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Age: Apparent time and real time.

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During the 1960s, linguists working both in the structuralist tradition and in the evolving generative paradigm tended to treat the individual speaker of a language as the natural locus of linguistic inquiry. The field had inherited the traditional Saussurean dichotomies separating language from speech, and synchronic from diachronic linguistics. The grammar of the individual, conceptualized as an abstract, internalized, mental construct, was construed as having a systematic character. Speech communities, if considered at all, were characterized as epiphenomena – nothing more than the sum of individual idiolects.

The first research to show how synchronic evidence can be used to reconstruct the history of language change also pointed the way to understanding the systematic character of the speech community. In 1961, Labov carried out sociolinguistic interviews with 69 residents of Martha's Vineyard for his study of the (ay) and (aw) diphthongs (1963[1972]). He calculated an index value for the height of the vowel nucleus for each speaker for each diphthong, discovering that the nuclei of both diphthongs were progressively higher with each younger age cohort (although those under 30 reversed the trend, an effect explained by other criteria). There were two possible explanations for the general age-related pattern. The older speakers might have started out life with the high index values (more centralized diphthongs) typical of the younger speakers of 1961, progressively lowering their nuclei, decade by decade as they grew older. Labov referred to this interpretation as "age grading". On the other hand, perhaps the pattern was attributable to the oldest speakers having learned the language at a time when the community as a whole had lower values, and their speech reflected the state of the language at that earlier date. Under this interpretation, the regular increase across the four age cohorts would represent a generational change in progress. Labov

referred to this as the “apparent time” interpretation. How did he decide which interpretation was the most plausible?

The most important piece of evidence came from earlier records. In 1933, the four informants interviewed for the Linguistic Atlas of New England [LANE] were between 56 and 82 years old. They showed “only moderate centralization of (ay)” and a rating for (aw) that was “for all practical purposes, zero” (Labov 1972:24). In comparing the older speakers of thirty years earlier to the older speakers in the 1961 interviews, Labov felt confident that the apparent time interpretation was correct. However, he noted as a caveat in this first study of apparent time, that “the effect of age [grading] . . . may indeed be a secondary factor in this distribution” (1972:24).

The Martha’s Vineyard study was a prelude to Labov’s New York City study (1966), that served as the primary example of how synchronic and diachronic linguistics could be reintegrated (Weinreich, Labov and Herzog 1968). There followed an avalanche of convergent research by sociolinguists, dialectologists, historical linguists and latterly, corpus analysts in the ensuing four decades. Although space does not permit a survey of the hundreds of studies involved (a more complete listing of research through 2001 can be found in Sankoff 2005), this review will be concerned mainly with what recent research has revealed about the relationship between apparent and real time.

Most of the studies that have examined gradient age distributions for potential evidence of change in progress have seriously entertained both of the alternative interpretations originally proposed by Labov. Most researchers have tried, and many have succeeded, in finding earlier evidence that might provide a point of comparison with the modern data. In addition to his own use of the LANE data, Labov (1965 [1972:163]) cites Hermann’s use of Gauchat’s 1905 observations on the dialect of Charmey, Switzerland, and sources dating back to 1896 on New York City. In their study of the change from alveolar to velar/uvular /r/ in Montreal French, based on data collected in 1971, Clermont and Cedergren (1981) were able to refer to a survey from the late 1940s that showed clearly that alveolar [r] was then the dominant variant. This corroborated the apparent time interpretation of the 1971 data, which patterned according to the classic S-curve typical of changes in progress, as depicted in Figure 1.

If the majority of studies attempted carefully to weigh both interpretive options, it must also be noted that most eventually came down on the side of apparent time. Two studies whose results were interpreted as age grading were Guy and Boyd's investigation of (t,d) deletion in final consonant clusters (1990), and Macaulay's study of glottal stop alternating with [t] in Glasgow (1977).

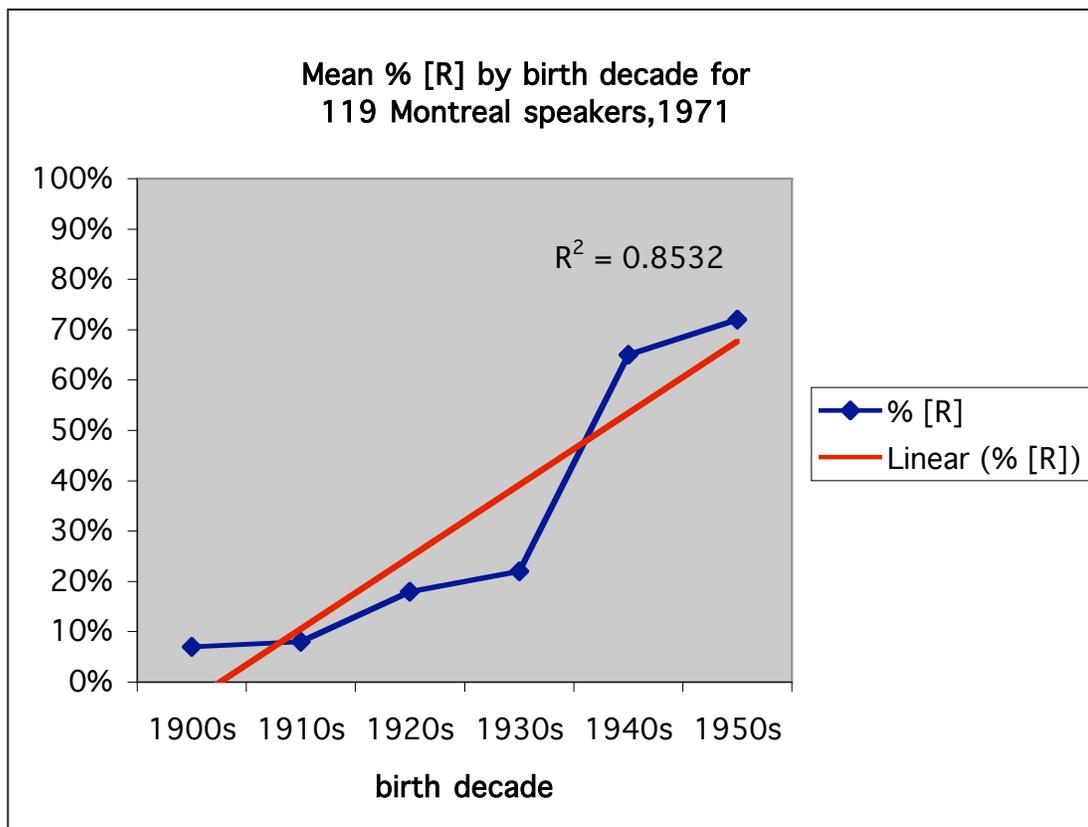


Figure 1. Percentage use of the innovative velar [R] by 119 Montreal French speakers in 1971, grouped by decade of birth [adapted from Clermont & Cedergren 1979].

Guy and Boyd found that although rates of (t,d) deletion were stable across the age spectrum for both monomorphemic words (like *mist*, *raft*) and past tense (*missed*, *laughed*), another grammatical category showed a regular progression: the final clusters in semi-weak verbs (*kept*, *swept*, *told*). Their interpretation was that although younger speakers analyzed the vowel alternation in the stem as the indicator of past tense, treating

final clusters in semi-weak verbs like those in monomorphemic words, older speakers had reanalyzed final (t,d) in these clusters as carrying past tense information.

In the case of glottal stops, both Chambers (1995) and Sankoff (2005) proposed the age grading interpretation to account for the differences Macaulay found between 10 year olds, 15 year olds and adults. Results for female speakers are shown in Figure 2.

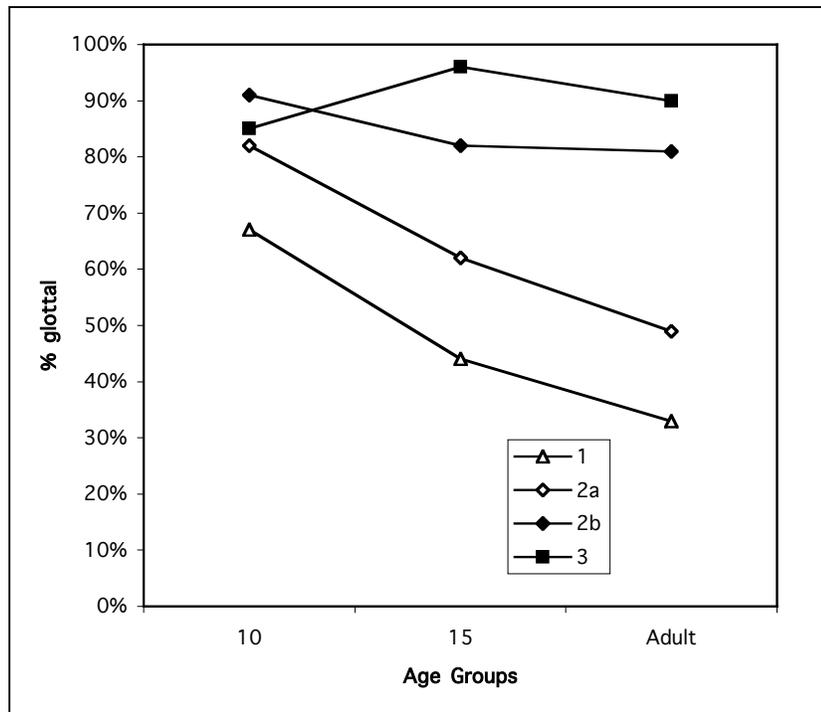


Figure 2. Percentage of glottal stop variants of /t/ used by female speakers in Glasgow [adapted from Macaulay 1977].

Speakers were drawn from four occupational groups (ordered such that 1 is the highest status group), and the adults selected were parents of the children. Whereas the younger children of groups 2a and b showed the high level of use of glottals typical of both adults and children in the two lowest status groups, the adolescents in the two highest status groups (1 and 2a) diverged toward the adult norms for their groups, with much lower levels of use of glottals. Noting that his interpretation is an inference about how this synchronic data can be understood in terms of life stages, Chambers comments, “Although the norm-enforcement mechanisms cannot prevent the class-insensitive

youngsters from learning to use the glottal stop variant, they can prevent its perpetuation into adolescence” (Chambers 1995:192).

In these two studies where age grading seemed the most likely interpretation of synchronic data, it was easiest to see how age grading might fit into the picture when the variable was stable. We know historically that English final consonant cluster simplification has been stable for some time, and Guy and Boyd’s results also showed no age effect for the two major word classes – only in the minority “semi-weak” verbal category did the effect appear. In the case of glottal stop, the age grading interpretation was somewhat more adventurous, and we will follow that adventure in the light of a new study below.

Looking at age grading and apparent time as alternative interpretations of data gathered at one point in time, Labov’s summary of the various possibilities is presented in Table 1. If the age distribution is flat, either no change is happening (Interpretation 1), or the whole community, young and old, are changing at the same rate and therefore show no age differences (Interpretation 4). Interpretations 2 and 3 are those that interest us more particularly. The same pattern depicted, for example, in Figure 1, where the likelihood of using velar [R] is related to a speaker’s decade of birth, may mean that all these speakers have been unstable, decreasing their use of [R] as they aged. The community overall would be stable, the language would not be changing, and the correct inference would be Interpretation 2: age grading. This same S-curve, however, might produce the inference that the community was unstable, a change was going on in the language, but individual speakers, once they had acquired language as children, were stable across their lifespans. This is Interpretation 3: apparent time.

<b>Synchronic Pattern</b>	<b>Interpretation</b>	<b>Individual</b>	<b>Community</b>
Flat	1. Stability	stable	stable
Regular increase/ decrease with age	2. Age-grading	unstable	stable
Regular increase/ decrease with age	3. Generational change (apparent time)	stable	unstable
Flat	4. Communal change	unstable	unstable

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

As long as we consider clearcut cases – change or no change – it seems that age-grading is a strong alternative interpretation for gradient age distributions where no change is occurring. But what if we look at age not in the demographic sense (as a gradient variable having to do with year of birth), but rather in terms of the lifespan of people for whom different periods may involve very different sociolinguistic relationships? In addition to the important fact of greater plasticity of children in terms of their capacity for language learning (Lenneberg 1967; Sankoff 2004), sociolinguists have pointed to the fact that, for example, different periods of people’s lives involve them differentially in their relationship to the standard language (Eckert 1997) and possibly also in their contacts with the opposite sex (Cameron 2000).

Two earlier observations now become relevant. First, Labov’s caveat that perhaps both apparent time and age grading were relevant to correctly interpreting the Martha’s Vineyard data has been proven to be true in many subsequent real-time studies. This was abundantly clear by 1994, when Labov reviewed several such studies, finding a combination of age grading and real language change in longitudinal work by Trudgill in a restudy of Norwich (1988), in Cedergren’s (1987) restudy of Panama City, and in Fowler’s restudy of (r) in New York City (Labov 1994: 86-98). The interrelationship between age grading and apparent time seems to show two different patterns. If a change is ongoing, older speakers as they age may change their speech to some extent in the direction of the change. In the case of sociolinguistic variables known to be stable, however, there may be a curvilinear pattern associated with age as well as with social class, whereby speakers in their mid adult years, more implicated in the “linguistic market” (D. Sankoff and Laberge 1978) may show a greater use of standard variants than is typical of the oldest and youngest speakers.

Second, since researchers began using the research design pioneered by Labov, there has been broad agreement that the best way to disambiguate the two interpretations is by examining actual language history. Early researchers tried to find reference points in the past; researchers now can carry out replications of a number of previous sociolinguistic and dialect surveys, adding a real-time component to the study of language change and variation.

Two kinds of longitudinal studies shed light on the relationship between age, apparent time and real time. All longitudinal research involves comparisons at two points in time, but whereas **trend** studies require resampling the community, **panel** studies follow the same individuals across time. If the goal is to assess language change, trend studies are the only sure way to confirm change. Panel studies, however, are the only way to discover how individual speakers of different ages are involved in linguistic change. Though restudying a community, or following a group of speakers across time, might seem a straightforward affair, in fact both kinds of research can involve serious methodological complexities, and ensuing problems of interpretation (Tillery & Bailey 2003). Many researchers have attempted to overcome these problems by combining trend and panel design in various ways.

Two dimensions that are important in determining the course of change are (1) whether we are dealing with change from above or change from below, and (2) the status of the variable within the linguistic system. In Labov's first discussion of the two types of change, he characterizes both stigmatized and prestige features as being

relatively simple examples of the pressure of society upon language. These forces are applied from above – they are the product of overt social pressures consonant with the social hierarchy. The process is out in the open for us to observe, in public performances, in the attitudes of teachers in the schools, and in the conscious reactions of some middle class speakers. (Labov 1966:128)

Change from below, on the other hand,

is expressed as a gradual shift in the behavior of successive generations, well below the level of conscious awareness of any speakers. In most cases, the shift begins with a particular group in the social structure and is gradually generalized in the speech of other groups. Usually the initiating group has low status in the social hierarchy – otherwise the change would be transformed into overt pressure from above.

(Labov 1966:128)

As far as the linguistic status of the variable or changing feature is concerned, once again this may make a big difference in how it diffuses through the speech community. Whereas isolated features (individual words, perhaps also phonetic innovations that have no implications for the rest of the sound system) may be relatively easy to learn and thus able to diffuse even among older speakers, features that are more

structurally implicated (involving more complex constraints and relationships with other elements) may be much more difficult for older speakers to learn. A preponderance of recent studies deal with changes from above, often in the form of the influence from other dialects (or the standard language). Such feature may be more available to adults, who typically have a wider range of contacts than do children.

As in other studies of language variation, the quantitative work reviewed here adopts a model of change that envisages an innovative form as alternating, or being in competition with an older form. It is worth considering for a moment how this alternation is modelled in the grammar. Quantitative sociolinguistic analysis that is relevant to the diffusion of language change deals with linguistic production, whether in speech or writing. Language that people produce is considered to be based on, or generated in accordance with their internalized grammars. If grammars are modelled to include only the information that alternation is possible, then from this qualitative point of view, whether a speaker uses the innovative variant, say, 10% of the time or 90% of the time, that speaker's grammar is the same. In contrast, quantitative sociolinguistic research shows that the use of the variants is governed by constraints, both linguistic and social, that are probabilistic in nature, and holds that these constraints should be modelled in the grammar. In studies following Kroch's model of "competing grammars" (1989), now widely used in corpus-based studies of historical syntax, constraint values have been found to be *constant factors* across the entire course of change, with the only change being in the increased probability of use of the innovative grammar over time. In a sociolinguistic study of the acquisition of the stable sociolinguistic variables (t.d) and (ING), Labov (1989) showed that children as young as 5 years old closely model their parents' constraint probabilities by a process of *probability matching*. In the transmission of variables involved in change, children appear also to attend closely to the constraints of the adult system, but (in the case of sound change) are able to surpass their adult models both phonetically, by going beyond the adult target, and by extending environments in which the innovative variants are used (Roberts 1997). My conclusion is that changing frequencies, whether on the individual or on the community level, are fundamental to change.

Since 1995, we have seen an increasing number of real-time studies (most frequently, re-studies of sociolinguistic or dialectological research of the 1960s and 1970s). Many of the original studies made apparent time inferences, and for researchers carrying out restudies, it has been tempting to treat these inferences as predictions. However, we should note that there are, in the historical sense, not two but four possible further developments to be observed in the subsequent studies. First, if the original age distribution is repeated at the same level, we interpret the outcome as static age grading. Second, when we note a repeated age gradient at a higher level of the change, we interpret the result as a real time change. The third possibility is that all age groups display the same high level of the variable, which we interpret as the last phase of change going to completion. In this case the trend study should show no further increase on the part of a new generation of young speakers.. Since eventually all changes are completed, it may be unreasonable to think that the absence of continuing change constitutes a “failed prediction”. The fourth possibility is that change is reversed, usually as the effect of stigmatization from above.

In the remainder of this review, we will see how trend and panel studies jointly contribute to a better understanding of what apparent time actually tells us.

Table 2 documents the results of all the trend studies I have located in which the original studies found gradient age distributions. Spanning ten countries and seven languages; all but the first were carried out in the last decades of the twentieth century. The first seven studies used strictly trend methodology, whereas studies 8 through 13 included both trend and panel components. Of these, only the trend results are summarized in Table 2 (panel results from these same studies will be discussed below).

Study location, variables, date of original study, source of trend information	Interpretation at Time 1	Real Time (Time 2 findings)
1. Charmey, Switzerland, 6 phonetic changes Labov (1966:278;301).	apparent time; change from below	check ch.9 of Sociolx Patterns
2. Martha's Vineyard (ay) nucleus raising Labov (1994)	apparent time; change from below	possible reversal (Blake & Josey); possible continuation (Pope)
3. New York City (r) Labov (1994)	apparent time; change from above	change plus age grading
4. Norwich <i>beer/bear</i> merger; backing of /El/; [ʔ] for /t/ Trudgill (1988)	apparent time; change from below	continuing change
5. Norwich <i>moan/mown</i> merger. Trudgill (1988)	apparent time; change from above	continuing change
6. Panama City (ch)-lenition Cedergren (1987)	apparent time; change from below	change; age grading (young adult "spike")
7. Glasgow glottal stop (1970s) Macaulay (1977); Stuart-Smith (1999); Chambers (1995)	age grading	age grading; continuing change (1990s)
8. Eskilstuna, Sweden, 7 morpho- and morphophonological variables (1960s) Sundgren (2002)	apparent time; social class effects; change from above	slower continuing change; age, class & gender effects (1990s)
9. Hanhijoki, Finland, [r] -> [d] (1960s) Kurki (2004)	apparent time; change from above	continuing change; (1989; 1999;2002)
10. Montreal [r] -> [R] (1971) Clermont & Cedergren 1979, Sankoff et al 2001	apparent time; change from above	continuing change (1984; 1995)
11. Tours, France, <i>ne</i> -deletion (1976) Ashby (2001)	apparent time; change from below	continuing change (1995; 1998)
12. Rio de Janeiro, Brazil, several morphological and phonological variables (1970s) DePaiva & Duarte (2003)	apparent time; change from above and change from below	continuing change (1990s)
13. Springville, Texas, verbs of quotation. Cukor-Avila 2002	apparent time	continuing rapid change

Table 2. Results of trend studies on the interpretation of earlier inferences.

Although changes may have been completed, and although we may find a combination of age grading and real time change, in none of the followup studies do we

find age grading alone. The most important implication of this conclusion is that apparent time is a truly powerful concept in locating the presence of change. In other words, a researcher who locates a gradient age distribution in a new community under study is virtually assured of having identified change, whether or not age grading is also involved.

A thorough discussion of the early 20<sup>th</sup> century work of Gauchat and Hermann in Charmey, Switzerland, is found in Labov (1966:278;301). Most of the changes identified by Gauchat were verified in real time by Hermann. The longitudinal perspective on Martha's Vineyard is less clear. Whereas a restudy by Pope (2002) found a continuation of the trends discerned by Labov, Blake and Josey (2003) conclude that socio-economic and ideological change on the island has led to different patterns. These differing results serve to underscore how different sampling methods in restudies may lead to interpretive difficulties in discerning longitudinal trends. In any case, neither of these restudies found a replication of the same age gradient isolated by Labov, so there is no suggestion that Labov's initial results were the result of age grading alone.

Trudgill's restudy of Norwich was a strict replication, adding a generation of younger speakers. In addition to verifying the continuing status of the four changes listed in Table 2, Trudgill found two new changes that had barely been present in the community in his original research. Cedergren's restudy of Panama (1987) found both age grading and real time change, as did Fowler's restudy of Labov's New York City department store survey, both discussed extensively in Labov (1994).

In the last purely trend study of Table 2, Stuart-Smith (1999, cited in Marshall 2003) returned to Glasgow to study the continuing increase in t-glottaling. Marshall's Figure 4 (p.98), which depicts Stuart-Smith's combined results by age and sex, shows an overall increase in glottals as well as a reduction of the difference between adolescents and adults. Apparently both change and age grading were there from the beginning.

In addition to the seven studies of Table 2 that combine trend and panel components, there are others that concentrate on panel comparisons. Several of these deal with change from above, often the impact of other-dialect or standard language features on particular speech communities. To Sundgren's study of Esklistuna, Sweden (2002) and Kurki's study of Hanhijoki, Finland (2004) can be added Nahkola and Saanilahti's

research on the small town of Virrat in southeastern Finland (2004), and Hernandez-Campoy's (2003) report on a panel study that showed increasing influence of Standard Castilian phonological features. The numerous studies in DePaiva and Duarte (2003) contain a wealth of information on trend and panel comparisons of many sociolinguistic variables in Brazilian Portuguese.

In most panel studies, researchers have found that when there is a change in progress as measured by a trend study, grouped data from the panel shows a modest increase in the direction of the change. When researchers have been able to study individual panelists, this result can typically be decomposed into a majority of speakers who remain quite stable, and a minority who change, often substantially. Those individuals who change in later life are most usually in their twenties and thirties, sometimes up to the age of 50, but very rarely have older speakers been found to register significant changes. In our followup study of the [r] → [R] change in Montreal French, one older speaker significantly reduced his frequency of use of this change from above after he retired, became ill, and was confined largely to staying at home (Sankoff, Blondeau & Charity 2001). Ashby's important research documents another such case with respect to a change from below.

Ashby's trend and panel study deals with the loss of the negative particle *ne* in the metropolitan French dialect of Tours. In his 1976 study, Ashby (1981) had established a clear age differential in *ne* deletion, which he interpreted in terms of apparent time, i.e. as a change in progress. Of the 35 speakers distributed according to three socio-professional groups, sex, and age (14-22 vs. 51-64), all three social factors were significant. Whereas the older group used *ne* in 52% of its potential occurrences, the younger speakers used it only 19% of the time. In his 1995 restudy, Ashby (2001) provided real time corroboration of this interpretation, discovering that the change had accelerated. With a new sample of 29 speakers structured in the same way as the previous one, he discovered that the 51-64 age group now registered only 25%, and the usage of young speakers in 1995 had declined to 14%. Consonant with its status as a change, *ne*-deletion was being led by women in 1976 (30% *ne* use vs. 42% for men). However, the sex difference had disappeared by 1995, with the women only three percentage points in the lead (17% vs. 20%, a difference revealed as nonsignificant by Ashby's multivariate GoldVarb analysis.

The panel component of the study comprised ten speakers from 1976 were re-recorded in 1995. As with most other panel studies to date, Ashby found that a majority of speakers (6 of the 10), were quite stable across the 19-year period, registering within 10 percentage points of their previous scores. Of the four who changed, one was anomalous in terms of having gone in the direction opposite to the change: a schoolteacher who registered an increase from 6% to 23% after her marriage to a professional man. The other three speakers were anomalous in a different way: whereas other panel studies have shown that of older speakers who change, most are younger than 50, Ashby's three were all retired and over 65 by the time of the second study. He attributes their significant declines to the more relaxed style that may be adopted by speakers who are no longer in the world of work (Ashby 2001:19).

Panel studies provide a clear overall result: people as they age register lesser differences from their earlier selves than does the community over the same time interval, as measured by a trend study. This means first, that it must be younger speakers who are in the vanguard of change. Those adult speakers who change are (a) in the minority; (b) concentrated in the younger age cohorts of adults and (c) make less significant advances than the community as a whole. The second implication of this result is that apparent time must consistently underestimate the rate of change. I will exemplify this last point by considering the real time trajectories from [r] -> [R] for 31 Montreal French speakers between 1971 and 1984. Though a majority were stable, a minority of 11, mostly younger speakers, changed over this period in the direction of the change. If the 1971 data were not available and we interpreted the 1984 values according to apparent time, we would assume that, for example, those speakers registering 90% - 100% of the innovative variant had begun their lives as children with those same values. However, we know that approximately 1/3 of those speakers had significantly lower values thirteen years earlier, and thus they actually changed over the period. Boberg (2004) comes to the same conclusion in a study of the late adoption of a number of lexical and phonological variables in Montreal English. Similarly to the results reported in Nahkola and Saanilahti (2004), those speakers most likely to change were those in the mid range of the change, as opposed to those initially registering close to categorical use of the conservative variant.

Together, trend and panel studies of the past decade have confirmed the validity and usefulness of apparent time as a powerful conceptual tool for the identification of language change in progress. Far from misleading us about the existence of change, apparent time generally underestimates the rate of change. Though the field will continue to be surprised by the light that trend and panel studies can shed on the mechanism of language change, especially as it intersects with speaker lifespans, our present synchronic methodology is a powerful lens for interpreting the past.

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