22   Lexical Diffusion and the Regular Transmission of Language Change in its Sociohistorical Context

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Introduction

As far as language is concerned, "transmission" can be understood, in its most general sense, as the passing of language across populations; "language" here really means particular linguistic features, but the features can add up, as it were, so that large portions of language or even the entire language itself can be transmitted. With this last point in mind, regarding the transmission of the entire language, a stricter sense of transmission can be identified, referring to the passing of language across generational populations, that is, the acquisition of language by children based on what they hear spoken around them by parents and caretakers who represent older generations. Thus, in this more restricted sense, transmission as a term belongs to the realm of first language acquisition, while in its broader sense, transmission can be taken to include what might be called "diffusion," referring to the spread of language and language features within and across various nongenerationally based sectors within society, in effect, then, the spread across social dimensions.

The terminology adopted here thus follows the important lead of Labov (2007). There, Labov defines transmission in terms of the notion of "linguistic descent," which, following in the footsteps of Bloomfield (1933) and Hoenigswald (1960), is formulated thus by Ringe, Warnow, and Taylor (2002: 63), as cited by Labov (2007: 346):

A language (or dialect) Y at a given time is said to be descended from language (or dialect) X of an earlier time if and only if X developed into Y by an unbroken sequence of instances of native-language acquisition by children.

The notion of diffusion, by contrast, represents "the importation of elements from other systems" (Labov 2007: 346) and as such is "a secondary process, of a very different character" (Labov 2007: 347) from transmission. Transmission, by virtue of the definition adopted for linguistic descent, is the primary, internal, means of language change and "is the result of the ability of children to replicate faithfully the form of the older generation's language" with allowances for change via "incrementation," a process in which "successive cohorts and generations of children advance [a] change [evident in variable elements in the language] beyond the level of their caretakers and role models" (Labov 2007: 346). In this way, continuity and descent are still maintained but with an allowable basis for observed change. Although Labov's work represents a terminological breakthrough,[1] there is far more to say about both key notions; accordingly, diffusion, in various guises, is discussed in greater detail below in sections 3 and 4, with one apparent manifestation taken up in section 4, while some crucial foundational notions about language in general and about transmission in the stricter sense are first discussed in section 2, to lay the appropriate groundwork.

More on Transmission (and Diffusion) and Lineal Descent

In making sense of transmission, it is important to recognize that language has both an individual, that is, a psychological/cognitive, side, and a communal, or social, side. It is, of course, individuals who speak, but in the usual case,[2] they speak to some other person, and often to several other people; moreover, the individual is typically part of a speech community, or actually several intersecting speech communities, as determined by the social "circles" s/he moves in, involving family, friends, occupational contacts, shared interests, and the like, and by the demographically defined groups s/he belongs to, based on gender, socioeconomic class, attitudes, practices, geography, age, and other socially determining factors.

Transmission can therefore be understood as spread of a language within the psychological dimension of the acquisition of the language by, and its development within, an individual, based on input in the ambient environment provided in part by an older generation of speakers. The qualifier "in part" is needed because in the view of language acquisition advocated here an older generation of caretakers (typically but not necessarily parents) provides at least a baseline of input to a language-learning child, but further input and reinforcement of forms, representations, structures, and such also come from the child's peer group as s/he grows and develops. This approach takes its cue from that advocated by Labov, namely that the social development of the child is crucial to full language devel-

opment; it is significant that Labov's definition of "incrementation," given above, refers to "cohorts" and not just language-learning "individuals" or "generations." In this regard, of course, we must take note of the oft-cited and admittedly some-what attractive view, put forward by Halle (1962) and taken up by most generativ-ists since – see the work of David Lightfoot (1997, 1999) – that a certain type of development in the individual acquisition of language – namely "imperfect learn-ing" – is the locus of change; nonetheless, the observation made by Labov (2007: 346n.4) concerning this view of language change is particularly damning:

> Halle (1962) argued that linguistic change is the result of children's imperfect learning […]: that late additions to adults' grammars are reorganized by children as a simpler model, which does not exactly match the parents' original grammar. Although Lightfoot (1997, 1999) argues for this model as a means of explaining completed changes, such a process has not yet been directly observed in the study of changes in progress.

Continuing along similar lines of explanation, then, we can say that diffusion generally represents spread within the social side of language; in section 4 below, we focus on a slightly different use of the term to denote a particular type of dif-fusion, one that has attracted considerable attention and which offers a dimension along which these two senses clash/converge. But in order for that focus to make sense, further details on transmission are necessary.

As the definition given above from Ringe, Warnow, and Taylor (2002) suggests, the notion of "lineal descent" – what can more emphatically be called "direct lineal descent" [3] – is a crucially important notion in historical linguistics. As indicated, it refers to those cases in which we can demonstrate, or at least safely assume, an unbroken chain of generational transmission between one stage of a language and some later stage. If such a chain can be established, it allows us to talk confidently about change, in that we know that an earlier speech-form and a later one are directly connected by a series of language-developmental – that is to say, transmis-sional – events from one generation to another, or, more realistically, from one socially determined language-learning cohort to another.

Just why this notion is crucial to work in historical linguistics can be illustrated by examining the sort of straight-line connection described above that appears to obtain between Ancient Greek (AGk) and Modern Greek (MGk), inasmuch as MGk represents a changed form of its predecessor, AGk. That is, MGk certainly owes much to the vocabulary and grammar of AGk, even if it has innovated and borrowed to get to where it is today. But what does "predecessor" mean in this context? Such a term seems to suggest that AGk was a monolith and it has changed over time into another monolith, MGk. However, like all languages, Ancient Greek was hardly monolithic, and it encompassed rather considerable variation, includ-ing a number of different geographically determined dialects, the main ones being Attic-Ionic, Doric, Aeolic, and Arcado-Cypriot.[4] Moreover, MGk itself encom-passes numerous dialects, including Peloponnesian Greek (the basis for much of the present-day standard language), Northern Greek, Southeastern Greek, Cretan,

and so on,[5] as well as subdialects for various locales. Can we thus map in a lineal way from any given AGk dialect, say the Doric dialect found all over ancient Crete, to any given modern dialect, say the present-day dialect of Greek spoken in Crete? Most likely not, since it was the ancient Attic-Ionic dialect that ended up predominating in the Hellenistic period (roughly 300BC – 300AD) and serving as the basis for the variety of Greek known as the Koine that spread over Greek-speaking territory in that era and was the foundation for the modern dialects, including Standard Modern Greek and, significantly, modern Cretan.[6] Thus although related, and part of the same sub(-sub-)branch of the Hellenic family tree, ancient Cretan and modern Cretan are not lineally connected by an unbroken sequence of transmission across stages of the language. Thus, one cannot map directly from an ancient Cretan form onto a form found in modern Crete, since Ancient Doric essentially died out (though see below), being replaced by the Koine in Hellenistic times. That means that ancient Cretan < καί > (*kai*) "and" did not yield modern Cretan [tʃE], whereas we can be sure that Attic-Ionic < καί > (*kai*) yielded Modern Standard Greek [cE]. Similarly, despite the apparent modern look to the ancient Cretan form αϜτον (*aFton*) "this,"[7] where the Ϝ ("digamma," a "w"-like sound), suggesting a pronunciation [aw], seems to anticipate the modern [av]/[af] pronunciation for the orthographic <αυ>, the modern forms surely derive from Koine pronunciations. That is, the reason for caution is that for all we know, both ancient Cretan καί and αϜτον could have changed or been replaced within ancient Cretan, only to then be replaced by the Koine predecessors to the modern standard forms as speakers in Hellenistic times shifted to use of the Koine in place of their indigenous dialect.[8] It is the case, though, that in practice, in discussing the origin of some modern form, we might let ancient forms from any dialect stand in for Attic-Ionic forms if the particular form is not directly attested in Attic-Ionic,[9] but in principle one can only tell that a given form at language stage *n* has changed into a particular form at language stage $n + x$[10] if the line of descent can be established.[11] Importantly, in this regard, it must be recognized that the ancient Doric dialect does have a lineal descendant in modern times, in the form of the Tsakonian variety of Greek, spoken now in parts of the eastern Peloponnesos. Thus, Ancient Doric and modern dialects of the north do not really constitute a path of direct lineal descent, but Ancient Doric and Tsakonian do, as do Ancient Attic-Ionic and the modern Cretan and modern northern dialects (among others).

The line of linguistic transmissional descent can be broken by any kind of event that leads to the substitution of a speech-form (dialect or language) that is external to the form of speech that the older generation would otherwise pass on to the next generation. The speech-form used by adults can be altered or affected by an external source, but if there is complete substitution of the external for the native speech-form, the transmission of that native form is broken. For instance, one dialect or language in a region may gain ascendancy over others based on political, economic, and/or social value associated with it, and such a situation often leads speakers – adult speakers, that is – to give up their native dialect or language in favor of the prevailing one. This is essentially what happened in the case of

Greek, in that the Hellenistic Koine was based largely on Attic-Ionic, due in large part to the adoption of Athenian Greek – the dialect of Athens, the economic and cultural center of ancient Greece – as the court language by Philip of Macedon, whose son, Alexander the Great, carried out conquests that led to the spread of an altered form of Attic-Ionic throughout an extensive empire encompassing most of the eastern Mediterranean area and stretching to India.[12] In the case of Tsakonian, its isolation in the rugged country of the eastern Peloponnesos contributed to keeping at bay the Koine – and into the early part of the twentieth century, Standard Modern Greek.[13] It can be noted that in some works on language contact, such as Thomason and Kaufman (1988), the uprooting of a language (or languages) that occurs in creole formation is seen as a serious break in transmission, such that there is no continuity at all.

A question that needs to be asked is: just what is it that makes the descent lineal and unbroken in the typical case? As suggested already, it is transmission through generations. This transmission takes place in the individual first language learner, of course, but it actually takes place in many individual first language learners throughout the speech community. That baseline of language from generational transmission then gets smoothed out, and added to and elaborated on, in the social interactions that the child first-language learner engages in as s/he becomes part of a peer group, part of a sector of a larger domain of speakers. In that way, s/he becomes involved in interactions with other sectors of society, including older speakers, and thereby begins assimilating to the established norms but also deviating from them in certain respects. In short s/he is becoming a fully functioning member of a speech community as features enter his/her speech through diffusion from other speakers or become reinforced in his/her usage through contact with them. And, since, in the typical case, significant numbers of individual learning speakers are going through this exact same process of assimilating to a peer group cohort within a larger speech community, the cohort emerges as the carrier of continuity with earlier states of the language, giving the unbroken lineal descent that generational transmission entails. Lineal descent is thus a phenomenon based in part on the individual and in part on the socially defined cohort.[14]

Admittedly this scenario for language-learning may seem to make it hard to maintain a sharp division between transmission and diffusion, in that diffusion – the learning of the norms of a speech community – is involved in language development at a somewhat later stage for the socially defined cohort, after a baseline has been established in each child. Nonetheless, if this is what is involved in the usual path of lineal trans-generational transmission, this simply is what one must recognize and work with. Diffusion as a "secondary process" (see above, section 1), however, in the typical case, involves adult speakers of one language in contact with adult speakers of another. As Labov (2007: 349) puts it:

> The contrast between the transmission of change within languages and diffusion of change across languages is the result of two different kinds of language learning. On the one hand, transmission is the product of the acquisition of language by young

children. On the other hand, the limitations of diffusion are the result of the fact that most language contact is largely between and among adults.

We can then distinguish between "primary diffusion," the diffusion involved in the learning – with some breaking – of societal norms by the (young) first-language learning cohort, and "secondary diffusion," the diffusion involved when adult speakers (with fully formed language) come into contact with speakers of different dialects and different languages altogether.

More on Diffusion

Diffusion and, more generally, transmission are therefore at the heart of how language goes beyond the individual and becomes part of the social. That movement from the individual to the social deserves further attention and elaboration.
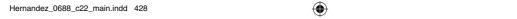
Diffusion as a term applies to the spread of features from individual to individual, from individual to group, or from group to group. Thus, in this sort of spread of linguistic features, certain aspects of language move from being individual idiosyncrasies, in a sense, to being properties of a wider range of individuals, that is, part of the language use of a group, variously defined. As indicated above in section 1, under one interpretation, transmission subsumes diffusion, but also takes in the situation in which there is "movement" of language between generations.

In this sort of spread, language comes to be rooted not just in one generation but in a wider range of individuals of different ages; since society at large – any sizeable social group, that is – offers a continuum of ages at any given point, ranging from newborns to octogenarians (and older), the transmissional spread of language across generations guarantees a widening of the age of speakers in a given community.

Diffusion moreover interacts with transmission; a restricted type of diffusion – that involved in bringing the emerging usage of an individual in line with a speech community's general linguistic practices, referred to here as "primary diffusion" – is part and parcel of the transmission process. But there is a key difference between transmission and diffusion in general: while transmission takes place over a relatively short period of time within an individual's development,[15] diffusion, specifically what is called here "secondary diffusion," continues across an individual's lifetime. It has been shown empirically, for instance by Sankoff and Blondeau (2007), that language change goes on throughout an individual's lifetime, and not just in trivial ways pertaining to the addition of new lexical items;[16] much of that change in later life is due to the influence of other speakers, and thus represents change by ("secondary") diffusion.[17] Admittedly, some linguists argue here that such changes in adulthood are changes only in language behavior and not in language knowledge (Hale 2007: 40). Still, it is worth asking how one knows that language knowledge is not affected except insofar as it is manifested in language behavior. A similar sort of objection is voiced by Klein

(2010: 721), whose words, even though directed by purely practical concerns, are instructive:

> [T]he model for understanding linguistic change from the perspective of I[nternalized]-language is the interstitial relationship between adjacent generations […] I like to distinguish this situation – call it microdiachrony – from the traditional enterprise of diachronic linguistics – call it macrodiachrony – which looks at linguistic stages separated by many generations, producing huge saltations between one stage of attestation and another. Under the latter circumstances the attainment of any insight into I-language is, for all intents and purposes, impossible. We are left to do the best we can with E[xternalized]-language: the data we have.

Returning to diffusion, it must be recognized, further, as being possible along any of the dimensions along which individuals interact with or "bond" with others. That is, diffusion can occur, for example, across social class lines, across geographic lines, and across age boundaries. Diffusion of this last type, across age boundaries, would involve established speakers, as with the spread in American English (and elsewhere) of quotative *like* (as in "I'm like, what's going on here?!"), with its apparent origins in youth-based usage (Schourup 1983; Romaine and Lange 1991). These paths of diffusion line up with the sets of social contacts and group "memberships" that an individual has, and with his/her social network, in the sense of Milroy (1980).

Understanding diffusion is also important for getting a handle on just what the notion of "change" entails, as far as language is concerned. That is, one can recognize that in any "change event" there is not only the initial appearance of an innovative altered (generally competing) form but also the spread of the use of that form by a wider range of speakers. Yet at what point or points in that "event" can one talk about a "change" having occurred? One view might well say that the initial emergence of the innovation is the change, that is, something that the language system alone gives (whether or not the impetus is system-internal or system-external); this is essentially the view taken in Hale (2007). By contrast, a competing view might well say that only with the spread of an innovation is there "real" change; this is essentially the view that Labov (1994) has repeatedly advocated. In the former view, the innovation alone is all that is of interest to linguistics, and the spread is a matter, perhaps, of sociology. In the latter view, both elements – innovation and spread – are crucial to there being a change; that is, there may be many innovations that go nowhere,[18] in the sense of not spreading to any other speakers, and which thus do not constitute in any substantive sense a "change" in the language.

It is not necessary to take a stance on the otherwise foundational and important question of how to define "real change" in order to recognize the distinction insisted on here between diffusion and transmission. Whether a sociological phenomenon or a (socio)-linguistic one, diffusion has an impact on language. Similarly, except in cases of a societal break – as in Thomason and Kaufmann's (1988) view of creolization – or the loss of actual speakers and a speech community (as is

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happening, and presumably has happened, repeatedly now and in the past as languages "die"[19]), language transmission will occur, regardless of how "change" is defined. The issue of what "change" is in actuality is an important one, but it is orthogonal to the transmission/diffusion dichotomy discussed here.

One Particular Non-Social Type of Diffusion and its Status

Work in the nineteenth century in comparative philology, especially but not exclusively with regard to Indo-European languages, yielded several important results that helped to establish a scientific footing for linguistics. Among these achievements were the recognition that genealogical[20] language relationships could be mapped in a family-tree-like diagram, much as manuscript families were classified by classical scholars, and that undergirding much – but not all, as is seen below – of the recognition of these relationships was the discovery of the regularity of sound change. "Regularity" here refers to the fact that once the parameters for a sound change are appropriately restricted so that it operates in specifiable phonetically determined contexts, all candidate forms for a given sound change can be seen to undergo that change. What this discovery did for genealogical relationships was to offer clear sets of innovations that systematically distinguished clusters of languages (or dialects, for that matter) as separate and distinct from other clusters. Although such clusters could also be identified on the basis of morphological, syntactic, or even semantic or lexical innovations, none of those domains show regularity in the same way that sound change does. Accordingly, the identification of sound changes took on a particular importance for recognizing tree-like branchings-off of distinct speech communities from a unified proto-language starting point.

The notion of direct lineal descent discussed above also plays a role here, since, as indicated, the only way to be able to speak meaningfully about language change along a branch of a family tree is if there is an unbroken line of generational transmission linking one linguistic stage at a higher node in a tree with a later linguistic stage. There is thus a connection between lineal descent and family-tree-like diachronic branching events, and a key element in that connection is sound change, and in particular that kind of change event involving sound that is phonetically driven and adheres to Neogrammarian regularity, what I have elsewhere referred to as "sound change proper."[21]

Challenges to the Neogrammarian view of sound change, therefore, indirectly constitute challenges to the tree-like conceptualization of language (and dialect) relationships. One famous challenge was Johannes Schmidt's (1871) "Wellentheorie" ("wave theory"), the suggestion that language changes do not occur with the regularity and systematicity across a whole language-acquiring cohort that would result in tree-like neat branchings; rather, according to Schmidt's theory, they occur in waves of propagation – that is, in a type diffusion in our sense – from

some innovating center. Despite the fact that these two approaches to representing the results of change – the tree representation associated with Neogrammarian practices and the wave theory representation with its concentric circles of propagation – are often viewed as opposed to one another, in principle both can be right, but can refer to different kinds of change events. In particular, tree representations may be appropriate for innovations that are based in transmission – and therefore primary diffusion – while wave-model representations may be appropriate for innovations that are based in Labovian (secondary) diffusion.

Nonetheless, other challenges are possible to the Neogrammarian view of sound change and the representations of relationships based on it. In particular, what has come to be called "lexical diffusion" is just such a challenge. This is a type of diffusion that has not so far been mentioned here, but has figured prominently from time to time in the historical linguistic and sociolinguistic literature,[22] and involves diffusion along the purely linguistic dimension of the lexicon. Lexical diffusion is the view that sound change is not implemented uniformly and abruptly across all candidate tokens of a given affected sound in a specified phonetic conditioning environment, that is to say, in all words and morphemes containing that sound and meeting the specified conditions for the sound change. As a result, it does not necessarily lead to regularity for a given sound change, since not all candidate forms need be affected by the change; rather, in the view of those advocating lexical diffusion, a sound change moves within the lexicon from one word meeting the conditioning environment to another and another and another. Crucially, some candidate words could fail to undergo the change: the diffusion of the sound change could weaken and stop before reaching the full extent of the lexicon. Sound change is thus, in the words of Wang (1969: 14), "phonetically abrupt [but] lexically gradual." The challenge to regularity would thus be seen in a putative case of words with nearly identical phonological environments but different behavior with regard to a relevant sound change, as if, for instance, the [æ] of *sad* and *saddle* in English were to develop differently. In such a case, one might claim that the difference in syllable structure – [æ] is in a closed syllable in *sad* but an open syllable in *saddle* – makes a difference. Thus, especially problematic would be a putative case involving true homophones, two distinct words that happen to have the same phonological realization, such as *seed* and *cede* in English, if it could be shown that they developed differently due to sound change and sound change alone.

The reason that such cases are problematic is to be found in a key element of the Neogrammarian view of regular sound change, namely that the only allowable conditioning is of a purely phonetic nature. That means that if sound change were sensitive to meaning or to the part of speech or if it could just ignore phonetics, then it would be necessary to abandon the view that sees sound change as regular *because* it is simply a mechanistic adjustment in articulation that would be replicated, almost automatically, across all places where the adjustment that the sound change entails is called for. There is thus considerable importance to be placed on the hypothesis of lexically diffuse sound change, and there have accordingly been attempts to either reconcile Neogrammarian sound change with lexical

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diffusion, as in Labov (1981), or to reinterpret lexical diffusion in such a way as to make it irrelevant to the Neogrammarian claims about sound change, as in Kiparsky (1988, 1995/2003), who argues that lexical diffusion is simply a type of analogical change. My own views are closer to Kiparsky's on this, and as an ardent Neogrammarian, I have my own wrinkle on a solution to the challenge that lexical diffusion poses.[23] But first I offer a few somewhat tangential but still not insignificant observations.

First, as a historical note, it is worth remembering that although Wang is best known for having brought lexical diffusion before the eyes of the modern linguistic world, the notion of gradual spread through the lexicon has historical antecedents. Wang himself (1969: 14) acknowledges that Sturtevant (1917: 79) envisioned such a type of gradualness, and even if not part of Neogrammarian doctrine about sound change, the positing of lexically diffuse propagation of sound change was on occasion part of Neogrammarian practice. Prokosch (1938: 63, 67) discusses exceptions in Gothic to Verner's Law regarding the voicing of spirants following unaccented syllables in pre-Germanic, prior to a shift of the accent to root syllables. The forms *waurþum* "we became" and *waurþans* "having become" are such exceptions, and, citing Hirt (1931) approvingly, Prokosch (1938: 67) states that "we must assume […] that in these words Gothic had root accent sooner than other Germanic languages," an assumption that would seem to entail that there were words in Gothic, namely those that do show the accent-conditioned Verner's effects, such as *sibun* "seven," that acquired root accent later. This assumption, then, is tantamount to saying that the accent shift to the root was accomplished sooner in some words than in others, that is, that the accent shift was a lexically diffuse sound change.

Second, if sound change were an essentially lexical, not phonetic, phenomenon, then in principle we might expect to see far more irregularity in the spread and propagation of change than we usually do, since the lexicon is a repository for the idiosyncratic aspects of language; as a result, under the hypothesis of lexical diffusion, there need not be any predictability to the spread of a sound change.[24]

Moreover, to pick up on Prokosch's suggestion of a variable realization of the shifting of Germanic accent, the sort of variability that lexical diffusion could in principle introduce can be assessed sociolinguistically. At first, though, when one looks at lexical diffusion from the point of view of sociolinguistics and the social dimensions of diffusion, such as those mentioned here throughout, it might seem that there is really no social dimension to lexical diffusion; that is, a first take on lexical diffusion is that it is not really an issue for sociolinguistics: the spread of a sound change through the lexicon would seem to be irrelevant to language in its social setting, being instead just a system-internal matter. However, on a different level, lexical diffusion would matter sociolinguistically since in the posited spread of a sound change word-by-word for individual speakers, it would be surprising if all speakers showed the spread in exactly the same way, to the exact same set of lexical items. Thus with lexical diffusion we might expect there to be considerable variation within the speech community as to which words are pronounced

in one way or in a different way, and that variability would be expected to feed into processes of social evaluation by speakers.

Finally, a further important observation is that many types of language change are lexically diffuse. Morphological change, especially involving analogy, is notoriously diffuse and lexically restricted in its realization, and analogical changes that affect just a few lexical items are commonplace. As an extreme case, one can even find instances where just a single form was analogically affected; for instance, the AGk nominative form *Zeus* (chief god of the Greek pantheon) was the basis for the analogical remaking of the nominative of the word for "month" in the Elean dialect to *meus*, replacing an expected *meis. Similarly, there can be lexically based exceptions, suggesting lexically diffuse spread, for syntactic changes: the general fronted positioning of subject pronouns in English before imperative verbs, as in "You get me a cold soda right now!" did not affect a few (now-)fixed expressions, such as "Mind you" or "Believe you me." [25] And Joseph (1983) demonstrates that the replacement of the infinitive by finite verb forms in Post-Classical and Medieval Greek diffused through the grammar of Greek in such a way as to affect some constructions, and thus some complement-taking lexical items, before others. The fact of expected diffusion with morphological and syntactic change means that claims of lexical diffusion really only represent a challenge to established views with regard to sound change, since it is only Neogrammarian doctrine on sound change that turns regularity into an issue. Moreover, the hypothesis of lexical diffusion is of real interest only if one takes a Labovian view rather than a Halean view (see above) as to where real change is to be located; if change is defined on the point of origination of an innovation – Hale's view above – then any dimension of spread belongs to a different domain of inquiry.[26]

As for how to reconcile lexical diffusion with Neogrammarianism, as a first step, one can build on this last observation and recognize that there can certainly be a diffusionary *effect* to the way a change, of any sort, is realized in the lexicon at large. As just noted, most changes are indeed lexically gradual; moreover, there are many ways in which the pronunciation of a lexical item can change that do not have to do with phonetically driven Neogrammarian-style sound change. Besides the workings of analogy, there are socially determined processes that can affect the pronunciation, the phonetic realization, of a word. For instance, in hypercorrection, the perceived prestige of a (generally standard) dialect and concomitant concern about stigmatized usage can drive (insecure) speakers to alter forms that are acceptable in standard usage. An example involving an isolated lexical item, and thus highly relevant here, is the widespread Midwestern American English pronunciation [kjúpan] for *coupon*, more standardly with [ku-] in the first syllable, presumably an extension based on urbane-sounding pronunciations with yod after alveolars as in [tjun] *tune*; note that it does not extend to all [ku]-initial words, as forms like *coot*, *cooed*, or *kook* seem never to occur with [kj]. [27]

Similarly, attitudes about the verbal portrayal of foreign words can change, as in the case of nativizing pronunciations as opposed to pronunciations that are truer to the foreign origin. For example,[28] in the 1950s, the official news agency of the Soviet Union, abbreviated as TASS, standing for *Telegrafnoye agentstvo Sovetskovo*

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Soyuza "Telegraphic Agency of the Soviet Union," was pronounced, when uttered as a word, for instance by newscasters, as [tæs], whereas in the 1990s, in the post-Soviet era, one could hear instead [tas]. This difference in pronunciation was not a matter of a general change in pronunciation, since, in English, phonetically similar words like *lass* or *pass* retained their [æ] and did not become [las]/[pas], and to say it was a lexically diffuse sound change that just happened to affect this one word would in essence deplete the notion of lexical diffusion of any empirical content. Rather, what seems to have happened is that *TASS* was recognized as the foreign word it was and an attempt was made to give it, as such, a pronunciation more like that in its source language of Russian, hence [tas]. The attitude about how to deal with such obvious foreignisms changed and affected the pronunciation of this one word, and differentiated it from words that were not obvious foreignisms like *lass*, *pass*, and others.

Thus merely finding that a change is realized in just a subset of its potential candidates, when the change is characterized in terms of phonetic environment, is not enough to warrant a claim of lexical diffusion. It is for that reason that the terminological distinction made above is called for, by which "sound change," encompassing all possible ways in which a word's phonetic realization could be altered, is differentiated from "sound change proper," taking in the far narrower scope of just those changes in pronunciation induced by the phonetic environment and realized across all candidate forms.[29] Similarly, such examples point to the need to distinguish the effects of diffusion (i.e. *diffusionary effects*), as caused by various sorts of processes (other than sound change) altering the pronunciation of words, from *lexical diffusion* per se as a special mechanism of change, as a special type (or subtype) of sound change. And, in cases where that distinction is made, positing lexical diffusion can actually be a less compelling explanation than invoking a naturally diffusionary type of change, such as analogy.

To illustrate, a return to Prokosch and his concerns about Germanic is helpful. Prokosch's comments and his invocation of Hirt, as noted earlier, were made in the context of discussing exceptions to Verner's Law in Gothic. These exceptions constitute a case where a difference between the effects of a sound change on isolated forms, as opposed to what is seen in forms that participate in morphological alternations involving the affected sound, becomes important. In particular, they bear on how explanatory a construct lexical diffusion is. In the case of Verner's Law, as seen above, its effects occur uniformly in all morphologically isolated forms that meet the environmental conditions for the change, such as *sibun* "seven" (pre-Germanic *sefún, from Proto-Indo-European *septm̥), but only sporadically in verb forms, in which there were accentual alternations that changed the conditions for Verner's Law between different related grammatical categories. Thus, while *þarf*/*þaurbum* "need" show Verner's Law effects inflectionally between first person singular and plural preterit forms, and *filhan* "to hide"/*fulgins* "hidden" do so derivationally, *wairþan* "to become" does not (rather: *warþ*/*waurþum*/*waurþans*). A lexical diffusion account could be constructed that would say simply that Verner's Law never made it to the lexeme *wairþan*, but that is rather unsatisfying, as it gives no basis for why that lexeme should have been late to be affected by

Verner's Law. Instead, one can posit analogy, a mechanism of change for which lexically diffuse realization is expected, as being operative here, leveling out presumed allomorphy between *warþ /*waurdum* (allomorphy like that in *þarf /þaurbum*). In fact, analogy provides a more satisfying account here, since it explains why isolated forms always show Verner's Law; such forms have no alternating related form on which analogical restoration of the voiceless fricative could be based, so they will necessarily show the voiced fricatives created by Verner's Law, under the assumption of regular (abrupt, in Wang's terms) realization of the sound change at the start. Moreover, analogy provides a natural account of variation seen in one verb, where one finds both expected (per Verner's Law) third person singular *áih* "he has" and unexpected *áig*, and in the plural both expected first person *áigum* but also unexpected *áihum*. A lexical diffusion account would be hard-pressed to explain this variation, but, using analogy, one need only start with an original alternating paradigm *áih /áigum* and assume leveling out of the alternation in different directions. Such bidirectional leveling is seen in English, where some verbs that originally had dental preterits have analogically developed past tense forms marked by vowel change alone; for instance, alongside original *dived*, analogical *dove* has developed. This is counter to the more typical directionality of analogy in English toward new dental preterit forms, as with original *clomb* being replaced by analogical *climbed*. [30]

Even seemingly nonalternating forms can be subject to different environmental influences due to their occurring in different positions in a phrase or sentence in connected speech ("sandhi") or with different intonational contours or other "suprasegmental" effects. Interestingly Prokosch is willing to recognize such effects in his account of the voicing of the original initial [θ] to [ð] in English in a single lexical class, that of deictics and pronouns (*the*, *this*, *then*, *thou*, *thee*, etc.). As he puts it (1938: 62), "[OE [θ]] became voiced […] initially only in words which are relatively unstressed in a sentence […] Here the whole word is "lenis," and therefore the weak spirant is voiced." This means that a richer basis needs to be considered for the phonetic conditioning environment for sound changes (proper).

Recognizing such richer bases leads to a final point: in the end, fine-grained phonetic detail, including what occurs in connected speech (as opposed to just looking at words in isolated citation forms), matters significantly for sound change (proper), even though we tend to look for very general statements of the conditions on sound changes. The "big bang" theory of sound change, proposed by Janda and Joseph (2003) (see also Janda 2003:419–21), starts with that need to take into account the fine phonetic detail of an environment and turns it into a virtue, saying that sound changes start as phonetically determined "events" in very "small" environments – the big bang – and in the aftermath of the big bang of a phonetic event there can be generalization along various lines. [31] One of those lines of generalization can be further continuation of the phonetic trajectory initiated by the "big bang," leading to the most commonly observed situation – what was referred to above as "sound change proper," that is, Neogrammarian regular sound change – where one sees a fairly broadly realized and phonetically conditioned change in the realization of certain elements. Other lines of generalization

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are possible, such as phonological, in which the phonetic grounding is lost but sound-based categories are still involved, or morphological, in which analogy and grammar come into play leading often to what is sometimes (erroneously – see Hock 1976) referred to as "grammatically conditioned sound change," or social, in which diffusion and (re)definition of the value of the change according to social categories occur. Moreover, a phonetic big bang event allows for "lexical diffusion" without violating Neogrammarian tenets. A "lexically diffuse" change would simply be a sound change proper that in the aftermath of the big bang was generalizing (diffusing) along lexical lines but was never fully generalized. The Neogrammarian sound change proper is to be viewed as distinct from the aftermath, so there would be no violation of the principle of regularity of sound change; regularity would be defined in such a case on the phonetics of that particular "big bang." In this view, then, diffusion – really, generalization along various paths – is essential, but it occurs after the defining "moment" for a sound change, after the "big bang."

Conclusion

It should be clear from the foregoing that transmission and diffusion are crucial notions in historical linguistic investigations: transmission and diffusion together, in a sense, give the historical dimension to language. Successful transmission in part depends on primary diffusion, establishing lineal descent, and that sets the stage for possible secondary diffusion, which, in the usual case where there is no wholesale shift to another language (or dialect) but only the accretion of material from one into another, preserves lineal descent. Further, in its most usual sense, diffusion necessarily involves spread across different socially defined groups. Transmission and diffusion are thus essential to practices and studies at the intersection of historical linguistic investigation and sociolinguistic investigation, that is, the meeting ground we might call historical sociolinguistics.

An examination of the different dimensions of diffusion leads to a need to consider the one type of nonsocial diffusion, namely lexical diffusion, and the upshot of that discussion is to cast doubt on the need to recognize lexical diffusion as a mechanism of change distinct from analogy and other inherently diffusionary types of change. From a practical standpoint, this result liberates (socially inclined) students of diffusion from having to consider linguistic dimensions to spread, except those associated with generalization in the aftermath of the big bang of a sound change, and it thereby allows them to concentrate on just social dimensions to diffusion. Historical sociolinguistics can thus be practiced with an emphasis on the social side of the history. The spread of sound change in its aftermath, for instance, can still be analyzed in socially diffusionary ways, along socially determined paths relating to speakers' lines of social interaction, but the purely linguistic dimension of spread through the lexicon need not be taken account of; it can be profitably viewed as a type of analogy, a process that can lead to diffusionary effects in the lexicon, independent of social concerns.

This result means further that diffusion, now limited to socially determined diffusion, is not a problem for Neogrammarianism because sound changes have always had to be relativized to particular speech communities. Socially determined diffusion simply means that a richer sense of "speech community" is needed as far as sound change is concerned, but other linguistic phenomena point in that direction anyway.

This sociolinguistically satisfying result has a further consequence that is satisfying from the perspective of historical linguistics; the Neogrammarian hypothesis of the regularity of sound change is foundational to so much else in historical linguistic methodology,[32] so the ability to remove lexical diffusion from the playing field, while allowing social diffusion to remain in play, means that Neogrammarian doctrine can be preserved, including the associated notion of lineal transmission, and with it the methodological edifice that it supports and all the important results that have flowed from that edifice over decades of research.

Historical sociolinguistics as a paradigm for understanding the passage of a language and its speakers through time depends on a degree of rigor on the historical, the social, and the purely linguistic levels of analysis. Being able to identify and separate out different causes for different kinds of effects thus strengthens the paradigm, as it emboldens practitioners by giving clearer direction to their investigations.

NOTES

1 Given the enormous contributions of Labov's research program over the past nearly fifty years to our understanding of language change in its social setting, Labov (2007) quite characteristically also offers important conceptual and empirical breakthroughs.
2 That is, excluding talking to oneself and talk contained in dreams.
3 I have used this expression for years in my teaching of historical linguistics but I am not sure exactly of its ultimate source. My first historical linguistics teacher, Isidore Dyen, used "lineal descent" in the course entitled "Historical Linguistics" (course number: Linguistics 51a) that I took during my senior year at Yale University in the autumn of 1972 (and I have it in my notebook from that class). I do not know if the addition of "direct" is my embellishment or was used by Dyen; I wonder too if there was any influence from Leonard Bloomfield (Dyen's colleague at Yale after World War II) but leave that an open question for now. Hale (2007: 27) has a detailed discussion of what "descent" means in linguistic terms.
4 I am deliberately leaving aside Northwest Greek, as in some accounts it is subsumed under Doric, as well as, for different reasons – having to do with difficulty in placing them accurately – Mycenaean Greek and Pamphylian Greek.
5 See Newton (1972) and Trudgill (2003) for details and some discussion. The rather meager listing given here (pared down for the sake of convenience) leaves out a large number of regional and other varieties of Greek that might well be called "Modern Greek dialects."

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6 See Browning (1969/1983) and Horrocks (1997/2010) for information on the formation of the Koine and the historical development of Modern Greek more generally.

7 This form occurs in one of the earliest Cretan inscriptions, from Drerus, dating from the sixth century BC.

8 Hale (2007: 30–31) terms this the problem of "non-lineal descent;" see also Janda and Joseph (2003: 19) for further general discussion.

9 The reasoning behind such a practice is that in the absence of evidence to the contrary, an Attic-Ionic form corresponding to the attested non-Attic-Ionic form is likely to have occurred but just to be accidentally missing from the documentary record on the dialect. Attestation is, after all, a matter of historical accident; see Janda and Joseph (2003: 15–16) for some relevant discussion.

10 This view sees a language as consisting of a series of synchronic stages where each stage is replaced, actually replicated with possible alteration, by another, and that by another and so on, with diachrony being the movement of the language through these successive synchronic stages. See Joseph (1992) and Hale (2007: 5–6) for discussion (and diagrams).

11 Klein (2010: 721n.1) makes this same point; see also Hale (2007). Although illustrated here with Greek, similar concerns hold for virtually every linguistic tradition; Crystal (1995: 29) has this to say on this problem in the history of English: "Most of the Old English corpus is written in the Wessex [West Saxon] dialect […] however, it is one of the ironies of English linguistic history that modern Standard English is descended not from West Saxon but from Mercian […] the dialect spoken […] in […] [and] around London."

12 There are archaisms in some modern dialects that escaped the leveling out that occasioned the formation of the Hellenistic Koine – see Andriotis (1974) and Shipp (1979) for various examples.

13 Pernot (1934) is the most authoritative presentation of Tsakonian grammar before there was serious influence – evident in small amounts even in Pernot's time – from the standard language on the form of Tsakonian. Present-day Tsakonian is still distinctive, but shows ever-increasing standard language influence.

14 As noted earlier in this section, one can identify a fairly extreme generativist view of the relation between language acquisition and language change, namely the view that Labov (2007) criticizes (see above). That particular view goes awry, in my opinion, because it focuses too much on the individual and not enough (if at all) on the individual in a social group and a larger speech community. If an innovation in an individual were actually to arise due to the "imperfect learning" scenario but then were to go nowhere in terms of spread within the cohort, one has to wonder how significant it is; see below for discussion of what constitutes "real" change.

15 It is a matter of some debate just how long this "critical period" is, and, for that matter, if there really is such a "critical period" or if observable differences between first and second language acquisition are to be explained in ways other than in psychological/maturational terms.

16 A somewhat more theoretical and conceptual discussion of change through the lifetime is offered in Janda and Joseph (2003: 174n.133), where reference is also made to an early modern case study (Robson 1975).

17 This is not to say that older speakers are incapable of making system-internal changes, as that is most assuredly not the case. Problems older speakers may have with the retrieval of forms no doubt contribute to some instances of analogical regularization, for instance.

18 There are random fluctuations in production evident even in the same speaker uttering the same form at different times throughout the course of a day; such fluctuations are, in a sense, system-produced innovations, but in the typical case, they do not spread and thus are mere ephemera.

19 The scare quotes around "die" are in recognition of the fact that almost every way of referring to a situation in which a language fails to be transmitted generationally is ideologically charged in some way or other.

20 The term "genealogical" seems to be gaining in use among historical linguists; I actually prefer the term "genetic," with the etymological sense of Greek *genetikós* "pertaining to origins" being operative, but the modern biological sense of "genetic" interferes with that earlier meaning in ways that can lead to misunderstandings.

21 The need for a terminological distinction here comes from the fact that there can be numerous ways in which the sounds of a word undergo change, such as analogy – an essentially morphologically driven process – but only one guarantees regularity, and that is phonetically driven sound change, sound change of the Neogrammarian type, "sound change proper." See further below for more discussion, and footnote 29.

22 See Wang (1969, 1979), the various papers in Wang (1977), and, most recently, Phillips (2006); also Chapter 23 in this *Handbook*.

23 I have benefitted in this presentation of lexical diffusion not only from the cited works of Kiparsky and Labov, but also from Phillips (2006), with its fine summary of the literature on the lexical dimension in sound change and its careful treatment of various factors that might play a role in the paths of diffusion through the lexicon. That I disagree with her ultimate conclusions about, for instance, needing to keep lexical diffusion distinct from analogy, is no indication of anything less than admiration for the carefully reasoned work.

24 Though see Phillips (2006) regarding frequency as a possible predictive factor.

25 Of course, subject pronouns do not usually occur at all with imperatives; *mind you* and *believe you me* therefore also constitute exceptions to the more general imperatival subject deletion, since subjectless *Mind!* (e.g. *Mind your manners!*) has a different meaning from *mind you*! (and note: *Mind you your manners), and subjectless *Believe me!* lacks the emphatic nature and pragmatic "intimacy" that *believe you me* adds to an utterance.

26 One necessary embellishment on Hale's view is that spread could not be a purely sociological matter if it includes the (presumably) nonsocially driven spread through the lexicon.

27 Hypercorrection may well have an analogical component, as it is generally based on patterns of correspondences involving dialects perceived as having different social values; see Hock and Joseph (1996/2009: 181–2) for some discussion.

28 I thank my friend and colleague Neil Jacobs for this example. See Janda, Joseph, and Jacobs (1994) for some discussion of various ways in which attitudes about forms perceived as foreign can affect their realization.

29 Kiparsky (1988: 369) describes this distinction as follows: "certain historical processes which *look* like sound changes are in reality not sound changes in the technical sense at all, but arise by other mechanisms."

30 Prokosch (1938: 63) suggests that the existence of alternations could block the operation of the sound change as opposed to undoing its effects; such a preventative view of the conditioning of sound change is counter to Neogrammarian tenets, because it posits conditioning that is nonphonetic in nature. While attractive, such an account clearly could not work for the *áih/áig/áigum/áihum* set of forms, so it is simpler to

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assume only restorative power for analogy rather than both restorative and preventative powers.

31　This comes close to the nineteenth-century view of dialectologists that "every word has its own history," in the sense that each word can define – or, within phrases, participate in – its own almost unique fine-grained phonetic environment. In the typical case, however, the fine phonetic detail is replicated to a certain extent in other words of similar structure, allowing for some generalization of environments across words. Clearly, the finer the detail one focuses on, the harder it is to generalize; the view taken here is that one starts with narrowly defined environments and things generalize from there. See Kiparsky (1988: 368–370) for a discussion of how the Neogrammarian view of sound change and this dialectological claim can be seen as compatible.

32　For instance, recognizing the regularity of sound change allows for the determination of the type of change involved in a given phenomenon, for example analogy as opposed to sound change (proper), it allows for the sorting out of borrowings from inherited lexical items, and it provides a basis for establishing the relative chronology of sound changes, all key elements in the practicing historical linguist's toolkit.

REFERENCES

Andriotis, N. (1974) *Lexikon der Archaismen in neugriechischen Dialekten*, Osterreichische Akademie der Wissenschaften, Vienna.

Bloomfield, L. (1933) *Language*, Holt Rinehart, New York.

Browning, R. (1969/1983) *Medieval and Modern Greek* (2nd edn), Cambridge University Press, Cambridge.

Crystal, D. (1995) *The Cambridge Encyclopedia of the English Language*, Cambridge University Press, Cambridge.

Hale, M. (2007) *Historical Linguistics: Theory and Method*, Blackwell, Oxford.

Halle, M. (1962) Phonology in generative grammar. *Word* 18: 54–72.

Hirt, H. (1931) *Handbuch des Urgermanisch Vol. 1*, Carl Winters Universitätsverlag, Heidelberg.

Hock, H.H. (1976) Review of R. Anttila (1972) *An Introduction to Historical and Comparative Linguistics* (Macmillan, New York). *Language* 52(1): 202–20.

Hock, H.H. and Joseph, B.D. (1996/2009) *Language Change, Language History, and Language Relationship. An Introduction to Historical Linguistics* (2nd edn), Mouton de Gruyter, Berlin.

Hoenigswald, H. (1960) *Language Change and Linguistic Reconstruction*, University of Chicago Press, Chicago.

Horrocks, G. (1997/2010) *Greek. A History of the Language and its Speakers* (2nd edn), Wiley-Blackwell, Chichester.

Janda, R.D. (2003) "Phonologization" as the start of dephoneticization – or, on sound change and its aftermath: of extension, generalization, lexicalization, and morphologization, in B. Joseph and R. Janda (eds), pp. 401–22.

Janda, R.D. and Joseph, B.D. (2003) Reconsidering the canons of sound change: towards a Big Bang Theory, in *Historical Linguistics 2001. Selected Papers from the 15th International Conference on Historical Linguistics, Melbourne, 13–17 August 2001* (eds B. Blake and K. Burridge), John Benjamins, Amsterdam, pp. 205–19.
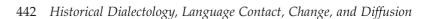
Janda, R.D., Joseph, B.D., and Jacobs, N. (1994) Systematic hyperforeignisms as maximally external evidence for linguistic rules, in *The Reality of*

Linguistic Rules (eds S. Lima, R. Corrigan, and G. Iverson), John Benjamins, Amsterdam, pp. 67–92.

Joseph, B.D. (1983) *The Synchrony and Diachrony of the Balkan Infinitive: A Study in Areal, General, and Historical Linguistics*, Cambridge University Press, Cambridge.

Joseph, B.D. (1992) Diachronic explanation: putting speakers back into the picture, in *Explanation in Historical Linguistics* (eds G. Davis and G. Iverson), John Benjamins, Amsterdam, pp. 123–44.

Joseph, B.D. and Janda, R.D. (eds) (2003) *The Handbook of Historical Linguistics*, Blackwell, Oxford.

Kiparsky, P. (1988) Phonological change, in *Linguistics: The Cambridge survey, I: Linguistic theory: Foundations*, Cambridge University Press, Cambridge, pp. 363–415.

Kiparsky, P. (1995/2003) The phonological basis of sound change, in *The Handbook of Phonological Theory* (ed. J.A. Goldsmith), Blackwell, Oxford, pp. 640–70. Reprinted in B.D. Joseph and R.D. Janda (eds), pp. 313–42.

Klein, J.S. (2010) Review of G. Ferraresi and M. Goldbach (eds) (2008), *Principles of Syntactic Reconstruction* (John Benjamins, Amsterdam). *Language* 86(3): 720–26.

Labov, W. (1981) Resolving the Neogrammarian controversy. *Language* 57: 267–308.

Labov, W. (1994) *Principles of Linguistic Change. Vol. 1: Internal Factors*, Blackwell, Oxford.

Labov, W. (2007) Transmission and diffusion. *Language* 83(2): 344–87.

Lightfoot, D. (1997) Catastrophic change and learning theory. *Lingua* 100: 171–92.

Lightfoot, D. (1999) *The Development of Language: Acquisition, Change, and Evolution*, Blackwell, Oxford.

Milroy, L. (1980) *Language and Social Networks*, Blackwell, Oxford.

Newton, B. (1972) *The Generative Interpretation of Dialect. A Study of Modern Greek Phonology*, Cambridge University Press, Cambridge.

Pernot, H. (1934) *Introduction à l'étude du dialecte tsakonien*. Paris.

Phillips, B.S. (2006) *Word Frequency and Lexical Diffusion*, Palgrave Macmillan, New York.

Prokosch, E. (1938) *A Comparative Germanic Grammar*, Linguistic Society of America, Baltimore.

Ringe, D., Warnow, T., and Taylor, A. (2002) Indo-European and computational cladistics. *Transactions of the Philological Society* 100: 59–129.

Robson, B. (1975) Jenepher revisited: adult language change, in Analyzing Variation *in Language. Papers from the Second Colloquium of New Ways of Analyzing Variation* (eds R.W. Fasold and R.W. Shuy), Georgetown University Press, Washington, pp. 283–90.

Romaine, S. and Lange, D. (1991) The use of *like* as a marker of reported speech and thought: A case of grammaticalization in progress. *American Speech* 66: 227–79.

Sankoff, G. and Blondeau, H. (2007) Language change across the lifespan: /r/ in Montreal French. *Language* 83(3): 560–88.

Schmidt, J. (1871) *Die Verwandtschaftsverhältnisse der indogermanischen Sprachen*, H. Böhlau, Weimar.

Schourup, L. (1983) *Common Discourse Particles in English Conversation*. Ph.D. dissertation, Ohio State University (published 1984 as *Ohio State University Working Papers in Linguistics* 28).

Shipp, G.P. (1979) *Modern Greek Evidence for the Ancient Greek Vocabulary*, Sydney University Press, Sydney.

Sturtevant, E. (1917) *Linguistic Change*, University of Chicago Press, Chicago.

Thomason, S.G. and Kaufman, T. (1988) *Language Contact, Creolization, and Genetic*

Ap

Linguistics, University of California Press, Berkeley and Los Angeles.

Trudgill, P. (2003) Modern Greek dialects: a preliminary classification. *Journal of Greek Linguistics* 4: 45–63.

Wang, W.S-Y. (1969) Competing changes as cause of residue. *Language* 45(1): 9–25.

Wang, W.S-Y. (ed.) (1977) *The Lexicon in Phonological Change*, Mouton, The Hague.

Wang, W.S-Y. (1979) Language change – a lexical perspective. *Annual Review of Anthropology* 8: 353–71.