Language Variation and Change (2023), **35**, 55–77
doi:10.1017/S0954394523000017

CAMBRIDGE UNIVERSITY PRESS

GOOSE-fronting in Received Pronunciation across time: A trend study

Sandra Jansen[1,*] and Jose A. Mompean[2]

[1]Greifswald University, Germany and [2]Universidad de Murcia, Spain
*Corresponding author. E-mail: sandra.jansen@uni-greifswald.de

Abstract

The current study analyzes the trajectory of the GOOSE vowel in Received Pronunciation (RP) over ten decades (1920s-2010s). Recordings of eighty-seven RP speakers were transcribed in *ELAN*, and vowel tokens were extracted by *FAVE*, measuring F1 and F2 values at the midpoint. Showing the life-cycle of a sound change from start to (almost) completion, the results confirm that GOOSE-fronting has been an active sound change for many decades in RP, with F2 starting to increase in the middle of the twentieth century and accelerated changes in the 1970s and the 2010s. We observe similar predictor strengths of linguistic factors as in previous studies. The results are interpreted in light of the social changes in the social composition of the RP group in the second part of the twentieth century, involving increased dialect contact.

Keywords: GOOSE-fronting; longitudinal sound change; Received Pronunciation; social change

While descriptions of the vowel system of any language variety often provide a static picture of vowel qualities, the latter are typically in constant flux. Over time, vowels may undergo some degree of fronting/backing, raising/lowering, rounding/unrounding, monophthogization/diphthongization, or a combination of these processes. The present paper focuses on one such change in varieties of English: the shift in the production of /u(ː)/ from a high back (i.e., [uː]) to a more centralized (i.e., [ʉː] or even [yː]) vowel quality. The phenomenon is variously referred to as /u/-fronting (e.g., Harrington, Kleber, & Reubold, 2008) or GOOSE-fronting (e.g., Baranowski, 2017), with GOOSE as a keyword for the lexical set representing words with /uː/ in Received Pronunciation (Wells, 1982) as in *choose*, *shoe*, *flew*, or *do*, while the vowel itself is often represented with a length mark in IPA transcriptions, that is /uː/ (e.g., Wells, 1982) or using the binary notation traditionally employed by many American linguists with a back upglide /uw/ (e.g., Labov, 2010:103-111). We will hereafter refer to this target vowel as GOOSE and to the process as GOOSE-fronting.

The main motivation of the current study is to assess the trajectory of GOOSE-fronting over an extended period in one variety of English: Received

Pronunciation (RP). The sound change has long been identified in varieties of English and it is widely attested. Yet there is little evidence on earlier stages of GOOSE-fronting as well as on how the phenomenon evolved in specific phonetic contexts. The current study also addresses how this sound change correlates with linguistic, social, and usage-based factors. The study describes GOOSE-fronting in a corpus of mostly broadcast RP spanning very nearly a century (1928-2018) and which was produced by eighty-seven speakers whose year of birth ranges from 1866 to 1985. The specific research questions addressed in this study are the following:

RQ1: What is the overall trajectory of goose-fronting in RP across time?
RQ2: What factors (language-internal, language-external, usage-based) condition GOOSE-fronting across time?
RQ3: Can this linguistic change be explained by social changes in the twentieth and twenty-first century?

GOOSE-fronting as a sound change in varieties of English

GOOSE-fronting is one of the global sound changes in English (Mesthrie, 2010; Milroy, 2007). It occurs in most—if not all—varieties of English and is often facilitated by an apparent lack of local social-symbolic anchoring (Haddican, Foulkes, Hughes, & Richards, 2013). Speakers show little or no conscious awareness of this shift (Fridland, 2008), which is unusual for a sound change in progress (Sóskuthy, Foulkes, Haddican, Hay, & Hughes, 2015). GOOSE-fronting has been described for varieties of English from all around the globe, including North America (e.g., Boberg, 2011; Labov, 2010:103-111; Stanley, Renwick, Kuiper, & Olsen, 2021), the British Isles (e.g., Ferragne & Pellegrino, 2010; Lawson, Stuart-Smith, & Rodger, 2019), or the Southern Hemisphere (e.g., Gordon, Campbell, Hay, Maclagan, Sudbury, & Trudgill, 2004; Mesthrie, 2010). Detailed variationist studies have been conducted in different varieties of those regions. In England, for example, this includes northern (e.g., Baranowski, 2017; Jansen, 2019), central (e.g., Sóskuthy et al., 2015), and southern (e.g., Holmes-Elliot, 2015; Przedlacka, 2001) varieties.

Linguists have suggested that GOOSE-fronting may be motivated by a number of factors, with preceding and following phonetic contexts as the strongest constraints. In syllable-onset position, for example, consonants with a high F2 locus such as coronals (e.g., /t, d, n/) have been suggested to favor GOOSE-fronting (Fridland, 2008; Harrington, 2007; Maclagan, Watson, Harlow, King, & Keegan, 2009) more than noncoronal onsets (Baranowski, 2008; Labov, 2010:104-105; Labov, Ash & Boberg, 2006:152-153). Similarly, the presence of a palatal approximant /j/ before /u:/ (e.g., *music*) favors fronting (e.g., Cruttenden, 2014:133). On the other hand, a velarized lateral [ɬ] in coda position (e.g., *fool* [fuːɬ]) has been shown to disfavor fronting (e.g., Labov, 2010:103-111; Strycharczuk & Scobbie, 2016), although the actual tongue position may be more advanced than suggested by the low F2 (Strycharczuk & Scobbie, 2017). Moreover, open (i.e., coda-less) syllables (e.g., *too*) seem to have a positive fronting effect (Labov, 2010:103-111).

A possible explanation for this sound change is the presence (or absence) of vowels in the same acoustic-perceptual space and an alleged tendency for vowels to avoid

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

overlapping. Stockwell and Minkova (1997) as well as Fridland and Bartlett (2006), for example, argue that the fronting of back vowels is due to a relatively crowded back vowel space, which would create the conditions leading to GOOSE-fronting and the fronting of FOOT and GOAT, respectively (e.g., Hall-Lew, 2009; Jansen & Braber, 2021; Watt & Tillotson, 2001). In the case of GOOSE, the fronting might result in the vowel encroaching on the acoustic space of FLEECE (i.e., /iː/). However, the basis for the distinction between FLEECE and GOOSE in present-day RP seems to be "lip-rounding and not tongue-fronting" (Harrington, Kleber, & Reubold, 2012:36). A key aspect in the fronting of GOOSE might then be the absence of any opposition between this vowel and a close front rounded vowel like /yː/ (Gimson, 1962:119-120).

Apart from language-internal factors, some studies have identified social differences in GOOSE-fronting within varieties of English, according to age (e.g., Sóskuthy et al., 2015 on Derby English), region (e.g., Labov, 2010:103-111; Labov et al., 2006:152-168 on North American varieties), ethnicity (e.g., Fridland & Bartlett, 2006 on Memphis, Tennessee; Mesthrie, 2010 on South African English), or social class (Baranowski, 2008 on Charleston, South Carolina).

Finally, usage-based factors (e.g., frequency of use) can also have an impact on back vowel fronting, although its effect does not always seem to be strong (Dinkin, 2008; Labov, 2010:103-111; Labov et al., 2006:152-168 on North American English dialects). In Derby English, where palatal /j/ before GOOSE is variable (e.g., *new* /n(j)uː/), the degree of fronting has been correlated with how frequent a lexical item is. In this variety, frequent words undergo more fronting than infrequent words (Sóskuthy et al., 2015). Harrington and Reubold (2021) also found that a reversal to previous F2 values in GOOSE in an individual's lifespace could be stronger in more frequent than in less frequent words (see also the next section).

GOOSE-fronting across time: a corpus study of RP

The current study aims to assess the trajectory of GOOSE-fronting over an extended period in RP, where the sound change has mostly been studied from an apparent-time approach. In this approach, data from individuals from different age groups are compared at one point in time. Two studies in the 2000s (Harrington et al., 2008; Hawkins & Midgley, 2005), for example, showed that younger speakers had a fronter realization of GOOSE than older speakers.

In longitudinal, real-time studies, linguistic variables are tracked over time by collecting data from a given population at multiple points in a given period (Cukor-Avila & Bailey, 2013). Such studies, however, are rare due to the difficulty in obtaining speech from different periods. Moreover, when available, real-time studies typically cover only two points in time (e.g., Haddican et al., 2013 on the northern English dialect of York), often separated by just a few years or decades.

As far as GOOSE-fronting in RP is concerned, we are aware of a few real-time studies from the 1980s on. Henton (1983) measured formant values of vowels in a group of ten young male RP speakers in 1982 and compared them with the values obtained twenty years earlier by Wells (1962) from a group of twenty-five young male RP speakers. Measuring the lexical item *hood* in both studies, Henton found a mean increase in F2 values of 210 Hz from 1962 (939 Hz) to 1983 (1149 Hz). In another

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

study, Bauer (1985) analyzed recordings, conducted between 1949 and 1966, of thirty-seven RP speakers reading a passage containing the words *do*, *food*, and *roof*. Bauer found significant correlations between the GOOSE F2 values and the year of recording, the age of the speaker, and the speakers' year of birth (1909 to 1947), with the latter being the strongest predictor of GOOSE-fronting. Overall, mean F2 values were 1066 Hz for men and 1226 Hz for women. Bauer also had access to recordings of five young RP female speakers (presumably born around 1960) recorded in 1982, for whom F2 values ranged from 1492 Hz to 1658 Hz, confirming further substantial GOOSE-fronting in comparison with Bauer's earlier data.

Finally, in a series of studies on vowel changes in the annual Christmas broadcasts by Queen Elizabeth II, Harrington and colleagues traced GOOSE-fronting since her first broadcast in 1952. Using nine broadcasts (Harrington, Palethorpe, & Watson, 2000), twenty-eight (Harrington, 2007), and thirty-five (Harrington & Reubold, 2021), the researchers found that Queen Elizabeth II's GOOSE tokens had a fronter F2 as the years progressed, with a substantial increase in the 1990s relative to the 1950s, and intermediate F2 values in the 1970s. They also found evidence of a retrograde change from the 1990s on towards the F2 values of GOOSE earlier in her life. Harrington and Reubold (2021) explained this latter change in terms of memory capacity over the lifespan, with a typical decline in the functioning of episodic memory in late adulthood as well as the entrenchment of exemplars stored in memory in the speaker's younger years.

The current study aims to expand the real-time view by incorporating RP speakers as far back as spoken records might allow (circa the 1920s), as described in the next section. Our aim was to include recordings of the early twentieth century since there is some anecdotal evidence that GOOSE-fronting in RP was already occurring in the 1920s (e.g., Jones, 1922). Moreover, although GOOSE-fronting was widely acknowledged anecdotally from the 1960s on (e.g., Gimson, 1962; Wells, 1982), the specific temporal pattern remains unclear. Based on his auditory impressions, Bauer (1985) pointed out that fronting was more advanced in the mid-1980s than the traditional descriptions suggested while some authors suggest that GOOSE-fronting arose mostly in the last decades of the twentieth century (Roach & Hartman, 1997; Wells, 1997). An empirical study, therefore, is necessary for a comprehensive view of the trajectory of this sound change.

A word should be said regarding the choice of RP as the variety under investigation, which is based on three main reasons. Firstly, RP counts a large historical record given its traditional use in the BBC since the early 1920s (Cruttenden, 2014:77). This large record allows for some freedom of material selection in terms of quality of the recording, speakers, register, and date/year of recording. Secondly, since RP has traditionally been used by people with a relatively high degree of education or social status (e.g., politicians, actors and actresses, nobility, etc.), given the variety's status as a de facto standard in England (Trudgill, 2001), the identity of many of the speakers in historical records and some basic demographic information may be easily obtained. Finally, there is extensive evidence that RP has undergone substantial phonetic changes over the past 120 years or so, particularly over the last sixty or seventy years (e.g., Wells, 1997). According to Harrington (2007:127), these numerous phonetic changes "can often be linked to the collapsing class structure in England in the

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

second part of the 20th century" which has also led to a change in the sociolinguistic status of RP in Britain (Trudgill, 2001). Therefore, a real-time study of GOOSE-fronting in RP may offer further insights into the correlation between this sound change and social changes in the twentieth and twenty-first century.

Methodology

Materials

A longitudinal corpus was compiled from spoken records obtained from different online sources such as streaming services, libraries, and collections as part of a larger diachronic corpus of the variety under investigation (Mompean, 2023). While a large part of broadcast speech in the UK is characterized by the use of RP, it is by no means the only variety encountered in this medium, so recordings were only considered if speakers complied with typical features of RP described in the literature (see section on Speakers).

Regarding the register and quality of the material, it consisted of monologic, scripted speech (e.g., newscasts, speeches, narration) located at the formal end on the spectrum of formality. Moreover, its acoustic quality was generally considered acceptable for subsequent analyses or underwent a background noise reduction process using *Audacity* (Audacity Team, 1999-2021, version 2.1.0); the software's recommended settings for the spoken word were used (Noise reduction [dB]: 6; Sensitivity: 6.0; Frequency smoothing [bands]: 6). To guarantee enough GOOSE tokens per speaker for a sociophonetic analysis, the corpus contains recordings of between five hundred and a thousand words per speaker. Since the GOOSE vowel has an occurrence frequency of 3.94% among the RP vowels, nearing the mean frequency for all vowels at 4.96% (see Cruttenden, 2014:159), the length of the texts was considered sufficient. The earliest recording comprising at least five hundred words is from 1928, the initial year for data collection. Broadcast material before the late 1920s is rarer, of short duration, and is often limited to the visual mode. The subcorpus, therefore, spanned from 1928 to 2018, thus comprising ten decades of recording (DoR).

Speakers

Data from a minimum of eight RP speakers (four males and four females) were compiled per DoR. Given that the data from the speakers in some gender cohorts (particularly females) in some of the decades were too close to five hundred words, six additional speakers were added to such cohorts so that the overall number of words per DoR and gender group would be similar. The final number of RP speakers analyzed was eighty-seven (forty-one males, forty-six females). The speakers' year of birth (YoB) ranged from 1866 to 1985 and their demographic information was obtained mostly from sources such as biographical works and encyclopedias (printed or online). Males ranged from thirty-one to sixty-four years at the time of production ($M = 44.6$ years, $SD = 8.9$) while females ranged from twenty-seven to sixty-six ($M = 42.9$ years, $SD = 11.1$). A list of the speakers' names, YoB and DoR is provided in Appendix 1.

Determining whether somebody was an RP speaker was formally done by checking whether the person's speech was characterized by features such as the absence of

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

rhoticity and use of typical segmental inventories and contrasts described for RP (e.g., /ʌ/ in the lexical set STRUT, /ɑː/ in the lexical set BATH, /eɪ/ in the lexical set FACE), use of /j/ before certain GOOSE tokens (e.g., *new*, *duty, tune*) where other accents have dropped it, and clear [l] versus dark [ɬ] allophony. Some inherent phonetic variation described for the accent was also allowed in deciding whether a speaker's speech fell within the boundaries of RP both synchronically and diachronically (Cruttenden, 2014; Wells, 1982, 1997, for inventories and diachronic variation). RP has not remained stable in the phonetic realization of some of its phonemes over the last century, so this variation—within the boundaries of what is described as RP—was also taken into account. By way of example, the tensing of word-final /ɪ/ in words such as *easy*, *funny*, or *happy* only became a typical feature of RP in the late twentieth century (Wells, 1997). Similarly, the realization of /r/ as a tap [ɾ] intervocalically in words such as *very*, *sorry*, or *area* is typically found in the first part of the twentieth century, but, from the 1950s on, an approximant realization [ɹ] became the norm (Fabricius, 2017; Wells, 1997).

The use of linguistic criteria to distinguish someone as an RP speaker is crucial given the singularity of RP as a "social accent" (Collins & Mees, 2013:4) as opposed to geographically bound accents. RP speakers do not make up a "speech community" in the Labovian sense of a localized group of speakers living in one place and sharing local linguistic norms (see Labov, 2007:347). Rather, the RP group encompasses "native" and "adoptive" RP speakers, privately and state-educated speakers, as well as upper-class and upwardly mobile speakers. Moreover, the accent is spoken across Britain, although it is typically associated with the south (Cruttenden, 2014:79).

There seems, however, to have been a trend over the twentieth century for the social base of RP to shift from an originally narrow group of mostly native, privately educated, southern speakers to a broader base also including speakers from other parts of Britain, state-educated speakers, and those acquiring RP later in life. In the most notable and earliest codification of the accent, Daniel Jones claimed to represent "the pronunciation … of Southern Englishmen … educated at the great public boarding schools" (Jones, 1922:vi), acknowledging the association of the RP accents with public schools of the nineteenth century and an upper-class social stratum. In the 1960s, A.C. Gimson claimed that "with the spread of education … those eager for social advancement felt obliged to modify their accent in the direction of the social standard" and that "it cannot be said that RP is any longer the exclusive property of a particular social stratum" (1962:85). Twenty years later, John C. Wells confirmed the existence of speakers "adopting RP" (1982:283) due to changes in their social circumstances such as acquiring a circle of RP-speaking friends or getting a job where the use of RP was expected (e.g., broadcasting, the acting profession, etc.). The increased variability in social background of the speakers from the middle of the twentieth century onward is reflected in the sample.[1]

Procedure

As a preliminary step, written transcripts of the recordings chosen for the analysis were created with the aid of commercial speech-to-text software (e.g., *Listen by Code*, *Otter.ai*, *Amberscript*). These transcripts were further checked manually against

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

the recordings and the final version of the written transcript agreed upon by the researchers. The clips were transcribed into *ELAN* (2022, version 6.2), an annotation tool for audio and video recordings used for time alignment between transcript and recordings. About 5% of the *ELAN* transcriptions were checked for accuracy by the first author.

Following this process, the time-aligned sound files were subjected to forced alignment of segments with *FAVEalign* (Rosenfelder, Fruehwald, Brickhouse, Evanini, Seyfarth, Gorman, Prichard, & Yuan, 2022), an automatic alignment tool adapted for sociolinguistic research. The program facilitates the automatic conversion of an orthographic transcription into phonemes by looking up words and their transcriptions in a pronunciation dictionary. Following the alignment, we used *FAVEextract* (Rosenfelder et al., 2022) to extract formant measurements (F1 and F2) for a given speaker in an aligned sound file. F1 and F2 were measured at 20%, 40%, 50%, 60%, and 80% of the duration of the vowel, and midpoint measurements were used as relevant measurements (see Clopper, Steinderl Burdin, & Turnbull, 2018; Scobbie, Stuart-Smith, & Lawson, 2012). All vowel tokens in the recordings that had a duration of at least 50 ms were extracted, resulting in 68,898 vowel tokens overall, including 2,958 tokens of GOOSE.

Some studies have used keywords for lexical subsets when the specific variety studied required it. One example is found in the studies by Harrington and colleagues (Harrington et al., 2000; Harrington & Reubold, 2021), who distinguished items of the GOOSE lexical set depending on the presence (e.g., HEWED) or absence (e.g., WHO'D) of /j/ before the GOOSE vowel. We considered it unnecessary to use two different keywords for this variable (i.e., the presence of /j/), which we analyzed alongside others (however, see the argument for the phonologically-motivated GOOSE/GHOUL split in the Discussion). Another example is the use of BROOD (or BRUISE) versus BREWED (or BREWS) to distinguish morphologically simple from affixed lexical items. In some Scottish English varieties, for example, the vowel in BREWED is phonetically longer than that in BROOD (e.g., Lawson et al., 2019). There are no a priori grounds for suggesting that morphology or spelling may have an impact on the degree of GOOSE-fronting in RP. Hence, no lexical subsets were used in the current study.

To compare vowel realizations across speakers, vowel measurements were normalized with *FAVE*'s built-in Mahalanobis distance function based on Lobanov (1971) and subjected to the *Detect Outlier* function implemented by Stanley (2020). It "alleviates the sensitivity to outliers [of the Mahalanobis distance function] by implementing a one-at-a-time method" (Stanley, 2021). After this procedure, 2,812 tokens made up the GOOSE sample.[2]

The data were coded for several factors. Apart from word class (content versus function), the language-internal factors included the phonetic context immediately preceding and following GOOSE, distinguishing three prevocalic and five postvocalic contexts also considered in previous studies as discussed above in the section on GOOSE-fronting in varieties of English.

The three preceding phonetic contexts were /j/+GOOSE (e.g., *cute, few, you*) and coronal+GOOSE (Harrington, 2007). Following Giegerich (1992:116), *coronal* (henceforth [+cor]) refers to consonants articulated with the flexible part of the tongue, that is, dental /θ, ð/, alveolar /t, d, s, z, n, l/, and postalveolar /ʃ, ʒ, ʧ, ʤ, r/. All

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

other prevocalic consonants were classified as noncoronal (henceforth [-cor]): labial /p, b, m/, labiodental /f, v/, velar /k, g, ŋ/, labial-velar /w/, and glottal /h/.

The coded phonetic contexts following GOOSE were velarized, 'dark' /l/ (i.e., [ɬ], as in *fool*), [+cor] (e.g., *food*), [-cor] (e.g., *soup*), a following vowel in the same word (e.g., *cruelty*, *jeweler*) and no coda consonant (e.g., *do*). Nonvelarized, 'clear' /l/ (e.g., *ruling*) was coded for independently since F2 has been found to be higher in this context than after 'dark' /l/ (Strycharczuk & Scobbie, 2016), and it is typically in syllable-onset position.

Gender and *Decade of Recording* (DoR) were external factors. DoR was chosen as measurement for real-time change because of the corpus design, which focused on the time/decade of recording rather than the speakers' year of birth.

Finally, word frequency (as a usage-based variable) was operationalized as a centered Zipf-scaled frequency based on the SUBTLEX-UK corpus (van Heuven, Mandera, Keuleers, & Brysbaert, 2014). This database was preferred over others (e.g., the BNC) because word frequencies from film and television material may approximate those that language users are exposed to through social interaction more than word frequencies from written and/or spoken texts (Brysbaert & New, 2009:979).

Results

Figure 1 provides an F2/F1 plot of all GOOSE tokens in the sample presented by DoR, with darker dots and lighter dots representing earlier and later decades, respectively. Since the labels of the average F2 values of GOOSE for the decades 1920s to 1960s overlap to a great extent, only the 1960s label is fully visible. The plot shows a clear separation between the decades up until the 1960s and from the 1970s onwards. A strong demarcation in the late 1960s/early 1970s is also found by Fabricius (2017) and Belando (2021) for the use of taps in RP or, from an apparent-time perspective, in the fronting of GOOSE and FOOT (e.g., Hawkins & Midgley, 2005).

Figure 1 illustrates a fairly steady state of GOOSE up until the 1960s and the development toward a more fronted GOOSE quality from the 1970s onward. We observe a small dip of 65 Hz between the 1930s and 1940s and a jump of about 200 Hz between the 1960s and 1970s. The increase in F2 in the following two decades is less steep but still considerable: 94 Hz between the 1970s and the 1980s and 69 Hz between the 1990s and the 2000s. Another relatively sharp increase of 113 Hz is found between the 2000s and the 2010s. At the same time, the average F1 values of GOOSE remain relatively stable across time, suggesting stability in that dimension and that the observed change is mainly restricted to the front-back dimension of the oral cavity. Therefore, the F1 dimension will not be discussed further in this paper.

To obtain some further information about the distribution of the linguistic factors, the results for three decades across the sample according to environment are presented in Figure 2, with the 1920s as the starting point, the 1970s representing the halfway point, and the 2010s as the final decade in the dataset. The figure shows the three vowel-preceding environments (/j/, [+cor], [-cor]) as well as dark /l/ following GOOSE.

The boxplots in Figure 2 confirm the increase of F2 in the /j/, [+cor], and [-cor] environments across time. They also reveal that, in the 1920s, a differentiation for /j/

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

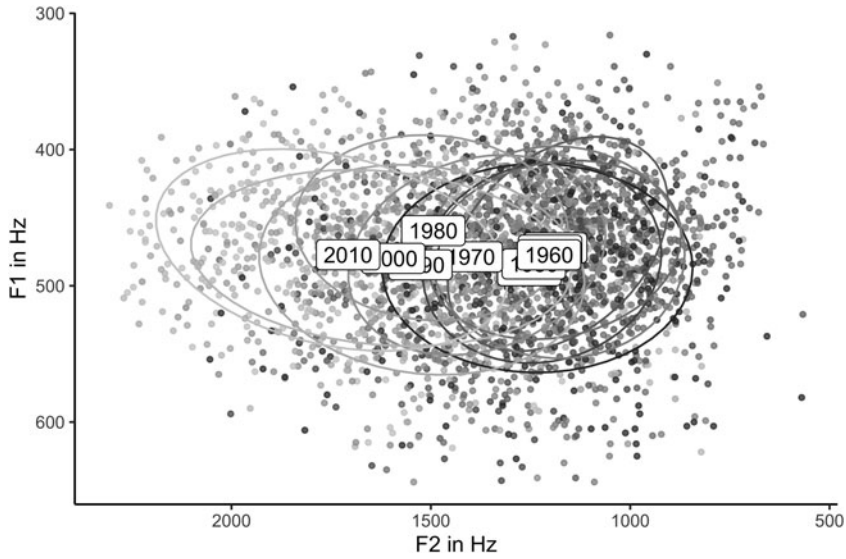

Figure 1. Overall distribution of GOOSE tokens according to Decade of Recording.

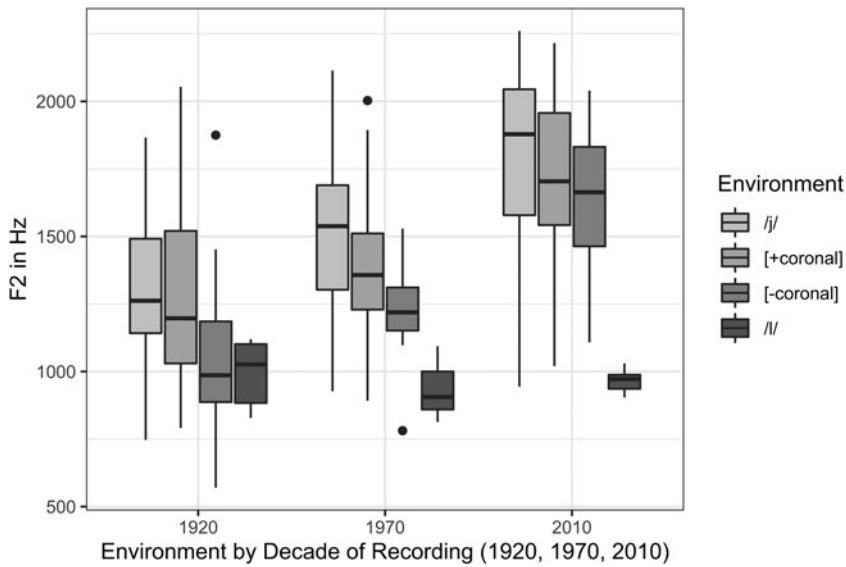

Figure 2. Boxplot (interquartile ranges) showing the distribution of GOOSE F2 according to environment for the 1920s, 1970s, and 2010s.

and [+cor] as preceding environments does not exist because the F2 values overlap completely. A clearer distinction for the mean values between those environments is observable in the 1970s and 2010s boxplots, in line with the results of other twenty-first century GOOSE-fronting studies (e.g., Baranowski, 2008; Hall-Lew, 2009;

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

Holmes-Elliot, 2015; Jansen, 2019). The figure also shows that the distribution of the phonetic contexts in the 1970s and 2010s corresponds to findings in those studies with a gradation between the different environments. The data suggest that a rearrangement of F2 patterning took place over the twentieth century. While in the first half of the twentieth century /j/ and [+cor] patterned together and preceding [-cor] and following /l/ did the same, by the 1970s an allophonic split for /l/ is observable; by the 2010s, /j/, [+cor], and [-cor] overlap to a large extent while the gap between these three environments and /l/ has increased further.

Figure 3 provides a closer look at the realization of GOOSE between the 1950s and the 1970s according to gender. The data show that while there is a slight increase in F2 for female speakers between the 1950s and 1960s, the group leading the change in the 1970s are male speakers whose average F2 value in the /j/ environment is 301 Hz higher than in the preceding decade, and 158 Hz higher than the female speakers in this environment in the 1970s. The difference in F2 in the /j/ environment for female speakers between the 1960s and 1970s, however, is marginal (1,393 Hz versus 1,406 Hz).

Some developments are also observable in the dynamics between the different environments. For female speakers /j/ and [+cor] overlap completely in the 1950s while the differentiation between /j/, [+cor], and [-cor] is already observable for male speakers in this decade. However, [-cor] and dark /l/ still overlap for male speakers in the 1960s while the figure hints at an allophonic split of /l/ by that time.

The distribution of GOOSE F2 according to the environment and gender from the 1970s to the 2010s is presented in Figure 4. For female speakers, a very dramatic increase of F2 in the /j/ environment is observable in the 1980s with a mean value

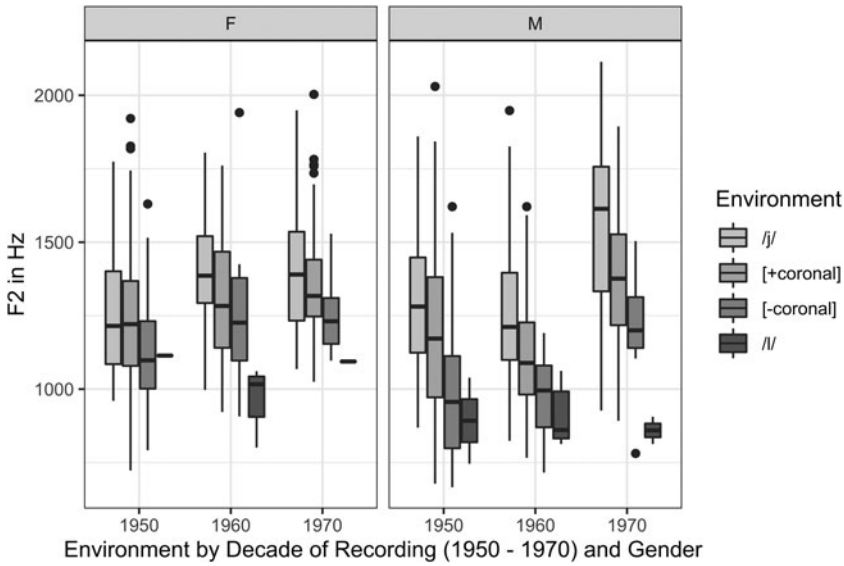

Figure 3. Distribution of GOOSE F2 according to environment and gender (F/M) for the 1950s, 1960s, and 1970s.

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

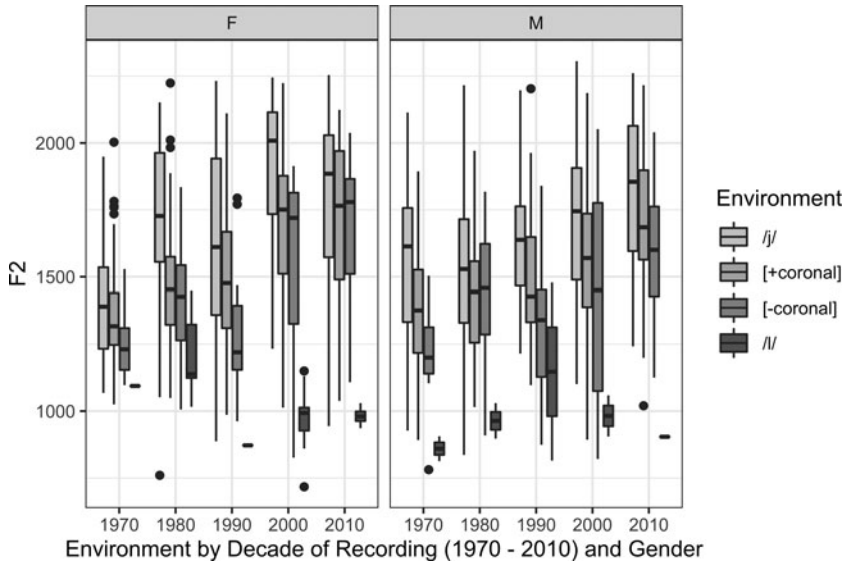

Figure 4. Distribution of GOOSE F2 according to environment and gender (F/M) for the 1970s-2010s.

of about 1,700 Hz while it is of about 1,400 Hz in the previous decade. Male speakers, who pushed the change in the 1970s, show a slight decrease of F2 in the /j/ environment while F2 in [+cor] and [-cor] environments increases among them in the 1980s. In the 2000s, female speakers once again increased F2 in /j/ position but also in [+cor] and [-cor] and hence started to close the gap between the former and the latter two environments. In the 2010s the distribution of F2 in those three environments is more similar than it has been since at least the 1970s but, in the 2010s, GOOSE is on average realized 500 Hz higher than in the 1970s. The distribution can be described as an accordion movement with the mean formants being close to each other early on, then the formants being pulled apart during the change phase, and approximating each other closer to the completion of the change.

For the environment of /l/ after GOOSE only sixty-eight tokens could be extracted in the entire corpus, but it seems that the GOOSE-GHOUL split is complete by the 2000s for both gender groups. F2 in the other preceding three environments is raised more and more in each decade while F2 in GOOSE before /l/ stays fairly stable. Once the vowel after [-cor] has reached a level in raising where it does not overlap anymore with following /l/, we can assume that the allophonic split is complete.

GOOSE after /j/ is the first environment where F2 starts raising. Figure 5 illustrates the development of F2 of the vowel following /j/ across the ten decades according to gender. While little variation is observable between the 1920s and the 1960s, a dramatic change toward a higher F2 value can be found from the 1970s onward. Male speakers seem to lead the change in the 1970s but in the 1980s female speakers take over as leaders of the change, with male speakers then slowly approaching the female speaker values between the 1980s and the 2000s, while both groups show similar variation in F2 in the 2010s.

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

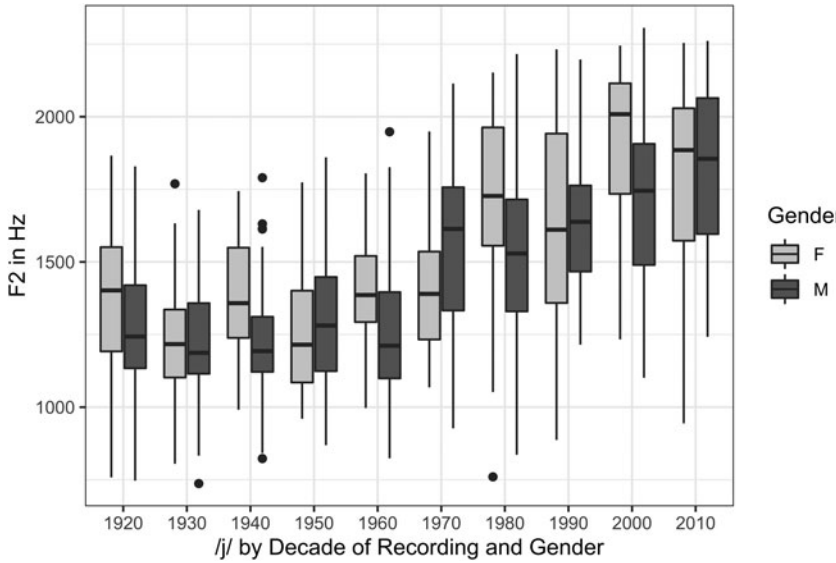

Figure 5. F2 values for GOOSE following /j/ according to DoR and gender (F/M).

The year-of-recording (YoR) trajectories of F2 in the environments as presented in Figure 6 trace the details in the development of GOOSE. After palatal /j/ and [+cor], the vowel is realized with a similar F2 between the 1920s and 1940s. The dip in F2 after [+cor] in the 1950s leads to /j/ increasing F2 faster than after [+cor] in the following decades. On the other hand, the [-cor] and dark /l/ contexts show a similar F2 realization until the 1950s when [-cor] starts to increase while GOOSE before dark /l/ remains stable for the following decades. Overall, the trajectories of /j/, [+cor], and [-cor] display s-curve patterns. Moreover, the slowdown in the increase of F2 after /j/ from around 2000 onward might mean that a further fronting is not possible, and, therefore, the process is nearing its completion.

To gain a more in-depth understanding of predictor strength as well as potential predictor interaction, a mixed effect model operationalizing F2 as dependent variable was run in *R* (R Core Team, 2021, version 4.1.1). Table 1 shows the independent variables and factors that went into the model. *Decade of Recording* (DoR) and *Gender* (male/female) were fixed social factors. Notice that DoR recording was chosen as an independent factor to measure time. This decision was made due to the compilation of the corpus based on DoR. *Preceding segment*, *Following segment*, and *Word class* were fixed linguistic factors as well as *Word frequency*. Unobserved heterogeneity was controlled by defining *Word* and *Speaker* as random effects.

The statistical model in Table 2 confirms and specifies the observations in the data analysis section. F2 decreased between the 1920s and 1940s while we see a plateau in the F2 values between the 1940s and the 1960s. Between the 1960s and 1970s there was a sudden rapid increase of about 200 Hz in F2 and another 100 Hz increase is observable between the 1970s and 1980s. Stability prevailed between the 1980s and 1990s while there was a second sudden rapid increase of F2 between the 1990s and

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

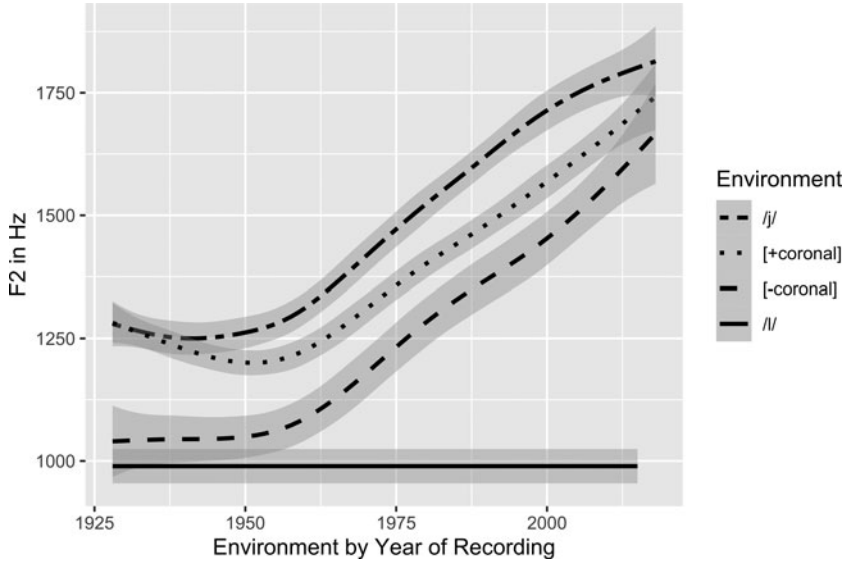

Figure 6. F2 trajectories of GOOSE in the /j/, [+cor], [-cor], and dark /l/ environments from the 1920s to the 2010s by Year of Recording (YoR).

Table 1. Independent variables and factors

Independent variable	Factor
Decade of recording (DoR)	1920s-2010s
Gender	F, M
Preceding segment	[-cor], [+cor], /j/
Following segment	[+cor], [-cor], dark /l/, #, clear /l/, vowel
Word frequency	subtlex (Zipf log)
Word class	content, function, *do*
Random effects	word, speaker

the 2000s and, again, the following decade the F2 value seemed to stay stable. Male speakers have a significantly lower F2 value in the model than female speakers, which is also confirmed in Figure 3 and Figure 4. Male speakers facilitate the push in the 1970s, but female speakers take over quickly and produce higher F2 from the 1980s onwards.

The statistical model also confirms the strength of the internal constraints found in other studies. If GOOSE is preceded by /j/, the vowel is realized with a significantly higher F2 than with preceding [+cor] or with preceding [-cor]. The vowel before velarized /l/ is significantly lower than the other following segments in the model. In addition, word class is significant. The lexical item *do* has a higher F2 mean

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

Table 2. Mixed-effects linear regression on GOOSE F2 values of the overall sample by Decade of recording (DoR), Gender, Preceding segment, and Following segment

Fixed effects	*N*	Mean (Hz)	Estimate	SE	df	*t* value	*p*-value	
Intercept	262	1,253	1240.47	18.45	118.09	16.19	< 0.001	***
Decade of recording (baseline: 1920s/intercept)								
1930s	269	1,242	−21.32	14.39	85.92	−0.50	0.619	
1940s	274	1,188	−94.44	13.13	86.04	−2.15	0.035	*
1950s	515	1,201	−79.62	10.71	79.90	−2.009	0.05	
1960s	241	1,204	−22.51	15.87	86.15	−0.51	0.61	
1970s	319	1,400	105.39	13.78	84.56	2.45	0.016	*
1980s	295	1,494	219.17	15.48	85.01	5.15	< 0.001	***
1990s	238	1,526	246.41	20.01	87.98	5.75	< 0.001	***
2000s	221	1,595	369.28	24.32	86.52	8.42	< 0.001	***
2010s	178	1,708	444.23	24.90	92.36	9.94	< 0.001	***
Preceding segment (baseline: /j/; *n* = 984; mean = 1,434)								
[+cor]	1,411	1,346	−73.82	7.93	346.43	−4.69	< 0.001	***
[-cor]	417	1,183	−249.31	15.12	212.89	−10.60	< 0.001	***
Following segment (baseline: dark /l/; *n* = 446; mean = 1,021)								
[-cor]	266	1,299	297.50	17.91	288.86	7.61	< 0.001	***
[+cor]	860	1,460	385.90	11.30	277.67	10.33	< 0.001	***
#	1,406	1,322	210.84	8.15	218.33	5.26	< 0.001	***
clear /l/	19	1,437	287.93	71.41	668.44	4.26	< 0.001	***
vowel	185	1,289	235.87	19.63	306.05	5.76	< 0.001	***

Word Class (baseline: *do*; *n* = 150; mean = 1,399)								
function	932	1,300	−135.91	9.62	56.43	−2.25	0.029	*
content	1,730	1,377	−177.01	7.94	60.06	−3.05	0.003	**
Gender (baseline: F; *n* = 1,216; mean = 1,387)								
M	1,596	1,327	−46.11	7.80	84.88	−2.45	0.017	*
Random Intercept			**Variance**		**SD**			
Word			4,563		67.55			
Speaker			5,657		75.21			

Random intercepts for *Word* (*n* = 519) and *Speaker* (*n* = 87) are included (*n* = 2812; * = $p < 0.05$;** = $p < 0.01$; *** = $p < 0.001$)

than function words and content words. *Word frequency*, on the other hand, is not significant.

Discussion

Regarding RQ1, the present study confirms a continuous fronting of GOOSE in RP from around the middle of the twentieth century (see Hawkins & Midgley, 2005). Moreover, as Dannenberg (2000) points out, sound change may not occur in stable, progressive, and linear increments as apparent-time studies often suggest. Rather, change may follow less steady trajectories, including stalls, accelerated changes or even reversal movements. This is precisely what the pattern of change observed in the current study reveals. We notice periods of rapid increase of F2 from the 1970s onward following a period of recession and stability in the first half of the twentieth century.

RQ2 addressed the role of factors in the change. Harrington and colleagues (2012) underscore the complexity of sound change and its various usually intertwined motivations on the phonetic, social, and cognitive levels, which are observable in the present study as well. Starting with the language-internal factors, overall we observe similar constraints as pointed out by previous studies (e.g., Baranowski, 2008; Hall-Lew, 2009; Harrington, 2007). The relevance of the immediate phonetic context seems to support the hypothesis that GOOSE-fronting is sensitive to coarticulatory effects (Harrington, 2007, 2012). The more fronted vowels were found to be preceded by palatal /j/ and [+cor] consonants throughout the dataset. Preceding /j/ is often found to display higher F2 values than [+cor] (see Jansen, 2019; Mesthrie, 2010), but this study reveals that, at the beginning of the data collection in the 1920s, the F2 values indeed overlapped for /j/ and [+cor]. Noncoronal ([-cor]) preceding segments also favored fronting but to a lesser degree, as was also described in earlier studies (e.g., Baranowski, 2008; Labov, 2010:103-111; Labov et al., 2006:152-168).

Conversely, fronting was inhibited when GOOSE was followed by velarized /l/, which is also in line with previous results (e.g., Baranowski, 2008; Labov, 2010:103-111; Strycharczuk & Scobbie, 2016). While F2 following /j/, [+cor], and [-cor] increases, fronting does not occur before velarized /l/ across the sample. The result indicates, therefore, that from as early as the 1960s RP has undergone an allophonic split, often referred to as the GOOSE/GHOUL split (Wells, 1982:312-313). According to Wells (1997), the GOOSE/GHOUL split may have developed in RP due to the influence of London speech as well as other southeastern accents where the split had occurred earlier. The GOOSE/GHOUL split may bear some resemblance to the GOAT/GOAL allophonic split arising in RP in the second part of the twentieth century (Hannisdal, 2006:154-157; Wells, 1997). GOAT-fronting is a widely described sound change in many varieties of English, often following GOOSE-fronting (e.g., Haddican et al., 2013). RP, however, is a well-known counterexample to the observed trend (Baranowski, 2017; Wells, 1982:237-238). Whatever the timing of these two sound changes, given some initial GOAT-fronting in RP, the presence of dark /l/ may have prevented fronting in some cases of GOAT, leading to the GOAT/GOAL split. A study comparing the development of the two sound changes (GOOSE-fronting and GOAT-fronting) should shed light on both their timing and the emergence of their allophonic splits.

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

As for external factors, the current study shows no consistent patterning for gender (see Butcher, 2021:72). Male speakers are the first ones to increase F2 noticeably in the 1970s before female speakers followed suit a decade later. The second drastic F2 increase was led by female speakers in the 2000s. One possible interpretation of this gender difference could be that female speakers are using more prestige forms (i.e., less centralized forms) during the 1970s given that in most areas of British society until the 1960s and 1970s, men occupied most positions where RP was expected or typical, notably in broadcasting or politics (i.e., female RP speakers in our corpus before the 1960s are often writers, aristocrats, or perform some minor role in broadcasting). Female speakers, up to the 1970s, may then have used values similar to "what used to be thought a necessity for an authority: a male, RP-speaking voice" (Abercrombie, 1991:51). With social changes in Britain accelerating from the 1960s, changes in the perception of RP, and even changes in broadcasting styles, females started to lead the GOOSE-fronting, with a fronted version becoming the prestigious variant in the 1970s: female speakers seem to have adopted it and advanced it from the 1980s onwards.

Finally, RQ3 addressed the possible relationship between social changes and the patterns of the GOOSE trajectory across time. It is noticeable that, up until the 1960s, the F2 values in GOOSE were either stable or even decreased in the early twentieth century. The initial fronting appears in the 1970s, with a second phase of accelerated increase in F2 observable from around the 2000s. We suggest that this greater fronting in the second half of the twentieth century may have to do with the accelerated social changes in British society in this period and the impact that these changes had on the social structure of RP. These social changes led to a more egalitarian society where individuals could move up the social scale (Lindsey, 2019:3; Turner, 2013) and socially upwardly mobile speakers often adopted RP (Trudgill, 2001) or modified their speech in its direction (Lindsey, 2019:3-4).

Changes in the social composition of the group of RP speakers born after World War II have been noted before as a possible source of sound changes. Bauer suggests that the linguistic changes, including GOOSE-fronting, were "accelerated … by this broader base that RP is acquiring within certain parts of the community" (1985:76). Up until the middle of the twentieth century, RP speakers belonged to a rather exclusive group determined by heritage and private education (Fabricius, 2018). From the middle of the 1960s onward, the exclusivity perforated, and speakers with less exclusive upbringings became part of that speech community. This duality in the social composition of the group of RP speakers seems to have crystallized in the broad distinction made by various commentators between a "marked" or "conservative" RP, spoken by very exclusive social groups, and an "unmarked" or "mainstream" RP, which suggests a fairly high degree of education but not necessarily an exclusive social group (Cruttenden, 2014:79-82; Gimson, 1962:88; Honey, 1989:38; Wells, 1982:278-283, for discussions).

The acceleration of the change from the 1970s on is most likely also due to increased dialect contact between RP and other accents, prompted by high mobility in some areas of Britain, certainly in the southeast of Britain and London as its overarching urban center (Jansen & Amos, 2020) during the latter part of the twentieth century and beginning of the twenty-first. One common consequence of mobility and

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

dialect contact is dialect leveling and, in fact, GOOSE-fronting has been described as one of the features of modern British dialects that have been undergoing leveling in recent times (Kerswill, 2001). Since dialect leveling "involves the eradication of socially or locally marked variants" (Milroy, 2002:7), and a back quality of GOOSE in RP now sounds old-fashioned (Wells, 1982:294), the fronting of F2 in GOOSE in the second part of the twentieth century, particularly in the accelerated change in the 2000s, can be seen as a final move away from a back quality. This fronting is now found "in all southern speech, including RP" but is "more advanced among non-RP speakers" (Kerswill, 2001:49). A similar explanation is provided by Harrington and Reubold (2021) for Queen Elizabeth II's changes in the F2 values in GOOSE in the period 1950-1990, where she was probably more in contact with lower and middle-class speakers finding their way into the establishment than in her first two to three decades of life.

The dialect contact and leveling explanation seems plausible even though RP has traditionally been considered to be a nonregional accent (Roach, 2004). Yet the accent is typologically southeastern (Trudgill, 2001, 2008), and "the majority of speakers … live in, or originate from, the south-east of England" (Roach, 2004:239). It has been pointed out that RP has been influenced by other accents, with some innovations making their way into RP over time "by diffusion upwards from lower-status accents" (Trudgill, 2001:6; see Trudgill, 2001; Wells, 1997, for other recent innovations). The changes in the social structure of the accent and its loss of prestige and social attractiveness in the latter part of the twentieth century (Coupland & Bishop, 2007; Mugglestone, 2003:280 ff.; Trudgill, 2001) may explain the various alternative names the variety has received in recent decades. In this respect, a name that has gained some currency recently is Standard Southern British English (SSBE). This label is viewed as "the modern equivalent of … RP" (International Phonetic Association, 1999:4), which incorporates a geographical and an ideological dimension. "Southern British" may refer to any location in England—though mostly the Southeast—while "Standard" points to the continuity of the status of RP as the accent with the highest prestige in England today. The SSBE label would seem to acknowledge "the changes to the phonetic properties of RP and its social status over recent decades" given that the term RP "has acquired a rather dated—even negative—flavour in contemporary British society" (Hughes, Trudgill, & Watt, 2012:3).

Conclusion

This study has focused on the phenomenon of GOOSE-fronting in RP. It represents the first trend study covering ten decades of broadcast speech to which forced alignment was applied to analyze longitudinal changes. Overall, our data show the life cycle of this sound change from start to (almost) completion. The study has found that, in the first half of the twentieth century, a distinction between F2 existed when preceded by /j/ and [+cor] or [-cor]. Nevertheless, this distinction was fairly stable until around the 1950s. From then on GOOSE-fronting was an active sound change in RP for many decades, with F2 increasing continuously from the 1970s onward. Increased mobility and changes in the social composition of RP speakers most likely are explanatory factors for this change.

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

The current study has some limitations. Since it encompassed formal speech, it includes no data associated with sociolinguistic interviews such as style-shifting. However, even formal speech may have stylistic confounds and these should be better controlled for in future studies. Another limitation is the number of speakers per decade or recordings, although a substantial amount of speech, particularly by female speakers in the earlier decades, is sometimes difficult to obtain given the underrepresentation of women in the media at that time. Future work may also include longitudinal panel studies measuring the same speaker or a sample of speakers at different points in time, and further vowel changes such as *happy*-tensing or /æ/-lowering could be analyzed, to gain an overview of comparative longitudinal trajectories within the overall vowel systems of RP across time.

Competing interests. The authors declare none.

Acknowledgments. We are very grateful to the journal's editor and the three anonymous reviewers for their invaluable feedback on an earlier version of this article. Thanks go also to Lara Wenzel for her help with the transcription in *ELAN*. This work was funded by FEDER EU and the Spanish Ministerio de Ciencia e Innovación – Agencia Estatal de Investigación (PGC2018-095050-B-I00).

Notes

1. A reviewer suggested coding for social factors such as school, upbringing, and place of birth. However, mainly due to lack of information for some individual speakers, coding of these factors was not possible. As to region, Halfacre and Khattab (2019) compared the FOOT/STRUT as well as the BATH/TRAP vowel contrasts by northern and southern RP speakers in the twenty-first century. While the former split realization is not regionally tainted, this is the case for BATH and TRAP, a vowel split that carries social meaning. As previously discussed, changes in GOOSE do not seem to carry substantial social meaning, so our assumption is that regional upbringing would probably not influence GOOSE pronunciation. In any case, since the vast majority of the speakers in our sample were from the south, a statistical analysis of geographical origin was unfortunately not feasible.

2. Another reviewer suggested excluding tokens with preceding obstruent clusters such as *drew*, *flew*, or *prove*. We tested the results with the limited dataset but the means only varied by a few Hz., and there were no major differences found in the statistical results.

References

Abercrombie, David. (1991). *Fifty years in phonetics*. Edinburgh: Edinburgh University Press.

Audacity Team. (1999-2021). Audacity (version 3.1.3). Available at https://www.audacityteam.org/

Baranowski, Maciej. (2008). The fronting of the back upgliding vowels in Charleston, South Carolina. *Language Variation and Change* 20(3):527–51.

Baranowski, Maciej. (2017). Class matters: the sociolinguistics of goose and goat in Manchester English. *Language Variation and Change* 29:301–39.

Bauer, Laurie. (1985). Tracing phonetic change in the Received Pronunciation of British English. *Journal of Phonetics* 13:61–81.

Belando, Delia. (2021). *Taps in Received Pronunciation: a real-time and apparent-time study*. MA dissertation, University of Murcia.

Boberg, Charles. (2011). Reshaping the vowel system: an index of phonetic innovation. *University of Pennsylvania Working Papers in Linguistics* 17:20–29.

Brysbaert, Mark & New, Boris. (2009). Moving beyond Kučera and Francis: a critical evaluation of current word frequency norms and the introduction of a new and improved word frequency measure for American English. *Behavior Research Methods* 41:977–90.

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

Butcher, Kerri-Ann. (2021). Revisiting the vowel mergers of East Anglia. Correlations of mown, moan and goose. In H. Van de Velde, N.H. Hilton & R. Knooihuizen (eds.), *Language variation - European perspectives VIII*. Amsterdam/New York: John Benjamins. 53–78.

Clopper, Cynthia G., Steindel Burdin, Rachel, & Turnbull, Rory. (2018). Variation in /u/ fronting in the American Midwest. *The Journal of the Acoustical Society of America* 146:233–44.

Collins, Beverley & Mees, Inger. (2013). *Practical phonetics and phonology: a resource book for students*. 3rd ed. London: Routledge.

Coupland, Nikolas, & Bishop, Hywel. (2007). Ideologised values for British accents. *Journal of Sociolinguistics* 11:74–93.

Cruttenden, Alan. (2014). *Gimson's pronunciation of English*. 8th ed. London: Routledge.

Cuckor-Avila, Patricia & Bailey, Guy. (2013). Real and apparent time. In J.K. Chambers & N. Schilling (eds.), *The handbook of language variation and change*. 2nd ed. Malden, MA: Wiley-Blackwell. 239–62.

Dannenberg, Clare J. (2000). Sociolinguistics in real time. *American Speech* 75:254–57.

Dinkin, Aaron J. (2008). The real effect of word frequency on phonetic variation. *University of Pennsylvania Working Papers in Linguistics* 14:97–106.

ELAN (Version 6.2) [Computer software]. (2022). Nijmegen: Max Planck Institute for Psycholinguistics, The Language Archive. Available at https://archive.mpi.nl/tla/elan

Fabricius, Anne H. (2017). Twentieth-century Received Pronunciation: prevocalic /r/. In R. Hickey (ed.), *Listening to the past. Audio records of accents of English*. Cambridge: Cambridge University Press. 39–65.

Fabricius, Anne H. (2018). Social change, linguistic change and sociolinguistic change in Received Pronunciation. In N. Braber & S. Jansen (eds.), *Sociolinguistics in England*. London: Palgrave Macmillan. 35–66.

Ferragne, Emmanuel & Pellegrino, François. (2010). Formant frequencies of vowels in 13 accents of British English. *Journal of the International Phonetic Association* 40:1–34.

Fridland, Valerie. (2008). Patterns of /uw/, /ʊ/, and /ow/ fronting in Reno, Nevada. *American Speech* 83:432–54.

Fridland, Valerie & Bartlett, Kathy. (2006). The social and linguistic conditioning of back vowel fronting across ethnic groups in Memphis, Tennessee. *English Language and Linguistics* 10:1–22.

Giegerich, Heinz J. (1992). *English phonology: an introduction*. Cambridge: Cambridge University Press.

Gimson, Alfred C. (1962). *An introduction to the pronunciation of English*. London: Arnold.

Gordon, Elizabeth, Campbell, Lyle, Hay, Jennifer, Maclagan, Margaret, Sudbury, Andrea & Trudgill, Peter. (2004). *New Zealand English: its origins and evolution*. Cambridge: Cambridge University Press.

Haddican, Bill, Foulkes, Paul, Hughes, Vincent & Richards, Hazel. (2013). Interaction of social and linguistic constraints on two vowel changes in northern England. *Language Variation and Change* 25:371–403.

Halfacre, Caitlin, & Khattab, Ghada. (2019). North-South dividers in privately educated speakers: A sociolinguistic study of Received Pronunciation using the foot-strut and trap-bath distinctions in the North East and South East of England. In S. Calhoun, P. Escudero, M. Tabain & P. Warren (eds.), *Proceedings of the 19th International Congress of Phonetic Sciences, Melbourne, Australia 2019*. Canberra: Australasian Speech Science and Technology Association Inc. 2665–69.

Hall-Lew, Lauren. (2009). *Ethnicity and phonetic variation in a San Francisco neighborhood*. Doctoral dissertation, Stanford University.

Hannisdal, Bente R. (2006). *Variability and change in Received Pronunciation: a study of six phonological variables in the speech of television newsreaders*. Doctoral dissertation, University of Bergen.

Harrington, Jonathan. (2007). Evidence for a relationship between synchronic variability and diachronic change in the Queen's annual Christmas broadcasts. In J. Cole & J.I. Hualde (eds.), *Laboratory Phonology 9*. Berlin: Mouton de Gruyter. 125–43.

Harrington, Jonathan. (2012). The coarticulatory basis of diachronic high back vowel fronting. In M. Solé & D. Recasens (eds.), *The initiation of sound shange: perception, production, and social factors*. Amsterdam: John Benjamins. 103–22.

Harrington, Jonathan, Kleber, Felicitas, & Reubold, Ulrich. (2008). Compensation for coarticulation, /u/-fronting, and sound change in Standard Southern British: an acoustic and perceptual study. *Journal of the Acoustical Society of America* 123:2825–35.

Harrington, Jonathan, Kleber, Felicitas, & Reubold, Ulrich. (2012) The production and perception of coarticulation in two types of sound change in progress. In S. Fuchs, M. Weirich, D. Pape & P. Perrier (eds.), *Speech production and speech perception: planning and dynamics*. Bern: Peter Lang. 33–55.

Harrington, Jonathan, Palethorpe, Sallyanne, & Watson, Catherine. (2000). Monophthongal vowel changes in Received Pronunciation: an acoustic analysis of the Queen's Christmas broadcasts. *Journal of the International Phonetic Association* 30:63–78.

Harrington, Jonathan & Reubold, Ulrich. (2021). Accent reversion in older adults: evidence from the Queen's Christmas broadcasts. In K.V. Beaman & I. Buchstaller (eds.), *Language variation and language change across the lifespan: theoretical and empirical perspectives from panel studies*. New York & London: Routledge. 119–37.

Hawkins, Sarah, & Midgley, Jonathan. (2005). Formant frequencies of RP monophthongs in four age groups of speakers. *Journal of the International Phonetic Association* 35:183–99.

Henton, Caroline G. (1983). Changes in the vowels of Received Pronunciation. *Journal of Phonetics* 11:353–71.

Holmes-Elliot, Sophie. (2015). *London calling: Assessing the spread of metropolitan features in the southeast*. Doctoral dissertation, University of Glasgow.

Honey, John. (1989). *Does Accent Matter?* London: Faber and Faber.

Hughes, Arthur, Trudgill, Peter, & Watt, Dominic. (2012). *English accents and dialects*. 5th ed. London: Routledge.

International Phonetic Association. (1999). *Handbook of the International Phonetic Association*. Cambridge: Cambridge University Press.

Jansen, Sandra. (2019). Change and stability in goose, goat and foot: back vowel dynamics in Carlisle English. *English Language and Linguistics* 23:1–29.

Jansen, Sandra & Amos, Jenny. (2020). English in the south of England: introduction to the special issue. *English Today* 36:3–5.

Jansen, Sandra & Braber, Natalie. (2021). foot-fronting and foot–strut splitting: vowel variation in the East Midlands. *English Language and Linguistics* 25:767–97.

Jones, Daniel. (1922). *An outline of English phonetics*. 2nd ed. New York: G. E. Stechert & Co.

Kerswill, Paul. (2001). Mobility, meritocracy and dialect levelling: the fading (and phasing) out of Received Pronunciation. In P. Rajamäe & K. Vogelberg (eds.), *British studies in the new millennium: challenge of the grassroots*. Tartu: University of Tartu. 45–58.

Labov, William. (2007). Transmission and Diffusion. *Language* 83(2):344–387.

Labov, William. (2010). *Principles of linguistic change. Volume 3: cognitive and cultural factors*. Malden, MA: Wiley-Blackwell.

Labov, William, Ash, Sharon & Boberg, Charles. (2006). *The atlas of North American Englis*h. Berlin: Walter de Gruyter.

Lawson, Eleanor, Stuart-Smith, Jane, & Rodger, Lydia. (2019). A comparison of acoustic and articulatory parameters for the goose vowel across British Isles Englishes. *The Journal of the Acoustical Society of America* 146:4363–81.

Lindsey, Geoff. (2019). *English after RP. Standard British pronunciation today*. Cham: Palgrave Macmillan.

Lobanov, Boris M. (1971). Classification of Russian vowels spoken by different speakers. *The Journal of the Acoustical Society of America* 49:606–608.

Maclagan, Margaret, Watson, Catherine I., Harlow, Ray, King, Jeanette & Keegan, Peter. (2009). /u/ fronting and /t/ aspiration in Māori and New Zealand English. *Language Variation and Change* 21:175–92.

Mesthrie, Rajend. (2010). Socio-phonetics and social change: deracialisation of the goose vowel in South African English. *Journal of Sociolinguistics* 14:3–33.

Milroy, Lesley. (2002). Introduction: mobility, contact and language change - working with contemporary speech communities. *Journal of Sociolinguistics* 6:3–15.

Milroy, Lesley. (2007). Off the shelf or under the counter? On the social dynamics of sound changes. In C.M. Cain & G. Russom (eds.), *Studies in the history of the English language III. Managing chaos: strategies for identifying change in English*. Berlin: Mouton de Gruyter. 149–72.

Mompean, Jose A. (2023). The *Diachronic Corpus of Spoken English* (DIACSEN): a tool for diachronic corpus phonology research. Manuscript under review.

Mugglestone, Lynda. (2003). *Talking proper. The rise of accent as social symbol*. Oxford: Oxford University Press.

Przedlacka, Joanna. (2001). Estuary English and RP: some recent findings. *Studia Anglica Posnaniensia* 36:35–50.

R Core Team (2021). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. Available at: www.R-project.org/.

Roach, Peter. (2004). British English: Received Pronunciation. *Journal of the International Phonetic Association* 34:239–45.
Roach, Peter & Hartman, James. (1997). *English pronouncing dictionary*. 15th ed. Cambridge: Cambridge University Press.
Rosenfelder, Ingrid, Fruehwald, Josef, Brickhouse, Christian, Evanini, Keelan, Seyfarth, Scott, Gorman, Kyle, Prichard, Hilary & Yuan, Jiahong. (2022). FAVE (Forced Alignment and Vowel Extraction) Program Suite v2.0.0. Available at: https://github.com/JoFrhwld/FAVE
Scobbie, James M., Stuart-Smith, Jane & Lawson, Eleanor. (2012). Back to front: a socially-stratified ultrasound tongue imaging study of Scottish English /u/. *Italian Journal of Linguistics/Rivista di Linguistica* 24:103–48.
Sóskuthy, Márton, Foulkes, Paul, Haddican, William, Hay, Jen & Hughes, Vincent. (2015). Word-level distributions and structural factors codetermine goose fronting. *Proceedings of the 18th International Congress of Phonetic Sciences*, August 10-14, 2015, Glasgow. Available at https://www.internationalphoneticassociation.org/icphs-proceedings/ICPhS2015/Papers/ICPHS1001.pdf
Stanley, Joseph A. (2020). The absence of a religiolect among Latter-Day Saints in southwest Washington. In V. Fridland, A. Beckford Wassink, L. Hall-Lew & T. Kendall (eds.), *Speech in the western states: volume 3, understudied varieties*. Durham, NC: Duke University Press. 95–122.
Stanley, Joseph. (2021). find_outliers: Detect outliers. Available at https://rdrr.io/github/JoeyStanley/joeyr/man/find_outliers.html
Stanley, Joseph A., Renwick, Margaret E.L., Kuiper, Katherine I. & Olsen, Rachel M. (2021). Back vowel dynamics and distinctions in Southern American English. *Journal of English Linguistics* 49:389–418.
Stockwell, Robert & Minkova, Donka. (1997). On drifts and shifts. *Studia Anglica Posnaniensia* 31:283–303.
Strycharczuk, Patrycja & Scobbie, James M. (2016). Gradual or abrupt? The phonetic path to morphologisation. *Journal of Phonetics* 21:291–311.
Strycharczuk, Patrycja & Scobbie, James M. (2017). Fronting of Southern British English high-back vowels in articulation and acoustics. *The Journal of the Acoustical Society of America* 142:322–31.
Trudgill, Peter. (2001). Received Pronunciation: sociolinguistic aspects. *Studia Anglica Posnaniensia* 36:3–13.
Trudgill, Peter. (2008). The historical sociolinguistics of elite accent change: on why RP is not disappearing. *Studia Anglica Posnaniensia* 44:3–12.
Turner, Alwyn W. (2013). *A classless society: Britain in the 1990s*. London: Aurum Press Ltd.
van Heuven, Walter J.B., Mandera, Pawel, Keuleers, Emmanuel & Brysbaert, Marc. (2014). SUBTLEX-UK: a new and improved word frequency database for British English. *Quarterly Journal of Experimental Psychology* 67:1176–90.
Watt, Dominic & Tillotson, Jennifer. (2001). A spectrographic analysis vowel fronting in Bradford English. *English World-Wide* 22:269–303.
Wells, John C. (1962). *A study of the formants of the pure vowels of British English*. MA Thesis. London: University College.
Wells, John C. (1982). *Accents of English. 3 Vol*. Cambridge: Cambridge University Press.
Wells, John C. (1997). Whatever happened to Received Pronunciation? In C. Medina-Casado & C. Soto-Palomo (eds.), *II jornadas de estudios ingleses*. Jaén: Universidad de Jaén, Servicio de Publicaciones. 19–28.

Appendix 1. Decade of recording (DoR), speakers' names and year of birth (YoB), and the number of speakers analyzed per decade of recording.

DoR	Males (YoB)	Females (YoB)	*N* = 87
1920s	Gilbert Murray (1866) William Lygon (1872) Leopold Amery (1873) George Trevelyan (1876)	Katharine Ramsay (1876) Margaret Wintringham (1879) Rachel Crowdy (1884) Rebecca West (1892)	*n* = 8

(*Continued*)

https://doi.org/10.1017/S0954394523000017 Published online by Cambridge University Press

Appendix 1. (*Continued.*)

DoR	Males (YoB)	Females (YoB)	*N* = 87
1930s	Stanley Baldwin (1867) A. J. Alan (1883) Edward VIII (1894) Charles Eade (1903)	Virginia Woolf (1882) Vita Sackville-West (1892) Beryl du Querton (1898) Isabel Bowes-Lyon (1900) Dorothy Round (1908)	*n* = 9
1940s	Ronald Adams (1896) C S Lewis (1898) Louis Mountbatten (1900) Lionel Gamlin (1903)	Ellen Wilkinson (1891) Mavis Tate (1893) Stella Isaacs (1894) Marjorie Anderson (1913)	*n* = 8
1950s	Cyril Radcliffe (1899) John Gielgud (1904) Leslie Mitchell (1905) Jack Hawkins (1910) Robert Dougall (1913)	Violet Bonham (1887) Edith Evans (1888) Agatha Christie (1890) Elizabeth Bowen (1899) Doris Langley Moore (1902) Rosamund John (1913)	*n* = 11
1960	Huw Thomas (1927) John Ardagh (1928) Tim Brinton (1929) Michael Aspel (1933)	Enid Blyton (1897) Barbara Castle (1910) Queen Elizabeth II (1926) Joan Bakewell (1933)	*n* = 8
1970	Cliff Michelmore (1919) Leonard Parkin (1929) Michael Heseltine (1933) John Craven (1940)	Margaret Thatcher (1925) Valerie Singleton (1937) Margaret Howard (1938) Penelope Keith (1940) Angela Rippon (1944)	*n* = 9
1980s	John Suchet (1944) Michael Buerk (1946) John Snow (1947) Nicholas Witchell (1953)	Valerie Pitts (1937) Anne Diamond (1954) Sue Carpenter (1954) Fiona Armstrong (1956) Diana Spencer (1961)	*n* = 9
1990s	Geoffrey Howe (1926) George Carey (1935) Brent Sadler (1950) Tim Willcox (1963)	Judi Dench (1934) Laurie Macmillan (1947) Debbie Thrower (1957) Allison Pearson (1960) Fiona Bruce (1964)	*n* = 9
2000s	Stephen Fry (1957) Mark Austin (1958) Jonathan Charles (1964) David Cameron (1966)	Yvette Cooper (1968) Katie Derham (1970) Jules Botfield (1972) Nina Hossain (1973)	*n* = 8
2010s	Jacob Rees-Mogg (1969) Dominic Raab (1974) Phil Reay-Smith (1974) Henry Windsor (1984)	Sophie Raworth (1968) Stella Creasy (1977) Kate Middleton (1982) Carey Mulligan (1985)	*n* = 8

Cite this article: Jansen S, Mompean JA (2023). GOOSE-fronting in Received Pronunciation across time: A trend study. *Language Variation and Change* **35**, 55–77. https://doi.org/10.1017/S0954394523000017