

# **Phonological distribution of the FOOT vowel, /ʊ/, in young people's speech in south-eastern British English**

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*Abstract.* In a study of South-eastern British English great variation was found among the younger informants (boys and girls) in their realisation of the FOOT vowel and there did not seem to be any regional patterns. Amongst the older informants there was very little variation. These informants almost exclusively used a back realisation. For both boys and girls, the use of fronted variants of the types [ɪ] and [e] was very frequent and they had a total of over 50% of these variants. The girls also used the fronted variants more often than the boys. What was interesting, however, was the contextual variation. The use of the fronted variants was most frequent before /k/ and /t/ and quite frequent before /d/. On the other hand it seemed that a following /l/ prevented FOOT fronting. It also seemed as if a preceding /ʃ/, /k/ or /g/ strongly favoured fronting. In addition, FOOT fronting was more frequent in some specific words.

## ***1. Introduction***

This paper is based on data collected in Reading in 1997 for the author's MA dissertation (Torgersen 1997), with a random sample of 29 informants from the South-east of England. The informants consisted of both younger (15 informants) and middle-aged people (14 informants) from the area. For each informant, the data consists of an interview and the reading of a word list. This paper will examine the findings for one of the features in the study, the FOOT vowel.

## ***2. Description of (u) and its variants***

A sociolinguistic variable is described as an abstract unit which is involved in co-variation with sociological parameters or other linguistic variables. Symbols for linguistic variables are enclosed in parentheses (Chambers & Trudgill 1980). The variable (u) includes all variant pronunciations of the stressed vowel of words belonging to the standard lexical set FOOT (Wells 1982). Three variants will be distinguished:

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- (u) 1. [ɯ̥]  
 2. [ə]  
 3. [ɤ]

The variant [ɯ̥] is a short weakly rounded centralised back close-mid monophthong. It is similar to RP /ʊ/, which is pronounced with the back of the tongue raised just above the close-mid position. The lips are closely, but loosely rounded. Some RP speakers use less lip rounding and a lower tongue position than the one just described, especially in the words *good*, *should* and *could*, with a realisation of the vowel in the area of [ö̥] or [ɤ̥] (Cruttenden 1994).

The variant [ə] is a short weakly rounded central close-mid monophthong. It resembles RP [↔] as used in weak forms of *could* and *would*, but has some lip rounding. In contrast to RP [↔], the variant [ə] is not restricted to weak forms, but is also found in stressed position in lexical words like *book* and *good*.

The variant [ɤ] is a short rounded front centralised close-mid monophthong. It is a rounded version of RP /ɪ/ as used in the standard lexical set KIT.

It must be noted that these variants do not represent invariable values, but include a number of realisations within an area of the vowel quadrilateral as described under each variant.

The use of the variants [ə] and [ɤ] will in this study be referred to as FOOT fronting. The process involves the fronting of the vowel of FOOT from a back to a central or front realisation.

### ***3. FOOT fronting in south-east England***

Over the last few years, researchers have observed a general trend of fronting of vowels in England. This difference can be seen in the descriptions of RP /ʊ/ given by Cruttenden (1994) and Wells (1982). While Wells (1982) writes that the vowel is fairly back and fairly close, Cruttenden (1994) states that it is nearer to the centre than to back.

In addition, there is also awareness of the fronting of FOOT, as Wells (1982) states that more centralized and/or unrounded variants can be found in innovative urban speech in England.

Interestingly, the fronting of FOOT is not mentioned by Rosewarne (1994a, 1994b) as a feature of Estuary English, although the process is typical of levelled speech in South-east England today.

### *3.1 Research on FOOT fronting*

There has been done relatively little research on the fronting of the FOOT vowel in Britain. Kerswill and Williams (1994) had (u) as one of the phonological variables in their Milton Keynes study. They found that the vowel of FOOT could be fronted and lowered to a sound resembling the vowel found in *bird*, but shorter (Kerswill & Williams 1994). Personal communication from Ann Williams suggests that this was [ø]. This realisation seems to be intermediate to the variants [ø] and [ʏ] established in my study.

The FOOT vowel was also included in the Dialect Levelling project (Williams & Kerswill 1999). The young, working-class informants, especially the adolescents from the southern cities included, Milton Keynes and Reading, used more conservative, less centralised variants such as [ʊ], but also the fronted [ø] and [ʏ] as their realisation of FOOT (Williams & Kerswill 1999).

Tollfree found in her South-east London English study (Tollfree 1999) a marked distinction between the older and the younger Regional Standard speakers (i.e. Near-RP speakers) in their realisation of the FOOT vowel. The younger speakers typically have unrounded, centralised variants, e.g. [ʊ̟], whereas the older speakers use [ʊ], and she states that the contrast between the two age groups was very marked (Tollfree 1999).

Acoustic measurements (Torgersen & Kerswill 2001) suggest that with younger speakers the FOOT vowel is becoming more fronted, especially in certain phonetic contexts. The fronting of FOOT is in accordance with the theory of chain shifts, which proposes that back vowels move to the front (Labov 1994, Martinet 1955).

## **4. The material**

The standard lexical set FOOT comprises relatively few words, and the frequency of FOOT tokens in a text will therefore be rather low. According to Cruttenden (1994) the stressed vowel /ʊ/ has a text frequency in RP of only 0.86 per cent, while all the vowels together comprise 39.21 per cent of the language. My material includes only 617 tokens of FOOT

and there are only 30 different words, 10 of which occur only once. Since there is much variation in the frequency of individual FOOT words the material lacks some phonetic contexts while others are more abundant. The three words *good*, *could* and *would* in fact represent nearly 50 per cent of all tokens of the variable (u).

#### *4.1 Word list style*

There are eight words containing the variable (u) in the word list. These are presented in Table 1:

*Table 1 Word list items in which FOOT fronting is possible*

<i>book</i>	<i>full</i>
<i>cook</i>	<i>good</i>
<i>could</i>	<i>pull</i>
<i>football</i>	<i>put</i>

For the analysis, I used all tokens of (u) in the word list for each of the informants.

#### *4.2 Conversational style*

Because the standard lexical set FOOT is rather small (see section 4), it was difficult to get enough tokens of the variable (u) in conversational style. The number of (u) tokens with the individual informants varied strongly, and was in one case as low as four. Only one informant had more than 30 tokens of (u) and for this informant the first 30 occurrences were used. All tokens were used with the 28 remaining informants, though it is understood that the uneven representation of tokens may have had an impact on the results.

#### *4.3 Identification of variants*

A phonetic transcription will be inconsistent both between different phoneticians and one phonetician's attempts at transcribing the same token since there are 'intervening factors of a psycho-acoustic nature that impinge on a phonetician's transcription' (Kerswill & Wright 1990). To assist in the auditory analysis a special reference tape was produced consisting of examples of all the variants. The tape had been checked by

other phoneticians in the Dept. of Linguistic Science and was used to crosscheck the choice of variants used by the informants.

## 5. Age, gender and stylistic variation

### 5.1 FOOT fronting by age and gender

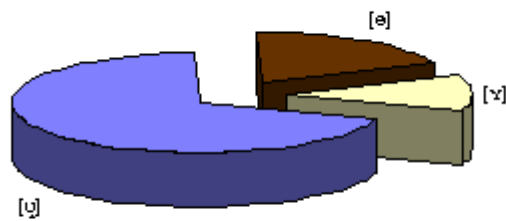


Fig. 1 Distribution of the variants of (u)

Figure 1 shows the distribution of the variants of (u). The figures show that [ʊ] is the commonest variant in the material as a whole (69.1%). The fronted variants are much less frequent: [ø] is found in 19.1%, while [ʏ] is used in 11.8% of the tokens.

Tables 2 and 3 show the variation in the pronunciation of (u) according to age and gender. Thus [ʊ] is the regular variant with the older informants, the percentage score of [ʊ] for women and men being 96.6 and 99.0, respectively. Back [ʊ] is the normal variant also with boys (61.7%), but is rather infrequent with girls (34.3%).

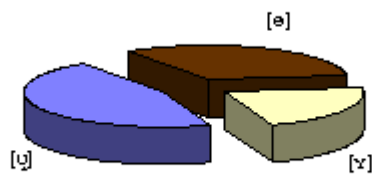
Table 2 Variants of (u) by age and gender

	[ʊ]		[ø]		[ʏ]		Total	
	No.	%	No.	%	No.	%	No.	%
Girls	68	34.3	74	<b>37.4</b>	56	<b>28.3</b>	198	100.0
Boys	87	61.7	37	<b>26.2</b>	17	<b>12.1</b>	141	100.0
Women	173	96.6	6	<b>3.4</b>	0	<b>0.0</b>	179	100.0
Men	98	99.0	1	<b>1.0</b>	0	<b>0.0</b>	99	100.0
Total	426	69.1	118	<b>19.1</b>	73	<b>11.8</b>	617	100.0

*Table 3 Variants of (u) by age*

	[ʊ]		[ə]		[ɹ]		Total	
	No.	%	No.	%	No.	%	No.	%
Young	155	45.7	111	<b>32.8</b>	73	<b>21.5</b>	339	100.0
Old	271	97.5	7	<b>2.5</b>	0	<b>0.0</b>	278	100.0
Total	426	69.1	118	<b>19.1</b>	73	<b>11.8</b>	617	100.0

FOOT fronting is found almost exclusively with the younger informants, who had a total of 54.3% of fronted variants (32.8% [ə] and 21.5% [ɹ]; see Figure 2 and Table 3).

*Fig. 2 Distribution of the variants of (u) with the young informants*

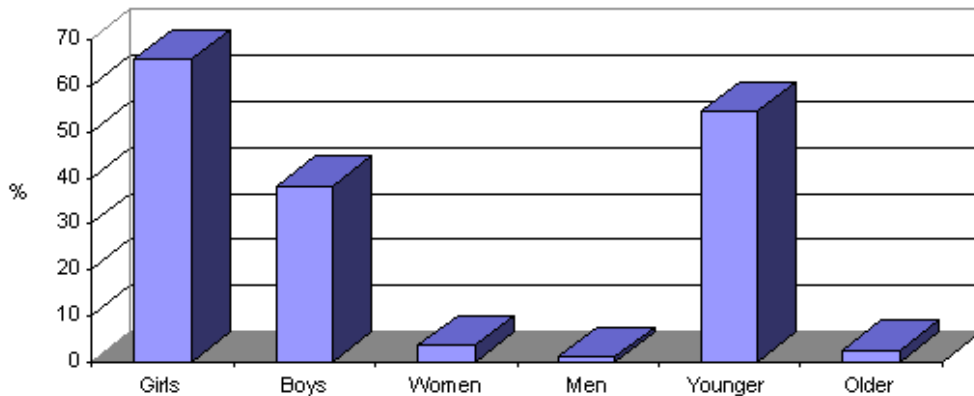
With the older informants there were sporadic examples of [ə] (2.5%), while [ɹ] was not used. The difference between younger and older informants is statistically significant ( $p < .0001$ ), and so is the difference between the boys and the older informants ( $p < .0001$ ). FOOT fronting is thus clearly age dependent.

There is considerable variation among the younger informants in the use of FOOT fronting. The girls have a much higher proportion of fronting than boys, the percentage scores being 65.7 (37.4+28.3) and 38.3 (26.2+12.1), respectively. The difference is 27.4 percentage points and is statistically significant ( $p < .0001$ ). Among the younger informants, FOOT fronting is consequently gender dependent.

There is also a difference between girls and boys in the choice of the fronted variants. Both groups have a higher proportion of [ə] than of [ɹ], but the differences in frequency between the two variants are smaller with girls (9.1%) than with boys (14.1%) (see Table 2). Among boys, [ə] is in fact more than twice as common as [ɹ]. With boys, FOOT fronting typically takes the form of [ə], with girls there is a greater chance of [ɹ].

There is some individual variation among the informants who use the fronted variants, and more information on this will be given in section 6 below.

Figure 3 illustrates the use of FOOT fronting with the different informant groups. Clearly, the age difference is quite striking, and so are the gender differences with the younger informants.



*Fig. 3 FOOT fronting by age and gender*

### *5.2 Stylistic variation*

Table 4 gives the distribution of the variants of (u) by style. The figures show that the variant [ɹ̥] is more used in word list style (WL) than in conversational style (Cnv.) in the material as a whole (78.0% vs. 63.6%). Conversely, the fronted variants are more frequent in conversational style than in word list style (36.4% vs. 22.0%). The difference in FOOT fronting between the two styles is 14.4 percentage points and is statistically significant ( $p < .0005$ ). It follows that FOOT fronting is style dependent in the total material.

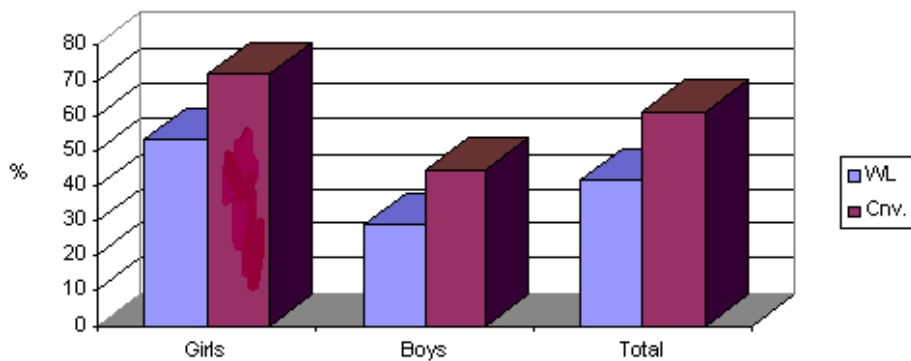
*Table 4 Variants of (u) by age, gender and style*

		[ɥ]		[ə]		[ɻ]		Total	
		No.	%	No.	%	No.	%	No.	%
Girls	WL	30	46.9	23	<b>35.9</b>	11	<b>17.2</b>	64	100.0
	Cnv.	38	28.3	51	<b>38.1</b>	45	<b>33.6</b>	134	100.0
Boys	WL	40	71.4	16	<b>28.6</b>	0	<b>0.0</b>	56	100.0
	Cnv.	47	55.3	21	<b>24.7</b>	17	<b>20.0</b>	85	100.0
Women	WL	64	100.0	0	<b>0.0</b>	0	<b>0.0</b>	64	100.0
	Cnv.	109	94.8	6	<b>5.2</b>	0	<b>0.0</b>	115	100.0
Men	WL	47	97.9	1	<b>2.1</b>	0	<b>0.0</b>	48	100.0
	Cnv.	51	100.0	0	<b>0.0</b>	0	<b>0.0</b>	51	100.0
Total	WL	181	78.0	40	<b>17.3</b>	11	<b>4.7</b>	232	100.0
	Cnv.	245	63.6	78	<b>20.3</b>	62	<b>16.1</b>	385	100.0
Total		426	69.1	118	<b>19.1</b>	73	<b>11.8</b>	617	100.0

The above stylistic differences depend almost exclusively on the usage of the younger informants. The girls have 53.1% (35.9+17.2) FOOT fronting in word list style and 71.7% (38.1+33.6) in conversational style, a difference of 18.6 percentage points. The corresponding figures for boys are 44.7% and 28.6%, a difference of 16.1 percentage points. The difference between the two styles is statistically significant with girls ( $p < .05$ ), but not with boys ( $p > .05$ ). FOOT fronting is thus style dependent only with the girls. Among the older informants, who use the variant [ɥ] near-categorically, there is not much stylistic difference. The women have examples of FOOT fronting only in conversational style, and this reflects the same general tendency as observed with the girls. The only example of fronting with men is in word list style.

Figure 4 illustrates the use of FOOT fronting by gender and style for the young informants.





*Fig. 4 FOOT fronting by style: young informants*

A marked stylistic difference is found in the use of [ɻ]. The girls have 33.6% of [ɻ] in conversational style compared to 17.2% in word list style. The difference is 16.4 percentage points and is statistically significant ( $p < .05$ ). The boys used this variant in conversational style only (20.0%). The use of [ɻ] is thus style dependent with both girls and boys. It is infrequent or absent in word list style.

The stylistic differences in the use of [ə] are much smaller than for [ɻ] and are not significant ( $p > .05$ ). The girls use [ə] in 35.9% of the tokens in word list style and 38.1% in conversational style, a difference of only 2.1 percentage points. The boys have a higher proportion of [ə] in word list style than in conversational style (28.6% compared to 24.7%). This is somewhat unexpected but is no doubt due to chance ( $p > .05$ ).

## **6. Contextual variation**

Tables 5 and 6 show the distribution of the variants of (u) by context with the young informants. The older informants are excluded because of the extremely few occurrences of fronted variants in their speech.

Table 5 indicates the use of the variants of (u) before a following /d/, /k/, /l/ and /t/. These four consonant sounds were by far the most common to follow (u) in the material from the young informants, occurring in 337 of 339 tokens (99.4%) (see Table 3). In the two remaining tokens the variable (u) was followed by /ʃ/.

*Table 5 Variants of (u) by following consonant: young informants*

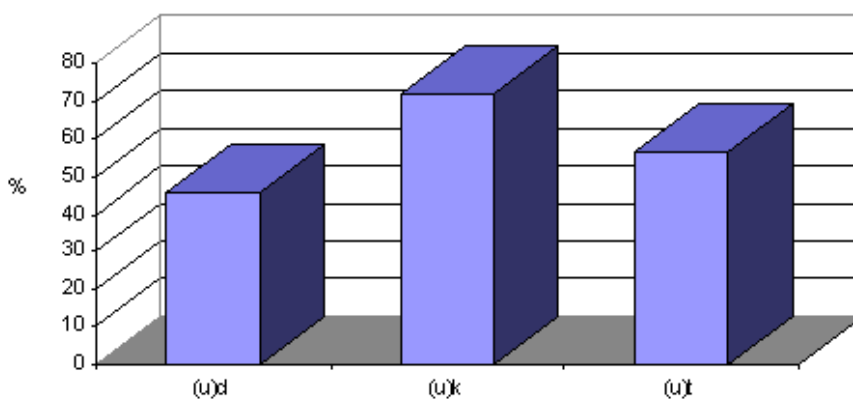
	[ɥ]		[ø]		[ɤ]		Total	
	No.	%	No.	%	No.	%	No.	%
(u)d	52	54.2	29	<b>30.2</b>	15	<b>15.6</b>	96	100.0
(u)k	45	28.3	56	<b>35.2</b>	58	<b>36.5</b>	159	100.0
(u)l	36	100.0	0	<b>0.0</b>	0	<b>0.0</b>	36	100.0
(u)t	20	43.5	26	<b>56.5</b>	0	<b>0.0</b>	46	100.0
Total	153	45.4	111	<b>32.9</b>	73	<b>21.7</b>	337	100.0

The table shows that [ɥ] is the most common of the three variants, occurring in 45.4% of the tokens. However, the two fronted variants are more frequent with 54.6% (32.9+21.7) of the total.

It is evident from Table 5 that FOOT fronting is context dependent: it is strongly favoured by a following /k/ (71.7%), and to a lesser extent by /t/ (56.5%). A following /d/ (45.8%) too favours FOOT fronting to some extent. By contrast, it seems that a following /l/ prevents FOOT fronting. This may have been because of velarisation of /l/ in this context.

Of the fronted variants, [ø] is regular before /t/ (56.5%; no [ɤ]) and predominant before a following /d/ (30.2%). Before /k/, [ø] and [ɤ] are equally frequent (35.2 vs. 36.5%). The variant [ɤ] occurs only before a following /k/ (36.5%) and /d/ (15.6%). A following /t/ seems to prevent the use of [ɤ].

Figure 5 illustrates the use of FOOT fronting in (u)d, (u)k and (u)t.



*Fig. 5 FOOT fronting by context: young informants*

There is an interesting stylistic difference in the use of the variant [ə] in the context (u)k (not shown in Table 5): [ə] is much more frequent in word list style (60.0%) than in conversational style (29.5%). The difference is 30.5 percentage points, and is statistically significant ( $p < .005$ ). The high frequency of [ə] before /k/ in word list style suggests that this variant is the phonological norm in this context among young informants.

### 6.1 FOOT fronting in individual words

As mentioned earlier, the variable (u) occurs only in a small number of words in my material. Table 6 shows the proportion of FOOT fronting among the younger informants in the eleven most frequent of those words, all of which occur more than ten times. The words concerned represent 96.5% of the items with (u) in the material (327 of 339; see Table 3). Most of them are found in both styles, but three (*look*, *should* and *would*) occur in conversational style only.

Table 6 Variants of (u) in individual words, young informants

	[ʊ]		[ə]		[ɪ]		Total	
	No.	%	No.	%	No.	%	No.	%
<i>book</i>	17	73.9	5	<b>21.7</b>	1	<b>4.4</b>	23	100.0
<i>cook</i>	18	41.8	11	<b>25.6</b>	14	<b>32.6</b>	43	100.0
<i>could</i>	8	21.1	16	<b>42.1</b>	14	<b>36.8</b>	38	100.0
<i>foot</i>	13	72.2	5	<b>27.8</b>	0	<b>0.0</b>	18	100.0
<i>full</i>	20	100.0	0	<b>0.0</b>	0	<b>0.0</b>	20	100.0
<i>good</i>	15	17.8	34	<b>40.5</b>	35	<b>41.7</b>	84	100.0
<i>look</i>	17	65.4	8	<b>30.8</b>	1	<b>3.8</b>	26	100.0
<i>pull</i>	16	100.0	0	<b>0.0</b>	0	<b>0.0</b>	16	100.0
<i>put</i>	7	25.0	21	<b>75.0</b>	0	<b>0.0</b>	28	100.0
<i>should</i>	1	9.1	2	<b>18.2</b>	8	<b>72.7</b>	11	100.0
<i>would</i>	17	85.0	3	<b>15.0</b>	0	<b>0.0</b>	20	100.0

The highest proportion of FOOT fronting ([ə] + [ɪ]) was found in the words *could*, *good*, *put* and *should*, in which the fronted variants were used in over 75% of the tokens. There is also a good deal of fronting in *cook* (58.2%). Further, fronting is fairly common in *book*, *foot* and *look* (more than 25%), while it is rare in *would* (15.0%). Fronting is absent in

*full* and *pull* in the context (u)l (see above). In *foot* and *put*, fronting has the form of [ø], as [Y] does not occur before /t/.

In general, the words with the highest proportion of fronting (*cook*, *could*, *good*, *put* and *should*) also have the highest proportion of the most fronted variant [Y]. The only exception is *put*, in which [Y] does not occur (before /t/). The word with the highest proportion of fronting is *should*, which has fronted variants in 90.9% of the tokens and [Y] in 72.7%. [Y] is also common in *good* (41.7%), *could* (36.8%) and *cook* (32.6%). [Y] is very rare in *book* (4.4%) and *look* (3.8%). Figure 6 illustrates the use of FOOT fronting in the words included in Table 6.

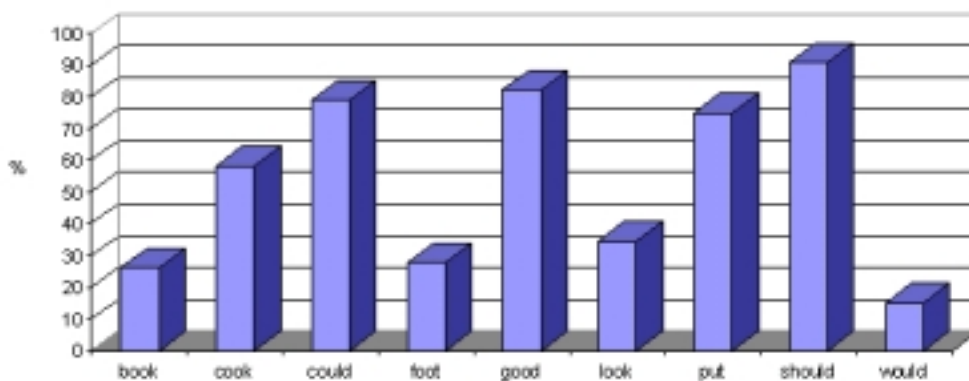


Fig. 6 FOOT fronting in individual words: young informants

The figures in Table 6 suggest that FOOT fronting may depend on the preceding as well as the following consonant. Thus a preceding /ʃ/ as in *should* seems to favour FOOT fronting, and especially the use of [Y] (cp. *would*). For the long u, the GOOSE vowel, Wells (1982) writes that centrelling clearly occurs more readily after /j/, and it might be the same that is thing happening here. Thus, palatal speech sounds seem to favour FOOT fronting. Fronting also seems to be favoured after /k/ and /g/ as in *cook* (cp. *book*), *could* and *good*, but it is not clear why this happens. Acoustic measurements also have found strongly fronted /Y/ in this phonetic context (Torgersen & Kerswill 2001). Another impact on fronting may be the word itself and the way it is used. For instance, the frequent use of *good* as a discourse marker may explain the high proportion of FOOT fronting in this item.

Table 7 shows the use of the variants of (u) in *cook*, *could* and *good* in word list and conversational style. These are the three words in Table 6

with the highest proportion of FOOT fronting, and which are also found in both styles.

*Table 7 Variants of (u) in cook, could and good: young informants*

		[ʊ]		[ə]		[ɪ]		Total	
		No.	%	No.	%	No.	%	No.	%
<i>cook</i>	WL	7	46.6	4	<b>26.7</b>	4	<b>26.7</b>	15	100.0
	Cnv.	11	39.3	7	<b>25.0</b>	10	<b>35.7</b>	28	100.0
<i>could</i>	WL	3	20.0	8	<b>53.3</b>	4	<b>26.7</b>	15	100.0
	Cnv.	5	21.7	8	<b>34.8</b>	10	<b>43.5</b>	23	100.0
<i>good</i>	WL	2	13.3	10	<b>66.7</b>	3	<b>20.0</b>	15	100.0
	Cnv.	13	18.8	24	<b>34.8</b>	32	<b>46.4</b>	69	100.0

The figures show the expected stylistic differences in the use of [ɪ] for all three words, [ɪ] being more frequent in conversation than in word list style (see above). By contrast, [ɪ] is more common in word list than in conversational style, especially in *could* and *good*. This is unexpected, but has a parallel in the high proportion of [ɪ] in word list style in the context (u)k (see section above). It seems that [ɪ] is the phonological norm before /d/ in *could* and *good*.

### **7. Regional variation**

No differences were found which could be attributed to county of origin, indicating that FOOT fronting is evenly distributed in the south-east of England.

### **8. Summary and conclusion**

This article has shown that FOOT fronting, which is the use of a front or central variant of the FOOT vowel, was clearly a feature of young people's speech and thus age dependent. FOOT fronting was found with both girls and boys, with girls as higher users of the most front variant [ɪ]. There were very few examples of FOOT fronting with the older informants. Certain phonetic contexts clearly favoured FOOT fronting. Front variants

were most common in conversational style, which may imply that the informants were aware of it, but the stylistic difference was very small.

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