Causes of language change

1.   Introduction[1]

Why do languages change? Given its crucial nature, historical linguists have been concerned with this question over the last two centuries; answers provided are sometimes quite fanciful, and discussions of the causes of language change often start with a list of imaginative theories, the most popular being breathing efforts in mountain environment as a possible cause for the first sound shift in Germanic. Even without reviewing such proposals, current theories of causation in language change are quite disparate, and, depending on the perspective from which they are seen, may also look rather unlikely. Ultimately, one's views on the causes of change are inextricably connected with one's general assumptions on language and on the real object of linguistic research.

2.   Inter-generational transmission

Let us start with the apparently common place observation that languages display a wide margin of synchronic variation. As uncontroversial as this statement may sound, it cannot help us much if we assume, following the by now almost anecdotal quote from Chomsky (1965: 3), stating that "[l]inguistic theory is concerned primarily with an ideal speaker-listener, in a completely homogeneous speech-community, who knows its language perfectly". Since, as noted by Weinreich, Labov and Herzog (1968: 188), "[a]ll change necessarily involves heterogeneity and variation," such a view of language clearly rules out any possible study of language change, simply because it leaves no possibility for change to happen.

Admittedly, since 1965 generative linguistics has tried to come to terms with the undeniable fact that languages do change, and has focused on inter-generational language transmission as the locus for change. Following this approach, language change corresponds to a different parameter setting by the new generation as a result of reanalysis. According to I. Roberts (2007: 230), the issue of causation in language change can be formulated as follows: "if the trigger experience of one generation permits members of that generation to set parameter p_k to value v_i, why is the trigger experience produced by that generation insufficient to cause the next generation to set p_k to v_i?." In the same vein, Lightfoot (2003: 505) claims that "[i]f one has a theory of language and a theory of acquisition, it is quite unclear what a theory of change is supposed to be a theory of."

The idea that the main cause of change, at least as far as so-called internal causes are concerned,[2] lies in imperfect language transmission from one generation to the next is not new: as shown in Weinreich, Labov and Herzog (1968) similar views were held by Herman Paul in the 19th century. Similar to modern generativists, Paul, too, indicated the competence of individual speakers as the proper object of linguistic research.

In spite of various implementations, the "child based theory" (cf. Croft 2000: 44) leaves some basic questions unanswered, that is, in the first place: how do children independently come up with the same reanalysis at exactly the same time (cf. Hock 1992: 229)? and, second, why does this happen in certain precise moments, while preceding generations of children have apparently done quite well setting parameters the same way as their parents did? In other words, the second question shows that the child based theory does not account for the fact that not only languages may change, but also that they may exhibit no changes over remarkably long periods of time.

Critics of the child based theory have often pointed out that children do in fact make deviations and overgeneralizations in their L1 acquisition, but these are not of the type that generates language change (cf. Hock 1992: 229; Aitchison 2003: 738). Besides, recurrent deviations and overgeneralizations tend to be abandoned at a certain age, and this process repeats itself over generations. In fact, to radicalize the argument, following the child based theory one might expect

that features of baby talk go into language change, which is patently not the case (see the discussion in Chambers, this volume). Moreover, proponents of the child based theory belonging to any school of thought, whether generativists or structuralists or neogrammarians, have never really tackled the serious problem that there is no positive evidence, in terms of real data from field research, for language change to happen between generations, as pointed out in Aitchison (2003: 739).[3]

3.   Variation and prestige

Starting from the 1960s, sociolinguists have shown what dialectologists had known for almost a century, that is, that variation cannot be described by drawing precise boundaries. As dialectologists did for regional variation, sociolinguists studied variation across social strata and across registers used in various situations by members of the same community, and were able to capture change in progress by means of a number of longitudinal studies, some of which have become a classic, such as Labov's study of the vowel system at Martha's Vineyard (see Labov 1994 for a summary, and Chambers, this volume, on the relation between sociolinguistics and "traditional" dialectology). Such studies provide evidence that language change happens among members of a speech community, rather than among children learning their L1, and show how relations among social groups favor the spread of certain innovations. It must be noted that an innovation is not in itself a change: for an individual innovation to become a change, it must be adopted by members of a community, that is, an innovation may become a change only after its diffusion, as argued especially in Milroy and Milroy (1985) and J. Milroy (1992) among others. Accordingly, Milroy and Milroy (1985) distinguish between innovators and early adopters: the latter are responsible for the diffusion of an innovation, and thus for language change.

  Put this way, the issue raises two further questions: first, why do innovations come about, and second, how do certain innovations spread in a speech community in such a fashion that most

speakers finally adopt them. Possible answers to these questions are discussed in the next two sections.

3.1. Innovation

Asking how individual innovations come about implies asking why languages vary. This issue has been approached from an experimental perspective especially by phoneticians. According to Ohala (2003; see further Salmons, this volume), phonological change is based on phonetic variation; phonetic variation, in its turn, is endemic both in production and in perception, due to such factors as the phonetic environment and the type of sounds involved. Experimental evidence matches attested changes (2003: 672-673), and phonological attested changes appear to be drawn from a pool of synchronic variation which can be observed through laboratory techniques (Ohala 1989). Given the extent to which individual listeners misperceive sounds, one wonders why phonological change remains quite limited: according to Ohala, individual events of non-corrected misperception, which he calls "mini-sound changes", most frequently do not bring about "maxi-changes" simply because listeners have other opportunities to correct their misperception. Thus, only under specific environmental conditions do mini-sound changes turn into real sound change.[4]

 Such a view implies an unconscious and ultimately random origin of innovation as a "change from below", following Labov's terminology (Labov 1994). However, especially in research on grammaticalization various scholars have pointed to the possible conscious or semi-conscious role of individual speakers.[5] Traugott (this volume) surveys various theories of the motivations for the onset of grammaticalization, and Lujan (this volume) indicates that "semantic change may arise from a conscious use."

 Possible conscious role of individual speakers is especially clear in lexical innovation: one only has to think of scientific terminology, as well as of well documented cases of new words created by high prestige individuals, such as writers and poets (cf. Lüdke 1986:14). That conscious innovation

can also have such a bearing on the creation of new grammatical forms or constructions is doubtful, though admittedly it may have a bearing on the diffusion of innovations. What sounds more convincing is the idea that speakers unconsciously or only semi-consciously bring about innovations while complying with the need to be successful in communication. In this vein, Traugott and König (1991) and Traugott (this volume) indicate the effects of Gricean conversational maxims (cf. Grice 1989) as the origin of changes connected with grammaticalization.

  In a broader frame, and not only restricted to grammaticalization or to semantic or lexical change, Lüdke's and Keller's invisible hand theory (cf. Lüdke 1986, Keller 1994) explains language change as due to the sum of unconscious actions by speakers converging in the collective effort implied in communication, which is a goal oriented activity. According to Keller, speakers aim to be socially successful (1994: 106). This translates into a number of maxims, including the attempt to identify or not to identify with a particular group, to attract or not to attract attention, as well as to economize energy. In Keller's words, "[w]hen we are talking, we try to kill several birds with one stone: we try to conform, attract attention, be understood, save energy" (1994: 105). Thus, being socially successful may have different meanings depending on the situation; accordingly, innovations brought about by compliance to communication maxims generate variation. Such variation may generate change when efforts to conform to the maxims create unconscious convergence. Thus, language change is brought about by human activity, albeit unintentional and aimed to different ends. As Lüdke explains, "there is a vast domain of human behavior constituted by constraints chosen in a more or less free fashion. These constraints are accepted ... being strategies that guarantee success in interaction between individuals." (1986: 7). Following this approach, one can explain the origin of innovation and its effects considering the obvious fact that speakers do not consciously plan to change their languages (cf. Lass 1997), and without resorting to system-internal causes independent of speakers, as is sometimes done in structuralist frameworks (see below, sec. 4).

3.2. Diffusion

As remarked above, innovations do not turn into changes without diffusion. An explanation of how diffusion happens is rather complicated within the child based theory: as noted above, it seems to imply that all children come up with the same reanalysis at the same time. Lightfoot (1999: 80) offers a more detailed scenario, assuming that adults' innovations, though not in themselves reflecting changes, are learned and reanalyzed as part of the grammar by children, who remain the agents of change. A similar theory is accepted by Andersen, who believes that adults may adopt innovations for various communicative needs, but do not change their grammar, and concludes that "[w]hereas reanalysis of the base grammar occurs in the course of a speaker's primary grammar formation, adoption is achieved through a secondary modification of the speaker's usage rules" (2003: 232).

The difference between grammar on the one hand and usage rules on the other, however, looks slippery: when longitudinal studies such as those described in Labov (1994) indicate that changes have spread in the course of time within the adult population of a speech-community, how is one proving that such changes only affect usage rules? Besides, sociolinguistic studies have discovered patterns of diffusion of innovations among adult populations, and have shown that leaders of diffusion are specific social groups, and that innovations are more likely to spread within certain types of community and less likely to spread within other types. Such field work has provided no evidence for a crucial role of small children as agents of change, except for their possible participation in general dynamics of language variation, similar to other age groups (cf. fn. 2 above).

Factors that influence the spread of an innovation among social groups are connected with identity: speakers want to identify with specific groups, depending on their social prestige and on other factors relating to the speakers' status within a community. Various sociolinguistic variables,

such as age and sex, play a role in pushing a certain group to be more or less open to innovations: renownedly, young females are more ready to pick up innovations than males,[6] and older people are more conservative than younger ones, who are most often among early adopters of innovations (Milroy and Milroy 1985), and thus the ultimate responsible for language change (see Chambers 2002 and this volume for more detailed discussion).

Note that the invisible hand theory also aims to account for diffusion, but at a closer look it is not completely satiosfactory. In the first place, it must be implemented through sociolinguistic and sociocultural observation in order to also account for lack of diffusion, that is, for the fact that languages may remain stable over generations. As Chambers (2002: 370) remarks, "[g]lobal linguistic changes ... make sense in the light of global social changes." In principle, there is no reason why invisible hand processes should happen at certain moments and not at others, hence it is not clear, if we limit our understanding of language change to such mechanims, why the speed of language change does not always remain the same over time. Besides, the invisible hand theory as formulated in Keller (1994) implies that all speakers innovate in the same way when trying to comply with their communicative needs, and that the strength of common innovation by itself is the only reason for diffusion. However, sociolinguistic research on language variation points to a more complex situation, in which among several competing innovations only some are selected and diffused, and turn into actual change.

Milroy and Milroy also highlight the importance of network ties within a community, and argue that "linguistic change is slow to the extent that the relevant populations are well-established and bound by strong ties, whereas it is rapid to the extent that weak ties exist in populations." (1985: 375). Similarly, individuals responsible for innovations have numerous, but loose social ties. These are individuals who "are not central enough in any group to be constrained by its norm-enforcing mechanisms, but who have weak links with enough groups to pass the variant on to their members" (McMahon 1994: 250). Note that such individuals belong to fringe groups of the population. However, innovations are spread within a population of speakers to such an extent as to eventually

become changes only when they are adopted by central members of the population. According to Labov, and based on extensive research in Philadelphia, "[l]eaders of linguistic change are centrally located in social networks which are expanded beyond their immediate locality" (2001: 364).[7] Labov sees an incongruence in the description of innovators provided by the Milroys: "the question remains as to why the model provided by the marginal member is copied by the central figure of a network" (*ib.*). However, as noted by McMahon, socially central leaders of change, called "early adopters" by the Milroys, may well pick up innovations from marginal members of the population due to their covert, rather than overt, prestige, and because innovation is felt as bearing "less risk, if the variant involved is already characteristic of speakers on the fringes of the population" (1994: 250).

To sum up, while no substantive evidence has ever been provided for the diffusion of innovations in a child based theory of language change, sociolinguistic research has described patterns of innovation and diffusion based on concrete observation of dynamics of variation within specific populations of speakers, which provide a more likely explanation of language change.

Note further that sociolinguistic studies on present day speech communities may be insightful for historical linguistics because they help fill a gap in our knowledge of dead languages or of earlier stages of languages. Social variation is poorly represented in written records: most often, sources available to historical linguists only contain standardized literary varieties, with only few attestations of non-standard varieties in "private" documents such as letters and inscriptions written by scarcely educated speakers (see Luraghi and Bubenik this volume). One possible solution is to follow the uniformitarian hypothesis, and assume that variation within present day speech communities mirrors variation within speech communities in the past: this approach is adopted by variationists, who, following Labov's slogan, use the present to understand the past.

4.   Teleology in language change

Directionality in language change is a major matter of discussion, and has a number of implications, which in part require an answer to the question whether language change can be viewed as a teleological process.[8] To tackle this issue, let us start with Kiparsky's well known claim that "language practices therapy rather than prophylaxis" (1974: 328). This idea implies that language change in itself is goal oriented. That the activity of speakers eventually bringing about language change is goal oriented, thus necessarily conscious, is extensively criticized in Lass (1997), and is generally not accepted: as Croft puts it, "[s]peakers have many goals when they use language, but changing the linguistic system is not one of them" (2000: 70). Consequently, if one views language change as goal oriented, one must assume that language has some sort of internal teleology.

Such an assumption is typical of many structuralist inspired theories of change, which view language as a system with an inherent tendency toward keeping or restoring its symmetry. For example, Martinet's theory of the "empty hole" (cf. Martinet 1952) implies that language systems conform to precise patterns which have a specific internal structure and an internal principle of preservation of their structure. According to Martinet, items such as phonemes are identified based on sets of distinctions which determine the distance between each other; linguistic systems tend to preserve the distance between elements, even if specific differences may change, thus preserving the "place" of each item in the system. In the same vein, Anttila, one of the most outspoken proponents of teleology, stated that "[l]anguage is also a teleological or goal-directed system ... keeping the necessary homeostasis, that is functioning, the language has to change to stay the same, to continue to fill its purpose" (1989: 392-393).

However, such theories find little support from experimental data. Ohala stresses that "sound change, at least at its very initiation, is not teleological. It does not serve any purpose at all. ... There is ... much cognitive activity - teleology, in fact - in producing and perceiving speech, but all the evidence we have suggests that this is directed toward preserving, not replacing, pronunciation norms" (2003: 683). Thus, what is goal oriented is the activity of speakers trying to be successful in

communication, not change in itself. Note that Ohala's indication of an activity directed toward preserving pronunciation norms must not be understood as an argument in favor of therapeutic change. It does not imply that, once a change has happened in spite of the effort toward preservation, the next effort will be toward restoration of the preceding state or its equivalent. As Lass (1997) has shown on the example of the Greek -s- future, assuming a therapeutic or prophylactic change is largely arbitrary (see further Croft 2000: 66-68).

Croft (2000: 4) warns against the "reification or hypostatization of languages ... Languages don't change; people change language through their actions." Indeed, it seems better to avoid assuming any immanent principles inherent in language, which seem to imply that language has an existence outside the speech community. This does not necessarily mean that language change does not proceed in a certain direction. Croft rejects the idea that "drift", as defined by Sapir (1921), may exist at all. Similarly, Lass (1987) wonders how one can positively demonstrate that the unconscious selection assumed by Sapir on the side of speakers actually exists. From an opposite angle, Andersen (2008: 34) writes: "One of the most remarkable facts about linguistic change is its determinate direction. Changes that we can observe in real time—for instance, as they are attested in the textual record—typically progress consistently in a single direction, sometimes over long periods of time." Keller (1994: 112) suggests that, while no drift in the Sapirian sense can be assumed as "the reason why a certain event happens", that is, it cannot be considered innate in language, invisible hand processes may result in a drift. In other words, the perspective is reversed in Keller's understanding of drift: a drift is not the pre-existing reason which leads the directionality of change, but rather the a posteriori observation of a change brought about by the unconsciously converging activity of speakers who conform to certain principles, such as the principle of economy and so on (1994: 113). Note that this theory is in accordance with Ohala's experimental observations of phonetic variation.

Teleological explanations of language change are sometimes considered the same as functional explanations (see for example Lass 1997: 352-369). Croft (2000: 65) distinguishes between

"systemic functional", that is teleological, explanations, and "functional proper", which refer to intentional mechanisms. Keller (1994, 1997) argues that "functional" must not be confused with "teleological", and should be used in reference to speakers, rather than to language: "[t]he claim that speakers have goals is correct, while the claim that language has a goal is wrong" (1997: 14). Thus, to the extent that individual variants may be said to be functional to the achievement of certain goals, they are more likely to generate language change through invisible hand processes: in this sense, explanations of language change may also be said to be functional.

5.   External causes

Language change is often brought about by contact between speakers of different languages or dialects, rather than by variation internal to a given speech community. Such changes are said to be due to external causes. Contact between populations who speak different languages involve extensive bilingualism: accordingly, Weinreich (1953) pointed to the crucial role of bilingual speakers as the locus for language contact. However, high prestige languages may influence other languages without necessarily involve bilingualism (see Drinka this volume for discussion).

   Historical research on contact induced language change relies on more documentation than historical research on social variation, since we often know what languages have been in contact with each other, and the spread of bilingualism or multilingualism within populations in the past is often attested indirectly or even directly. On the other hand, our knowledge of language contact in the past is limited by the fact that some languages have left no written documentation. Thus, interference from substratum is often hard to evaluate, when the substratum is constituted by an unknown language.

   Whether changes brought about by contact differ in type from changes brought about by internal causes is a matter of discussion. According to Labov (1994), phonological change "from below",

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that is, starting within a speech community, results in higher regularity (it corresponds to "neogrammarian" change) than phonological change "from above", that is, deriving from contact, which takes the form of lexical diffusion. This view is criticized by Milroy (1999), who remarks that "no empirical study so far carried out has actually demonstrated that sound change can arise spontaneously within a variety" (1999: 24). Milroy further points out that specific changes are thought to be internally caused when there is no evidence for external causation, that is, for language contact. These remarks imply that all changes are ultimately due to contact, which, as we will see in the next section, is an arguable position, depending on what one means when one speaks of "a variety".

According to Trudgill (1989), contact induced changes and changes which initiate inside a low contact speech community have different outputs. Trudgill observes that koinezation is typical of contact situations. Koines are "compromise varieties among diverse dialects of the same language" (Mufwene 2001: 3); they tend to loose "marked or complex variants" in favor of "unmarked, or simpler forms" (Trudgill 1989: 228-9), a fact already noted by Jakobson (cf. Jakobson 1929). Trudgill regards the high number of adults acquiring a second language in contact situations as the cause for simplification. The role of learners in bilingual situations, and the bearing of imperfect learning on language change is also highlighted in Thomason (2003). Thomason remarks that features introduced by learners into a T(arget) L(anguage) are mostly phonological and syntactic, rather than lexical, and that one of the effects of imperfect learning will be that learners "fail to learn some features of the TL, usually features that are hard to learn for reasons of universal markedness" (2003: 692). This observation is in accordance with Trudgill's remarks on simplification.

However, there appears to be more than simplification in the effects of language contact and bi- or multilingualism. In the first place, a role is also played by typological distance of the TL from the learners' language, not necessarily connected with markedness (Thomason 2003: 692). Besides, specific types of linguistic areas seem to favor varying degrees of linguistic diversity and

complexity, as indicated in Nichols (1992). By comparing what she calls "spread zones" with "residual zones", Nichols argues that the former are characterized, among other features, by low genetic density, low structural diversity, rapid spread of languages and language succession, and use of lingua francas (1992: 16-7), while typical features of residual zones are high genetic density, high structural diversity, no appreciable spread of languages ad hence no language succession, and no lingua franca (1992: 21). This is not to say that residual zones, a typical example being the Caucasus, are not also characterized by language contact, and bi- or multilingualism: much to the contrary, the absence of a lingua franca implies (often extensive) multilingualism for inter-ethnic communication; accordingly, residual zones usually display some clear areal features. Note further that, according to Nichols, traditional laws of dialect geography (cf. Drinka this volume) are reversed in residual zones, where innovations come from the periphery, rather than from the center (1992: 22). In "normal" situations, the periphery of an area is only partly reached by innovations developing from its center, and often displays typical features of isolated areas, as argued in Andersen (1988). According to Andersen, such peripheric and isolated areas display a tendency toward higher phonological elaboration, that is, higher complexity, a feature also typical of residual zones. However, even though residual zones, as described by Nichols, are certainly isolated from spread zones, languages spoken within residual zones do not seem to be isolated from one another. Obviously, Nichols and Andersen are not speaking of the same types of area, since Andersen refers to the periphery of dialectal areas, and to peripheric or isolated dialects of the same roof language spoken in the central area, rather than of areas of high genetic density. However, the parallel shows that it is at least doubtful that one can establish a correlation between lack of contact induced change and increasing complexity.

6.   Do internal causes exists?

Within the sociolinguistic tradition of historical linguistics, the strongest advocate for a distinction between externally and internally motivated change is Labov (cf. above, sec. 5). Summarizing his argument in favor of a difference between change in low-contact vs. high-contact situations, Trudgill states that "when it comes to contact, the present is not like the past" (1989: 236), and indicates the study of change in isolated communities as a possible source for understanding language change in the past, since now "there are simply many more people around" (1989: 233). Trudgill even suggests that learning by children may play a role in language change within low contact varieties (1989: 237), while it does not within high contact varieties.

However, what we know about the past does not indicate that language contact played a lesser role than in the present. To the contrary, multilingualism was widespread in Ancient Near East, as well as in the Roman Empire, only to mention two examples; besides, as noted in the preceding section, isolated areas may be such from the point of view of speakers of outer communities, but this does not imply lack of contact within them. Contrary to Trudgill, Milroy (1999: 21) thinks that "more recent changes are more likely to be accepted as externally influenced - simply because more information about different varieties and contact between languages is available".

While the extent to which contact played a role on language change in the past may remain in part unknown due to poor historical evidence, it remains true that, from the point of view of diffusion, there seem to be no difference between internally and externally initiated change: "if an innovation starts with a speaker or speakers, its acceptance into the language system depends on its being passed from the innovators to other groups of speakers. The whole process of linguistic change is therefore the same process of linguistic borrowing" (Milroy 1999: 23).

Besides, change starting inside a speech community is ultimately due to contact between social dialects or even between individual idiolects. Even though we do not call each individual dialect a language, and accept the existence of speech communities as communities, i.e. as (parts of) societies "defined in terms of a domain of shared expertise" (Croft 2000: 93), it remains true that "any communal language exists because speakers using systems that are not necessarily identical

interact with one another. In the process they accommodate each other in their speech habits"
(Mufwene 2001: 32-3). The extent to which one refers to linguistic systems as not identical depends
on one's point of view, as Mufwene points out:

> while discussing a language such as English brought to North America from the British
> Isles, dialectal variation can be considered internal ecology. On the other hand, the same
> variation can be considered external ecology if the analyst focused only on the London
> dialect coming in contact with British South Western English in ... Virginia. (2001: 30)

Thus, in spite of varying social factors and different relations between social groups in case of
language contact and in case of internal variation, mutual accommodation of speakers and hearers is
the ultimate cause of change. The fact that an innovation is accepted within a community depends
on the prestige of innovators and early adopters, and may be seen as a function of the willingness
of a speaker/hearer to accommodate another speaker/hearer in interaction, and thus to behave as
s/he thinks the other person would behave (cf. Keller 1994). Obviously, contact between distant
varieties implies, as shown in section 5, an important role of adult learners. However, speakers who,
within a given speech community, try to conform to a high prestige variety of their own language
are similar to language learners: the extent to which they may be more successful, and thus bring
about less change in the target variety than language learners would do in the target language,
should be measured in terms of quantity, rather than quality.

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[2] Note that proponents of the child based theory also think that reanalysis due to language contact brings about change mostly, if not only, at the stage of language acquisition, as shown for example in Lightfoot (1999: 158). This view is also assumed by Andersen (1988).

[3] Indeed, there rather appears to exist counterevidence to the child based theory of change, as shown in J. Roberts (1997). Recent research in language variation shows that small children participate in variation and may pick up innovations, just as adults do, as argued in J. Roberts (2002), who also indicates the need to study actual input from caretakers to which children are exposed.

[4] See Janda and Joseph (2003) for a theory of sound change based on findings from experimental phonetics, which also provides an explanation of how "mini-sound change" can turn into real changes based on social factors favoring diffusion.

[5] Recently Croft (forthcoming) has argued that grammatical change such as grammaticalization, too, is based on innovations drawn from a pool of syncronic variation, and that, similar to sound change, innovations are much more frequent than usually assumed for grammar. Thus, Janda and Joseph's (2003) explanation of the developmet of "real" change from frequent variation culd also be implemented for morphosyntactic change. Note however that motivations usually adduced for innovation in grammatical forms and constructions are more of the consciuos type, basically being the speaker's intention to be expressive or to be understood (cf. Croft forthcoming).

[6] The role of women in the diffusion of innovations is complex, and can be summarized in Labov's "Gender Paradox": "[w]omen deviate less than men from linguistic norms when the deviations are overtly proscribed, but more than men when the deviations are NOT proscribed" (2001: 367). For a thorough discussion of the issue, see Labov (2001 ch. 11).

[7] Labov (2001: 385-411) offers portraits of two leaders of linguistic innovation, pointing toward the importance of their formative years for their attitude as innovators. From Labov's findings, adolescents emerge as the most important actors in the diffusion of innovations.

[8] This is not to say that all theories about directionality in language change have to do with teleology: for example, grammaticalization is often considerd to be unidirectional, possible counterexamples have been adduced and there is an ongoing discussion (see Traugott this volume and Norde 2009), but both proponents and critics of unidirectionality by the most part would not subscribe to the idea that language change is a teleological process. In this chapter, I only discuss the issue of directionality as connected with teleology, since the question about possible directionality of specific mechanisms of change does not have a direct bearing on the present discussion, which concerns causation in language change.