# 17

# *Conclusion*

This volume has presented a broad array of factors responsible for ongoing linguistic change and divergence. It has considered both cognitive and cultural factors in the genesis, development and motivation of linguistic change. The present chapter will consider the relation between these two sets of factors: whether they operate jointly, in alternation or in opposition in the course of change.

## 17.1   Summary of the Argument

Chapters 2–4 of this volume are concerned with the infrastructure of cognition, as defined in section 1.1. These chapters reported on the effect of linguistic change on the ability to segment and identify phonemes in the stream of speech, and so identify the words intended by the speaker. The basic finding is that the ongoing linguistic changes in Philadelphia, Chicago and Baltimore significantly interfered with these cognitive processes, within the community as well as across communities.

Chapter 6 continued the involvement with the fundamentals of cognition in studying the principles governing the phonemic inventory: mergers, splits and chain shifts. While chain shifts appear to enhance, or at least to preserve, the operation of the phonological system, mergers do not. Sound changes that lead to mergers can hardly be said to enhance the speakers' ability to identify meanings in the stream of speech.[1]

The cognitive basis of sound change is further illuminated by the findings of Chapters 12, which support Bloomfield's formulation of the Neogrammarian view: that the phoneme, and not the word, is the unit of sound change. If the various sound changes presented in this volume actually did proceed word by word, the problem of cross-dialectal comprehension would be many times more difficult. When Chicagoans listened to Philadelphians, it would not be enough to know that /ow/ could be realized as [ɛːᵒ]. One would have to know, for each individual word containing /ow/ – *goat*, *go*, *row* – whether this was true or not. And, since lexical

diffusion is essentially arbitrary, there would be no other clues as to how each individual word was realized, except brute memorization.

Chapters 9 and 10 consider the driving forces which may be responsible for the continuation, acceleration or completion of change. In one form or another, they involve the association of social attributes with the more advanced forms of a change in progress: local identity, membership in communities of practice, social class, age or gender. We may ask whether the association of a linguistic form with a social group is a cognitive process – a form of knowledge – or a feeling engendered in us by instances of these phonetic forms. The experiments of Hay, Warren and Drager (2006) showed that cognitive processes are involved: subjects' interpretation of a stimulus as *fair* or *fear* was influenced by their perception of the age or social class of the speaker. Thus the grasp of social distributions of linguistic forms might be termed *social cognition*, not different in kind from knowledge of phonological distributions, except that it normally involves gradient rather than discrete judgments. Nevertheless, I will follow the practice of the first two volumes and the argument of Chapter 1 in limiting the term *cognitive factors* to the discrete operation of the linguistic system, as it delivers information on truth-conditional semantics, and opposing it to *social factors* – the association of different ways of saying the same thing with different subgroups of the community.

The attribution of driving forces to social factors is clearest when the learning process is observable in face-to-face interaction. Thus ethnographic studies of small group behavior can correlate the advancement of change with extreme manifestations of local cultural practices (Martha's Vineyard fishermen; burned-out Burnouts). On the other hand, some of the most important social factors invoke broad cultural patterns, which transcend small group behavior. The larger the size of the speech community involved, the more difficult it is to account for uniform patterns of linguistic change. Gender patterns in language change (Chapters 8, 9, 11 of Volume 2) are prototypical of such general cultural factors. Children's initial introduction to gender differences in language may be the contrasting patterns in their parents' behavior. But the generality of male/female differences in language is linked to a cultural pattern that overrides the idiosyncrasies that might stem from local differentiation. How such nation-wide commonalties are transmitted (among children) or diffused (among adults) is a pressing matter for current research.

The most difficult forms of social cognition to account for result from the operation of those social factors that appear to be independent of personal experience and which have here been termed cultural factors. Thus the negative status of the New York City vernacular appears to date from the early nineteenth century, and produces uniform normative responses across the entire population (Labov 1966, Chapter 13). Chapter 10 confronted the enigma of the uniform advancement of the Northern Cities Shift across the Inland North and outlined the possibility that it reflected a long-standing cultural opposition of Yankee morality to Midland individualism.

It cannot be denied that a member of the community who is influenced by the cultural significance of a given linguistic form has received this information through

some form of experience. But that experience may be quite remote from face-to-face interaction. The forms of experience involved here are just as subtle and elusive as those which produce long-term trends in the popularity of personal names (Lieberson 2000), profoundly influencing what the individual perceives as a purely personal choice.

No matter how such cultural factors are perceived and transmitted, their relation to the cognitive processing of language forms is at issue. To the extent that they promote and reinforce regional differentiation, they may be seen to interfere with the primary cognitive function of language, in making it harder for those on one side of the boundary to know what those on the other side are talking about. The experiment of Hay et al. (2006) on the New Zealand *fear/fair* distinction can be cited again here. New Zealanders use information on the speakers' age and social class to guess at whether the token [feːə] represents *fear* or *fair*. But it also follows that the differential promotion of the merger in the population has led to a situation where this decision will be obscure in many cases. It is worth asking how such a situation has come about in the long-term evolution of language and of the language faculty.

## 17.2   The Relation of Linguistic Change to Animal Systems of Communication

Human language, as distinct from animal systems of communication, allows us to transfer information on distant times and places, and to use that information to solve the basic problems of living. No matter how cumbersome or inefficient our language may be, it is reasonable to believe that language will serve that purpose better if it remains unchanged, as a common convention accessible to all.

What useful purpose is served by language change? Change is linked with (and opportunistically parasitic on) variation. Most students of linguistic variation have accepted the view of Weinreich et al. (1968), that the speech community displays "orderly heterogeneity." The uniform patterns of social and stylistic stratification suggest that community members can make use of such variation to place speakers on scales of social distance and social power, and many experiments confirm this view (Lambert 1967, Labov 1966, Ch. 12, Labov et al. 2006b, Campbell-Kibler 2005, Conn 2005, Fridland 2003). But Chapters 2–4 show that, when the system changes, community members do not necessarily display the flexibility needed to adapt to what younger speakers are doing. Within the community, it must be the case that youth who are engaged in the incrementation of a sound change (Volume 2, Chapter 14) have some perception of the age vector involved and adults can recognize the new forms used by their children. But it remains to be shown that this age sensitivity leads to an accurate interpretation of speech across generations. The incidence of misunderstanding is of course even greater across dialect boundaries.

Chapters 5–8 outlined the largely mechanical processes that lead to such dialect divergence. Chain shifting is seen as an adjustment or reaction to a disequilibrium

created by a triggering event. It is proposed there that the tendency to maximal dispersion in a vowel subsystem, the equilibrating process, is the result of the fundamental mechanics of language acquisition. The child's ability to match the central means of the parents' vowel distribution appears to be based on a capacity for probability matching that is exhibited by many species, from goldfish to ducks to human beings. These chapters may thus be seen as an elaboration of Martinet's view of language change as a long-range readjustment of the system to the effects of an original population disturbance – migration or invasion. If these functional considerations were sufficient to account for language change, the consequent interference with cross-dialectal comprehension might be considered a side effect of a therapeutic process.

Many proposals to explain language change look to a systematic imperfection in transmission (Halle 1962, Ohala 1992, Lightfoot 1999). It seems possible that systematic slippage between perception and production might underlie some of the governing principles in Chapter 6. We are still lacking a conclusive explanation as to why, in chain shifts, tense vowels rise along the peripheral track and lax vowels fall along the nonperipheral track. At the same time these considerations – and others put forward in Chapter 6 – all suffer from their universality. We return always to the opinion of Meillet (1921): no universal cause can account for the sporadic character of language change.

Chapter 8 defines the conditions under which accidental or chance events which are not universal can lead to lasting divergence. This raises a question which may limit our efforts to seek the causes of linguistic change. Gould (1989) argues that, if the evolutionary tape were to be replayed again, the result would be different. To the extent that the evolution of language is determined by contingent events, our explanations will necessarily have an ad hoc or teleological character. The notion of a "driving force" is distinct from an imperfection, a slippage or a mismatch. It implies some positive impulse that satisfies a need or carries out a function. The driving forces reviewed in Chapter 9 are all distinct from the need to transfer information, and all assume an underlying proposition that the new form conveys information about the identity of the speakers, or about their attitude or intentions toward the listener.

The analogies with animal communication systems (ACS), which lack propositional capacities are fairly evident (Marler 1970, Baptista and Petrinovitch 1984, Kroodsma and Pickert 1984, Hauser 1996):

√  Local identity, as established in Labov (1963) or Eckert (2000), is analogous to territorial functions in bird song and other ACS.
√  Reference group behavior, as discussed in Sturtevant (1947) and Le Page and Tabouret-Keller (1985), corresponds to mimicry in ACS.
√  The development of indicators to markers, and the acquisition of style shifting (as in Labov 1966), is analogous to signals of dominance and submission in ACS.
√  Gender differentiation of linguistic change, an almost universal feature of community studies, may have some relation to sexual selection, but here the analogy is not clear.

## 17.3   More on the Functions of Language

Let us return to the Darwinian Paradox: that the forms of linguistic and biological evolution are strikingly similar, but the functional core of natural selection is missing in linguistic change. The most obvious explanation for this disparity is to ascribe linguistic change to the selection of other functions of language, which have other evolutionary histories, independent of the need to transfer information. The literature on such competing functions is large, though of a general and discursive character (Frei 1929, Bühler 1934, Jakobson 1960, Hymes 1961). Bühler's tripartite approach to the functions of language begins with the recognition of the opposition of representational and social functions and distinguishes two social functions as *expressive* and *directive*. In terms of the data generated by recent sociolinguistic studies, expressive functions provide information on the speaker's emotional state, age, gender, ethnicity, socioeconomic status and local identity – all familiar aspects of sociolinguistic variation. Directive functions would involve accommodation to the audience, adjusting social distance, politeness and deference, style shifting and audience design. The three functional poles can be neatly associated with the three persons of pronominal deixis.

All three functions share the property of providing information, which may in one way or another facilitate or clarify the communicative exchange. These functions are opposed as a whole to facilitative arguments related to the Principle of Least Effort (Chapter 1), which can be interpreted to mean that a linguistic form is more fit if it takes less time or energy to produce. That was indeed the argument of Müller that Darwin (1871) relied upon to complete his analogy between biological and linguistic evolution: words become better as they become shorter (PLC, Vol. 2: 9). The combination of least effort and various communicative functions can render the explanatory enterprise vacuous, since every linguistic change can then be accounted for through one argument or another. Only when we take the representational function as primary can we confront seriously the problem of the direction of linguistic change, admitting that there are historical events that interfere with this function and so make language less fit for communication.

REPAIR STRATEGIES   One approach to the problem is to look for repair strategies that compensate for the loss of representational information. The typical relationship between competing functions is complementary, as in the case of least effort versus representation. Developments in the history of French are among the most commonly cited examples. As information is lost in the attrition of negative particles, it is supplied through the addition of reinforcing adverbs *pas*, *point*, *miette*, *jamais*, *cap*, etc. (Pope 1934).[2] When information about person and number is lost through the attrition of final /s/, it is supplied through the conversion of optional pronouns to obligatory pronominal clitics.

The loss of information created by phonological merger is sometimes accompanied by a repair mechanism of this type. Thus the merger of /i/ and /e/ before nasals

is compensated for by reference to an *ink pen* versus a *safety pin*. In the history of phonetic attrition in Mandarin Chinese, this repair mechanism operates on a grand scale, defying the principle of least effort through the creation of two-character words. When the loss of information is the result of social processes, the same repair mechanism can be seen at work. Considerable information on number was lost through the abandonment of the second person singular *thou* in Early Modern English; it has since been supplied through a variety of mechanisms for distinguishing the plural: *youse*, *youns*, *you all*, *you guys*, etc.

Such compensatory mechanisms imply a give-and-take of forces that are arrayed along the same dimension, the impulse for more information leading to the expenditure of greater effort, the tendency to reduce effort leading to the reduction of information. The relation between least effort and supply of information is *antagonistic*, and the repair mechanism involves a shift in one direction or the other along this single dimension. The question remains as to whether there is a similar repair machinery for the effects of chain shifts. Plichta and Rakerd (2002) showed that subjects from the NCS area had shifted their perceptual category boundary between /æ/ and /o/ in harmony with the shifts in speech production around them. But the evidence of Chapters 2–4 shows that Chicago listeners had not adjusted their hearing to allow themselves to recognize [blæ:k] as a token of *block*, or [sæ:ks] as a token of *socks*. It is possible that this is the result of competing norms, induced by the formality of the experimental situation. The fact that local high school students did better in the Gating experiment than local college students points in this direction. But Figures 4.6 and 4.7 show that, even so, three quarters of these high school subjects did not recognize the words for what they were. There does not appear to be any systematic mechanism by which the informational loss due to chain shifting can be repaired. If this is so, we must conclude that the forces involved in chain shifting are organized along a different dimension, which does not respond to informationally driven considerations. None of the driving forces examined in Chapter 9 are based on the need to transmit propositional information; rather, they relate to some form of social information. One might indeed translate territorial or accommodating behavior into propositional form: "I belong to this corner group," or "I'm irritated by your behavior"; but the important point is that such information is not transmitted in propositional form. Rather, it is transmitted in one of two continuous, quantitative forms: distribution in acoustic space and the frequency of discrete variants.

DENIABILITY    The non-discrete character of this social information is associated with another property. In social interaction one may insult, challenge or defy an addressee by a variety of prosodic or non-verbal devices that share the property of *deniability* (Labov and Fanshel 1977). We are socially responsible for our words, and we may indeed be convicted of perjury for denying them; but we are free to deny the impact of intonation contours and gestures.[3] Sociolinguistic information shares the property of deniability with intonation. To put it simply, one is legally

responsible for one's words and for the constructions into which those words are organized, but not for social variation in the realization of those words.

If there are indeed two separate modes of processing information, one may posit a sociolinguistic monitor (Labov et al. 2006b), which processes and stores social information in a form distinct from the storage of propositional information. There is no doubt that social and propositional information are intricately combined in the linguistic signal that is transmitted.

## 17.4   Social Intelligence and Object-Oriented Intelligence

These considerations point to the possibility that two streams of information processing were inherited in the evolution of human language. The differentiation of social intelligence from object-oriented intelligence is now well established in studies of animal communication systems (Byrne and Whiten 1988, 1997, Hauser 1988). Cheney and Seyfarth (1990) have found that vervet monkeys are expert in the perception of, and response to, intricate sets of social relations, but do not draw inferences from relations of objects that seem transparent to humans: for example, that a dead antelope hanging in a tree indicated the presence of a leopard. Cheney and Seyfarth (2007) reported even more sensitive and intricate manipulations of social information among baboons, in contrast to their limited capacity to reason from information about objects.

Given the possibility of two distinct streams of development in the communicative system, the central question for the study of linguistic change is the relationship between them. We have already seen that information and effort stand in an antagonistic, unidimensional relation. Much of the discussion of social intelligence in the recent literature on the evolution of language implies a unidimensional relation of a different type: reinforcing. Hauser et al. (2002) have argued that the central recursive capacity of the faculty of language, narrowly defined, might have been derived from the recursive character of kinship relations. The implication is that the capacity to manipulate complex kinship terms may be put to productive use in the recursive production and perception of propositions in other domains, and that skill in kinship relations reinforces the capacity to convey information on say, foraging. The "social brain" hypothesis (Dunbar 1998) argues that the mental representation of abstract social concepts led to the general development of intelligence. All of these discussions occur in the context of accounting for the successful development of human language as a communicative system searching for the activities and formative factors which favored that development. However, the findings of this volume indicate that language change limits and reduces the successful communication of propositions. This raises the possibility that, to some extent, the social factors that lead to linguistic change are orthogonal to the representational function of language. By this I mean that there is no fixed relation

between a given language change and the loss or gain of information in the pro-positional system. The centralization of /ay/ and /aw/ in Martha's Vineyard, now generally accepted as a symbolic assertion of local identity (Labov 1963), does not show any signs of reducing the identifiability of *right*, *pride*, *out*, or *proud*, nor does it introduce confusion between *right* and *rate*, *loud* and *layed*. The introduction of consonantal /r/ as a prestige marker in New York City reintroduced and reinforced the distinction between *bad*, *bared* and *beard* (Labov 1966, Ch. 14). However, the development of Philadelphia /aw/ from [æo] to [eɔ], whatever its social function may be, has led to the common confusion of *crown* and *crayon* and to the general merger of /æ/, /aw/ and /ey/ before /l/ in *pal*, *Powell* and *pail*. To the extent that such mergers are not easily reversed, we find a significant reduction of communicative efficiency within and across the boundary of the Philadelphia speech community.

Chapter 6 showed that chain shifts are driven by powerful internal factors. Only one of them – the tendency to maximal dispersion within a subsystem – favors communicative efficiency. The unidirectional raising of peripheral vowels and lowering of nonperipheral vowels have no such connection with the representational system. Whatever forces lie behind the Eckert progression – the shift from social class to gender stratification, as a change progresses over time – are not related to the need for representation. Most importantly, we see that there is no adequate repair mechanism for the confusion introduced by chain shifting. The driving forces involved have no systematic relation to the communication of propositional information.[4]

The Northern Cities Shift presents us with a formidable problem in our search for the causes of linguistic change. Local studies show local correlations, but they do not explain the remarkable uniformity of the phenomenon across such a vast area. One may consider the image of a swimmer in an offshore current: sometimes using the Australian crawl, other times the backstroke or the breaststroke. He may have the impression, "I am really making this water move!" and may indeed be responsible for making progress in one direction or another. But the great chain shifts sweeping across North America are more like ocean currents than local eddies, flowing with irresistible force across the Inland North, the South, or Canada. As we found in Chapter 9, they are modified by social factors within their territory. But these currents are arrested abruptly as they reach the 150-year-old social boundary of the North/Midland line.

Chapter 10 suggested that this great uniformity of the Inland North and its abrupt termination at the North/Midland line is the result of large-scale settlement patterns in the nineteenth century, when large numbers of children transmitted the vowel system faithfully across the area. Furthermore, it was proposed that the driving force behind the continued acceleration of linguistic change may be the inherited association of the Northern Cities Shift with the Yankee cultural ideology, which was transformed into a political movement in the ferment of the Second Great Awakening. Chapter 11 added some experimental evidence to support this view.

The implications of this account of the uniformity of the Inland North are that the social factors involved cannot be explained as the effects of local, face-to-face interaction. To cite Fridland again,

> these shared practices do not necessarily require individuals' social cohesion but merely require shared historical experience and a strongly circumscribing environment that places speakers in a similar social position relative to the external social world. (Fridland 2003: 296)

The same argument applies to the uniformity of the direction of linguistic change in metropolitan communities like Philadelphia.

If this is the case, and language change responds to large-scale cultural factors, the connection with the evolution of social intelligence among nonhumans becomes more tenuous. Cultural transmission, the major theme of this volume, is very limited among nonhumans. Indeed there are indications that such normative, uniform movements are not characteristic of small human populations. The linguistic homogeneity of the Inland North is more typical of large urban populations than of linguistic evolution in small family groups. The social evaluation of language differences appears to carry most weight across group boundaries, rather than within them. Thus the individual leaders of linguistic change, who played a major role in Volume 2, begin to recede in importance as we raise the scope of our inquiry to larger domains.

Finally, we return to the uniformitarian question (Christy 1983). Are the processes, events and causes reviewed in these three volumes the same as those that operated to produce the historical record, and are these the same as those that were operating in the earliest periods of the evolution of language? To the first question we have answered throughout with a tentative "yes"; to the second, the answer is more clearly "no." The chances of being right about this earliest prehistory are limited by the Historical Paradox of Volume 1, Chapter 1:

> The task of historical linguistics is to explain the differences between the past and the present; but to the extent that the past was different from the present, there is no way of knowing how different it was –

– or they are even more limited if we apply the maxim of J. B. S. Haldane (cited in R. and P. Grant 1994): "No scientific theory is worth anything unless it enables us to predict something which is actually going on."

These three volumes have attempted to understand the process of language change by paying close attention to what is going on around us. Though we hope always to improve our understanding of how the present situation came to be, these changes in progress tell us much about the human beings who are engaged in them. They are surprising and at times difficult to understand. They mark the limits of our rationality, and illuminate the many sides of human nature.