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Adolescents, young adults and the critical period: two case studies from "Seven Up"

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1.0 Apparent time: the default interpretation for good reason

The concept of "apparent time" developed in the early 1960s was a crucial interpretive element in the study of language change in progress. As a means of slicing through the present to the past by studying the contemporary speech of people whose linguistic systems had been established in time periods increasingly removed from the present, the apparent time interpretation offered a window to a linguistic past that was especially valuable in the absence of records of previous states of a language.

Of course, sociolinguists realized that age distributions might also reflect age grading. Labov laid out the possibilities in an eight-cell table replicated here as Table 1. Under an age-grading interpretation (pattern 2), linguistic differences among speakers according to age might be due not to ongoing language change that led to subsequent generations acquiring differences which then remained stable with those speakers throughout their lives (pattern 3). Rather, speakers might be changing various aspects of their language over the course of their lives.

Pattern	Individual	Community
1. Stability	stable	stable
2. Age-grading	unstable	stable
3. Generational change [= "apparent time" interpretation]	stable	unstable
4. Communal change	unstable	unstable

Table 1. Patterns of change in the individual and the community. [From Labov 1994:83]

In making the choice between apparent time and age grading in the absence of reliable temporal benchmarks, sociolinguists displayed appropriate caution. Studies where an apparent time interpretation was invoked usually focused on those aspects of language least subject to conscious manipulation or metalinguistic attention on the part of speakers –

phonology rather than lexicon, for example. Researchers were also careful to point out that there might be an effect of age grading combined with change in progress. Within the domain of phonology, and with all these caveats, most studies tended to take apparent time as the default interpretation.

2.0 Glasgow glottal stop: is age grading reasonable?

Macaulay's report on the use of glottal stop as a variant of the /t/ phoneme in Glasgow (1977) was a clear and well documented case in which the apparent time interpretation appeared not to be the reasonable default. Macaulay's data were drawn from an elegantly constructed, balanced sample in which children 10 and 15 years old from four social class backgrounds were selected from Glasgow schools representing the different social class groups. These social class groups, labelled 1 for upper class, 2a and 2b for upper and lower middle class respectively, and 3 for working class, were each represented by 12 speakers (2 male and 2 female speakers in each age bracket). The data are displayed in Figures 1 and 2.

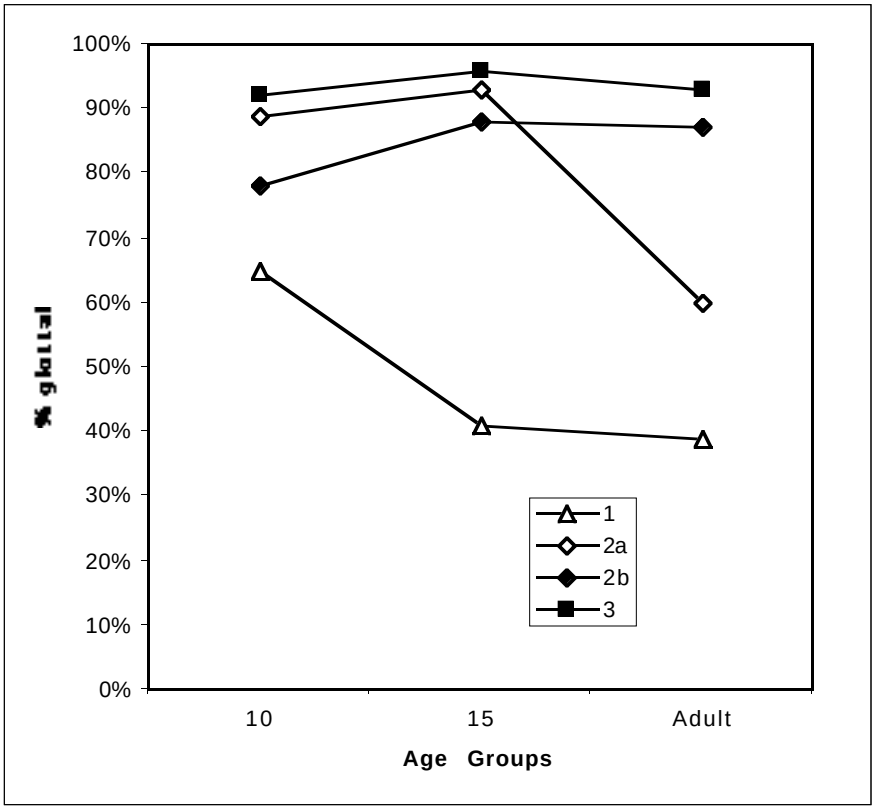

Figure 1. Percentages of glottal stop variants of /t/ for male Glasgow speakers, ages 10, 15 and Adults (fathers of the boys), according to four social classes [data reported in Macaulay 1977, pp.174 -176].

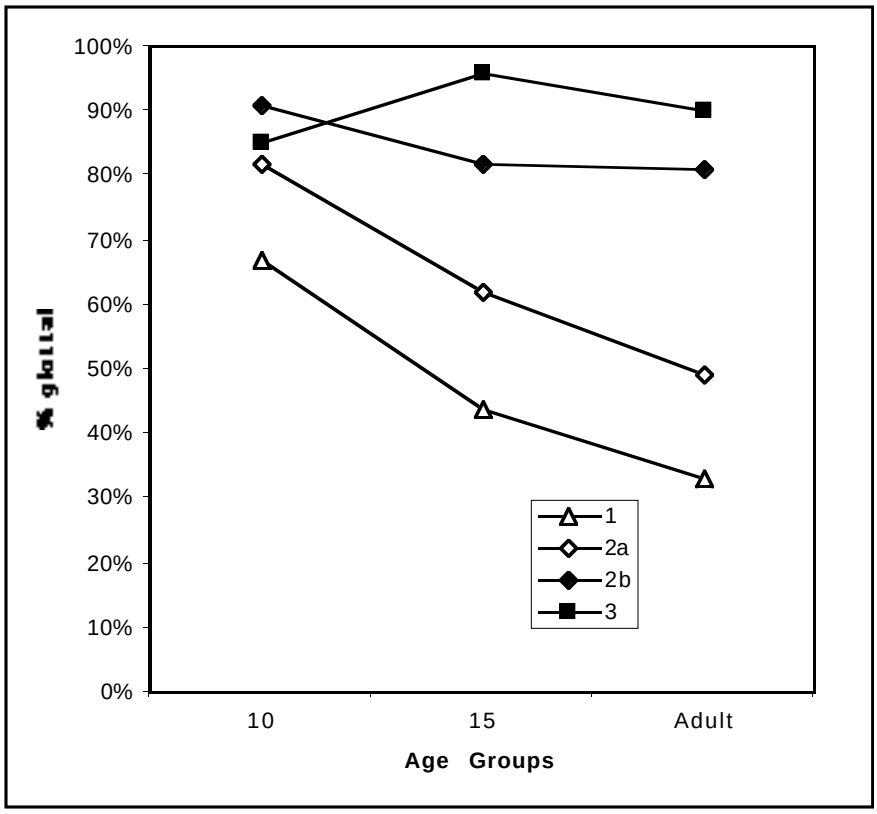

Figure 2. Percentages of glottal stop variants of /t/ for female Glasgow speakers, ages 10, 15 and Adults (mothers of the girls), according to four social classes [from Macaulay 1977, pp.174-176].

We observe great stability in groups 2b and 3, in that for both male and female speakers, high levels of glottal stop usage are reported for all three age groups. At the other end of the social scale, we see that upper class adults are preponderant users of the [t] variant, with relatively low use of the glottal variant, that their 15 year old children use more glottal stop, and their youngest children, the 10 year olds, use even more glottal stop. Under an apparent time interpretation, this would mean that glottal stop is a change in progress – that the adult upper class speakers have gone through life with the low level of glottal stop use they now display, and that their children will continue to use high levels of glottal stop as they age. The differential behavior of boys and girls in group 2a, however, leads to a

different conclusion, especially in light of the fact that [t] is the standard variant. We see in Figure 1 that the boys of all but the highest class show a slight increase in the non-standard variant between ages 10 and 15, but that a sharp decline is then registered for adult men, holders of white collar jobs where the standard language is valued. This pattern, I believe, is best interpreted as a withdrawal from general use of glottal stop in the vernacular on the part of middle class speakers as they get ready to enter the labor force. Among female speakers, the pattern is even stronger in that adolescent girls from both groups 1 and 2a begin to decrease their use of glottal stop, continuing to do so as adult women who, in these two groups, end up with lower levels than the men. No significant sex differences are registered among members of groups 2b and 3.

Though the age-grading interpretation of glottal stop in Glasgow appears the more likely on social grounds, the plausibility of such an interpretation is very difficult to gauge in the absence of independent evidence of what speakers can and cannot, do and do not change during the course of their lives. Lenneberg's (1957) argument that there is a maturationally based, critical period for language acquisition has been convincingly supported by research over the past 40 years, and there seems no viable alternative to the finding that people form their basic linguistic systems as children, making only minor alterations later in life. Studies focusing on adolescents, however, suggest that linguistic alterations carried out at this stage in people's lives may be of considerable sociolinguistic importance (Labov 1976; Kerswill 1996; Eckert 1999). It is clear that longitudinal sociolinguistic research, including both panel and trend comparisons, is needed to clarify the situation.

3.0 A pilot panel study of phonological change

The current paper is intended as a contribution to the general project of discovering the nature of speakers' abilities and propensities to modify their linguistic systems after early childhood. It analyzes panel data taken from a unique video document in the public domain: the film series known as "7 and Up". British filmmaker Michael Apted filmed interviews with 14 children who were 7 years old in 1963. He has gone on to film a subset of this group every seven years since that time, the latest including a majority of the members of the original group at age 42 in 1999. For this paper, I carried out a study of phonological variation in the speech of two of the boys between the ages of 7 and 35, examined as a longitudinal study in order to address the question of the extent to which people can and do effect changes in their phonological systems in adolescence and young adulthood.

3.1 The speakers

In the initial film devoted to the 7-year olds, there were two children from the North of England: Neil, a lower middle class boy growing up in a suburb of Liverpool; and Nicholas, a farmer's son from Yorkshire whose social class background is not entirely clear. What is stressed in the case of Nicholas is his rural origins: at the age of 7 he was the only child of his age in his village, and was attending a one-room village school four miles from his home. It seems Nicholas was firmly anchored in his local dialect throughout childhood and adolescence. At 14, he was at a Yorkshire boarding school and tells us that although he's been to Leeds (a Northern city) "a couple of times", he has never been to Manchester, and to London only once, when at the age of 7 he and the other children in the documentary were brought to London to spend the day at the zoo and at a party and playground together. Both Nicholas and Neil were geographically and socially confined to the environment of their families and locality until the age of 16.

In terms of their subsequent linguistic influences, both experienced geographic and social mobility. Nicholas was upwardly mobile, studying physics at Oxford, where at age 17 he met his future wife, a southern dialect speaker. At age 26, Ph.D. in physics in hand, they emigrated to the U.S. where Nicholas took up an assistant professorship in a major Midwestern university. Neil, on the other hand, experienced downward mobility. Disappointed not to have been accepted at Cambridge, he attended Aberdeen University for only one semester. He then held a series of odd jobs, working in construction in London at age 21), but was mainly unemployed and living for periods of months in various parts of the country including Wales and the At 28, Scottish Highlands, where he was living when filmed at age 28, and At 35, he was still unemployed, but had a stable residence in a Council flat in the Shetlands, where he was somewhat integrated into the local community

3.2 Broad-A.

The first feature I investigated – the "Broad-A" – is one of potentially great interest because of the clear difference between the native dialects of the two speakers, on the one hand, and the Southern-dialect standard on the other. Though Northern and Southern dialects share a lengthened, low back /[ɑ:]/ before syllable-final /r/ as in *car* or *smart*, as well as with following /l/ as in *half* or *palm*, they differ in that for many other words, non-Southern dialects have a fronter, shorter /a/ where Southern dialects have Broad-A. Thus, for Northern speakers, /a/ in *path* and *grass* sounds like /a/ in *pat* or *grab*; Southern

speakers pronounce *path* and *grass* to sound like the /a/ in *car*. The Broad-A word class is to some extent defined phonetically, in that /a/ is often Broad following fricatives and nasals. However, as Trudgill points out, there are many exceptions to this . . . For example, *mass* is pronounced with Broad-A when it refers to the Catholic *Mass*, but with Short-A in *mass* as in physics; *plant* has Broad-A, but *ant* is short (*Aunt* being Broad).

Unfortunately, the number of instances of potential Broad-A in the speech segments available on the films was very small: a total of 19 tokens for Neil and 14 for Nicholas, across all time periods. These are listed in Table 2. With very low token numbers, especially for ages 7 and 14, it is not really possible to say for certain that either boy used no Broad-A as a child or adolescent. It would, however, have been very surprising to find this feature at a time when the children were completely immersed in their local dialect areas. Indeed, the four tokens for Nicholas show only the [a] vowel in these words. And Neil's two tokens – both of the word *grass* [gras] – at the age of 7 are spontaneous and unselfconscious uses of the Northern pronunciation.

Age	Neil (Liverpool)	Nicholas (Yorkshire)
7	grass, grass	last, last, answer, answer
14	---	answer, asking
21	**past**	answer, answer
28	last, last, **last** path, chance, **after**	answer, after chance, chance, **chance** (.5)
35	**chances** (.5), **last, past after, after, after, answer, answer** last* , moustache*	chances

Table 2. All tokens of words in the "Broad A" class (for Southern British speech) occurring in the samples from Neil and Nicholas, ages 7 - 35. Bold type = pronunciation with Broad A; otherwise pronounced with Short A (1 token of *chance* for each speaker seemed intermediate in pronunciation and was rated 0.5). * = two tokens in speech directed to local community members, not to the interviewer.

What about the post-adolescent period? Have Neil and Nicholas adopted the Southern Broad-A pattern in the 19 years since they left their northern dialect homes at age 16? In the case of Nicholas, it looks as if there has been little change in his childhood pattern. Seven of the 8 candidate Broad-A words that we have in his speech since the age of 21 are solid Short-A pronunciations. From age 16 to 26, Nicholas was exposed to Southern dialect speech on a daily basis at Oxford. Nicholas' wife, a southern dialect speaker, tells us that she met him at Oxford when Nicholas was 17, and by the time

Nicholas was recorded at age 28, they had been married for 4 years. It is not certain what should be made of the one token of an intermediate pronunciation – one of the three instances of the word *chance* recorded at age 28. Continuing to live in the U.S. through age 35, Nicholas would not be hearing Broad-A regularly from the Americans around him, although he would still having been hearing his wife's use of the Broad-A word class. Whether we should attribute Nicholas' one short token at age 35 to conservatism of his Northern system, or to the reinforcement of living in the U.S. is not immediately evident – perhaps there is some influence from both.

As for Neil, we unfortunately have no adolescent data on Southern Broad-A class words. At 21, on the film clip recorded in London, Neil uses one instance of Broad-A in the word *past* [pɑ:st]. At 28, 2 of the 6 tokens receive a Broad-A pronunciation. But it is at age 35 that we see a real shift, a lengthy interview with Neil being the result of the great interest viewers of the "28" film had in Neil. Of the eight potential Broad-A tokens Neil uses in being interviewed, only one instance of *chances* has an intermediate pronunciation, all the others being Broad. The two instances of Short-A pronunciation are in excited speech delivered to a fellow performer in the Christmas pantomime of the village where he is living in the Shetlands, a dialect region that shares the Northern Short-A pattern with Neil's childhood dialect. We see Neil, in costume, coming off the stage, laughing, and saying in what seems a very spontaneous, unmonitored remark:

(1) **Last** year my **moustache** fell off! (Neil, age 35, Shetlands)

Have Neil's travels resulted in his gradual elimination of childhood dialect features from the interview speech we must characterize (despite its emotional intensity and spontaneity) as "careful", while these features emerge in animated interaction with community members with whom he shares these features? Or are the Northern features still characteristic of his current vernacular, with the external Southern norm emerging only in interviews where he is monitoring his speech to sound more standard?

In terms of motivation, there are a number of questions we might ask: Are Neil and Nicholas struggling to become, or sound like, Broad-A speakers? Southern? Cultured? Accommodative of Southern interlocutors? I believe that if they were trying to sound like Broad-A speakers, they would likely have more [ɑ:] tokens than they do, as well as some hypercorrection. It is important to note that no instances of hypercorrect Broad-A were noted for either speaker. Perhaps what we are seeing is rather a transfer of particular lexical items to a word class that already has some phonetic instantiations in speakers' grammars,

in words like *palm* and *car*. These alternatives will be reconsidered below, after we have had an opportunity to examine a second phonological variable.

3.3 Short-U.

Short U presents a case very different from that of Broad-A, in that the phonetic value of the Southern variant is not elsewhere instantiated in Northern dialect systems. In the history of the Southern British dialects, there was

> "a phonemic split in the short-*u* class, one reflex retaining a relatively high quality (PUT), the other moving off towards some kind of non-high quality (CUT) . . . Of the *u:* words which have undergone shortening, those affected by [an earlier shortening process] joined ME short-*u* items in lowering (e.g. *blood, love*). On the other hand, those subject to later shortening apparently arrived too late in the u class to participate in lowering (e.g. *good, foot*)" (Harris 1996:12-13).[1]

Shortening seems to have begun in the 16th century, and lowering in the 17th (Harris 1996: 15). In Southern British English, the rounded Short-U words in Table 3 are among the very few in common usage that have not joined the enormous wedge class.[2] All but *cushion* begin with labials, a phonetic gesture associated with rounding, but initial labials did not prevent many other words from lowering and unrounding: *pus, bus, muss, but, much, pub, putt, mutt, puff,* and many others. Following (l) appeared favorable to retaining rounding in *pull*, *bull*, and *full*, but was overridden in words like *mull*, *dull*, *hull*, *gull*, etc.

Words in which [U] was unrounded in Southern British and all colonial dialects	Words in which [U] stayed rounded in Southern British and all colonial dialects
but, pub, putt, mutt, gut, puff, muff, cuff, hut, bud, shut, cut, gut, . . .	put, pudding
mull, dull, hull, gull, lull, null, cull, sully, . . .	pull, bull, full
pus, bus, muss, fuss, . . .	puss
brush, hush, lush, crush, thrush, much, such, gush, rush, crush, . . .	push, bush, bushel, cushion

[1] Harris notes that this picture is somewhat oversimplified, but it is adequate for our purposes of characterizing the major differences between Northern (Harris' Type I) and Southern (Type II) dialects.

[2] According to Harris, wedge today "is typical of most North American English but is now recessive in southern English. The vowel tends to be nearer low central å in Standard English English, . . . with even fronter reflexes being found in vernacular southern English" (1996:13). And Macaulay (1988) notes that RP *much* tends to be homophonous with *match*, an observation with which I concur on the basis of listening to the upper class Southern speakers in the "7 to 35" films.

puck, buck, suck, tuck, luck, shuck, truck, . . . *cup, pup, sup(per), . . .* *gun, fun, sun, pun, bun, run, . . .* *sum, rum, dumb, crumb, . . .* *trump, dump, rump, lump, . . .*	

Table 3. The few common words retaining [ʊ] in modern Southern (standard) English, compared with some of the many wedge-class words.

In Northern dialects, this unrounding never happened. All Short-U words remained in high back rounded position, as members of one, unitary word class, and the wedge phoneme is not part of the system. This class was joined by words from the original ME o: class – both *blood* and *good*. Whereas *buck* and *book* form a minimal pair in Southern English, they are homophonous with the *book* pronunciation in Northern dialects. The isogloss is shown on the map in Figure 3 (from Trudgill 1974:242).

For the Northern dialect speaker, then, acquiring the [ʌ]~[ʊ] distinction is psycholinguistically very different from acquiring Broad A, because it involves creating a new category – in effect, "unmerging" (though historically, this is of course putting it backwards) the Short-U words. Labov (1994, Chapter 11) documents how rare splits are, as opposed to mergers, and in the historically well supported generalization that mergers spread at the expense of splits, amplifies the principle he attributes to Paul Garde: a merger cannot be reversed by mechanical means.

It is unlikely, however, that the "merged" dialect speaker, faced with the challenge of learning, or accommodating to a "split" dialect, envisions the process as one of unmerging a category. Rather, I believe that the Northern British speaker would conceive of the process as learning to pronounce this new sound, [ʌ], learning to say *cup* as [kʌp]. At the same time that individual speakers may, because of contacts with southern dialects, be influenced to alter their pronunciation, it appears that the Southern system has also been spreading northward. According to Trudgill, "the southern six-vowel system is gradually spreading northwards, and in this transition zone . . . some speakers have transferred or are transferring *particular words* from the [ʊ] pronunciation to the [ʌ] pronunciation" (1986:59). He sets out the scale in (2), in which the leftmost word, *but*, is the least likely for an intermediate dialect speaker to pronounce as [ʌ], and the rightmost word, come, is one of the earliest to be altered. It would be interesting to see whether individual speakers obey this same scale, but unfortunately, with the exception of one token of *come* and two of *up*, the other words listed by Trudgill do not occur in the later speech samples in our data.

(2) *but* < *up* < *cup* < *butter* < *love* < *come*

In the only sociolinguistically detailed research on this phenomenon to date, Britain (1997; 2000) studied the ongoing change in the pronunciation of Short-U among adolescents in the Fens, an area considerably to the southeast of the regions native to Nicholas and Neil. Britain (2002:629-30) tabulates the relative proportion of use of five phonetic variants for individual speakers: [ʊ , ʊ̟ , ɤ , ʌ̟ , ʌ], and analyzes the process as one of progressive convergence on an intermediate form, [ɤ]. As opposed to the "mixed dialect" in the transition zone as described by Trudgill above, the situation in the Fens would be one characterized by Chambers and Trudgill as a "fudged dialect" (Chambers & Trudgill 1980). Both from localities far north of the isogloss, neither Neil nor Nicholas would, in terms of their geographical origins, have grown up in either a "mixed" or a "fudged" dialect zone, however, in terms of their trajectories after leaving home, we may be able to see whether they as individuals adopt either of these patterns.

Before returning to the question of whether a person like Nicholas or Neil would have any interest in acquiring the [ʌ]~[ʊ] distinction, I will reviewing how they pronounce Short-U from age 7 to 35. A sample from Nicholas' 7-year old speech is given in (3), with the [ʊ] vowels that we would expect of a Yorkshire speaker in the words *come* and *country*. In (4), 14-year old Nicholas again uses three (of three possible) fully rounded tokens.

(3) They'd like to **come** [kʊm] out for a holiday in the **country** [kʊntri:]
[Nicholas age 7; Yorkshire]

(4 a) Oh I've been to Leeds a **couple** [kʊpl] of times and--
(b) haven't been to Manchester. And, I went to **Lon**don [lʊndn] that-
(c) with the **other** [ʊ] -- wh-- when you did the first program
(d) but that's the only time I've been. [Nicholas, age 14; Yorkshire]

Table 4 shows the entire Short-U data set for Nicholas for the five periods.[3] Through age 21, he had 16/16 tokens as fully rounded – apparently a solid Yorkshire speaker. However, we see some drastic changes in his 28 year old sample. First, the tokens are no longer so readily

[3] I transcribed all of the speech from both speakers from the film, then selected the Short-U tokens, going back to code them on two widely separated occasions for degree of rounding. In selecting tokens, I omitted any that occurred in fully unstressed syllables, since reduction to shwa in unstressed syllables made moot any assessment of vowel quality. Thus, prefixes like *un-* or function words like *but* were not included unless they were pronounced with some degree of stress. Since texts available are not extensive, I have included all transcripts and coding in Appendix A, which will permit any reader to rent the video and assess the coding for her/himself.

characterizable in a binary fashion. Because many of them are phonetically intermediate, I classified the tokens according to a three-point scale.

Age	[ʊ]	[ɣ]	[ʌ]	Total
7	6	-	-	6
14	8	-	-	8
21	2	-	-	2
28	4	17	13	34
35	4	16	14	34
Total	24	33	27	84

Table 4. Rounded and unrounded Short-U for Nicholas, all data.

At age 28, only 4 or 12% of his 34 tokens are phonetically similar to his earlier, fully rounded pronunciation, and the situation has remained stable at 35. Nor are individual words in Nicholas' 28-year old data pronounced consistently as far as Short-U is concerned. In (5), we see two instances of the word *much*, the first fully unrounded; the second fully rounded.

(5) I didn't achieve very **much** [mʌč] but,
I'm not worrying about it very **much** [mʊč]. (Nicholas age 28, after 2 years in Wisconsin)

What can we infer about what has gone on linguistically? Has Nicholas adopted a new phonetic target across the board for his entire short high back rounded word class? If so, this new target should be used not only for the words that are unrounded for southern dialect speakers, but also for the other words in the larger, Northern high back rounded class: *book, look, put,* etc. A classic strategy for a putative un-merger might be to try to blur the distinction, adopting an intermediate form as we have in fact observed in Nicholas' 28-year old speech[4]. In other words, if it were only a matter of phonetically modifying [ʊ], withdrawing from its extreme peripherality and rounding to make it more centralized, we would expect hypercorrection. [5] But whereas the word

[4] Some Anglophone L2 speakers of French pronounce the vowel of both *le* and *la* in such a way as to blur the vowel quality distinction, a solution they may find handy when not quite certain which gender to assign.

[5] Throughout my childhood and adolescence I had intimate and regular contact with my maternal grandmother, Margery Gill, an unreconstructed Northern dialect speaker who went through life with variable hypercorrection of Short-U words. Born in the town of Eccles just outside Manchester, she emigrated to Canada at the age of 25 and remained in Canada, without ever a return visit, until her death more than 50 years later. Her speech was full of sporadic hypercorrections. I remember hearing [pʌt]. for *put*, both [bʌk] and [bu:k] for *book*, as well as many others. Her strategy appeared to be to avoid the hated [ʊ] sound at all costs. But it was only as a grown woman, many years after my grandmother had died, that I figured out that what appeared to me to be an exotic word in her vocabulary was in fact an ordinary lexical item we shared. A professional seamstress, my grandmother frequently had occasion to refer to an item I called a *snap*, often used in sewing instead of a button.

country, clearly [ʊ] in his two 7-year old segments, is altogether lower and unrounded in a 28-year old segment from Nicholas, he retains [ʊ] firmly in place in word like *put* and *look* (underlined in the segment presented in (6b). It looks as if Nicholas has developed two word classes, the old [ʊ] class retaining only those few words that southern dialects retain as [ʊ], and which he invariably pronounces in that way, and a new [ʌ] class containing the many Short-U words that southern dialects historically unrounded. These latter, he pronounces variably, but with a strong tendency towards some degree of unrounding, as we observed in the 28- and 35-year old data of Table 4.

(6) (a) If one is wandering down a **country** [ʌ] lane,
(b) there's an awful lot to **look** [ʊ] at in the world around you.
[Nicholas age 28, after 2 years in Wisconsin]

Words	[ʊ]	[ɣ]	[ʌ]	**Total**
brother	7		35,35	3
but		28,35		2
(be-)come	7,14	35	28	4
country	7,7	28	28	4
couple	14		35,35	3
done	21	35		2
money			28,28,28,28	4
much	14,35	28,28,35,35	28,28,28,35	10
other	14	28	28,28	4
run(ning)			28,35	2
some(-)	7,14,21,28,35, 35*,35*	28,28,28,28,35, 35,35,35,35	28,35	19
stubbornness		35	35	2
sun			28,28	2
up(-)	7,7,14	28, 35	28	6
wonderful			28,28	2
Total	20	22	26	68

Table 5. Nicholas, all Short-U words occurring 2+ times in corpus.
Each entry indicates Nicholas' age for that token

A further question is whether we have any evidence of how Nicholas is creating this new class: word-by-word learning vs. blanket but variable unrounding across the vocabulary? Of Nicholas' 84 Short-U tokens that appeared in Table 4, 68 were in words that occurred more than once in the corpus. These are displayed in Table 5, in which each token is registered according to the age at which Nicholas said it. Looking across the table from left to right, we see the high concentration of earlier-pronounced tokens in the leftmost,

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She called it what I heard as "*press-stood*", and it took me years to make the *stud~stood* connection.

rounded column, and note again that no unrounding occurs before age 28 (there is unfortunately very little 21-year old data) But if we look word-by-word, we see that two words at age 28 – *much* and *up* – occur in both the "somewhat rounded" and "unrounded" columns, and that *some* occurs in all three. It seems that variability is the order of the day.

A last point before leaving Nicholas. The question I am posing is whether Nicholas has acquired a binary distinction, and yet I have arrayed the data in three columns. If we consider the intermediate column to still be rounded, we would conclude that although Nicholas has made valiant and very successful efforts to modify his phonetics, he is still a long way from making the categorical distinction.

The case of Neil is even more challenging than that of Nicholas. What is surprising about Neil is the only very slight amount of rounding he shows at age 7, despite having grown up far north of the isogloss we see in Trudgill's map. Were his parents from another dialect area? This we do not know, but he certainly has the Northern Short-A pattern firmly in place, as well as the distinctive Scouse intonation. Whatever the case, the only period in Neil's life when he shows the fully rounded Short-U pattern is in adolescence, when all of his – tantalizingly few – tokens are clearly [ʊ]: 4 out of 4. At 21, when he had been working sporadically as a laborer in London for several years, all his Short-U tokens were fully unrounded and I could detect no trace of his Liverpool intonation, though he retained most of his Short-A as noted above. His extensive interviews at age 28 in Scotland and age 35 in the Shetlands show a vast majority of unrounded tokens, with only about 10% -15% of the tokens slightly rounded.

Age	[ʊ]	[ɣ]	[ʌ]	Total
7	1	4	7	12
14	3	1	-	4
21	-	-	16	16
28	1	9	54	64
35	-	2	19	21
Total	5	16	95	117

Table 6. Rounded, intermediate and unrounded Short-U for Neil, all data.

Neil's life as a wanderer, over the many years from when he dropped out of Aberdeen University at age 16 until age his mid thirties, exposed him to a wide variety of dialects and accents. He mentions jobs in construction and as a cook at a youth hostel, as

well as long periods unemployed, living on public assistance. He retains a very educated and articulate style of speech, but seems to have lost the northern Short-U pattern. Tokens occurring in the "partially rounded" column seem very slightly rounded, perhaps conditioned by adjacent segments like the labials in the words *subject*, *suburb*, and some of the *–body* words. Neil has lived his life from perhaps the age of 13 or 14 on as pretty much of a loner. At 14 he mentions difficulty adjusting to the comprehensive school he had been attending for two years at that time. And though his 14-year old speech pattern sounds very local, he was clearly not anchored socially. In later interviews, he discusses in a forceful and convincing way the alienation he felt growing up in suburbia.

(7) What my background has given me, --is, um, a sense of just being part, of, um, a very impersonal society. The suburbs are-- the suburbs force this kind of feeling upon somebody . . . if I was living in a bedsit in suburbia, I'd be so miserable I'd feel like cutting my throat. (Neil, age 28, Scotland)

Perhaps Neil's abandonment of the Short-U pattern, tied to the locus of his painful adolescence, is part of his rejection of an entire life style.

Words	[ʊ]	[ɣ]	[ʌ]	**Total**
come			7,7,7,28,28,28	6
enough		28	21	2
funny			28,28,28	3
London			21,21	2
love			21,21	2
money			28,28,28,35	4
month			21,21	2
much	14	7	28,35,35	5
nothing	14	28	28,28,35	3
other			21,28,28,35	4
pub			28,28,28	3
some		35	28,28,28,35	5
somebody		35	21,21,28,28,28, 28,35,35,35	10
something			21,28,28,28,28, 28,28,35,35,35, 35	11
some(where/times)		7,7	28,28,28,28,28, 28	8
subjects			28,28	2
suburb(s)		28	28,28	3
un-		7	28,28,28,28,28, 28,28,28	9
up	7,14,14	28, 35	28,28,35	6
wonder(-)			28,28,28	3
Total	4	8	82	94

Table 7. Neil, all Short-U words occurring 2+ times in corpus. Each entry indicates Neil's age for that token.

If we compare the behavior of Nicholas and Neil over the 28-year span with respect to Short-U, we see two quite different patterns. As adults, both of these speakers appear to virtually abandon their earlier phonetics of Short-U, and both appear, amazingly, to have correctly identified the Short-U class in that neither uses any hypercorrection. But there the similarities end. As shown in Figure 3, Nicholas displays a categorically rounded form through age 28, but by at age 28 there is a sharp departure from this pattern. Intermediate and unrounded tokens dominate at both later ages, with a slight preference for the intermediate form, reminiscent of the Fenland adolescents studied by Britain (1997, 2000). In contrast, Neil shows erratic behavior in childhood, with an adolescent spike in rounded pronunciations at age 14 (see Figure 4). From age 21 on, Neil has an almost categorical use of a completely unrounded pronunciation.

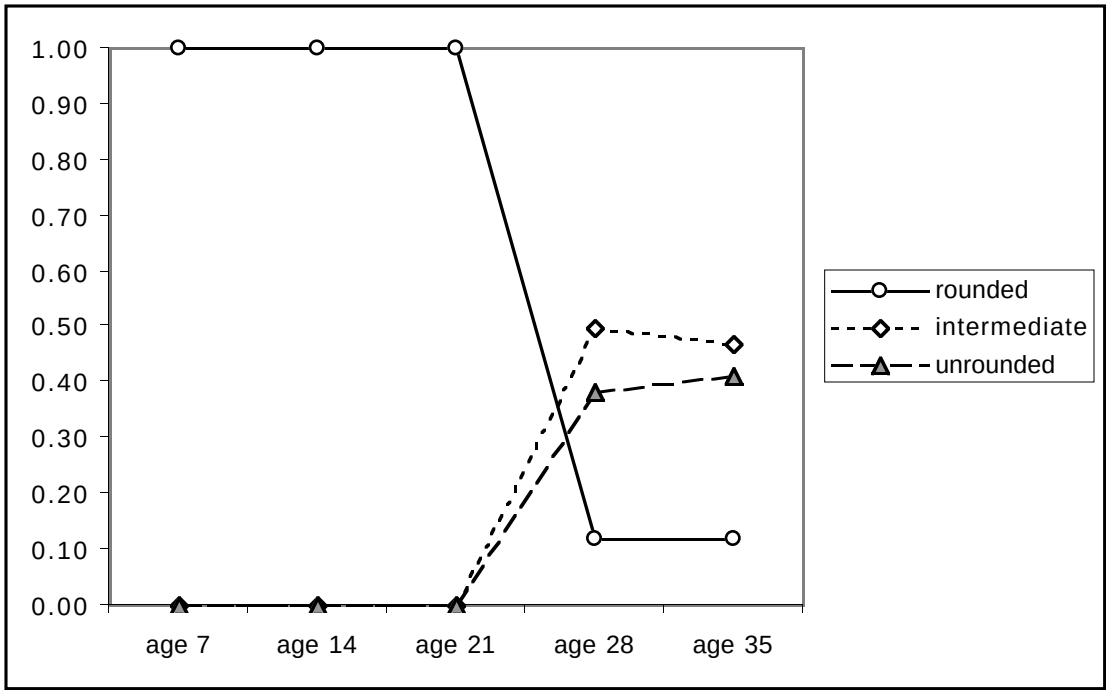

Figure 3. Percentage of Nicholas' Short-U tokens pronounced as rounded, intermediate and unrounded, age 7 – 35.

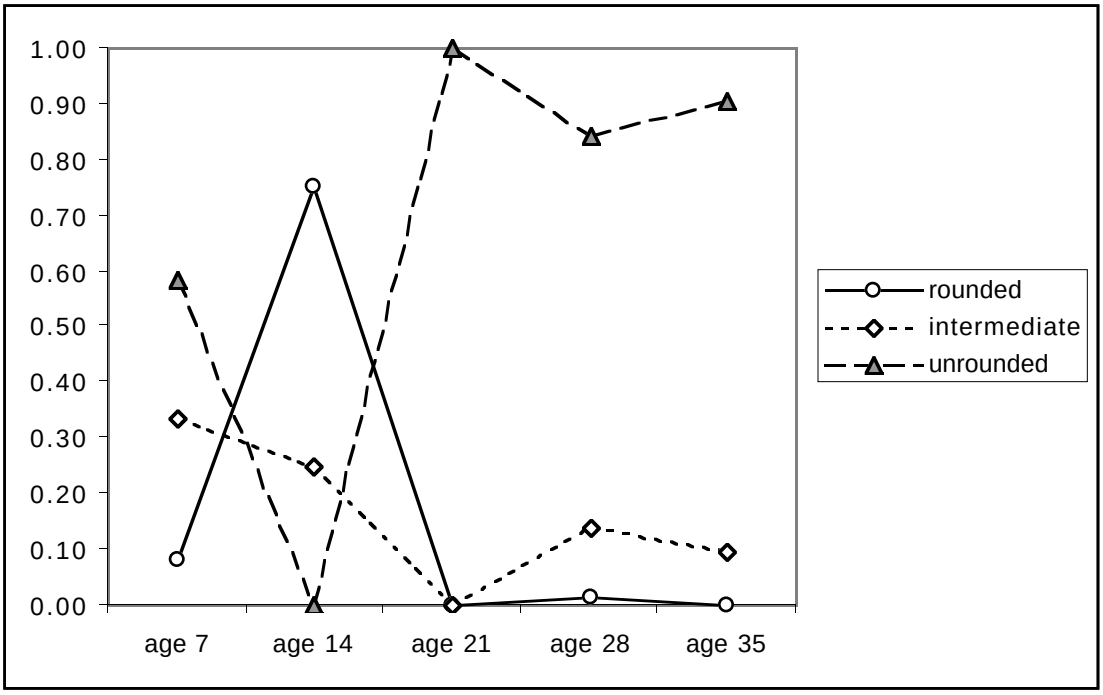

Figure 4. Percentage of Neil's Short-U tokens pronounced as rounded, intermediate and unrounded, age 7 – 35.

4.0 Conclusions: broader implications of the comparison of Broad-A and Short-U.

We are now in a position to compare the fate of the two Northern phonemes, and we have seen that they fare very differently, both from each other and in the speech of the two individuals we have been following. Before summarizing these results, let us consider Trudgill's presentation of the situation, which he presents on the basis of his own casual observations noting that at the time of writing, the situation had "not yet been studied in any systematic way" (Trudgill 1986:18). His view of the British situation involves a consideration of the same two vowels we have been dealing with, beginning with a presentation of how speakers of the two dialects stereotype each other:

> "In England, 'Northerners' are stereotyped by 'Southerners' as saying *butter* etc. as /bʊtə/ rather than /bʌtə/, and as saying /dæns/ rather than /da:ns/. 'Southerners', on the other hand, are stereotyped by 'Northerners' as saying /dæns/ rather than /da:ns/, while the pronunciation of *butter* appears to be of relatively little significance and is rarely commented on. It is therefore interesting to note that Northerners moving to the South and accommodating to Southern speech usually modify butter /bʊtə/ to / bʌtə/ or at least to / bətə/, but much less rarely modify /dæns/ to /da:ns/ ." (ibid)

Taken as a prediction of what Neil and Nicholas would do, Trudgill's characterization is remarkably accurate in the case of Nicholas. Nicholas modifies Short-A little if at all, but he has massively altered his phonetics in the pronunciation of Short-U. Trudgill interprets this differential as a consequence of the differential social meaning of the two vowels as explained in the passage above: Short-A is of social (regional) significance to Northerners, but not Short-U. Trudgill thus goes on to say:

> "Many Northerners, it seems, would rather drop dead than say /da:ns/, the stereotype that this is a Southern form is again *too strong*" (ibid, emphasis in the original).

In other words, Short-U, not being salient to Northern speakers, is available for phonetic adjustment at no social cost. Since both Neil and Nicholas have largely abandoned their Northern Short-U phonetics, Trudgill's prediction seems right on target in this case. Neil has made a more radical change; Nicholas a more modest adjustment in his predominant use of an intermediate form, but both have indeed changed. We are left with the mystery of how these speakers have succeeded in unmerging their previous merged Short-U category. It is one thing to alter a phonetic target; it is a linguistically and cognitively more complex operation to differentially alter different lexical items originally merged in one category. A word-by-word learning process such as that suggested by Trudgill would seem the most likely path, yet we do not have evidence of this in the data we have been able to examine here.

As far as Trudgill's prediction for Short-A is concerned, Nicholas, but not Neil, may qualify as one of the "many Northerners" who would drop dead rather than say /da:ns/. Neil, however, seems to have adopted this pattern since the time he went to London at about age 17. In the case of Short A, it would be difficult to imagine the learning process involved in acquiring the new pattern as anything other than the transfer of individual lexical items into the class in which a Northern speaker would already have *palm, can't, father* etc. Once again, no hypercorrections were found in Neil's speech for Short-A[6]. One could certainly make a case for Neil's pattern confirming Trudgill's interpretation, rather than putting into question. Neil is clearly a speaker who is not at pains to affirm his Northern identity. And yet, in the excited and spontaneous reaction to a near-mishap on stage, speaking to a local Shetlander with whom he shares a the Northern Short-A pattern, Neil uses two tokens of Short-A within a very short utterance (example (1) above). And with Nicholas, who has

[6] My years of listening to American productions of Gilbert and Sullivan have provided ample evidence of hypercorrection with respect to Short-A. An American chorus may render a creditable Broad-A pronunciation of, e.g., *class*, in "Bow, bow ye lower middle classes" and yet not restrain itself from hypercorrectly inserting the same vowel in, say, "At **classical** Monday Pops."

largely abandoned his original Short-U phonetics, we suddenly hear two fully rounded Short-U tokens when, at age 35, he is asked how he felt when, as a child, he came to understand that his baby brother was deaf. With a choked voice and tears in his eyes, Nicholas says:

(8) I just sort of desperately was hoping it wouldn't be true, you know that **somehow** [ʊ] you know, **some** [ʊ] sort of miracle would happen.

I do not think that the occurrence of the two Northern forms for each of Neil and Nicholas at these particular emotional moments is an accident, and yet, I believe we are far from fully understanding the three issues I see as being involved:

1. to what extent different phonological or phonetic features carry differential social meaning;
2. the degree to which speakers are conscious of such phonetic variation; and
3. the extent to which speakers can control this kind of variation in their speech production.

One issue, however, seems to be resolved by the speech production of Nicholas and Neil over this 28-year span of their lives, and that is the question posed at the beginning of this paper in connection with the glottal stop in Glasgow: how plausible is it that speakers might alter their phonetics over the course of their lives? And secondarily, what are implications can we draw in terms of age grading vs. apparent time interpretations of synchronic distributions? First, it is clear that these two speakers have made some significant phonetic, and possibly phonemic, alterations to their speech after adolescence. Such data confirm the plausibility of age grading as a viable interpretation, but tell us little about the probability that such an interpretation would be the correct one in any particular case.

Both Nicholas and Neil have had unusual personal histories, and the fact that they have made significant alterations to the linguistic systems of their childhood and early adolescent days is an important psycholinguistic observation on the possibilities vs. the limits of individual malleability. But the social fact is that most people do not have such unique personal histories. The individual achievements of Neil and Nicholas are the products of the special social histories of these individuals who are, in spite of their unique personalities, recognizable social types. Neil and Nicholas represent remarkable trajectories of individual linguistic enterprise, and remind us that our generalizations about the speech community are not intended to set limits to what any individual can do in the way of language learning. Even in considering the phonetic changes they have made, we must remember that neither has somehow made himself over linguistically, such that he would under any circumstance be taken as a speaker of a different dialect. Lastly, we must also remember that these two men represent the exceptional individuals that can only be seen as exceptional against a backdrop of the stable social fact that most individuals do not alter

their phonetic systems over their lifetimes. Brink and Lund (1975, 1979) show remarkable stability among the Danish speakers they investigated over many decades, and Sankoff, Blondeau & Charity (2002) also show that change is the exception rather than the rule in a 24-year study of the same Montreal French speakers.

What are the implications of the present findings for the apparent time interpretation of age-graded data? In the 35 years since quantitative methodology was developed for the study of language change in progress, the few longitudinal studies have all shown a combination of age grading and real time effects. Labov 1994 reviews four real-time replications of earlier work: Hermann's restudy of Gauchat's research in Charmey, Switzerland; Fowler's replication of Labov's Department Store study in New York City; and new work by Cedergren and Trudgill on Panama City and Norwich respectively. In all cases, results showed real time change in the community on a majority of the variables that had been studied initially, but also showed some changes that looked like the result of individuals modifying some of their phonological patterns as they grew older, i.e. age grading. My own assessment is that apparent time, as well as the critical period for language acquisition, are both hypotheses well grounded in a substantial body of research. In both cases, they can guide longitudinal research, designed to refine and deepen our understanding of exactly how language change and variation plays out over the life course of individuals and of speech communities.

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