categories in Glaswegian English. Stuart-Smith’s sample was stratified in terms of

age (old and young), class (working-class and middle-class) and gender (males and females). Stuart-Smith (2007:15) measured the peak and slope characteristic the speakers' sibilants and examined whether these patterned socially. She found that all the men, regardless of age or class, patterned alike in terms of their /s/-production and interpreted this as evidence for the males sharing "similar socially constructed norms for /s/-production". The females also patterned together with the exception of the younger working-class girls who patterned in line with the males. Stuart-Smith (2007:17) argued that their patterning was a form of identity indexing, not so that the working-class girls were affiliated with the males but so they were distinct from the middle-class females. Similar to Eckert's *envelope effect*, the females were relying on more extreme values in terms of /s/ production. The females were constructing their gender identities not in relation to the males, rather with reference to their own gender; they were using these divergent patterns as a distancing strategy from the middle class girls, a trend previously noticed and commented on by Eckert (1989:254): "differentiation on the basis of gender might well be sought within, rather than between, sex groups".

2.4 Research Questions

In light of the findings discussed above we explore the following research questions:

- (1) Does /s/ show gender-based patterning for speakers of Southern British English?
- (2) Does /s/ show class-based patterning for speakers of Southern British English?
- (3) Do the factors gender and class show any interaction in terms of production for Southern British English?

3 Data and Methods

The data came from two British reality television shows which, for the purpose of this study, we use as a stand in for class:

- (1) *The Only way is Essex* (TOWIE), based in Essex, east of London and representing a more traditional working-class, east end, Cockney accent.
- (2) *Made in Chelsea* (MIC), based in the hyper-affluent district of Chelsea in west London, representing an upper middle-class southern British accent (not unlike RP).

The shows center on groups of young twenty-somethings and follow them in their day-to-day lives. However, the activities the 'casts' engage in are set-up which means they are often class-based stereotypes of British pursuits. For instance, while the TOWIE boys go boxing, the MIC boys play polo or go rowing. The TOWIE cast are frequently filmed in nightclubs while the MIC guys are seen at dinner parties and sailing regattas. In terms of professions, the TOWIE men own bars and clubs, the women work as beauticians or in fashion. In MIC several of the cast are extremely well-heeled heirs or heiresses or have their own prestige businesses, for instance diamond brokers or high-end bespoke jewelry. The shows are often referred to as *scripted reality* shows. Although the scenarios are engineered and the topics of conversation predetermined to a certain extent, the shows are not actually scripted; the dialogues are therefore spontaneous and represent naturally occurring speech.

TOWIE			MIC		
Female		Male	Female		Male
Amy	Lydia	Arg	Amber	Gabby	Francis
Chloe	Maria	Joey	Binky	Millie	Fred
Jess	Sam	Kirk	Caggie	Rosie	Hugo
Lauren	Lucy	Mark	Cheska		Spencer

Table 1: Distribution of speakers by gender and show

We took a sample of speakers based on the shows' central members (see Table 1). We tried as far as possible to balance these in terms of gender, although the distribution of both women and men across the shows and the number of usable extracts meant that the sample overall is weighted in favor of women. In total, we extracted 81 scenes (approximately 6.5 hours) involving 23 different speakers. Scenes were taken from high definition downloaded files of the programs and were only selected if they did not contain any music or other background noise. The recordings were transcribed and then processed via automatic segmentation using the University of Pennsylvania's Forced Alignment and Vowel Extraction (FAVE) suite (Rosenfelder et al. 2011).

As it has been shown to correlate well with the [s - ʃ]/front-back dimension of sibilant quality (see earlier discussion), acoustic measures of peak frequency were calculated automatically from time averaged spectra using Praat. A proportion of these measures were then checked by hand. This resulted in a corpus of 1683 tokens of /s/ for analysis. The tokens were coded for a number of social and linguistic factors based on previous analyses of /s/. In order to control for phonetic effects, the preceding and following phonetic contexts received detailed phonetic codes which were collapsed into broader categories during the analysis. Tokens were also coded for stress (stressed or unstressed) and duration. Finally, tokens were coded for a number of social factors. As mentioned, show was used as a stand in for class and tokens were coded by individual speaker, gender and speech context (i.e. whether the speaker was in a mixed- or single sex group).

4 Results

Data was analyzed via mixed-effects regression modeling in R. Models were stepped down from full models that included preceding and following phonological environment, stress, sibilant duration, speaker sex, television show and speech context. All interactions between external factor groups (i.e., sex, show and context) were also included. Word, extract and speaker were entered as random effects.

Overall results are presented in Table 2. There, we see that, of the various internal factors tested, only *following rounded consonants* (e.g., /r/ and /w/) is selected as significant and is shown to cause a decrease in average /s/ peak frequency of approximately 1800 Hz. While the finding with respect to following rounded consonants is expected (due to the lengthening of the front cavity caused by lip-rounding; Jesus and Shadle 2002, Stuart-Smith 2007), it is somewhat surprising that no coarticulation effects are observed for surrounding high vowels (cf. Soli 1981, Jongman et al. 2000). This is perhaps due to the inclusion of *word* as a random effect in the model, though a closer examination of the phonetic conditioning of /s/ peak frequency in the dataset is warranted.

Fixed Effects	Estimate	Std Error	<i>t</i> value	p (MCMC)
(intercept)	8142.3	993.17	8.198	0.000
sex (male)	-1927.4	315.14	-6.116	0.000
show (TOWIE)	-330.5	288.31	-1.146	0.252
context (single)	-363.25	234.44	-1.549	0.123
following (roundConsonant)	-1835.1	1004.71	-1.827	0.048
show (TOWIE) : context (single)	1274.81	323.66	3.939	0.001
sex (male) : show(TOWIE) : context (single)	-944.9	466.28	-2.026	0.043

Random Effects	Name	Variance	Std. Dev.
word (n = 459)	(intercept)	54647	233.77
extract (n = 81)	(intercept)	81084	284.75
speaker (n = 24)	(intercept)	123569	351.52
residual		3670801	1915.93

Table 2: Linear mixed effects regression of /s/ peak frequency among TOWIE and MIC speakers

The relative lack of linguistic effects notwithstanding, the analysis in Table 1 demonstrates the existence of significant external constraints on the production of /s/. The most prominent of these constraints is speaker sex, with the men overall displaying an average /s/ peak frequency

nearly 2000 Hz lower than the women's ($p = 0.000$). As noted above, a sex-based difference of this kind is predicted physiologically due to men's generally longer vocal tracts and larger front cavities. Yet at the same time, an average difference of 2000 Hz is much greater than physiology alone can account for (e.g., Fuchs and Toda 2010), and would instead seem to suggest that speakers are exaggerating a sex-based difference for social effect. The claim that the significance of sex is social (as opposed to biological) in nature is further supported by the fact that the sex effect is significantly conditioned by an interaction with both show and speech context ($p = 0.043$). What this interaction indicates is that speakers in a sense reinterpret sex-based differences depending on who they are (i.e., TOWIE or MIC) and where they are speaking (i.e., single- or mixed-sex contexts). Such fine-grained manipulation of acoustic variation across external parameters is strong evidence that speakers make strategic use of /s/ to achieve particular social goals in interaction.

In order to pick this three-way interaction apart, we consider data from MIC and TOWIE separately. Figure 1 presents the distribution of /s/ peak frequencies for MIC speakers. We see in Figure 1 that the overall pattern of sex differentiation is replicated among MIC speakers, with women having /s/ peak frequency values that are on average 1750 Hz higher than the men's. This main effect of sex is significant among MIC speakers at the $p < 0.000$ level. We also see in Figure 1 evidence for a main effect of speech context ($p = 0.017$). Peak frequencies of /s/ in single-sex speech are between 300-400 Hz lower, on average, than those produced in mixed-sex talk. Interestingly, there is no evidence of a significant interaction between these two main effects ($p = 0.541$). In other words, the average difference of 1750 Hz between /s/ peak frequency values of women and men is maintained in both mixed- and single-sex contexts. What this indicates is that whatever causes MIC speakers to produce lower peak frequency /s/ in single-sex talk, it applies equally to both the women and the men in the sample.

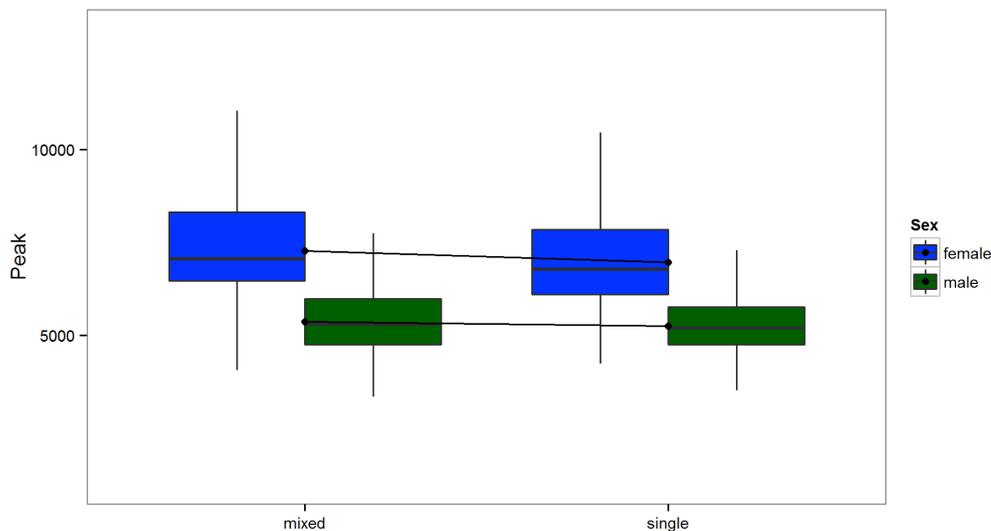


Figure 1: Peak frequency by sex and speech context for MIC speakers

This is not the case among TOWIE speakers (see Figure 2), where we find significant differences in how women and men produce /s/ across speech contexts ($p = 0.013$). In TOWIE, as in MIC, there is a main effect for sex ($p < 0.000$) with women's /s/ peak frequency values significantly higher than the men's. In mixed-sex talk, this difference between women and men averages to just over 2200 Hz. This difference is larger, though nevertheless comparable, to what is found throughout MIC speech. In contrast, in TOWIE single-sex talk we find an average difference of over 3300 Hz between women and men. This represents a fifty percent increase on the difference found in mixed-sex talk, and is nearly double what is found among MIC speakers. Pairwise comparisons further indicate that TOWIE women are entirely responsible for this effect. TOWIE men do not vary their /s/ peak frequency values between mixed- and single-sex talk, having an average

value of 4920 Hz in the former and 4961 Hz in the latter. TOWIE women, on the other hand, move from an average peak frequency value of 7135 Hz in mixed-sex contexts to an average value of 8116 Hz in single-sex talk. This dramatic rise in peak frequency values leads us to believe that /s/ serves a particular social function for TOWIE women in single-sex contexts, a function that is absent both in mixed-sex talk and among TOWIE men.

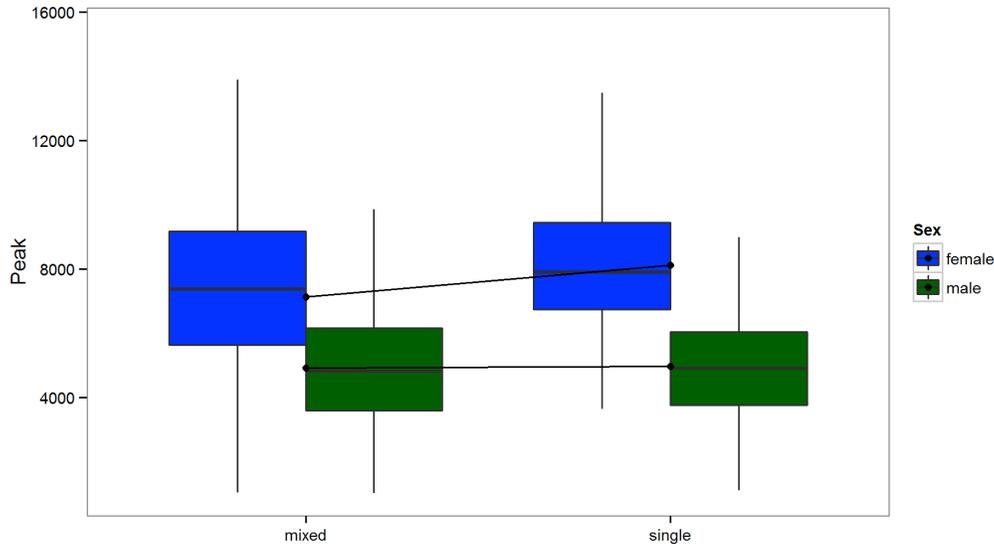


Figure 2: Peak frequency by sex and speech context for TOWIE speakers

5 Discussion

In general, we find a very different pattern of /s/ production in TOWIE and in MIC. In MIC, /s/ peak frequency is governed by two independent effects of speaker sex, with men consistently producing lower /s/ peak frequencies than women, and speech context, with lower peak frequencies for all speakers in single-sex, as opposed to mixed-sex, talk. The independence of these two effects leads us to argue that /s/ does not appear to be doing gendered work in MIC, at least not in the same way that it is in TOWIE. The difference of 1600-1800 Hz in peak frequency values observed between MIC women and men in both contexts parallels the sex-based differences in /s/ production that have been reported elsewhere in the literature (e.g., Stuart-Smith 2007, Fuchs and Toda 2010). For this reason, we have no evidence to claim that MIC women or MIC men are strategically exaggerating biological differences to produce articulations of /s/ that are either fronter or backer than physiology would predict.

That said, it is important to recall that support for a purely biological account of sex-based /s/ peak frequency differences is tenuous at best. Strand (1999:88), for example, argues that the main physiological difference between female and male speakers is in the size of the back cavity, not the front cavity (which is the primary articulatory correlate of peak frequency). Strand continues by citing unpublished evidence from American English that demonstrates that men actively retract the place of articulation of /s/, in effect creating a larger front cavity and so lowering their peak frequency values. Strand takes this as evidence of “the development and salience of socially-influenced fricative productions” (1999:88). In a similar vein, Fuchs and Toda (2010) examined acoustic differences in /s/ production among English-speaking women and men and compared their acoustic findings to measurements of palatal morphology for all speakers. While overall Fuchs and Toda report a high correlation between palatal length, length of the front cavity and acoustic measurements of /s/, the authors nevertheless state that biology is unable to account for the totality of acoustic differences observed. Instead, they claim that women in their study were actively producing a more front place of articulation (and hence a smaller front cavity) than the men. This finding suggests that both biology (i.e., sex) and sociophonetics (i.e., gender) play a role

in the acoustic differences between women and men observed.

Returning to the case at hand, it is therefore likely that sociophonetic considerations play a role in the consistent differentiation of MIC women's and men's peak frequency values, such that women may be actively producing fronter articulations of /s/ and/or men may be producing backer ones. Based on the data available to us now, however, we are unable to investigate this any further. All we can say at this point is that the acoustic difference observed remains constant across speech contexts. If MIC speakers are indeed using /s/ as part of their construction and presentation of a gendered self, then it would appear that the way in which MIC speakers "do gender" is not affected by whether they are in a mixed- or a single-sex environment.

The results from TOWIE present a very different picture. Like in MIC, we also find sex differentiation in /s/ production among TOWIE speakers but that differentiation is further conditioned by speech context. In mixed-sex interactions, TOWIE women's /s/ peak frequencies average 2200 Hz higher than those of TOWIE men. In single-sex interactions, the women's average peak frequency values rise by over 1000 Hz while TOWIE men's stay roughly the same. We argue that this rise in values among TOWIE women in single-sex contexts is strong evidence for a sociophonetic gender effect. Essentially, what we believe is happening is that TOWIE women are exaggerating a biologically-based sex difference when speaking in single-sex contexts. Similar to what other scholars have claimed previously (e.g., Stuart-Smith 2007), we argue that such a linguistic exaggeration is part of the construction and presentation of a locally-defined gendered self. What we mean by this is that, when speaking with other women, TOWIE women appear to actively front their articulations of /s/, in essence producing "hyper-feminine" versions of the variable. And while we do not wish to argue that this linguistic effect is entirely class-based, we nevertheless believe it is important to note that this local presentation of gender derives its meaning from what is ultimately a class-based distinction. In other words, we are not arguing that TOWIE women are using /s/ to "do class"; we believe that they are using it to "do gender." Nevertheless, we suggest that the reason TOWIE women enact gender in this way (i.e., via the presentation of linguistic "hyper-femininity") is grounded in what is essentially a class-based understanding of self.

Our arguments in this regard are in a certain sense reminiscent of Eckert's (1989, 2000) claims regarding gender and social class among the Jock and Burnout girls she studied. In her work, Eckert argues that the conceptualizations of gender she identifies among the girls are largely dependent on the broader orientations to society of the groups to which the girls belong. For the Jocks, this orientation is predominantly a middle-class one, and includes a general endorsement of suburban values and an active participation in the social life of high school. The Burnouts, in contrast, orient more towards so-called working-class mores and rebel against school-based activities and the suburban authority they represent. Linguistic constructions of gender by girls in these two groups then grow out of these larger group-wide orientations, and involve the positioning of a gendered self within the locally-defined (i.e., Jock versus Burnout) marketplace (Eckert 2000:226). For both Jocks and Burnouts, female gender is understood as the increased use by women of forms that are appropriate to the particular local market (a pattern this is itself linked to the fact that women are generally required to rely more heavily on symbolic manifestations of group membership than men). This is why, according to Eckert, we find Burnout girls leading all other speakers (including Burnout boys) in the adoption of certain "advanced variants" that are indexically associated with urban life, while Jock girls lag behind all other speakers (including Jock boys) in the adoption of these forms. In effect then, both Jock and Burnout girls "do gender" by exaggerating the linguistic performance of group membership.

For TOWIE, we essentially claim that the same kind of thing is happening, though we argue that a certain understanding of gender itself is a central component of TOWIE group membership. In particular, we suggest that an important aspect of TOWIE speakers' broader (class-based) orientation involves a strict separation of female and male gender roles and an endorsement of a hyper-articulated form of traditional gendered practice (cf. Skeggs 1997, McRobbie 2000). What this means is that being a TOWIE group member involves engaging in hyper-feminine or hyper-masculine behavior. There is clear evidence of this in all areas of TOWIE individuals' public presentations of self. TOWIE women, for example, engage in a great deal of bodily modification activities to render themselves more "normatively feminine," including the use of plastic surgery, hair extensions and permanent make-up. The women also tend to dress in what can be considered a hyper-feminine way, including wearing short form-fitting skirts, low-cut tops and (very) high

heeled shoes. Finally, TOWIE women's occupations are those that are traditionally associated with normative feminine roles, including working as a beautician, a stylist and a lingerie salesperson. We propose, therefore, that language, and specifically variation in the production of /s/, is another symbolic resource available to TOWIE women in the creation of a hyper-feminine presentation of self. Put another way, we argue that producing a frontier /s/ serves much the same purpose for TOWIE women as wearing four-inch heels; it is part of the construction of a particular brand of femininity that is itself central to TOWIE women's identity.

While this argument provides us with a viable interpretation of the observed variation in TOWIE, various questions nevertheless remain unanswered. Primary among these is why it is only TOWIE women that appear to be engaging in hyper-gendered variation of /s/. We might have anticipated that TOWIE men (who otherwise manifest equally gendered patterns of behavior in things such as clothing and other social practices) would actively retract their articulations of /s/ in either mixed- or single-sex talk, resulting in lower peak frequency values. Yet we see no evidence of this kind of variation in our data. Interestingly, prior research on /s/ has shown that it tends to be women, as opposed to men, who engage in this kind of strategic variation of the feature. In an examination of /s/ variation in Shona, for example, Bladon, Clark and Mickey (1987) report that expected peak frequency differences for the sibilant fricatives were "exaggerated" by women, whereas no such effect was found among the men. Similarly, Stuart-Smith (2007) found that it was the working-class girls who altered their production of /s/, while variation of this kind was not evident among the men. It is likely that this reported tendency for women to engage in strategic manipulation of /s/ to a greater extent than men is the result of Eckert's (1989) claim, noted above, that women must resort to symbolic means to assert group membership while men have other resources and practices at their disposal. This interpretation would certainly help to account for the pattern observed in TOWIE, where the forms of traditionally masculinity prized within that community can be signaled by a range of more physical, as opposed to symbolic, activities. This analysis might even be able to capture the differences observed between TOWIE and MIC women. What we have in mind here is the relative access these two groups of women have to other forms of capital and the subsequent extent to which language is a necessary commodity for constructing group membership. MIC women may be less reliant on /s/ variation for the simple reason that they too have other means available to them for presenting MIC identity. While this interpretation requires further elaboration and justification, it remains a plausible account of why we only find a sociophonetic gender effect among TOWIE women.

Another question that remains unanswered in the current analysis is why this effect is also restricted to single-sex contexts. If we accept that TOWIE women make strategic use of /s/ to enact hyper-femininity, then we would expect that to occur in mixed-sex contexts as well. Yet as before, there is precedence in the literature for such effects occurring only in women's single-sex talk. In his examination of postpositional particle ellipsis in Japanese (a stereotypical feature of "Japanese women's language"), Takano (1998) describes how variation of this feature is constrained both by sex and by speech context. While women favor particle-dropping overall, they do so to a significantly lesser extent in mixed-sex interactions than in single-sex ones. Takano interprets this to indicate that women accommodate to female gender norms more in single-sex talk than they do in mixed-sex talk. In other words, Takano argues that particle-dropping is part of a women's "gendered style", a style that women only use fully when speaking with other women. When engaged in conversation with men, Takano claims that women converge to a more "masculine" (or neutral) style of speech. A similar pattern is identified in D'Arcy and Tagliamonte's (2010) analysis of relative pronoun variation in Toronto English. There, they find that a tendency for women to make greater use of the prestige *who* form for human antecedents is only significant when speaking with another woman. In mixed-sex contexts, women's use of *who* corresponds to what is observed among men (in both single- and mixed-sex talk). D'Arcy and Tagliamonte cite Takano's earlier research in interpreting this pattern, and argue that theirs is another example of women accommodating to a women's gendered style (where in this case that style corresponds to adherence to the standard) when speaking with other women. Based on these earlier studies, it could therefore be the case that the reason we only find evidence for a gender effect in single-sex contexts in our data is because TOWIE women accommodate to local feminine norms more strongly when speaking with other women than when speaking to men.

There are, however, two over-arching problems with this kind of "gendered style" interpreta-

tion. The first is empirical, and has to do with the fact that while a gendered style analysis can account for our aggregate findings, it is unable to capture the rather sizable amount of variation we find both within contexts and within individual speakers. In Figure 2, we see that even though average peak frequency values are significantly higher for TOWIE women in single-sex contexts, there is a great deal of variability around the mean value and even a substantial amount of overlap with peak frequency values found in mixed-sex talk. While part of this variation is due to linguistic effects not represented in Figure 2 as well as to overall differences among speakers, there nevertheless remains a considerable amount of variability that is unaccounted for. In other words, the data in reality is much more complex than the discussion thus far has assumed. While overall TOWIE women produce fronter articulations of /s/ in single-sex talk, there are many instances of fronted /s/ in mixed-sex talk and backed /s/ in single-sex talk that require explanation, which is something that a straightforward gendered style analysis cannot easily provide.

The other problem with a gendered style approach is more conceptual in nature. Assuming that TOWIE women are accommodating to feminine norms in single-sex contexts relies on a relatively static conceptualization of linguistic indexicality, where fronted /s/ is directly linked to the category *woman*. Yet a great deal of research on indexicality (e.g., Ochs 1992, Eckert 2008) has demonstrated that the relationship between language and social categories is more nuanced than this, and involves a mediating level of stance or social activity. According to this hypothesis, linguistic forms are linked to particular stances in interaction and those stances are then indirectly (and ideologically) connected to social category positions within a community. With respect to the current example, this type of analytical approach would therefore seek to understand what specific stances TOWIE women adopt by using /s/-fronting, and, subsequently, why we seem to find more of those stances being adopted in single-sex talk. Importantly, a stance-driven analysis does not reject the proposal that the portrayal of hyper-femininity plays an important role in TOWIE women's practice. But instead of assuming that "doing (hyper-)femininity" is the women's active goal, it attempts to determine how the patterns of linguistic stance-taking that are observed result in the creation of a hyper-feminine persona (cf. Rauniomaa 2003, Eckert 2012).

We do not have the space here to fully explore stance-taking as it relates to TOWIE women's linguistic behavior. Yet preliminary research that we have conducted on this topic does in fact seem to indicate that TOWIE women use /s/-fronting as a means to mitigate face-threatening acts in conversation. In contrast, /s/-backing appears to be linked for TOWIE women to expressions of authority and conversational dominance. It is therefore possible that the significant context effect we observe is a surface-level correlate of the types of stances TOWIE women adopt in single- and mixed-sex talk (Kiesling 2009). Though in its early stages, a stance-based analysis of this kind could potentially provide us with a way to model all the variability in /s/ production observed in the data, and offer a more robust and theoretically nuanced account of the differences that exist across shows, contexts and speakers.

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