Co-variation and social meaning: the implicational relationship between (H) and (ING) in Debden, Essex

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ABSTRACT

This paper investigates to what extent the differing social meanings held by linguistic features result in an implicational relationship between them. Rates of (H) and (ING) are investigated in the casual speech of 63 speakers from a Cockney community: Debden, Essex. The indexicalities of h-dropping in Debden (signalling Cockney heritage) are superordinate to and incorporate the indexicalities of g-dropping (working-class speech). This paper hypothesises that the features' distinct but overlapping social meanings result in an implicational relation in terms of clustering effects at the within-speaker level and rates of co-variation at the between-speaker level. This hypothesis is confirmed: h-dropping implies g-dropping, but g-dropping can occur independently of h-dropping. The features' differing social meaning are also related to rates of change. Young speakers are shifting away from linguistic features which index the community's Cockney heritage (h-dropping; the [-Iŋk] variant of -*thing* words) in favour of more general, south-eastern, working-class norms (g-dropping).

KEY WORDS: implicational relationship; co-variation, style, social meaning, h-dropping, g-dropping, Cockney; language change; Debden; Essex

INTRODUCTION

The understanding of language as part of a wider projection of identity and affiliation has led to a style-based approach to sociolinguistic variation (see, e.g., Coupland, 2007). This approach implies that linguistic features do not have static meaning and are not independent from each other. Instead, a single linguistic feature can take on social meanings, and can occur in combination with other linguistic variables to project a collective social meaning (Campbell Kibler, 2011; Pharao, Maegaard, Møller, & Kristiansen, 2014; Pharao & Maegaard, 2017; Podesva, 2008).

This paper investigates to what extent the differing social meanings held by linguistic features can lead to an implicational relationship between them. Rates of co-variation between (ING) and (H) at the between-speaker level are investigated as well as clustering effects at the within-speaker level. In Debden, the indexicalities of the g-dropping (working-class and 'improper' speech) are incorporated in the superordinate indexicalities of h-dropping (Cockney heritage). Whilst it is possible for a Debden speaker to index working-class speech without indexing their Cockney heritage, the reverse is not possible. As such, I postulate that there is an implicational relationship between (H) and (ING): h-dropping implies g-dropping, but g-dropping can occur alongside any value of (H).

Style clusters

Style-based approaches to sociolinguistic variation consider linguistic features to be symbolic resources which hold variable indexicalities both individually and in combination with other linguistic features. 'Indexicality' refers to the ideological relationship between linguistic features and a social group, persona, characteristic or place that they signal (see Eckert, 2008; Johnstone, Andrus, & Danielson, 2006; Silverstein, 2003). Linguistic features can hold indexicalities that are not only connected to macro categories (e.g., class, ethnicity, or gender) but to locally meaningful characteristics (e.g., 'jocks' versus 'burnouts' in Detroit [Eckert, 2000]; ‘populars’ versus ‘townies’ in Northern England [Moore, 2004]). Indexicalities are not limited to stable aspects of speaker identity but can be changeable (for instance, indexing interactional stance). Speakers are active, stylistic agents who tailor their linguistic output in variable projections of self (Eckert, 2012).

Single speakers can represent themselves in variable and complex ways, in part, through their linguistic production (Eckert & Labov, 2017; Rickford & Price, 2013). For instance, Podesva (2008) demonstrated variability in the speech of a single speaker, Heath, who was asked to record himself in different situations. Podesva identified style clusters of linguistic features when salient interactional moves in discourse occur such that Heath is projecting either his ‘diva’ or ‘caring doctor’ persona, suggesting that sociolinguistic styles and their meanings only materialise as a result of the overlapping meaning of each component linguistic feature. For instance, in Heath’s speech, frequent (t,d) deletion indexes ‘informal’ and frequent and extreme falsetto indexes ‘expressive’. Whilst both these features (amongst others) combine to index ‘diva’, only the former indexes ‘informal’ (Podesva, 2008:4). It follows then that linguistic features that jointly index a certain stance or persona do not consistently cluster together across all utterances. That is, not every instance of (t,d) deletion must be accompanied by extreme falsetto, as Heath may solely be indexing informality but not ‘expressive’ or the super-ordinate style ‘diva’.

Several phonetic perception studies also demonstrate that the social meaning of individual linguistic features can combine to create the over-all, superordinate social meaning of an utterance. For instance, Campbell-Kibler (2011) played participants in the United States a range of variants and combinations of (ING) and /s/-fronting/backing. She found that /s/-fronting is associated with femininity and gayness whilst g-dropping is associated with masculinity. Nonetheless, a backed /s/ could index associations of ‘country’ when it was found in the speech of some Southern US speakers, but not when it occurred in the speech of non-Southern speakers. Similarly, in a matched-guise study, Pharao et al. (2014) found that in Copenhagen, a fronted-/s/ could index either ‘gayness’ or a ‘street’ persona, depending on the cluster of linguistic features with which it co-occurred (see also Levon, 2014; Pharao & Maegaard, 2017).

These studies demonstrate that linguistic variants do not occur independently of their surrounding linguistic and social context. In this sense, grammatical coherence is also an important consideration in determining the resultant linguistic variant (Guy, 2013; Oushiro & Guy, 2015). Now, a morphological or syntactic repetition effect has long been noted in the persistence literature (Poplack, 1980; Scherre & Naro, 1991) such that a speaker is more likely to produce a particular linguistic structure if they (or an interlocutor) have recently used that structure. For instance, a speaker is more likely to use *verb* + *gerundial* as opposed to *verb* + *infinitival* complementation if they or an interlocutor have recently used the former (Szmrecsanyi, 2006:1). In these instances, clustering of the same morphological or syntactic construction is not a social or stylistic effect but is considered to be psychologically motivated as a priming or recency effect (see Tamminga, 2016:337). In this present study, there is no reason to believe that a dropped /h/ would psychologically prime g-dropping through grammatical persistence (and vice-versa) as they operate independently of each other in terms of syntactic or morphological conditioning. Therefore, any clustering between the two variables is more likely due to social and stylistic factors.

In summary, linguistic features can have overlapping or distinct indexicalities which can combine to create a meaningful package. Within the speech of an individual speaker, there may be stylistic clusterings of linguistic features which jointly index a certain association. Nonetheless, this may be in part mediated by the features’ respective social meanings. This paper explores to what extent the differing social meanings of (H) and (ING) result in an implicational relationship between the features.

Between-speaker co-variation in linguistic features

The above section has examined the clustering of linguistic features within individual speaker systems. In addition, this paper explores co-variation between linguistic features at the between-speaker level. It initially seems plausible that if variable X and variable Y share a similar social distribution in a speech community, there will be between-speaker correlations between the rates of occurrence of these features. Nonetheless, a wide range of studies have found weak correlations between rates of similarly socially stratified linguistic variables (New York City English: Becker, 2016; “Copenhagen Danish”: Gregersen & Pharao, 2016; Brazilian Portuguese: Oushiro & Guy, 2015). That is, whilst variable X and variable Y may share a similar social distribution in a speech community, speakers who have relatively high rates of the vernacular form of variable X may not necessarily have relatively high rates of the vernacular variant of variable Y. The weak correlations found between linguistic variables with similar social stratifications suggests that social distribution alone is not enough to predict co-variation between linguistic features.

Instead, this paper predicts that the differing social meanings held by linguistic traits may mediate the rates of between-speaker co-variation. Not all linguistic features that have a social distribution are used stylistically (e.g., Sharma & Rampton, 2015). If variable X does not hold social meaning and is not used agentively by speakers, we would expect relatively steady and predictable rates of production for this variable. In contrast, if variable Y holds social meaning and as such is used stylistically and agentively, there will likely be both within-speaker and between-speaker variability in the production of this variable. For instance, two speakers who on the surface, share many macro-social characteristics, may not equally identify with the indexicalities of a particular variant of variable Y. Thus, there may be imperfect correlations between rates of variable X and variable Y. It seems then that the social meaning as well as the social distribution of linguistic features may explain rates of co-variation.

It may initially seem somewhat paradoxical to simultaneously consider that linguistic variables can have a systematic social distribution whilst also considering speakers to be agentive, variable, and perhaps unpredictable in their speech. However, social distribution and social meaning are not unconnected. Indeed, the social distribution of a linguistic feature creates the environment for the feature to be incorporated into social meaning. Guy and Hinskens (2016) suggested that speakers' repertoire of linguistic features only takes on social meaning through the features' social distributions and associations acquired in the community. That is, a linguistic feature may index the social associations and expectations typically held about the social group(s) which most use the feature. As a result, Podesva (2008:3) proposed that features with similar social distributions across different speech communities come to acquire somewhat similar social meanings. He provided the example of (TH)-stopping. In many speech communities, this variant is firstly, most prevalent amongst the lowest socioeconomic classes (e.g., Labov, 1966), and secondly, is broadly indexing of 'toughness'. It seems that the social distribution of a linguistic feature enables the feature to take on indexicalities which may lead to the stylistic use of a feature.

In summary, social distribution is not a sufficient predictor of the rates of between-speaker co-variation between two linguistic features (Guy & Hinskens, 2016). Instead, some but not all features with social distributions can acquire social meaning. The varying levels and configurations of social meaning held by different linguistic features may mediate the rates of co-variation between the features.

Community of Interest

This paper investigates rates of co-variation at the between-speaker level and clustering effects at the within-speaker level between (H) and (ING) in the casual speech of 63 speakers from Debden. The Debden Estate (or Debden) formed part of the 'Cockney Diaspora'. This term refers to the 20th century relocation of white, working-class East Londoners out of London and into the surrounding counties, particularly, to Essex (Watt, Millington, & Huq, 2014:121). Debden was built in the town of Loughton in 1949 as part of a series of government-led slum clearance programmes which sought to depopulate and alleviate poverty in East London (Abercrombie, 1944). The vast majority of those who relocated to Debden in the 1950s were white, working-class East Londoners with a self-professed Cockney identity. In present times, although Debden is in the county of Essex, it is around 5 miles from the North-East London border and around 40 minutes from central London on the London Underground train service (for a more detailed description of the history, location and demographics of Debden see Cole & Evans, accepted).

Whilst there is much debate about how to define Cockneys, often, Cockneys are considered to be white, working-class East Londoners, who were born/live in London's traditional East End (Fox, 2015:8). Often, the accents spoken in South East England have been considered to occur on a continuum between Received Pronunciation (or its successor dialect, Standard Southern British English) and Cockney (see Altendorf & Watt, 2008: Wells, 1982). In South East England, the linguistic continuum between Standard Southern British English and Cockney parallels the class continuum. Whilst Cockney people are often portrayed as epitomising the working class in South East England (see Dodd & Dodd, 1992), Standard Southern British English is the variety spoken by the higher classes (Agha, 2003; Badia Barrera, 2015; Hughes, Trudgill, & Watt, 2012; Wells, 1982).

As Debden was originally inhabited almost exclusively by East Londoners, it seems probable that Debden speakers will use consonantal features which have previously been reported in Cockney. This is line with previous research which found that despite some apparent-time change towards Standard Southern British English variants, a Cockney vowel system was brought to Debden along with the Cockneys who relocated (Cole & Evans, accepted; Cole & Strycharczuk, 2019). Nonetheless, this paper does not have the scope to provide detailed descriptions of the variety of English spoken in Debden[1]. Instead, this paper principally investigates to what extent the differing social meanings held by linguistic variables can lead to an implicational relationship between them at both the within-speaker and between-speaker levels.

(ING) and (H)

The linguistic variables of interest are both phonological alternations present in Cockney with similar social distributions, being most prevalent in men and the working class. Nevertheless, these variables differ in their indexicalities. As I will demonstrate, in Debden, h-dropping has comparatively very high social prominence and holds locally meaningful associations in relation to the community's East London heritage. In contrast, g-dropping has much less social salience and more broadly, indexes working-class or 'improper' speech.

Social distribution of (H) and (ING) The (H) variable refers to an alternation between the presence and absence of the glottal fricative /h/ in syllable initial position in non-function words. The term 'h-dropping' is widely used to refer to the latter. Whilst in most varieties of English, h-dropping is widespread for function words (for instance pronouns; *he, him her, his* and auxiliaries; *has, have, had*), h-dropping (or at least variability) is also found in non-function words in most urban centres across England and Wales (Hughes et al., 2012:66-67).

In South East England, (H) has traditionally had a rigid social distribution, and h-dropping is found most prevalently amongst Cockneys. In 1982, Wells reported that amongst white, working-class East Londoners (or Cockneys) h-dropping was found almost categorically but was almost never found in Received Pronunciation speakers (Wells, 1982:254). Around this time, research also demonstrated that h-dropping in London was strongly conditioned by class. For instance, Hudson and Holloway (1977) showed that in London, working-class schoolboys dropped /h/ on an average of 81% of instances, compared to 14% for middle-class boys. Previous research has also established that h-dropping is more prevalent in men than women (Bell & Holmes, 1992). The social distribution of h-dropping in South East England (highest prevalence amongst the working class, males and East Londoners) may have enabled the feature to take on social meaning (Guy & Hinskens, 2016; Podesva, 2008).

More recent work has found that /h/ has been re-instated in East London (Cheshire, Fox, Kerswill, & Torgersen, 2008:15) as well as other southern dialects in the towns of Reading and Milton Keynes (Williams & Kerswill, 1999:17-19). In the inner East London borough of Hackney, young speakers had significantly lower rates of h-dropping than elderly speakers (11% compared to 58.1%). Rates of h-dropping were also conditioned by speaker ethnicity. White British (or 'Anglo') speakers had significantly higher rates than non-Anglo speakers (18% compared to 3.9%) (Cheshire et al., 2008:15). It may be that in general, young speakers in the South East and in London are ideologically distancing from the indexicalities held by h-dropping. In line with these trends observed in Milton Keynes, Reading, and East London, /h/ may also be in a process of re-instatement in Debden.

The second variable analysed as part of this study is (ING), which refers to an alternation between the standard velar [ŋ] and the alveolar [n] (though not for *-ing* after stressed vowels in monomorphemic words, e.g., *ring, sing*, etc.). The term 'g-dropping' is used to signal the alveolar variant. Whilst this term is problematic in that it uses the pejorative and erroneous term 'dropping' to refer to the substitution of one phoneme for another, it will be employed throughout this paper for clear reference to the alveolar variant and for easy comparison with h-dropping.

The alveolar variant is strongly favoured in East London (Hughes et al., 2012:77; Labov, 1989; Mott, 2012:84). Rates of g-dropping are also conditioned by social factors in both the US and the UK. The alveolar is more common in men than women and in the lower classes (Labov, 2001; Trudgill, 1974; Wells, 1982). The social distribution of (ING) is stable, as change has not been observed in any of the locations where the variable has been analysed throughout decades (Hazen, 2008; Labov, 2001).

In the United States, the alveolar variant is more strongly favoured in verbal contexts than in nominal contexts (Houston, 1991; Labov, 1994:583, 2001:79), but this effect was not found for London-born adolescents (Schleef, Meyeroff, & Clark, 2011:222). As well as differences between nominal and verbal contexts, in the United States (ING) operates differently for *-thing* words (whilst *something* and *nothing* favour the alveolar variant, *anything* and *everything* categorically favour the velar; see Campbell-Kibler [2006:23]; Labov [2001:79]). The clear division between alveolar and velar endings in *-thing* words was not found to be as clearly marked in Britain as in North America (Houston, 1985). In some very limited varieties of English, a third variant, [-Iŋk] is also found for *-thing* words. These varieties include the English used in Canberra, Australia (Shopen, 1978) and Cockney (Schleef et al., 2011; Wright, 1981). In this study, I refer to this variant as the '[-Iŋk]' variant and I use the term 'velar variant' to refer to the standard [-Iŋ] variant.

Social meaning of (H) and (ING) in Debden (H) and (ING) appear to differ in their potential indexicalities which may lead to an implicational relationship between the two features. In Britain, there is evidence spanning centuries that h-dropping has drawn overt, social commentary, including in relation to Cockney. The feature has been observed since as early as the 16th century and appears to have been stigmatised throughout this period (Mugglestone, 2003). For instance, in 1791, John Walker published *A Critical Pronouncing Dictionary* which provided pronunciation advise to the Scottish, Irish, and above all, Cockneys, who Walker believed spoke a variety of English 'a thousand times more offensive and disgusting' (Walker, 1791:17). The publication includes a list of 'faults' commonly produced by Cockneys, including h-dropping and hypercorrection: 'not founding "h" where it ought to be found, and inversely'.

In modern-times, there is ongoing evidence that h-dropping has high social prominence and is associated with Cockney. Indeed, Wells considered the feature to be 'the single most powerful pronunciation shibboleth in England' (Wells, 1982:254). Evidence for the association between Cockney and h-dropping can be found in online instructional videos which guide viewers on how to impersonate a Cockney accent. Without fail, these videos mention h-dropping as a key facet of a Cockney accent and encourage users to emulate this feature in order to sound Cockney. For instance, one video states 'any word that begins with an h sound, get rid of that h' (Learn English with Papa Teach Me, 2015). These pop-cultural references suggest that h-dropping is indexing of Cockney and could be considered an enregistered feature in the Cockney variety of English (c.f. Agha, 2003; Johnstone et al., 2006). That is, h-dropping has become overtly linked with the 'Cockney' accent or dialect label.

Evidence for the enregisterment of h-dropping in Cockney is perhaps best demonstrated in the Cockney song (or 'ding dong') *Wot's the good of hanyfink! Why!*

Nuffink! (for the full lyrics and piano music see Keeping [1975:35]). The chorus lyrics are represented orthographically as:

Wot's the good of tryin' to hearn a livin' now-a-days?
Wot's the good of honesty when 'umbug only pays?
Wot's the good of slavin' o' a ravin' about savin'?
Wot's the good of hanyfink? Why!... Nuffink!
(Keeping, 1975:35).

The song finds humour in drawing overt attention to h-dropping in Cockney in all instances where /h/ would be expected in standard British English (e.g. 'humbug' becomes 'umbug'), and vice-versa (e.g. 'earn' becomes 'hearn'). The strategic and humorous use of h-dropping and hypercorrection in this song demonstrate a conscious awareness of h-dropping. The feature is indexing of 'Cockney' and is used in stylistic projections.

With respect to (ING), the above song also includes orthographic representation of the [-Iŋk] variant for -*thing* words, demonstrating some level of awareness of this feature. Furthermore, there are orthographic representations of g-dropping in non-*thing* words such as *tryin'*, *ravin'*, and *savin'*. This attests the fact that speakers are familiar with the alternation. Nonetheless, of the previously mentioned videos which guide speakers to emulate a Cockney accent, with very few exceptions there are no mentions of g-dropping as a feature of Cockney. This chimes with previous research which has suggested that unlike in the United States, g-dropping does not draw overt social commentary and evaluations in the UK (Levon & Fox, 2014).

In Debden, interviews with participants also revealed discrepancies in the social prominence and indexicalities of (H) and (ING). For instance, in the below excerpt h-dropping is discussed by 3 participants from Debden (a 48-year-old woman, Jane, her 54-year-old husband, Brian, and her 74-year-old father, Michael).

Brian[2]*: Well, it seems - it seems to me that if people can't pronounce their words properly, they seem to–they assume you come from London, init. If they're not saying their t's or h's or anything like that, there's–they'll say, "Oh, you come from London then, don't you?"*

Jane: Oh, my nan though. She used to tell me off 'cause I didn't sound my t's and h's.

Michael: Yeh, but why? She come from Shoreditch. What? She ashamed of it or summink [something]?

Jane: No, she always used to make me sound my letters, didn't she? And um, I mean, it was only when I had children–when I–when I had [my son] that I actually pronounced–started making sure that I pronounced my t's and h's so that it was–he ended up speaking lovely but then it–then it just went again. Went back to normal.

Michael: I suppose it sounds–it sounds better–it sounds nicer if you talk properly.

Although Michael ultimately concedes that it sounds 'better' to talk 'properly', he initially seems offended by Jane's suggestion that h-dropping is shameful. He understands h-dropping as an indicator of their Shoreditch heritage (a traditionally Cockney area of East London). Similar sentiments arose frequently across the interviews in Debden. Therefore, h-dropping encompasses associations of working-class or 'improper' speech but also indexes more local interpretations in relation to Debden's cultural heritage in East London. H-dropping may not explicitly index the linguistic label 'Cockney', or even 'East London', due to the community's relocation to Essex. Indeed, it has been found that young speakers in Debden have re-interpreted some 'Cockney' linguistic features as an 'Essex' accent (Cole & Evans, accepted). Nonetheless, h-dropping does certainly seem to index something local and related to the community's working-class, East London heritage.

In contrast, participants in this present study rarely referenced g-dropping. Of the limited instances in which the feature was mentioned, it was associated with working-class, ‘improper’ and ‘incorrect’ speech. For instance, in the below excerpt, a 51-year-old woman, Denise, describes her feelings of shame around her accent which she does not believe is ‘proper’. After being mocked for her accent by her colleagues, she attempted to speak ‘better’ for an entire day. As part of these efforts, she aims to ‘add “g” on the end of words’, thus, using the standard velar as opposed to the alveolar. However, she ultimately acknowledges that ‘speaking better’ is ‘not [her]’, such that her accent (of which g-dropping is part) is intrinsic to her sense of self. Although Denise associated g-dropping with ‘incorrect’ or ‘improper’ speech, she does not explicitly relate this feature with any local meaning.

I was saying, "I'm going to speak much better today, I'm going to speak and I'm going to say all my words properly and all my letters properly". And they were laughing at me ‘cause I suppose I'll say “laughin’” and “jokin’” and we don't put a "g" on the end and–but I know–it was far too much effort ‘cause it's not me, is it?

In summary, there is no substantial evidence to suggest that g-dropping has locally meaningful associations. In Debden, g-dropping is broadly associated with working-class speech. In contrast, h-dropping carries locally meaningful and overt indexicalities related to the community’s Cockney heritage.

Hypotheses of this study

In terms of the distribution of (H) and (ING), as Debden is a working-class community with East London heritage, we would firstly, expect that at least to some extent, h-dropping and g-dropping will be present. Secondly, we would expect rates of both h-dropping and g-dropping to be more frequent amongst Debden men than women. Thirdly, it seems likely that h-dropping will be in a state of change towards re-instatement in line with changes observed in South East England (Williams & Kerswill, 1999:17-19) and London (Cheshire et al., 2008:15). In contrast, (ING) is likely to be stable in apparent time following a wide range of work which has found the variable to be stable (see Labov, 2001).

The principal hypothesis of this paper is that the differing social meanings held by linguistic features can lead to an implicational relationship between them. The prediction is that rates of h-dropping will be contingent on rates of g-dropping as the indexicalities of the latter (working-class and 'improper') are incorporated in the superordinate indexicalities of the former (Cockney heritage). Firstly, I investigate to what extent h-dropping and g-dropping cluster together in the speech of individual speakers. That is, I hypothesise that if a speaker produces h-dropping, they will predictably produce the alveolar variant of (ING) if the variable occurs in proximity. In contrast, g-dropping may occur in proximity to any value of (H). I measure the distance between (H) and (ING) with a novel approach: using the number of phonemes as the denomination of distance. Secondly, I investigate to what extent the features co-vary at the between-speaker level. The hypothesis is that speakers with high rates of h-dropping must also have high rates of g-dropping. In contrast, a high rate of g-dropping does not necessitate high rates of h-dropping. Whilst it is possible for a Debden speaker to index working-class speech without indexing their Cockney heritage, the reverse is not possible.

METHODS

Participants

Ranging from 14 to 91 years of age (*M* = 49.3yrs, *SD* = 23.8), 63 participants (36 female) were recruited from the Debden Estate using a friend-of-a-friend approach. The participants' ages reflect their age at the time of recording in 2017. My grandparents were relocated to Debden from East London in 1950 as part of the slum-clearance programmes and I was brought up in Debden. As a result, the data was mostly collected through my network of friends and family. All participants were from historically white, working-class, East London families as ascertained through employment and educational patterns.

Procedure

The speakers took part in a sociolinguistic interview consisting of reading a word list and passage as well as an open interview with myself, a native Debden speaker. The production data for this paper is extracted from the open interviews (see Cole & Evans [accepted] or Cole & Strycharzuk [2019] for phonetic analyses of word list and passage data). The interviews consisted of semi-structured conversations about a range of topics with a focus on the participants' lives, views on the local area, experiences living in Debden, sense of identity, and the linguistic features found in Debden.

The recordings were mostly conducted one-on-one, but seven interviews were conducted in groups of up to four friends or family members. Interviews were a minimum of 20 minutes, a maximum of three hours and averaged 50 minutes. The interviews were transcribed with Elan (Version 5.4) (Max Planck Institute for Psycholinguistics, 2019) in full except for nine longer ones capped at 50 minutes per speaker. The interviews were aligned with FAVE align (Rosenfelder, Fruehwald, Evanini, Seyfarth, Gorman, Prichard, & Yuan, 2014). A hand-coding, Praat script was then used to code auditorily for (H) and (ING) (Fruehwald, 2011). Function words such as pronouns or auxiliaries were not included for (H). Although as previously mentioned, hypercorrection of h-dropping may be indexing of Cockney, no instances of hypercorrection were found in the data. Therefore, hypercorrection was not analysed. For (ING), *-thing* words were analysed separately as they have been shown to operate differently to other *-ing* words (see Campbell-Kibler, 2006).

This gave a total of 2,183 tokens of (ING) for non-*thing* words, 493 tokens of (ING) for *-thing* words and 4,058 tokens of the (H) variable.

Analysis

Variation and Change in (H) and (ING) Firstly, the social distribution of (ING) and (H) were analysed using logistic mixed effect regressions using the *lme4* package (Bates, Maechler, Bolker, & Walker, 2015) in R (R Core Team, 2018). The dependent variables were the realisations of (ING) and (H) across all participants. The first analysis investigated rates of (H), the second and third analysed rates of (ING) for -*thing* and non-*thing* words respectively. Of the 63 participants, four participants were not included in the analysis of -*thing* words as they did not produce any -*thing* word during the interview. As the production of -*thing* words has three potential variants in Cockney [ŋ, n, ŋk], three separate models were run to test each possible comparison of variants in the dependent variable: 1) [ŋ] and [n]; 2) [ŋ] and [ŋk]; 3) [n] and [ŋk]. For all analyses, statistical significance was tested with α set at 0.05.

The predictors included in the models were age (continuous), sex (female: *n* = 36; male: *n* = 27) and an interaction between these two variables. The sex predictor was treatment-coded (F = 0, M = 1). Participant and word were included as random effects, to control for any participant or word specific effects (words: *n* = 315 and *n* = 307 for (ING) and (H) respectively). For -*thing* words, carrier words were included as a predictor (*anything*, *everything*, *something*, or *nothing*: *n* = 109, 84, 93, 206, respectively). This predictor was included as word-specific variation has been observed in the realisation of (ING) (Campbell-Kibler, 2006:23; Houston, 1985; Labov, 2001:79). Further, for the analyses of (ING) (for both -*thing* and non-*thing* words), the place of articulation of the following phoneme was also included as a predictor. Expanded from Tamminga (2016:339), this was coded as either 1) alveolar, 2) velar, or 3) neither alveolar nor velar (non-*thing* words: *n* = 315, 89, 1779, respectively; *thing*-words: *n* = 94, 6, 392, respectively). The only phonological conditioning that has been observed for this variable is in the form of regressive assimilation whereby the alveolar variant is more frequent when it precedes alveolar stops and the velar variant is more common when preceding velar stops (see Campbell-Kibler [2006] for an overview). For each dependent variable, I fitted full models based on all the predictors listed above and tested for significance of the individual predictors by removing them step-by-step and comparing the model fit.

Although in the United States g-dropping is morphologically conditioned such that it is more likely in verbal than nominal contexts (Labov, 2001:79), this effect was not found for London-born teenagers (Schleef et al., 2001:222) and thus nominal and verbal contexts have been analysed together. No linguistic constraints were included in the analysis of (H) as the variable is not considered to have phonological or morphological conditioning, with the exception of the possibility that the quality of /h/ (but not its present or absence) may differ depending on the following vowel (see Hughes et al., 2012: 45; Ladefoged & Maddieson, 1996).

In each model, the vernacular variant of the dependent variable (h-dropping for (H) and g-dropping for (ING)) was coded as 0 and the standard was coded as 1. For the comparison between [-Iŋk] and alveolar variants for *thing* words, the [-Iŋk] variant was coded as 0.

Co-variation and clustering between (H) and (ING) At the within-speaker level, I analysed to what extent h-dropping and g-dropping cluster together in the speech of individual speakers. The temporal distribution of style clusters within an individual speaker's discourse has been analysed with different temporal units such as utterance (Podesva, 2008; Sharma & Rampton, 2015), discourse topic (Schilling-Estes, 2004), and tokens (Kendall, 2007). In this study, I use a novel approach to analysing clustering effects by using number of phonemes as the denomination of distance between (H) and (ING). Rates of co-variation between (H) and (ING) were analysed when the variables were firstly, 2 phonemes apart in an utterance, secondly, 3 phonemes apart, thirdly, 4 phonemes apart, etc. The analysis continued until the point in which there was no significant co-variation between (H) and (ING) given the distance between them. For instance, would (H) and (ING) co-vary when they were three phonemes apart when produced in words such as '(H)av(ING)', or when they were six phonemes apart in phrases such as "Music (H)all tak(ING)"?

A drawback of this method is that the phonetic realisations of the phonemes between (H) and (ING) were not adjusted for all phonological processes. In some instances, this may have altered the number of phonemes between (ING) and (H), for instance, if linking/intrusive-r or schwa deletion occurred. Nonetheless, there were very few instances when the number of phonemes between (H) and (ING) would have been altered by these phonological processes.

For each individual speaker, the probability of h-dropping occurring in proximity to g-dropping (for non-*thing* words) was calculated as follows: the number of times h-dropping occurred within X phonemes of g-dropping was divided by the number of times h-dropping occurred within X phonemes of (ING) (regardless of surface variant). This resultant probability was then contrasted with the probability of h-dropping occurring independently of its surrounding environment. That is, is the rate of speakers producing h-dropping within X phonemes of g-dropping higher than speakers' over-all rates of h-dropping throughout the interview? These probabilities were contrasted with a Mann-Whitney U test. The same process was then conducted to assess whether the probability of g-dropping in proximity to h-dropping was greater than the probability of g-dropping occurring independently of its surrounding environment.

For each analysis, only participants who had more than 5 occurrences of (H) and (ING) within X phonemes were included in the analysis so as to increase the reliability of results. For instance, 25 participants were included in the analysis of (H) and (ING) within 3 phonemes; this increased to 45 participants within 10 phonemes. An analysis of (H) and (ING) in immediately adjacent positions was not analysed as there were not enough instances of occurrence to provide sufficient statistical power. Whilst not all participants could be included in the analysis in the interest of reliability and accuracy of results, this analysis was not looking at community-wide patterns in the first instance, but instead, was interested in within-speaker patterns which could be interpreted independently. Clustering between (H) and -*thing* words could not be analysed due to the limited number of realisations of -*thing* words across the corpus (493).

At the between-speaker level, rates of co-variation between (H) and (ING) (for non-thing words) were analysed with a Pearson's correlation test. This test assessed whether speakers with relatively higher rates of g-dropping also had relatively higher rates of h-dropping (and vice-versa).

RESULTS

Variation and change in (H) and (ING)

Logistic mixed effect regressions investigated to what extent rates of (ING) and (H) were related to age and sex. Both age ($\beta = -0.04$, $z = -3.56$, $p < 0.001$) and sex ($\beta = -1.95$, $z = -3.81$, $p < 0.001$) were significantly related to the rates of (H) (see Figure 1). Males had higher rates of h-dropping than females (51.6% retention for men compared to 76.7% for women) and older participants had higher rates than younger participants. Change towards the retention of /h/ was observed most abruptly in those aged ≤ 35yrs. Retention of /h/ was very low amongst adolescents and almost categorical for female adolescents. Whilst there was not a reduction in rates of h-dropping for women aged between 35yrs and 90yrs, there was a steady apparent-time decrease for men in this same age bracket. However, for both genders, change towards retention occurred most abruptly in those aged ≤ 35yrs. There was no significant interaction between age and sex.

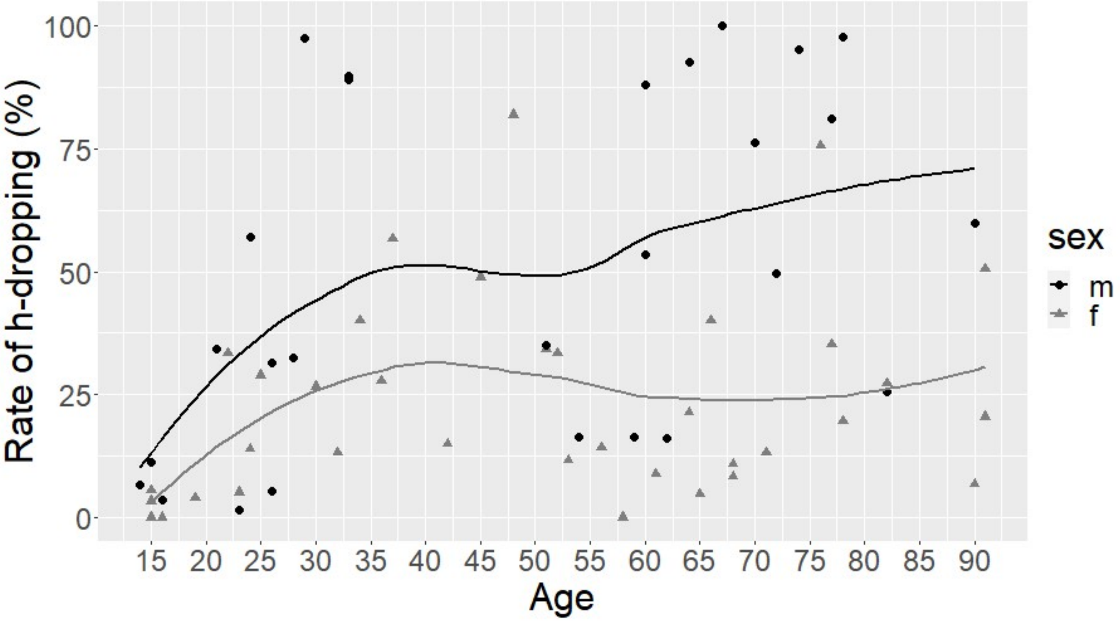

FIGURE 1. Rates of h-dropping by age and sex for 63 speakers from Debden, Essex. H-dropping is significantly more likely in older speakers (particularly those aged >35yrs) and in men.

For (ING) in non-*thing* words, there were no significant age or sex effects or interactions between these variables (Figure 2) (the velar form occurred on 17% of instances for males and 15.8% for women). The only significant effect in the model was the place of articulation of the following sound. The velar form was significantly more likely to occur when the following sound was velar (64% of instances) compared to when it was alveolar (13.7%) or neither alveolar nor velar (22%) ($\beta = -2.23$, $z = 5.83$, $p < 0.001$).

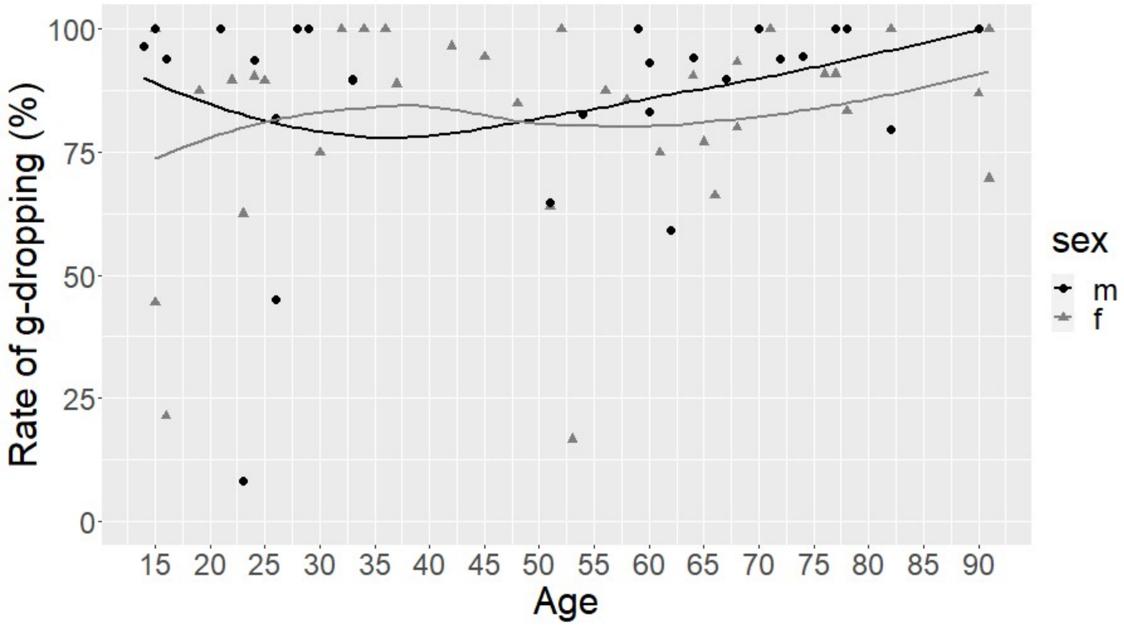

FIGURE 2. Rates of g-dropping for non-*thing* words by age and sex for 63 speakers from Debden, Essex. There are no significant sex or age effects in rates of (ING).

As found in previous research, in Debden, (ING) operates differently for *-thing* words compared to non-*thing* words. In Figure 2, for nearly all speakers, the alveolar form was favoured across all ages for non-*thing* words. In contrast, the velar variant was favoured for -*thing* words (Figure 3). For -*thing* words, no significant effects were found in the model which compared rates of production of the velar variant and the [-Iŋk] variant. However, a significant age effect was found in the comparison between the alveolar form and [-Iŋk] form ($\beta = -0.15$, $z = -2.12$, $p = 0.03$). Young speakers were more likely to use the alveolar and less likely to use the [-Iŋk] form. There were no other significant main effects or interactions.

For the comparison between rates of the alveolar and the velar variants, the velar form was more likely if the following sound was a velar. This concorded with the finding for non-*thing* words. There was also a significant age effect: young speakers were more likely to use the alveolar and less likely to use the velar ($\beta = -0.07$, $z = 2.77$, $p < 0.01$). There was also a significant effect for carrier word. The word *something* operated differently from the other -

thing words ($\beta = -2.89$, $z = -2.72$, $p < 0.01$). There was also a significant interaction between the production of the word *something* and age ($\beta = -0.05$, $z = -2$, $p = 0.04$). An apparent-time decrease in rates of the velar form and an increase in the alveolar form was found for *anything*, *nothing*, and *everything.* This effect was not found for *something* where rates of each variant have remained relatively stable in apparent time. The findings in Debden differ to the research conducted in the United States where *anything* and *everything* categorically favour the velar whilst *nothing* and *something* comparatively favour the alveolar (see Campbell-Kibler, 2006:23; Houston, 1985; Labov, 2001:79).

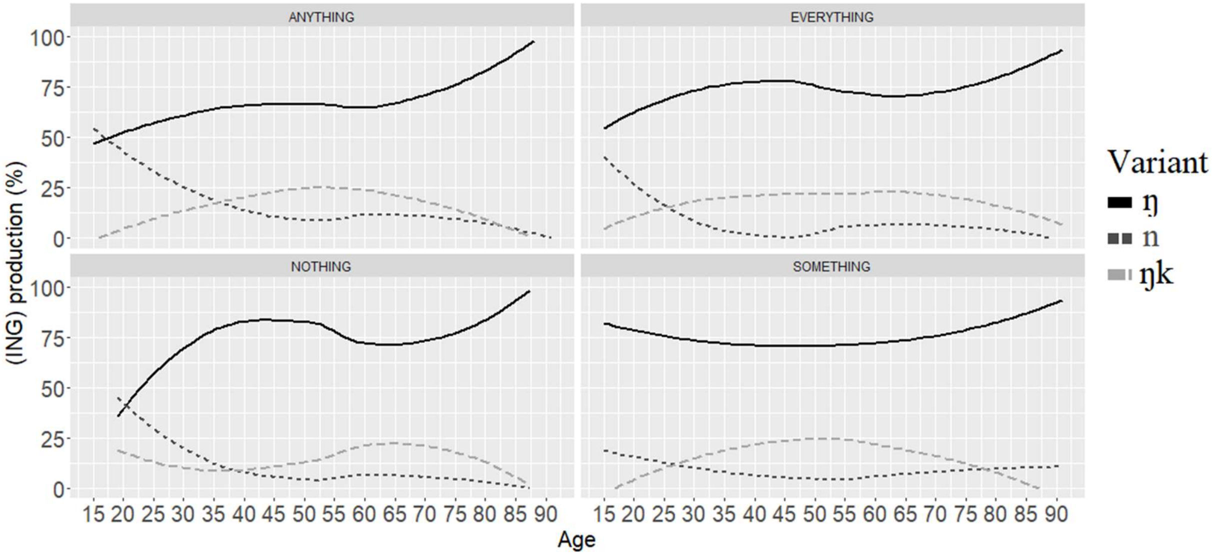

FIGURE 3. Rates of (ING) by age and word for -*thing* words for 59 speakers in Debden, Essex. Whilst the velar variant is most prevalent for all words across all ages, the youngest speakers increasingly favour the alveolar variant.

In summary, (H) is in an advanced process of re-instatement in Debden, which is almost complete in adolescents. Rates of h-dropping are higher in males than females across all ages. For non-*thing* words, the alveolar variant of (ING) is favoured by all ages and there are no significant apparent-time changes or sex differences. For -*thing* words (except for *something*), the velar form is favoured by almost all ages and for all words except for the youngest speakers. In comparison to older speakers, young speakers increasingly disfavour the velar [-Iŋ] or the [-Iŋk] forms in favour of the alveolar variant. There are no significant differences in the comparison between the velar and the [-Iŋk] variants.

Co-variation and clustering between (H) and (ING)

Clustering effects between (H) and (ING) within the speech of individual speakers was tested with Mann-Whitney U tests. Speakers were significantly more likely to produce h-dropping in proximity to g-dropping compared to the probability of them producing h-dropping independently of its surrounding environment. Likewise, g-dropping was significantly more likely to occur if h-dropping had occurred in proximity compared to the probability of g-dropping occurring independently. These effects were only significant when (ING) and (H) occurred within 2 or 3 phonemes of each other ($p < 0.05$ for all comparisons) (Figure 4). Nonetheless, although not significant across a wider phoneme window, a tendency for co-occurrence persists.

As demonstrated in Figure 4, the rate of h-dropping when g-dropping occurred within 2 or 3 phonemes was greater than 50% and 33% respectively for all speakers. In contrast, when (H) was analysed independently of surrounding environment, rates of h-dropping were almost null for some participants. Each individual speaker had a higher probability of h-dropping within both 2 and 3 phonemes of g-dropping compared to the probability of that same speaker h-dropping throughout the interview. Similarly, speakers were more likely to g-drop in proximity to h-dropping compared to their rates of g-dropping throughout their interviews. On all instances, all speakers g-dropped when (ING) occurred within 2 or 3 phonemes of h-dropping. That is, in no instance did any single speaker produce the velar variant of (ING) within either 2 or 3 phonemes of h-dropping.[3]

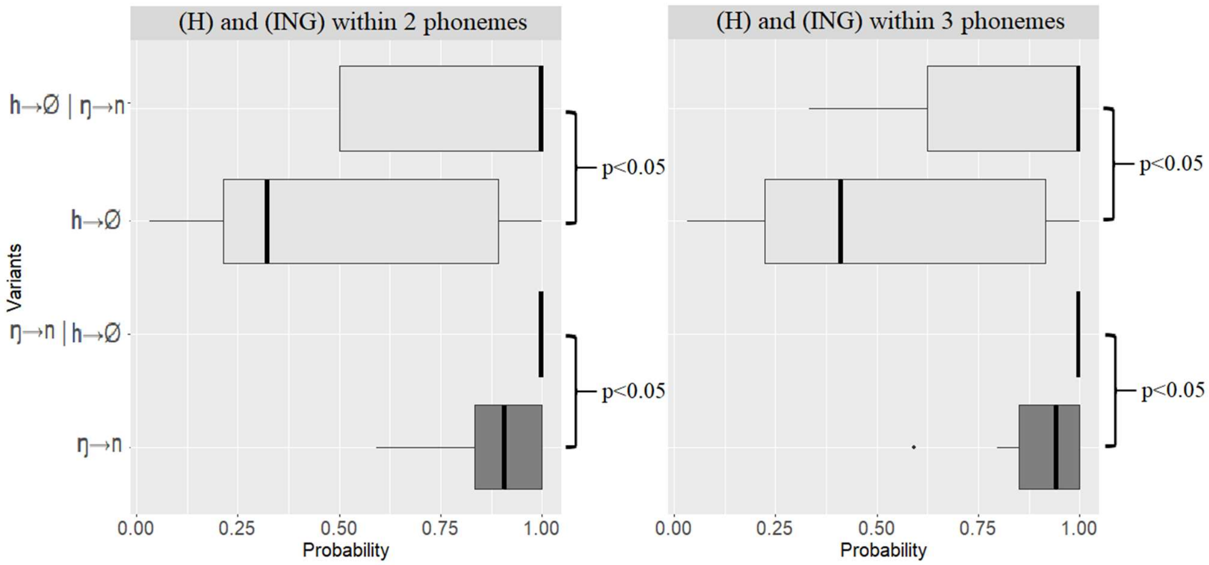

FIGURE 4. In Debden, Essex, speakers are significantly more likely to produce h-dropping within 2 (left panel) or 3 (right panel) phonemes of g-dropping compared to the probability of h-dropping occurring independently (and vice-versa). 'h⟶Ø' refers to the probability of h-dropping occurring independently of any surrounding environment. 'h⟶Ø | ŋ⟶n' refers to the probability of h-dropping occurring given the fact that g-dropping has occurred.

At the between-speaker level, rates of co-variation between (H) and (ING) (for non-thing words) were analysed with a Pearson's correlation test. There was a significant correlation between speakers' rates of (H) and (ING) ($t(61) = 2.97$, $p = 0.04$, $r = 0.36$). Whilst this correlation was significant, it was weakened by an implicational relationship between (H) and (ING) (Figure 5). Speakers who had high rates of h-dropping always had high rates of g-dropping. However, speakers with high rates of g-dropping had variable rates of h-dropping (ranging from 0% to 100%).

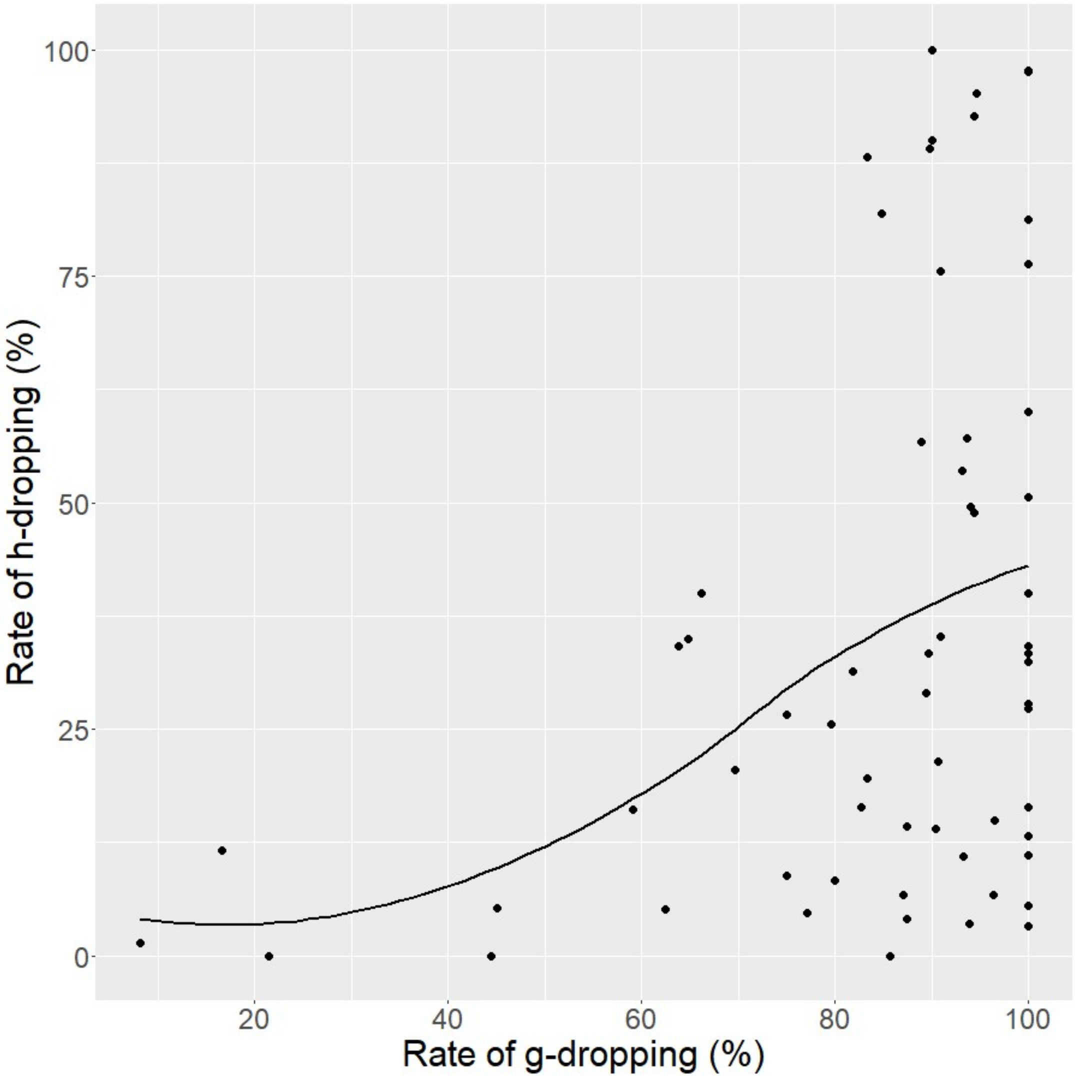

FIGURE 5. There is a weak correlation between rates of (ING) (for non-thing words) and (H) for 63 speakers in Debden, Essex. There is an implicational relationship between these features: whilst h-dropping implies g-dropping, the reverse is not true.

DISCUSSION

This paper investigated to what extent the differing social meanings held by linguistic features can lead to an implicational relationship between them. Rates of co-variation between (ING) and (H) at the between-speaker level were investigated as well as clustering effects at the within-speaker level. This paper hypothesised that there would be an implicational relationship between (ING) and (H) as a result of their distinct but over-lapping social meanings. That is, I predicated that h-dropping may be contingent on g-dropping as the indexicalities of the former (Cockney heritage) are superordinate to and incorporate the indexicalities of the latter (working-class and 'improper').

This hypothesis was confirmed at both the within-speaker and between-speaker levels. Speakers with high rates of h-dropping necessarily had high rates of g-dropping. In contrast, speakers with high rates of g-dropping had variable rates of h-dropping. This implicational relationship weakened the correlation co-efficient between (H) and (ING). That is, it is possible to be a g-dropper who does not h-drop, but it is not possible to be an h-dropper who does not g-drop. To some extent, an implicational relationship between (H) and (ING) was also found within the speech of individual speakers. The probability of h-dropping was greater when (H) occurred within 2 or 3 phonemes of g-dropping compared to the probability of h-dropping occurring independently of its surrounding environment. The same effect was found but to a greater extent for (ING). If (ING) occurs in proximity to a dropped /h/, the resultant variant is always g-dropping and never retention. That is, for Debden speakers, it is possible to g-drop in proximity to a retained /h/. However, it is not possible to produce the velar variant of (ING) within 2 or 3 phonemes of h-dropping.

The implicational relationship between h-dropping and g-dropping seems to be mediated by the features' different social meaning. In Debden, h-dropping is a locally meaningful, dialect feature with indexicalities related to the community's Cockney heritage. In contrast, g-dropping does not carry local interpretations and more generally indexes working-class or "improper" speech. The indexicalities of h-dropping encompass and are superordinate to those of g-dropping. In general, a speaker in Debden may wish to index working-class speech more broadly without indexing more specific, local meaning around Cockney. However, a speaker cannot index their Cockney heritage without necessarily also indexing working-class speech. As a result, h-dropping implies g-dropping, but g-dropping can occur independently of h-dropping.

These results support a style-based approach to sociolinguistic variation which considers language to be a fluid and symbolic resource to project identity and affiliation. Linguistic features are not independent of each other and instead, the social meaning of linguistic features can combine to create a collective social meaning (Campbell Kibler, 2011; Coupland, 2007; Pharao et al., 2014; Pharao & Maegaard, 2017). It has previously been demonstrated that language features which jointly index a certain style can cluster together in the speech of individual speakers (Podesva, 2008; Sharma & Rampton, 2015). This result was confirmed by this paper: h-dropping and g-dropping did significantly cluster together within the speech of individual speakers. Nonetheless, this paper has expanded on this research to demonstrate an implicational relationship between linguistic variables as a result of their differing social meanings. That is, clustering effects between the features may not be entirely mutual as a result of the features' differing social meanings.

In general, it seems that young speakers in Debden (most notably those aged ≤ 35yrs) are moving away from features which index Cockney but have maintained features which have indexicalities more generally around working-class speech. As a result, although for non-*thing* words (ING) is stable in Debden, /h/ is in an advanced process of re-instatement in line with findings across South East England (Williams & Kerswill, 1999:17-19) and in East London (Cheshire et al., 2008:15). Dialects in South East England are typically conceived as a linguistic continuum which parallels the class continuum from the most vernacular, localised and working-class dialect, Cockney, to the most standard, supra-local and higher-class dialect Standard Southern British English (Altendorf & Watt, 2008; Hughes et al., 2012; Wells, 1982, 1997). Therefore, south-eastern working-class speech norms incorporate to some extent, many features of Cockney. Nonetheless, h-dropping but not g-dropping has often been cited as a key feature which differentiates Cockney from more general south-eastern speech patterns (Wells, 1992). In Debden, young speakers are moving away from linguistic features which hold local associations with Cockney and instead, favour features which more broadly index south-eastern working-class speech.

The results for -*thing* words provide further evidence that working-class speech norms and not Standard Southern British English are the target of linguistic change in Debden (see also the Cockney vowel system: Cole & Evans, accepted). Young speakers are moving away from both the standard velar form and the [-Iŋk] form in favour of the alveolar form. It initially seems contradictory that young speakers are shifting away from both the Cockney variant [-Iŋk] and the standard form (velar). Nonetheless, it may not be helpful in this instance to consider the velar variant solely as the standard form. The velar variant was favoured amongst even the oldest speakers in Debden who strongly identify as Cockney, lived in East London into adulthood and have many traditionally Cockney linguistic features. Perhaps, it would be most accurate to consider the velar form as a Cockney variant. It may be that the velar form is to some extent, a reduced variant of the traditional Cockney [-Iŋk] form with which it shares its first component [ŋ]. Indeed, no significant apparent-time changes were found between rates of the [-Iŋk] and the 'standard' velar form, suggesting that the forms are not diverging. In Debden, then, young speakers are shifting away from localised, Cockney forms towards broader, south-eastern, working-class norms. Thus, for -*thing* words, young speakers are shifting towards alveolar variants.

In summary, in Debden, young speakers are moving away from localised linguistic features that index the community's Cockney heritage such as h-dropping and the [-Iŋk] form (and potentially the velar form) of -*thing* words. In contrast, young speakers have maintained traditional 'Cockney' features which represent broader, south-eastern, working-class norms such as the alveolar form of (ING) for non-*thing* words. Furthermore, young speakers are increasingly favouring the non-standard alveolar form for -*thing* words and not the standard velar [-Iŋ] or traditional Cockney [-Iŋk] forms. The overlapping but distinct social meanings held by h-dropping and g-dropping (for non-*thing* words), has also led to an implicational relationship between the features at both the within-speaker and between-speaker levels. In order for speakers to index their East London heritage, they must necessarily encompass broader working-class norms. As a result, there is a clustering effect in the speech of individual speakers between h-dropping and g-dropping. Although these results need to be replicated to explore the generalisability of the results, this paper has demonstrated that the differing social meanings held by linguistic features can lead to an implicational relationship between them.

NOTES

1. For descriptions of the variety of English spoken in Debden and how this relates to language contact or social and historical influences in the community, see Cole & Evans (accepted); Cole & Strycharczuk (2019).

2. All names have been changed to preserve the anonymity of the participants.

3. Although not within the scope of this paper, future research could investigate to what extent these clustering effects are affected by whether the linguistic variables are found within the same word.

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