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Chapter 16
SOCIOLINGUISTIC APPROACHES TO LANGUAGE CHANGE: PHONOLOGY

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16.1 Social approaches to language change

Taking a sociolinguistic approach to the explanation of language change has two consequences. The first is that, with the exception of a growing body of work in historical sociolinguistics (see Nevalainen, this volume), the subject matter is restricted in time to the rather brief period, leading up to the present, during which extensive and reliable records of natural speech have been available – or sociolinguistically valid simulations of such speech. The second is that sociolinguistics is a young discipline, and in its 'variationist' guise is mainly the brainchild of a single scholar, William Labov. Particularly in its approach to language change (mainly on the phonological level), variationist sociolinguistics has been dominated by Labov. The by now 'classical' variationist approach to change, as set out in Weinreich, Labov and Herzog (1968) and encapsulated in Labov's New York City study (1966), sits alongside his own development of that paradigm (1994; 2001; Labov, Ash and Boberg, 2006) as well as other distinct research enterprises which are mostly post-Labovian, though some (in cognitive linguistics and experimental phonetics) are not specifically informed by his work. The development of Labov's ideas is discussed in detail in Hazen (this volume). Here, I focus on the way his work sheds light on the central subject matter of historical linguistics, namely change in the linguistic system (the transition from state A to state B in the same language across a given period of time). But in their wider concern for patterning in naturally-occurring speech, sociolinguists interested in change tend to debate the locus of that change. This discussion can be seen as involving two independent dichotomies: the individual vs. the group, and system vs. use. In the course of this chapter, we will touch upon these concerns, too.

Labov (1994: 19) traces the origin of his approach to Gauchat (1905), who conducted a study of a Swiss village using what is now known as the 'apparent-time' method, i.e. inferring change from differences between the speech of older and younger people (see Romaine, 1988). Despite the interest in variation and change in both urban and rural dialects in Scandinavia in the early twentieth century (e.g. Larsen and Stoltz, 1911-12; Skautrup, 1921),

Gauchat's study was unique in combining empiricism with an explicit theoretical language-change agenda, in this case attempting to refute the Neogrammarians' regularity hypothesis. It is only with Labov's Martha's Vineyard study (1963; see Hazen, this volume) that a closely-related data/theory combination reappears. As for datasets gathered according to sociolinguistic principles, it is obvious that as time goes on there will be increasing scope for studies of real-time change (revisiting a community, say, a generation later in order to gauge change). Notable studies are by Cedergren (1987; Panama) and Sundgren (2009; Eskilstuna). Nevertheless, pessimism about the time depth of variationist sociolinguistics is very much tempered by the routine use of older data collected by other means and for other purposes, notably by Labov himself who used data from the *Linguistic Atlas of New England*, collected in 1933 in locations including Martha's Vineyard. The series of studies of New Zealand English by Gordon, Trudgill and others are based on recordings of elderly speakers made in the 1940s, as well as of more recent data (Gordon et al., 2004; Trudgill, 2004). In both the Martha's Vineyard and New Zealand cases, we see a combination of apparent- and real-time methods which, after some triangulation, provide a reliable picture of change over some 150 years – at least at the microlevel of individual phonetic features. Ongoing large-scale projects making extensive use of both old and new material in Germany (Schwartz and Streck, 2009 forthcoming) and Denmark (Gregersen, Maegaard and Pharao, 2009 forthcoming) are promising. An interesting perspective is afforded by so-called 'language islands', where populations are isolated from their linguistic homelands and so do not take part in mainstream changes (Rosenberg, 2005: 222; Loudon, 2006). We return to the issue of time and the transmission of dialect in the final section.

Historical linguistics is a much older discipline and has the advantage of being able to take a long view of change, over several centuries, and with outcomes clearly visible. The age of the discipline brings with it huge changes in perspective, however. In the late eighteenth to early twentieth centuries, 'outcomes' were often identified with the endpoint of a teleological process which had striven for, and achieved, perfection. Thus, the early nineteenth-century German linguist Jakob Grimm, following Herder, saw the High German Consonant Shift as 'an early assertion of independence on the part of the ancestors of the German peoples' (Robins, 1990: 190). Much later, H. C. Wyld was of the opinion that English dialects could be ignored except insofar as they 'throw light on those forms of our language which are the main objects of our solicitude, namely the language of literature and Received Standard Spoken English'(1927: 16; cited in Crystal, 2005: 5). Nowadays, these opinions are seen by

historians of linguistics in a critical light, as embedded in their time and place. Sociolinguists, however, recognize that similar views remain firmly entrenched today as everyday ideologies. The manifestation of this, particularly in developed countries, is a so-called 'standard ideology'(J. Milroy, 2002): a common-sense view of the essential, even moral, rightness of the standard language. This sociolinguistic insight is actually one component of the explanation of a particular type of linguistic change – standardization and dedialectalization – to which we will return.

However dispassionate sociolinguists would like to be, as observers of linguistic behaviour, a lesson from these earlier scholars' work is that objectivity remains mediated by the observer's stance. Among variationist sociolinguists, there is now an acceptance that language change can be 'observed', replacing earlier linguists' pessimism on this point (Labov, 1994: 44). Labov's speech community model (1966; 2006a) shows that, even if it is difficult to observe change directly across a speaker's lifetime, the social stratification of linguistic features, coupled with age differentiation in the same features, gives us a way of understanding how change can proceed in a manner that is indirectly observable. (See Wolfram, this volume, for a discussion of the speech community concept.) The discovery of socially-patterned variation and, crucially, the inference of a mechanism of change underlying this patterning have been fundamental to thinking about language change since the early 1960s. Because of this patterning, which is quantitative in nature (that is, it is rarely a question of categorical presence vs. absence of a feature, but differing frequencies or differing positions on a continuous phonetic scale), Labov believes that systematicity is greater at the group level than at the individual level: 'We find that in New York City, most idiolects do not form a simple, coherent system: on the contrary, they are studded with oscillations and contradictions... ' (2006a [1966]: 5). Later, he refines this position as follows:

> Many writers on sociolinguistic themes ... have argued that the major focus of sociolinguistic analysis should be placed on the individual speaker rather than the group ... If the net result of such a policy is to plunge more deeply into the internal workings of the group, then it is likely to be productive. (2001: 33) ... [T]his unique object, the individual speaker, can only be understood as the product of a unique social history, and **the intersection of the linguistic patterns of all the social groups and categories that define that individual** [my emphasis – PK]. (2001: 34)

The uniqueness of an idiolect is not random, but is the product of the speaker's various group affiliations and exposure, over a lifetime, to those groups' distinctive ways of speaking. This is relatively uncontroversial. What may be considered problematic is the positivism implied by Labov's work. First, he uses a hierarchical social model, strongly influenced by the functionalism of Parsons (Kerswill, 2007a: 52). Second, this model is composed of predetermined categories, especially social class. The quotation above can, then, easily lead to the view that speakers respond to their socioeconomic position as if they were automata. Whatever the criticisms, Labov presents a broad-brush picture of language variation at the speech community level. As we shall see below, the model's great benefit is that it allows for intricate social patterns to be uncovered in the mechanism of language change; the implication is that if language is the property of the group, then change should be explained at the level of the group.

Labov's work is often referred to as representative of 'first wave' variation studies, giving us the backdrop to variation. (Eckert (2005) gives an excellent overview of the 'waves' of language variation studies.) 'Second wave' studies are concerned with explaining the link between social categories – which this time need not be imposed by the researcher, but may be allowed to emerge from the local context – and people's linguistic behaviour; in other words, the research investigates 'how ways of speaking are imbued with local meaning' (Eckert, 2005: 5). The focus is very much on the individual speaker, and ethnographic rather than survey methods are preferred. A prime exemplar is the Milroys' research on Belfast English (L. Milroy 1980 (2nd edition, 1987); J. Milroy 1992). Here, the researchers quickly realized that social class could not account for variation in inner-city lower-working-class neighbourhoods – the speakers were all objectively in the same bracket. Instead, they found that variation seemed related to differences in the way individuals were connected socially with their own local community and extended families. The mechanism involved is the **social network**: 'the aggregate of relationships contracted with others, a boundless web of ties which reaches out through social and geographical space linking many individuals, sometimes remotely' (Milroy and Gordon, 2003: 117; see also Vetter, this volume). We will turn later to the way in which a network analysis contributes to the explanation of language change. For now, we can note that a close-knit network serves as a powerful norm-enforcement mechanism, inhibiting change, while a looser-knit one allows, or even promotes, change.

Despite its focus on individual behaviour, the social network concept, too, has been considered overly deterministic, even as early as Romaine (1982: 269-70). 'Third wave' variation studies compensate for this by focusing firmly on the social meaning of variant forms, showing how they are combined by speakers into 'styles' indexing identities and personae (see Eckert, 2005 for discussion). Interest in language change varies strongly across third wave studies: Eckert (2000) deals with vocalic variables in a Detroit suburban high school, investigating how they are manipulated to index identities within the school population, while relating this indexation to the progress of a vowel shift known as the Northern Cities Shift (Labov, Yaeger and Steiner, 1972; Labov, 1994; and below). For some other broadly third-wave studies, language change is not a central concern. Focusing on the vocalic variable (aw), as in *mouth* in Pittsburgh, Johnstone and Kiesling (2008) use a series of interviews with Pittsburghers to explore differences in the way the local, monophthongal realization of this vowel indexes a local Pittsburgh identity, in the process becoming stereotyped. By contrast, Moore (2003; 2006), who explored adolescent peer groups in a Bolton secondary school, did not relate the use of variables to ongoing change.

At this point in the history of variationist sociolinguistics, we can detect an incipient bifurcation. Although some third-wave studies do relate their findings to language structure and change, probably a larger number are more closely allied to interpretive, interactional and constructivist sociolinguistic approaches represented by Gumperz, Scollon and Kotthoff (see Kotthoff, this volume]). However, first- and second-wave studies of change continue unabated (e.g., Baranowski, 2007; Kerswill, Torgersen and Fox, 2008), but in the early twenty-first century their central focus on language change has been extended, not by the next 'wave', but by usage-based and cognitive models of language acquisition and language change. Some of these are firmly within the Labovian tradition (Clark, 2008; Docherty, 2008; Hay, 2008), while others do not use his methods or frameworks at all (Hollmann and Siewierska, 2008; Pierrehumbert, 2003; Bybee, 2000; 2002). Although integration between the variationist and cognitive/usage-based research traditions has yet to be achieved, the synergy between them is likely to be fruitful. I briefly discuss the work of Clark and Bybee in section 4, below.

16.2 Sound change

Much variationist work has been on sound change, and this work has become field-defining. Perhaps not surprisingly, most of the social (as opposed to linguistic) mechanisms of change apply equally to change in other linguistic components. The central concept of the 'linguistic variable' is well suited to phonology because variation in the realization of a variable is meaning-preserving – cf. the variable '(t)' in British English, which usually refers to the use of the glottal stop as a *variant*, alongside alveolar [t], of intervocalic /t/. This concept can be applied to other types of structural linguistic change as well, particularly in morphosyntax. (Kerswill (2004: 24-7) contains a discussion of the variable and the limits of its meaning-preserving properties; Cheshire (2007) presents a variationist analysis of discourse markers, where the strict delimitation of the variants of the variables is not possible and the preservation of meaning must be interpreted, using pragmatic analyses, as rough functional equivalence.) We will return to the variable in the Neogrammarian context at the end of this section.

Sound change was central to nineteenth-century linguistic thinking, and was an important motivation for the new discipline of dialectology in the last quarter of that century. Methodologically, variationist sociolinguistics shares much with dialectology, non-standardized speech being placed centre-stage. In both, strict criteria for speaker selection are set, with some notion of 'nativeness' being significant; for dialectology, speakers must be as local as possible with a low level of education in order for the 'true' dialect to emerge (see Chambers and Trudgill, 1998: 29 for discussion); for variationists, speakers should have spent most of their years, especially the early ones, in the location (though practice varies). They differ in that dialectology considers only geographical space, in order to examine better the spread of a feature, while variationism operates at the community level – social space, in other words. In many respects, the two disciplines can now be seen as modelling complementary sides of the same reality (Trudgill, 1992; Britain, 2004), and their combination increases the explanatory power of each.

We begin with the motivation of sound change. The comparative method (Hock, 1991: 556–80) relies heavily on the notion of 'regular' sound change in its reconstruction of hypothetical past states of language, establishing 'genetic' relationships between 'daughter' languages. Thus, the following set of phonetically and semantically related words (which can be greatly multiplied) suggests such a relationship between Norwegian and English:

is [iːs]	*ice* [aɪs]
smile [smiːlə]	*smile* [smaɪl]
mil [miːl]	*mile* [maɪl]

Other evidence tells us that the vowel [aɪ] in English was formerly pronounced [iː], and that this change took place in Late Middle/Early Modern English – many centuries after the ancestor languages of Norwegian and English split off from each other. This is an example of a *regular* (or *Neogrammarian*) sound change. The dictum is that 'phonemes change' (Bloomfield 1933: 353–4): every instance of phoneme A is affected in the same way in the same period of time in the same geographical area (see Hock, 1991: 34–91). There appear to be exceptions, however. In French, Proto-Romance /k/ before /a/ was shifted to [ʃ], yielding modern French *champ* 'field', *chat* 'cat', *chandelle* 'candle', *chanson* 'song', etc. (Bynon 1977: 181). In Normandy French dialects, /k/ was preserved. However, dialectology showed that standard French /ʃ/ has encroached on the /k/ region in certain words more than others, namely *chandelle*, *chanson* and *chaîne* 'chain' (Bynon 1977: 182). Such findings as these led to the alternative slogan: 'each word has its own history'.

There are several issues surrounding sound change which need to be resolved in the face of this contradictory evidence. Two which have exercised scholars since the late nineteenth century are: (1) whether sound change is phonetically gradual or abrupt; (2) whether it is lexically abrupt (covering all lexical items, and hence regular), or gradual (proceeding by **lexical diffusion**, as, apparently, in the French k→ ʃ shift). As I noted earlier, in more recent times, scholars have asked (3) whether such change is 'observable' and (4) whether change is a property of the individual or of the community. Finally (5): is sound change internally motivated (as a consequence of structural properties of the language), or is it the consequence of external motivation (i.e. contact-induced)? Following Farrar and Jones (2002: 1), one should additionally ask if 'extra-linguistic (i.e. sociopolitical and economic)' factors bear on change – though we will not be concerned with these factors here.

Sound changes appear to be divided into those which have a clear phonetic, i.e. articulatory, basis, and those for which there is no such clear motivation available. An example comes from the development of Spanish, where Latin /p/, /t/ and /k/ when they occurred between

vowels were lenited (weakened). An example is Latin *pacatum*, in which we assume /k/ and /t/ first changed to [g] and [d] and then to [ɣ] and [ð], with the additional possibility of deletion. This gives the presumed chronological sequence:

[pakatum] → *[pagado] → [paɣaðo] (→ dialectal [paɣao], with deletion of /ð/) 'pleased'
('*' stands for 'unattested'; adapted from Hock, 1991: 81)

– where the two medial consonants gradually take on phonological features from the surrounding vowels, viz. +voice and then +continuant, before (in some varieties) being deleted, i.e. fully assimilated to the vowels, leaving no trace. The initial /p/, being word initial, was not affected. The change of intervocalic plosives to voiced fricatives is regular in Spanish, in that all cases have shifted. A well-documented lenition in present-day Spanish is that of the affricate /tʃ/ to [ʃ] in Panama (Cedergren, 1988; Tagliamonte and D'Arcy, 2009: 60). Another example, this time involving vowels and the process of assimilation, is the fronting of back vowels /u/, /o/ and /a/ in Germanic to [y], [ø] and [ɛ], respectively, before a syllable containing the high front vowel /i/ (the vowels assimilate the front property of /i/): reflexes of this ancient change ('*Umlaut*'; Hock, 1991: 66–8) still appear in German morphology in, e.g., *Buch – Bücher* ('book' – 'books'). The question which arises, of course, is why the lenition of /p/, /t/ and /k/ didn't happen in the other daughter languages of Latin, and why *Umlaut* happened in the other Germanic languages but not in Gothic; and we must ask why the changes happened just **when** they did and not at some other time, given that they were phonetically motivated and hence 'natural', and so should apply whenever the phonological conditions were right.

To try to gain an understanding of how lenitions and assimilations become fully-fledged changes in the language, we need to know how they reached this state, from having been 'connected speech processes' (CSPs). CSPs are the range of reductions affecting phonological segments in normal, fluent speech (Nolan and Kerswill, 1990). They result from conflicts between different articulatory gestures for adjacent sounds and (related to this) the failure of articulators to reach targets, such as that of forming a stop closure. As such, CSPs occur in all speech most of the time, depending on speech style – whether slow, careful, or

fast, casual. They are phonetically **gradual**. Dressler and Wodak (1982) offer one approach to the transition to 'sound change', at the same time offering a model of dialect switching (between dialect and standard) to account for the linguistic behaviour of speakers of Viennese German. Each variety (dialect or standard) is associated with a set of reduction rules (lenitions), as well as fortitions (clarification processes characteristic of slow, careful speech). Dressler and Wodak conceptualize phonological change as 'the spread of optional PRs [phonological rules – PK] from casual speech to more formal phonological styles until they become obligatory for all styles' (1982: 350). In other words, CSPs, which are characteristic of everyday speech, begin to be used in more formal speech, and then become fossilized as permanent features of the phonology. However, Spanish lenition and German *Umlaut* are today not gradual and variable, but discrete and obligatory. Experimental methods can be applied in order to see how gradualness gives way to discreteness. An indication of this is given by Wright (1989), and Kerswill and Wright (1990). Using electropalatography to record tongue contact with the palate, they discovered that a typical CSP, regressive place assimilation affecting final /d/ before velars, giving [bæggaɪ] for *bad guy*, was phonetically gradual in local Cambridge English, with many intermediate articulations between [d] and [g]. It was susceptible to speaking rate, but not socially evaluated. On the other hand, another CSP, the vocalization of syllable-coda /l/ as in *bell* or *milk*, was applied almost categorically and was only weakly affected by speaking rate, but was socially (negatively) evaluated. The assumption is that regressive assimilation is not (yet) a sound change in English (though it might be), while l-vocalization, a common CSP, is a sound change nearing completion in south-east England (Johnson and Britain 2007).

I mentioned social evaluation in relation to a CSP becoming an established change. This turns out to be of central importance to more mainstream variationist treatments of sound change (and language change generally). Variationist studies of vowels deal with the various shifts, diphthongizations and monophthongizations which take place in all languages. They are generally unconditioned, that is, they occur in all instances of the particular vowel and not in restricted phonological environments – the diphthongization of Middle English /i:/ is a case in point. Perhaps because of the absence of an obvious phonetic motivation, these became the focus of much variationist work, starting in particular with Labov's New York City study (2006a [1966]). Figure 1 shows data for the fronting of the vowel (aw), as in *mouth*, in Philadelphia, from Labov's later, 1970s project. As explained by Guy (2003: 366), the y-axis

is a coefficient relating to the second formant of the vowel, measured in Hertz; the higher the value, the greater the fronting. The x-axis represents five socioeconomic classes, from lowest to highest. The fact that there is, additionally, a strong negative correlation between age and the value of the second formant (younger people front the vowel more) shows that the feature is increasing with time (Labov, 2001: 165). It is one of the internal classes, in this case the upper working class, which uses the feature the most. These facts taken together lead Labov to conclude that this social class is leading in this change. He calls this the 'curvilinear pattern', and it is typical of 'change from below' – i.e. the introduction of a feature which is not standard or overtly valued, but is non-standard and potentially stigmatized.

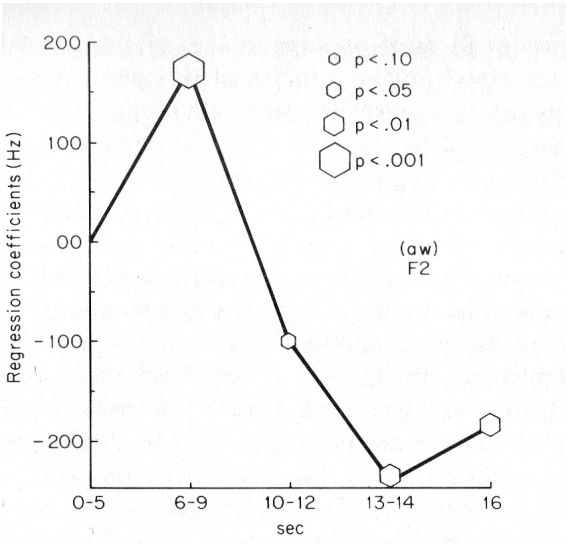

Figure 1. The variable (aw), referring to the fronting of /aʊ/ (as in *mouth*) in Philadelphia: regression coefficients for socioeconomic classes (from Labov, 1980: 261; reproduced from Guy, 2003: 387).

There is no natural connection between this fronted vowel and the social group which uses it the most (compare the 'natural' lenitions and assimilations noted earlier); social evaluation is, therefore, arbitrary. This begs the causal question: 'why does sound (or, more widely, feature) X have social connotation Y?', and this remains unanswerable. There is, however, some headway to be made through an exploration of a feature's 'salience' – the property of being noticeable to the extent that it can be socially evaluated. Trudgill (1986) sets out the following predictors of salience:

1. The variable (i.e. variable feature) has at least one variant (realization) which is overtly stigmatized;
2. The variable has a high-status variant reflected in the orthography;
3. The variable is undergoing linguistic change;
4. Variants are phonetically radically different;
5. Variants are involved in the maintenance of phonological contrasts in the accommodating speaker's variety (in the case of a speaker attempting to acquire another variety).

(adapted from Trudgill, 1986: 11)

The salience concept is potentially valuable because it could bring together factors which make a feature available for social marking. Ultimately, as an explanatory concept in change it is unhelpful because of the circularity of the first two predictors, because it cannot predict the polarity of social evaluation (either negative or positive) (Kerswill, 2002; Kerswill and Williams, 2002), and because it does not deal with the initial phase of a change – how a sporadic innovation is communally selected as a change.

Returning to the lenition of /tʃ/ in Panamanian Spanish, which we assume is phonetically motivated but on the way to becoming a fully-established change, we find the same negative correlation with age and the same curvilinear social distribution as with Philadelphia (aw) (Cedergren, 1988: 52). This strongly suggests that factors other than phonetic ones drive **all** sound changes, phonetically motivated or not. That said, the directionality of phonetically-motivated changes is not random, unlike the case, apparently, for unconditioned change. Even here, however, there are very strong tendencies for vowels to move in some directions, and not others, and for vowels to shift as whole systems. Variationist work demonstrates this. Based on an inspection of cases in a number of languages, Labov established three Principles of Vowel Shifting, related to the important phenomenon of the **chain shift**, by which two or more vowels change in lockstep over time, always maintaining the same or a similar phonetic distance from each other. The Principles are as follows (1994: 116):

PRINCIPLE I

In chain shifts, long vowels rise

PRINCIPLE II

In chain shifts, short vowels fall

PRINCIPLE IIA

In chain shifts, the nuclei of upgliding diphthongs fall

PRINCIPLE III

In chain shifts, back vowels move to the front

Figure 2 shows a partial chain shift involving three short vowels of London English: /ʊ/ as in FOOT, /æ/ as in TRAP and /ʌ/ as in STRUT, plus the long vowel /u:/ as in GOOSE (keywords in small capitals relate to the lexical sets of English as outlined by Wells 1982).

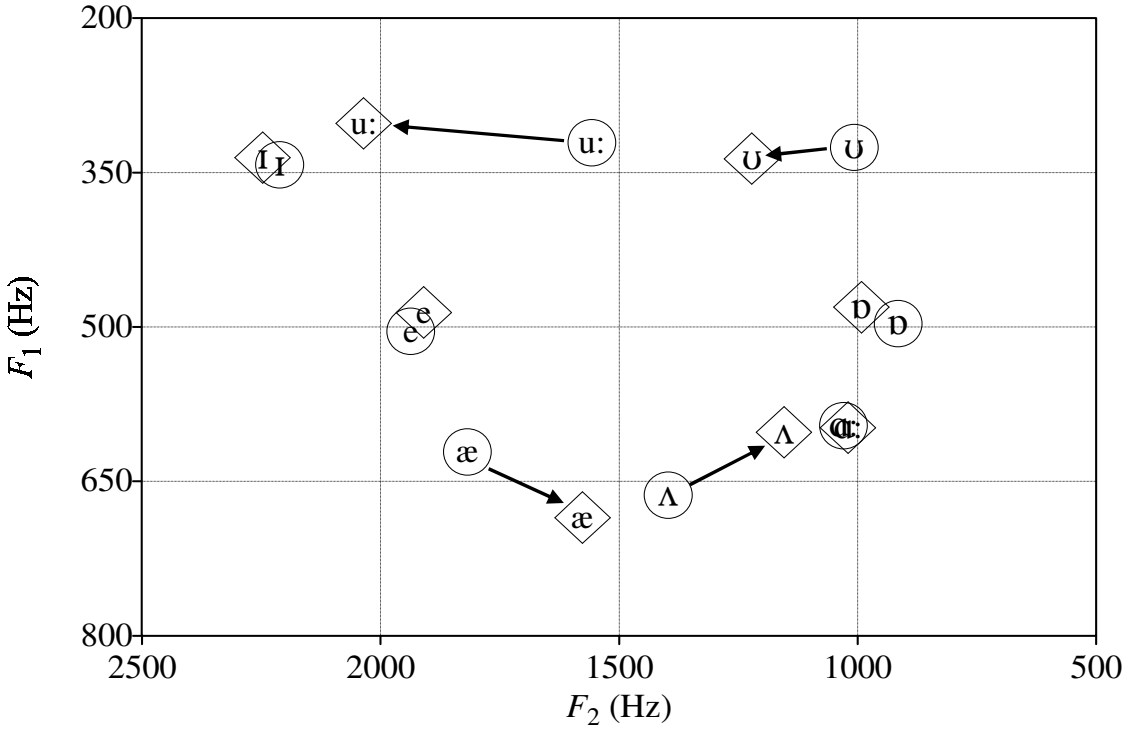

Figure 2. Anti-clockwise monophthong shift in inner-city working-class London speech, late twentieth century (see text for explanation) (from Cheshire et al., 2008).

The basic shift is very much in line with Labov's Principles II and III (indeed, he established these before he was aware of this London shift). The arrows show the movement of the vowels in 'apparent time' (see section 6, below), the circles representing the mean normalized Formant 1/Formant 2 values for 8 working-class lifelong residents (4 female, 4 male) aged over 70, the diamonds representing working-class residents aged 17/18. (See

Cheshire, Fox, Kerswill and Torgersen, 2008 for details.) This is a bald summary diagram: change is clearly mapped out, but there is no sociolinguistic detail. This is provided in Table 1.

Table 1. Statistical effects on monophthongs in the inner-city London borough of Hackney (from Cheshire et al., 2008)

Vowel	Age	Ethnicity	Network
FOOT	p<0.05 (F2)	ns	ns
GOOSE	p<0.001 (F2)	p<0.005 (F1) p<0.05 (F2)	p<0.05 (F1) p<0.05 (F2)
TRAP	p<0.001 (F1) p<0.001 (F2)	ns	ns
STRUT	p<0.001 (F1) p<0.001 (F2)	p<0.05 (F1)	p<0.05 (F2)

The Age column of the table simply confirms that the age-related shifts shown by the arrows in Figure 1 are statistically significant. The Ethnicity column refers to the young speakers only, and shows that GOOSE is more fronted and more raised for speakers of 'non-Anglo' origin – these are Londoners with origins outside the British Isles, mainly in developing countries. Likewise, the STRUT vowel is more raised among this group. The Network column refers to the ethnic make-up of the Anglo young people's friendship networks. Those with strongly non-Anglo networks follow the non-Anglo speakers' GOOSE vowel in being more fronted and raised than that of Anglos with mainly Anglo networks. Similarly, there is a significant effect of network for STRUT, in a direction which brings the pronunciation close to that of the non-Anglos. In terms of change, it appears to be the non-Anglos, particularly in fact the males, who are in the lead. This seems to be true at least in inner-city multiethnic districts of London. This pattern is unusual, since changes 'from below' are almost always female-led (Tagliamonte and D'Arcy, 2009). Notably, the fronting of the GOOSE vowel is led by young **females** outside London (Kerswill and Williams, 2005), leading to speculations as to why two very different social groups should be in the lead in the same change in different parts of the south-east of England (Kerswill et al., 2008); we will examine this data in the

final section. The tentative conclusion is that patterns of innovation are very different in metropolises with heavy concentrations of people with non host-language backgrounds.

The use of ethnicity and network represents the first two 'waves' mentioned above. Ethnicity, being a fixed speaker-variable used to sample the population and to aggregate data across speakers, very much fits into a first-wave approach, in that a broad picture is given. Network information was obtained through careful interviewing, and each individual allocated a score of 1–5 depending on the proportion of non-Anglos in her or his network. These individual scores were placed into 'low' vs. 'high' scoring groups. Thus, the network variable combines a first-wave method (speakers being aggregated) with a second-wave approach (data being qualitative in origin but 'reduced' to a quantitative measure). The 1970s participant-observation study by the Milroys in Belfast likewise produced a five-point network measure, based in their case on indicators of integration into neighbourhood networks (L. Milroy, 1980). Eckert (1989; 2000) investigated sociolinguistic factors in anther vowel shift, the Northern Cities Shift (Labov, 1994: 177–201), illustrated in Figure 3.

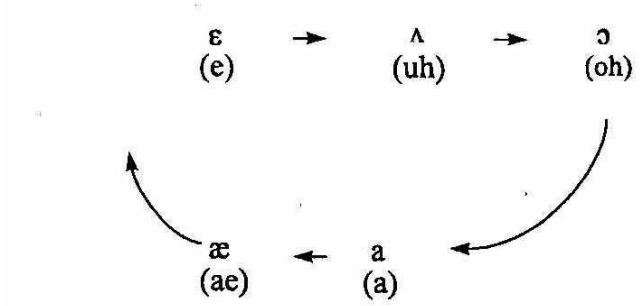

Figure 3. The Northern Cities Shift (Labov, 1994: 177–201; diagram from Eckert, 1989: 260)

Using ethnographic methods in a Detroit high school, she was able to establish that the interaction of gender and distinct cultures based on orientation towards or away from organized school-based activities patterned with whether or not young people were advanced in their use of the new, shifted vowels. For Eckert, the 'community of practice' is where cultural and linguistic styles emerge (see Vetter, this volume). Her study is representative of the 'third wave' approach to language variation.

16.3 Variationist sociolinguistics and the locus of Neogrammarian change

Variationist conceptualizations reveal a particular stance towards the organization of variation – and this is especially clear in the context of phonology. The notion of the variable seems to be closely tied in with the Neogrammarian notion of a 'sound' which is subject to 'laws'. Variants of the variable (aw) in Philadelphia are not conditioned *prima facie* by linguistic environment, provided the variable is properly phonologically delimited: pre-variationist work would have referred to them as 'free variants'. The theoretical implication that linguistic units may vary in form further implies the presence of 'inherent variation', as opposed to the alternation between invariant and discrete linguistic systems (Labov, 1969; see discussion in Fasold and Preston, 2007). The idea of variability being immanent was anathema to phonologists (and grammarians), for whom the main concern was the theoretical possibility of a form being produced, not its frequency in actual use or its range on a continuous phonetic scale (see discussion in Guy, this volume). The corollary is that, for phonological features, there is a concept of a Neogrammarian 'sound', which, while having a range of actual realizations, is an abstract unit which maintains its identity across time, space, community and the individual. The range of variation only becomes comprehensible, and the continuity of the unit visible, when data in a community is aggregated, as illustrated in Figure 1. It is in this sense that Labov believes that systematicity is greater at the group level than within or between individuals. In a speech community, unique idiolects rarely contain random or inexplicable features. This is equally true of 'anomalous' speakers, or outliers, who despite being 'native' have unusual accent and dialect features, typically mixed or from somewhere else: these turn out to be perfectly understandable in the light of the speakers' life histories (Newbrook, 1982; Britain, 2003). Other speakers are firmly embedded in the 'community grammar' both with respect to their phonology and grammar and in their social evaluation of features (see Kristiansen, this volume) for an extended discussion of social evaluation and language change). Everyone's linguistic behaviour is socially meaningful in relation to it (see Labov, 1989 and critique in Downes, 1998: 121–6). Second- and third-wave variationist studies both recognize and, crucially, depend on this insight.

The Dressler and Wodak dialect-switching model is at odds with Labov, being closer to the 'alternating systems' model. In speech communities where there is a large linguistic distance between vernacular and standard, code-switching behaviour can be observed (Berruto, 2005).

While acknowledging such differences, we should note there is still usually a linguistic continuum **between** the two alternating codes.

16.4 Neogrammarian change and lexical diffusion

Not all phonological change is exceptionless, as we saw in the case of the French k→ʃ shift. A contemporary example concerns the tensing/raising of /æ/ in the northern United States, typically to [eːə] or [ɪːə]. This change is exceptionless (i.e. Neogrammarian) in varieties affected by the Northern Cities Shift, for example Detroit and Chicago (see Figure 3). However, in New York and Philadelphia, raising only takes place before particular, and different, consonants, as shown in Figure 4.

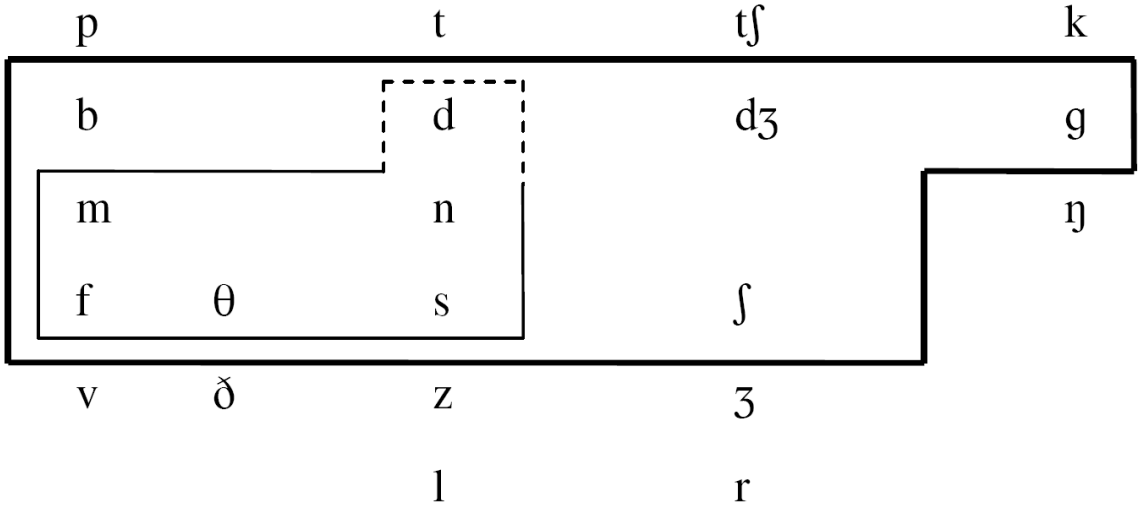

Figure 4. Consonants following /æ/ that condition tensing and raising in Philadelphia (inner line) and New York City (outer line) (from Labov, 1994: 430)

In both cities, the pattern could also be seen as the result of a Neogrammarian change, were it not for the several lexical exceptions to the tensing/raising process.[i] Thus, in New York City, *avenue* is normally tense, while (in conformity with the general pattern) *average*, *savage* and *gavel* are lax, i.e. pronounced [æ] (Labov, 2007: 355). In Philadelphia, /æ/ before /d/ is generally lax, as in *sad* and *dad*, while in just three words, *mad*, *bad* and *glad* (indicated by the dotted line in Figure 4), /æ/ is tense (Payne, 1980; Labov, 1994: 341). In both cities, there is a clear phonetic gap between the tense and lax variants of the variable, while the tense

variant itself exists on a continuous scale of raising akin to that of the Northern Cities Shift. Labov concludes from this that 'It is clear that the NYC short-*a* system is very far from whatever beginnings it had as a simple, phonetically determined sound change. It has developed the lexical and morphological irregularities characteristic of many late stages of change (Janda and Joseph, 2001)' (Labov, 2007: 356). Thus, its present state is the outcome of lexical diffusion, characterized thus: 'Words change their pronunciations by discrete, perceptible increments (i.e. phonetically abrupt), but severally at a time (i.e. lexically gradual)' (Wang and Cheng, 1977: 150, cited in Labov, 1981: 270).

Labov (2007) is concerned with the later transmission of both the Neogrammarian Northern Cities Shift and the New York City lexical diffusion pattern to other regions of the US. It is possible, however, to get a window on the transition from Neogrammarian change to lexical diffusion by looking at the historical and geographical record of a known change. Labov (1992; 1994) discusses the diphthongization of Middle English /uː/ as in *mouth*, *town*, *house*, *mouse* in England as part of the Great Vowel Shift. Labov (1992; 1994: 486) maps the diphthongization of this vowel in *mouse* and *house* in the material collected by the *Survey of English Dialects* (Orton et al., 1962-71).

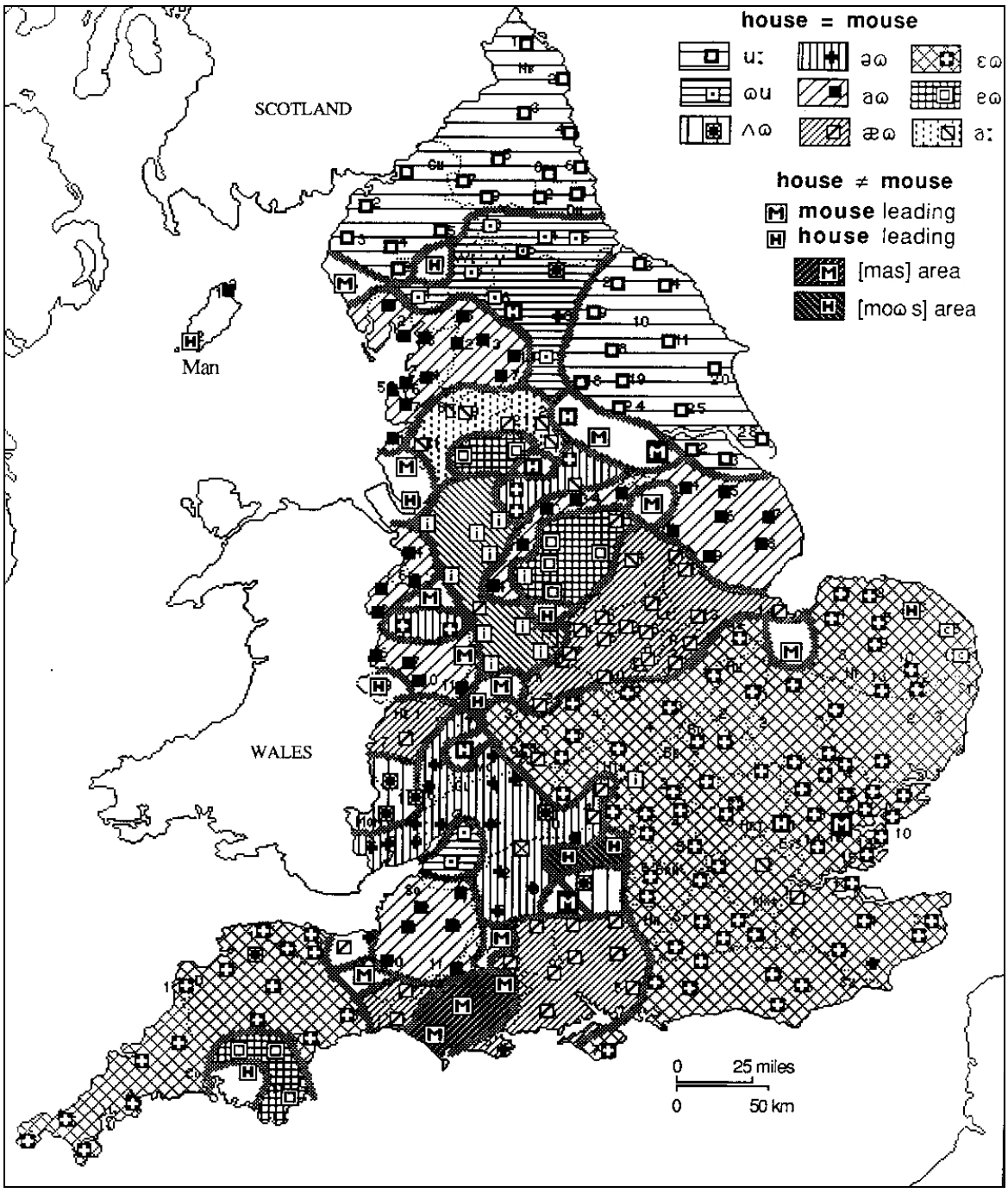

Figure 5. Development of Middle English /u:/ in *house* and *mouse* in 311 localities in England (Labov, 1994: 486, based on the *Survey of English Dialects*)

Labov's map (Figure 5) shows that the monophthong is best preserved in the north. At least along the east coast, the transition appears to be quite gradual, starting with a shift to [ʊu],

then via [aʊ] and [æʊ] to [ɛʊ] in the south-east. Given that the transcribers did not use a particularly narrow phonetic transcription, it is reasonable to suppose that, across much of the country, this represents a phonetic continuum. In order to adjudicate between a diffusionist or a Neogrammarian interpretation of the change, Labov considers whether *mouse* and *house* have the same distribution: in almost all cases, they do. He concludes that almost all the data support a Neogrammarian interpretation. This is evidence that the change was gradual, both phonetically and geographically – though, of course, our evidence for this claim is indirect. What we see represented is the result of a vigorous sound change which proceeded incrementally (each generation slightly exaggerating the previous generation's production – we return to this mechanism in section 6), and the change being slowly diffused and picked up by new speakers further from the point of origin. This happened centuries ago; Figure 5 represents the residue of a long-since 'spent' sound change, which has left its imprint on the speech of twentieth-century conservative, non-mobile rural speakers.

The Great Vowel Shift was a series of vowel changes, originating in southern England, affecting all the long vowels and stretching over a period of some 300 years up to some time in the early eighteenth century (McMahon, 2006). There is some debate as to where in the vowel system the shift started, but it is clear that the high vowels of Middle English, /iː/ (as in *ice*) and /uː/ (as in *house*) shifted together **except** in the far north of England and in Scotland (McMahon, 2006: 166). Here, /uː/ failed to diphthongize altogether until the twentieth century; Figure 5 shows the **pre-**shifted state in the North. Table 2 shows twentieth-century real-time incidence of the vowels /uː/, /aʊ/ and /ɔː/ in County Durham in the north-east of England.

Table 2. /uː/ and /aʊ/ in central County Durham

Lexical set	Examples	Village/year of birth		
		Byers Green y.o.b. 1880 (Orton 1933)	Ushaw Moor y.o.b. 1940 (Kerswill 1987)	Ushaw Moor y.o.b. 1987 (recordings by PK, 2002)

<table>
<tr><td>1</td><td>food, choose, move, prove ...</td><td colspan="3">/uː/</td><td>/uː/</td></tr>
<tr><td>2</td><td>out, house, mouse, town, cow, down ...</td><td colspan="2">/uː/~/aʊ/</td><td rowspan="2">/aʊ/</td></tr>
<tr><td>3</td><td>owt (‘anything’), nowt (‘nothing’)</td><td colspan="3">/aʊ/</td></tr>
<tr><td>4</td><td>four, daughter, thought, bought ...</td><td colspan="2">/aʊ/~/ɔː/</td><td>/ɔː/</td></tr>
</table>

In lexical set 2, there has been an almost total change, over two generations, from the use of a near-monophthong [ʊu] to [ɑʊ]. This has happened not by a phonetically gradual shift, but by the substitution of /aʊ/ for /uː/. Older people today alternate between [hʊus] and [hɑʊs], etc., while the youngsters on the whole do not, with the result that *out* now contains /aʊ/ and has become homophonous with *owt* (‘anything’).

This pattern is characteristic of lexical diffusion, with an alternation between phones which are phonologically distinct in the dialect. The data is not sufficient to tell us anything about the lexical diffusion of the diphthong in lexical set 2, however. A study of working-class teenagers by Clark (2008) in Fife, Scotland, gives an indication of how such diffusion might take place. A similar variable, (au), shows that high-frequency items such as *about*, *down*, *round* and *our* are pronounced with the original monophthong some 90 to 100 per cent of the time, while less frequent items, including *sound*, *our*, *house* and *allowed*, are pronounced with the incoming diphthong around 50 per cent of the time (Clark 2008: 262). She argues for a cognitive linguistic model to explain this difference.

Similar frequency effects doubtless partly account for the lexically gradual nature of the French k→ʃ shift, too, where low-frequency items (often belonging to a formal register) shift first. However, the reverse pattern is also found. It is the 'natural' reductions of connected speech which shift first in high-frequency words. This is thought to be because such words are more automated in production, and because of their predictability in discourse they allow for greater redundancy in the speech signal. (See Bybee, 2002: 268–71 for discussion.) There is, thus, a difference between conditioned sound change representing reductions and assimilations and lexical diffusion in this respect. As for unconditioned sound change, the picture is, again, different. Labov (2006b) finds no frequency effects, only phonetic effects, while Dinkin (2008) finds small frequency effects but only when a regular sound change represents a potential lenition, or reduction in articulatory effort.

16.5 Generalizations and explanations

The changes seen in Table 2 are the result of two sociolinguistic processes affecting British English dialects, 'regional dialect levelling' (or 'supralocalization': L. Milroy, 2002; Kerswill, 2003; Hickey, 2009) and 'dedialectalization' (Trudgill, 1999; Trudgill and Foxcroft, 1978). Regional dialect levelling/supralocalization leads to a reduction in the **amount** of regional variation across a given area; it is characterized by the adoption of new forms, or an increase in existing forms, which thereby gain currency across a wider area than

before. Seen from the perspective of neighbouring dialects, convergence is observed. It is usually the consequence of intensive face-to-face contacts within a relatively mobile area. These contacts also facilitate the geographical diffusion of new features, replacing existing ones and leading to further homogenization. (See Britain, 2002 (in press); Hinskens, Auer and Kerswill, 2005; Kerswill, 2006.) Dedialectalization is not principally a contact phenomenon, however. More often than not, it is co-extensive with standardization, by which forms are adopted which correspond closely to the standard variety (the 'roof' – Kloss, 1967) in their lexical incidence of phonemes (Kerswill, 2007b). This process has all but gone to completion, at least in England. Table 2 clearly shows its effects, though in many cases the adoption of the more standard variants is also the adoption of supralocal forms.

Variationists have generally not attempted to explain dedialectalization and standardization, though the 'linguistic market' is doubtless highly relevant (Sankoff and Laberge, 1978; cf. Bourdieu, 1991). Regional dialect levelling, on the other hand, has been associated with the loosening of network ties (L. Milroy, 2002; Stuart-Smith, Timmins and Tweedie, 2007), greater mobility (Williams and Kerswill, 1999; Kerswill, 2006) and a desire to gain a regional, rather than local identity (Watt, 2002).

16.6 Time and transmission

One of the major challenges is to find optimal ways of mapping language change in a community onto the time dimension. First, we need to consider what constitutes change, and this brings us again to a consideration of individual versus group behaviour. Change in language structure implies a permanent, categorical modification. As we have seen, both speakers and speech communities are variable. In some cases, what we observe is a change in the frequency of some feature, such as the glottal stop for intervocalic /t/ in British English; children increase their use of it as they reach adolescence, only to reduce it again by adulthood (Kerswill and Williams, 2000: 105; cf. Sankoff, 2004 on change across the lifespan). This does not amount to a change in the phonology of the individual speaker: 'change', in this case, implies the learning, or loss, of a phonological contrast, or in the case of a (gradual) Neogrammarian change, a quasi-permanent modification of the sound, such as the fronting of a vowel.

Yet frequency changes and gradual phonetic changes are part and parcel of long-term communal linguistic change – language change 'proper'. Tagliamonte and D'Arcy (2009) deal not with phonology, but with morphosyntax. They show that frequency changes can be mapped onto the so-called S-curve of change: from the point of view of the community, changes start by small steps, then in the middle stage the increase in frequency is rapid, and finally the last few speakers adopt the change before it becomes categorical. The authors show that late adolescent cohorts use the incoming feature with the highest frequency, more than either children or adults. This implies, of course, that children actually change their speech as they grow older, peaking in late adolescence, after which, for reasons of both social and cognitive maturation, there is little or no change. Not only do they increase their use of the feature during these years, but the feature is exaggerated in relation to the immediately preceding generation's use – a process referred to as 'incrementation' (Labov, 2007: 346). For phonological features, Tagliamonte and D'Arcy point out that females are almost always in the lead, while they find that this is not the case for morphosyntax.

This model only works if it can be shown that children do indeed change their speech, and that the change is in the direction of communal change. There is ample evidence that both are true. Figures 6 and 7 show the fronting in real time of the vowel of GOOSE in the speech of a girl and boy from Milton Keynes in the south-east of England.

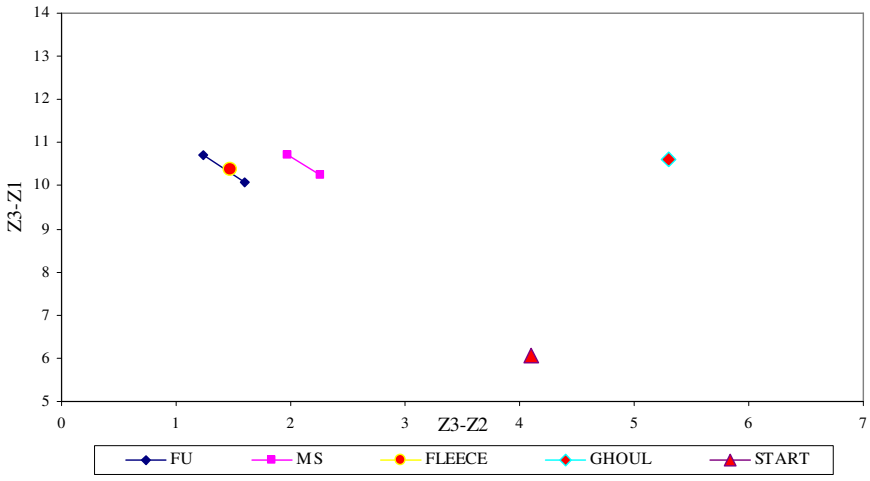

Figure 6. The fronting of /u:/ as in GOOSE, girl born 1979, Milton Keynes, recorded in 1991 and in 1993 (from Kassab 2008)

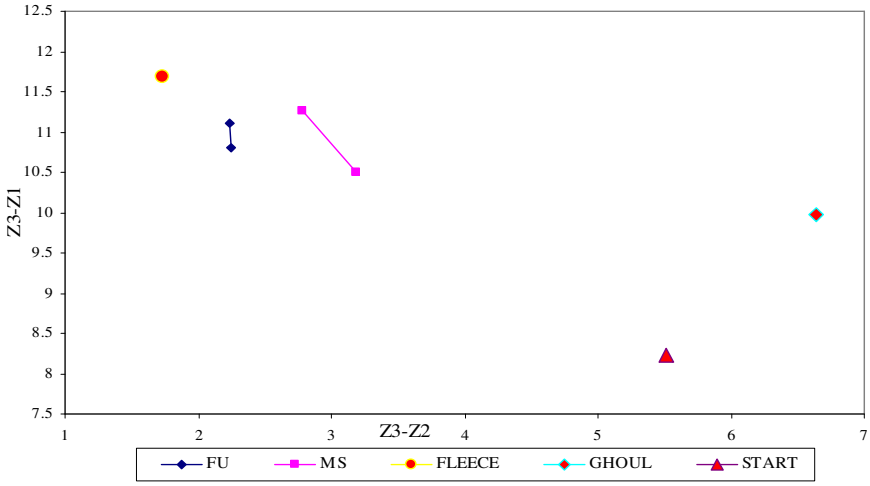

Figure 7. The fronting of /u:/ as in GOOSE, boy born 1979, Milton Keynes, recorded in 1991 and in 1993 (from Kassab 2008)

Key to Figures 6 and 7:

MS = average formant 1/formant 2 of GOOSE, first recording ('main study')

FU = average formant 1/formant 2 of GOOSE, second recording 18 months later ('follow-up')

FLEECE, GHOUL, START: average formants for /i:/, /u:/ before /l/, and /ɑ:/, acting as stable reference vowels.

NB: Formants 1 and 2 are here shown as normalized scores, Z1 and Z2, and are subtracted from Z3, the normalized formant 3.

These informants were interviewed twice, first aged 12 and then 18 months later aged 13 or 14. As can be seen, their GOOSE vowels were considerably fronter in the second recording than in the first. This can be seen in relation to three reference vowels, which proved stable across this period. These are two of eight young people in the study, and all eight showed significant fronting between the first and second recordings, with average fronting being in the region of 10% in relation to the distance between GHOUL and FLEECE. In other studies, adults have also been shown to change frequencies and to participate in vowels shifts, at least to some extent (Sankoff, 2006; Sankoff and Blondeau, 2007).

As mentioned earlier, apparent-time studies compare older and younger speakers. If it is the case that children, and adults, modify their speech in the direction of the change, then an apparent-time study will significantly underestimate the amount of change in real time. It

may also be the case that age-grading is present, i.e. changes which occur across the lifespan in the same way in every generation, but without leading to language change. To get round this, a combination of a trend study and a panel study is valuable. Trend studies sample the community at different times, but using the same age and social groups. Panel studies record the same people at least twice. This provides evidence of how speakers change, but without an accompanying trend study little can be said about communal change.

The LANCHART project has set out to replicate a number of sociolinguistic studies originally carried out in the 1970s and 80s in Denmark (Gregersen, 2009, Gregersen et al., 2009). Working on LANCHART data, Schøning (2008) investigated a number of variables in the Jutland town of Odder. She analysed two cohorts, the first born in 1971/2 and recorded in 1986/7 and again in 2005/6, the second born in 1989/90 and recorded in 2006. This allowed a direct comparison of the apparent-time method (cohorts 1 and 2 recorded in 2005/6), a trend study (cohort 1 recorded in 1989/90 and cohort 2 recorded in 2005/6) and a panel study (the two recordings of cohort 1). For the most part, the results showed that the apparent-time method indeed underestimated change. An example is the variable HUSET, which refers to the pronunciation of the neuter suffixed definite article *–et*. The standard form is [əð], the local dialect form [ət]. Tables 3–5 show the distributions.

Speakers	Standard observed frequency	per cent	Local observed frequency	per cent	Total
Adult	26	19%	111	81%	137
Young	46	63%	27	37%	73
Total	72		138		210

chi-square	39,05702636
p	<.01

Table 3. Apparent time 2005-06, adult and young speakers

Speakers	Standard observed frequency	per cent	Local observed frequency	per cent	Total

1986-87	8	8%	91	92%	99
2005-06	26	19%	111	81%	137
Total	34		202		236

chi-square	4,686016047
p	.030409078

Table 4. Real time, panel study, cohort 1 1986-88 and 2005-6

Speakers	Standard observed frequency	per cent	Local observed frequency	per cent	Total
Cohort 1	8	8%	91	92%	99
Cohort 2	46	63%	27	37%	73
Total	54		118		172

chi-square	56,34469956
p	<.01

Table 5. Real time, trend study, cohort 1 (1986-7) and cohort 2 (2006)

Table 3 shows an apparent-time change from 19% to 63% standard, suggesting rapid change. The panel study (Table 4) shows that cohort 1 have to a small, but significant extent, participated in this change. The communal change is shown in Table 5, and as expected this shows a greater change than the apparent time method.

Individual and group change are linked in specific, statable ways. The study of dialect transmission holds the key to the mechanism of change: it is adolescents, who do the 'work' (Eckert, 2000), not, as historical linguists have supposed, young children who fail to learn their parents' language properly (Aitchison, 1981: 180).

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[i] Tensing and raising are conceived of by Labov as different processes; here, the best measure is vowel height.