Historical Linguistics

A cognitive grammar introduction

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For my family,
Geoffrey, Eleanor, and Leendert

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Preface

Historical linguistics, I would argue, is different in a number of ways from other branches of the general study of Language or of specific languages. Let me mention two. First, although it is, from a curricular and organizational point of view, considered one among several subfields of the wider discipline of Linguistics, it cross-cuts many of the others. The field looks at changes over time in phonetic, phonological, morphological, syntactic, and semantic components, with excursions as well into the history of pragmatic and sociolinguistic aspects of language use.

Secondly, more than many practitioners of many other linguistic subfields, historians tend to retain and expand upon past solutions to linguistic questions, even as broad theoretical interests and commitments in the general discipline evolve. The result, looking historically at the field of historical linguistics, is a broader acceptance of the past and much less starting anew with each new modification of general linguistic theory. This openness to what has come before is perhaps not surprising in the outlook of those who study any historical matter. This is not to say that historical linguists do not, like other linguists, develop and expand approaches to the study of Language. What should rather be understood is that well-established findings of earlier periods in the framework of different theories may be incorporated into more contemporary approaches. That is, we build on past discoveries.

In the case of this book, the approach is that of Cognitive Linguistics, which, broadly speaking, posits a semantics base for linguistic production and processing. What is explored throughout, informing this introduction to processes, results, and methods of historical linguistics, is how such a theory can both make sense – sometimes better sense – of past findings and move forward with so-far unresolved issues in the history of Language.

This book is comprehensive, both in the range of topics it addresses through a historical lens and also in its interpretation of cognitive functioning, moving from the original Cognitive Linguistics interest in semantic categorization (although this is still a major focus), through the current theoretical interest in frequency and emergence, to less-well identified aspects of cognition like iconicity. While there is no claim to a comprehensive range of languages, this volume is intended to serve as an introduction to historical linguistics and not to the history of any one language. Examples are drawn, principally, from the Germanic and Romance language families, but also from Semitic, Austronesian, and some other individual languages like Japanese. Although I have tried to provide a range of data, I return more than once to some specific examples so that new concepts can be tied to material which was presented earlier. In my experience, new principles presented with new data are sometimes harder to grasp.

Students taking a course using this book should, at a minimum, have had an introductory course in linguistics and, ideally, an introduction to phonetics, particularly the basics of articulatory phonetics and some familiarity with the IPA. While there are explanations of basic terms, there is also a presupposition of some linguistic awareness resulting from such basic courses. It is not expected that students be fluent in any but their native language, but any exposure to other languages will enrich their experience with the book and allow instructors to expand on the range of classroom and written exercises. It is, however, important that they have some experience in handling data in languages they do not know from direct study. Where a standard fact about some language is brought to bear, no reference has been provided. Students studying the history of Language are, after all, on the road to becoming linguists themselves and it is up to them to find language descriptions if they are interested in expanding their knowledge. In addition, to spur continued research, I have provided a short section at the end of each chapter, called "For Further Investigation". The problems set out there will, in general, require some independent investigation of sources and a more synthetic approach to an answer than the other questions and exercises which follow each chapter. Some of these more extended exercises may, in fact, inspire term paper topics or, depending on the student's level, lead to a senior project or master's topic.

Acknowledgments

I wrote many of the drafts while serving as Associate Provost and then Provost at Wayne State University in Detroit, although the manuscript was finally completed when I stepped down into retirement with time to think more about language change and less about academic administration. I very much appreciate the encouragement I have received from Esther Roth and Anke de Looper as well as the support provided by Ineke Elskamp and her team, all at John Benjamins. I also appreciate the careful reading of parts of the manuscript by Kavya Davuluri. Anonymous readers have been of great help; the comments, suggestions, questions, and – perhaps even more – the criticisms of earlier drafts have helped to shape my thinking and hence the development of this textbook. My husband Geoff Nathan has been a reader, reviewer of all things phonetic and phonological, cheerleader, and all-around support in this undertaking as in everything.

CHAPTER 1

What is language change?

1. Introduction

There is an old story about a sculptor – some unnamed sculptor – who, when asked how she might carve an elephant out of a block of stone, replied that the secret was to study the block carefully and carve away everything that wasn't the elephant. That is the approach we will take – making the necessary adjustments to this striking image – as a way to begin defining language change. The sculptor's response provides a good glimpse into artistic vision. We, in turn, will look at the network of concepts that comprise Language and set aside anything that is permanent, that is, resists the pressure of change. When we examine what is left, we will discover, finally, what aspects of Language are susceptible to change.[1] As a first step at clearing away permanence and uncovering the potential for linguistic change, then, let us look at the nature of Language and what its most important features are. The goal for this first part of the chapter is to ascertain what is changeable over time. In the second part of the chapter we will review some aspects of Language – the non-stable aspects – in some detail as a preview of what change consists of and how it might be studied.

Language is simultaneously a phenomenon interior to human beings and beyond the individual. By interior, what is meant is that it exists in the mind; it is a part of human mental functioning, or cognition. At the same time, it is exterior to any one person; it exists in the community as a social phenomenon. The physical side of language should not be ignored either; communication takes place most often through sounds and more occasionally through gestures or a combination of the two. Language is studied by a variety of branches of the field of Linguistics, most often with a focus solely one or another of these essential aspects, cognitive, social, or physical.

On the cognitive side, Language can be thought of as a network of pairings of meaning and ways of expressing meaning. The expressive side of this pairing implies the existence of some physical form (produced through sound or gesture) that in any given language communicates some meaning. Sounds (or gestures), the essentially physical side of Language, are studied, as will be expanded below, in terms of how we produce them and how we perceive them. We approach the meaningful or semantic

1. The capitalized *L* in *Language* refers to an abstraction over all languages rather than to any one language; when there is reference to a specific language, the lower-case *l* will be used.

side of the pairing through how words are put together to make novel words and how grammatical information may be expressed through words or subcomponents of words. Note that there has been no attempt to define 'word'; most considerations of the nature of Language treat that unit as a primitive, a basic building block which needs no definition beyond the essential notion of the pairing of some meaning with the way it is expressed; we will return to the notion of 'word' in the chapter on lexical change.

Rather more difficult to talk about is meaning itself. It is, as a first attempt, the expression of the world, both the physical environment which we might call exterior to speakers and our mental universe of, broadly, knowledge and imagination. The first part of this definition is misleading in some ways, however, since it seems to imply that we can make sense of our physical world directly through our senses, that we can grasp its meaning through direct sensory data (that which we see, hear, smell, etc.). It is much more the case, however, that what we perceive through our senses is nevertheless analyzed and filtered mentally through what we already know or expect, although in some largely unconscious way. Meaning, therefore, involves cognitive function at all times, in the physical environment or in our mental world, to which we wish to assign meaning and express, somehow, to others.

When we think of Language, we do not just think of sounds and meaning, but also of structure, what is normally called the grammar or syntax of a language. This too may be viewed as a combination of exterior – or social – reality and interior – or cognitive – function. Grammar clearly does not exist outside of language users; there is no independent physical manifestation beyond our hearing or reading the speech and writing of other language users, with our human linguistic knowledge of how to interpret this input. In some ways – and we discuss some of them further in the chapters to follow – we are born with a capacity for language. That includes not only an ability to identify the inventory of sounds for our own language from what we hear around us and to acquire the meaning of words, but also to master structures which provide meaning in addition to or beyond the meaning of the words themselves. As language users, we master, for example, expressions of tense and mood for a given language and the ordinary as well as emotionally or poetically unusual expression of meaning. We also develop ways of playing with meaning and even structure.

But we don't just find Language in our heads. It is also a social entity whose primary function is to serve as the means of communication among members of the same community. A simple consequence of this primary functional necessity is that language must be shared. On a purely practical level, if a passer-by calls a warning to someone about to step off the curb that a car is about to turn toward her, they (the passer-by and the pedestrian) must have something close to the same understanding of the words *car*, *turn*, and *toward* or an accident may still happen, perhaps with dire consequences. Also needed is a shared sense of the situation; that the pedestrian is putting herself in potential risk from vehicles when she moves from a safer area (the sidewalk) to a more

dangerous area (the middle of the street). Another example: when a customer tells a salesperson that, if the item she is looking for cannot be shipped from another branch in the next few days, then she would not be interested in buying it, more complex meanings are involved. The interacting pair of customer and salesperson must agree not only on what *ship* and *next few days* mean (and the latter phrase may indeed lead to further questioning along the lines of 'what does *few* mean?'), but also share an understanding of negative and of hypothetical statements, as marked by *not*, *if* and *then*.

How can language be both 'in' the mind and 'in' a community at the same time? A preliminary answer emerges from the notions of societal convention and language acquisition or emergence. When human beings learn to talk, what they were born with cognitively is instrumental in the development of their linguistic ability, including the pre-linguistic ability to compare and to categorize, both of which will be explored at length throughout the rest of this book. But they are also born with the ability to learn – often through frequently repeated examples – the conventions residing in the language surrounding them, the language of their own speech community. These conventions involve links between pronunciation and meaning (not only of individual words but also, for example, more abstract notions like the expression of plural in English by nouns with /s/ ~ /z/ ~ /əz/ in the right distribution of sounds), the application of grammatical structures to specific circumstances (for example the negative hypothetical above illustrated by the short discussion between a salesperson and a customer), and the various irregularities in form (past tenses like *went*, plurals like *children*, and so on). But Language itself in the minds and mouths of users in a dynamic institution and convention alone cannot account for all of it.[2] Language, both cognitively and socially, is also the locus of a great deal of invention. However, the necessity for communication, even in the context of innovation, restricts the degree to which an individual will deviate from convention. This matter of the balance between convention and innovation will be another thread throughout the book.

The interaction of speakers, which we refer to as communication – successful or not (we don't hear what is said, we misunderstand, and so on) – is, again, the basis for the social side of Language. Not only do speakers, as they produce utterances, constantly weigh the degree to which they conform to local conventions and the degree to which they can innovate, but they also evaluate, equally unconsciously, what they hear from other speakers. Much of this evaluation has no consequences, but, as will be explored throughout the book, some of it leads to imitation and ultimately to change. To be expanded upon: there are multiple reasons for imitation both of components of the speech of one's own community and also of other languages or dialects.

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2. It is a matter of some debate, in fact, how much of Language is conventional and how much is recreated by speakers and hearers at every instant.

2. Characteristics of language

What is this thing called Language which may or may not change, which resides both in the minds of individuals and in full communities, and which shows signs of conventional fixedness and constant innovation? The next few paragraphs will consider what features it possesses without – for now – measuring the degree to which the features lend themselves to universality over time or to variation and change.

2.1 The human element

First, we will agree, although perhaps with some misgivings, to see Language as an essentially human phenomenon. All human beings, unless severely disabled, acquire language; this ability to master at least one native language[3] seems to be independent of other kinds of intelligence (academic, emotional, artistic). Exactly what is acquired is a matter of much discussion, however; theories vary as to the amount of language-dedicated hard-wiring (that is, cognitive capacity) human beings are born with and how much is learned. It is also frequently and vigorously debated how much this cognitive ability (whatever it may be) is strictly human. To take these controversies in reverse order, it is true that quite a few species have some sort of communication, but it is very much a matter of how one defines Language as to whether or not these communication systems are linguistic or something else. Bees, for example, signal (a verb being used for its neutral value) the location of pollen-bearing plants and flowers to other members of the hive through what has usually been described as a dance. But does this 'dance' constitute the kind of system we call Language? Does it allow for creativity? Does it have systemic structure? At this point in behavioral research there does not seem to be a strong non-human candidate for Language in the sense in which it is being used here, but the final answer to this question is probably far from being resolved.[4]

2.2 Arbitrariness

The second essential feature of language is its arbitrariness. Although there has been a certain amount of debate about how to understand this notion,[5] there is general agreement that it is to be understood as the fact that the way in which basic concepts

3. Remember that in many parts of the world speakers acquire two (or even more) languages natively.

4. See Hurford (2003) and references in that chapter for further discussion of animal communication systems and the complex and interesting ways in which attempts have been made to decide what constitutes Language.

5. See Lyons (1977: 70 ff.) for discussion both of the basic notion of arbitrariness and of its limits.

(that is, the content of cognition originating either through the senses or in the mind) are expressed has no necessary connection with the concept itself. There is no reason why the concept of a particular frequently domesticated four-legged vertebrate is expressed as /dɔg/ in English, /pero/ in Spanish, and /ʃjɛ̃/ in French or that the abstract English term for one's physical and/or mental state is /hɛlθ/ while French has /sãte/ and German /gɛzʊnt/. On the other hand, good arguments have been made that when one considers less basic notions which are expressed, for example, by compounds or larger grammatical units, arbitrariness is not as clearly a factor. It is not arbitrary that /hɛlθker/ has the form it does, for example, since the concept being expressed is a combination of 'health' and 'care', how one deals with those whose physical and/or mental state isn't as strong as it might be. We can motivate the meaning of this compound from the meaning of its parts, a challenge to all-pervasive arbitrariness.

2.3 Creativity

A third basic feature of language is its creativity. This takes multiple forms, of which perhaps the most obvious – because it is the most flexible – is in the intersection of syntax and the lexicon. While each language has its own grammatical strictures, the way in which meaning is expressed can vary greatly from person to person or from situation to situation. As Chomsky pointed out (1957: 13), human beings can form an infinite number of sentences from the finite resources of structure. It may well be the case, for example, that most of the sentences you have read in this paragraph and the preceding ones have never before been written or uttered in quite this form. However, this is only one instance of creativity. As will be discussed in some of the following chapters, language users show creativity in coining new words, extending the meaning of words, and forming new compounds out of existing vocabulary (a relatively new one is *pebble puppy* meaning a child interested in geology which is based on the longer-established *rock hound*).[6] All these kinds of creativity, of course, involve mental activity; we will talk in a later chapter about how change begins and how it becomes part of a dialect.

It is worth noting that the line between creating and borrowing is not always a clear one. A word may be indisputably borrowed from another language, for example *sushi* from Japanese. The notion of a dish made of raw fish and slightly pickled rice was not that long ago a new idea to most people outside of Japan, and it made perfect sense to take the word when adopting the concept. But not all lexical borrowing is motivated by the parallel adoption of the thing or idea that it designates. Japanese, for example, has two words which refer to 'soap'; of them, one is the native word *sekken* and the

6. Payne (2006) has many such examples; *pebble puppy* is one of the most creative.

other is *sopu*, taken from English and used to designate fine, usually imported soaps. Whether one can claim creativity in these examples is a matter for discussion; what is clear is that such borrowings change at least some corner of the language which takes them in.

2.4 Physicality

Finally, a basic feature of language is its physicality. For most speakers, communication is based on sounds, while for a small community it is based on gestures (hence the use of 'physicality' and not 'orality' as a generalization). This is not to say that written language does not have features of its own or that it is not physical in the sense that specific hand movements are necessary to form letters or other linguistic symbols. However, while there are many living languages which are spoken but not written (or which are, in these days of language preservation, written only with a phonetic alphabet imposed from outside the community), but none which are written but not spoken.[7] This feature too will be relevant to the study of language change as will, it should be added, some notions of how, in literate societies, spelling (that is, the written form of Language) may also influence how and when languages change.

3. Change

3.1 Life cycles

We have assumed in these first few pages, and should now state openly, that languages change over time. To use a somewhat imperfect metaphor, languages undergo a life cycle, as do living things (human beings, other animals, plants). While we don't want to push the image too far, there is good reason to speak of the emergence of Language itself, that is, the very birth of the phenomenon; referred to as evolutionary linguistics, it is briefly discussed in Chapter 9. We can also speak of the development and lifespan of individual languages, and their death. The imperfection of the metaphor resides in two things: first, that languages do not exist independently of the people who speak them, and, even if we look at them as independent entities, their life cycles are very idiosyncratic and, again, depend to a great extent on speakers and their communities. Languages do not have even what we might call average life-spans, as do living things;

7. Note the adjective 'living' in this discussion. Classical Latin, Greek, Arabic and other so-called 'dead' languages are only written, but they are no longer learned by children as a first language from those around them. Nor are they productively used, but only read for an earlier literature or used for religious or ceremonial purposes. Even given the use of social media by the Vatican (a recent Pope used twitter in Latin), for all intents and purposes they do not count as living.

some languages have existed for much longer periods of time than others and, while they all change, some change much more rapidly and in much more noticeable ways than others. In part the question is a political one; can we talk about Portuguese as a separate language and not a dialect of Spanish before Portugal was an independent political entity? And how do we date the birth of the Romance languages from Latin when the changes were, on the whole, gradual?[8]

Much of the rest of this volume will address how languages come into being as daughters of other languages (Chapter 2 will provide the most important points to get us started) and how, without changing further identity as the "same" language, continue to change. They may seem to stay stable, or at least recognizable as the "same" for varying periods of time, some of them very long; Section 4 of this chapter will provide a taste of what might happen to English over multiple centuries while still being identified as English.

To complete the life cycle metaphor, a language also may die, gone because nobody is left who knows how to speak it natively, that is, as learned in early childhood as a first language. Native speakers of a minority language which is in the process of dying are usually those living in an environment where another language is dominant, like speakers of a large number of native American and Australian aboriginal languages, or immigrants surrounded by the language of their new home. Influenced by the surrounding dominant language, which is often the language of education and social/economic advancement, the children of the original speakers will lose grammatical structures, using those of the dominant language, but will often continue to use the vocabulary of their minority language. The core vocabulary remains active longest along with specialized subsections of the lexicon (words related to food, or a specific holiday or ceremony, for example). For an introduction to the issues, linguistic, political, and cultural, surrounding language death, see Crystal (2000).

However, unlike the lifespan of living things which eventually comes to a clear ending, languages (which transcend many centuries by being passed from generation to generation of speakers unless, as in the cases of external domination or immigration) may actually be revitalized when dying or, in one very well-known case, revived when dead. The unique revival story belongs to Modern Hebrew. Although Hebrew of the kind we know from the Bible ceased to be spoken around the beginning of the third century CE, it remained as a sacred language and was taught as such, in general for reading of liturgical texts and commentary on them. At the end of the 19th century

8. The 19th-century Romance scholar Gaston Paris is credited with pointing out that, if one walked from Paris to Rome, national or even regional boundaries would not be discernable since the differences in language from one village to the next are small. The same might be said about temporal differences; they too may pass unnoticed until a sufficient number of changes have occurred for users to realize they are speaking a different language.

a revival movement began, linked to Zionism, the social and political movement that ultimately led to the creation of the State of Israel in 1948. This revitalization has not been without conflicts, both social (should Yiddish have been the official language of the new state?) and linguistic (is the Hebrew of the modern era a Semitic language or a Slavic language adapted to a Semitic framework?).[9] But the general idea is that what was once a dead language, as much studied through sacred texts as Latin or Classical Arabic, has become again a living entity acquired normally and spoken as first language by children born in Israel.

The Hebrew case is an extreme one of complete revival under special circumstances with the founding of Israel as a nation. Many other cases where there is some degree of successful renewal also reflect political changes, but of another sort. Several indigenous American languages, which were in danger of disappearing completely, in large part because English served as the sole language in schools and in the workplace, are now being used as the language of instruction in communities where there are still some native speakers. The Pokegan tribe of Potawatami (Great Lakes region) have organized an apprenticeship program for children to learn the language from fluent native-speaking "masters"; there is also a summer immersion camp, with webcast instruction and videoconferencing. In the United States Northwest, the Haida tribe is listed as "critically endangered" by UNESCO, but there are now language programs in schools, in Haida communities, and through the University of Alaska Southeast. Modern technology plays a part in the revival movement as well; there is now a Haida language app available for iPhone with a bilingual dictionary and phrase collection. Children in many communities who acquire these languages at home as their first language are now learning to read and write in them, sometimes with long-standing native writing systems and sometimes using an adapted form of the Roman alphabet. This relatively new literacy will reinforce their oral knowledge, learned, as we all learn our first language, from our surroundings.

There are several points to be made here: first, it will take two or more generations for these languages to be considered off the endangered list, based on the number of native speakers, those who acquire them as first languages and continue to use them. Secondly, it is important to note that these writing systems and the enrichment of the lexicon of the languages for the expression of all that is necessary for 21-century life are now being developed or modified through the joint action of both members of the

9. The first debate is moot at this point, although there has been a new interest in Yiddish in the last couple of decades, not as a replacement for Hebrew, but as a language of historical importance and a vehicle for culture. The second debate, on the origins of Modern Hebrew, is on-going, although mostly as a scholarly discussion among language historians (cf. Zuckermann 2006); it has no impact on the fact that Hebrew has indeed emerged from a dead, scriptural language to one which is the language of a modern nation in all aspects of its speakers' existence.

community and trained linguists, some of whom come from the community in question and are native speakers themselves. Imposition of revitalization solely from the outside does not succeed and, in general, the notion that it takes a village is apropos here; there must be a concerted community desire to pass the language on, hence preserving it across generations despite pressures (intentional or not) from the surrounding Anglophone world to impose English.

When it comes to North American native languages in the United States and Canada, those which have the best chance of being revitalized are those where there are native speakers who are engaged in passing on languages to the next generation. In other cases, there are no native speakers, but rather those who have learned a given language consciously and conscientiously well past the age of first language acquisition. A case in point is Cornish, a Celtic language spoken in the southwest of England, specifically in Cornwall. These efforts have been recognized by the reclassification by the European Union of the language as not extinct, but in grave danger of extinction. And this grave danger will persist until such a time as there are true native speakers who have acquired their language as a first language from older speakers, parents and caretakers, who also speak it. There will have to be a robust generation of near-native speakers in order for this revival to happen; sadly, it is hard to imagine even with the current existence of Cornish-language preschools and elementary schools.

All of these cases present counterexamples to a certain degree to the notion that languages change either from within themselves (that is, through speakers, but without the active choices of speakers) or through contact, types of change which will be set out in Chapter 2. These examples provide views of ways speakers themselves deliberately bring about – or try to bring about – change through active linguistic effort. As was said at the beginning of this section, the rest of the volume will be about languages which come into life and change as living, dynamic entities, but human beings also hold on to dying or even dead languages for many political, social, and emotional reasons, even when the languages must be teased back into life.[10]

3.2 What changes?

Having contemplated the block of stone and the potential sculpture which started this discussion, we are now ready to carve. Just as the sculptor chisels away that which is not an elephant, we must eliminate those parts of Language which are not changeable to see what remains. What directions, as a result of this exercise, can our study of language change take? There is quite a lot to reject as potential loci for change. The first clearly non-viable candidate is the human mind as a broad phenomenon. Human

10. Of these examples, Hebrew stands out in now acting like any other language in its variations and even continued evolution, although over a relatively short amount of time.

beings acquire knowledge throughout their lives. This includes linguistic knowledge, at least in the form of new words or expressions. The broader human cognitive functions, however, do not change, at least at a rate which is parallel to the rate of language change. We can therefore think of them as immutable within the eras in which we can study Language. Human beings categorize what they encounter in the physical and mental environment. To do so, we have the capacity of scanning our environment, perceiving and/or creating boundaries on some parts of the endless, multifaceted continuum of sense data, and noting those we believe are important to us for some reason. How else would we be able to pick out a thread of conversation in a noisy restaurant? We frequently say we 'tune out' the rest of the noise, but the other side of the same phenomenon is to say that we are capable of ranking certain aspects of the noise as important to us; we therefore concentrate on them. Like categorization, other basic features of human cognition are constant in all ages of human existence; they do not change, although the input to mental activity and the concepts we form from that input are in constant flux. Change in this sense occurs against an invariant backdrop of innate mental structures.

What then of the features discussed above, the humanness of Language, its arbitrariness, creativity, and physicality? It is hard to imagine that the essentially human nature of Language would change. It is equally unlikely that other animals will be discovered to have communication systems which closely resemble ours. Attempts to teach higher primates to manipulate symbols in a human-like kind of way (cf. Premack & Premack 1983) were quite successful in early stages, but made their biggest contribution in showing what the limits of such attempts seem to be. The only way in which our perception of the essential humanness of Language may change is if new ways are discovered (and this might indeed occur at some time) to test animals for Language or to teach it to them (and it is not even clear what species of animal *they* might be) in such a way that they then use it reliably with each other and teach it themselves to future generations. At this moment this is rather more a scenario out of fantasy novels than otherwise.

The Fundamental arbitrariness of Language does not seem changeable either. There is no evidence that it has evolved in documented history or is now evolving into something else. Children and second-language learners still must gain an understanding of the relationship (called 'mapping') between sequences of sounds and the meaning they designate just as they must learn (children, that is) the boundaries between their own bodies and the world around them. This seems like an obvious statement, but there is evidence for it to be found in the errors children make (calling all dogs *poodle*, for example, because that is the one breed of dog they have learned to label) and in the interference experienced by second-language learners. If Language were not arbitrary, why would an anglophone student of French talk about having *un dollar gauche* 'one dollar left' using the directional designation (*gauche*)

instead of the adjective meaning 'remaining'? They happen to be homonyms in English but not in French which uses an entirely different, non-related term for 'remaining'. The set (or network) of meanings for /lɛft/ and /goʃ/ overlaps in the directionality sense but not fully.

The phenomenon of creativity is an equally poor candidate to be a locus for change. There is no evidence, however far back one can look, that language users were ever any less (or more) creative than they are now. Words and expressions are documented as becoming a part of or disappearing from specific languages. They may also change their status (from acceptable to taboo, for example, or from slang to standard), while sounds are 'invented' or borrowed much less frequently. Furthermore, there is no evidence of any time when utterances could not be restated in new ways or extended through repetitions. On the other hand, as will be expanded below, the results of creative use of language do indeed bring about language change in all components of language, although not to an equal degree.

What then is left of our block of stone now that we have carved away (or at least rejected as candidates for change) the immutable aspects of Language? There is, in fact, a great deal that can change, much of it the 'stuff' of language itself, as contrasted to the way it is accessed and manipulated by human cognition. In addition, Language creates and is created by its social context at any given time. Let us look briefly for the moment at both of these aspects, the purely linguistic 'stuff' and the social context of language use; they will be the subject-matter of most of the rest of this book.

4. Evidence of change

In order to make clear what might change – at least on the side of the linguistic substance (in contrast to the social setting) of language – we need to take a look at what different chronological stages of the same text look like. To do so we will examine a short passage from four versions of the Old Testament from different stages of English. It was chosen since it is a text which, for obvious social and cultural reasons, has been translated frequently and modernized frequently so that it can be read and understood by readers of any era.[11] It should be said that the text has a disadvantage as well; translators are very apt to retain the syntax and vocabulary of such religious writings which would in other contexts be identified as old-fashioned or just plain archaic in order to show respect for the sacredness of the language. The changes in this example are therefore somewhat less radical than they might be if we were to look at popular

11. Note that we are looking at a text here for its linguistic content; I am aware of no other one which has been rendered in the vernacular of various periods in quite the same way.

writing in prose or poetry. It is impossible, however, to find any other texts which are published for the contemporary readers of so many eras, hence the choice despite the drawback. To illustrate change we will go backward in time, with the first version (they are all Genesis 1.1-1.5) coming from the *World English Bible*, a twenty-first century update of the American Standard Version of 1901:

1:1 In the beginning God created the heavens and the earth. 1:2 Now the earth was formless and empty. Darkness was on the surface of the deep. God's Spirit was hovering over the surface of the waters. 1:3 God said, "Let there be light," and there was light. 1:4 God saw the light, and saw that it was good. God divided the light from the darkness. 1:5 God called the light "day," and the darkness he called "night." There was evening and there was morning, one day.

There is very little out of the ordinary here, although we find a recognizable tone which we might associate with religious writing and which stems, in part, from the reluctance of translators to differ too much from the original text. The vocabulary is familiar, with the exception of the use of *deep* in the second line where it seems to be a noun rather than the adjective we are familiar with. Note as well the concept itself of the *surface of the waters*.[12] But these are certainly understandable to us. The spelling is modern, and the verb forms are those we know as speakers of twenty-first century English. The grammar of the passage is also generally straight-forward, although with some unusual word order, most notably in the first sentence of 1.5 where the direct object *darkness* precedes the subject and verb. To repeat, this is otherwise a sample of modern English, easily read despite the slightly unusual feel to it. This 'feel' in fact comes in part from the couple of anomalies, lexical and grammatical, which have been mentioned. They in turn may well be (and do indeed turn out to be) relics of earlier usage preserved in a sacred text and therefore of value in the study of language change.

Once the text comes from earlier periods of time, the level of familiarity decreases, even though, for now, the text is recognizably the same. Let us look now at the early modern English King James version, prepared in 1611, a date close to that of the plays of Shakespeare:

> 1:1 In the beginning God created the heaven and the earth. 1:2 And the earth was without form, and void; and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters.1:3 And God said, Let there be light: and there was light. 1:4 And God saw the light, that it was good: and God divided the light from the darkness. 1:5 And God called the light Day, and the darkness he called Night. And the evening and the morning were the first day.

12. As I write, I note that WORD flagged the plural form *waters*; as a plural, it is not in the pre-packaged spelling dictionary.

This is certainly understandable to the modern reader and parts of it (1.1, for example) are identical to the contemporary version above. One difference to note is the use of capital letters in place of quotation marks for Day and Night (1.5); the graphic convention of capitals for nouns – here for at least for some nouns – still exists in written German, but has been lost in modern English. Grammatically the texts are very similar, with the same syntactic construction of a preposed direct object in the last section. Finally, note the number of sentences which begin with *and*, far more than in the modern version; on the level of the paragraph (as opposed to the word or the sentence), ways of linking sentences one to another can also change with time.

The next step backwards is a much larger one and the text, in Middle English, is quite a bit harder to understand without special training. This version dates from around 1300 and is in verse:

In the first made God of nought heuen and erth.
The erth forsothe was veyn withinne and voyde,
and darknesses weren vp on the face of the see.
And the spirite of God was yborn vp on the waters. 4
And God seid, "Be made light," and made is light.
And God sees light that it was good and dyuidide light from derknesses.
And clepide light day and derknesses night,
and maad is euen and moru, o day. 8

It is very clear that we are looking at something other than modern English here. The spelling of even familiar words is quite different; note *heven* 'heaven' and *erth* 'earth' in the first line, *voyde* 'void' on the second, and *seid* 'said' in line 5, among others. Other words in the passage are simply not ones a speaker of modern English would know if s/he were not trained in reading earlier stages. Among those is *forsothe* 'in truth' (line 2, and note it is not even part of the two more modern texts) and *clepide* 'called' in line 7. There are those as well which the modern speaker can guess at, although the exact usage has changed; note, for example, the use of *first* in line 1 for 'beginning' and *veyn* 'empty' in line 2. There are grammatical forms to compare as well. In line 4 note the prefix *y* of the form *yborn* and in line 3 the final *-n*, marking the plural, of *weren* 'were'. The past tense of 'divide' is *dyuidide; clepide*, already mentioned in line 7, has the same past tense ending, *-ide* is similar to contemporary English *-ed*, but is written with a different vowel and a final *e*. The word order is also different, with more inversions, for instance *made is light* 'light is made' in line 5.

And yet it is not impossible to read the text, perhaps with some notes for the totally unknown words. When we come to the earliest version (around the year 1000), it is clear that even more extensive special training is needed:

1 On angynne gesceop God heofenan and eorðan. 2 Seo eorðe soðlice
1 In beginning shaped God heaven and earth. 2 The earth soothly (=truly)
wæs idel ond æmti, ond þeostra wæron ofer ðære nywelnysse bradnysse;

was idle (void) and empty, and darknesses were over of the abyss broadness (surface)
ond Godes gast wæs geferod ofer wæteru. 3 God cwæð ða,
and God's ghost (spirit) was carried over water. 3 God quoth (said) then:
"Gewurðe leoht," ond leoht wæarð geworht. 4 God geseah ða ðæt hit god wæs,
Become light, and light was made. 4 God saw then that it good was
ond he todælde þæt leoht fram ðam ðystrum. 5 Ond het ðæt leoht dæg
and he dealt (separated) that light from the darkness. 5 And hight that light day
ond þa ðystru niht: ða wæs geworden æfen ond merigen an dæg.
and the darkness night: then was made even (evening) and morning one day.[13]

Here for the first time unusual letter forms must be noted; there are three here that are not part of the alphabet used by modern English. They may be familiar to readers of this book, however, since they are used in the International Phonetic Alphabet. They are ð (eth) and þ (thorn), used interchangeably in Old English for both [θ] and [ð], as well as æ, whose corresponding sound prompted the phonetic symbol "æ", called ash. Secondly, there are many words that are completely unfamiliar to a speaker of modern English (in line 1 alone, *angynne, gesceop, soðlice*). Some of them are glossed in the interlinear translation by words which will help in understanding, like 'soothly' for those who know early modern English through reading, probably, Shakespeare. Others take a leap of comprehension ('beginning' for *angynne*, though the root is indeed the same) and some simply have to be glossed ('created' for gesceo*þ*); for this last item a knowledge of the German *Schöpfung* 'creation' would help clarify the meaning. If one carefully compares the old and modern versions of the text using the translation, it is clear that the Old English has many more endings than the modern. For example, note that 'earth' is *eorðe* where it is the subject of the sentence in the second half of line 1, but earlier in the line it is written *eorðen* with a final *-n* marking the direct object; Old English had a system for marking the grammatical function of nominals which is largely gone.[14] Note also the many instances of the form *ge-* at the beginning of words, marking the simple past tense (*geseah* 'saw') and a past participle (*geworht* 'made'), both in line 4. Finally, word order is even more different from what we are accustomed to than in the Middle English version. There is more inversion of subject and verb (line 1, for instance) and quite different use (or absence of use) of articles.

From this very rapid and incomplete look at a single text which is available to us in many versions of English, old, middle, early modern, and modern, we can see that

13. Since the translation is line by line but not a gloss of each grammatical form, the modern English has been indented for ease of reading.

14. The remaining case marking system in English is that of pronouns; consider *I* and *me*, *he* and *him*, *they* and *them*.

Language (here represented by English) does indeed change over time. Since we were working from written texts, there was not too much said about sounds; however, ways of identifying evidence for earlier pronunciation and sound change will be addressed later in this text. We did, certainly, identify lexical and grammatical changes, reflected in the increasing difficulty most readers would have with the texts as they exemplified earlier and earlier versions of English. By the time you have finished reading the book, you will be able to explain many of these changes.

5. Cognitive Grammar as a framework

An understanding that languages do indeed change over time is necessary for studying how and why they do so, and the text we looked at above provides a glimpse into many of the phenomena involved in change. But this study does not occur in a vacuum. If, in particular, we want to get at the causation of change (the "why") or even be able to describe the mechanisms of change (the "how") without just developing a list of changes, we need to have a well-developed and articulated synchronic theory of how Language functions. The theory which will frame the material in this volume is Cognitive Linguistics, also called Cognitive Grammar (Langacker 2008 is an introduction and the bibliography lists many other relevant volumes, including handbooks with collections of papers, as well).

Cognitive Linguistics is based on several fundamental premises. First, it makes a very strong commitment to the notion of psychological reality, the idea that what we are studying is what human beings actually do in producing and perceiving Language. While many (but not all) other theories make the same claim, Cognitive Linguistics goes further: a second fundamental claim is that the cognitive aspects of language in use (both for perception and production) are not different in kind from those involved in other kinds of processing of our external and internal (mental) world. As human beings we use the same mental abilities (among them, scanning, assigning salience, categorizing) for all phenomena. This means that there are no Language-specific mental capabilities. All linguistic structures are, at a certain level, of the same kind as other cognitive structures used in face and music recognition and in perceptions of what may be dangerous and what is not (a stick as opposed to a snake), to mention a few examples.

The theory also sees as basic to its approach the notion of embodiment, the idea that we are linguistic beings of a certain kind because of our physiology and, perhaps more abstractly, because of our interaction with the physical world; we stand up-right, are subject to the laws of gravity, etc. We will return to this idea when we look at the development of prepositions and adverbs (*behind, facing, aside*). Embodiment provides one of the few universal commitments of Cognitive Linguistics since it speaks to

what human beings share; other universals are pre-theoretical in that they are manifest in Language whatever the theoretical approach one takes. These were discussed above as basic attributes (human use, arbitrariness, etc.) On the other hand, most purely linguistic phenomena are a product of human beings living at a specific time and a specific place. Speech communities vary across space and time, and this variation is fundamental to the approaches taken by the theory and by this volume.

Stemming at least in part from a strong belief in the specific attributes of a given speech community, Cognitive Linguistics is founded on the basic semanticity, the essential meaningfulness, of all aspects of Language. It is here that it differs most fundamentally from other, generative, theories which posit structure, rather than meaning, as basic.[15] Cognitive Linguistics makes specific claims about the nature and the cognitive underpinnings of meaning, not just of grammatical and derivational morphemes, lexical items and compounds, but of larger grammatical structures. Categorization is, therefore, a fundamental cognitive function at play in the linguistic analyses which have been developed in this framework and will play a role in many of the sections of this text. As human beings, we understand the world through the ways we categorize what we encounter, fixing our attention on a certain number of sensory and mental aspects of the enormous number of stimuli which surround us at all times. As we consider specific aspects of Language and language change in subsequent chapters, we will use categorization and other mental functioning as both descriptive and explanatory tools in understanding how languages change over time. We will, therefore, find further discussions of the fundamentals of Cognitive Grammar and its applications in particular in the chapters concerning lexical, phonological, morphological, and syntax change.

The fundamental theoretical approach of Cognitive Grammar and its conception of Language through the study of the workings of the human mind make it a particularly strong candidate for framing the study of language change. The theory posits that there are no fundamental differences in kind among morphemes, words, and full grammatical constructions; their differences are a matter of degree, particularly of complexity. This unified approach provides explanatory insight into how languages change by linking motivations directly to the workings of the human mind. At the same time, the theory does not lead us to deny the physiological and social aspects of linguistic use and of change. Note that what we have in common as human beings includes our anatomy as well as our cognitive structures; here too reside universally shared characteristics which may interact with change. And speech communities are

15. This is not to say that we will not use structural descriptions and explanations, particularly in considering syntax change. What is the focus in this section is what is considered primary in one or another theory.

social organizations; we will meet throughout the volume examples of the social basis of change as well.

6. Book overview

The last part of this chapter will be an overview of the rest of the book in which all the topics touched on in the last pages will be taken up in turn. To begin, there are two aspects of sounds which are susceptible to change, falling under the headings of phonetics and phonology. Phonetic change may affect any articulatory or acoustic aspect of a sound or group of sounds, in other words, any detail of the way the sound is uttered or heard can be modified over time. We will spend a good part of Chapter 4 looking at what might change and in what directions, as reflected in the spelling of older texts. Our exploration will also be based on what we know of sound change in general. What is perhaps more challenging, however, is deciding why sounds change; we must look both at physical attributes of sounds (what may be altered over time in the way they are pronounced or (mis)heard) and, more broadly at what cognitive phenomena are at play. When it comes to phonology, that is, the configuration of sounds of a given language as a system, the mental aspects of change may be even more salient. This is the case since we are no longer talking about physical sounds, but rather about the way they interact with each other to provide clues to meaning. Here is a very short preview: in order to provide clues to meaning, the sounds must be consciously perceived, and change must at some point be consciously registered by speakers of a given language.

Forms (words, grammatical entities, parts of compounds) change too, although not necessarily as quickly as sounds; they are, after all, usually made up of more phonetic 'stuff' and therefore more robust as far as articulation and perception (the tasks, respectively, of speaker and hearer) are concerned. More crucially, forms carry meaning in themselves (as opposed to phonemes, those phonological units which point to meaning without having any of their own). The ways in which forms change are quite different, therefore, from the ways in which sounds change, although often the changes which come about are prompted by sound change. We will look at individual morphemes (units of meaning) and consider changes like the one from the Latin *mente* 'with a [given] mind set or spirit' to the adverbial ending in the Romance languages, equivalent to English *–ly* in 'swiftly, mentally'. But we will also look at form changes within paradigms (verbal in most languages, nominal in many) which may, through the workings of sound changes, destroy the unity of the paradigm or, through a need for this unity, have the contrary result of more regularity. The Latinate verb 'to love', for example was somewhat irregular in Old French (1100–1500, roughly), with two stem vowels, either /aj/ or /e/ depending on the person, number, and tense. This was

the result of sound changes transforming Latin into what we now think of as French. In later developments, the vowel alternation becomes regularized – or leveled – so that there is, in modern French, only one stem vowel, [ɛ]. Chapter 6 will be devoted to looking at these changes in form as well as others which result from combining morphemes into units usually labeled compounds (larger than a word but shorter than a syntactic unit) or from the transformation over time of a free-standing unit (often but not always a noun or a verb) into a grammatical unit, either still free-standing or serving as an affix (prefix or suffix).

Also changeable is the syntax of a given language, the results of combining forms into larger units, phrases, clauses, and sentences. Chapter 7 will consider what kinds of change occur in multi-word grammatical structures[16] with a further consideration of how one might study syntax change. It will be seen that this is not an uncontroversial matter if one wants to go beyond a mere list of earlier and later types of structures of the kind found above in the comparisons of the Old Testament passage. How language users form sentences (a crucial part of how sentences may change) is also a matter of some controversy; we will look generally at arguments for Cognitive Linguistics, a more functional approach, although without ignoring structure as a basis for change.

Finally, we must consider the question of lexical change. It can be approached from three directions of which the first is the study of etymology or word origins. This approach tends to be particulate; words are looked at individually or, perhaps, in clusters of related meanings. The goal is to determine the specific source of a given word with consideration of how its meaning has changed over time. A second approach is to look at how new words are formed, thus expanding the lexicon, and how they are lost, with shrinkage of the overall lexicon. Increases in the lexicon come from coinage (the actual invention of new words), borrowing, and novel compounding of various kinds. Compounding results in new combinations, either of word with word or word with affix, which serve to increase the range of meanings being expressed. In what concerns loss, we will look at obsolescence of meaning, replacement through analogy, and other changes which either cause a word to disappear completely or to be narrowed in meaning. Finally, a third approach to meaning change is to consider more abstractly the semantic paths taken in such changes, whether they lead to an increase or decrease in the lexicon. Crucial here is the role of directionality, whether, to continue this image, these paths are one-way or two-way streets.

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16. Polysynthetic languages are not made up of entities usually identified as words and sentences, but rather of strings of morphemes. We will discuss them very briefly in Chapter 7, but the thrust of the consideration of syntax change will presuppose 'word' as a basic (though not easily defined) unit and complex grammatical units as being made up of words as well as smaller units.

What is left to consider in this overview is *how* we study Language change, not to be confused with *what* in Language we analyze. The first part of the answer – and note that most of what follows in the rest of this chapter should be seen as complementary, in the sense that these methods do not compete or contradict each other – depends crucially on the kind of evidence the historical linguist has to work with. Where previous stages of the language are documented, a preliminary step is to describe the language in extant sources as far back in time as they reach and to compare components to each other across time. This documentation can take many forms of which the most frequently found are texts (literary, sacred, technical, etc.) preserved from earlier centuries. Other kinds of documentation include, among other examples, architectural inscriptions (both official and graffiti), marginal notes on texts, and descriptions prepared by grammarians and others in earlier times. As will be seen in Chapter 9, the fact that such documents exist does not make the collection and analysis of linguistic data problem-free. There are many subtleties in the task of making these data useful; this is where the work of philologists and linguists intersect.

More often, however, there is no documentation, or the documentation is extremely limited, as, for example, the few early inscriptions in Bahasa Malaysia (the language of modern Malaysia) found on the rare ruins to survive in this tropical part of the world. In these cases, linguists resort to reconstruction of earlier stages of a language or of a language family. As will be seen later (again, in Chapter 9), reconstruction may be comparative or internal. In the case of comparative reconstruction, it is achieved by looking at data from different languages with the goal of finding their common ancestor. Internal reconstruction involves looking, most often, at the data of related forms within a single language, a verbal or nominal paradigm, for example, where there is some kind of variation among the members of the set of forms. The goal here is to find the original form of the forms based, as will be discussed at some length, on the notion that these grammatically related items once had a single unifying form.

These approaches – description of older forms where documentation is available and reconstruction where it is not – may also complement each other, with reconstruction used as a method for hypothesizing what now is a hole in the documented data and documentation as a way to confirm the reconstruction. In both cases the results of these investigations (again, the "how") may lead to the development of a theory of change (the "why"). Many such theories exist. At one end of the range are claims that in fact no theory of change is necessary since the only theoretical tool which is required is a good theory as to the nature of Language itself which accounts for change as falling within the nature of Language. In this text, however, we will assume that change functions somewhat apart from other ways of grasping Language, whether they are purely abstract formal models focusing on a given stage of a language – often contemporary to the linguist – as if it were frozen in time, or

socio-cultural approaches to variation, or other linguistic approaches. We will spend time in Chapters 2, 8, and 10 on a discussion of causation of change, looking at the social, geographic, and cognitive underpinnings of language use, with an emphasis on how change interacts with these mental phenomena.

Finally, we must look at variation and its interaction with change. Variation may be of various general sorts of which the most obvious, perhaps, is geographic; speakers are aware of other dialects and of the language of non-native speakers. Other kinds of variation are social and bring out differences among several parameters: age, gender, level of education, race, and ethnicity. And of course, variation may also be temporal, not just in the age of speakers alive at the same time, but also across many decades and centuries. As will be considered in the next chapter, there should ideally be a way of clearly identifying the line of differentiation between full change and variation of many kinds occurring at the same time. It will become apparent, however, that while some rules of thumb may apply, there are many areas of ambiguity or uncertainly.

7. Conclusion

To summarize, this chapter looked both at fundamental and unchanging aspects of Language (humanness, arbitrariness, creativity, and physicality) and at what aspects of languages might change. For the second topic, we did a brief analysis of a short text which has been rendered in English at many chronological points, Old English, Middle English, Early Modern English, and Contemporary English. Following was an introduction to our framing theory, Cognitive Grammar.

We will take as our point of departure for the entire volume that both Language and specific languages change over time, but that not all aspects of our human cognitive, physical, and social existence are open to change. The next chapter will continue to look at broad questions, while the ensuing five chapters will take up in turn each component of language as they are conventionally understood: the lexicon, phonetics, phonology, morphology, syntax. Chapters 8 and 9 take up, respectively, variation along with its interaction with change and the methodologies used to study change. Finally, Chapter 10 will take up the broader causation, social and cognitive, of change.

Exercises

1. Repetition and frequency play a role in the emergence of language in young children as they do in change. What kinds of repetition (be precise about what words and phrases) do infants who don't yet talk receive as input? As a preview

to the course, consider how this input-based factor in acquisition might function broadly in change as well.

2. Neologisms (Greek *neo* 'new' and *logos* 'word') are innovative coinages. For each of the following items, consider how they came about and what they mean. Finally, how would we be able to judge the probability that they will remain in English:

    1. tweet cred
    2. spam
    3. noob
    4. bff
    5. staycation

    Add your own to the list and judge how widely they have been adopted.

3. Below are three versions of the two first lines of the 23rd Psalm, chosen, like the passage from Genesis in the text, because it was rendered into English at frequent intervals. Make a list of the differences from one text to the next; like the passage in the chapter, the first version is a modern rendering, the second dates from the early modern period, and the third is in middle English.

    Modern English
    You, Lord, are my shepherd. I will never be in need.
    You let me rest in fields of green grass.

    Early Modern English
    The LORD is my shepherd; I shall not want.
    He maketh me to lie down in green pastures:

    Middle English
    The Lord gouerneth me, and no thing schal faile to me;
    in the place of pasture there he hath set me.

4. Speakers often note language 'errors', 'sloppy language', language use which is poor or uneducated, etc. The speaker may be irritated by these usages. Note some examples which strike you (or those around you); are there any which might be on the way to real change in the language? Preview: we will talk later in the book about prediction and its (rather discouraging) limitations, but try anyway!

5. In the section about language revival and revitalization, it is taken more or less for granted that native speakers are those who have acquired a given language in early childhood as their first language. Why is this the case?

For further investigation

Cognitive Grammar, as was stated in this chapter, lends itself to historical research in part because it makes very strong claims about the nature of human mental processing. Using the passage from Genesis in the text for examples, suggest – as a first pass at the idea – how human cognition might be involved in the changes which have been identified. You may want to read some of Lakoff and Johnson (1980) or one or more of the papers in Dancygier (2017) in thinking about the interaction of this synchronic theory of Language and how languages change.

CHAPTER 2

Studying change

1. Overview

The first chapter is a general introduction to what in Language, taken as a whole, is immutable and what is susceptible to change. The point of view in this previous chapter was both the cognitive and social, each taken up separately, but also considered together in the interaction between the individual speaker/hearer and the speech community. The present chapter will approach language change from another direction, exploring what features are similar or different among individual languages (note again the lower-case here in speaking of individual languages as opposed to the upper-case in Language as an abstract phenomenon). Underlying this approach is the idea that both differences and similarities among languages are generally not accidental (though see below on the occasional role of coincidence). They are, rather, the result of processes of change over time. This change is not monolithic, however, but may take many paths. In addition, this same basic understanding of the nature of change which results in either greater similarity or greater difference within or across some linguistic component(s) will reappear in many forms in most of the chapters to come. We will look later, for example, at the development of phonemes as a phenomenon resulting in greater difference in the role of sounds within a system (Chapter 5) and, in Chapter 6 in particular, at the force of analogy in promoting similarity. In this chapter, we will consider languages as whole entities as well as looking at particular aspects of specific components, both with an eye toward an overview of how this similarity may arise. Many of the subsequent chapters will focus on how difference arises, in some way a more difficult question to answer.

The question, then, is what makes languages (or some subcomponents of languages) resemble each other. This resemblance shows up in various ways, among them a shared lexicon, similar grammatical constructions or ways of expressing, for example, tense or agency (the ways in which an actor relative to a verb may be marked) through either syntax or grammatical forms. The time-honored (and correct) response as to the source of these resemblances is that there are several possible paths toward similarity, usually viewed as falling into three general groups. Explanations of similarity focus, thus, on the notion of uniformitarianism (Section 2), on what may be the same among languages because of universal aspects or coincidence (Section 3),

on their groupings in families (Section 4), and on the results of contact among peoples and languages (Section 5).

2. Uniformitarianism

Before looking at resemblances among languages, let's consider the way in which – globally speaking – processes of change may also seem similar to each other. This is not a coincidence. Based on initial hypothesizing in 19th-century geological studies, linguists have adopted and put to work the notion that the same general phenomena of language change (processes and kinds of results) which can be observed in documented time must be those, broadly speaking, which took place pre-historically. This theory is called uniformitarianism (the longest word you will encounter in this book – promise!).[17] To take an example from the development of verbal morphology, it is the case that in many languages so-called irregular verb forms may regularize over time. This change can certainly be understood as a way of making the forms of a paradigm easier to produce, understand, and to learn since they have the same basic meaning whatever the endings. We can surmise that such changes took place as well where we have no written evidence. What we cannot generalize in documented times is which forms of any verb may have served as the basis for such a change; there are examples based on the extension of some person, number, or even tense. The uniform aspect is, simply, a tendency to regularize within a paradigm; examples will be taken up in Chapter 6, but for now think of Medieval French *j'aim/nous amons* 'I/we love' becoming *j'aime/nous aimons* where the vowel in the verb stem has regularized.

3. Coincidence and universals

As was said in the introduction to this chapter, there are three overarching categories of reasons why languages may come to resemble each other, the shared humanity of users, language family relationships, and contact. But, first, we cannot neglect a fourth – less explanatory – way in which similarity may arise: there are simply times when coincidence comes into play. But, even in the realm of 'just because,' some coincidences are more understandable than others. When it comes to sounds, for example, there is actually a wide, but still limited, number of ways in which the resonating chamber of our oral and nasal cavities can be modified to produce something different. This

17. For a history of the term and some discussion of its application to linguistics, see Joseph and Janda (2003: 23–37).

observation is based on human physiology, as will be discussed further below under universals. In the same way, there seems to be a relatively limited number of ways in which grammatical structures develop. Here it is not a question of human anatomy, but rather cognitive restrictions; how many layers of subordinate clauses embedded within higher clauses can we understand or, perhaps, even produce?

All these limitations (the number of sounds the human vocal tract can produce, the smaller number of kinds of sounds which best co-exist in any language, and the kinds and complexity of syntax the human mind can learn and analyze) make it rather likely that coincidences occur. That is to say that two languages may have the same or very similar sound systems or that the same syntactic units reoccur without there being genetic or areal (contact induced) circumstances to explain the resemblance. These somewhat special kinds of coincidence, however, are best viewed as the result of universals of human physiology or cognitive structure.

3.1 Pure coincidence

The component where coincidence is the most clearly present is in the lexicon, remarkable because it is easy to imagine that any given language can have very wide resources for inventing or otherwise bringing into use words with distinct meanings, thus avoiding homophones.[18] Examples of this kind of coincidence arise both within a given language (the relatively rare cases of true homophones) and also between languages. Within the same language, the words will have the same form – although not related by etymology – but different meanings. Two well-known English examples are /bæŋk/ and /ber/. There seems, first, to be no etymological link between the *bank* of a river and the financial institution. In the same way the verb *bear* meaning 'to carry' and the northern animal, *ursus americanus*, come from different sources. These cases are rare. Most other noun/verb pairs are clearly related, either having the same form as in *hammer* or with meanings whose relationship can be easily discerned as in *nail* (a metal object used in construction and the act of getting something exactly right in various domains, as one would wish to when inserting the object into wood in a building project). There are, however, a few more of these true homonyms in English, including the flying mammal *bat* which has no semantic relationship with the instrument used in various ball games, also called /bæt/. Finally, consider /kæn/, a metal container for food which has been somehow preserved, and the verb *can* 'to be able'.

18. It is a matter of some interest and very little satisfactory explanation as to why some homophones persist over centuries and others are modified. The closeness of the contexts in which they may occur plays a role, but other repairs may happen instead; consider asking a contemporary English speaker who has called something "funny" if s/he means "funny ha ha" or "funny peculiar". Here a short phrase is used to get at a differentiating clarification.

This phenomenon is not, however, limited by any means to English. Herzog (1998) posted a short list of true homonyms in Yiddish including *layb* /lajb/, both 'body' and 'lion', *veynen* /vejnɛn/, both 'cry' and 'dwell', and *breyt* /brejt/ with three occurrences, 'broad', 'board', and 'bread'.[19] Like the English examples, these cannot be explained by a word whose original meaning then split in unusual ways over time (from lesser to greater multiplicity of meaning or polysemy); they are indeed simply coincidences.

If we look cross-linguistically, there is a perhaps even more surprising phenomenon, since the kinds of words we would label as resembling each other coincidentally not only manifest the same phonetic shape as do the examples above, but also have the same or very close meanings. It is important to stress the fact that these words, which seem somehow the same, cannot have arisen from the same source or as borrowings from one language to another. One of these is the English word *so* in its meaning 'thus'; Japanese has exactly the same meaning, pronounced the same way. Other examples include /mæn/, with the same meaning of an adult human male in English and in Dinka, a Nilo-Saharan language which is not part of the same language family as English. Dinka would most probably not have borrowed quite so basic a lexical item, certainly not as recently as we can consider English-Dinka contact sufficiently strong for any borrowing to take place.

3.2 Universals

3.2.1 *Absolute universals*

These pairs of lexical items, then, are examples of true coincidence. There is no reason why, within a language, two unrelated meanings might be expressed by the same pattern of sounds and suprasegmentals, on one hand, nor why the same sound and meaning pair might appear in two unrelated and geographically distant languages. When it comes to the similarity between systems of sounds or syntactic constructions, however, coincidence is really not a sufficient explanation. We must look, as was hinted at above, at our very nature as human beings. There are, of course, many ways in which our nature – or, in some cases, our nature in its interaction with the environment – shapes our abilities. A classic study (Lieberman 1975) points out that it is the evolution of our two-track breathing and swallowing apparatus, even if it allows human beings to swallow 'the wrong way' and choke, which shaped the way in which speech sounds could be made more precise and thus show greater systematic variation than the sounds made by other primates.

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19. The pronunciation of Yiddish varies from dialect to dialect; these examples work here but not in, for example, Lithuanian Yiddish (Litvak) where 'cry' is pronounced as above but 'live' has a different diphthong as its nucleus: [vojnɛn].

Physiology also informs and constrains our production of sounds. All human languages, for example, have both vowels and consonants. Our articulatory anatomy gives us the ability both to obstruct the breath stream exiting our lungs through the mouth and to allow the same stream to move through freely. We lower the soft palate and allow for both nasal consonants (with obstruction) and nasal vowels (without). On the other hand, we are also restricted by our physical human nature. Note, for example, that there is no 'apico-uvular trill' in human language; we simply cannot touch the back of our mouths with the tip of the tongue (you tried it, didn't you?!). No human language has a labio-dental sound made with the lower lips and upper teeth. To understand this absolute universal, it suffices to consider the slope of the human head from a somewhat jutting forehead to a chin which, most of the time, is relatively further back, closer to the spine. Extending the lower teeth to cover the upper lip is simply more effort and less efficient than lowering the upper teeth over the lower lip (try this one while looking at yourself in the mirror).

Cognitive structures also permit and constrain linguistic activity. One of the prime human mental phenomena is categorization; this comes into play in many of the ways in which we interact with our physical and mental world. We categorize faces (those we know and strangers, those we like and those we may fear), music, sounds, and meaning.[20] As part of the process of categorization we assess the comparative importance of certain items (long thin things that move may be dangerous snakes and need much more attention than inanimate sticks, unless we are gathering kindling for a much-needed fire). For communication, we also categorize parts of our discourse into something being talked about and what is being said about it; among other designations for those broad divisions are *topic* and *comment*. The grammatical structures which allow us to do so may vary, but these underlying concepts are expressed in some way or another in all languages.

On the negative side, just as human physiology limits sounds (think again of the non-existent apico-uvular trill), memory also has its constraints, both of itself and in interaction with other processing functions. As a result, there are limits on the number of embedded clauses we can follow, leaving aside those memorialized through folklore and brute memorization like "The House that Jack Built", "The Old Woman Who Swallowed a Fly" or "Green Grow the Rushes O". Their very survival over generations as fixed recitations points to their unusual quality. Many cultures have such embedding poems and songs,[21] in fact, which serve as games to test the ability to string similar

20. The categorization of sounds and meanings will form the basis for much of the discussion and, often, explanation in linguistic component-specific chapters further in this text.

21. Yiddish, for example, has "Mu asapru", akin to "Green Grow the Rushes O" (Theodore Bikel sings it on "Jewish Folk Songs") and Hebrew has "Chad Gadya", 'one goat', which is part of the

constructions along, sometimes on one breath, either as a list or in layers of embedding. These games would be far more pointless if human cognition didn't have limits along these lines which can be tested.

3.2.2 *Relative universals*

All of the universals mentioned above can be labeled *absolute*. They are not specific to any one language or language family, but rather exist – or fail to exist – because of the very physical and mental nature of human beings. Other universals may be called *relative* or *implicational*. They are not hard and fast facts about Language (like the means to express, somehow, topics and comments or the lack of certain articulations based on human physiology), but are rather insights about the comparative likelihood of the existence of sounds or structures. Many of these statements about language begin with the fact that *many* or *the majority of* languages possess some feature or other, be it a sound or construction. It is not surprising then to find resemblances in the sound inventory of otherwise unrelated languages (see below on language families), since what makes a sound common is that most languages possess it (/n/, /t/ /a]/ for example); there is no mystery here. A certain degree of mystery underlies how we explain just why a relatively rare sound also exists; such a sound would be the counterexample to claims of universality. It is the case for acoustic reasons, for example, that front vowels are most commonly unrounded and back vowels are rounded. But there are also front rounded vowels (French /y/ is one) and back unrounded vowels (/ɨ/ in Russian). They are not only in some sense harder to pronounce (lip rounding is achieved with greater physical difficulty in the context of frontness), but are harder to perceive than are the combinations of features like front and unrounded or back and rounded.

Finally, certain relational universals are stated in terms of implications: in the realm of sound, if a language has the high front rounded phoneme /y/ then it is virtually certain that it also has the more usual high non-rounded phoneme /i/ which matches it in everything but lip rounding. The grammatical implications are often based on the very fundamental word order of any given language, Object preceding Verb (OV) or Verb preceding Object (VO).[22] Very well-known work by J. Greenberg (1963) includes such observations as the likelihood that a VO language will contain prepositions (English ***to*** *Tokyo*) as contrasted to OV languages like Japanese which tend to have postpositional relational units (*Tokyo* ***ni*** 'Tokyo to'). This is not to say

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Passover celebration. The singing of this last song may turn into a contest as to who can sing the longest string without taking a breath.

22. The Subject is not part of the very basic statement of word order to account for languages in which overt subject pronouns are either absent completely or highly marked for emphasis or contrast.

that any one of these implications is necessary to a given language at a given point in time. Classical Latin, which was in some fundamental ways OV had many more prepositions than postpositions (although there are some). On the other hand, English, strongly VO, treats adjectives as preceding – rather than following – the noun they modify; this is contrary to the more common implication that with VO languages adjectives follow the noun they modify (French *ciel **bleu*** 'blue sky'). Again, although these statements are not absolute, these tendencies and many others certainly exist, leading to similarity in basic structure of languages which are neither otherwise related through shared ancestry nor in close contact. We will consider those two sources of resemblance in the next pages.

4. Genetic relationships and families

4.1 The Genealogical (Tree) model

In 1786, in an address to the Asiatic Society, Sir William Jones, a high ranking British civil servant and magistrate serving in India, made the following linguistic observation:[23]

> The Sanskrit language, whatever be its antiquity, is of a wonderful structure; more perfect than the Greek, more copious than the Latin, and more exquisitely refined than either, yet bearing to both of them a stronger affinity, both in the roots of verbs and the forms of grammar, than could possibly have been produced by accident; so strong indeed, that no philologer could examine them all three, without believing them to have sprung from some common source, which, perhaps, no longer exists; there is a similar reason, though not quite so forcible, for supposing that both the Gothic and the Celtic, though blended with a very different idiom, had the same origin with the Sanskrit; and the old Persian might be added to the same family.

Jones had, as a well-educated man of his era, studied Greek and Latin in school and, since he was a member of the British colonial judiciary, had studied Sanskrit, the language of courts and administration in that part of the world. The idea of language families was not a new one[24] and many of Jones's proposals in other addresses (he

23. This version, slightly modernized in spelling, was taken from http://en.wikipedia.org/wiki/William_Jones_(philologist); either in this form or as it was originally written, it is quoted in virtually all introductory discussions of the family relationships among languages.

24. Dante, in the *De vulgari Eloquentia* ('On the Eloquence of the Masses' ca. 1304) provides a classification of European languages based on their word for 'yes': *oīl* in French, *oc* in Provençal, and *si* in Italian, all deriving from Latin; cf. https://www.danteonline.it/english/opere.asp?idope=3&idlang=UK for an English translation.

made several) were incorrect even given the knowledge of language classification at the time. We must credit Jones, however, with this rather concise formulation of the notion of language families sharing an ancestor. Note that there are no specific examples of morphological, syntactic, or even lexical similarity in this quote. Rather, Jones talks here about comparing the grammatical structure of Sanskrit, Greek, and Latin as well as what he calls "the roots of verbs". This is, as will be further explored in Chapter 9, one of the bases of the comparative method, that is, the comparison of forms and, sometimes, structures of languages to develop or support the hypothesis that they are related. Further, the goal is to reconstruct the "common ancestor", the earlier and no longer extant language from which a given set of languages (here Latin, Greek, and Sanskrit) has descended to attested (that is, documented) forms. What is important to us here is that there is, again to quote Jones's succinct statement, "a stronger affinity… than could possibly have been produced by accident". This affinity manifests itself in the resemblances among the languages which go beyond coincidence or universals, either absolute or relative.

This view of language relationship is frequently called 'genealogical', using an extended metaphoric comparison between human families and languages. Historical linguists talk about 'mothers', 'daughters', and also 'sister' languages sharing the same 'mother'. The terms are parallel, of course, to those used for succeeding generations as traced from the birth parent, the mother (in many western languages the word for 'language' is feminine in gender which may also contribute to a purely female set of metaphors). Like genealogies, language relationships are charted on upside-down trees, with the oldest relatives (source language) at the top and branches descending as languages (and families) split into later complexities. Figure 1 is a very schematic language family:

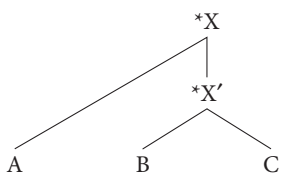

Figure 2.1 Schematic family tree

The undocumented parent language is preceded by an asterisk to mark its non-existence in any written form. For the sake of simplicity, all three daughters are attested, although each of them has evolved further. Not only does the tree diagram point out the nature (or at least the name) of all known members of the family, but it also provides information about their relationship. Just as natural entities (including human beings) inherit their genetic makeup from their ancestors, languages also inherit at

least some (and usually the majority) of their characteristics from a chronologically earlier 'mother'. These inheritances can be traced from generation to generation as can novel aspects of the language, those which are not inherited. In fact, if we look at the bottom of the very schematic language family in Figure 1, we see that one of the three daughter languages splits from the original source language (*X) earlier than the others; note the length of the lines of extension from top to bottom. The two languages which stay together longer split from a later, although still hypothetical 'mother' (*X') and will therefore share some features not found in the one which split off first. It is a question for investigation whether the single language (A) is more innovative while B and C retain more features of the earlier language or if it is A which is more conservative and B and C share one or more innovations.[25] Let us turn now to a much more detailed case where the question of innovations and retentions will become clearer.

Following here, then, is a real linguistic family tree, that of the Indo-European languages.

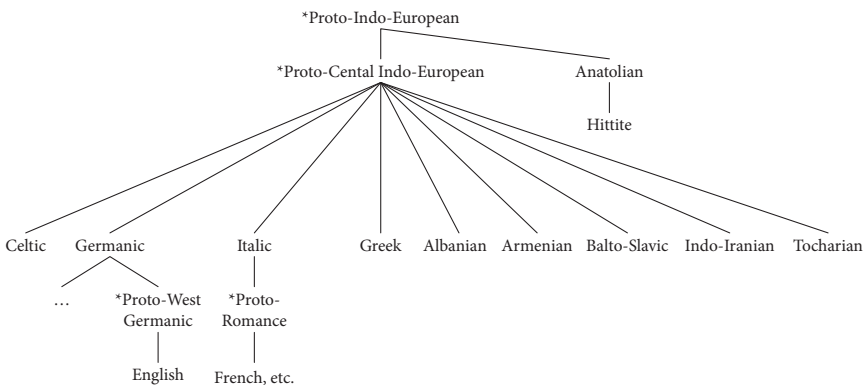

Figure 2.2 The Indo-European family

Note that not only the name Proto[26]-Indo-European at the top of the tree, but some of the names of its daughters which are located lower down are also preceded by asterisks. We must stipulate the existence of, for example, Proto-Germanic and even, further

25. Not all languages have "relatives", however. A few, referred to as language 'isolets' cannot be assigned to a family, at least with any certainty. The best known example is Basque (see the exercises at the end of this chapter for more discussion).

26. 'Proto' comes from the Greek meaning 'original' and designates the unattested parent language of a given family or sub-family. In addition to Proto-Indo-European and Proto-Germanic, both on this tree, we have Proto-Austronesian, Proto-Sino-Tibetan, and so on.

down on a branch splitting from it, Proto-West Germanic. This series of hypothetical reconstructed languages (a tool of historical linguistics to be examined in detail in Chapter 9) leads finally to languages we know through documents either left behind, in the case of languages no longer spoken (Latin, for example, or Avestan among those in the Indo-Iranian sub-family) or languages alive today. The languages are arranged geographically here, a frequent feature of language trees, so that the western-most Indo-European languages of the Celtic sub-family are on the left and the eastern-most (Indo-Iranian and Tocharian, once spoken on the borders between western Asia and China) are on the right. This sort of distribution is not perfectly schematized, but provides at least some further information about a widely distributed family.

If we look at when languages and families split from the reconstructed parent, we see that Hittite was the earliest to break off. At the point of the split, as was reconstructed later (see Chapter 9), Hittite was the single language to retain a specific feature which disappeared otherwise from Proto-Indo-European; indeed, all the other daughter languages lack this feature since it was lost when, other than Hittite, we can still talk about a single mother language (called, informally, Central Proto-Indo-European on the tree). In this particular case, then, Hittite can be labeled as conservative while all the other descendants of Proto-Indo-European share an innovation. Somewhat further down the tree, we see Germanic split from a western group of languages. In this case, it is Germanic which undergoes a series of sound changes and as a result is more innovative in this respect than other languages such as Latin (and hence the Romance languages). Again, we will go into a great deal of detail in Chapter 9.

4.2 The wave model

The tree metaphor is a very useful one for talking about inheritances among languages, but it has a certain number of drawbacks. They arise from the restriction on the basis for the metaphor, the physical tree itself. When we talk about the root of the tree and its branches (ascending in nature and descending in both human genealogy and language families), we are at a loss to extend the metaphor to other relationships. Those might be of two types within the family. The first is what might appear to be a reversion (parallel, perhaps, in modern days to the return of grown children to live with their parents after leaving home), but is really a form of borrowing from an attested ancestor. In the Romance languages, for example, there are many so-called learned (pronounced *learnèd*) words which are adopted from Latin, long after Latin was last spoken and long after French developed from it. These words do not undergo all the same sound changes or even morphological changes as words which developed naturally over time; they often belong to specialized scientific or philosophical parts of the lexicon. French has, for instance, both the verb *nager* 'to swim', evolved through regular sound changes from Latin *navigare* 'to set sail, to sail' and the verb

naviguer with the original nautical meaning of 'to navigate in water'; it was borrowed from the same Latin verb after most of the sound changes had ceased to function, hence the intervocalic [g] where the evolved form has [ʒ]. Linguistic trees must be read only from the top down, as if the only relationship is one of inheritance from the mother to the daughters and not of a return to the mother by the daughters after they had developed away.

Similarly, the genealogical approach to language relationships cannot take later contact among sisters into account. If we look at the schematic tree of the Indo-European family, we can find English and French as daughters of Western Germanic and Latin respectively. What we cannot tell from this schema is that the two languages have had centuries of interaction. By some estimates, for example, approximately 60% of English vocabulary is Latinate and about 90% of that vocabulary came into English (a descendant of West Germanic) via French (a daughter of Latin). What is needed, therefore, is a second approach to relationships, to capture interactions after splits. The English/French case is one where the split itself was pre-historic, but there is abundant documented evidence of all kinds for later contact. The most prolonged occurred after 1066, the year that the Old French-speaking Norman Duke William defeated Anglo-Saxon- (Old English-) speaking King Harold at the Battle of Hastings, with the result that French was the language of the court, administration, justice, and commerce in southern England for subsequent centuries.

In other cases, the split creating sister languages was more recent, and can be reliably dated through documentation. Interaction between the languages which emerged from these relatively modern splits can be frequent and even continuous. Just among the daughters of Latin, many examples can be found. In 1533, to cite a well-known instance, Catherine de Medici (1519–1589), born in what is now the Tuscan province of united Italy, married King Henry II of France. Since she brought with her, as part of her household, Italian chefs, French food terms were much enriched by the new, much more sophisticated Italian-born cuisine which became fashionable. Among Italian words which entered French at that time were *artichaut* 'artichoke', *broccoli,* and *sorbet*, two vegetables and a dessert (sorbet, in turn, ultimately comes from the Turkish *shorbet*). In the 18th and 19th century, it was French's turn to exert its influence; for example, Russian of the period borrowed a great many French items including /matʃtə/ from *mât* 'mast', /interʲes/ from *intérêt* 'interest' and /biblioʈek/ from *bibiothèque* 'library'. This influx of lexical items became symbolic, first, of Russia's desire to be perceived as a progressive, western country; at that point French was the language of the Russian courts. Later this use of French became identified with the oppression of the tsarist government at the end of the 19th and early 20th centuries when much of the French influence then disappeared again; /biblioʈek/ 'library' is still the standard term, however, as is /etaʃ/, French *étage*, 'floor' or 'story' of a building. Linguistic

history does not take place in a vacuum, as can be seen by these examples, but often interacts with political and social changes.

Just as the tree is the metaphorical image for inheritance from earlier to later languages, the wave provides the image for the kinds of post-split interaction among sister languages. As can be seen by the example of a schematic wave, interactions can extend in many directions, based on instances of contact between languages.

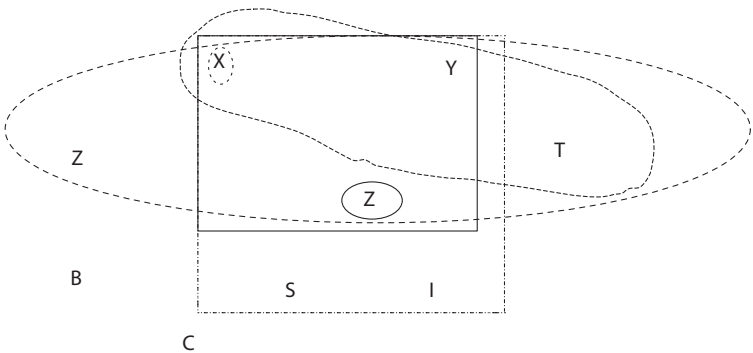

Figure 2.3 Schematic wave

Unlike the tree, the wave metaphor is not necessarily temporally informative; that is, the extensions are not always located in time, in the sense that time is earlier higher in the tree and later as we move lower on the tree to more branching. In many cases, a wave diagram is a description of how languages interact at some given moment; these waves may be every bit as complex as those which must be understood through a dimension of time. In other cases, however, the center of the wave may also be an indicator of spread and is therefore seen as the beginning of movement over time. We can, for example, construct a wave diagram which has Latin in its center with more peripheral locations for Gallo-Latin, or French (the furthest out), Ibero-Latin, which later becomes Spanish, and so on; the ancestor of Italian, arguably the most direct descendant of Latin among the major Romance languages, would be very close to the center of diffusion.

4.3 Contemporary approaches

Although still considered the standard models of the relationships among languages and, hence, the basis for hypotheses as to linguistic families, the tree and wave models are not the only ways through which languages are classified. In recent decades there has been a return, using, however, computational techniques, to the 19th-century approach of bringing the methodologies of biological relatedness to languages.

In biology the field is known as 'phylogenetics', the study of the evolutionary history and relationships among individuals or groups of organisms (e.g. species, or populations). Some of Darwin's work was influenced by and influenced that of the German linguist Schleicher (himself the creator of the tree model for language relationships). The connection will be further pursued in Chapter 9 on methodologies of historical linguistics.

5. Contact among languages

Through the interaction of sister languages, as captured by the wave model, we come to the last of the reasons why languages may resemble each other, that is, through contact. The term 'contact' itself is used for a wide number of phenomena giving rise to varying kinds of interactions. There is often (but not always) a correlation between the intensity of contact and the degree of influence of one language over another, obviously through the influence of the speakers of one language as individuals or through the institutions they represent; think about the influence of French on English after the Norman Conquest (discussed above) as a particularly intense degree of influence. While the interaction of sister languages can be seen as a transitional set of circumstances as we move from family relationships to contact, contact is most often defined in contrast to inheritance: if languages are genetically related (note the biological and genealogical metaphor again), linguists do not often explain their resemblances through contact. In reality, it is sometimes difficult to decide what resemblances arise from a common heritage and what may be later influence of one set of speakers on another. For the sake of clarity, however, linguists usually turn to contact as an explanation when the languages in question are not part of the same family or when centuries later there is a resurgence of influence, long after they have split apart and, in the fashion of human daughters, made their own way.

5.1 Kinds of contact

Contact itself can be of many sorts, varying in the depth (or intensity) of interaction and the length of time these interactions may take place. At the lowest level of penetration, it may be purely cultural and occurring at a distance. Most Japanese citizens, for example, do not travel to the United States and most Americans do not visit Japan, but contemporary Japanese has a great number of American English borrowings coming from movies, television, and other media. American English has been somewhat influenced in return, through the sporadic popularity of martial arts (the *dojo* 'training space' where *karate* is practiced under the supervision of a *sensei* 'teacher') and, more recently, through animé. While borrowing into Japanese is wide-spread, we can

identify as major semantic categories technology and popular culture. Among the technology terms are *sutôbu* 'space heater' (English *stove*), *rimôto kontorôru* ('remote control'), usually shortened to *rimokon*, and *wapuro*, from English 'word processor'. Among popular culture terms are *depâto*, shortened from *depâtomento sutoa* 'department store', and *oke* (a shortening of 'orchestra') which appears in the compound *karaoke*, with the first half being the native word for 'empty'; the same lexical item appears in *karate* (literally 'empty hand'). In recent decades, in fact, American English, through the media and popular culture, has influenced the lexicon of a great number of otherwise distant languages with which there is no genetic relationship.

In other cases, there may be eras of brisk trade or other commerce between speakers of unrelated languages, leading again to borrowing and again usually in the lexicon. The Japanese word for 'bread' is *pan*, for example, comes from a period of trade with the Portuguese (*pão* 'bread'). We will talk below about prolonged periods of trade when languages are mutually incomprehensible; this situation is one of the sources of pidgins and, eventually, creole languages.

More extensive episodes of contact may often lead to borrowing which goes beyond the lexicon to grammar, both morphology and syntax. Interestingly, the long period of French contact starting with 1066 had no basic influence on English grammar; one can point to the word order of compounds made up of a noun with a following adjective in *secretary general*, and *surgeon general*, English plural *secretaries general, surgeons general*, which affects a few nouns. It may be the case that one further instance of borrowing came via the literal translation of Old French *de* to mark possession (*le livre de la fille* 'the book of the girl/the girl's book') which gave rise to a second possessive construction which coexists with the ending *-s* of Germanic. The double translation of the French possessive phrase in the preceding sentence illustrates the continued existence of both English structures.

In Old English the third person pronouns lost clear marking of the sometimes-crucial distinction of number (that is, between singular and plural) so that masculine singular nominative (the subject form) *hē* and plural nominative *hīe* came to be pronounced the same way. For ordinary conversation and, even more crucially, legal discourse, it is important to distinguish 'he' from 'they'. It has been generally believed that Modern English *they* was borrowed from Old Norse during the period (approximately 800 until the Norman conquest of 1066) when there were Viking incursions and settlements in northwest England. This contention has been challenged recently from a couple of points of view. The less radical challenge is that of Emonds and Faarlund (2014) who propose that these third-person pronouns are not strictly borrowings; rather, in northern English, the languages of the Anglo-Saxons and Vikings were more or less in competition during this long period of co-existence and it was the Old Norse forms which prevailed in the third person plural. It seems likely, however, that the neutralization of the pronunciation of the third persons singular and

plural played a role in resolving this competition in favor of the clearly non-ambiguous forms.

A more radical challenge comes from Cole (2018) who proposes a completely Old English source for the new pronouns, specifically a series of demonstrative determiners marked by the initial þ- which marks the English third-person personal pronouns as well. Her argument depends on the well-established cycle of semantic replacement of a neutral term with one which is considered more striking, in this case a well reduced form of *the* (think of modern [ðə] *the* as opposed to [ði] used for emphasis and even made more emphatic with the use of *this*); Chapter 3 goes into more detail about this cycle. Cole not only points out this wider context, but bolsters her argument by demonstrating why the Northumbrian dialect of Old English (the one in closest contact with Viking settlements) would be a strong candidate, within Old English, for the use of these available [þ] forms.[27]

In all these cases, from the most casual borrowing of lexical items to morphological and even syntactic material, we can make two generalizations. The first is obvious; in each instance there has been some degree of contact between speakers of languages ranging from the one-sided awareness of some aspect of the language which is the source of the borrowed form (American popular culture in geographically distant countries is a current example) through periods of occupation and settlement by speakers of other languages. It is through contact – at whatever the degree of intensity – that borrowing occurs.

The second generalization is that borrowing is usually inspired by either some necessity or a degree of attraction to what we might call the donor (source) language; people borrow, to put it very generally, when they think there is a reason for it. The reason may be simple identification; many geographic names are those which existed before speakers of another language invaded or settled in a given territory. Other motivations arise from gaps in the borrowing language, often because a concept (physical or mental) was not previously part of the culture of the speech community; think of *sushi or spaghetti*. Other reasons are somewhat less straightforward. According to Anttila

27. There is a methodological point to be made here too. Theories about the origin of one or another unit may change when new data are uncovered, or new analyses are proposed. The prevalent belief in contact-driven development has now been seriously challenged by this proposal, which is based on native sources for the replacement of [h] pronouns by those marked by [þ]. In general, historical linguistics favors internal explanations (those arising within a language or dialect) to external ones involving contact and borrowing of some sort because internal explanations fit better into the overall diachronic development of the language rather than being, in some ways, isolated by the very fact of being caused by something external. Time will tell whether Cole's proposal replaces the "standard" one of borrowing from Old Norse during Viking settlements in northern England.

(2003: 436), one of the basic mechanisms of change is imitation of a speaker who holds prestige. Certainly, this applies to direct borrowing, which may be motivated by the desire to be part of the crowd, to sound more sophisticated or more intelligent, to show one's political allegiance to an admired power, or simply to signal general admiration. Judgments of worth in this context, then, may be perception of superiority in education or in class; it may be the speech of a political leader or admired entertainer as well. We will take up the question of borrowing again in Chapter 8.

However, it is important to note that these borrowed items are not necessarily of the kind that comes from a perception of conventional admiration; as with many things, the notion of social significance is multifaceted and may be controversial or even inexplicable to some in the speech community. The wide-spread influence of American movies and popular music has arisen partly out of overt admiration, for example, and partly out of what is referred to as 'covert (or hidden) prestige'. While some may look down on popular entertainment, others want to become more like the characters portrayed (villains as well as heroes) and will imitate their speech style and vocabulary as a result. This is the case within as well as across communities; expressions of admiration entered American slang (*boss* and *hep* as compliments) from the jazz community, even though, at the time these words moved to the wider speech group, the smaller donor community was associated with illegal drugs and what was viewed as a generally reprehensible way of life.

5.2 Stratal influence

It is more often than not the case that languages in contact will continue to coexist for a period of time, although one of them will generally be more dominant in a given community than the other(s).[28] There are specific cases, however, where influence from one language on another was followed by the disappearance of one of the languages, at least in the geographic region where the contact and borrowing had taken place. Such relationships are called stratal, an image taken from geology, from the *strata* (Latin), or layers, of rock which build up one over the other over long periods of time, with the newer ones covering over and making invisible those which were there before. Two possible interactions are normally labeled in this way. The first is between a relative newcomer language which borrows from a language which existed in the same

28. The extent to which the non-dominant language persists is variable, ranging from complete disappearance of one language to something much closer to full coexistence. The balance may shift over time as well; consider the reemergence of indigenous languages in post-colonialism so that, for example, the Malaysian government restored Bahasa Malaysia as the language of education in place of English. The situations labeled as stratal (see below in this section) are found at the end of the continuum toward complete disappearance of one of the languages affected by the contact.

territory from an earlier time. We can think of the Romans moving into Gaul, that is, what is now northern France and southern Belgium, and finding Celtic-speaking peoples. Consider as well the Angles, Saxons, and Jutes who migrated from modern-day Germany and Denmark to what is now England, to find Celts there too. In both cases – and others which are similar – the Romans in Gaul and Germanic tribes in England were influenced by the Celtic dialects which then, after a period of prolonged coexistence, ceased to be spoken in these territories. We find numerous examples of this lexical influence in French, most reflecting the rural nature of Celtic life before the Roman invasion of Gaul: *sillon* 'furrow', *glaner* 'to glean', names of native plants and animals, *bouleau* 'birch', *bruyère* 'heather', *chêne* 'oak' (the tree held sacred by Druids, who were Celtic priests), *mouton* 'sheep', *saumon* 'salmon', *alouette* 'lark', and a number of others in the same general semantic fields.

Other borrowings attest to more extensive contact. A striking example is the number system in the French of France (and its former colonies in North American and Africa). At the time when it was Roman Galia (a name, in fact, adapted from the Celtic), the Romans borrowed part of the Celtic numerical system which is based on a unit of 20 rather than 10. As speakers of English and many other languages, we use a 10-based system; we count from 1 to 9, 10 to 19, and so on. The numbers within each unit of ten are expressed by adding the numbers 1 to 9, so that '11' is 10 + 1, '24' is 20 + 4, '39' is 30 + 9, etc. Modern French, on the other hand, counts in tens only as far as sixty, as English speakers do. Then the Celtic influence of counting in 20s takes over: so that '70' is 60 + 10, '71' is 60 + 11 and so on to 60 + 19 for '79'. This is then followed by 4–20s to express '80', 4–20s + 10 for '90' and on to '99' expressed as 4–20s + 19. With 100, the system restarts. Old French even alternated between 60 (6–10s) and 3–20s. It is interesting that other French-speaking areas of Europe (Switzerland and Belgium) now use a strict 10-base system, so in place of *soixante-dix-neuf* (literally 60–19) and *quatre vingts* (4–20s), they use *septante-neuf* (79) and *huitante* (80).

The historical linguist must be careful, however, in calling upon substratal borrowing as an explanation for shared features (that is, for resemblances between languages). It is often the case, as with the Celtic substrate which gave way to Latin-based languages in much of Western Europe, that there has survived very little documentation as to the nature of the substratal language; the time-depth is just too great for much in the way of writing or inscriptions to continue to exist. Also because of the time depth in many of these cases, there is not much information about the degree of contact between the languages; without prolonged periods of contact, borrowing tends to be superficial and without lasting effects. Finally, other explanations for resemblances of these kinds may be more convincing, because the same features which are attributed to substratal influence show up in other languages where we know the substratal language in question was not spoken. The well-known change from Latin to Spanish /f/ to /h/ (with its subsequent disappearance) is a case in point. It has been proposed that

a Basque, or another Iberian substratum is at play in this change, but it takes place as well sporadically elsewhere in the Romance languages and, even further afield. Proto-Polynesian (in the Pacific) **fono* 'sit' becomes Hawai'ian and Maori *hono*. In Japanese, /h/ is described as becoming /f/ synchronically before /u/, where historically earlier /f/ became /h/ before all vowels but /u/. There is always the possibility of coincidence or, more likely, of changes (many of which will be considered later, like the voicing of consonants when they occur between vowels) which are frequent for good reason in many of the world's languages.

It is important to remember that stratal influence exists in time, relative to a specific geographic territory and to a specific recipient language (sometimes called the mainstrate; cf. Izzo 1972). Languages identified as substratal predate the recipient language in a given region and, over time after prolonged contact, disappear in that territory. The world, however, does not stay still. The recipient language may then be changed by later arrivals to the same region which interact, exert influence, and, in turn, disappear. These later invading languages are called superstratal languages. We can illustrate this notion again with consideration of the history of French and of English.[29] In the early centuries of the Common Era (approximately 350–700 C.E.) much of western Europe suffered invasions from the east, from various Germanic tribes. In northern France the invasions came from the Franks, while in the middle of the country the prevalent tribe was the Burgundians, with other tribes moving into the south of what is now France as well as to the Italic and Iberian peninsulas.[30] Members of these tribes settled in the regions they invaded, appreciated the level of comfort and culture of life due to earlier Roman settlement and, having influenced the early Romance spoken there, assimilated to the point of giving up their linguistic identity to that of the people they conquered. The degree of influence of the Germanic dialects on French has been debated, but it is sufficient to mention one (somewhat controversial) proposal, that the more frequent disappearance of unaccented syllables, and particularly the syllables after the word stress, in the development of Latin into French as compared to the parallel development into other Romance languages, may be due to the very strong initial stress pattern of German. The tendency toward highly marked stress on the accented

29. Reminder: stratal influence is relative to a specific territory and era. Although some of the same languages groups are at play in the two examples, they are not acting in the same place and time and should be kept separate.

30. It is for this reason that the name for the modern-day German people varies so much across western Europe, some names being those of different groups of invaders: Fr. *allemand*, and Span. *Alemán*, with the Germans designating themselves as *deutsch* (with the Italian cognate *tedesco*) coming from a word meaning 'people'). Regional names recall tribal identifications: *Burgundy* in east-central France and *Lombardy* in northern Italy. Most striking perhaps is the name *France* itself, land of yet another tribe, the Franks.

syllable in the Latin of that region brought about this loss in unaccented syllables; the pronunciation pattern of Germanic speakers and their descendants as they spoke French may be the source. Consider, for example, Latin *maritus* 'husband'. Italian has *marito*, Spanish *marido*, but French has *mari*, with the loss of the unstressed syllable following the stressed /i/.

In England, Germanic tribes settled early and were invaded in turn, as was said above, by the Norman Duke William who, in 1066, defeated the Anglo-Saxon king. French (or, to be precise, the Norman dialect of French) quickly became the language the court, of the justice system, and of the landowners and remained so, to some extent, for approximately four centuries. Again, it was the conquerors who eventually assimilated, leaving English (and much later England's former colonies like the United States, Canada, and Australia) speaking a Germanic language. But English, although structurally Germanic, has approximately 60% of its vocabulary from Latinate sources, 90% of that vocabulary coming via French. As was said above, there are very few syntactic borrowings from French, but the lexical influence is overwhelming. As can be seen from this discussion, there is quite a bit more known about superstratal influence that about the substratal equivalent. The reason for this is temporal; superstratal phenomena are simply less far back in time and more documentary evidence is available today.

5.3 Areal influence

A third kind of stratal influence has also been identified. Called 'adstratal', it involves the coexistence over time of languages which may influence each other mutually. It is worth noting, however, that neither language disappears relative to the other, so we are really considering much more normal borrowing through contact than with substrata or superstrata. When Rome invaded Greece, for example, neither Greek nor Latin disappeared. There was quite a bit of lexical borrowing in both directions, but eventually the Romans withdrew, maintaining their Latin and leaving the territory of what is now Greece to speak Greek exclusively.[31] In other instances, coexistence is not identified as stratal at all for the simple reason that there is no period of immigration or invasion. Rather, in these cases, languages coexist in relatively close geographic proximity,

31. The situation was, as are most historical situations, rather more complicated than this simple statement implies since the Romans greatly admired Greek culture and, often through the ownership of slaves by upper class Roman families, learned Greek, its philosophy and literature. The Roman Empire was eventually split in two, with Constantinople (modern Istanbul in Turkey) as the eastern capital; Greek was the official language of this part of the empire, which lasted until the fifteenth century of the common era. These brief details of a more elaborate linguistic and sociopolitical relationship do not contradict the notion of co-existing languages influencing each other mutually.

communication continues over many centuries, and the languages come to resemble each other increasingly for that reason. There are many, usually jocular, observations about couples who, after many years of marriage, look more alike than they did when they first met and – on an even more jocular level – of dogs and their owners who also become more alike! With languages there is a certain amount of truth in the idea that they become closer over time, not just side by side but in groups. The former type can be illustrated by the situation of Swedish spoken over many generations in Finland. Standard Swedish has a very marked rising and falling intonation which has disappeared among Swedish speakers in Finland surrounded by a language which does not have the same feature.

The broader group of languages, growing more similar through intense contact over time, is called a *Sprachbund*, 'language union'. One of the most thoroughly studied is the Baltic region of southern Europe including (from diverse Indo-European sub-families) Greek, Romanian (an eastern Romance language), Albanian, and Serbian (and other south Slavic languages). It also includes Turkish which is not Indo-European. There is clearly not a common inheritance here unless we go back all the way to a reconstructed Indo-European, and that is too far back to account for many similarities. It would not, in any case, include Turkish. Alongside relative geographic closeness, there is also the presence of the Orthodox Church in all these cultures; it served as a conduit, via Greek, to linguistic interrelatedness. In addition to shared vocabulary (again, the easiest form of borrowing), the Balkan *Sprachbund* languages have articles which follow the noun and lack an infinitive form (equivalent to English 'to' and a verb) in the verbal system. Note that these are syntactic resemblances, which arise through long periods of close contact and, here, through a shared set of holy writings which would have been translated from one language to another in the region. Like the renditions over time of the Old Testament we looked at in Chapter 1, these translations show great conservatism in that the syntax is often that of the original language to show respect for their sacred nature.

5.4 Pidgins and creoles

Finally, the process of pidginization may create new linguistic systems, touching both grammar and the lexicon. Pidgins are languages which arise spontaneously in circumstances where peoples are in contact (conquest, trade, oversight) without any language in common. The strong need for communication for specific purposes gives rise to a language with limited vocabulary (no need to talk about philosophy or the arts here), simplified grammar, and a pronunciation which is often an attempt to integrate sounds into a common language by making them comprehensible to speakers of both donor languages. Some of these languages remain at the stage of simplification for the needs of specific communication, but others become more elaborate and, perhaps more to

the point, become the first language of a new generation which fully masters neither of the donor languages in childhood first language learning. Such languages are then called creoles.[32] In these cases, one might say that the resemblance to the donor languages diminishes over time as the new language takes on complexity of grammar, can address all subjects through its lexicon, and evolves a pronunciation which is even further away from both donors.

The degree to which donor languages are recognizable in a creole is a matter of degree. In Hawai'ian creole, referred to by locals as *da kine* (literally 'that kind', an expression used metonymically to refer to the dialect), English predominates, although some vocabulary comes from Hawai'ian, an Autronesian language, and at least one construction is due to the Japanese admixture:

(1) The concert pau, that's why.
The concert over because
Because the concert is over.

Note *pau* meaning 'over/finished' is a Hawai'ian word (as are *mahalo* 'thank you', *lanai* 'porch/terrace', and many food words, among them *poi* 'mashed taro' and *poke* 'slice' and hence sliced and seasoned fish). The postposition of *that's why* 'because' is most likely Japanese in origin; remember the tendency of OV languages like Japanese to postpose prepositions and conjunctions.

Hawai'ian *da kine* is quite understandable to speakers of standard English. Without going into detail, we can state that Haitian creole is less transparent to French speakers, although not impossible to understand. When we come to Tok Pisan, spoken in New Guinea, speakers of English (the European base) must, on the whole, study it as a separate language.

6. Conclusion

It is time to conclude this chapter. It has taken as its theme the notion that we must look back through time to explain resemblances among languages. Once coincidence and universal human features are put aside (although the latter explanation is important when we take into consideration the nature of the vocal tract and cognitive functions such as categorization), there are two general phenomena to consider: genetic relationships and contact. Both these phenomena are involved in the

32. The name of the language is not always a guide. While no pidgin calls itself a creole, there are creoles which still refer to themselves as pidgins; the creole of Hawai'i, for example, is called pidgin and one of the most widely spoken Pacific creoles is Tok Pisan, from the English words 'talk' and 'pidgin'. The choice of designation is somewhat of a historical accident.

complex question of how changes begin and how they may spread across a speech community. Chapter 8 will take up these questions.

For now, let us simply be aware that expansion (a neutral term meant to capture time and space) of some linguistic unit can be explained in various ways. Where we are talking about genealogical inheritance, from an older generation or more broadly from a parent language, we will follow Labov (2007) in seeing the *diffusion* from an earlier dialect to a later one. And when we are talking about the results of contact, from the most casual to the most pervasive, we will see it as *transmission*. The kinds of change, captured respectively by trees (diffusion) and waves (one kind of transmission), are mutually exclusive to the extent that borrowing from a genetic ancestor is relatively rare and usually an intellectually (though not necessarily linguistically) conscious act. Otherwise borrowing may take place from one's siblings, those which have drifted apart but share a great deal of common inheritance, from languages which are, for one reason or another, considered prestigious, and from languages where there is geographic contact. In some cases, one of the language disappears; the influence is then labelled 'stratal', while in others the languages all continue to coexist. In all these cases, it is important to think of this borrowing, like genetic phenomena, as part of what shapes a language over time.

Exercises

1. For each of the pairs below, decide (with the help of an etymological dictionary such as the Oxford English Dictionary) whether the resemblance between them is coincidence, the nature of human beings as language users, genealogical or etymological relationship, or the result of contact.
    1. the school marching **band**; a wedding **band**
    2. English **pneumonia**, German **Lungenentzündung**. (Hint: look up *Lungen* and *entzündung* separately in a German dictionary)
    3. Latin **stare** 'to stand'; Spanish **estar** 'to be (located)'
    4. Latin vowel inventory /i, e, a, o, u/; Maori vowel inventory /i, e, a, o, u/
    5. English **oh man!** and German **Mensch**!, both exclamations
2. Given that stratal influence is defined in part by the fact that the influencing language disappears (at least in the territory in which it had the influence) after changing the language it is influencing, how do we know it ever coexisted with the language it influenced? Think of as many kinds of proof as you can.
3. What kind of information does the tree model of relationships *not* provide? The wave model? Why, on the other hand, are they both useful?

For further investigation

Not all languages are easily classified genetically. There are several languages, referred to in this context as outliers or language isolates, which do not seem to belong to any larger grouping; they stand alone. A paper by Campbell (2016) is relevant here since it considers how different these isolates are from whole families. Questions to be investigated include whether these languages have always been isolates or if we have any clues as to what their families once were.

Another approach to family membership is to look at the discussion around the classification of languages which are now (almost entirely) agreed upon. Albanian was identified as an individual daughter in the Indo-European family after much debate over whether it might be a relative of Greek in the Hellenic family or not Indo-European at all, in that case probably related to Turkish. The debate about Korean is almost over as well, but there was much disagreement there too about whether it was or was not a member of the Altaic family. It is now recognized as a member. How are these decisions made? What are the terms of the debates?

CHAPTER 3

Lexical change

1. Overview

This chapter will present several ways of looking at change in the meaning of words and in the range of the vocabulary – or lexicon – of a language. In the first part we will look at the ways in which individual lexical items evolve, starting with what we know of a word's origins (the field of etymology). Related to the origin of specific words is how the vocabulary of a language may expand or contract. Next, we will turn to the idea, central to Cognitive Grammar, that words are essentially polysemous – that is, having multiple related meanings – and see how these connected meanings interact in ways which are relevant to how they change over time. Finally, the last sections of the chapter will go beyond individual histories to consider what general trends can be perceived in lexical change and what factors are involved when lexical meaning changes.

2. Etymology

The history of individual lexical items – or the vocabulary – of a language is in some ways the most approachable starting point for studying language change. For many non-linguists, there is a definite appeal in knowing where words came from and (although perhaps for fewer people) how their various uses are related. It has been said that every word has its own history (attributed widely to J. Gilliéron although there is no documented quotation) and that way of thinking about etymology may be the source of attraction for non-linguists; word origins one by one can be enjoyed as interesting – and non-technical – stories. For linguists, however, the idea that every word represents something different can be as well a source of frustration since one of its goals of linguistics is to identify generalizations and, historically, to hypothesize on the direction of change.

Etymology is the study of the history of individual words. It asks two fundamental questions: what is the source of a given word as far back in time as we know or may plausibly speculate? and how did the original meaning change into what we identify as its meaning or meanings today?

2.1 Basic vocabulary

There are diverse ways in which words may be added to the lexicon over time or may change in meaning. In many cases all we know is that a given word has been part of the vocabulary of a given language as far back as there is written evidence. This word can be plausibly assumed to have existed with at least something of the same meaning before the date of any of extant documentation. Particularly when the words are part of the basic vocabulary (for example, names for immediate family members, numbers from one to five, some naturally occurring items), we often find that they have, in some senses, always been around since they can be traced back to the parent language through comparison with other languages in the family. A case in point is English *moon* which derives from the common Germanic designation of the celestial body circling the earth; we can look at other Germanic languages and note that the word with the same meaning looks similar (German *Mond, Dutch maan*, Danish *måne*). A similar example is that of French *soeur* 'sister' with attested cognates beyond Romance including the English word, Old Slavic and Russian *sestra*, Lithuanian *ses*, Sanskrit *svas*, Latin *soror*, Old Irish *siur*, and Welsh *chwair*. They can be reconstructed to Proto-Indo-European **swesor*.[33]

It is the case, of course, that in most instances, even with what is thought of as basic vocabulary, meanings may change or be added. It is the case with *sister* that the word designates not just a female member of the immediate family with a specific relationship to others in the family. The word has also taken on the religious meaning of a nun, is used, a bit old-fashionedly, to mean any woman ('hey, sister…'), and extends, as we have seen above, to languages descended from the same source and other non-human, though relational references. We will look more closely at this matter of extensions of meanings later in the chapter.

2.2 Coinage

Before going on to wider consideration of meaning change, however, we should look at how words are added to the lexicon, not just before documentation allows us to see it actually happen, as in the cases above, but with a range of documented examples, including contemporary ones. Words may be borrowings, through a range of contact situations. Alternatively, they may develop internally, within a given language, through coinage by native speakers, either deliberately or through a variety of relatively unconscious processes.

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33. This example is, of course, very much simplified in terms of the details of comparative Indo-European reconstruction. The process of reconstruction will be taken up in detail in Chapter 9 on methods of historical linguistics.

One contact process has been labeled 'Word and Thing', the borrowing of words with the object or entity that it refers to. English is full of such words, starting with native American dwellings like the *teepee* and place names like *Mississippi* and *Michigan*. Waves of immigration and travel abroad have also enriched English: in bed we wear *pajamas* (from the Persian), nibble on or sip *chocolate* (from the Nahuatl of Mexico via Europe) and watch documentaries about *kangaroos* (from an Australian aboriginal language, it isn't clear which).[34] In all these cases, English took in the word pretty much as a whole from the donor language; for example, it was the garment that was adapted from Asian countries with the Persian name, not the compound *pay/pa* 'foot', 'leg' + *jama* 'clothing', 'garment' (OED).

In other instances, languages do not borrow directly, but translate the components of a word into native forms. Interestingly, this technique, called 'loan translation' or 'calque' (the verb is 'to calque'), seems to be a cultural habit in that specific speech communities either do or do not use it in extensively to add to the lexicon. German, for example, is a language much given to calquing. It is quite evident in the terminology of Linguistics itself. The word *phonology* comes from the Greek *phonos* 'sound' and *ologos* 'study', hence 'the study of sound'. It is found in the vocabulary of linguistics in languages around the world (French *phonologie*, Hebrew /fonologia/,[35] Bahasa Malaysia *fonologi*). In German, however, we find *Lautlehre, Laut* 'sound' and *Lehre* 'study', translated part by part from the Greek. In the same way *morphology* is the 'study of forms' (Greek *morphos* 'form'); German has again chosen to calque the term as *Formenlehre*. In another scientific realm the same situation pertains: German has calqued the names of the chemical elements, again from Greek. The morpheme *-gen* at the end of many of them means, roughly 'stuff or material'. The first part of *oxy-gen* means 'sour' and the German is, indeed, *Sauerstoff* while *Hydrogen* is rendered *Wasserstoff* (Greek *hydros* 'water'). Note that these are all scientific terms (from two domains), terms which are frequently borrowed without much modification from one language to another; the loan translation is therefore that much more remarkable.

Other languages do not make a habit of calquing rather than borrowing directly, but still, sporadically, turn to this means of enriching their vocabulary. One well-known near-example is the French *gratte-ciel*, 'skyscraper' from *gratter* 'to scratch' and *ciel* 'sky'. French has also consciously turned to loan translations as a matter of explicit policy pertaining to the French language when it seeks to eliminate direct foreign borrowings from its vocabulary. Such language management does not often succeed, but

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34. See the etymology entry under *kangaroo* in the *Oxford English Dictionary* on paper or on-line. As will become rapidly clear, the exact history of words is often disputed.

35. Since Hebrew is written in a different alphabet, the example has been transcribed; the point, however, still remains that the term is quite clearly based on the original Greek.

one successful example was the wide-spread replacement of the older *le parking* 'parking lot' in France by either *parc de stationnement* (*stationner* 'to park') or *terrain de stationnement* (more literally 'lot, open field' for 'parking').

Borrowing, either direct or through calques, is not the only way that that languages extend their lexicon. Languages also expand their vocabulary through internal means, that is, by using the resources already at hand. A prevalent method in many languages is through compounding, the process by which words are combined to create a new whole. Common English examples include noun-noun pairings (*classroom*), adjective-noun (*bluesky* as a verb meaning to make plans for the future without worrying about practicalities like cost, as if everything will be fine, that is, as if the sky will always be blue), verb-noun (*breakwater*, the place along a shore where waves hit a wall or other obstruction), verb-preposition (*takeout*, for prepared food bought in a shop to be eaten at home), adverb-noun (*backstory*, the background to an event or known situation), preposition-verb (*outdo*, do better than) and so on. The meaning of the compound, as can be seen by the examples in this paragraph, may emerge directly from its constituent parts (*breakwater*, for example) or may be far less transparent (*bluesky* for the action of planning without constraints). There are also cases where compounds may, once established in new meanings, give rise to extensions. An example comes from the realm of computers: *hardware* (the physical computing unit and its monitor and keyboard) can be easily understood as an extension of other uses of *hardware* as bought in a hardware store; once it is established in its computational sense, the way is paved for the contrastive *software* (the non-physical parts of the computer, the programs it runs), and even *vaporware* (software which has been announced but not yet developed and thus has no solid existence yet).

Note that all these examples (and they are typical of English compounds) are formed by juxtaposition of two words, sometimes with a hyphen and often simply as a string. In other languages, other means of compounding are more common. In French, for example, the standard technique for noun-noun compounds is to link them with a preposition: *salle de cours* (literally room of the course, 'classroom'), *bateau à vapeur* (boat with steam, 'steamboat'); *de* 'of' and à 'at/with' are the most common connectors. Other languages use a technique called reduplication, the repetition of some syllable or morpheme for various effects. In some south-east Asian languages (Bahasa Malaysia, for example), African languages (Somali is an instance), and indigenous American languages (Dakota, Tillamook) it serves a grammatical function, marking tense, for example, or plural. Other kinds are more directly a kind of compounding; consider English *kittycat, zigzag*, or *bye-bye*. Somewhat more elaborate is syntactic reduplication seen in utterances such as 'is that a rice cake or a cake cake?' where *cake cake* designates one which is prototypically made of flour rather than rice.

Other kinds of coinage are rather more sporadic and will be listed with an example or two, but less discussion. Onomatopoeia is the process by which a word is

invented based on a sound associated with the thing or feeling it designates; consider English *buzz, pop,* or *ugh*. Interestingly, onomatopoetic words are somewhat culturally conditioned, so that English cows say *moo* /muw/ and French cows /*meu* mø/, both rounded, but in French with a front vowel and the English one that is back. New words may arise as well by association with a brand (we use *kleenex* for all paper handkerchiefs and, at least in Great Britain, *hoover* as both a noun and verb corresponding to the generic *vacuum cleaner* and the verb *to vacuum*). Personal names undergo similar adaptation: Etienne de Silhouette, a mid-18th century French Minister of Finance, was also devoted to the art of cutting black-paper models of facial profiles, hence the name for this minor art form and all the extensions the word has undergone to the full body and to inanimate objects.

A process called folk etymology brings about the coinage of new words whose origins have been misunderstood by speakers. A classic example, found in some American and British dialects, is *sparrow grass* for *asparagus*. Speakers have attempted to make sense of a rather odd sounding single morpheme by explaining it as if it were a kind of grass; indeed, young asparagus is a slender plant, though really not to be mistaken as grass. A modern, very popular folk etymology gives us a series of English words designating kinds of sandwiches served on a bun instead of bread, collectively *burgers*. The original, *hamburger*, derived from the name of a dish served in the northern German city of Hamburg, therefore 'in the style of Hamburg, a specialty of Hamburg'. Once it is misunderstood as two morphemes (although the sandwich never contained ham), we find *beefburger, fishburger, cheeseburger*, and the new generic, *burger*.

Finally, some words are simply invented out of nothing and may, on occasion, become part of the lexicon of the language rather than simple novelties. The Lewis Carroll poem "Jabberwocky" has many invented words[36] which exist only within the poem. The word *jabberwocky*, with, perhaps, the onomatopoetic first half *jabber* 'to chatter quickly and without content' has been extended from the poem itself to other forms of nonsense. Brand names are occasionally invented completely; we have already talked about *kleenex* and can add the example of *xerox*; they are meant to give the impression of a reassuring scientific nature, using the sounds to evoke the wider meaning. Note that the motivation for these coinages resides in the sounds and the meanings they may be associated with. This is a different kind of motivation than that of compounding where each of the parts has a prior meaning brought to – and modified by – the juxtaposition of these parts; consider again the case of *hardware, software,* and *vaporware* discussed above.

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36. The first verse is as follows:

> 'Twas brillig and the slithy toves did gyre and gimble in the wabe
> All mimsy were the borogroves and the mome raths outgrabe.

2.3 Lexical loss

In contrast to the coining of words is their disappearance. Again, there are varying reasons for this to occur. One of the most obvious is the disappearance of the thing to which the lexical item refers; we no longer need *bed-warmers* (electric blankets and, more basically, central heat have eliminated them) or *carbon paper* in this age of copying machines and the many functions of computers and printers. And when is the last time a woman with long hair used a *snood*, a kind of cloth net which covered a bun (also a somewhat old-fashioned term) from the 19th-century?[37] Fashion also brings changes to male attire as well; the term *knee britches* is no longer used except by specialists in the history of fashion or designers for period plays and operas.

Fashion acts in another way too. Not only do words come and go to describe what we wear, drive, and so forth, but come and go to describe our emotions and evaluations. If we called somebody we admired the *cat's pajamas*, most people wouldn't understand and those who did would have been reading novels set in the 1920s; another expression at the time for the same concept was the *bee's knees*. Modern exclamations of admiration (like *rad, awesome* and the like) will more likely than not disappear in time as well. The case of *awesome* is an interesting one. In the sense of 'full of awe, profoundly reverential' (OED), it was first attested in 1589. The first modern attestation as 'overwhelming, staggering; remarkable, prodigious' dates from 1961:

(1) He looked up to see Mrs. Kirby, awesome in a black-and-yellow polka-dotted slicker, bearing down on him;

McCall's Aug. 173/1 (quoted in the OED)

For the truly trivial sense of 'great' or 'marvelous'[38] we need to wait until 1980 and the *Official Preppy Handbook* (again cited in the OED). Few people would know that *awesome* used to have very religious connotations, as did the related adjective *awful*. In both cases they might first be thought of as expressing very strong, even powerful, notions, but then lose the strength and become trivialized. *Awful* itself was used to convey dread from its first attestation at about 885 CE; it then adds the idea of reverence and profound respect around 1000 (data from the OED). Over time it too loses its power and becomes merely unpleasant. As an adverb, *awfully* is a very mild intensifier (think of *awfully nice* as a term of politeness). We can see a cycle of vividness

37. In the last few years, the term 'man bun' has become popular to designate a masculine hairstyle with hair gathered up into a knob high up on the back part of the head. As of now, it does not seem to have brought back 'bun' for the original female hairstyle.

38. Of course, *marvelous* itself is a trivial reduction of something being full of wonder or marvel as is *wonderful*.

in meaning, reduction of the emotional force of the expression, and the substitution by linguistically imaginative speakers of something new and therefore vivid again; *awfully* as a mild intensifier dates from 1830 and one can surmise that *awesome* was at first a substitute for the now weakened *awful*.

Another such cycle is the interaction of euphemism and taboo. Again, what is at stake is the emotional force of a word and the way in which it weakens over time or, in these cases, turns from a polite expression to one which is coarse. Words for the *bathroom* provide a wide-ranging example: one does not necessarily bathe in a bathroom, although the earliest attestations (1780 in the OED) seem to indicate that it was first used in that way. The French contributed *toilet* which originally meant 'a small towel' (French *toile* 'cloth') and eventually the place where one dressed and groomed oneself; from there the steps to the modern meaning are easy to reconstruct. American English now uses *restroom* as the polite term (although one rarely takes a rest in one) and Canadian English favors *washroom*, more accurate in the sense that one does indeed wash, although this is not normally the primary purpose of a visit. In the meantime, both *toilet* and *bathroom* sound blunter and less carefully polite today than *washroom* or *restroom* which replaced them as more delicate ways of indicating the function of the room. A similar loss of polite connotation has occurred to *WC*, short for *water closet* and perceived today as an everyday term rather than as a euphemism in Great Britain or in France. To repeat, each of these changes represents part of a cycle, where words perceived as negative or vulgar are replaced by more polite terms; they in turn are gradually perceived as unacceptable and new euphemisms enter the language.

3. The nature of meaning

Up to here in this chapter we have been treating the lexicon as if, to quote Gilliéron again, "every word has its own history" and, to extend that statement, as if there were no generalizations to be made. This is, however, untrue. In this section and the next we will look at ways in which lexical change can be understood as a process or, more precisely, a series of general processes. First, however, let us consider the nature of meaning.[39] As is well known, Saussure (1916) envisaged a lexical item as comprising two aspects, its meaning (understood as the mental representation of something in the real world) and the physical form of the uttered form. His diagram is well known:

39. The discussion here is largely based on the work of Lakoff (1987), Langacker (1987), and Sweetser (1990), although the historical interpretation put on their ideas is to some extent mine.

Figure 3.1 The linguistic sign

The drawing above the line is the meaning we, as English speakers, give to that particular botanical entity, while the phonetic transcription below is the physical form of the linguistic item. More generally, it is the case that linguistic entities (morphemes, words, compounds, grammatical units) have two aspects or (to use the terminology of Langacker 1987), two poles. One is the semantic pole (above the line in the Saussurian diagram) and the other is phonetic (below the line).[40]

To understand the linguistic aspect of meaning, that is, the pairing of a referent with the form by which it is expressed in a given language, it is important to consider how human beings make sense of the universe, since making sense of the universe is a crucial reason why we assign meaning. One important way in which we consider the world – both external and mental – is to categorize, or classify. When we encounter a word or an expression, we compare it – usually on a totally unconscious level – to other related words to decide whether or not it belongs in the same semantic category. The task does not stop there, though; semantic categories are not boxes into which all related meanings are thrown willy-nilly. Rather they are structured, organized around a central meaning called a prototype. This meaning is the one that speakers find the most basic: it is learned earliest, used most frequently, comes to mind fastest, and often is made up of a single word and not a compound. If we mention a *cup*, a certain kind of object comes to mind; it may be embellished then by more description for less common, less frequently objects like a *two-handled cup* (for a baby, for example) or a *paper cup*.

The non-prototypical items are also organized by virtue of being closer or further away from the central meaning. A *paper cup* differs, for instance, both in the material it is made of (the prototypical cup is porcelain or earthenware) and the fact that it does not have a handle. A cup used for measuring ingredients for a recipe is also a departure from the prototype; it is of a standard size and is not used for drinking. A further extension is the use of *cup* to mean the contents of a measuring cup. When it comes to some items, there isn't even a physical cup; American cooks know that a *cup* of butter is half a pound or (as it is usually packaged) two sticks of a four-stick, one-pound package. Finally, equally non-physical though in a different way, is the sports championship, the *Stanley Cup* in hockey, for example. There actually is a physical cup (very large in size, somewhat cylindrical, symbolic of the championship), but when a team is said at the end of the season to have won the Stanley Cup, it is the team's status and not the possession of a physical object that comes to mind first.

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40. In the next two chapters we will examine the ways in which sounds change, thus considering the phonetic and phonological aspects of linguistic units and of Language in general.

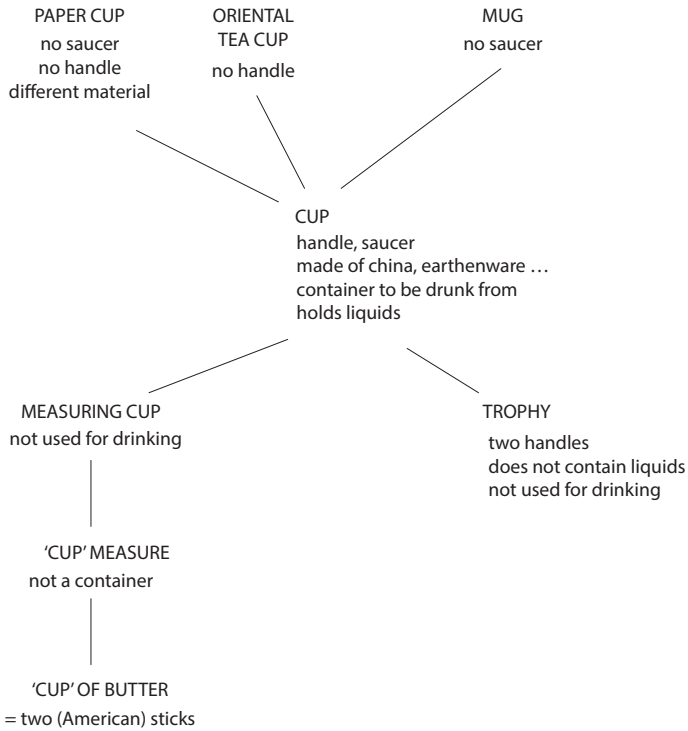

Figure 3.2 Radial set of 'Cup'

As important as the nature of the extensions designating kinds of cups in Figure 3.2 and their closeness to or distance from the prototypical meaning are the lines that connect these extensions to the prototype and to each other. These lines symbolize the relationship of meaning between one unit in a semantic set and another. Close to the prototype are extensions where the transformation is a relatively simple substitution of one feature for another. *Paper cups*, for example, are less durable because they are made of disposable material; a metonymy is in play here such that the material becomes salient. More complex metonymies include a physical *cup* standing for the championship game or series of games which has won the object for the team and, further, the use of the *cup* without any physical object at all. The *cup* formed by a bent hand (or by two hands held together, touching at the little fingers) is rather a metaphor, a comparison between the physical, prototypical cup and the shape of hands held in this fashion. The fact that the hands then can be used to hold liquid (think about drinking cool water from a stream or a water fountain) to convey a drink to the mouth is another aspect of the metaphor.

Meaning, then, is assigned in the mind of the language user with the aid of knowledge (conscious or unconscious) of a relationship between the prototypical or best instance of a unit and the extension of the unit within the set. Remember that the set is

made up of different lexical items – simple or compound – with the same basic form; think of the word *cup* in the extended example just above. While the non-linguistically trained speaker may not pay any conscious attention to the relationship of sticks of butter to a *cup* in the prototypical sense of the word, these lines of relationship are important for historical studies as well as descriptions of meaning.

Change occurs as the set gains or loses members, or as the members become more or less prototypical. A very extreme case is a change in the prototype itself; all these possibilities will be illustrated using *cup*. To examine how the changes take place, as opposed to the outcome of the change, we must look carefully at the lines of extension from one node to another within a semantic set. The most frequent way that a semantic set may gain new members is through new extensions of the meaning, an expanded network of relationships, involving, precisely, the action of metaphor, metonymy, and other paths of development as discussed in detail below.

We can see where the use of *cup* to designate a sports championship is an example; speakers no longer need to think of the physical cup (which is, in addition, much larger than a prototypical cup and different in shape and function, though victorious teams have been known to drink from it) in order to use the word *cup* for not only the championship, but also the matches that lead up to it; this would be a metonymy, the use of the part (marker of victory through the awarding of a cup) to the whole (the competition which leads to the award). We can think of the *Stanley Cup* for hockey or the *World Cup* for soccer/football as the process of becoming known as the best team through a series of matches ('The World Cup is going on this week') and the results of that championship ('The Detroit Redwings won the [Stanley] Cup again'). It is probably the case that we have an instance of rearrangement of items within a set here too; for more people what comes to mind more frequently is not the physical cup given to the winning team, but the process of identifying the team through a series of matches and, then, the victory itself. Indeed, the use of *cup* for the prize awarded to the best team dates from 1640, while its designation of the competition itself is first attested in 1885 (OED s.v. *cup*). In way of evidence, a notice on the website of a fitness club (spotted as this was being composed) reads 'See the Stanley Cup'. It is not an invitation to view the trophy, but to watch, with other members of the fitness center, the hockey games leading to the championship. Historically, then, the physical cup is much earlier, even in the sports sense, but, it can be claimed based on frequency, speed in understanding, and other measures, that the championship sense has moved closer over time to the prototype.

Other meanings may come into a set from outside, rather than starting as expanded lines of extension. When we look at another area of the *cup* semantic set, we find, as was mentioned above, that in North America a *cup of butter* meaning not the contents of a cup, but the amount that would fill a particular kind, the *measuring cup*. We can argue that using *cup* to mean 'two sticks of butter' involves an interaction

of this set with another one; that is, that some meaning of *butter* overlaps with some meaning of *cup*, giving rise to this particular derived meaning. It is also worth noting here that many uses similar to this one are not only specific to a given time, but also to a specific place; elsewhere butter is not necessarily packaged in sticks nor are measuring cups of the same volume (in Britain, for example, they hold 10 ounces while in America they hold 8).

Finally, meanings can be lost, for a variety of reasons. A medical use of a small, oval container called a *cup* was to hold a leach on the skin of a sick person to suck blood from his body as part of the treatment. The treatment itself was called either *bleeding* or *cupping*. With changes in medical treatment, the vessel and its linguistic use both disappeared; the last entry for this meaning in the OED is 1889.[41] On a less technical (and somewhat gross!) level, the expression *in one's cups* meant 'drunk'. We do not think in the modern English-speaking world of the cup as a container for liquor or wine, let alone the liquid contained, though popular in the nineteenth century were *cups* meaning,

(2) various beverages consisting of wine sweetened and flavoured with various ingredients and usually iced; as claret-cup. (OED s.v. *cup*)

As a use, it is similar to the sticks of butter discussed earlier in that the content of the container is designated by the name of the container, but the drink and the ensuing state of inebriation are no longer extensions of *cup*.[42]

In the case of *cup* there does not seem to be a shift in the prototype over time. The best instance is still a physical cup is with one handle and (probably) a saucer; it is made of a hard substance (ceramic, porcelain, or some kind of plastic), meant as a container for hot liquids which will be drunk from it. With other semantic sets, however, we must also think of a new prototype, one which has taken the place of an older one through a series of changes. A case in point is *pilot*, today understood first and most centrally in the English of most cultures as the person who is 'driving' an airplane. If we want to refer to the person 'driving' a boat, we will very often add an explanatory phrase such as 'the pilot of a boat' or a 'marine pilot'. The OED is illuminating here: while the marine use of the term is the first entry under *pilot*, the latest non-technical example is from 1947 (and there with ample context, s.v. *pilot*):

(3) The oldest pilot in the time-honored Pilots' Association for the Bay and Delaware River… has voluntarily surrendered his license.

41. The medical procedure seems to be coming back into use, but without, as far as can be ascertained, the use of 'to cup' as a designation for the procedure.

42. An exception is the largely British *Pimm's Cup* a gin-based drink with other flavors.

Only one later citation is to be found, and that from a trade journal, *Professional Mariner 44/1*, again with clear contextual clues:

(4) Coast Guard officials said the pilot apparently was unfamiliar with the handling characteristics of the ship.

It might be argued (to carry this discussion a bit further), that *ship* in Example 4 is also in transition, but thus far it is probably (except perhaps among those who work on airlines) still prototypically a water-based vessel rather than one that is propelled through the air. One cannot predict change (to be further discussed in the last chapter), but it is possible that the use of *ship* to designate an airplane may become more central – and perhaps eventually prototypical – over time.

4. More general trends

There is another – more traditional – way of looking at meaning change. It does not contradict the notion of meaning as a function of categorization into sets, but rather adds to the kind of semantic content we can assign to lines of extension within the category. The perspective here is that the lines of extension exemplify specific kinds of change. Meaning change is viewed, in this respect, by its overall outcome, among them widening, narrowing, meliorization, and pejoration. We will look at them one at a time.

4.1 Generalization (widening)

It is frequently the case that, for a variety of reasons, a word designating a specific instance of something may be generalized to all instances. Among well-known examples is that of English *hound* which can be applied not only to a specific type of dog, but also to dogs in general (especially in the phrase *old hound*). Some brand names become the generic word for the product, so that Kleenex brand tissues becomes kleenex, any paper handkerchief made by any manufacturer. Proper nouns are not exempt; either; earlier in this chapter we considered the use in British English of *hoover* for all vacuum cleaners, ultimately, differentiated from *Hoover* (capital H), which designates a specific brand.

4.2 Narrowing

The opposite may occur as well, where the meaning (or network of meanings) of a given word becomes less inclusive over time. English *mansion* comes via French where *maison*, in turn comes from the Latin *mansionem*, which, like the French, designates any kind of house. In English the sense becomes more specific (a large, grand house, which is only one type of house), and in southern French (originally the separate

language Occitan) a *mas*, from the same source, is a farmhouse. Where in Italian *pasta* means 'dough' of any kind, in English the word specifies one result of mixing flour and water in the right proportions for a particular kind of food. In the same way the Germanic word for 'animal' (as it shows up in modern German *Tier*) is the source for English *deer*, only one kind of animal. Both native words and borrowed words, then, may narrow over time.

A special kind of narrowing involves an intermediate stage where one aspect of the meaning of a word becomes unmarked, that is, the meaning most easily understood and retrieved by speakers and hearers if heard in isolation. Consider English *luck*; although it can, in some contexts, refer to any twist of fate, in isolation it has been narrowed to a good outcome, as seen also in the adjective *lucky*. In order to say that an outcome is bad, the noun has to be qualified:

(5) One refuge yet remaineth, that is patiently to suffer what so euer **lucke** allotteth
'One solution still remains, that is patiently to endure whatever luck doles out'

(6) It was a **luck** for me yesterday …that I had these live things to look after.

(7) You should never put boots on the table: it's bad luck.

Note that (5) (quoted from the *OED,* s.v. *luck*, as are (6) and (7)) represents the older, neutral meaning; *luck* might be good or bad fortune. In modern English, we can contrast (6), without modification, and (7) where an adjective is needed; the use in (6) can only be interpreted as 'good luck'. The meaning of the noun itself has generally narrowed, therefore, to express good fortune, rather than any kind of happening beyond the control of the central participant (or perhaps anyone else).

4.3 Meliorization

In addition to generalization and narrowing of meaning, word meaning may become more positive or more negative. Meliorization, the process of improvement in meaning, can be illustrated by two Latin words, *testa* and *caballus*. In Classical Latin (a period extending more or less from the first century BCE through the first century CE), *testa* (linked to *torrere* 'to roast') meant, primarily, 'a piece of burned clay, an earthen pot, pitcher, jug, urn, etc.' (*Oxford Latin Dictionary, s.v*. testa). It was then taken up in soldiers' slang to refer to the 'head'; think of the somewhat old-fashioned English slang term *jughead* referring to a stupid person. The story does not end here, however. With the settling of distant colonies and hence the expansion of Latin (but not necessarily the literary variety) by Roman military veterans who were paid off in land, the word eventually became the socially unmarked word for 'head' and has lasted, thus improved to a neutral term, in Italian (*testa*) and French (*tête*). The standard Classical Latin word, *caput* is the source, on the other hand, for Spanish *cabeza* 'head'.

A similar trajectory can be seen in the case of *caballus*, which, again according to the *Oxford Latin Dictionary, s.v.* caballus, means 'an inferior riding- or pack-horse, a nag'. It is in soldiers' slang that we find melioration, from a lesser horse to any horse of any quality and from there to French *cheval*, Italian and Spanish *caballo*. The standard Classical Latin, *equus* has been replaced in all the western Romance languages (as opposed to *caput* and *testa* which vary according to the language); it shows up in somewhat learned words like the French noun *équitation* 'horse-back riding'. In both these cases, then, a word which at a certain point had a negative meaning ('nag', 'jug', used metaphorically for 'head') become the standard words, an improvement in their lexical status.

4.4 Pejoration

It should come as no surprise that the opposite trajectory is well represented as well. Called pejoration, it is a process by which words become less socially acceptable, moving from the standard to slang, most usually with negative connotations. The English word *lady* can serve as a somewhat extended example, not only of pejoration but also of eventual reclamation, although not by the same social group; it is the case that its social marking has evolved several times over the centuries both as to who is referred to by the term and what nuances, positive or negative, accompany the word. The earliest uses contained reference to a degree of wealth and authority: 'the female head of a household; a woman who has authority over servants, attendants, or slaves' (*OED, s.v.* lady), for example in (8) where the lady is in charge in some way of the handmaid, her personal attendant, as expressed by the somewhat obscure image of the servant's eyes in the hands (or keeping) of the lady:

(8) As the e{ygh}en of the hondmaide in the hondis of hir ladi (1382)
As the eyes of the handmaid in the hands of her lady.

The designation is quite positive then, particularly in a society with well-defined class distinctions (think of 'lady of the manor') and is even used to refer to the queen herself, from about the same time; this use lasted through the 19th century and *Lady* is still the term of address and reference used for certain titled ranks in Great Britain (the late Princess Diana was Lady Diana before her marriage to Prince Charles by virtue of being the daughter of an earl).

One early extension which is still used in certain contexts, originated, in courtly use, to refer to the woman who is the object of affection and respect:

(9) I see you as my Knight, and myself as The Lady you serve, though such medieval images don't actually fit in with my Southern California heritage. (1991
OED, s.v. lady, quoting D. Wakoski *Medea Sorceress*, p. 26)

Another early use refers to those women attending the queen (a 'lady-in-waiting' who was, after all, of noble birth as well); the earliest attestation is 1473. Finally, the Lady for

Christian theology is the Virgin Mary, mother of Christ, a usage first attested around 1200. Both these meanings are still in use (taken from the *OED, s.v*. lady):

(10) a. Her maternal grandmother, Lady Fermoy, was not only a lady-in-waiting to Queen Elizabeth the Queen Mother, but also one of her closest and oldest friends. (2002)

b. On eight separate occasions the Lady appeared to Mariette in the vegetable garden. (2004)

We can also think of references to churches (the *Frauenkirche* in Dresden, Germany, literally the 'Lady church', normally rendered 'the Church of the Lady').

In later use, the word is generalized to refer to (and to address directly) any woman of good character and good manners as well as the wife of certain officials, of noble birth or not (British English *Lady Mayoress*). Most usually it has been equated with *woman* and with *wife*, both without particular judgments about class or manners (consider *lady of the house* for the householder's wife or the set phrase *ladies and gentlemen* as a term of address for all present, not just at state occasions, but at popular entertainments such as the circus). It became, in fact, a term considered somehow politer than *woman,* but used in many of the same contexts; we can have, therefore, a child's reference to the 'lunchroom lady', that is the woman who serves food in a school cafeteria.

Other reductions went further; *lady* strayed even further from noble usage to become quite vulgar in the seventeenth century in terms like *lady of the night* for 'prostitute, street walker':

(11) Come you Ladies of the Night That in silent sports delight. (1677)

About a century later we find *lady of easy virtue*, either also a prostitute or at least a woman who protected her reputation perhaps not as carefully as she might:

(12) The word blast, twice used in her last speech, is much more becoming a lady of easy virtue than a tragic heroine, however agitated.
(a Censor's remark, 1770, quoted in the *OED*)

We have, then, two degrees of pejoration when the earliest uses of *lady* are compared to some of the later ones. First, it replaces the neutral term *woman* and loses any sense of nobility. Second, in some contexts (usually in compounds which make the further degradation clearer), it not only lacks any reference to high birth and noble family, but is used to refer to the lowest kinds of women.

With the woman's movement, at least in North America, something new happened. First, feminists began to object to *lady*. By doing so they drew attention to the earlier (although still popular) connotation of good manners and delicate up-bringing. A frequent reaction was to say (or at least think) of a person addressing them, 'How do

you know I'm a lady? We've just met'. However, not much later, women started using the word among themselves as a term of endearment or at least of recognition of a fellow feminist. In this sense, it develops some of the same status as other in-group terms of address, acceptable among members of the group but considered rude if used by outsiders.

With *lady* the degree of offense at its misuse is comparatively low, except, perhaps, among particularly fierce up-holders of the idea that *woman* or *person* are the only acceptable terms. In other contexts, pejoration can lead to taboo, the prohibition of use of certain words or phrases. Think, for example, for terms for ethnic groups which are considered impolite, taboo in, as we say, polite society. The same holds for the so-called 'four-letter words' in English; we might use them among friends, but not, for example, at dinner with the boss or with older relatives or in-laws! Often these are words which originally, like *lady*, once had high or neutral usage; their lack of acceptability has grown over time.

4.5 Shift

On other occasions language users modify the original meaning of a word as the world in which they use the word evolves. A well-establish example is that of *book*, which designated a writing tablet in the earliest attestations. What evolves here is, first, the physical form of an object on which one writes. The etymology of *book* is, however, controversial and worth a moment's consideration apropos of the interaction of words and things. Traditionally *book* is linked to the *beech* tree (Old English *bóc*); the suggestion is that the earliest tablets were made of the bark of that tree. Tempting as that connection sounds, a difficulty arises because *book* (Old English *bôk-s*), is first found in writing in 872 CE, thus predating any attestation of that particular tree name. One of the earliest references to the making of books is a line from a poem by the Late Latin author Venantius Fortunus (6th century CE):

(13) barbara fraxineis pingatur runa tabellis
Barbaric runes are written down on tablets of ash

We are basing our conclusions, of course, on first attestations in writing, and not on absolute first use, since there is no record of the spoken language and the true first use of a word or expression cannot be discovered. This whole discussion, then, should have as its conclusion that the etymology of *book* is not clear, but it seems to be related in some way to the material on which words were written down.

Let us continue. It is worth quoting the *Oxford English Dictionary* (s.v. *book*) on the various features of the physical volume and its contents. This is not an etymology, but, as the entry states, a – very broad – definition spanning time and space:

(14) In this wide sense, referring to all ages and countries, a book comprehends a treatise written on any material (skin, parchment, papyrus, paper, cotton, silk, palm leaves, bark, tablets of wood, ivory, slate, metal, etc.), put together in any portable form, e.g. that of a long roll, or of separate leaves, hinged, strung, stitched, or pasted together.

Note that there is a range of materials on which one might write as well as a range of ways these materials might be put together to fashion the single item, *book*. But the physical book is not the only referent of the word. From the earliest uses, it also refers to the content that is written; when we say that someone has written a book, we are talking about what has been written on one of these varieties of material, not of the material itself. In fact, people have talked for centuries about such activities as mentally planning or outlining a book where nothing physical exists at all, even in the underlying context: 'I've planned out the entire book, but haven't started writing yet.' Finally, in this age of computers and hand-held readers, a *book* may never have anything but electronic form. This is a considerable distance in some ways from words written on the bark of trees or on the skin of cows (on velum, that is), but English speakers are still using the same word as they have for many centuries to designate a somewhat shifting referent.

4.6 Metaphor

Each of the above Sections 4.1 to 4.5 presents a general way in which meaning changes, from the specific to the general and vice versa, and from better to worse or in the opposite direction. Finally, we have seen one example of a change in the world (the technological and cognitive status of the notion of *book*). In this section and the next one, the focus will shift from the outcome of change to the conceptual paths taken by language users in causing change as hinted at above in the long discussion of the semantics of *cup*.

The first of these routes to semantic change is the use of metaphor, which can be said to be pervasive among human beings (Lakoff & Johnson 1980). Let's start with a question: can we literally *view the world* in the sense of understanding what goes on around us? Indeed, we cannot, not without metaphoric senses of both *view* ('seeing is like understanding') and *world* ('the physical environment is like the non-physical environment'). To understand as common a phrase as *view the world*, we rely, quite unconsciously, on these two comparisons ('understanding' through 'seeing' and the non-physical environment through the physical). These comparisons are metaphors.

Metaphoric expression appears encoded in a single word or a small group of related words. Take as an example the adjective *solid*, from Latin *solidus*:

(15) Free from empty spaces, cavities, interstices, etc.; having the interior completely filled in or up. (*OED, s.v.* solid)

The earliest attestations (from 1391) are physical; that meaning persists to the present, both where an object truly has an interior without empty spaces, as above, or appears to be so:

(16) Clouds, lingering yet, extend in solid bars Through the grey west.
(*OED, s.v.* solid, quoting Wordsworth, 1807)

The word gets extended to materials not conceived of as really solid either because the interior is not uniform (*solid meal* as opposed to a snack, for example) or because there is no interior (a *solid* – as opposed to *broken – line*) and eventually from the physical to the conceptual; the earliest example dates from 1586 but the following, from a newspaper item cited in the *OED* and dated 1812, is equally illustrative:

(17) The colouring is solid without heaviness.

Finally, consider such related words as *solidarity*, used in contemporary English to signify the state of being in support of or in agreement with a group of people or even with the ideas which unite the group. And *consolidation* is another off-shoot (note the botanical metaphor as the basis of *off-shoot*), used for such intangibles as debts or powers to designate a coming together; the notion of the interior completely filled in or up (see Example 15, above) is only a figurative one.

Other metaphorical extensions are more pervasive in the sense that they are renewed across time. Let us look at ways in which English speakers indicate that they have understood something. While the verb *understand*, itself, has ultimately a locational expression as its etymology ('to stand under' and therefore to 'presume'), many other expressions involving some sort of 'hold' on a subject:

(18) To comprehend; to apprehend the meaning or import of; to grasp the idea of (*OED, s.v.* understand)

Note the metaphoric use of 'grasp' in the definition and also the etymology of both *comprehend* and *apprehend* which contain the Latin *prehendere* 'to grasp, seize' in the physical sense. In modern English both *grasp* and *comprehend* are used for mental acts of understanding and have been attested since 1680 for *grasp* and 1340 for *comprehend*, borrowed from the French where the metaphor was well established:

(19) a. The artikillis of the crede can nocht be comprehendit be natural reasone.
The articles of faith cannot be comprehended (understood) by natural reason. (quote from 1552)

b. The Eternal [J]ehovah, who graspeth all past, present, and to come in the eternity of His Wisdom and Power.

In more modern English we *get* ('receive' or 'possess') what other people are saying (first attested in American English in 1892); it is a variation on the same metaphor.

Just because a specific metaphor is often central to the meaning of a word or phrase (here, seizing is understanding), this does not preclude the functioning of other metaphors as well. In addition to physical possession, a second group of comparisons which have shaped how we express understanding comes from the senses. We can *see* what someone means or even (though this is disparaged by purists) *feel* it. A contemporary expression is *I hear you*, meaning 'I understand what you are saying', yet another sensory metaphor. Note also that such metaphoric images can evolve spontaneously in different languages; there is no evidence that English *hear*, still somewhat colloquial for 'understand' is influenced by Spanish *entendir*, a verb which originally meant 'to hear' (compare French *entendre* 'to hear') and is now the standard verb of understanding. French, by the way, uses both metaphors as well; the standard for 'understand' is *comprendre*, but, idiomatically, the past participle – and only the past participle – *entendu* 'heard' and therefore 'understood' conveys the same metaphor of understanding as an extension of perception through the senses.

It is worth looking briefly at another – very pervasive – set of extensions of meaning which are brought about through the workings of metaphor. The data here are verbs, prepositions, and adverbs in various languages which have become locational and directional markers. Examples from English include the following:

(20) a. The church *fronts* the main road.
b. Are you all *behind* me? Where is my *backing* when I need it?

French has:

(21) Le magasin est en *face*.
The store is facing/across the street.

And in Hebrew we find:

(22) a. /lifne/, 'to the face(s) of' ('face' is a collective noun), meaning 'before, in front of'.
b. /axar/, etymologically 'backside, the behind', now means 'after, behind'
c. /mipne/, literally 'from the face of', meaning 'because of'

In each of these cases, the original meaning of the locational term is the body part; (20a) interacts with French where *front* is 'forehead', while for (20b) remember that *hind* is a term for an animal's lower back (compare English *backside*). Both parts of (20b) are also interesting for the extension of the metaphor from physical location to more abstract location in relationship to a stance or ideology. The French example in (21) is transparent to English speakers; something located 'across the street' has to be oriented so that we see its front side. Finally, the Hebrew examples point up the

ubiquity of this set of metaphors based on human relationships with space and time; we find the same images in a genetically unrelated language.

4.7 Metonymy

This kind of extension comes from taking the part of something to signify something closely associated with it. Urban (2015) provides the example of *leg*, which starts as a body part and is extended to similar looking supports for tables and chairs.[43] The most often cited metonymies are those where the relationship is of a part is taken for the whole, also labeled synecdoche, (examples are just below in (23)). However, an expression may signify some other complex of related notions which still fall under the rubric of metonymy:

(23) a. Word has come from the White House that the President will be speaking this evening.
b. That argument is so MIT!

In (23a) it is (obviously!) not the White House itself that has spoken or even the president, but a spokesperson from the office of the President. For an argument to be called MIT, we must understand the name of an institution of higher education to designate faculty members and other researchers (more specifically in Linguistics) who have produced a body of work and a methodology that are identified as much with the institution as with the individual.

Body parts play a role in metonymy as well, particularly in the frequently occurring relationship between a representative subdivision of the human being or animal and the person or animal as an entirety. A few examples will suffice:

(24) a. All hands on deck! All eyes forward!
b. He owns many head of cattle – a rich man.
c. She doesn't see a soul.
d. Elle ne voit pas âme qui vive.

The first two items (24a and b) are transparent; we do not expect only hands to appear at the order of a ship's captain or eyes only to face forward (that may be physically impossible or at least very difficult without excellent peripheral vision), but rather people to appear to direct their attention in response to the commands. Cattle are traditionally counted by the head, but the entire cow or bull is the property of this wealthy person. The next two examples (24d is a translation of 24c) point to the fact that the aspect of a human being which stands for the whole can be abstract indeed.

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43. And note the air industry use of *leg* of a journey, designating any one air flight, presumably since it is of measurable length as is a human leg or even the leg of a table.

5. Wider tendencies and causation

Sections 3 and 4 of this chapter should be taken as complementary, neither unrelated nor contradictory. If indeed the nature of meaning is the semantic set as described in Section 3, Linguistics must account for the nature of the meaningful units and for how they may change. Section 4 provides the many ways in which both the members of the set and the lines of extension between them evolve over time. Such processes as narrowing or amelioration bring about new or transformed members, as do metaphor and metonymy. What is still lacking is one additional broader look at the nature of semantic change, not word by word, but by considering generalizations which may shed light on cognition and meaning.

One approach to this question is to categorize meaning as external and internal, with the claim that external meaning is usually more basic than internal meaning.[44] What is meant by this statement is that, for the most part, reference to the real world (external to the speaker) is the more prototypical use of a word than a use reflecting – broadly – cognition and/or emotion (internal to the speaker's mind and heart, so to speak). This claim has importance as well when change is taken into account; many external meanings predate internal ones.

To return to some of the examples above, words designating parts of the body were, first, references to physical objects (the hand, face, and so on); only later did they get extended to metaphors for directionality and metonymies for entire persons or animals. To repeat, the term 'external meaning' of these locational expressions refers to the physiological and the anatomical foundation. The internal uses are mental; here we find the comparison of a face and the more abstract (though still physical) orientation of the side of the body which contains the face (the front, that is) to relative directionality as perceived by human language users. The notion of a building *facing* another one involves the metaphoric extension of *face* to some side of an inanimate object, a building, a tree.

The external is not necessarily, however, physical of itself. It may refer to a quality of objects which can be or is viewed as being objectively measured. A well-known example by semanticist Elizabeth Traugott (1982), involves the word *even* which in its earliest uses meant 'Of a piece of ground, a country, etc.: Flat, plain, level, not hilly or sloping' (around 900 CE, *OED, s.v.* even). It was soon transferred metaphorically to other kinds of flatness, uniform height, for example, where the even surface is an imaginary one at the top of the persons or objects being measured; eventually it is used to designate uniformity in other ways as well:

44. Note the use of 'usually' in this statement. It is always the case that there may be counter-examples to such generalizations.

(25) a. Equally balanced; in a state of equilibrium; not inclining to either side. (*OED, s.v.* even)

b. Bearing her sword so euen, that neither the poore are trod vnder foote, nor the rich suffred to loke too hye
Bearing so even a sword that neither are the poor trodden underfoot, nor are the rich allowed to look too high.

Although the sword is *even* in the sense that it treats all people in a balanced fashion, we are still to some extent in the realm of the external.

With (25) as a link, we can now better understand the adverbial use of *even.* The earliest attestations are from the same period as the earliest adjectival use and were also external, meaning 'uniformly, to an equal degree'. The adverbial sense too was extended to more abstract meanings, for example, 'at the same time':

(26) Let your love even with my life decay.
(*OED* quoting Shakespeare's sonnet lxxi)

It is with examples like (26) that we move to the internal; that which is equal or balanced is a comparison between love and life, therefore deriving from a mental act. It moves as well to a comparison of one situation with another; think of the expression *even so*. As an indication of the particular instance of a general statement, it then is a comparison which is only partially marked:

(27) This quickly heals even cut veins and Sinews. (*OED, s.v.* even [adv.])

Note here that what else is healed is never indicated, but we understand 'veins and sinews' as a subset of that category.

Finally, in this brief survey, we find *even* as part of a narrative with an even more abstract sense of a comparison of equals:

(28) Even were there no other evidence, we should still be justified in assuming it. (adapted from *OED, s.v.*even [adv.])

The situation of there being no other evidence is implicitly compared to the situation where there would be other evidence and found to be equally sufficient for the assumption in question. As with (26) and (27), Example 28 illustrates the internal (mental) sense of the adverb; all these examples appear, according to the *OED*, later than the external (physical) meanings.

5.1 Root, epistemic, and speech act meaning

A second related approach to broad characterizations of meaning (and hence of meaning change) has been used to characterize the development of such notions as 'obligation' (and other verbal modalities) and 'hypothesis'. With a verb like *must*, for

example, the obligation may be external or root, as in (29a), where there is an outside force of necessity, or be rather internal or epistemic (related to knowing and thus other mental activity) where the necessity is rather the force that causes one to conclude, as in (29b).

(29) a. It's raining. You must come inside!
b. It must be raining. Your clothes are all wet.

Again, the diachronic claim is that root meanings are usually earlier than epistemic meaning and that the line of extension develops from speakers taking the expression of obligation with an external source and transferring it to a mental process.

Eve Sweetser (1990) adds a third dimension, an extension to the very act of speaking (known as 'speech act' use) in various expressions which will be exemplified in (30a)–(30c) using *if*, the prototypical adverb of hypothesis (that is, the statement of a condition). Examples (a) and (b) are a further illustration of root and epistemic meaning while c. provides an example of a speech act use:

(30) a. If it is raining, we should take shelter.
b. The fog is exceptionally heavy if I cannot see the buildings on the next street.
c. My name is Maria if you need anything (as said by a server in a restaurant in – at least – North America).

In (30a) the condition is an external one (there must be rain as a condition) and in (30b) *if* is internal (or epistemic) since the condition is one characterizing a belief; it must be foggy – this is my thought-out conclusion – since I cannot see the building. In c. we have a server introducing herself and explaining *why* she is stating her name (a speech act); it is to give the diner the information necessary to call her or ask for her if something is missing from the table.[45] To repeat, Sweetser – and others – provide evidence that the root meaning is usually the earliest in attestation, with the other two as extensions occurring later.

Both of these discussions (external/internal meaning and root/epistemic/speech act meaning) are intended to provide a glimpse at the widest ways in which meaning changes may generally follow certain paths. These general paths can be understood as providing a framework for the specific kinds of changes exemplified in earlier sections of the chapter. While a great deal more could be said, we have at least considered the

45. It is a temptation to respond by asking what her name is if I don't need anything, thus interpreting the condition as root rather than speech act. It is probably rude to give in to this temptation, however.

nature of etymology and its application to changes both in the individual word and across broader notions of meaning which allow for generalization.

These broader considerations take us a step closer to proposals as to the causality of meaning change (cf. Urban 2015; Fortson 2003). Note that most of the examples in the entire chapter are polysemous, having more than one meaning. The variations and extensions of meaning develop to meet communicative needs and/or to add emphasis of some kind to an interaction (Keller 1994, to be discussed in Chapter 10). They arise often because of slightly novel uses (a change to the external world or a new metaphor, perhaps, which gives rise to a slight shift) which may overlap at first and later become more distinct, although remaining in the same semantic set. Consider again our *cup* of butter. It would have originated at a time when the measurement involved a physical cup because butter was not pre-packaged for being measured as if there were a cup. Once the industry turned to sticks, the cup itself was not needed, but the word continued to designate this particular amount. Like metaphor and other transformations of meaning, we can classify these changes as brought about through pragmatics, those aspects of language which interact most closely with the rest of the world either physically (*cups* of butter) or communicatively (the shorthand of *cup* to designate the awarding of a trophy for a sports victory). There is a need in each of these to increase both the efficiency and the expressivity of the speaker-hearer interaction.

6. Conclusion

Lexical change can be studied from a variety of perspectives, as it is in this chapter. At the narrowest, we can observe the maxim (cited above) that 'every word has its own history' and look at the etymology of a given lexical item. Even there, however, as was discussed in Section 3, the essential polysemy of words cannot be ignored. Finally, there are, indeed, trends, directions along well-worn paths that words may take in their evolution (think of broadening and narrowing, amelioration and pejoration, metaphor and metonymy). And other even broader tendencies have been identified as well in contemporary studies, such as the interaction of external and epistemic meaning.

The next Chapters (4 through 7) look at change in other linguistic components, sounds and grammar. The lexical discussion in this chapter is valuable in itself, but also provides a framework for what follows in that changes are considered in the context of human cognitive function, categorization, abstraction, and recognition of salience, all applied in the epistemic realm of language. All of these, again, speak to an overarching human search for, in a multiplicity of ways, better communication.

Exercises

1. Venture an explanation (or more than one) as to why **mother** is part of the core vocabulary of most languages (although not all), but **aunt** is not.
2. What might the meaning and source of **humanware** as used among computing experts (example: 'Most of these odd problems come from humanware; the program itself works fine.')?
3. For each of the following polysemous words (those having multiple meanings), develop a radial set of meanings showing what is more or less prototypical and how they are related one to another within the set (the radial set for *cup* and the discussion of its extensions will serve as a model):

   a. flower
   b. mouse
   c. stone

4. For either *lady* or *book*, as discussed above, develop a diagram showing the various meaning changes over time and the lines of extension which bring the changes about.
5. Using the OED or another good etymological dictionary, look up the etymology of the following words:

   a. domicile
   b. avocado
   c. elephant
   d. dieffenbachia
   e. television

   In each case identify the kind of change which has taken place since the earliest attestation of the word (you'll want to review the ways in which languages resemble each other in Chapter 2): is the modern meaning a function of contact? direct transmission from a parent language? some combination of these forces something else altogether.

For further investigation

If indeed most words are polysemous, how do we know which use is intended by a speaker/writer at any given time? Do we always know? Think of ambiguities that you have encountered and how they were resolved – what might this say about language change?

CHAPTER 4

Phonetic change

1. Introduction

Sound change is, arguably, the most studied aspect of historical linguistics aside from lexical change. It is to the credit of early modern linguists that a great deal of the work in sound change that was accomplished in the 19th century is still considered valid today, whatever the theoretical framework one might use. This chapter will be devoted to phonetics, the sounds themselves as they are produced and perceived, while the next chapter will discuss phonology, the organization and structure of sounds as a system in a given language. Because most students of language and linguistics will have already taken a course of some sort in phonetics (be it general phonetics or the sounds of a specific – usually foreign – language with practice on pronunciation), the rest of this introduction will be, to a great extent, intended as a review of the subject matter of this subfield as well as a brief consideration of the cognitive phenomena involved. The next two sections will look at phonetic change, first changes which are not conditioned by the phonetic environment and then others where conditioning factors must be explored and defined. To complete the chapter, we will look at some broader issues which may come into play in phonetic change.

1.1 The scope of phonetics[46]

Phonetics as a science concerns the sounds made by human beings as part of speaking a language; this can be contrasted to cries and yells, imitations of other animals, and general noise. These speech sounds can be studied from an articulatory point of view, how they are formed by the human vocal apparatus, or acoustically, how they are perceived and interpreted by the hearer. We will take each in turn. More generally, however, it should be remembered that speech sounds – like other sounds – are produced by the modification of the stream of air which leaves the lungs and moves, via the throat, through the mouth (the oral cavity) and, at times, through the nose

46. The following paragraphs do not pretend to take the place of a course in phonetics. For students who have not had such a course, a standard textbook such as Ladefoged (2005) and Rogers (2001) should be consulted.

as well (the nasal cavity). The same stream of air, thus modified by the shape of these cavities, becomes an air-borne sound wave which is again modified by the aural (ear) apparatus of the hearer to become comprehensible.

Articulation is described in two ways, the point of articulation and the manner. In both cases what is under consideration is the way in which airwaves, coming from the lungs, vibrate in differently shaped cavities, which have been modified largely by changes in the position of the tongue and the lips. Figures 4.1, 4.2, and 4.3 provide first a schematic look at vocal anatomy and then a review of the vocabulary of articulatory phonetics: the name of the articulator, the related adjective which is applied to the sound made by the articulator(s), and an example of the sound. We need to remember that in addition to the oral and nasal cavity, sounds are influenced by the activity (or lack thereof) of the vocal chords. If they are still, the sound is voiceless and if they are vibrating, the sound is voiced.

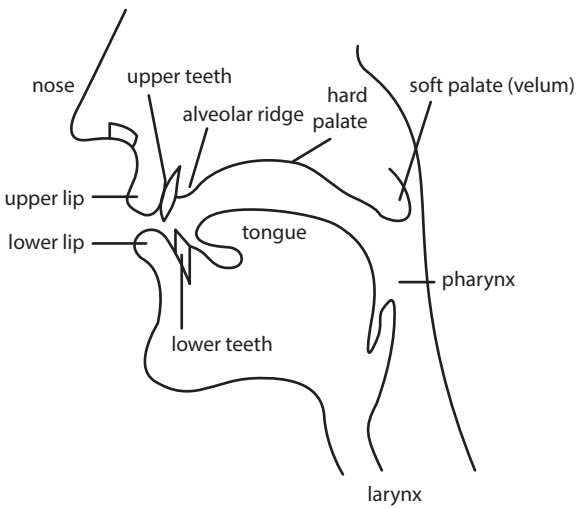

Figure 4.1 Articulators

As will be seen below and even in the next chapter, it is important to think of sounds not only as entities, but also the groups (or bundles) of constituent features; most change is best understood as taking place in some feature rather than as a wholesale change of the sound. For example, we will talk about the assimilation of sounds to each other, that is, the ways in which they become more alike and even merge. What may trigger the assimilation is that, although one sound remains nasal and the other oral, they come to share a common point of articulation; this is how [n] > [ŋ] when it is in a position next to or near [g], a velar sound, since that causes the original dental or alveolar to become velar as well.

	Classification of NAE consonant phonemes						
	Place of articulation						
Manner of articulation	**Bilabial**	**Labiodental**	**Dental**	**Alveolar**	**Palatal**	**Velar**	**Glottal**
Stop							
Voiceless	p		t			k	
Voiced	b		d			g	
Fricative							
Voiceless		f	θ	s	ʃ		h
Voiced		v	ð	z	ʒ		
Affricate							
Voiceless					tʃ		
Voiced					dʒ		
Nasal							
Voiced	m			n		ŋ	
Liquid							
Voiced				l	r		
Glide					y		
Voiced	w						

Figure 4.2 Basic consonant chart

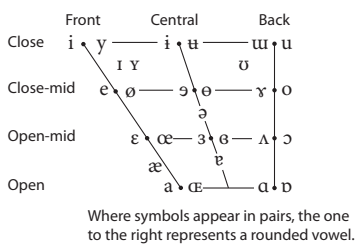

Figure 4.3 Basic vowel chart

It has often been claimed that phonetics is the mechanical part of language, or, to put it in more modern terms, that it does not involve any mental activity. The 19th-century linguists called the Neogrammarians separated sound in that way from meaning, for them the 'psychological' aspect. However, as will be discussed here and in the next chapter, we can argue that human beings form mental categories of sounds and manipulate those categories in speaking; over time, then, modifications in the

phonetic component of Language is a modification in a mental category or a group of categories. Although most sound change can be said to be unconscious, this is not to say that the mind is uninvolved in the production and understanding of sounds, but that, at least most of the time, speakers are not paying attention to these processes.

2. A note on conventions and features

As was said above, it will be presumed that readers of this text have already studied (or are quickly acquiring) the basics of articulatory phonetics. To differentiate synchronic conditions from diachronic changes, two forms of arrows are generally used in formalizations. For synchronic statements, the full arrow (→) indicates that speakers substitute one sound for another, as happens with the assimilation of a nasal alveolar stop to a velar stop discussed just above; it takes place quite frequently in natural speech if the following sound is itself a velar. We can also show the condition which causes this variation to occur by using the slash mark and read the following as [n] becomes [ŋ] in the environment (marked by an underscore) of a following [k]:[47]

(1) n → ŋ / _ k

An example is the English phrase *in case*, pronounced [īŋkeis] and not [īnkeis].

For diachronic cases, on the other hand, only the arrow head (>) occurs. The following formula, then, has to be read in a different way, although some of the conventions are the same:

(2) n > ɲ / _ j

This statement comes from the history of the Romance languages where [n] became [ɲ] over time in the environment of a following palatal element, the yod [j]. Latin *vinea* 'vineyard', for example, evolves into French *vigne* /viɲ/ with the same meaning. Here we are making a historical statement, not capturing what people do as they speak in real time, but the result of change over time.

Sound change, like change in general, is specific to a language and a given time. While assimilation, as illustrated in (1) and (2), is a very common event, other kinds of change happen only once in a while if we look at the range of possibilities over a large number of languages. As will be discussed below, dissimilation, for example, is relatively rare and tends to apply to individual lexical items rather than across

47. The environment can actually be generalized to all palatals; the rule here serves simply to illustrate the formalism.

the lexicon to all sounds found with the same conditioning elements. We call such changes sporadic, as opposed to systematic; they can be thought of as well as irregular as opposed to regular.

Finally, note that in this example (1 and 2 above) the focus was on the place of articulation of the consonant. There is no change in manner or in voicing: [n] remains a voiced nasal, while an alveolar becomes a velar. Here, then, we are not talking about change in an entire sound, but in some feature (or features) pertaining to the sound. In the sections to follow, then, we will look both at change which has been conditioned by the phonetic environment like the one already sketched above and also at change which is unconditioned. In these cases, the change is best understood as occurring to a feature or a set of features, rather than to the entire sound (to be thought of as a bundle or collection of these features). We gain in precision and thus in a better understanding of what is actually happening.

3. Unconditioned change

3.1 Simple changes

One of the most important aspects of describing sound change is a clear understanding of the immediate surroundings of the sound in question and the ways in which this sound interacts with those around it. The phrase 'immediate surroundings' refers generally to the phonetic material (that is, the sounds or features of sounds) in the vicinity of the sound; other broader 'surroundings' will be discussed in Section 4 below. There are cases, however, where there is no direct phonetic influence on the sound which changes; we call these unconditioned changes and formalize them without a slash mark and following environment.

Another way of thinking of this lack of phonetic influence on a given sound is to say that this sound changes everywhere it occurs in a language at a certain time. For example, in the development of French from Latin, Latin [u] becomes [y] in all environments, where environments might include the position of the sound in the string of sounds, the nature of the syllable in which the sound appears, and other factors like the kind of stress (of total lack thereof) on the syllable or word:

(3) [u] > [y]

In terms of features, the vowel retains its height and lip-rounding, but changes from back to front; it is pronounced the same way as the German sound spelled ü.

Consonant changes also occur in the same way, without conditioning at a given time in a given dialect. In Indo-European (see Chapter 2), most reconstructions of

the consonant system involve a series of voiceless stops[48] (*/p/, */t/, */k/), a series of voiced stops (*/b/, */d/, */g/), and a series of voiced aspirated stops (*/bh/, */dh/, */gh/). In several of the daughter languages, among them Slavic (at the time of proto-Slavic, ancestor of Modern Russian, Polish, Croatian, etc.), the voiced aspirated stops lost their aspiration:

(4) */bh/, */dh/, */gh/ > */b/, */d/, */g/

With Example (4) we can add another fact about phonetic change, that a change may occur not only in a single sound (Latin [u] above), but in a full class of sounds; in this case we are talking about all the aspirated voiced stops which have been hypothesized for Indo-European, all of which deaspirate.

3.2 Complex changes: Chain shifts

Let us look at two more complex cases, one vocalic and the second consonantal. The first occurs in Middle and Early Modern English and is known as the Great Vowel Shift. It is best described with a figure which captures a whole series of changes to long vowels, several of which rise, while the original highest pair, that is [i] and [u], lower, centralize, and become diphthongs. Note however that there are no modifications in the front or back position of the tongue; again, only some features change.

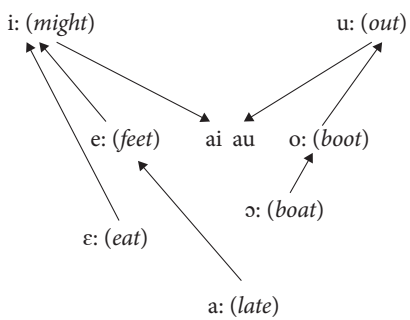

Figure 4.4 The great vowel shift

Each individual change taken in isolation is an unconditioned change; in every possible environment long vowels shifted upward and the highest vowels, front and back, lowered and became diphthongs.

48. Although we are talking about phonetic change in this chapter, reconstructed sounds are abstract units and therefore have been marked with slashes instead of square brackets.

Note that the change in the front vowels explains the lack of coordination in Modern English in what were originally long vowels between the names of the letters and the sounds they represent:

(5) a. i, once [i], represents [ai], cf. *mine*
b. e, once [e], represents [i], cf. *meter*
c. a, once [æ], represents [e], cf. *name*

Interestingly, the back vowel names (o, u) are closer to the post-vowel shift sounds they represent although the naming of the letters is a bit more complicated.[49]

This kind of serial activity is known as a 'chain shift' since there is a relationship among the various changes, all of which take place in what seems to be an orderly fashion. In this case, each of the long vowels is raised, with the highest vowels, front and back, falling, one might say, to the center since they cannot rise any further. There is in general no dispute about this description; what is under some debate is the cause of this series of changes. Two conflicting theories are the most common. One is that the change starts with the low vowel [a]. For some not very well understood reason it fronts and rises to [e], causing the vowels immediately above to rise, both to [i], in order for language users to maintain the distinctions provided by these sounds (the difference, using a modern example, between the word 'keep' [kip] and the name Kate [ket]). Under this interpretation of causality, the diphthongs evolving from [i] and [u] came into being because the tongue could not rise any further without the tongue hitting the roof of the mouth. The limit on tongue height brought about a falling and diphthongization. This kind of chain is called a 'push chain'.

The opposite is a 'pull chain'; in this case we would have to hypothesize that the first changes in the chain would be the creation of diphthongs, not at all an uncommon occurrence for long vowels. Once the vowels have lengthened and broken (that is, have taken on a glide) to [ij] and [uw], they undergo dissimilation, a process by which two sounds (or here, components of sounds) become less alike; since [i] and [j] are both high, the [i] lowers to [a] and a similar change occurs with the back vowel:

(6) a. [i] > [ij] > [aj]
b. [u] > [uw] > [ow]

We can illustrate these changes with modern *bite* [bajt] and *house* [haws] respectively. Then, once these highest vowels have fallen, there is now room at the top for mid-vowels [e] and [o] to become high vowels [i] and [u] and, after them, for originally low [ɛ] and [a] to become [e] and [o].

49. Exercise 2 in the next chapter provides more examples and an opportunity to work in more detail through this change and its consequences.

Consonants too undergo chain shifts. If we look at the Polynesian languages (a subdivision of the Austronesian family), we see that most of them include, among the voiceless stops, both [t] and [k]. In Hawai'ian, however, the corresponding voiceless stops are [k] and [ʔ].[50] The change, then, is in the point of articulation. General Polynesian can be reconstructed to have dental and velar stops where Hawai'ian shows velar and glottal. We know that there is a historical relationship between them for many reasons; one which can be briefly touched on here is a comparison of words which show a systematic relationship:

(7)

Maori	*Hawai'ian*	*English*
tapu	kapu	'forbidden, taboo'
tangata	kanaka	'man'
tokerau	koʔolau	'north wind'
waka	waʔa	'canoe'

The first two of these examples shows the correspondence of [t] in Maori (representing the majority of Polynesian languages and therefore very probably originally *[t] in proto-Polynesian and a [k] in Hawai'ian. The second pair exemplifies the correspondence between *[k] and Hawai'ian [ʔ]. Again, the cause of the Hawai'ian change is not clear. Either [k] > [ʔ] first, pulling [t] > [k] into the empty articulatory slot, or the opposite happened, with [t] > [k] pushing original [k] to [ʔ].

3.3 Conclusion

In all these cases of unconditioned change, every instance of each of the sounds changes in the same way; that is, the change occurs everywhere the sounds are to be found, whatever the word or their position in it. The change may be in a single sound (Latin [u] > French [y]) or in a class of sounds (long vowels in English, aspirated voiced stops in Indo-European, voiceless stops in proto-Polynesian). Finally, the changes may interact with each other in chains (the English Great Vowel Shift, proto-Polynesian stops in Hawai'ian).

There are other kinds of restrictions, however. Changes start happening at some given time and stop occurring some time later. This very vague statement is meant to draw attention to the fact that if, for example, modern French borrows a word with an [u] (English *cool* [kul], for example), it will not undergo the [u] > [y] change. Rather it will be pronounced with [u] even by people who do not know they are using a foreign word. The sound change in question has stopped acting.[51] As will be seen in the next section, this temporal restriction is relevant as well for conditioned changes.

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50. The symbol [ʔ] is the glottal stop.

51. See Chapter 10 for a much longer discussion of the timing of language change and its causation. Chapter 2 looked briefly at borrowing which will be taken up again in Chapter 8 on social factors involved in language change.

4. Conditioned change

Sounds do not exist in isolation in speech, but are rather uttered and perceived as part of a string. They are often (we can go as far as to say most often) influenced by their position in the string and by the sounds and other speech phenomena (called supra-segmentals, for example stress, intonation, etc.) with which they interact. When the influence leads to different sounds, that is, to change, that change is called 'conditioned'.

4.1 Positional conditioning

The place a sound occupies in a string depends in part on the nature of the string itself, and this varies from language to language. In some languages, like English, the string tends, with few exceptions, to be the same length as the word. When we talk about initial or final position we mean, respectively, the first and last sound of the word. Exceptions arise for the most part in fast, casual speech. In a phrase like [adʌno] 'I don't know' the initial and final positions (and thus by extension medial positions as well) are defined by the phrase, not the individual words underlying it. In other languages, like French, these positions are always defined by the phrase since stress is assigned to the phrase; words count very little and one has to think of a string of syllables, the final one of which takes stress. Consider the following sentence:

(8) Il est arrivé avec son amie.
He arrived with his friend.
[iletariveavɛksɔ̃nami]

For the French speaker, the entire spoken chain has one initial sound, [i] and one final sound, also [i]; there is no sense for native speakers of French of six 'words' except in that the written form indicates word divisions. The interaction of spelling and oral language use has to take into account questions of literacy and prescriptivism.

What then are the ways in which position matters for language change? A working description of positional strength is a place to start: a sound may be in strong or weak position, with the nature of the position affecting the kinds of changes which may occur to a sound. While there may be some variation from language to language, the most common strong positions for consonants are string-initial and, in the interior of the string, syllable-initial where there is an immediately preceding consonant. For vowels, initial position (and also placement within the first syllable even if the syllable begins with a consonant) is strong, as is position in a (or one of the) stressed syllables. Sound modifications from careful to fast speech in spoken English, even if a bit exaggerated, will illustrate several of these points:

(9) independence [ĩndi'pẽndẽns] → [ĩndəbẽndẽs]

Here the vowel in the initial syllable is in strong position and will not change in fast speech. The second vowel, however, is reduced to an unstressed schwa, [ə]. As for the

consonants, the two [d]s in syllable-initial position following other consonants are also strong. While these sounds may change over time, there is less chance that they will disappear completely. On the other hand, the consonant considered to be in a weak position are at the end of the string (although in this particular case the [s] persists), at the end of a syllable when the next sound is another consonant, or between vowels. In these two last cases there are changes. The [p] is pronounced as something closer to [b] between vowels (listen carefully to someone who is speaking unselfconsciously) and the [n] at the end before the [s] nasalizes the preceding [ɛ] and weakens somewhat, although it doesn't disappear completely. As we look at other kinds of sound changes, we will return to the role of position.

As well as changes in the nature of sounds, position may also dictate the disappearance or, even, emergence of sounds, mostly vowels, relative to earlier versions (called 'reflexes') of the word. Although initial position is considered strong, this does not mean that it is shielded from all changes. Initial sounds may disappear (a process known as apheresis), so that Greek *episkopos* becomes English *bishop* and English *Gypsy* ultimately comes from the national adjective *Egyptian*. There are cases as well where consonants disappear at the beginning of words; consider the so-called silent letters in *knife* and *knight*, both spelled with a k which reflects an earlier pronunciation. Apheresis is not just an English process; Swedish *strand* 'beach', for example, is borrowed into Finnish and becomes *ranta*.

The opposite process is the emergence of a sound at the beginning of a word where earlier there was none, a process called prothesis. The classic example is the Latin initial consonant group made up of [s] and a following stop consonant before which, in most of the Romance languages, there emerges an [e]:

(10)	Latin	Spanish	
	[skola] >	[eskwela]	'school'
	[spata] >	[espaða]	'sword'
	[stare] >	[estar]	'to be'

It is not correct, of course, to say that the initial [e] comes out of thin air since there are good phonetic explanations for its emergence. An [s] followed by a stop is a complex cluster and speakers may make an effort to avoid beginning a syllable or a word with it. With the prothetic [e], the [s] becomes positioned as syllable-final, a much more common occurrence in the world's languages. Note, however, that Latin (like English and other languages) finds initial [s] + stop both articulatorily and perceptually acceptable where much of Romance did not.

At the end of the word too sounds may be added or deleted. The deletion is called apocope and is again well illustrated by Romance: Latin final [m] and the vowel preceding it ([e] and [u]) disappear in French so that a noun like *litum* becomes French *lit* 'bed'. The addition is called paragoge (or excrescence) and may be illustrated by

the final *-st* on locational adverbs and prepositions like *amidst* (originally *amid*) and *amongst* (found alongside *among* in some modern dialects).

In the middle of a word a sound may be inserted (epenthesis) or deleted (syncope). For insertion, the Old English *thunor* becomes Modern English *thunder* and (reconstructed) Proto-Greek **amrotos* becomes Ancient Greek *ambrotos* 'immortal'. The reconstruction (marked by the asterisk preceding the word), like the attested English just before it, reflect a very common tendency across languages to avoid a cluster of a nasal and a liquid (here [nr] and [mr] respectively). The same holds with the opposite order of liquid and nasal; a non-standard pronunciation of *film* in American English is [fɪləm]. Here the epenthetic segment is a schwa ([ə]) rather than a consonant.

Syncope (deletion) may also be either vocalic or consonantal. In the pronunciation of standard English, for example, what was once [kaməra] is now pronounced [kamra], the loss of the schwa and, as a result, the medial syllable of what is still spelled *camera*. English speakers also regularly say [čaklɛt] for *chocolate*; again, spelling, often conservative in that is reflects an older form, indicates a medial vowel which was once pronounced.

Term	Position of the Segment	Addition/Loss of a Segment
Apheresis	initial	loss
Prothesis	initial	addition
Syncope	medial	loss
Epenthesis	medial	addition
Apocope	final	loss
Paragoge	final	addition

Figure 4.5 Segment addition/loss

Change is not always (or even not often) a simple matter. Many items reflect not just one of the above process but two or more. Two examples from the history of the Romance languages will illustrate this fact that multiple factors may be involved:

(11) Latin *cameram* [kameram] 'room' > [čamrə] > French [ʃãbʁə]

Note the apocope (deletion) of the final consonant and, more to the point for our purposes, that the medial syllable undergoes syncope ([mer] > [mr]), thus creating a cluster which is modified by the insertion (epenthesis) of [b].[52] English, incidentally, takes *chamber* from the French and *camera* from Latin.

52. The changes in the initial consonant will be discussed below.

(12) Latin *hominem* 'man' > *homne* > *homre* > Spanish *hombre*

Here too we see apocope (loss of the final [m]) and syncope (medial [min] > [mn]). The new medial cluster then dissimilates (more below) with [n] > [r] and, finally, epenthesis of [b] between the nasal and liquid.

To summarize, all these changes, variously to vowels and consonants, are conditioned at least in part by the position, relative to other sounds in the string, of the segment which undergoes change. To be further discussed below are the roles of stress and of syllable type as well as other conditioning factors. For example, vowels in closed syllables (those ending in a consonant in the same syllable) tend not to change as much as those in open syllables.

4.2 Conditioning by surrounding elements

4.2.1 *Segmental influence*

4.2.1.1 Assimilation The most frequent kind of influence of sounds on each other is called assimilation, the process by which two sounds become more like each other, that is, have more features in common. The conditioning element[53] may occur in the speech chain immediately next to the element which is affected by it, or may occur despite intervening elements. In addition, the element which changes may do so by anticipating some feature of the element it is assimilating to (that is, it precedes it in the speech chain), or may be a perseveration (that is, it follows but changes some feature to continue the feature in the element it is assimilating to). This is very abstract, thus far; let's look at examples of all these cases, with a variety of features which assimilate.

The first example is a joint assimilation (that is, both anticipatory and perseverative) since it is the assimilation in voicing and manner of articulation of a consonant to surrounding vowels. The position, as has been mentioned already, is called intervocalic, between vowels. Vowels are voiced continuants (the vocal chords are in action and the airstream is not stopped completely at any point in their articulation); stops between vowels tend, in many cases, both to voice and to become continuants. The history of Spanish vida 'life' provides an example:

(13) Latin [wita] > Old Spanish [vida] > Modern Spanish [viða]
t > d > ð / V_V

First the intervocalic [t] voices and then spirantizes, with the result that the consonant assimilates to the vowels by taking on some more centrally vocalic features, voicing ([d]) and continuance ([ð]).

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53. The 'element' in question is normally some feature(s) of a sound which may influence or be influenced by another feature.

The following is an example of an anticipatory assimilation where the sound which undergoes change is immediately followed by the sound it assimilates to:

(14) Latin [filium] > Late Latin [filjo] > Italian [fiʎo]
li > lj / _ V
lj > ʎ

The [l] here becomes a palatal [ʎ] in two stages. First the [i] of Latin becomes a palatal glide ([j]) before another vowel. The [l] preceding it then assimilates to it, anticipating the palatal element by becoming palatal itself.

Nasalization is another rather frequent example of anticipatory assimilation of adjacent sounds. Speakers anticipate the nasality of a nasal consonant and lower their soft palate (velum) while articulating a preceding vowel. Abstractly:

(15) V > Ṽ / – N

In English this is an on-going process and is quite unconscious. Speakers pronouns *can't*, for example, as [kæ̃nt] (compare it to *cat* [kæt]).

Sounds do not have to be adjacent, however, for assimilation to function; it may also occur across intervening segments, that is, at a distance. A well-known example in the history of the Germanic languages (among others, German and English) is *umlaut*, the process by which the back feature of vowels changes to front, creating a series of new front rounded vowels. The stimulus for this change is anticipation of a front vowel later in the string. An example in German is the frequent use of a front vowels in a plural where the singular has a back vowel; the reason for this modern alternation is that the plural marker in Old High German was [i], whose frontness was anticipated in the articulation of the vowel in the stem:

(16) a. [back] > [front] / _ X [front], where X signify intervening sounds

b.

Modern German[54]	singular/plural	English
[hut]/[hytə]	Hut/Hütte	'hat'
[got]/gøtə	Gott/Götter	'god'
[gast]/gɛstə]	Gast/Gäste	'guest'

In each of the cases in (16b) the stem vowel in the modern plural contains a front vowel, changed from an original back vowel (still present in the singular) in anticipation of what was a plural marker in [i]. The plural marker was then modified to a [ə] in many cases and completely deleted in others. Note that in the case of the non-low vowels [u/y], [o/ø] the vowel which has undergone umlaut has not lost

54. Many details of the plural are beyond the scope of this discussion; the important matter here is the nature of the vowel in the stem, back in the singular and front in the plural.

the feature [rounded], while the low back vowel [a] merges with an existing front, unrounded vowel.

English too underwent umlaut, although the front rounded vowels (compare German [y] and [ø]) then unrounded and merged as a result with already existing front vowels without rounding. They did as well in Yiddish, another Germanic language. We can compare English *kitchen* [kɪčn] and Yiddish [kɪxə] with German [ky:çə], for example, all with the same meaning.

When assimilation is based on a sound which occurs earlier in the string, thus influencing those after it, it is referred to as perseverative since the feature spreads to other, later sounds. In early English, there were various past tense markers including *-ede* and *-t/de*, that is, those with a vowel before the past tense ending and those where this grammatical marker was attached directly to the verb. The choice of [t] or [d] in the second case depended on the last consonant of the stem; where the stem ended in a voiced consonant, the [d] appears and where the stem-final consonant was unvoiced the choice was a [t]. It seems very likely, although a reconstruction rather than proven through texts, that the [d] was more basic and assimilated, by devoicing, to a [t]. We surmise this for two reasons. First, speakers of Modern English continue to devoice the past tense marker after a voiceless stem-final consonant; although the written form is *walked*, for example, speakers say [wa^{w}kt]. Through the uniformitarian principle (see Chapter 2) and knowledge of general phonetics we can assume Old English had a similar perseverative form of assimilation. Secondly, we can look at some cases where the spelling actually reflects the pronunciation. The past tense of *weep, sleep, and keep* is spelled *wept, slept, kept* ([wɛpt], [slɛpt], [kɛpt]), reflecting, probably, the high frequency of these verbs in writing as well as in oral use.

Perseverative assimilation at a distance is much rarer and tends to affect individual lexical items rather than sound classes. It involves assimilation of a sound later in the speech string to one which occurs earlier, with some number of intervening segments. Synchronically, this phenomenon is referred to as harmony, either of vowels or consonants.[55] A clear consonantal example is pre-Latin **lirium* which becomes Latin *lilium* 'lily', where the initial /l/ perseverates across a vowel to influence the change from /r/ > /l/ at the beginning of the second syllable. Bahasa Malaysia *ourangutan*, a species of primate, literally 'man' and 'forest/wild' is commonly pronounced, at least in English,

55. Turkish is a good example of a language where vowel harmony continues to be productive, with assimilation of a vowel in a suffixal grammatical marker to a vowel in the stem. It is an agreement in frontness only (height is not assimilated). Note the variation in the plural ending, *lar* and *ler*, depending the stem vowel in çocuk/çocuk-lar 'child/children' as compared with çiçek/çiçek-ler 'flower(s)'.

as if it were *ourangutang* with the final consonant assimilating at a distance to the consonant at the end of the first syllable, in pronunciation if not in spelling.

4.2.1.2 Dissimilation As might be assumed, given the description of assimilation, dissimilation as a diachronic process indicates that sounds become less (rather than more) alike over time. It is considerably rarer than assimilation in the history of the world's languages and is often sporadic in the sense that it affects individual words rather than applying across the board. Again, unlike assimilation, it seems to be more involved with the perception of sounds than with production (Ohala 2006 is an extended discussion). Speakers may, unconsciously of course, pronounce a sound in some way which does not fully imitate the expected norm or, particularly in casual or fast speech, tend to blur the articulatory differences between one sound and the ones which surround it, either immediately or with some intervening segments. These "errors" occur, most of the time, within the domain of a single word (Ohala p. 680). Hearers, most frequently, however, may need better and clearer phonetic information to understand what is being said; while they resolve most ambiguities or mishearings without effort, some mishearings are common enough to result in language change. A series of suffixes in Latin, for example, are found to vary as to the liquid consonant:

(17) a. naturalis 'natural', spectaculum 'show', amabilis 'lovable'
b. militaris 'military', simulacrum 'image', lugabris 'mournful'

We can conclude that the suffixes in (17b) are the result of dissimilation since in each case the stem of the word (*milit-*, *simul-*, *luga-*) contains an [l]. What was presumably an original, proto-Italic/pre-Latin [l] of the suffix (compare these forms with those in (18a)) later dissimilated to [r]. Other examples are found involving nasals:

(18) Latin hominem 'man' > omne > omre > Spanish hombre

As we saw in (12), several processes come into play here, the syncope of an unstressed vowel (to *omne*), dissimilation of the second nasal to a liquid, and then the insertion of epenthetic [b]. Far rarer are dissimilations which involve obstruents, but some have been identified:

(19) Early Latin medidie > Classical meridie 'midday, noon'

Another relatively rare type of dissimilation occurs in the development of Latin into French where a Latin [e:] in open syllables (that is, where the vowel is the final segment in the syllable) lengthens and then diphthongizes to [ee] and then [ej]. We encounter the dissimilation (specifically of place of articulation) at the stage when [ej] becomes [ɔj], that is, a front nucleus followed by a front glide becomes a back nucleus followed by the same front glide. The following examples will illustrate this

phenomenon; pay attention in particular to the oi spelling which reflects the change just described. Further phonetic changes have obscured this dissimilation:

(20) a. Latin vēlum 'sail' > French voile[56]
b. Latin crēdere 'to believe' > French croire

We will return to diphthongization below.

A final kind of dissimilation involves entire syllables and is labeled haplology. Here a syllable is lost in cases where an earlier form of the word contained what seemed to be a repetition of the same syllable. To stay with Latin, *nutrix* 'nurse' is attested as *nutritrix* in earlier written forms of the language. Another commonly cited example is Old English *Anglaland* 'land of the Angles' (a Germanic tribe) which becomes Modern English *England*. Haplology occurs synchronically in fast speech as heard in pronunciations like [lajbri] for [lajbrɛri] 'library' or [prabli] for [prababli] 'probably'. Examples like these, familiar to all English speakers, point to the way in which haplology – and other dissimilations – may begin, first in casual speech, then diffusing to the standard pronunciation, and finally, but not always, to standard spelling.

4.2.1.3 Metathesis Often cited as a phonetic change, usually third in importance after assimilation and dissimilation, is metathesis. Sounds which are said to metathesize change order in the phonetic string: classical examples include Old English *acsian* which becomes Modern English *ask*[57] and Old English *bridd* which is realized as *bird* in the modern language.

It is not always clear, however, that metathesis is a real process rather than a label for the end-point of a series of processes. In the case of *bridd* > *bird*, for example, one might argue that rather than a change in the order of sounds, there rather intervened a change by which the [ɪ] became 'r-colored' (consider the pronunciation of Modern English *third* or *word* by speakers of dialects where the [r] has affected the vowel and then disappeared). The r-color on the vowel is subsequently reinterpreted as a following, rather than preceding, [r]:

(21) bridd > [bərd] > bird

Other such explanatory sequences have been proposed, although there are, in addition, instances like the development from *acsian* to *ask* where plausible intermediate

56. The modern French is pronounced (21a) [vwal] and (21b) [krwar]; the spelling of each example, however, attests to an older [ɔj].

57. According to McWhorter (http://articles.latimes.com/2014/jan/19/opinion/la-oe-mcwhorter-black-speech-ax-20140119), after a period of competition between *ask* and *aks*, the latter became identified from the 16th century on with working-class English and hence was the English learned by slaves and now identified with African-American English.

steps are harder to hypothesize. Synchronic evidence is not always helpful either; in African-American English, *ask* is often pronounced [æks] which seems to indicate that the pair [sk] and [ks] are not entirely stable in pronunciation and do not call for any more elaborate an explanation.

The above examples show two segments which before and after the change (or series of changes) are contiguous. In other cases, often involving liquids, the reordering of sounds may involve intervening segments:

(22) a. Latin miraculum 'miracle' > Spanish milagro
b. Latin parabolum 'word, parable' > Spanish palabra 'word'
c. Latin periculum 'danger' > Spanish peligro

In each case the Latin sequence [r, l] becomes Spanish [l, r].

4.2.2 *Suprasegmental influence*

In all of the preceding section, we examined the ways in which sounds may influence each other, thus, over time, bringing about phonetic changes. Because sounds are produced and perceived in a string, the influence of adjacent sounds and of those articulated at a distance both come into play. With suprasegmentals, on the other hand, we have a different set of features, those which are produced at the same time as the segments themselves. In considering suprasegmental influences on change, we find that length and stress are those features which interact most frequently with phonetic segments.

4.2.2.1 Lengthening and diphthongization Under the influence of various non-segmental factors (stress and syllable type), vowels may lengthen over time. It may happen spontaneously in an open syllable also as the result of other changes. In Late Latin, for example, consonant clusters such as [ns] simplified to [s], thus causing the syllable once closed by the [n] to become an open syllable:

(23) Latin pen sum 'weight' > *pē sum > poids

Our evidence for the lengthening (note that the earlier form is unattested) is that the further development of the vowel is that of a Latin long rather than short [e:], marked by the macron (long mark) over the vowel. This change is often labeled 'compensatory lengthening' since the vowel expands into the articulatory space previously taken up by the consonant.

Let us return to the phenomenon of diphthongization and consider how it may arise. Diphthongs, first, are complex segments consisting of a nucleus and a glide. The glide may precede the nucleus (the [j] of [je]) is called an on-glide) or follow it (in [ej] the [j] is an off-glide). Common glides (also called semi-vowels) are [j] and [w], a front high non-syllabic reflex of [i] and a back high non-syllabic reflex of [u] respectively.

To understand how diphthongs arise, it is helpful to bring in the notion of the mora, a unit of pronunciation which refers to the (abstract) weight of the syllable. The basic mora consists of a short vowel which closes the syllable in which it occurs; that is, there are no following consonants in the same syllable (preceding consonants in the same syllable are, for this matter, inconsequential). A syllable containing a long vowel, a diphthong or a post-vocalic consonant consists of two morae. Remember that when compensatory lengthening takes place, as in (23), the change in vowel length maintains the two-moraic syllable despite the loss of the post-vocalic consonant.

Where we find a syllable of one mora, then, and especially taking the stress accent of the word or phrase, we have the potential for lengthening of the vowel since the addition of another mora to the syllable is not uncommon. The vowel usually lengthens first (think of it as stretching to take up all the potential 'space' in the syllable) and then, because it is too long for the articulators (tongue, lips) to maintain their position, breaks into a nucleus and glide. This is diphthongization, as schematized in (24) where V is any vowel and G any glide:

(24) V > VV > GV or VG

The nucleus may not remain constant in diphthongization. Let us return to the English so-called Great Vowel Shift, discussed above in Section 3.2. Here diphthongization takes place when [i] becomes [aj] and [u] becomes [ow]. We can consider the change in the nucleus a kind of dissimilation, where the core vowel (that is, after all, what the nucleus is) lowers and thus becomes further differentiated from the glide, which is necessarily a high segment, in terms of place of articulation.

One further example is taking place in American, specifically Midwestern, English. Known as the Northern Cities Vowel Shift (and chiefly affecting the English of speakers who live around the Great Lakes in cities such as Detroit, Chicago, and Cleveland), it consists, in part, of new diphthongs where the glide is not high but central, a schwa [ə]. As a result, the front mid-vowel become centralized, with [æ] becoming [ɛə]. Examples, therefore, include *bad*, pronounced [bɛəd] and *Dad* now pronounced [dɛəd]. This is part of a more complex chain shift, but this limited example will suffice here.

4.2.2.2 Monophthongization and reduction As a counter to lengthening and diphthongization of vowels, are found instances of monophthongization and reduction (which may or may not include a change in the quality of the segment). As one might guess, monophthongization is the change by which a diphthong becomes a simple vowel. Among changes from Classical to Late Latin are the following:

(25) a. [aj] > [e], caelum [kajlum] > *celum [kelum] 'sky'
b. [aw] > [o], causa [kawsa] > *cosam [kosam] 'case, cause'

Note that in both instances (and many others), it is not the case that the nuclear vowel simply remains with the loss of the glide; rather there is a modification of the diphthong which involves a change in vocalic quality.

Vowel shortening may take place when a syllable becomes closed by a following consonant or even two. This was the case in English where the vowel in past tense forms became shorter than in the present tense forms after the loss of final vowels caused the new final syllable to be doubly closed. The results are pairs such as *weep/wept*, and *keep/kept* which are a result of the following historical development:

(26) Old English [e] > [ɛ] / _ CC#

Finally, there are many cases where a lack of stress leads not just to shortening, but to a reduction of the vowel or even its disappearance. In the development of French from Latin, non-stressed vowels which were either internal to a word or final disappear, with the exception of [a] which becomes [ə]:

(27) a. cordem 'heart' > coeur [kœʁ], calidus 'hot' > cal'du > chaud [ʃo]
b. rosam 'rose' > rose [rozə], ornamentum 'ornament, decoration' > [ornəmã]

In (27a) the final vowel in each word disappears, as does the unstressed medial [i] in *calidus*. In (27b), unstressed [a] is the exception since it remains as a [ə]; a complicating factor in later French is that a [ə] in final position is rarely if ever pronounced, although it is still present in the spelling (as in *rose* [roz]). Factors, some purely linguistic, some cultural, and some even a matter of personal style, govern the pronunciation or absence of the [ə] internal to a word or phrase.

To summarize Section 4, multiple factors are at play in conditioned phonetic change including the presence of surrounding sounds. These sounds may precede or follow the sound which changes and may be either contiguous or separated from the target sound by one or more segments. In addition, these conditioning factors may be suprasegmental, since stress and vowel length – or their absence – may bring about changes in a given segment.

5. The wider context

In this section the role of non-phonetic considerations in phonetic change will be discussed. As will quickly be apparent, the material here applies not only to sounds, but also to other components of language which are susceptible, in varying degrees, to change. All of these factors fall under the very wide heading of social

conditioning of change, specifically here, imitation, borrowing, and ways of interacting with one's interlocutors, those people speakers are addressing.

5.1 Imitation and borrowing

In Chapters 2 and 3 there were discussions of borrowing, in the first of these chapters apropos of the general phenomenon and in the second relative to the lexicon and lexical change. Although the borrowing of sounds is quite a bit less common, it is not unheard of and often arises, not surprisingly, from imitation of the pronunciation of a borrowed word. For example, consider the nasalized vowel found in English at the beginning of the often-mispronounced French borrowing *lingerie*. English speakers, in an attempt to keep the 'Frenchness' of this elegant word for 'underwear,' always pronounce a nasal vowel, either the original [ɛ̃] or the modified [ã], and omit the following [n]. Neither of the nasal vowels exists in English except when followed by a nasal consonant; the sequence has been (mis-)borrowed. It is a matter of some debate then whether these nasal vowels should be thought of as part of the English phonological system or rather as part of a peripheral inventory of borrowed sounds.

5.2 Fortitions and lenitions

Phenomena involved in phonetic change include the mirror-image processes of fortition and lenition in pronunciation, often in response to the circumstances in which one is speaking. Fortition, which is generally unconditioned, is a process by which sounds are pronounced at what one might call an exaggerated level of strength, with the result that the distinctiveness of the sound is enhanced. As a preview to the next chapter, it can be said that fortitions define the central, or prototypical member of a set of allophones (Nathan 2007: 75) synchronically, although their pronunciation may lead to lengthening and, eventually, diphthongization diachronically. Dissimilation (consonantal and vocalic) is also most often a fortition. We can think of fortitions as emerging in formal speech, theatrical speech (and particularly recitations), and when speaking to small children or to non-native speakers. For example, in American English voiced stops are often pronounced as voiced implosives when talking to children, but in some languages historically earlier voiced stops develop into implosives. The English diphthongized tense vowels in words like *see* and *say* are the result of fortitions.

Lenitions, on the other hand, are by definition conditioned by the surrounding speech chain since they consist of a lessening of distinctiveness, an articulatory blending of one sound into another. Many of the processes discussed above (assimilation, voicing, nasalization, etc.) are lenitions since sounds become more alike as a result. Note that these processes may be viewed synchronically, what may be called fast speech phenomena or diachronically, as mechanisms resulting in permanent change rather than variation which is more or less controlled by the speaker. A synchronic

example would be the pronunciation of intervocalic /t/ and /d/ as the voiced alveolar tap [ɾ] in words such as *city* and *butter*. A diachronic example is the development of voiced stops in Spanish from Latin voiceless stops in words such as Latin *patre(m), aqua* becoming Spanish *padre, agua* 'father, water'.

6. Consciousness of change

If phenomena can be viewed both synchronically and diachronically, how can change (as opposed to variation) be identified? This is a question we will come back to several times in the next chapters, but two preliminary – although perhaps contradictory – comments will be useful here. First, it seems relatively simple to state that a change can be said to have taken place when speakers of a language (or dialect – perhaps a safer designation) no longer recognize the earlier form as part of their language/dialect. When no English speaker 'knows' that the [ɛ] of *kept* was once [e] or that the [aw] of *mouse* was once [u], we can label [e] > [ɛ] as a shortening or laxing and [u] > [aw} as lowering and diphthongization.

The second comment, however, is really a question: what does it mean for all speakers to forget an earlier form? Some may remember it as the way their grandparents spoke[58] but would never use that pronunciation. In other cases, an earlier form (as established by historical linguists) is a variant from a neighboring dialect. Does recognizing a pronunciation from the next village count as remembering? How many generations does it take for an entire community to change? These questions are in some ways less important for the lexicon where so many items come and go at frequent intervals, but even with sounds it is hard to say when something is truly forgotten. We will return to this matter apropos of morphology and grammar as well, but will never fully resolve it. The question is an important one, however, in consideration of what speakers carry as their knowledge of a language, including the recognition of variation and even change.

7. Conclusion

The first part of this chapter (Sections 1 and 2) will have served as a review for many readers and as a rapid introduction to phonetics for others. Sections 3 and 4 present

58. A teacher of mine, who was born around 1910, remembered his mother, born in the middle of the 19th century, as saying [spɪ nədʒ] rather than [spɪ nətʃ]. Can we say that the sound change had not taken place because the earlier pronunciation was remembered?

the meat of phonetic change, divided, as is traditional, between unconditioned and conditioned change respectively. Section 5 opens this very technical material to the wider social context of change through borrowing, while Section 6 poses, for the first time, the question of when change might be said have been completed. The next chapter will continue the study of sounds, now viewed as members of a language-specific and time-specific system.

Exercises

1. What mechanisms of sound change are illustrated by each of the following?
    a. Indo-European [*b] > [p]
    b. Latin [o] > Italian [uo] / [open syllable]
    c. Indo-European [le] > Armenian [el] / # __
    d. Latin [s] > [Vs] / # __ [p, t, k]
    e. Proto-Polynesian [t] > Hawai'an [k]
2. What features of sounds are involved in shifts from Proto-Indo-European (PIE) to Proto-Germanic (PGmc) to Old English (OE):
    a. PIE [p, t, k, k^w] > PGmc [f, q, s, x, x^w]
    b. PGmc [f, θ, s, x] > [β, ð, z, ɣ]
    c. PGmc [b, d, g] > [p, t, k]
    d. PGmc [z] > OE [r]
3. How are the following humorous variations of phonetic terms self-defining?
    a. assissilation
    b. nanalination
    c. epenithesis
    d. apocop
    e. diephuongization
4. Consider the Northern Cities Vowel Shift, discussed in this chapter. Is it an example of variation or of change? What tests can be applied to this set of changes to decide? How does talking about the English Great Vowel Shift help clarify this question?
5. Why is it so difficult to decide between a push chain and a pull chain as the origin of a set of changes (again, think of the Great Vowel Shift)?
6. Where would you find fortitions in speech? Pay attention to how you speak in different circumstances and how those around you vary their speech as social contexts vary.

For further investigation

Consider the following pronunciations, the first British English (Cockney, to be more precise) and the other two found in American speech: *chimblee* (Cockney pronunciation of 'chimney'), *what's up* pronounced /wasʌp/, and *athlete* pronounced /æθəlit/. First, what is going on phonetically in each of these instances? Why would or would they not remain non-standard? Are there other examples you can think of? Finally, consider *often* /ɔfən/, increasingly frequently pronounced /ɔftən/, not just in casual speech but in broadcast English as well. Does the status of the still (arguably) non-standard version with the [t] shed any light on what might happen in other cases?

CHAPTER 5

Phonological change

1. Introduction

We will now turn from phonetic change to phonological change, remaining for one more chapter in the realm of sounds, although we will consider them in a somewhat more abstract way here. The first part of the chapter (Section 1) will discuss the differences between phonetics and phonology, followed by an introduction to the idea of phonemes as categories. Both sections will be of importance for understanding the rest of the chapter, an overview of how whole phonological systems (and their subsections) change over time. More specifically, Section 2 provides an inventory of the mechanisms and outcomes of phonological change, while Section 3 returns to categorization to propose ties to the role of cognition in change. A last short section serves as an introduction to the difference between the actuation of changes and their wider adoption; Chapter 8 will be entirely devoted to these matters.

1.1 Phonetics and phonology

As we saw in the last chapter, phonetics is the study of human speech conceived of as a string of sounds, how they are articulated and perceived, how they may influence the sounds which surround them, either immediately or at a distance, and how they may group together. Given this range of topics which fall under phonetics, we can see that change occurs, among other ways, in articulation (1a), in the perception of sounds (1b), and in the ways in which they may influence each other or cluster (1c). All of these aspects of phonetics were discussed in the previous chapter:

(1) a. u > y (Latin [u] fronts to [y] while maintaining its rounding in French)
b. x > f (acoustically close sounds merge, resulting in English *laugh, rough*, etc. with a spelling which indicates an earlier [x])
c. n > ɲ / _ [j] (palatalization in Romance – and in other languages and families – [n] before a high front glide)

Phonology, on the other hand, does not talk about sounds as physically articulated and perceived units, but rather, more abstractly, about how units of sound ('unit' as the correct term here will be discussed in 1.2) are organized structurally for a given

language at a given time.[59] Phonemes, as these basic phonological units are called, interact with each other in different ways from sounds themselves. They may influence each other in ways similar to the those in which sounds themselves have influence, but the results are perceptually and often organizationally different. For one thing, speakers *know* at a higher level of consciousness (to be discussed below) about phonemes, but not necessarily about physical sounds. Nathan (2008: 2) uses an architectural analogy which captures the difference between these two areas of study: we can consider both the materials used in creating a building (bricks, wood, concrete, glass, etc.) and also the structure of the building (the number of stories, the shape of the building, and so on). The building materials are sounds, studied in phonetics, which may or may not be grouped together for the sake of study (we can, for example, describe the articulation of an individual sound in isolation). The structural elements are phonemes, studied in phonology, which by their nature interact with each other just as building elements (doors, windows, extensions, and so on) do. We will now turn to the phoneme.

1.2 The phoneme

Since we will be primarily interested in how phonological change comes about and functions, there is no place for anything but a rapid consideration of the phoneme as a linguistic entity. Its very definition has given rise to a very wide literature containing a number of different conceptualizations, each of them entailing differences in how the phoneme is thought to fit into Language, both synchronically and diachronically.[60] Leaving aside theories which question its very existence (something that will not occur here), all the theories are in general agreement that phonemes are the units which naive language users (all those who are not scientifically trained to study Language) can perceive and even talk about ("how odd – that speaker says /k/ where the word is spelled g and we pronounce it /g/").

All theories of the phoneme agree that phonemes can be identified by their use in contrasting words ("I said *greet* not *greed*", where /t/ and /d/ contrast). This contrastive function serves as a test for a unit being identified as a phoneme and not just a phonetic unit in that it differentiates words in the same language where all other features of the speech chain are otherwise identical; consider the initial segment of 'pin' and 'fin', the vowel in 'pin and 'pan', etc. Beyond that general agreement, there are areas of difference from theory to theory.

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59. For overviews of phonology, both from a generally synchronic point of view, see Hayes (2009) and Nathan (2008). Hayes represents a more mainstream approach, while Nathan falls within the Cognitive Linguistics framework.

60. Nathan (2008: 2–6) is an overview of theories of the phoneme and the names of those linguists associated with each conceptualization.

Various linguists have made claims, for example, about the phoneme's realm of existence: is it a physical sound, somehow privileged among all the sounds studied phonetically, or is it a mental image, existing only in the human mind to serve as a way of organizing sounds within a language? If the first idea is true, then we need to account for why specific sounds are so salient in the speech chain. Why are they picked out? If the phoneme is purely a mental entity, on the other hand, how do we relate it to physical sounds?

We will turn to categorization as a solution to this dilemma, thus calling again upon the notions first presented in the chapter on the lexicon. Categorization will also serve as a central notion in discussions of morphology and syntax in subsequent chapters. A phonological category (developed in Nathan 1989, 1996, 2008) is based on the same configuration as a lexical category: the best or central instance is the prototype, while other, often more complex, instances of the unit extend in various directions from the center. Just as a paper cup is less prototypical in western cultures than one made of porcelain, terracotta, or even plastic, certain kinds of sounds are less prototypical than others. It is important to note that the prototype, then, provides the somewhat abstract name of the category since it refers to a phoneme, but it also refers to the most central member of the category. Members are phonetic manifestations of a phoneme and the central one is the most frequently called upon, the one which often corresponds to the spelling of this class of sounds (see the discussion of /l/ just below), and the one from which, by small phonetic modifications, the other versions can be most directly derived.

Let us take as an example the phoneme /l/] in English. Phonetically, it comes in two varieties, the so-called 'clear' [l] at the beginning of words and syllables (*look*) and the 'dark' [ɬ] in word- and syllable-final position (*pull*). The clear [l] often palatalizes before a front vowel and may even lose its lateral quality so that all that is left is /j/ (French *famille* /famij/ from Latin *familia* 'family'). It becomes dark before a velar and this dark [ɬ] may even become /w/, again with the loss of lateral quality (English dialectal [ɛw] as the name of the letter of the alphabet following k̲ and preceding m̲). We posit the clear [l] as the prototype for several reasons. One is that it is neither palatal nor velar by itself, but is the source of palatalized [ʎ] (and hence [j]) as well as the dark, velarized [ɬ]. Other reasons are typological (that is, based on examining a range of languages around the world): far more languages have clear [l] than dark [ɬ], and very few have a dark [ɬ] without a corresponding clear reflex. The radial set is set out in Figure 1.

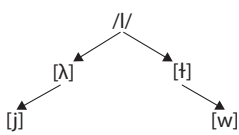

Figure 5.1 Radial set of /l/

As can be seen from this rather simple phonological set, if we place /l/ in the center as the prototype, we can motivate all the other changes in the most straightforward way. Any other choice for prototype would entail more steps to the extensions (and hence greater complexity in the set) and would be counter to typological/comparative evidence. Finally, note that the central symbol, [l] is embellished in the extensions with further graphic features when marked for either palatalization or velarization; only the symbols for versions which have lost the feature of laterality are once again simple symbols.

What we gain from this approach is a solution to the conflict between mental and physical notions of the phoneme. A prototype is part of its set and therefore, in the case of sounds, has physical properties; it can be pronounced and in fact is pronounced more often than other members of the same set. It therefore stands out for speakers of a given language at a given time. Because of that salience, by virtue of the nature of a radial set and the role of the central member, it serves as well as the organizing unit within the set. The rest of the chapter will therefore treat the phoneme as the prototypical member of a set of sounds.

1.3 Formalism

Phonemes are designated not by square brackets ([x]), but by slashes (/x/) as they were above in the discussion of /l/. Another distinction is important to note as well: when we want to state formally that a synchronic modification has happened (for example, the tendency of speakers of English to velarize [l][61] before all other consonants), we mark the change with an arrow:

(2) l → [ɬ] / _ C

That is, [l] is velarized in the environment (the slash) of a following consonant. As was indicated in Chapter 4, the line before the C (a shorthand for 'consonant' as V is for 'vowel') indicates where the sound being discussed ([l] in this case) is situated in relationship to the environmental feature which is an influence on it. Again, the process is synchronic; it occurs in real time as speakers of English produce strings of sounds.

If the modification is diachronic, that is, a historical change, then instead of an arrow, we use the arrowhead (also referred to on occasion as a 'wedge' because of its shape). In French, for example, this velarization occurred where Latin had an [l] and often became [w] before merging with preceding vowels (consider the fate of [l] in Latin *saltare* [saltare] which becomes French *sauter* [sote]):

61. The square brackets here indicated that the process being used as an example is phonetic, not phonemic.

(3) a. l > ɬ > w/ _ C
b. aw > o

Note also that in 3a. the C follows the [l] and thus is designated after the slash, preceded by the underline, thus showing where the affected sound would occur relative to the environment.

1.4 Summary

This introductory section should serve as a resource for the rest of the chapter. As opposed to Chapter 4, we are talking here about the phoneme, understood as the variation within a group of sounds which best organizes the rest of the sounds in the group. The remaining sections of the chapter will explore how phonemes change over time, both as individual units and in their interaction with other phonemes in a given language.

2. Processes of phonemic change

The traditional approach to looking at changes in phonemes (that is, again, phonological – as opposed to phonetic – change) is to consider what happens when these units merge or split, in each case changing the number of phonemes in a given system or, at least, the way in which the system is configured. We will first consider these modifications in the phoneme inventory of a language (after all, if there is a merger, there are fewer phonemes and if there is a split there are, at least some of the time, more of them).

2.1 Merger

This is perhaps the most transparent of phonological changes. Phonemes may merge, either in all contexts or in specific ones within a word or syllable. When the merger takes place, sound units which had served to differentiate two words semantically no longer do so and therefore no longer serve as organizational entities within the system. Pairs of words which are differentiated in meaning by one sound (think of *tin* compared to *din* in English) are called 'minimal pairs'; the phoneme inventory for a given language is to a great degree based on the identification of these pairs. The number of contrasting lexical items is called the 'functional load' of the pair. It has long been believed (Martinet 1984, for example) that, where the functional load is low, there is a greater likelihood of merger; While this seems to be common sense (not a bad place to begin), it has recently been tested on a number of languages and confirmed quantitatively (Wedel et al. 2013); that is, where the functional load of a pair of phonemes

(arrived at by counting the number of minimal pairs it creates) is low, there is a significantly higher chance that the phoneme contrast will disappear through merger. Standard Modern French, for example, has largely lost the contrast between / ɛ̃/ and / œ̃/ where only one or two pairs exist.

In Classical Latin not only did vowel phonemes represent distinct articulations (/e/ as opposed to /i/, for example, as in English) but also two possible lengths, so that /e:/ and /e]/ were perceived as completely different; evidence for phonemic length comes from Latin poetic meter which depended on vowel length as well as from what happened to otherwise articulatorily identical vowels of different lengths as Latin evolved into the Romance languages. There is good evidence, therefore, that speakers of Classical Latin clearly differentiated *venit* /wenit/ 'she comes' from *vēnit* /we:nit/ 'she came' through the difference in length of the vowel of the first syllable.

As Latin evolved over time, a series of changes brought about the loss of length as distinctive. One of the consequences was that phonemic /a:/ and /a/ merged completely. In Classical Latin, for example, *malum* 'bad' and *mālum* 'apple' were minimal pairs, differentiated in pronunciation – and hence in meaning – solely (that is, minimally) by the length of the vowel in the first syllable. Other examples include *labor* 'work' and *lābor* 'I slide', *caro* 'flesh' and *cāro* 'I card (wool)'. One might object that the second and third of these pairs are hardly ambiguous since in each case the item with a short vowel is a noun (*labor* and *caro*) while the long vowel is to be found in the first syllable of a verb form (*lābor* and *cāro*). It was items like these, presumably, that allowed the merger to occur in the first place; little if any harm was done to communication. However, when it comes to *malum* and *mālum*, there develops the potential for speakers to find ambiguity in statements like *malum video* 'I see an apple/a bad thing'. Speakers adjust (think of the many homonyms there are in English), but the ability to differentiate by vowel length no longer exists after the merger, with the result that the number of phonemically differentiated vowels in Latin was reduced from 10 to 5. With the loss of one phonemic feature, then, the inventory was halved.

Some mergers are conditioned; they take place, not across all contexts, but rather at a specific point in the word or syllable. A well-known case in point involves final consonants, both stops and fricatives, in German. In earlier forms of the language, the voiced and voiceless varieties were found in all contexts, contrasting with each other so that different meanings were recognized with the change in sound. Think of English *tent* and *tend*, two words with different, unrelated meanings, differentiated on the phonetic level by the voicing difference of [t] and [d] and thus indicating that /t/ and /d/ are English phonemes.

Contemporary German spelling seems to indicate that there are voiced and voiceless final consonants; the pronunciation is, however, only voiceless. We find written

pairs, for example, like *Rad* 'wheel' and *Rat* 'advice', both pronounced [rat]. Other similar sets include *bunt* 'colorful' and *Bund* 'association', both [bʊnt]. The spelling is indicative of earlier pronunciation, supported by other grammatically related forms of the words. To return to the first example, in the plural the voicing contrast is still present: *Räder* 'wheels' is pronounced [redə] while *Rate* 'pieces of advice' is [ratə]. A third piece of evidence for the merger is the fact that we can account for it phonetically through a special kind of assimilation; the silence following at the end of a word or even, very briefly, the end of a syllable inside a word, by definition lacks voicing, and the word-final obstruent assimilates to that voicelessness.

There are consequences in merger for the phonemic inventory, as was stated above, in the sense that there now exist fewer phonemic categories. But if that is not to say that all members of the set (or even any of them) disappear. They may instead become part of other already existing categories as final voiced sounds in German did or form a conceptually new category as Latin /a/ did, incorporating what was left of both short and long /a/, when the length distinction was lost, as one unit.

2.2 Split

If phonemes can merge, either unconditionally or in response to certain phonetic conditions, it seems logical to suppose that they can also split. But in order to split, they must be understood as consisting of smaller entities, called allophones, which can then separate under the right circumstances. Allophones are conditioned variations of the central phoneme, which should be thought of as extensions within a radial category in the sense laid out above. A frequently repeated example is that of the sounds [t^h] and [t] in English where [t^h] is the aspirated variant, produced with a small puff of air as an aspect of its articulation. We find the aspirated variant (as well as other voiceless aspirated stops [p^h] and [k^h]) in word-initial position. The non-aspirated variety, in contrast, does not occur in word-initial position, but rather after [s]; contrast, for example *top* [t^hap] and *stop* [stap]. The two variations of the phoneme /t/ are conditioned, therefore, by their position in the word and by the sounds which do or do not precede them. Another example of allophonic variation occurs in modern French where the mid-high (or tense) [e] always occurs in an open syllable, that is, one whose last segment is a vowel, while the mid-low (or lax) [ɛ] occurs in a closed syllable, one whose last segment is a consonant. French speakers therefore automatically pronounce one or another of these mid vowels depending on the syllable type; in (4) are words with both vowels:

(4) a. [e lɛv] *élève* 'student'
b. [re pɛt] *répète* 'repeat' (imperative, intimate form) as opposed to
[re pe te] *répétez* 'repeat' (imperative, non-intimate form)

This section will consider two kinds of split, those which result in more complex phonemes through new allophones, and those which result in new phonemes.[62]

2.2.1 *Allophonic split*

The first kind of split is one with phonetic, rather than phonological results, in the sense that the number and configuration of phonemes in the language do not change. Rather there is a rearrangement of allophones (purely phonetic elements) with some new allophone merging with another phoneme. We can consider German devoicing of final voiced obstruents, discussed above, as a first example, although what is important in this context is not the eventual merger of the voiceless variant with another phoneme, but rather the first stages of the change. As was said above, given evidence of German spelling and comparisons with other Germanic languages, it can be surmised that early German had both voiced and voiceless final consonants. At some point, however, the conditioned change of voiced to voiceless obstruents occurred in syllable- and word-final position. In modern German, what was pronounced as a final [d] is now pronounced [t]. Since there is a phoneme /t/ in the system, this newly voiceless final stop is perceived as having become a variant (if not strictly an allophone) of /t/. It is then that the result of the split is a partial merger.

Another well-studied case is that of Latin rhotacism, the process by which /s/ becomes /r/. The phonetic details are not entirely well understood, but we must surmise that the [s] voiced to [z] and the [z] became [r], as did, in other languages, other alveolar consonants. In early Latin we have clear records of the spelling s for which there is evidence of a pronunciation of voiceless [s]. In intervocalic position (that is, between vowels, themselves voiced elements) the [s] became [z], assimilating to the voicing around it. The [z] then rhotacizes to [r]. The best evidence in Latin comes from pairs of grammatically related words where in the Classical period the spelling is s in final position and r intervocalically:

(5) a. flo-s nom[63] – flo-rem acc (Old Latin flo-sem) 'flower'
genus nom – generis gen (from *geneses, cf. Sanskrit janasas) 'type, kind'

b. ju-s-tus – de ju-re (from de juse) 'just', 'by right, justice'
ro-bus-tus – ro-bur 'strong', 'oak tree'

c. est – erit- (from esit-) 'he is', 'he will be'

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62. The structuralist designation for the split which resulted in the movement of allophones from one phoneme to another is 'primary split', while the kind of change which resulted in new phonemes is called 'secondary split'. Since these terms are not easily understood and can, in fact, be misleading or counter-intuitive, they will not be used any further in this chapter; it will be helpful to recognize (if not use) them in research on phonological change using a range of earlier or more traditional published sources.

63. *nom* is an abbreviation for 'nominative', the subject form of the noun, while *acc* stands for 'accusative', the direct object form and *gen* for genitive, the possessive.

The examples in (5a) are both contrasting members of the same noun declension, the first of each pair in the nominative case (*flos, genus*) where the [s] appears in final position and the second in another case (*florem, generis)* where an intervocalic [s] becomes [r]. In (5b) the adjectival form shows the original [s] while the noun form (*jure, robur*) has the rhotacized [r].[64] In (5c), finally, we have contrasting tenses of the verb 'to be' with a present tense where the [s] precedes another consonant and a future tense showing, again, intervocalic rhoticism.

In all these examples, to conclude, the phonemic inventory of the language has not been modified. Rather a single allophone of one phoneme has changed in ways which cause speakers to identify it with another phoneme or, in terms of cognitive functioning, the allophone in question becomes a member of a different radial set, now an extension of the phoneme /r/ rather than /s/.

2.2.2 *The creation of phonemes: Phonologization*

The phonological change to be discussed in this section is often considered a more radical one since it does not result simply in a redistribution of allophones (thus remaining largely inaudible and unnoticeable to native speakers).[65] Rather new phonemes evolve, with consequences for the entire system. We will look at two examples first, considering them in some detail, and then return to a more general discussion of phonologization, the creation of phonemes.

The first of these examples involves further consideration of Germanic *umlaut* which was presented in Chapter 4 as an example of anticipatory assimilation at a distance. In brief, a non-front vowel ([back]) becomes fronted ([front]) in the environment of a following front vowel where there are some intervening sounds between the affected vowel and the trigger (X); (6) Is repeated from (16a) in Chapter 4:

(6) [back] > [front] / _ X [front]

Again, as a reminder, this formula results in pairs in modern German like *Hut/Hüte* 'hat', pronounced [hut]/[hytə] as well as pairs of words such as German *Küche* [ky: ç ə] and English cognate *kitchen*; the English is the result of a change whereby the front round [y] of an earlier period has subsequently unrounded to [ɪ].

---

64. The form *robur* 'oak tree' should raise eyebrows since the [r] is in final (not-intervocalic) position. We have a case here where the nominative which should, logically, take the [s] form has changed by analogy to the non-nominative forms where rhoticism took place; there will be much more on this topic in Chapter 6.

65. Where allophonic changes are, of course, noticed is when they are reflected in spelling. In cases, for example, where an allophone of [s] becomes [z] and then [r], there is little orthographic note taken of the development as long as it is in the first stage; a written s in many languages is pronounced [z], cf. English *nose* [no:z], French *phrase* [fraz]. When the second stage occurs, however, the spelling changes along with the allophonic modification; note the r contrasting with s in the examples in (5).

What happened in German goes further, however, and becomes relevant for the phonological system of that language. The early plural marking ending [i], which triggered the assimilation in the first place through anticipatory assimilation, disappears. As a result, these new front-rounded vowels are no longer conditioned by a following element and may, in some cases, contrast, as a minimal pair, with a front unrounded vowel or a back rounded vowel in the same environment. Once the conditioning element disappeared, German developed minimal pairs like those in (7a) as well as singular/plural pairs as in (7b).

(7) a. Kuche /kuxə/ 'cake' and Küche /ky:çə/ 'kitchen'
b. Garten/Gärten /a ~ e/ 'garden/gardens', Mutter/Mütter /u ~ y/ 'mother/mothers'

As a result of these new minimal pairs, we can say that we are in the realm of phonological change.

Germanic languages acquire a new set of phonemes, the front rounded vowels /y/ and /ø/, spelled *ü and ö* respectively, as well as the front unrounded vowel /æ/, often subsequently merged with /e/. In some of the Germanic languages (English, Yiddish) further changes obscure this development since the once back vowels unround after fronting and then merge with other front vowels; English *kitchen* and the Yiddish equivalent *kikhe* are examples of the unrounding of /y/ to /ɪ]/. In German, these rounded front vowels are of themselves markers of plurality as in the examples in (7b). The process of indicating plural with this kind of vowel then becomes a grammatical marker and extends analogically to the plural of other words where there was never a phonetically-based trigger; among these are *Dörfer* 'towns', *Täler 'valleys',* and *Wörter* 'words'.

A second example of phonologization shows the interaction of several factors which lead to new phonemes. In Old English, the voicing of fricatives was positional, that is, conditioned by the place of the segment in the word. Put otherwise, the voiced and voiceless versions could not occur in the same position in the word: voiceless fricatives ([s], [f], [θ]) occurred in initial and final position, while voiced variants ([z], [f], [ð] occurred intervocalically. The alternations were allophonic, then, since there were no possible minimal pairs and it was possible to define clear-cut conditioning factors.

Several things happened, however, some of them phonetic and some belonging rather to the external history of the language. In intervocalic position Old English geminates (double consonants) simplified, leading to new voiceless consonants. Old English *wikke* 'wicked' and *wike* 'week', despite their spelling, have the same consonant (/k/) in modern English where in Old English there was a contrast between long /k:/ and /k/. Earlier in Old English a dialectal change, in the Southwest of England, saw initial fricatives become voiced. The name of the region, called Somerset up to today, is pronounced with an initial [z] and another [z] at the beginning of the last syllable, for example. Some words were borrowed into the standard from this dialect during

the period of transition between Old and Middle English, with the result that an initial /v/ was found in words such as *vixen*, a female *fox*.[66] Words beginning with voiced fricatives entered the language from French as well, especially after 1066 and the Norman conquest of England. It was during that period that words such as *veal* became common. Finally, /ə/ in final position becomes silent, although it remains in spelling, a very common change for this unstressed sound. The result of the disappearance of final /ə/ is that fricatives that were once intervocalic and thus voiced now find themselves in final position, although they maintain their voicing. In modern English this development is still audible in pairs like the nominal form *breath* /brɛθ/ and its verbal counterpoint *breathe* /brið/.

The story, as was said above, is an intricate one, with changes occurring in initial, intervocalic, and final position, stemming from phonetic developments (the degemination of intervocalic geminates and the loss of final /ə/), on the one hand, and, on the other, borrowing of lexical items with their pronunciation both from a foreign language and from a dialect of the same language. The neat distribution of voiceless and voiced consonants has therefore disappeared and the presence of these reflexes ([s] or [z], [f] or [v], [θ] or [ð]) can no longer be predicted. English now has minimal pairs like *feel/veal* and *mace/maze*. The lack of predictability and presence of minimal pairs are strong evidence of the phonemic status of both voiceless and voiced fricatives. It is not unreasonable, in fact, to recognize what can be called a conspiracy in these linguistic events, not planned as such, but resulting in new phonemes from these disparate influences on Old English.

3. Phonological change as recategorization

3.1 Individual changes

In Section 1.2 of this chapter, the notion of categorization, first developed for the lexicon, was extended to the phoneme. In that section, the discussion was synchronic, and the category of /l/ in English served as a somewhat extended example of how a phoneme, with its allophones, can be conceptualized as a radial category, organized around a prototypical member and its extensions. There are, of course, diachronic consequences to thinking of the phoneme as a mental category (see the references to Nathan 2008 for further reading on the synchronic side). The general phenomenon which we are addressing is recategorization, a historical process that was introduced for the lexicon and will be brought to bear in subsequent chapters as well as a way of

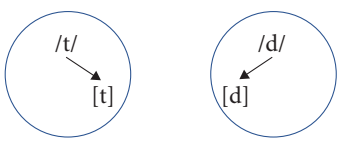
66. Note, by the way, that the feminine is a diminutive and has undergone umlaut.

characterizing morphological and syntactic changes. For now, however, the focus is on systems of sounds and their existence as a system of categories.

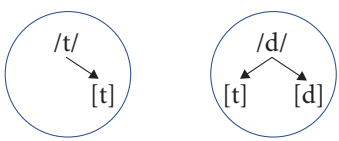
The merger of phonemes, first, should be viewed as a loss to the number of categories in the phonological system of a given language at a given moment (see below in Section 3.2 for an expansion of this idea). When length was phonemic in Latin, to return to a previous example of unconditioned merger, we could argue that /e:/ and /e/ were individual categories, each perhaps with allophones (that is a conditioned phonetic variation) of [ɛ:] and [ɛ] respectively in a closed syllable. With the merger in length, the number of vowel categories is reduced from ten to five before other changes occur. We cannot say which of the two earlier phonemes (differentiated by length) takes in the other one since the merger is complete and length is no longer a phonemic feature.

In the case of Germanic devoicing of obstruents, the merger only occurred in word- and syllable-final position. As a result, we can with some confidence propose that the newly voiceless sounds were the ones to be recategorized, merging with the voiceless obstruents which already existed in Germanic. The change can be viewed as taking place in stages, with voiced obstruents first developing a conditioned allophone in word-final position. This allophone is subsequently recognized as being the same sound as that of the prototypical member of the voiceless category. There must have been some categorical overlap before the allophone of the voiced phoneme was viewed as being completely identical with the voiceless. The process would have interacted with spelling, since final obstruents which come from a voiced sound are still spelled with the letter representing the voiced sound so that both *Rad* 'wheel' and *Rat* 'advice' in modern German are pronounced [rat]. The following is an approximation of the stages of the change:

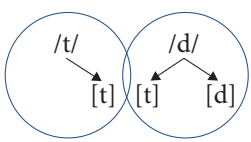
(8) a. Original proto-Germanic distribution



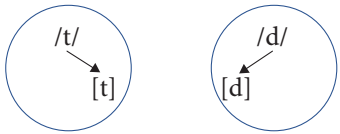
b. [d] > [t] / _# (final devoicing, a conditioned change)



c. Overlap of /t/ and /d/ categories since each contains an allophonic (phonetic) [t]



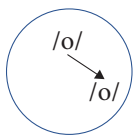
d. Modern German (same phoneme inventory, but a different distribution of allophones)



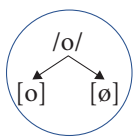
(8a) represents the earliest stage where each phoneme has a final allophonic manifestation (marked with square brackets) which is phonetically identical to the prototype or central, unmarked allophone, equivalent to the phoneme (marked with slashes). The arrow indicates an extension within the category from the prototypical instance. In (8b) the new voiceless allophone of /d/ appears, while in (8c) the new allophone is shown in an overlapping relationship with both sets. Finally, in (8d) we see the modern phonemic categories, looking like the original, but with a wider allophonic distribution of [t] in all final positions. Remember that there are still spelling differences, however, so while (8d) is phonologically accurate, there is an awareness among native speakers of [t] as representing two written forms.

Splits are also fairly straightforwardly viewed as recategorization. Where they are allophonic, the same comments apply as for those in the discussion around (8); rhotacism (that is, [s] > [z] > [r] / V _ V) resulted in a reorganization of categories rather than any new creation. With phonologization, on the other hand, new categories arise, for example in the case of the front rounded vowels of modern German, which did not exist in earlier forms of Germanic. (9) is a sketch of umlaut in German using the phoneme /o/:

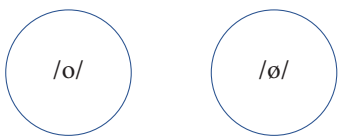
(9) a. Proto-Germanic



b. A conditioned split ([o] > [øl / __ C [-back]



c. Phonologization: the conditioning element disappears



In (9a) we have a mid-back rounded phoneme with one allophone. Under the influence of a following high front vowel ([i]] a second allophone develops which retains the rounding and the same height, but is now front rather than back. When the conditioning element disappears, as was discussed above, a new phoneme, and hence a new category arises, split completely from the earlier single category.[67]

3.2 Phonemic inventories

Until now, this chapter has talked about phonemes as more or less independent entities, as categories which may be internally simple or complex depending on the number of allophones associated with the central member of the category. Over time, as has been shown, these phonemic categories may disappear through merger with other phonemes or they may split, with the allophones either moving into another preexistent phonemic category or creating a new one. The new phoneme category will then be available for further phonetic (and eventually even phonological) development as well, starting with conditioned extensions from the prototype. This section will take the discussion further by considering the effect of changes beyond the individual phoneme to the entire phonological system of a given language.

3.2.1 *Patterns*

The phonemes in a synchronic state comprise an interrelated set of categories, each represented by its prototypical member. Remember that in each case the prototype is both the phonological entity and the most central phonetic manifestation of this class of sounds. For this section we will focus on the phoneme itself, to be viewed as a place-holder for the various ways it is pronounced. As such it interacts with the other phonemes in the system. A somewhat extreme way of thinking of this system is to claim, as was done so by those who were strict Structuralists (Nathan 2008: 126 ff. provides an overview), that phonemes existed solely in their interaction with other phonemes; they were defined through oppositions – or contrasts – in the system. A /t/, then, would take its place relative to /d/, its voiced counterpart in the dental/alveolar set and relative to /p/ and /k/ among voiceless stops. Given the notion laid out in this chapter that phonemes represent phonetically-realized categories, the idea of the phoneme as existing only in opposition is hard to maintain; it is the case, however, that there are certain ways in which phonemes may evolve as part of a system rather than as individual entities, whether abstractions or phonetic (hence articulatory and acoustic) realities.

67. The distinction between square brackets and slanted lines, respectively extensions and prototypes (or phonetically understood as allophones and phonemes), should help in understanding this change.

In the first place, phonemic systems form only a relatively limited number of patterns. Remember, as was reviewed in Chapter 4, that sounds are differentiated one from another by a small number of features. Consonants are grouped by their manner of articulation (stops, fricatives, nasals, etc.), their place of articulation (labial, alveolar, palatal, etc.) and by whether the vocal chords are engaged or not (the question of voicing). Vowels are described by their height, frontness (or backness) and whether or not the lips are rounded as they are articulated. Surveys of a large number of languages (see Ladefoged and Maddieson 1996 for a discussion) show that there are very frequently symmetries: it is comparatively rare, for example, for a language to lack a voiceless stop where the voiced counterpart exists.[68]

As a result, one kind of phonological change is seen as bringing order and symmetry to a system which lacked such order before. It must be understood, however, that speakers do not look at the system of their language and decide to tidy it up by filling in gaps. Rather, to return to a previous example, several events caused English to develop a phonological series of voiced fricatives, it was a combination of sound changes and borrowings (both from dialects and other languages) which eventually changed the shape of the system to one which was more common. But, again, the change in the pattern was not intentionally designed to make it neater or more common cross-linguistically! In fact, we cannot really speak of intentionality at all. Vowel patterns may also change. For example, in many varieties of French the contrast between /a/ and /ɑ/ has disappeared, leaving the much more usual single low vowel without a front-back contrast.

An interesting phenomenon, again in the description of linguists and not in the active consciousness of language users, is that of phonemic space. It is probably for acoustic reasons that patterns of phonemes tend to change in the direction of maximal distance between one and another members of the system. This distance allows for better comprehension of speech, although it does not seem to be very much involved in improving articulation. In Sanskrit, for example, short /e/ and /o/ merged with /a/ to create a three-vowel short vowel pattern:

(10) a. i u
e o
a

b. i u
a

68. A counterexample to this particular instance is standard Arabic which has /b/ but not /p/. It is indicative of the strength of the most usual patterning is that this lack is perceived as a 'hole' in the system where the lack of, say, a back unrounded stop would not be described in the same way.

Each of the patterns (the pre-Sanskrit earlier Sanskrit five-vowel system of (10a) and the later three-vowel pattern in (10b)) is symmetrical, but in the later version there is more scope for the sound to be clearly understood since it has less similarity to the sounds around it.

A return to the discussion of chains of changes in the preceding chapter will help illustrate this notion: as the pronunciation of long Old English [æ] became closer to that of [e], [e] in turn rose toward [i]. Each of these sounds is also a phoneme (/æ/, /e/, /i/, etc.) and thus, as they rose (and the high vowels /i/ and /u/ became diphthongs and moved 'out of the way', as it were), the pattern of long vowels changed to avoid the crowding of sounds one upon the next, for, generally, acoustic reasons. A consonantal example, also discussed in the preceding chapter, occurs in the history of Hawai'ian.[69] Here /k/ becomes /ʔ/ and /t/ moves back to /k/, both preserving the pattern and maximizing space. A comparison with human behavior is apt here: as people enter empty elevators they will usually move to the back wall or one of the side walls or corners. If others enter, those who are already inside will shift where they are standing to preserve a maximum of distance between one person and another in this rather small and definitely enclosed space; changes which arrange phonological space in order to maximize distance from one phoneme to another are similar although without the intentionality of elevator riders![70]

There is another way as well to look at changes in the entire structure of a phonemic system, and that is to observe the development of a new subsystem. We have already seen this change occur in the history of Germanic in our consideration of umlaut. Not only do does the process start as a phonetic change which develops further phonological consequences in the form of new phonemes, but the phonemes in question (/y/ and /œ/) form a new subsection of the system: front rounded vowels. In this case the new subsystem arises through the same processes for the high and mid-vowel. In French, on the other hand, /y/, the high front rounded vowel, develops from a chain reaction by which /o/ raises to /u/ and /u/ fronts to /y/. The other front rounded vowels, /ø/ and /œ/ arise along different paths, in some cases through direct diphthongization and in others through the change of a following [l] to [w] (called vocalization) and the interpretation by hearers of the new vocalic sequence as a diphthong. The result, however, is that there is, again, a new series of front rounded vowels, none of which existed in Latin.

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69. That is, the Austronesian language with genetic links to Fijian and others spoken in the South Pacific, not the variety of English spoken in Hawai'i and called pidgin.

70. I thank Geoff Nathan (p.c.) for this comparison.

3.2.2 *Features*

A consequence of the development of new series of vowels or consonants within the phonological system of a given language is that certain features may become more crucial to the system and not just to a description of some phoneme.[71] What brings about this change, in general terms, is that features may distinguish not just one sound from another, but one series of phonemes from another one. Consider the system of English fricatives before and after the series of changes which brought about phonemic status (or phonologization) for /s/, /f/, /z/, and /v/ as well as /ʃ/ and /ʒ/. Once the choice of a voiceless or voiced fricative was no longer automatic (based on position in the string of sounds), voicing (or lack thereof) becomes a determining factor as to the nature of the phoneme and 'voice' is now a phonological feature distinguishing one phoneme from another and not simply an automatic phonetic aspect of the sound. Note that the feature of voice distinguished some consonants, specifically stops, from each other English before this set of phonological changes in fricatives, but did not apply to all consonants.[72]

Umlaut provides another example, this one vocalic, of new salience for pre-existing features. With the development of /y/ and /œ/ as phonemes, the rounding of the vowels, previously automatic in the sense that front vowels were unrounded and back vowels were round, became crucial in distinguishing the older front unrounded vowels from this new group of front rounded vowels. The French series of front rounded vowels (/y/, /ø/ and /œ/) is another such example of a newly phonologically important feature, although French had inherited both phonetically rounded and unrounded vowels from Latin. In both these languages, the result is a three-way phonological distinction thanks to the intersection of two features, 'front' and 'round'; we find front unrounded vowels, front rounded vowels, and back rounded vowels.

Other cases involve the creation of an entirely new feature, or rather the full promotion, since phonology is considered in some ways a 'higher' level of linguistic expression, from a phonetic to a phonological feature. The history of Latin provides an illustrative case. Latin consonants existed in six series of place of articulation, as follows:

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71. I am avoiding the word 'distinctive' despite the somewhat structuralist tone of this section since it had a specific technical sense in Structuralism (as a school of Linguistics) which is no longer used.

72. It still doesn't as far as that goes! English nasals and liquid phonemes are, under most circumstances, only voiced. There is still, at least in theory, room for future extension of voice as phonologically crucial.

(11) Latin Consonants by Place of Articulation

Labial	Labiodental	Alveolar	Velar	Labiovelar	Glottal
p/b		t/d	k/g	k^w/g^w	
	f	s			h
m		n			
		r			
		l			

Note that there is no palatal series. In Late Latin and the early Romance languages palatal consonants arose, at first through the conditioning of following front vowels (/i/, /e/, and sometimes /a/) and semi-vowels (/j/) and then, with the loss of the conditioning element, as phonemes in their own right. Examples from some of the Romance languages illustrate the modern palatal consonants, /tʃ/, /ɲ/, and /λ/ in the following examples:

(12) a. k/g > k'/g' / __ [high, front][73]
Latin Cicero /kikero/ > French Cicéron /siserɔ̃/, Italian Cicero /tʃitʃero/, a proper name

b. n > ɲ / __ high, front
Latin vinea > French vigne /viɲ/, Italian vigna /viɲa/, 'grapevine'

c. l > λ > j, x
Latin filia /filia/ > French fille /fij/, Italian figlia /fiλa/, Spanish hija /[ixa/, 'daughter'

In all the Romance languages, then, modern reflexes of the palatalized Latin consonants are phonemes. Since this development is widely shared in the family, it can be assumed that the new feature 'palatal' arose in late Latin before the languages separated into the distinct members of the Romance family they are today.

To summarize, then, phonological change can affect entire systems and not just individual sounds, although one of the most basic changes is phonologization, by which phonetic entities become phonemes, which as a result become the prototypical member of a complex of allophones. When we look beyond the individual phonemes to changes in the entire system, the additional changes are twofold: first, a new series of phonemes may arise, either through one set of changes as in Germanic umlaut, or through a 'conspiracy' of changes leading to a single new series as in the development of contrasting (non-conditioned) voiceless and voiced fricatives in English.

The second systemic change is the development of new features which serve to differentiate phonemes one from another. In some cases, the feature may have been

73. The outcomes in the case vary from language to language and according to the position in the word; therefore, only the first stage is schematized.

extended from one part of the phonemic system, as was the case with the newly differentiating voicing contrast in the fricative series just mentioned in English. In other cases, the feature is a new one to the entire system, as in the palatal feature in late Latin which simply did not exist phonologically in earlier states of the language.

4. Actuation and expansion of use

To end this chapter, let us look at some very basic issues in the study of language change, issues we will return to when we talk in turn about other components as well as more abstractly in later chapters. There exist, in reality, an interrelated number of issues having to do with what the basic causes of language change may be (note the plural *causes*) and how changes diffuse to an entire dialect and language. We will take each of these very fundamental topics in turn.

4.1 Actuation

The term actuation refers to the point at which a change may be said to begin. As will be discussed in Chapter 8, there is a complicated interaction between linguistic variation and true change, although one can say, quite straight-forwardly, that variation is a necessary precursor to change. An innovation must come from one or more users of language. In most (and perhaps all) cases, this arises from a new way of pronouncing (or expressing) something. For now, these remarks will be restricted to sounds. What may bring about a new pronunciation of a given sound may be simply a mistake; although the speaker is in some way aiming at a given target (there are some linguists who believe phonemes are nothing but these mental targets, as was discussed at the beginning of the chapter), s/he may miss and pronounce something that is slightly – phonetically – different. Hearers can tolerate a certain amount of difference without really perceiving it or may actually misperceive and then adopt the pronunciation they think they have heard. A mispronunciation may also arise from assimilations (consider German umlaut) or other processes where the "mistake" is a rather natural one given the nature of the speech chain.

Other motivations for sound change may reside in the nature of the phonological system; speakers tend to produce 'corrections' to repair the danger of potentially overlapping phonemes (remember the discussion of early English long vowels) or to improve the symmetry of a system by a merger or a split. None of this, of course, is conscious and there are no claims here that speakers know about phonetic space, although hearers grapple with it by not being able, on occasion, to tell one word from another. A case in point is the change in Western American English, where 'caught' and 'cot' (/ɔ/ and /a/) have merged. The American English tendency to simplify final

clusters, especially after nasals, is another instance: how many times have you had to ask someone if they are saying they *can* or *can't* do something? There may even be the occasional change in pronunciation through borrowing from another dialect, with the speaker's motivation being to sound different, usually by imitating (poorly or well) a dialect, whatever the motivation for the imitation.

As will be emphasized in Chapter 8 and has already been stated here several times, although the functioning of Language and the occurrence of change in languages are not based, most of the time, on linguistically conscious motivations, there are various other ways in which human cognition is involved. Targets for pronunciation may not be conscious, for example, but they are part of human knowledge of linguistic systems. Another motivation may be the need to stand out by using an unusual but still comprehensible pronunciation in order to sound educated or of a higher (or even lower) social class; this involves conscious choices about culture and one's place in a given society as instantiated by language.

4.2 Expansion of use

The changes which arise through individual variation rarely persist; they are rarely if ever even identified by other speakers as something different from the ordinary. One of the tasks of historical linguistics is to account for those variations which do become noticeable and ultimately cause change. The missing link resides in the ways in which a given pronunciation is received, which goes beyond the judgment of an individual speaker to the opinion of the entire speech group. It is through some sort of social marking (admiration for the speaker, perception of the expression as conveying something seen as somehow worthwhile) and hence imitation that a change may spread through a community sufficiently to be seen as a true variation. The popularity of British television for several decades in the 20th century give rise to lexical borrowings such as *housemade* in place of *homemade*, but also led to some admiration of British dialects. And, as was pointed out at the end of the chapter on the lexicon, even then change is not necessarily the outcome; a great deal of variation remains as such.[74] We can use as a rule of thumb that change has fully occurred when ordinary (not linguistically trained or otherwise speech-conscious) speakers no longer can remember that there is another way to pronounce a given sound; that the range of variation has disappeared and that a single pronunciation has prevailed as the only one. We will look at this expansion much more broadly in Chapter 8.

74. An old song begins "You say tomAHto and I say tomAYto" pointing to the choice American English speakers have – to this day – between [a] and [e] in the stressed syllable of this word.

5. Conclusion

The last two chapters have explored how sounds change, both at the phonetic and phonological level. They have looked at individual sounds and their interaction with their phonetic and phonological surroundings, that is, other sounds in the string in the case of phonetics and the entire phonemic system in the case of phonology. Finally, we have begun to look more widely at change, when it can be said to take place and how one might begin to think of the leap from individual variation (even carelessness!) and a new stage of an entire language. Nothing has been said thus far about written language, that is, the ways in which spelling may change and what that says about sound change. This topic will be addressed with other matters pertaining to the methods of historical linguistics. For now, however, we will continue the tour of linguistic components by looking at morphological change.

Exercises

1. Indicate the change from Proto-Slavic to Bulgarian. The vowels spelled ĭ and ŭ are reduced vowel in the mid-central region of the oral cavity in Proto-Slavic. Note that the rules must be given in a certain order so that one of the changes can be motivated consistent with our knowledge of sound change.

	Proto-Slavic		*Bulgarian*
1.	gladŭka	glatkə	smooth
2.	kratŭka	kratkə	short
3.	blizŭka	bliskə	near
4.	ʒeʒĭka	ʒeʃə	scorching
5.	lovŭka	lofkə	adroit
6.	gorĭka	gorkə	bitter

2. Indicate the changes from Old English to Modern English. Can you discern a pattern in the vowel changes? Do you feel that the Modern English spelling represents the sound values well in Modern English in these cases? The macron ¯ over a vowel indicates that the vowel is long.

	Old English	*Modern English*	*Contemporary Spelling*
1.	hūs	haws	house
2.	wīf	wayf	wife
3.	nāma	neym	name
4.	knīf	nayf	knife
5.	ʃāmu	ʃeym	shame

6.	lūs	laws	louse
7.	lāma	leym	lame
8.	tūn	tawn	town
9.	stān	stown	stone
10.	mūs	maws	mouse
11.	hūnd	hawnd	hound
12.	tālu	teyl	tale

3. Classical Latin allowed sequences of vowels (called 'in hiatus', with the implication that the normal syllable included a consonant): *filia* 'daughter'. An early phonetic change reduced the first of these two vowels to a [j] which then palatalized the preceding consonant, another phonetic change. French, however, has minimal pairs such as /l/ *fil* /fil/ 'thread, wire' and *fille* /fij/ 'daughter'. Since the existence of minimal pairs is a test for the phonemic status of the contrasting sounds, how would these phonetic changes lead to a phonemic pair?

4. Consider the English singular/plural pairs *foot/feet, goose/geese*. Although they are considered irregular in modern English, they result from regular sound change. How can this be explained? (Hint: you have to use your knowledge of umlaut and the Great Vowel shift).

For further investigation

The traditional reconstruction of the Indo-European consonant system, touched on in Chapter 4, has been challenged, most notably by Gamkrelidze and Ivanov (1995), which is a summation of their decades-long study of the data, and, independently though thinking along similar lines, by Hopper (1973). More approachable discussions of the controversy (and controversy it is) can be found in Fox (1995) and Trask (1996). What are the basic lines of argumentation for the traditional and "new" reconstructions? Objections to each? You may want to read ahead in Chapter 9 on the fundamental principles underlying reconstruction of pre-historic linguistic forms.

CHAPTER 6

Morphological change

1. Introduction

The twentieth-century linguist Edgar Sturtevant articulated a paradox, known as Sturtevant's paradox; (Sturtevant 1947, quoted in Joseph & Janda 2003: 450), which states that "Phonetic laws are regular but produce irregularity (while) analogical creation is irregular but produces regularity". In some ways this paradox sums up the study of morphological change: the driving force is often sound change (which is, as we know, generally regular). Irregular (sporadic) change may arise primarily from two sources, of which one is analogical thinking which for the most part has an effect on nominal and verbal systems. The other source is the inherent irregularity of the lexicon. There is also interaction with syntax. In short, morphological change can be seen as residing at the intersection of the changes already addressed and those to come as well in the next chapter on syntactic change.

The rest of this introductory section will be a brief review of the basic notions involved in morphology. Sections 2 and 3 will consider morphological change in the lexicon, word formation in 2 and the interaction of words and smaller morphemes in 3. In Section 4 will be considered paradigmatic changes (both nominal and verbal paradigms) and Section 5 brings us to analogical change. Finally, Section 6 will look at some notions of how languages can be characterized by their morphological type as well as a brief look at what has come to be called Naturalism in morphology.

1.1 Morphology and the morpheme

Morphology is the study of forms (a compound coined from the Greek *morphos* 'form' and *ologos* 'study'). The basic unit is the morpheme, the smallest meaningful entity in language.[75] This smallest unit may be equivalent to a word (*apple, man*) or something smaller (a plural marker, for example). If a word consists of more than one morpheme, the boundary between them may be easily perceived (*apples* is clearly the noun *apple* and the plural marker) or rather opaque (how do speakers understand *men* as *man* and plural?). As will be discussed at the end of the chapter, some languages use a great

75. Phonemes are smaller entities, but are not considered to be meaningful in themselves, although they may signal a change in meaning by their presence in minimal contrastive pairs (*tin* and *din*, for example, separated only by the feature of voicing on the initial segment).

many grammatical morphemes whose meaning may involve, among other functions, indications of tense and person for verbs and roles in a sentence (subject, object) for nouns, pronouns, and adjectives. These morphemes may be prefixes or suffixes or even clitics, that is, partially free-standing items which are usually perceived as words which cannot be stressed in the speech chain. If the morphemes are obligatorily attached to another word, they are called 'bound'; otherwise, if they stand alone, they are 'free'; in English, for example, think again of *apples* as consisting of the bound plural morpheme *-s* and the free morpheme *apple*.

Not all morphemes which are smaller than the word are grammatical, however. We can, for example, divide *reread* rather easily into the verb *read,* preceded by a marker of repetition *re-*; this latter morpheme is not grammatical, but rather derivational, since it serves to form a new word. Again, some of these constructions are transparent, but others (take for example *illegible* meaning, roughly, not capable of being read) can only be analyzed through knowledge of etymology and sound change. They may also be free or bound, as are grammatical morphemes. And finally, there are morphemes which look as if they are complex, but aren't. Chapter 2 treated lexical change through folk etymology (*sparrow grass* as an interpretation of the etymologically monomorphemic *asparagus*, for example); such reinterpretations come about because people think that the word contains more morphemes than it does etymologically.

In all these situations (lexical coinage, grammatical marking, folk etymology), human cognitive functioning is involved in the analysis of the meaning of morphemes whether they are free or bound. As was discussed in Chapter 3, the semantic – or radial – set may be modified internally either by extensions or by a shift in prototype, new sets may be created, and pre-existing sets may merge or split. In all these cases, human beings are making decisions about meaning at varying levels of consciousness. When these forms attract the attention of language users for some reason, they may be (re)assigned to another semantic set through comparison with others which are – for the moment – more stable. This cognitive activity occurs in individuals as they interact with language, producing and perceiving it, and also has repercussions for entire speech communities as new variants are adopted and become true changes. We will now look at each kind of morphological change one by one, but this general pattern of change pertains to all sorts.

2. Word-level morphology

Morphological change is often presented as taking place within the domain of some grammatical category, changes in noun endings or even in the way, for instance, an entire tense is expressed by a verbal paradigm. Although we will certainly discuss such examples in this chapter, certain kinds of change take place in what we might rather

think of as the lexical domain, often through the formation of new words using available material. This section describes this kind of modification to a language.

2.1 Coinage through affixes

In Chapter 2 the coinage of new words was discussed, pointing toward compounding (recall such neologisms as the verb *bluesky*), complete fabrication (*xerox* and *kleenex*), and folk etymology (*sparrow grass* for *asparagus* mentioned above here as well). What was not mentioned, however, were coinages which result from using preexistent bound morphemes, that is, adfixes of various sorts; these include prefixes, suffixes, and infixes (the addition of meaningful material in the interior of another morpheme). Although in the Indo-European family, infixes are rare, the lexicon can be extended through the use of prefixes and suffixes. A few very simple examples will suffice, starting with the prefix *re-* which marks repetition (itself from the Latin *repetitio* via Middle French into English, the act of stating or demanding, *petere* 'to beg, ask', a second time, *re-*): French *redire*, Italian *ridicere*, English *resay, restate*. While many of the examples in English are quite transparent (as in *restate*), speakers have on the whole lost the connection between the repetition of the base verb and words such as *repeat* or nouns such as *renaissance*, literally 'rebirth'. Other prefixes in English include *un-* as a negator (*unspeakable, unreadable*) and *pre-* 'before' (*predict*, literally 'say before' and *prefabricate*, 'build or make before'). Any of these prefixes are easily extended to new coinages; we can, presumably, *recoin* a word that has been coined before, *uncopy* now that we have computers which allow a reversal of such actions, and *preintroduce* a speaker to individuals before a formal introduction to an entire audience.[76] It is important to note that in Indo-European languages, prefixes will not change the part of speech of a modified, extended lexical item.

The addition of a suffix will modify meaning as well and, in the languages we have been considering, to a greater extent than prefixation, since suffixation can change part of speech. Again, a large number of the examples are quite transparent: the addition of *-tion* to a verb will produce a related noun (*invent – invention, orient – orientation,* and so on). The suffix *-ble* makes verbs into adjectives (*read – readable, sing – singable*).

Many non-Indo-European languages have a third kind of affix, the infix. In Bahasa Indonesia there are various infixes which serve to change the meaning:

(1) a. gembung 'bloated', g**el**embung, 'bubble'
b. cerlang 'luminous', c**em**erlang 'brilliant
c. gigi 'tooth', g**er**igi 'serration'
d. kerja 'work', k**in**erja 'performance'

76. It is entirely possible that these words have already been used; they are not, however, part of a standard English vocabulary.

In each case one can see the relationship of the basic meaning to the one marked by the bolded infix; what is important is that each of these examples is one instance of a widely applied infix, just as *orientation* and *invention* are but two English words using the same suffix for roughly the same effect.

Tagalog (the official language of the Philippines) provides a grammatical example: the infix *-um-* signals that the focus of the utterance is on the subject (or agent) of the verb, as opposed to the object (another infix, *-in-*). We can contrast *t-um-awag* 'it was he who left' with *t-in -awag, 'he left that thing'/ 'that thing was left'*. We also find *tawag* 'leave' without particular emphasis on either agent or object.

Finally, English uses infixes occasionally, often in a jocular way, for emphasis: in the song, "Wouldn't It Be Loverly" from the musical play *My Fair Lady*, one line includes the expression 'abso-blooming – lutely' where *blooming* (an emphatic euphemism) is inserted into *absolutely*. We cannot, however, really speak of infixation as an English – or for that matter Indo-European – phenomenon in any structural or pervasive sense.

While semantic change is a key result of affixation, of equal interest to historical linguistics is the source of these affixes. One example should suffice, especially one which will help to draw some lines between lexical development and this kind of morphological change. In the large number of borrowings from Middle French into English (remember that the modern English lexicon is some 60% Latinate and 90% of the Latinate layer comes via French), a number of adjectives ended in the suffix *-able*, with a variant in *-ible* (*horrible, possible, visible*). It is the *-able* variant which was – and continues to be – productive in English. From French, we have, for example, *capable, perishable, movable.* What is most interesting, however, is that the suffix was recognized by speakers of English as a way of forming new adjectives from verbs and was not just viewed as an unanalyzable ending on a series of Latinate adjectives; in short, speakers were and are doing the kind of basic morphological analysis on these adjectives that students learn to do in their first Linguistics course. Speakers then extended the morpheme to non-Latin-based words and modern English, as a result, enjoys pairs like *readable* and *legible, doable* and *feasible*, and *eatable* and *edible*. Note that the more Latinate forms have an ending in *-ible* while the forms of Germanic origin (the first of each pair) ends with *-able.* The ending is still productive: think of *huggable* (first attested in 1898) based on a Germanic root or more modern and fully understandable (of itself an example) *googlable* and *deletable* as pertaining to the realm of computing.

2.2 Reanalysis across boundaries

A further form of lexical change which is closely linked to morphological analysis is the reanalysis of word boundaries. A couple of French examples will make this clear:

(2) a. French *naperon*, English *apron*
b. Old French *iere* (from Latin *hedera* 'ivy'), Modern French *lierre*

In (2a.), the initial /n/ of the French, once the term is borrowed into English, is associated with the indefinite article, so that *a naperon* is reanalyzed as *an apron*. The situation in (b.) is the opposite. Here the article in French, spelled *l* before a vowel, is misunderstood as a segment belonging to the word instead of serving as a determiner; hence it becomes the initial sound of the bare noun. In other cases, the reanalysis is not because of the misinterpretation of an article, but rather of a plural marker:

(3) a. French *cerise*, English *cherry*
b. *Modern English pea*, older English *pease*

In (3a) the English reanalysis comes from the understanding of the final /z/ of the French simple word as a plural marker; Modern English in (3b) shows the same reinterpretation of an older English form.[77] To understand the second example, we must also take into account the fact that *pease* is a mass noun like *rice* or *water*, not made up of countable elements, while the interpretation of the final /z/ as the plural morpheme turned the word into a count noun; we can enumerate the number of peas (note the modern spelling) on our plate but not the number of rice (we have to resort to a multiword expression, 'grains of rice').

In all these cases, morphological analysis can be said to underlie the change in English. Borrowed French words are missegmented (a comparatively rare use of the prefix *mis-* in itself) by the agglutination of an article or its removal, both through a misunderstanding of a final segment as a plural marker. In each case speakers are carrying out morphological analysis in order to understand some utterance and are, in some sense, getting it wrong. The basis of the error can be understood as a mistaken categorization: the initial /n/ of *naperon* as a definite article and the /z]/ of *pease* as a plural marker. Each of these (and many more) result in a split in the radial set at the level of the word and its interpretation into component parts.

3. Free and bound morphemes

Thus far this chapter has focused on ways in which the meaning of a morpheme changes through compounding or through a misinterpretation. On the whole, these changes have not altered the nature of the morpheme itself; those which were earlier bound (and entered into derivations) remained bound, while those which were free

77. The form *pease* is found in an English (British) food called *pease pudding* and in the nursery rhyme which begins "Pease porridge hot, pease porridge cold".

(that is, independent words) remained free. Not all morphemic change works that way, however. In this section there will be discussed another set of changes, those which result in either the change of a free morpheme to a bound one, or vice versa. Of these phenomena, the more usual is change from a free morpheme into a bound one; it most cases it falls under the class of changes called grammaticalization.

3.1 Grammaticalization

Grammaticalization is the label given to a set of processes by which a fully lexical (non-grammatical) independent word (a free morpheme) loses at least some of its independence, becoming (most often) phonologically unstressed and semantically more closely linked to the word it precedes or follows (Traugott & Hopper 2003 remains a good overview). While there may be a number of pathways for this change, one of the most common is that the word, even when independent, becomes unstressed, although otherwise remaining a free morpheme; such forms are called clitics. Think, for example, of the perfect auxiliary in Germanic and Romance languages (forms of the verb 'to have'). While the possessive sense persists in many languages (English, German, French, Italian, but not Spanish), it also takes on grammatical meaning while remaining a free morpheme. Compare the following where the equivalent of the English pair in (4a) and (4b) are rendered in French and Spanish:

(4) a. I have a book.
b. I have written a book.[78]
c. J'ai un livre.
d. J'ai écrit un livre.
e. Tengo un libro.
f. He escrito un libro.

Note that in English and French, the verb 'to have' retains its possession sense while also grammaticalizing (a later development) into an auxiliary marking the perfect. In Spanish we have a split; possession is expressed by *tener* 'to hold' and the perfective auxiliary by *aver*, cognate with the French and English.

In other cases, the morpheme then may become attached to the preceding or following word. At the same time, it may lose some of its meanings, specifically those which make it more like an independent word, and retain more abstract, grammatical meaning. The result, eventually, is a new ending. A couple of short examples will illustrate what happens. The first is from Romance where most adverbs take a suffix

78. The perfective meaning most likely came via 'I have/possess a book which has been written' with an extension of meaning so that the person possessing the book is also the author.

attached to the feminine form of the adjective, in the cases below the adjective *open* and adverb *openly*:

(5) a. *French* ADJ ouvert *(m.)*, ouverte *(f);* ADV ouvertement
b. *Italian* ADJ aperto *(m.),* aperta *(f.);* ADV apertamente
c. *Spanish* ADJ abierto *(m.),* abierta *(f.);* ADV abiertamente

The adverbial ending *-ment(e)* is clearly the same one across the three languages. Indeed, it comes from the Latin independent noun *mens* 'mind' in the form *mente* which indicates an expression of manner. One speaks, acts, travels (we can think of many semantically appropriate verbs which might denote action carried out openly) therefore *with an open mind*. The Latin noun *mens*, to complete the picture, was a feminine, hence the formation of adverbs from the feminine form of the adjective; there was a time in its development from full form to grammatical ending when *mente* was still considered sufficiently nominal to require adjectival agreement. We might think of that stage as intermediate between the full form and the adverbial ending. Other words are used for 'mind' in Romance, so this is one of the remaining traces of the Classical Latin word; it shows up as well in the adjectival form *mental(e)* across Romance.

The English adverbial ending in *-ly* is also a grammaticalized form. It attaches, like the Romance ending, to an adjective, changing it from a quality of some nominal referent (an adjective) to the manner by which an action is carried out (an adverb). Unlike English and Romance, German (and presumably the common western Germanic which preceded both English and German) uses the same form for adjectives and adverbs (*Er ist gut* ADJ 'He is good/a good person' and *Er singt gut* ADV 'He sings well'). Many of the adjectives in that language end in *-lich* (*höffentich* 'hopeful', freundlich *'friendly',* and so on). Since they were also adverbs (respectively, 'hopefully', 'in a friendly manner'), the adverbial meaning was generalized and specialized in English, although English does have a small number of adjectives in *-ly* like *friendly* and *lively*. In both adjectival and adverbial uses in Germanic, the *lich/ly* ending is related to Modern English *like*: one who is *friendly* resembles a friend and one who sings *loudly* sings (as if) in a loud manner. In this instance, in English, the full word has remained, although one has to be a specialist in language history or etymology to identify the adverbial ending *-ly* with the adverb/preposition *like*.

In other cases, the grammaticalization of full words resulted in not only a single ending, but an entire paradigm of endings. The development of the Romance future tense follows this pathway. For a variety of reasons, the way in which the future was formed in Latin disappears completely in later Latin.[79] Instead the early Romance languages

79. There were, in fact, two ways the Latin future was formed, depending on the verb class to which a given verb belonged. This dual construction was ultimately judged unwieldy, although it

experimented with phrases to express future time, using various modal verbs. In most of the family, a verb phrase was used consisting of the infinitive and forms of the verb *habere* 'to have, possess'. While there is no certainty about the reason for this particular verb to have prevailed, there is evidence in Latin that it also carried a sense of obligation (compare English *have* + *infinitive*: 'You have to leave now').[80] Over time, the forms of this verb, when used to mark the future, lost not only stress, but some of their phonetic material. While there is little written evidence, they must have gone through a cliticized stage and eventually become the endings. Let us use Italian as an example:

(6) a. *Latin* amare habeo
to love have (1st p. SG. PRES.)
I am obliged to love (a speculative translation – remember that there are gaps in the documented record)

b. *Late Latin* *amar avo

c. *Italian* amarò

The second state (6b) is marked with an asterisk because the form is not attested; one can reconstruct what may have been intermediate stages but not, so to speak, swear to them. The rest of the forms in Latin and Italian follow:

(7) a. *Latin* amare habes, habet, habemus, habetis, habent
2nd SG 3rd SG 1st PL. 2nd PL. 3rd PL.

b. *Italian* amarai, amarà, amaremo, amarete, amaranno

In this instance, the more independent meanings of the source verb for the future endings did not disappear; Italian has a full verb *avere* meaning 'to have, possess', but most speakers do not associate the verb of possession with the endings of the future. Rather, they are simply grammatical endings.

3.2 New free morphemes from bound[81]

The path from bound to free morphemes is quite a different one, for several reasons. First, the occurrence of such changes is much less frequent than the grammaticalization

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was maintained through all of Classical Latin and into the early centuries of the next millennium. More important, sound changes from Classical to Late Latin/pre-Romance, caused confusions; one kind of future merged with the imperfect and the other with the perfect. In each set of circumstances, crucial information about time (future as opposed to past) was masked in discourse.

80. Other choices for the marker come from the Latin *velle* 'to want' (Romanian) and *debere* 'to be obliged to, must' (some Italian dialects).

81. See Norde (2009) for a full discussion of *degrammaticalization*, this reverse in direction from the far more frequent *grammaticalization*.

of free morphemes (that is, full words) into affixes. There is also no potential of varying outcomes as there is in the change from free to bound morphemes; in some instances the change from free to bound results in the disappearance of the independent word and in others in a loss of semantic connection between the original full word and the new ending which may have been greatly modified phonetically. Rather, in the instances of this kind of change, the bound morpheme continues to exist and, at least in any examples that come to mind, maintain a semantic link with the new free unit.

There are two sources for these changes. The first involves words which are not, technically speaking, bound at all, but tend not to take stress within the sentence as a result of their grammatical nature. These include prepositions and adverbs:

(8) a. We need to consider the *pros* and *cons* of making this selection.
b. You can count me among the *antis*.
c. They *upped* the price of the house just this morning

Pro and *anti* are certainly recognizable as prepositions in contemporary English ('He is pro/anti big business'); *con*, slightly less transparent than the others, is a shortening of *contra*, from the Latin, which serves as well as a preposition. The use of this shortening in English is an early one; the phase *pro and con* first appears in 1572 (*OED s.v.* con). The verb *to up* comes from a preposition as well and is transparently identifiably as related to it. Further examples include the following:

(9) a. He was the great Hieroglyphick of Jesuitism, Puritanism, Quaquerism, and of all **Isms** from Schism.
(1680, E. Pettit Vision of Purgatory 46; *OED s.v.* ism)
b. Impressionism became the most successful '**ism**' in the history of art. (1974 Listener 14 Feb. 220/1; *OED s.v.* ism)
c. Frank asked if they were linked, romantically. Then he said yeah, he supposed they were, that was one way to put it, in a way. He paused. '**Ish**,' he admitted.
('Vaguely.' J. O'Connor Cowboys & Indians (1992), p. 122; *OED s.v.* ish)
d. Mr. Langmead, speaking by telephone from London, hesitated. '**Ish**,' he said, employing the international shorthand for slight hedge.
2002 N.Y. Times (National ed.) 5 Sept. 8/5; *OED s.v.* ish

While (8). illustrates well integrated words coming from bound (or at least normally unstressed) morphemes, those in (9) have an emphatic side to them. It is perhaps too extreme to say that they are being used in a jocular way (although that is another way in which such new units arise). Rather, they are being used to call attention to the meaning of the bound morpheme, denoting a movement or belief system in (9a and 9b) and an approximation in (9c and 9d). What is also interesting about the examples with *ish* is that they are all very recent; the earliest citation in the *OED* as an independent word

dates from 1986.[82] They are both explained in the text, in (9c) by the near-synonym *vaguely* and in (9d) by a definition, *slight hedge*. Clearly *ish* has not been in use as a free morpheme long enough for the authors of these examples to be sure that their readers will recognize a liberated form without help.

There are, of course, many other examples, both of the creation of new bound derivational and grammatical forms and of new free-standing nouns (think, for example of *ex*, meaning former spouse or other partner; in expressions like 'my ex just remarried'). The former type of change, from free to bound morpheme, falls under the general heading of grammaticalization (a process which may have syntactic manifestations as well, as will be seen in the next chapter) while changes from bound to free morphemes tend to be rather more sporadic, affecting individual units rather than systems or subsystems and may arise from the shortening of forms (*ex, ism*) or even from language play (*ish*).

4. Analogical change

Underlying analogical thinking are some basic human[83] cognitive functions, perhaps the most basic. Anttila (2003: 428) states that "[i]n short, similarity is the most important holistic process in mental life." The fact that human beings depend on categorization in their linguistic (and non-linguistic) interaction with the world around them has already been addressed in several chapters. Lower level mental activities underlying categorization are our scanning of the universe, be it physical or mental, and recognition of salience or levels of importance to some of what we may perceive, either consciously or unconsciously; we can say that they stand out against a background of other aspects of this universe. We note similarity between these salient perceptual entities and others we encounter (faces, music, linguistic items, or, to quote Anttila again (p. 437), "[i]n analogy one uses known cases to understand new or unknown cases; there is no mystery"). When it comes to language, neither the

82. My first encounter with the word was actually in the early 1970s in England when a friend told me to come by at elevenish and then added something like "and I mean ish". It was clear – even in this joking way – that there was no question of showing up any earlier than 11, and 11:30 would be better! As with many neologisms, including those which arise from a bound morpheme becoming an independent word, the usage was around in speech some time before it was written down.

83. What follows is probably true of many animals as well (the ability to scan the world around them and categorize things as, for example, edible or not, dangerous or not). To follow this line of investigation would take us far from language change; non-technical references include Goodall 1990 and Premack and Premack 1983.

very act of categorization nor the cognitive activity which brings about changes in categories is conscious, although language play, a more deliberate form of linguistic action, does contribute to change.

Analogical thought depends on these functions and then goes a step further; having categorized linguistic forms, human beings then attempt to make those in the same category more uniform, using those elements of the forms which are deemed salient as the basis for change and regularization. Analogy is often stated in the form of ratios, a comparison of relationships where one form relates to another (the basis for the analogy) as a third form (perceived as similar to the first) relates to something else

(10) a. A boat is to water as a car is to land
b. boat : water :: car : land

To create or to understand the analogy (written in ordinary language in (10a) and schematized conventionally in (10b)), we must have compared boats and cars (the first and third members of the ratio) and grasped their similarity in that they are both modes of transportation. We must also understand the relationship of the vehicle to the medium on (or through) which the transportation is affected in order to complete the comparison. This example is a physical one, where all parts of the ratio are supplied; in what follows it will be seen that one of the ways the human mind brings about language change is to adjust that fourth member so that, having categorized the first and third as similar in important ways, the speaker has as a – usually unconscious – goal to make the second and fourth members more similar as well.

4.1 Examples

In what follows let us look at two English phenomena, the formation of plurals in nouns and, in verbs, the formation of past tense and past participial forms. As will be seen, the characterization of analogical change within the schematic form above works part of the time; in other cases, the notion has to be expanded to something less formal.

4.1.1 *English plurals*

It is quite straight-forward to illustrate formally the action of analogical thought through on-going variation and change in plural formation in English. Speakers know that the conventional plural morpheme is *S* (where the pronunciation may be /s/, /z/ or /əz/ depending on the last sound of the noun stem) and know as well that there are irregular plurals. If the irregular plurals are on high frequency words, nothing happens. It is certainly the case that **childs* is judged an error and the *-ren* ending yielding *children* is very stable for that one word. In many other cases there is a great deal of hesitation and in yet others the change is almost complete, with the result that the

etymological plural (often borrowed with the word itself) is known only by very careful speakers of English.

(11) a. boy : boys :: child : children
b. boy : boy :: phenomenon : phenomena
c. boy : boy :: forum : X
X = either forums or fora

In (11a) is illustrated, as was said above, a very stable relationship; the key here is that the plural of each of these nouns is well-established and the plural of *child* is recognized as such. With (11b) there is some degree of hesitation of two kinds; with *phenomenon*, speakers may regularize the plural to *phenomenons* or may, as they certainly do with the similarly shaped *criteria*, reanalyze the plural as a singular. One hears, therefore, *phenomenon/phenomena, phenomenon/phenomenons*, and even, though less often *phenomena/phenomenas*. When we get to (10c), the etymological plural *fora* has all but disappeared, regularized on the basis on the *boy/boys* type to *forum/forums*; another example is *stadium/stadiums* whose etymological plural *stadia* has almost completely disappeared. In each case, English speakers compare irregular forms they are not sure of to the dominant formation and create the new analogical form.[84]

4.1.2 *English verbs*

Not all analogies can be reduced quite so neatly to the formalism used in (9 and 10) since the base and the analogically derived forms may consist of more than single words. Instead analogical change may affect wider patterns. Let us stay with English here, turning to regular and irregular verbs. Again, our starting point is the modern basic pattern, as exemplified by the verb *to talk*:

(12) a. talk, talked, (have) talked
b. ring, rang, rung
c. bring, brought, brought
d. do, did, done
e. is, was, been

The examples in (12) form a continuum of regularity from (12a) which is the highly regular and most productive pattern, with the first item being the present tense (we'll set aside the third person singular ending *-s* of *talks*), the second item is the simple past tense, and the third item is the past participle which enters into compound tenses. With (12b) and (12c) are illustrated two different, somewhat irregular, patterns where the vowel of the stem is altered to mark the tense; in (12c) the past and past participle

84. In reality the hesitation may not always be because of a borrowing, but rather obsolescence; the plural of *shoe*, for example, which is a word of Anglo-Saxon origin, was *shoen* which has totally disappeared except in a few folk songs of British origin.

have an additional ending *-t*. Of the two, (12b) serves as a model for new or newly remade verbs more than (12c). Finally, (12d) is even more irregular and (12e) the least like (12a) of them all. What is meant by productivity here is that speakers over time have made many older verb forms conform to the pattern in (12a) The Old English *scūfan scēaf scofen* was regularized to the very regular *shove, shoved, shoved* and *lachen lachte gelachen* became *laugh, laughed, laughed*.

When it comes to irregular (or somewhat irregular verbs with partially weak patterns) we find hesitations. Although it is frowned upon and corrected, it is not unusual to hear *brang* as the past tense of *bring*. Here too analogical thinking based on comparisons is the source for the new form; *bring, brought brought*, is a somewhat more irregular formation than *ring, rang, rung*. Very occasionally, regular verbs become strong. This is relatively unusual occurrence, but, for example, *show, showed, shown* was originally a regular verb whose past participle (*showed*) was remodeled on *sown*. And *dive, dived, dive*d, in the historically regular pattern competes today with *dive, dove, dove*. Lieberman et al. (2007) carried out a quantitative study of the regularization of English verbal forms over approximately 1200 years. They confirm the persistence of very high frequency verbs (12d and 12e above as well as *have, go, say, can, will, see, take, get*) and demonstrate that the rate of analogical change for others depends on the frequency of their use.

In both these nominal and verbal cases, the same thinking occurs: speakers make comparisons between what they judge to be more normal, based to a great extent on characteristics like frequency of use and regularity, and then modify other forms to be more like these more usual ones. In doing so speakers are making judgments as to what is more basic, both in regard to whole forms and to their component segments. They are also making decisions about what belongs with what (that *to show*, for example, has features like *to talk*), that is, that they belong to the same category or set.

4.2 Kuryłowicz's paper on analogy

In a much-quoted paper, Jerzy Kuryłowicz (1945) proposed a set of statements about analogical change which are valid as tendencies, although one can come up with counterexamples to each one. Note that each of them has a clearly cognitive side, in that the analogical leaps themselves result from a kind of reasoning, while each one can be interpreted as the consequence of certain kinds of comparisons, usually of specific features of a semantic entity rather than of the entire word (Winters 1990). Without going into much detail,[85] the six tendencies are the following:

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85. Since the terminology in the original article is somewhat idiosyncratic and otherwise based on Indo-European studies, these statements are paraphrased here. A complete translation into English was published (1995) by Winters. It is also the case that many references to the article talk about "laws" of analogy; the article uses that term very rarely and it is clear in reading it that

1. A complex form replaces a simple one. This statement accounts for a tendency of language users to remake forms to provide more, rather than less, grammatical information. So, to expand on the example in the original article, Germanic languages have a variety of ways of forming the plural of nouns. In the history of German, there are many cases where the basis for change is the variety of plural formation which involves adding a second modification of the singular to mark the plural rather than dropping these redundant markers. The noun *Baum* 'tree' had an earlier plural form *Baume* /baʊmə]/ which was then changed to Baüme/ boimə/, that is, by substituting a modified vowel in the stem as well as the plural ending, on the model of *Gast* 'guest' *Gäste* which has an etymologically modified stem vowel.[86] Speakers of modern German hesitate between the plural of *Admiral* 'admiral' as *Admirale* and *Admiräle* where the first develops regularly and the second, with a modification of the stem vowel, is analogical to others with this second marker of the plural.
2. A basic form will influence change in a derived form in its sphere of usage. The first part of this statement is quite straightforward, at least as long as there are clear indications of what is basic and what isn't. There is fairly general agreement that the present tense is basic and so are the singular forms of both verbs and nouns. However, some rather basic categories are more controversial; some analyses propose that the first person singular of verbs are basic and others prefer the third person singular. The solution is empirical[87] and will depend to some degree on context. The second part, concerning the sphere of influence, is less easy to interpret, but suggests that the context or meaning of the forms in question will have an influence on the direction of change.

   The statement can be illustrated by looking at Late Latin nouns. There is a class of nouns which has two stems, one of which appears in the nominative (subject) singular and one which is used in all other singular and all plural forms. (13)

Kuryłowicz intended these statements (a term I prefer) to be tendencies and certainly not exceptionless.

86. The plural with an etymologically marked umlaut is a further example of anticipatory assimilation since the original Germanic plural marker was a high front vowel. The spread of the use of an umlauted vowel in the noun stem to mark plural is a further example of the consequences of phonologization and the assignment of meaning (here as a number indicator) to what was, at the beginning, a sound change.

87. Kuryłowicz took individual examples from his wide knowledge of the Indo-European languages; Mańczak (1958) makes more quantitative statements about basic as opposed to derived forms. More recent studies of analogy and analogical change look to frequency as one of the factors which favor (or disfavor) this kind of change without insisting on its primacy in motivation; see Fertig, (2013), based on changes in English, for a fuller discussion of kinds of analogical change and their causation.

is an example, simplified by providing only the nominative and accusative (direct object) forms:

(13) leo 'lion' *NOM. SG.*leonis *NOM. PL.*
leonem *ACC. SG.* leones *ACC. PL.*

In French, the word is *lion*, with the /n/ of the non-nominative singular form; we can consider that there was an analogical extension of the non-nominative form to the one outlier without an /n/, and indeed, if we look at the French reflex of the majority of nouns which come from Latin, they reflect the non-nominative singular. Late Latin provides some evidence since the analogically derived form *leonis* appears as a nominative singular instead of *leo*, showing that the Classical Latin paradigm is undergoing modification. There are a few words, however, which clearly work in the other direction. The noun meaning 'blood' is an example, here with the forms set out in the same way as they are in (13):

(14) sanguis sanguinis
sanguinem

The French word *sang* is based on the nominative singular *sanguis* and even later Latin shows an accusative singular as *sanguem* instead of *sanguinem*. The 'sphere of influence' of the form is a series of contexts where 'blood' is in the singular (really a collective/mass form); it is not surprising then that the nominative can serve as the base for analogical change since the word would often be subject of the sentence and certainly be in the singular.

3. The third statement concerns the tendency for the basis of analogical change to be morphologically transparent (consisting of a stem and affix); speakers use that model for remaking simplex forms without affixes. A good example is adverb formation, already discussed in this chapter; review the discussion around Example (4) which explains the source of the Romance adverbial affix based in Latin *mente*. There are, however, adverbs which do not end in *-ment* in French, among them *vite* 'rapidly'. There also exists the adverb *rapidement* with approximately the same meaning, although there is some variation depending on specific contexts for each of them. In standard French the two forms are both used. We also find *vitement*, derived analogically from *rapidement*, as a non-standard (and stigmatized) form which has, nevertheless, the advantage of looking like an adverb. An English equivalent is the form *thusly* 'in that way' in competition with the simplex adverb *thus*, having the same basic meaning but lacking the affix *-ly* which is normally used to derive adverbs from adjectives. In both cases, then, the simplex adverb is remade on the model of the morphologically complex form.
4. The fourth statement has to do with meaning. Kuryłowicz points out the tendency of speakers, in cases where an analogically regularized form coexists with the earlier form, to give the new form the primary meaning and retain the older form for

marginal uses. Standard examples include the remaking in English of the plural of *brother* to *brothers* from the etymological *brethren*. The earlier form still exists, but only in the restricted context of members of a religious congregation. In the same way, earlier English had an irregular comparative form for the adjective *old*. Through regular vowel changes the form was *elder*, then changed through analogical processes to *older*.[88] The etymological comparative remains in a small number of family terms, like the fixed expressions *elder brother, elder sister* as well as referring to one's parents and grandparents collectively as one's *elders*. Senior members of religious congregations often have the role of *elders*, advisory to the minister as a result of their age and experience. A counter-example comes from computer technology: while the plural of the small rodent has remained the irregular *mice*, electronic pointers are *mouses*. Of course, we might argue that Kuryłowicz had it right after all and that the rodent is becoming a marginal referent for *mouse* compared to the prevalence of technology in the lives of most English speakers, at least in the United Kingdom and North America!

5. The fifth statement is that a given language will give up less significant distinctions to maintain significant ones. This is, perhaps, the opposite of analogical thinking, the exclusion of something rather than its spread. It can also be thought of as a comment on the relative importance of certain categories as compared to others. This kind of thinking also calls for comparisons of the relative salience of some features, that is, that they are considered more important for communication than other features. A standard example is, again, from the history of the Romance languages. Latin has grammatical cases, endings on nouns to designate the function of the noun in a sentence (we have already talked about the nominative, or subject, and the accusative, or direct object). These case endings undergo phonetic changes in later Latin with the result that there are fewer which are distinctive, pointing directly to the role of the noun in the clause. Rather than allowing the sound changes to blur the more significant distinction of number (singular and plural), speakers find ways of marking information about sentence relations more clearly, often with fixed word order, and therefore do without case endings.
6. Finally, Kuryłowicz states that the terms of a proportion may come from different systems. By this he means that analogical change may be based on a different dialect or register. This would especially be the case if the source of the analogical change carries social marking, be it the standard dialect or one that is, for some reason or other, considered fashionable or more up-to-date; we can think of the language of computers, mentioned in Chapter 3, where *hardware* came into the

88. Note that the regularly derived (non-analogical) forms *brethren* and *elder* both contain vowel changes brought about by umlaut; the process functioned throughout West Germanic.

dialect from another realm and, by analogy, was extended to *software*, a new term in English and, more recently, to *humanware* to designate the function of people in interaction with technology.

5. Paradigmatic and other systematic change

As will not come as a surprise, matters become more complex (and more interesting!) when the we consider more systematic changes, those that occur not in single morphemes or even in a grammatical paradigm. For each of the kinds of morphological change which follows, it will be necessary to look not just at one morpheme (or one new set of endings), but also at the context in which the morpheme functions, be it free or bound. And, crucially, in each case analogical thinking plays a central role in triggering these changes. We will start with series and from there move to paradigms.

5.1 Series and semantically related words

Analogical thinking involves making comparisons among entities, linguistic and otherwise. It functions most often in the realm of Language when speakers treat some words as constituting a pattern or otherwise cohesive group. The result is that the form of one or more member of the group may influence (that is, bring about change in) the form of other members of the group.[89] In the examples which follow, then, the point is not that some sound changes to another one, but that identification of meanings with each other (which includes the notion that units are broadly related), is an underlying condition for change.

A first example comes from numerical systems. The numbers one to ten tend, in many languages, to be viewed as a group or set; cf. Chrisomalis (2010: 363) on the universality of ten or a multiple of ten as a base for natural number systems. One to ten are, as a result, perceived by speakers of many languages (most of the Indo-European family, Semitic, Chinese, among others) as a series recited together so often and in so many contexts that members of the set influence each other morphologically. In the history of the Germanic languages, for example, the number *4* now begins with /f/: English /fʊr/, German and Yiddish /fir/. If we go to other Indo-European families, however, we find that the Italic (including Latin) initial sound is /kʷ/ which either remains the same or changes to /k/ in the Romance languages (French /katʁ/, Italian /kʷatro/ etc.). The Russian numeral is /tʃeteri/ and, with the evidence from Italic and

89. This definition is deliberately vague since the notion of "group" is, as will be seen from examples, rather loosely defined.

other languages, points to a reconstructed */kʷ/ in Indo-European.[90] What then do we make of the initial /f/ in Germanic? If regular sound change had prevailed, English would have something like */wur/. The answer is analogical: the historically irregular form developed precisely because the numbers are a series; it comes in anticipation of the /f/ in *5* which is a regular development from Indo-European.

In Italic, on the other hand, *5, quinque* in Latin (French *cinq*, Italian cinque and Spanish *cinco* through regular sound change) shows a perseveration of the initial */kʷ/ reconstructed for *4*. Again, we need to look at other Indo-European languages to see that it is an irregular development: Greek *5* is /pente/, Russian is /pʲatʲ/, and Sanskrit /pantʃ/, all pointing to a form with an initial */p/. The influence within a conventional series can go in any direction, therefore, in anticipation of later members or as a continuation of forms earlier in the list.

It is the case, in fact, that this kind of influence of one form on other may occur without there being any strict series of units; it is not necessary, for example, that the members of the set be ordered. The set of English kinship terms, and especially those for the immediate family, are a case in point. The words *father, mother,* and *brother* have points of resemblance both in the phonetic shape of the second syllable and the fact that the first syllable is stressed. If we look at the emergence of Germanic from Indo-European, we find that regular sound change would not have brought about the partial identity of these words. In regular instances (known as Grimm's Law), voiceless stops changed to voiceless fricatives (15a) while in this irregular change, we find voiced fricatives (15b):

(15) a. *t > θ[91]
b. *t > ð

What has happened (a further reconstruction identified as Verner's Law), is that there is a subregularity to account for, specifically, that the voiceless stops became voiced in intervocalic position if followed by the stressed syllable. The result in Germanic then is an alternation between the voiceless /θ/ and the voiced /ð/ depending on the stress pattern of the etymon, the source from which the Germanic word evolved.[92] There

90. Chapter 8 will examine reconstruction in some detail; for now, this fact in isolation should suffice.

91. Since only reflexes of the dento-alveolar /t/ are relevant here, that is all that will be discussed; again, see Chapter 8 for a broader treatment of reconstructed forms and Indo-European.

92. Grimm's Law and Verner's Law taken together provide an excellent illustration of the 19th-century Neogrammarian enterprise. Grimm identified a remarkable regularity in sound change, here one that accounts for virtually all the consonant development in the formation of proto-Germanic, but left some exceptions unexplained. Verner then was able to make sense of this exceptional sub-regularity.

is a further step, however, which is that in Germanic stress becomes regular so that speakers only had the cue of voicing (or lack of voicing) to differentiate these rather closely related terms. In early English the fact that they were semantically linked eventually prevailed and the voiced reflex /ð/ replaced /θ/ in *father* under the influence of the stress pattern and subsequent voicing in *mother* and *brother*.

5.2 Paradigmatic changes

The prototypical environment for this kind of morphological change, however, is not the series or the loose semantic set, but rather the paradigm. A paradigm is a set of forms, related to each other by the phonetic uniformity (or near-unity) of the root, with variation in the affixes, prefixes or suffixes which provide grammatical information. If the paradigm is nominal, adfixes usually designate the function of the noun in question in a sentence; in the case of verbal paradigms, they provide information about the verb's person, number, tense, and mood. Modern English nominal and verbal paradigms are quite limited, while many other languages have much more elaborate grammatical information:

(16) a. The boy runs.
b. I see the boy.
c. The boy's book is on the table.
d. The boys run.

The very short sentences in (16) are, respectively, illustrations of the noun *boy* as subject (16a), and object (16b), neither of them marked by an ending. In (16c), however, *'s* indicates the possessive and in (16d) the plural is also marked by a morpheme spelled *-s*, although without the apostrophe.[93]

(17) a. He talks.
b. I/You/We/They talk.
c. am, are, is

The English verbal paradigms are as limited: (17a) shows the only present tense ending on regular verbs, the third person singular *s*, while (17b) shows the morphologically unmarked form. (17c) of course is the highly irregular verb *to be* (irregular in a large number of languages because the forms are used so frequently); even there we find

93. Note again that this is the *morpheme* for the plural, neither the phonetic entity [z] nor the phoneme /z/. And while the apostrophe is the standard marker only for the possessive, it is used in non-standard fashion to spell the plural either because the singular ends in s (my name is often pluralized in non-possessive contexts as *Winters's* referring to multiple members of my family) or, by further analogical extension, even for common nouns.

only three different forms in the present tense, the first and third person singular (*am, is*) and *are* in the second person and other plural forms.

Of interest here, naturally, is the interaction of paradigms and change. In some ways, the mechanism is the same as for changes within series or semantic sets: speakers, through analogical thinking, make choices (normally on a semi-conscious level) which make members of a paradigm look more alike and therefore more identifiable as somehow more the 'same'. When this occurs in paradigms, the process is referred to as leveling, the loss of different forms or sets of forms. We have already looked at a certain number of examples including the changes in Latin noun paradigms by which members which have more (or fewer syllables) and/or different phonological shapes change to look like the (contextual) unmarked form; think of the change of nominative *leo* 'lion' to *leonis* with, in this case, a change to the same number of syllables as well as the addition of the stem-final consonant from the non-nominative singular forms. Verbs in many languages are particularly susceptible to leveling; a well-known example is presented below in Section 5.3.

5.3 A return to Sturtevant's paradox

To complete this consideration of sound change, leveling, and analogy, let us return to Sturtevant's Paradox which was introduced at the beginning of the chapter. Recall that it stated that sound change – a regular process – gives rise to irregularity, while analogy – which occurs sporadically – leads to regularity. To see how the pieces fit together, consider the following data from Latin to Old French and then from Old to Modern French. In all of it, we are looking at forms of the verb *to love*:[94]

(18) *Latin*

amāre	'to love'	amantis	'loving'
āmo	'I love'	āmāmus	'we love'
āmas	'you (SG.) love'	āmātis	'you (PL.) love'
āmat	'he, she loves'	āmant	'they love'

Regular sound change prevailed to change the Latin forms to Old French. There is one of particular note here since the focus is on the stem vowel:

(19) ā > aj when the syllable was stressed

That is to say that the stressed vowel diphthongized from [a] to [aj] in an open syllable, one which ends in the vowel. The singular forms of the conjugated verb and the third person plural all take stress on the initial (stem) vowel and change accordingly.

94. Latin words are stressed on the penultimate (second to last) syllable when the vowel in it is long or when the syllable is closed (contains a consonant after the vowel within the syllable). In two-syllable words, the initial syllable is stressed.

The infinitive, the present participle, and the first and second person plural forms take their stress on the non-initial vowel, the penultimate, and the stem vowel therefore does not become [aj]. The result then is that what was a regular paradigm in Latin (one where every form had the same stem vowel [a]), is now irregular since some of the forms show [a] and some [aj]. This irregularity is brought about by sound change working without exception throughout the paradigm:

(20) *Old French*

amer	amant
aim	amons
aimes	amez
aime(t)	aiment

The picture changes again in Modern French since levelling has taken place:

(21) *Modern French*

aimer	aimant
aime	aimons
aimes	aimez
aime	aiment

Now all the forms have the same stem vowel (pronounced [ɛ]). This further change took place not through regular sound change, but through analogical action which creates new regularity even though it functions sporadically. The one reminder in Modern French of the former alternation is the noun *amant* 'lover' which is etymologically the Old French present participle 'a loving one', but is no longer perceived as part of the paradigm; the participle itself ('loving') has been replaced by the regularized *aimant*. Sturtevant's Paradox, therefore, is well illustrated by this set of changes since we can clearly see that regular sound change creates irregularity and sporadic analogical leveling recreates regularity of form.

Do not forget that analogical change – either paradigmatic or other – will take place only some of the time. It is unlikely to occur when forms are of very high frequency (like the verb *to be* in a great number of languages or the English plural *children*) since speakers use the forms so often that they have learned them thoroughly and so won't forget their shapes or even hesitate. In the same way, very low frequency words tend not to change analogically since then are not used often enough and may also become fixed as literary or somewhat old-fashioned. One such instance is the verb *to smite* in English. As a verb, it is associated with the Bible for most English speakers (and religious language, you will remember, is also resistant to change because it is considered sacred and hence untouchable), so that few speakers associate what is actually the past participle *smitten* with the rest of the verb. It is rather used as an old-fashioned and sometimes jocular way of saying 'struck' in the sense of 'taken with, attracted to'. Since it no longer is associated with a verb and, in any case has taken on a narrow sphere of use, change to, for example, **smited* is very unlikely.

6. Concluding comments

Morphological change, as this chapter shows, is, generally speaking, a combination of three kinds of processes. Some of it occurs through the direct action of sound change, some through analogical thinking, and some – perhaps almost all in the end – through the action of semantic analysis on linguistic units, be they broadly lexical or grammatical. Paradigmatic changes from regularity to irregularity are usually the result of sound change, while changes from irregularity to regularity, within paradigms and in isolated forms alike, come about through the tendency, if you will, to tidy up groups of forms which somehow go together to make them look more alike.

Informing most of these changes is the human need to convey meaning. The use of derivation to coin new words, first, arises from a perceived gap in the lexicon. When it comes to series and other semantic groupings (numbers in one case and kinship terms in the other in our examples), it is the commonality of meaning (be it at a very abstract level) which leads to the changes in forms. And when a paradigm is somehow adjusted so that the stems look more alike, semantics is the driving force again: people will understand more quickly and more accurately what is being conveyed, if they have less to do in recognizing the form.

Exercises

1. The story of *-Vble*, as discussed in this chapter, serves as a suffix transforming verbs into adjectives; it spans two language families and a very broad lexicon. What are the most productive affixes (prefixes and suffixes) in English today? Are they originally Germanic or Romance? How do they function and how have they widely adopted? Think about current items like *truthiness* (look it up if you haven't met it). What is going on there? Can you think of other examples of the processes involved?

2. Back formation is the process by which a derived form is recognized instead as the base form and thus gets extended as if it were. A standard English example is the verb *orientate*, based on *orientation* which is in turn derived from the original verb *orient*. What morphological processes are involved in back formation? Provide as much detail as possible. What other examples are there in English? Other languages you may know? Yes, *Wikipedia* has a list, but the important point is to produce a thorough analysis of the morphological processes involved.

3. The so-called 'green grocer' plural in English (mostly British, but spreading to North America) is a label of the (mis)use of an apostrophe to mark the plural, seen on handwritten signs at produce (green grocer's) markets: *apple's, orange's*. Why might such a usage have arisen in English?

4. The Old English (OE) forms for selected strong verbs in each of the verb classes are given below with their Modern English (NE) counterparts. Account for each of the modern forms, indicating when it is an expected development of the Old English form and when the expected form has been replaced. Can we still talk about verb classes in Modern English?

	Infinitive	*Past (SG.)*	*Past (PL.)*	*Past Participle*
I.	*OE wrītan*	*wrāt*	*writon*	*written*
	NE *write*	*wrote*		*written*
II.	OE *crēopan*	*crēap*	*crupon*	*cropen*
	NE *creep*	*crept*		*crept*
III.	OE *singan*	*sang*	*sungon*	*sungen*
	NE *sing*	*sang*		*sung*
IV.	OE *beran*	*bær*	*bǣron*	*boren*
	NE *bear*	*bore*		*borne*
V.	OE *tredan*	*træd*	*trǣdon*	*treden*
	NE *tread*	*trod*		*trodden*

5. Each of the members of the following sets has, etymologically, the same source ('full of' is formed, from the Greek, by *-ous* at the end of an adjective, and, from the Germanic, by *-ful*). Characterize the differences in meaning among the terms in each set. What can you say about *awesome*, which does not follow either pattern?

   a. *graceful, gracious, full of grace*
   b. *bountiful, bounteous*
   c. *awful, full of awe, awesome*

For further investigation

Reactions to Kuryłowicz's (1945) five tendencies of analogical change have, on the whole, been to dispute something he actually never claimed, that he was proposing "laws", understood as absolute (cf. Winters 1990). Kuryłowicz himself, however, never uses that term and mentions some counter-examples in the original article. Starting there (warning it is difficult reading even in the English translation (Winters 1995)), consider why these statements on analogical change cannot be hard and fast "laws". Look for counter-examples beyond those provided in the original article. What do they tell us about the nature of the role of analogical thinking lexical and morphological change?

CHAPTER 7

Syntactic change

1. Introduction

1.1 The nature of syntax

This will be the last chapter to look at a specific component of language and how change may occur across time in that component. Aside from the overview of lexical change, often left for last, we have been following a rather traditional organization of such material; we started with the smallest units, sounds, moved through sounds as a system, then forms, and, in this chapter, the organization of words and phrases into larger entities, grammatical units. These units may form whole sentences or may be subcomponents of sentences, clauses or even phrases. While one chapter is not sufficient to consider all kinds of syntactic change,[95] we will examine a variety of ways in which grammatical units evolve: Section 2 will consider word order and iconicity, Section 3. will return, on a broader level, to grammaticalization and reanalysis, both of which have been presented in the previous chapter, and Section 4 will be devoted to ways in which sentences become more complex through subordination.

Before looking at types of change and data, it would be good to arrive at a definition of syntax. It is, perhaps surprisingly, not a straight-forward task. If the matter is very much simplified, but still not misstated except by the omission of nuances, linguists who study syntax are divided by a very basic question: is syntax at its most fundamental a matter of structure or a matter of meaning? The question is largely a theoretical one, however, because in reality, especially in looking at language diachronically, analyses of data most frequently do not depend completely on structure or completely on meaning. There is, however, a tendency to emphasize one or the other and in this chapter the emphasis will be on the meaning of grammatical units and, therefore, how meaning change occurs in the realm of syntax; see Section 1.2.3 for a further discussion of this very fundamental question.

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95. See Harris and Campbell (1995) and Ledgeway and Roberts, eds. (2017) for much more complete studies of historical syntax.

1.2 Diachronic syntax

1.2.1 *Structural approaches and feasibility*

Although the debate is not much in fashion these days, there was a period when the very enterprise of studying syntax diachronically was held up to question. There were at least two threads to the reasoning leading to the conclusion that syntax change could not be studied. The first, coming out of American Structuralism, was a practical one: if linguists need to describe fully the phonetics of a given language before tackling the phonology, and the phonology before the morphology, it would be an almost impossible task to do these studies thoroughly enough to be ready to look at syntax. Although this argument was usually made synchronically, to express the difficulty in reaching truly complete descriptions, it was applied as well to change. The second thread had to do with the nature of linguistic study, under the influence of Saussure (1916) and his view of the interaction of synchronic and diachronic branches of linguistics. His argument was that the evidence would never be complete enough from stage to stage of the development of even a well-documented language to bring to a description of change the precision which could be brought to a synchronic description based on contemporary data.

Expecting a complete study (usually descriptive) of the 'lower' levels of language before the 'higher' ones could be studied is no longer considered realistic or desirable. There is a certain point where most historical linguists, as has already been made clear in various chapters, make peace with the fact that their sources of data are not as complete as those of linguists doing synchronic work on contemporary languages where native speakers can be consulted. This certainly is not considered a reason to discard the field completely, but rather to build as good a theory of change as can be proposed; Chapter 9 on methodologies will address this at some length, noting the large amount of data for some languages now available via online corpora.

1.2.2 *Reconstruction*

It seems particularly the case that those who reconstruct non-documented earlier languages by comparing different extant members of the same family (again, see Chapter 9) have often been the most skeptical about the potential for studying syntax change. They argue that since comparative reconstruction in phonology and morphology observes a protocol based on forms which are in many senses 'the same,'[96] following this line of reasoning, syntactic structures should, as well, be shown to be the same

96. Where there exist phonological and morphological differences between the languages being compared, they can usually be explained through regular lines of development.

across related languages. How, they continue, do we measure what is "the same" in syntax where even in closely related languages word order may differ, as may ways of subordinating clauses, verb particle constructions, and so on? We cannot set up the correspondences which lead to proposals about the nature of the mother language, the source for all members of the family (a good discussion of the issue as it used to be viewed is found in Campbell 1990). Clackson (2017) explores the issue further and we can conclude, with him, that syntactic reconstruction is indeed possible (see also Walkden 2014), but that applying all the steps of the protocol which was developed for phonological reconstruction is not often feasible. We begin at the same place, with the data at our disposal, but, rather than using phonological rules of thumb, we develop the most plausible pathways for the attested syntactic units to have developed. It is through working backward along these pathways that earlier, non-documented forms will be hypothesized.

A further issue in finding good sources for reconstruction of syntax is that documentation in comparatively well-endowed languages often involves translations of sacred works. As was mentioned earlier, it has been independently shown, by religious scholars as well as linguists, that when sacred works are translated the resulting text is often very close to the source text. There is a tendency to translate word for word, thus preserving the original word order as a mark of respect for the sacred nature of the document, while still making the text accessible to readers of the language into which it is translated. For much the same reason, there is a disinclination in such texts to use contemporary constructions of the kind speakers would be most familiar with, because that might take away from the special nature of what is being translated from one language to another; think of the King James Bible (quoted briefly in Chapter 1), versions of the Old Testament, and of the Koran for examples of what in non-religious writing would seem grammatically stilted or even hopelessly archaic. All of these considerations may restrict the data which might be used to study syntax change.

1.2.3 *What to do?*

This chapter will take the stand that syntax can be studied diachronically. To repeat what was said above, reconstructions are hypotheses and may well change when new data come to light or a more illuminating way of looking at the extant data is proposed. It is useful, in terms of any discussion of feasibility, to return to the question posed in the first part of this section, that is, whether syntax as a matter of structure or of meaning. To explore the question further, let us consider the history of the expression of sentential (or verbal) negation in French (based on Winters 1987).

In Latin, a sentence was negated through the use of the particle *non*:

(1) Non volo.
not wish (1P. SG.PRES. IND)[97]
I do not wish (it).

In early French, the particle *non* continued to mark the negative, though eventually it was reduced (in all likelihood as a result of the frequency of its use) to *ne*, pronounced /nə/ as it is today:

(2) a. Voir non ai, mere, non ai, non (ca. 1190)
truly not have (1P SG. PRES. IND) mother, not have not
I truly do not have (it), Mother, I do not have it, no.

b. Il ne vout ester ses amis (ca. 1280)
he not want to be her lover
He does not want to be her lover.

In the earliest documentation, the simple form, *non* or *ne* is frequently found standing alone as in the examples in (2), but even from quite early French we find the addition of a second form, *mie* or *pas*, usually following the verb and meaning 'not' as well:

(3) a. Sire, ne vous esmaiés mie (ca. 1270)
Lord not yourself fear not
My lord, do not be afraid.

b. pas ne m' an poise (ca. 1290)
not not me of it concern
(It) doesn't bother me.

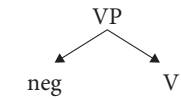
By the late Old French period *mie* had disappeared and, to this day, *pas* is the negative particle following the verb. Increasingly since the 19th century, in fact, the etymological negator *ne* has become increasingly rare in speech, leaving *pas* as the mark of negation:

(4) Il le veut pas.
He it want not
He doesn't want it.

An analysis of these changes based in the primacy of structure would emphasize, perhaps, the change in word order in negation, from a pre-verbal to a post-verbal negator. It might also suggest a change in the underlying structure of the verb

97. Where necessary, examples in languages other than English are followed by two lines of glosses, one morpheme by morpheme and the other a more or less felicitous translation into English. Both these glosses are needed for syntactic discussions, the first to elucidate the structure being discussed and the second to make it easier to grasp the meaning of the line being quoted as an example.

phrase, so that an earlier stage had negation attached at the VP and at a later stage it was attached rather to the V. Figure 7.1 is a schematization of the two stages.



Old French Negation

Modern French Negation

Figure 7.1 Structural approach to French negation

On the other hand, a semantic approach would call for a progression, including the addition to the construction of words like *mie* 'crumb' and *pas* 'step' reinforcing the negation of appropriate verbs ('not eat a crumb', 'not walk a step'), with certain of these vivid terms being generalized over time and through frequent use to reinforce negation more broadly. Eventually, for largely pragmatic reasons, the meaning of the reinforcement is further generalized to the expression of negative content by itself. At that point, the etymological *ne* can be dropped as an empty particle which adds nothing to the expression of negative meaning. Figure 7.2 illustrates this progression with the first part showing the Latin, the second the Old French with a reinforcement of negation, the third modern formal French, and the fourth the modern informal variety.

There exist obvious complications in describing and explaining the change in this one– relatively simple – syntactic development. First, even in a language as well documented over time as French, the data are somewhat sparse and may even be misleading in earlier stages. While the majority of the early literary examples of negation show only *ne* before the verb, there are actually quite a few instances of *ne … mie* in even the earliest texts, particularly those which were non-literary. It is plausible that the particles started from full nouns and were then reinterpreted as more general negators and plausible as well that *mie* and *pas* were originally vivid reinforcements of negation. These proposals are, however, somewhat theoretical and not explicitly supported by the data which are available to us. Examples such as (5) coexist with other late twelfth-centuries instances and already negate a cognitive verb with *pas* ('step') rather than being restricted to one referring to motion:

(prototypes are in bold):

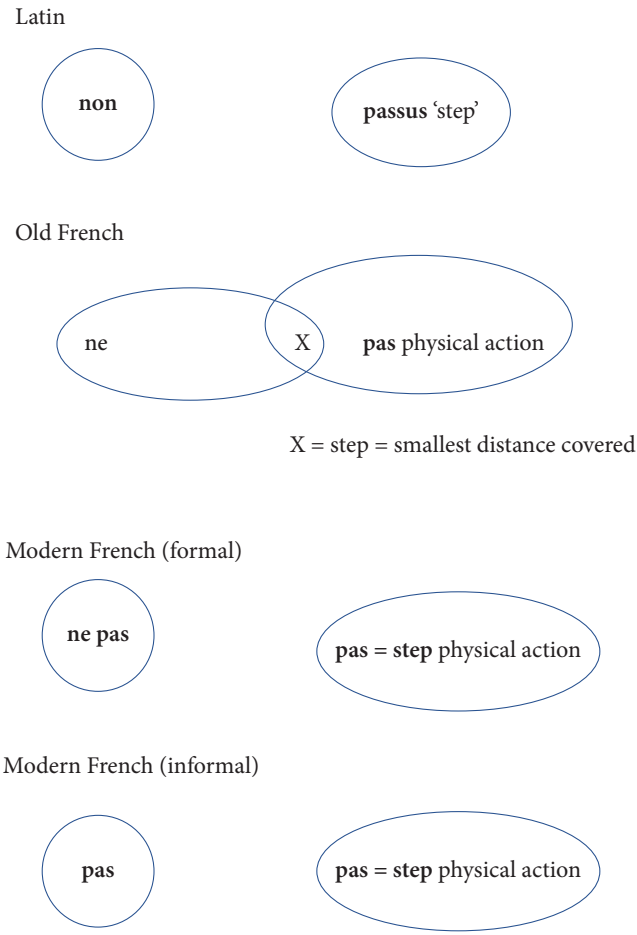


Figure 7.2 Changes in French negation

(5) Cele suefre qu'il la beise,
This one allows that he her embrace
ne ne cuit pas qu' il li enuit (ca. 1190)
nor not think NEG that he her bothers
She allows him to embrace her and he does not believe that he is bothering her.

Given data which furnish counter-examples to a theoretically clear-cut set of steps, where each stage can be recognized as apart from any other, the analysis of negation in French must include some reconstructed stages. We must posit a stage where only *ne* marked negation, one where a variety of expressions reinforced the construction,

and one where these expressions were specific to certain verbs (again, *pas* 'step' for motion verbs, *mie* 'crumb' for eating and other actions which involved semantically appropriate direct objects). We can then propose that the expansion of these reinforcing nouns to full negators took place before the documentation of even the earliest stages of French. These steps can be posited in part because similar developments have occurred in many languages. They are termed 'cyclical' because the sequence of developments (a reinforcement of negation with *pas* or *mie* and then the generalization of the reinforcing element to a negator in its own right) may occur more than once in the history of a language; we will have another word about cycles in Chapter 10.

For the choice of a purely syntactic, purely semantic, or mixed explanation, we are virtually outside the realm of Language and addressing the theoretical domain of human cognition. Evidence that human beings store either pure structure or pure semantics is shaky at best as is evidence that we store a mixture of the two, unfortunately for an easy compromise. Researchers' theoretical stances inevitably come into the picture; while this text tends toward the semantic side of things, other studies by other historical linguists will look at a purely structural solution to both description and explanation.

1.2.4 *Rate of change*

One last preliminary consideration is the rate of change. It can be approached from a couple of directions. First, it seems to be the case that grammar change normally takes quite a while.[98] Unlike phonological phenomena, which are largely not noticeable, grammar 'errors', the forerunner of variation and hence change, are corrected (sometimes overcorrected by zealous teachers: consider the prohibition on ending a sentence with a preposition, a restriction which has never figured in spoken English). There is a streak of conservatism, then, in written grammar which also delays full change in oral expression of the more formal type like certain political speeches, conference papers, and sermons, among others. Literary language does not get rewritten either; we still understand a great deal of Shakespeare's even if some lexical items are obscure. In the performance of his plays, the grammar is kept as he wrote it, while pronunciation is most often modernized; modern editions will contain multiple notes on meanings which have disappeared or become obscure.

The other consideration of rate is of a more theoretical matter: does change happen gradually or abruptly, that is, unit by unit, or affecting every unit of a given nature at once? In phonology one approach (although there is no consensus) is to say that

98. However, see https://www.sciencedaily.com/releases/2017/10/171002161239.htm where some evidence is presented for some grammatical change as occurring faster than lexical change.

phonetic change is gradual, moving from word to word. Phonological change is, however, abrupt since some segment either is or is not phonemic, with the change happening across all instances of that segment.

Syntax seems to be somewhat different (and perhaps easier for linguistic observers) in that we can watch change as it proceeds from one variant of a construction to another more easily than in phonology. A trivial example is the tendency among younger speakers of American English to extend the prepositional phrase *on purpose* to *on accident* rather than the standard *by accident*. Obviously analogical processes are at work here, triggered not by similarity, but by difference in the form of one of these expressions compared to its opposite. Although it has not yet happened, one can imagine the spread of the preposition *on* to other expressions such as *on chance* instead of *by chance*.[99]

More involved cases occur as well, including the loss in modern English of an earlier pattern which allowed for an indirect object to serve as the subject. The one contemporary instance has become a largely unanalyzed unit, *methinks* (used in the frequently misquoted line from Shakespeare's *Hamlet*, "The lady doth protest too much methinks"). In early modern English, the construction was widely found, especially with verbs of cognition like the one just cited and in verbs of emotion and judgment as well (*me likes, me seems*). Gradually, the use of the indirect object as subject disappeared, replaced either by a nominative form (*I like*) or an impersonal (*it seems to me*). An examination of the literature (see, in particular, Allen 1980) shows that the change diffused gradually from one class of verbs to another (where 'classes' are semantic, that is, expressing cognition, emotion, or judgment), leading class by class to what has become the complete loss of dative subjects.

A competing theory which will not be much discussed here is, roughly, a form of catastrophe theory (Lightfoot 1979). It envisions syntactic change as happening sporadically if at all in the speech of adult speakers where a new construction might be viewed as a mistake. Once enough changes have taken place, new language learners (children acquiring their first language, that is) conclude, albeit unconsciously, that the underlying framework for the construction must have changed in all instances. Adults, then, would occasionally change *methinks* to *I think* and perhaps be criticized for doing so, but their children will not only use the *I think* variety if they hear it frequently enough, but understand on some mental level that the subject is a nominative, not an indirect object.

Rate of change involves many factors. There may be more than one analysis and often there is a crucial difference based, as above here in relation to the *methinks*

99. I have not ever heard *on chance*; see Chapter 10 for the plausibility of predicting linguistic changes.

example, on whether one sees language as based in meaning or based in structure. In the next three sections we will consider word order and subordination, using them to illustrate the notion of cyclical processes, grammaticalization, and reanalysis as all of them apply to syntax.

2. Word order

2.1 Simple word order change

There is well-documented evidence that the basic word order of a given language may change over time. In Old English,[100] for example, the word order of simple declarative sentences was rather free (van Gelderen 2006: 68), although there were some exceptions. Sentences which began with an adverbial expression had a basic order of Verb followed by the Subject (VS),[101] while in Modern English the word order in such sentences follows the same word order as in a clause with the basic SVO order:

(6) a. God bletsode ðā Noe and his suna
God (S) blessed (V) then Noah (O) and his sons.

b. Đā cwæð Drihten tō Caine: "Hwǣr is Abel
Then said (V) (the) Lord (O) to Cain: "where is Abel
ðīn brōðor?"
your brother?"
Then the Lord said to Cain: "where is your brother Abel?"

c. Đā andswarode hē and cwæð: "Iċ nāt; seġst ðū,
Then answered (V) he (S) and said: "I (S) know not say you,
sceolde iċ mīnne brōðor healdan?"
should (V) I (S) my brother (O) look after
Then he answered and said: "I do not know. Are you saying that I should look after my brother?"

In (6a) we find the word order which is still basic in modern English, that is, SVO (*God, blessed, Noah*). In (6b) and (6c), however, the first word of each sentence is the adverbial *ða* 'then'; note that it appears in (6a) as well, but following the verb rather than in initial position; it therefore does not affect word order. Because in the second

100. The examples below are drawn from the same source as the Old English version of the Old Testament in Chapter 1 to exemplify linguistic – and particularly syntactic – features consistently.

101. Here and elsewhere I will follow the well-established convention of capital letters for the basic elements of the sentence: S for subject, V for verb, and O for object.

and third examples the temporal adverb is the first word of the sentence, the verb and subject invert, thus maintaining the position of the verb as the second constituent. Between Old and Modern English, however, this inverted word order largely disappears, and sentences beginning with adverbials become SV(O) by analogy to the order exemplified in (6a) and in the modern paraphrases of the Old English sentences. Note also the very modern word order in (6b) in the second clause where the verb and subject change order in a question ('where is Abel…?').

A somewhat more complicated, but similar change occurred in subordinate clauses, illustrated above in (6c) and then again in (7). In subordinate clauses, the word order variation does not involve inversion, but rather the preposing of the object to the verb:

(7) Gode ofðūhte ðā ðæt hē mann ġeworhte
to God it was regretted that he (S) man (O) had made (V)
ofer eorðan.
upon earth.
It was regrettable to God that He had made man upon the earth.

Unlike Modern German where the subordinate clause still requires that the verb be in absolute final position, adverbial phrases can follow here, although, as in German, the object in Old English precedes the verb. This postposed verbal position in Old English disappears in Modern English where all clause types show SVO configuration. There are a few exceptions, some where the word order feels a bit old fashioned and others which are standard even in contemporary spoken English.[102]

2.2 Universals and universal tendencies

What we've looked at in the last few paragraphs exemplifies rather straightforward word order change, motivated in large part by the higher frequency of the word order found in the majority of sentences which might be uttered, that is, simple declaratives which are SVO from the time of reconstructed proto-Germanic and the earliest English

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102. (i) Into the room ran a very small dog.
(ii) Boy am I hungry!

A certain limited number of adverbials still show inversion, although one could also say Into the room a small dog ran, and exclamations are also the locus of inversion (although, again, one could say Boy I'm hungry). The most obvious inversion is with questions:

(iii) Are you ready?

In almost all instances, however, the inversion is now optional and in some, like i. above, seen as somehow a bit archaic or literary.

documentation.[103] There is, however, a great deal more to be said about word order and syntactic change, much of it based on the same fundamental finding, that the order of elements in simple declarative sentences is basic to a language.

It has been noticed for quite a while (Greenberg 1963 set this out) that basic word order correlated with various other, less central orders within a sentence. If we omit S (and we do since many languages, like Spanish and Italian, do not require a subject pronoun), basic word order can be seen as bimodal: at a given time, either OV or VO. Japanese, for example, is OV; the verb comes at the end of the clause and is preceded by the object and, in fact, almost everything else. English, on the other hand, is VO; the verb appears close to the beginning of clause and is followed by not only the object, but by most adverbials and other adjuncts. The result is as follows:

(8) Sensei-ga gakusei-o[104] mita
teacher (S) student (O) saw
The teacher saw the student.

Note particularly the reversed position of direct object and verb, OV in Japanese and VO in English. All languages must be one or the other of these types; this is by mathematical necessity since there are only two elements which occur one way or another in all languages. This approach to categorizing languages by basic word order, in fact, cuts across both genetic relationships and contact influence; the study of languages by syntactic type is, not surprisingly, called linguistic typology.

What is particularly interesting is not the categorization of languages as OV or VO (although some languages pose particular descriptive problems which make the simple classification by word order somewhat less than obvious[105]). Rather, it is the

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103. See Bybee 2002 for a discussion of frequency and context in change. Her subject is sound change, but the discussion pertains to word order as well.

104. It is purely a coincidence that the Japanese (overt) marker of the direct object is the particle *o* which follows the noun marked in the gloss with the linguistic symbol (O).

105. German, for example, while VO in main clauses, is OV in subordinates:

(i) Er sieht den Mann
He (S) sees(V) the man(O)

(ii) Ich weiss dass er den Mann sieht.
I know that he(S) the man(O) sees(V)
I know that he sees the man.

By paying attention to the sentence function markers (S, V, O) in (i) and (ii), one can track the inversion of object and verb in the subordinate clause introduced by *dass.* There have been arguments made that in German subordinate clauses are so frequent that OV is really the basic order (Fox 2005).

fact that other word orders which fall within the general scope of the sentence form a pattern with the differences between OV and VO. Among those is the difference between OV languages where the auxiliary follows the main verb as opposed to VO languages where the auxiliary precedes:

(9) English: Taroo is eating sushi.
Japanese: Taroo-ga sushi-o abete iru
Taroo (S) sushi (O) eat be (V)

In addition, VO languages have prepositions, while OV languages tend toward postpositions:[106]

(10) English: He went to (prep) Tokyo (O).
Japanese: Tokyo ni itta
Tokyo (O) to (prep) went

The focus here is on the varying order of preposition + object as opposed to object + postposition. This is one of the most common features to track with basic order; note, however, the comment about Latin, just below.

VO languages tend not to have case marking, while more OV languages mark cases (indicators of the function of nominals in a clause):

(11) Latin: Puer liber**um** puell**ae** dat.
Boy (S) book (O) to the girl gives (V).
English: The boy gives the book to the girl.

Latin here is marked by case endings (in this instance zero for the nominative subject, *-um* for the accusative direct object, and *-ae* for the dative indirect object). It should be noted that although Latin is usually thought of as a free word-order language, allowing, in theory, any order of elements, the majority of sentences, especially in prose, are OV. If, at least statistically, Latin can be seen as OV, some inconsistencies emerge. Most notably, Latin does not have many postpositions, an indicator of OV, although there are a few to be encountered in the Classical language, including *causa* and *gratia*, both meaning, roughly, 'because of' which are preceded by their object (*patriae gratia/causa* 'for the sake of the father land').

As another example of inconsistency, OV nominal phrases tend to place adjectives before the noun they modify, while VO languages more usually place them following the noun. But English, in most ways clearly a VO language, has adjectives preceding the verb (*tall man, yellow leaves*) except in some circumstances, for example, when the

106. Given the rather transparent meaning of *postposition*, it is easy to figure out the etymology of *preposition*, a word most of us learned quite early in our school lives and have probably never questioned.

adjective heads a phrase of some kind (*the tree laden with fruit*). French too is generally considered VO, and does conform to the tendency, except, so to speak, when it doesn't. Most adjectives follow the noun (*feuilles jaunes*, literally 'leaves yellow'), but *grand* 'tall' *homme* 'man'. The point here is that these typological implications (of the form 'if VO, then noun + adjective' or 'if VO, then postpositions') are always tendencies, not hard and fast rules observed across all languages displaying the basic word order at all times.

What does this have to do with language change? It has been observed that languages will shift over time from OV to VO or, more rarely, from VO to OV. It is not a magical development, however, but rather a consequence of the interaction of many less overarching changes (those not affecting basic word order, that is). Let us return to Latin. As was said already, the basic word order in Classical Latin is OV, although, because of the rich morphological marking of case, other orders may appear as well, particularly in more literary and especially poetic genres. The postpositions mentioned above (*causa, gratia*) are relics, presumably, of an earlier, even more robust OV order and have been largely – but not entirely – replaced by prepositions (the earliest documented Latin has more postpositions than in the Classical period and there are certain phrases even in the Classical period such as *mecum*, literally 'me *Object* with *Preposition*', 'with me'). As overt morphological case marking disappeared (largely through sound changes from Classical to Late Latin), adjectives were placed more and more often in fixed order relative to the noun they modified, to make the relationships within the nominal phrase clear despite an increasing lack of agreement in case morphology. The crucial change was that of the verb from final to second position; our evidence comes from what appears in the earliest attestations of the Romance languages. No one of these changes necessarily *causes* the others; matters are much more complex. But when enough of them take place over some period of time, the effect is a shift from OV to VO or vice versa, with many of these implicational features eventually changing as well. The changes do not necessarily occur at the same time.

Not all changes conspire (perhaps collaborate is a better word, particularly if the collaboration is understood not to be intentional) to bring about changes in basic word order. On some occasions, an anomalous word order remains exactly that, an anomaly; it may even be reinterpreted. The Spanish prepositional phrase *conmigo/contigo* 'with me/with you' is one such. As was said above, Latin *mecum/tecum* are well attested among its somewhat antiquated phrases, dating arguably from a period when Latin probably used postpositions widely (there is evidence for a more consistent OV order with all it implies in reconstructed Indo-European if one looks more widely at related languages[107]). We find the same postposed construction (also limited

107. See Chapter 9 for comparative reconstruction and its application to syntax.

to certain personal pronouns and probably borrowed as a loan translation) in Old Spanish. Sound changes, however, made the phrases less transparent:

(12) mecum > migo

Final /m/ disappears during the Classical Latin period, Spanish /e/ > /i/ under certain circumstances, and the /k/ of Latin voices intervocalically to /g/.[108] The result is that Spanish speakers lose sight of the phrasal meaning of the form and reinterpret it as an unusual pronoun; they then regularize what was a postpositional phrase to a prepositional phrase, unusually written as a single word: *conmigo, contigo*, 'with me, with you'.

To conclude this section, it must be emphasized that word order changes do not occur in isolation. There are certain kinds of orders which cluster synchronically around the basic order of elements in a clause, Verb followed by Object or Object followed by Verb; remember that since Subject is optional in many languages, it is not considered as having quite the same status in basic word order. We say that the basic order implies the sub-regularities of pre-/postposition and its object, nouns and their adjective modifiers, and others, not discussed here, like the order of the antecedent of a relative expression and the clause which modifies it (English *the man who was walking down the street* as opposed to Japanese – roughly rendered – *who was walking down the street man*). What is of interest diachronically is that these basic word orders tend to change slowly over time from OV to VO or, less frequently, from VO to OV, interacting as they change with implied sub-orders which may change first, prompting the more basic change, or change later, being prompted in turn. Other patterns remain constant and, from being part of the general implication of word orders, become relics, reminders of an earlier syntactic state of affairs.

2.3 Iconicity

Not all changes in word order come about because of pressures on subsystems to conform to the basic word order of the language or because of this natural tendency of languages to move from one basic word or to another. Another force is that of iconicity, a tendency of speakers to want to express meaning not only through words, but also through the syntax of a given utterance.[109] There are several ways in which this tendency may be manifested and in the following paragraphs we will look at two of them.

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108. It later further spirantizes to [γ]

109. The wider phenomenon is the expression of some aspect of the world through a lexical or grammatical expression of that aspect. The difference between the normal expression of meaning and iconicity is that in the latter case the link is non-arbitrary, and, rather, in some direct way reflects some feature or features of the non-linguistic referent. The syntactic examples in the text will serve as illustrations.

The first of these is commonly called dislocation, the moving of an element of a clause (a single word or a whole phrase) from its usual place in the clause to either first or final position to express some aspect of the meaning of the clause. In English the usual movement is to the beginning of the clause:

(13) a. I like him.
b. Him, I like.

Where (13a) is in the basic VO order, (13b) dislocates the object to the front; the effect is either contrastive ('I like him but not his friends/his sister etc.') or emphatic ('I really like him!').

English is not particularly noted for this movement, either synchronically or diachronically; it appears more robustly in other languages including Yiddish and French. In French, in fact, two other aspects of the general phenomenon of dislocation should be considered. One is that the dislocation can be either to the left (the beginning of the clause) or to the right (the end of the clause). The other is that the movement is not complete; rather a resumptive unit (a full noun or a pronoun) appears before or after the clause, but the original element stays in place:

(14) a. Paul aime Marie.
'Paul loves Marie.'
b. Paul l' aime, Marie.
Paul her loves, Marie.
c. Marie, Paul l' aime
Marie Paul her loves.
d. Marie Paul l' aime, elle.
Marie Paul her loves her

Note that (14a) reflects the basic word order while in (14b) and (14c) the object, *Marie*, is dislocated variously to the right and to the left. In (14d) the object is dislocated in both directions at once, as a noun to the left and, as a resumptive pronoun, to the right. The subject may undergo the same two movements:

(15) a. Paul aime Marie, lui.
Paul loves Marie he
b. Paul il aime Marie.
Paul he loves Marie.

The situation in French is complicated by the existence of two sets of personal pronouns, one of which appears in the basic clause (the *l'* – for the feminine singular object pronoun *la*) and the emphatic pronoun (*elle* in (14d), feminine singular, and *lui* in (15a), the masculine singular.

In all cases the dislocation (without resumptive pronouns in English and with them occasionally in French) has arisen to serve the iconic principle of showing contrast or emphasis by highlighting the contrastive or emphatic element through its position at the beginning or end of the clause. We might even generalize further and say that the importance of the phenomenon is that the element is precisely *not* in the position predicted by the basic word order of the sentence; rather, the whole development of dislocation is a counter to the pressure of changes toward the implications of the basic word order. As a result, what is conveyed to the listener is something other than the unmarked construal of the scene (using the term 'scene' widely to include events, ideas, and other abstract or mental situations as well as physical descriptions). By highlighting some part of the real-world or mental scene, through dislocation of some element of it, the speaker is providing an analog to the importance s/he is placing on that element rather than on the one more usually in focus.

The second example of what one might call word order iconicity, on the other hand, relates quite directly to the notion of implicational statements of the kind discussed in Section 2.2. The key to the relationship of iconicity and word order implications deriving from a fundamental OV or VO is called headedness, a way at looking at syntactic dependence. The basis is quite straightforward: a phrase consists of a central element, called the head, and dependent elements, called adjuncts. In terms of basic word order, the verb is the central element, with the object as dependent, the preposition/postposition is the head in a prepositional/postpositional phrase, the antecedent[110] in a relative clause, and so on. What becomes a sort of internal iconcity is that languages tend to prefer all heads to be either fairly consistently to the right of all adjuncts (OV, postpositions, relative clause followed by its antecedent) or to the left (VO, prepositions, antecedent + relative clause, etc.).

To repeat what was said at the end of Section 2.2, languages virtually never conform in all structures to one end or the other of the continuum between 'pure' OV or VO. What a preference for iconicity in word order probably comes down to is an internal pressure (this is the diachronic aspect, of course) to move structures to a certain degree of conformity, mostly right headedness or mostly left headedness. The Latin example above where most postpositions disappear as Latin becomes increasingly fixed as a VO language would be an example of a headedness change in conformity with basic word order. Again, it is not a mysterious confluence of grammatical structures, but rather responds to communication needs; the existence of all right- (or left-)

110. *Antecedent* is perhaps not the most felicitous term since the adjunct may follow rather than precede (note Latin *ante* 'before') the dependent clause (in Japanese and other OV languages for example), but it is the term used in traditional (read "English-based" grammar) and as such has some utility as long as its limitations are understood.

headed structures in a given language at a given time increases speed and accuracy of comprehension.

2.4 The analytic-synthetic cycle

Let us complete the consideration of word order by looking at the cyclical nature of the interaction of syntax and morphology (see Givón 1971; Lehmann 2015; van Gelderen 2017).[111] We started this discussion in Chapter 6 when the notion of grammaticalization was introduced. The term, as you remember, refers to the process by which some independent word loses at least part of its phonological autonomy (often its stress) while changing semantically from lexical to grammatical function and meaning. Where words are perceived (and written) as separate entities, the structure in which they appear is called 'analytic' since we can identify each element. On the other hand, when words are reduced phonologically and become fully integrated adjuncts, the structure is labeled 'synthetic'; it is necessary to unpack the structure by identifying the subcomponents of words. The change from an analytic to a synthetic construction was already illustrated in Chapter 6 by the development of the Romance future tense in a set of changes which made free-standing, lexically meaningful words (forms of the verb *habere* 'to have') into affixal markers of tense. Syntax came into play in the sense that these independent verb forms became suffixes because, as fully conjugated verbs, they tended to end the sentence (remember that Latin is, at least based on frequency, a verb final language), preceded by the infinitive. As a reminder:

(16) a. *Latin* Librum habet.
Book have-3rd SG.
She has a book.

b. *Latin* Legere habet.
to read has/is obliged
She is obliged to read/she has the obligation of reading.

c. *French* elle lira
She will read.

The sentences in (16a) and (16b) exemplify, respectively, the situation in Classical and Late Latin, with the second as the expanded meaning of 'to have' as a modal marker of

111. Although examples come from the Romance languages, the analytic-synthetic cycle occurs widely; van Gelderen (2017) illustrates it with Egyptian, for example. We can also argue that the Japanese sentence particles discussed above in this chapter, which started as full forms and are now clitics, may at some point be recognized as grammatical suffixes and even written as part of the noun instead of as a separate entity.

obligation. The last sentence (16c) shows the phonological change; *habet* is gradually reduced to the third person singular ending *-a* in French with the wider change of a syntactic expression (infinitive + modal verb) into one which is morphological.

But the story doesn't stop here. In Modern French a new future marker has arisen, with the partial grammaticalization of the verb *aller* 'to go'. The process is not fully complete; the verb is still conjugated as it is in its fully lexical use as a verb of motion and it is spelled as a separate word. It was at first an expression of immediate future (17a) and was then extended, in part because the longer established future construction has many irregularities in form, to all expressions of the future (17b):

(17) a. Je vais partir.
I am going to leave (very soon).

b. Je vais partir.
I am going to leave (some unspecified time in the future)

Similar developments have occurred in Italian and Spanish, both with the verb 'to go' preceding the infinitive, although not necessarily with quite the same results as in French. Italian speakers use the construction (and it even appears in some written genres like recipes), but it has not spread widely and still judged incorrect in some grammars of the standard language. In Spanish, *ir* 'to go' and the infinitive is the most common future expression in the spoken language, while the older simple future coming from the infinitive and 'to have' has become a way of expressing likelihood (*donde esterá* 'where is he likely to be?). Catalan uses forms of 'to go' as well, but also has an unusual (for Romance) formation using 'to be' and the present participle, parallel in structure to the English *is doing*, but with future meaning.

In all these cases, the cycle is one of simple forms (for Romance, the Latin morphological futures) which are replaced by compound expressions which become simple and then are replaced by further compound expressions:

(18) *Classical Latin* amabit → *Late Latin* amare habet > *French* aimera → *more Modern French* va aimer[112]
He will love.

Word order changes then, with some stages of this development (as illustrated in (18)) showing auxiliary verbs as preceding the infinitive and some stages where they follow; to examine this phenomenon, track the verb 'to love' *amare*/*aimer* relative to grammatical markers (forms of *habere* after the verb) and to modal verbs (usually forms of 'to go'

112. Note that the arrow head here is being used, as elsewhere in the book, where the term on the right derived through more or less regular change from the term on the left, while the full arrow shows that the term on the left was replaced by the term on the right.

preceding the verb). And it should be noted that some constructions may compete contemporaneously, although in the French exemplified here the earlier synthetic construction has now been relegated to formal speech and to written forms, while the later analytic version is much more likely to be found in spoken French and less formal writing.

What is interesting for the history of the future tense in a variety of European languages (many others, like Chinese and Japanese, prefer the present with an adverbial clause like *tomorrow, in the future*) morphological expressions of the future are remade more often than those of other tenses. Like the Romance languages, English has grammaticalized a form of the verb 'to go' into *gonna* which has undergone more phonological reduction (from the original *going to*) than the Romance developments of 'to go'. In English, however, word order has not been affected since *gonna* is found preceding the bare infinitive in the same position as *shall* and *will*. Other western Germanic languages also have developed similar periphrasic forms, German with 'to become' and Dutch with 'to go'. In the Scandinavian languages (northern Germanic) we find the future constructed with 'to come'.

It is the case that in many languages, including those belonging to the Indo-European family, the process has long been regarded as unidirectional, from synthesis to analysis. More recent studies, however, have noted the cyclicity of the process (really the series of processes) involved; look again at footnote 112 And, like other changes, it is not mandatory; there are many languages and language families where there is little evidence of this cycles; languages seem to have persisted as morphologically complex (Uralic and many native American languages, for example) or morphologically simple (Chinese falls into this category, although this is confounded by a relatively new tendency toward multisyllabic words).

3. Reanalysis and grammaticalization

Not all syntactic grammaticalization, however, involves word order change, except in the sense that the actual number of independent units may change. Some instances are, rather, a matter of reanalysis, that is, the interpretation of a unit as having a different morphological structure from its original, leading variously to changes in all linguistic components. Some lexical examples have already been touched on above where morpheme boundaries have been rethought: the English lexical item *pease*, a singular mass noun, came to be understood as a plural count noun, giving rise to *pea* as the new singular. Other reanalyses may be more complex, involving full paradigms or even syntactic structures. Our first illustration will be the Late Latin development of the passive voice from a morphologically mixed construction to a grammatically unitary expression (based on Winters 1984).

3.1 The Latin and Romance passive[113]

The Latin passive was both morphologically and semantically complex. The construction is at times simple, or synthetic (the present, imperfect, future forms in 19a) and at times compound, or analytic, (past tenses in 19b).

(19) a. legitur – PRES legebatur – IMPERF legetur – FUTURE
it is read it used to be read it will be read

b. lectus est – PRES lectus erat – PLUPERF
it has been read it had been read

Note that the forms in (19a) are simple/synthetic in that the entire expression of tense, mood, voice, number, and person is expressed by one, form; *leg* is the verb stem, the following vowel expresses the verb class, mood, and also the tense (note the contrast between the present and the future), while the *-tur* ending conveys third person singular. (19b) is quite a different construction since it is made up of two distinct words, the past participle *lectus* '(having been) read' and an auxiliary verb, a form of *esse* 'to be' in the present for the perfect and in the imperfect for the pluperfect passive.

Not only is this a mixed system, with a split between simple and compound morphology, but also the combination of units in the compound tenses might be considered problematic. The present of the auxiliary is used to form a past tense expression, while the imperfect is used to express a tense which marks action even further in the past, past in relationship to a past.[114] There is no written evidence (in the form of errors or commentary by contemporary grammarians) to hint that speakers of Classical Latin were confused by this mixed system. There is, however, in Late Latin some evidence of a shift in the construction. In the 4th century CE *Peregrinatio ad loca sancta*, the author rather consistently uses the present tense of the auxiliary *esse* to designate a present passive expression, with the imperfect of the auxiliary designating a past (but not pluperfect) expression. The result (20) is a system which looks very modern:

(20) a. Lectus est.
It is (being) read.

b. Lectus erat.
It was (being) read.

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113. While the modern data will be provided from French, it is the case that Italian and Spanish underwent the same changes.

114. The crux of this distinction is the difference between 'has been' expressed by the present tense of the auxiliary *est* in (19b), compared to 'had been' expressed by the imperfect *erat*.

Eventually the Latin simple tenses disappear and the tense of the passive (which is a compound construction in the modern Romance languages) reflects the tense of the entire unit, present auxiliary for a present passive, and so on:

(21) a. *French*[115]
Il est-PRES lu.
It is read.

b. Il était-IMPERF lu.
It was read.

What brought about the change in tenses of the auxiliary of the compound passive? The answer lies in the double role of the past participle, both as an adjective and as a verbal form. An expression like the Latin *lectus est* could be used verbally to mean that the book was being read in the past, an on-going action which is complete at the time of the utterance, or adjectivally to mean that the book is (completely) read, a final state of affairs where the last page has been turned and the cover is currently closed. This ambiguity resides in the relationship of the meaning of the tense of the auxiliary; in the verbal expression (the true passive) the present tense of 'to be' in conjunction with the past participle creates a past expression, while in the adjectival use the past participle is a description of a quality of the book rather than part of an action. Otherwise put, in the adjectival use the form of the verb 'to be' is an independent verb with its own tense. Speakers eventually extend this (more temporally logical) independent use of 'to be' to its use as an auxiliary (hence the verbal meaning of the participle) and *lectus est* gets reanalyzed as a present tense. The rest of the system falls in line as well, so that *lectus erat* is past passive 'was read' rather than the pluperfect 'had been read'.[116]

3.2 Complementation and subordinate clauses[117]

Another kind of reanalysis occurs in what seems to be a general change over time in a variety of languages from purely coordinate (22a) to the development of subordinate clauses (22b)

(22) a. He gave an order and the soldier brought in the prisoners.

b. He gave an order that the soldier should bring in the prisoners.

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115. French has several morphological choices for the passive, each assigned pragmatically; while the construction illustrated in (21) is the least frequently used (it competes with the use of the indefinite pronoun *on* and with a pronominal verbal construction), it is still a form encountered in the language as the most direct reflex of the Latin.

116. This is complicated material; use your native speaker instincts about 'was read' and 'had been read' or the equivalent in other languages to help you grasp the change being discussed.

117. For a detailed discussion of this development, see Givón 2018.

There is evidence that the kind of stringing together of clauses (as illustrated in 22a) predates the more complex sentence made up of an independent clause (here: 'He gave an order') and a subordinate ('that the soldier should bring in the prisoners'). The question, then, is how this kind of dependent clause – and the markers of subordination – came about. The process seems to be very much the same in at least western Indo-European languages and can be illustrated by both Germanic and Romance.

In these cases, the earliest instances involved coordinated constructions of which the first used a demonstrative pronoun to introduce a second, equally independent clause; in Examples (23) and (25) below, the colon (:) symbolizes the introduction of something new as does the capital letter beginning the second clause:

(23) He said that (thing/utterance): He was sorry.

In the earliest cases, *that* is the same indefinite pronoun as in (25).

(24) Did you see that?

This pronoun serves as a way of pointing at something without naming it. With a verb of vision as in (24). the referent is potentially something physical that can be seen. But, as was explained in the chapter on lexical change, meanings referring to the exterior sensory world can then be extended to more abstract mental worlds and hence to the realm of speech itself. This line of extension is present in the ambiguity of meaning of (24) where *see* also means 'understand' and *that*, as a result, can be understood as an indefinite reference to something abstract like an idea or a statement.

In earlier English, then, *that* was identified with the indefinite demonstrative with either physical or abstract reference. In either case it is still serves as the direct object of the verb. The next step is that the demonstrative loses its demonstrative force and is reanalyzed rather as the rather abstract unit which links the two clauses; it becomes a 'complementizer', thus named because it introduces a clause which has lost its independence and is the complement, the object of the verb in the first clause:

(25) a. He saw that bird.
b. He saw that (idea): His sister was correct.
[he saw that] [his sister was correct]
c. He saw that his sister was correct.
[he saw] [that his sister was correct]

The modification of the placement of brackets (marking clauses) in (25b) and (25c) serve as a physical schematization of the reanalysis. In English the demonstrative and the complementizer have the same form, while in German the demonstrative retained the earlier form *das* and the complementizer was respelled *dass*. In both these Germanic cases and in the Romance languages as well (based on different demonstratives from Latin), the line of development is the same, starting with an utterance of two

independent clauses and evolving into an utterance with a main clause and its subordinate complement. In none of these cases does word order change in the development of the complementizer, but rather the underlying syntactic units are, for semantic reasons, regrouped through the reinterpretation of the demonstrative, now functioning to link clauses.

4. Conclusions

To summarize: the study of grammar across time involves a multiplicity of factors, as was seen in this chapter and the previous one. Some of the kinds of change, like grammaticalization and reanalysis, occur in both morphology and syntax as, indeed, they do in the lexicon; the difference is one of scope but not of kind. If *a napron* (from the French *naperon* 'garment designed to be worn over other clothing to protect them from stains, etc.') is understood as *an apron*, this is not greatly different from the misunderstanding of *I say that. He is sorry.* two coordinated clauses, as *I say that he is sorry*, where the second clause is subordinated to the first, with the subordination marked by a reinterpretation of *that* from a demonstrative pronoun to a complementizer. In both cases, one morphological and one syntactic, human perception has, relative to the older state of the English, made a 'mistake' in how to divide sounds and forms into meaningful units. These mistakes, over time, become newer grammatical structures.

Word order too changes frequently, in part through reanalysis and in part since one aspect of any utterance is the construal given the mental or physical event being expressed. This may lead to changes for focus, to express an emotional state (through emphasis), or in order to assign particular importance to parts of an utterance. These readjustments in the service of enhanced iconicity are based on comparisons between form and meaning or simply between forms. We looked at both kinds: movement of a syntactic element from its usual place in the clause to either the first or last position to emphasize that element is based on the widely implemented notion that word order should follow the meaning to be expressed, here the importance of that element relative to others in the clause, whatever the basic order of words. When the basic order of components (adposition and object, relative clause and head, etc.) changes within a clause because the fundamental clause order is changing or when the basic order changes because so many clause-internal changes have made another kind of headedness (left or right – the choice is limited) become dominant, that too is iconic change, here motivated by a comparison of forms (in this case forms comprised of multiple elements).

We can therefore trace the kinds of change to human cognitive functioning: making comparisons, drawing analogies, categorizing and recategorizing elements. The

implication, therefore, given what has been proposed earlier in this book, is that syntactic constructions too are meaningful. They are manipulated mentally the same way as other less complex meaningful elements like lexical items, bringing about changes in meaning. As was said above, of course, it is necessary to define meaning broadly so that the pragmatic functions of emphasis and contrast (both causes of word order changes) are understood as meaningful.[118] It is also necessary to make a plausible case for the meaning of any given grammatical construction before talking about change in grammar as change in meaning, a stance which necessitates being able to compare meanings across time just as is done in the study of lexical change.

Exercises

1. Consider the following sentences:

   a. Who did it?
   b. To whom did you speak?
   c. Who did you see?
   d. You spoke to who(m)?

   What is the grammatical distribution of *who* and *whom*? If a. and b. represent the most conservative examples of the distribution, c. and d. are instances of more modern usage. Why does d. show hesitation between *who* and *whom*? What factors might have influenced the change illustrated in this data set?

2. Chapter 3 contained examples such as French *naperon* > English *apron* and older French *iere* > modern French *lierre* 'ivory'. The present chapter talks about the development of the Latin passive and of the subordinate conjunction (complementizer) *that* in English and *dass* in German. The term 'reanalysis' was applied to both developments. Consider ways in which the lexical and grammatical examples illustrate the same phenomenon. How do they differ?

3. Part of many marriage vows is the phrase *til death do us part*. Consider that use of *do* along with other contemporary uses of 'to do', as follows:

   a. We did it!
   b. Do you see her?
   c. I did finish my work by the deadline!

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118. As a reminder, the issue of the line between semantics and pragmatics is not going to be resolved here; it is more useful to think of a fuzzy area of overlapping assignment of categories with the clearly semantic at one side and the clearly pragmatic at another.

How would you characterize each of the uses? Which, do you think, was the earliest? Are they all still productive today?

4. Use semantic categories (where the meaning resides in the tense of the verb) to explain how the meaning of various tenses of 'to be' shifted from Latin to Romance in the passive. What is being asked is, essentially, the use of the apparatus of Cognitive Linguistics to schematize this change. To begin, review the lexical changes in Chapter 3, both in the text and in your answer to exercises.
5. In similar fashion to exercise 4, show, using semantic categories (radial sets), the changes involved in the development of 'that' from demonstrative pronoun to complementizer.

For further investigation

Historical linguists at the Max Planck Institute for the Science of Human History have carried out studies on the rate of language change and, in a recent article, (https://www.sciencedaily.com/releases/2017/10/171002161239.htm), make some carefully worded statements on the topic. Read this research report and pay attention to the following:

How many ways have these researchers given cautionary warnings on how to interpret their findings? What does this tell you about the interaction of linguistic and social history?

CHAPTER 8

Actuation and spread

1. Introduction

We have thus far considered only in passing the sequence of events that occurs generally in the process of language change, not at the level of individual changes (in sound, form, or meaning), but as an overarching schematic set of events. The first part of the sequence has been labeled actuation, the starting phase of any change. Over the centuries that language change has been an object of analysis (we can count about two centuries of modern discussion and study), this has been the greatest puzzle: does change begin with an individual? a speech community? If it is the latter, what would that mean? Are we forced to accept a rather mystic sense of a collectivity of speakers, whose whole is larger than the role of each member, so that change somehow arises out of this collectivity? Or, if change resides in the individual, how does it go any further and how can we ever understand each other if some individuals in the speech community "decide" to change how they speak in some way or other and others do not?

The second part of the sequence is precisely the question of how, once begun, a change may spread through the community. As with actuation, we may ask several questions having to do with why it might spread and how. First, what are the limitations on what might spread?[119] As an example of such limitations we might ask whether or not slips of the tongue or other ephemeral errors might inspire change. Do sound changes invade every place where a condition (sound, form, or some other environment) is met, for example, and, if so, all at once or word by word? What about meaning change where there don't seem, at first glance, to be conditions for change? Of great importance in answering these questions are twin concepts, variation and social significance, also referred to by the narrower concept of prestige.

The final question, which will be posed briefly here and then considered in the final chapter, is a very basic one which is, nevertheless, often ignored or otherwise

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119. Not only are errors often ephemeral, taking place in the speech of an individual but not spreading to the point where they may lead to change, but so are other kinds of variation. An anecdote to illustrate this notion: a friend of a friend, a historical linguist, once said that whenever he sees a helicopter, all he can think of is the etymology of the word, whirling feathers (Greek *helico*'turning' and *pter* 'feather')! This is as individualistic as it gets, no?

taken for granted. When, we need to ask, do we declare that a change has taken place? The answer may be easy for linguists (or at least easier) but what about the ordinary user of a given language? It interacts, of course, with prescriptivism (can we declare *whom* dead and stop correcting for its absence or misuse?) and questions of mutual intelligibility.

We will take each of these sets of questions in order. Section 2 will look at what has been called the 'riddle of actuation' (Weinreich et al., 1968), basing much of the discussion on work by R. Keller (1994). Uriel Weinreich and his collaborators will serve as one of the bases for responses to the question of spread through their work on variation and its interaction with change; this will constitute Section 3. Also in this section will be alternative proposals on spread with more nuance on the kinds of spread and on the role of frequency. The final part of the chapter will begin the discussion of the lines of demarcation between variation and change and thus start addressing the last question posed above, as to when a synchronic phenomenon can truly be seen to become diachronic.

2. Actuation

Actuation refers to the beginning stage or stages of change, what, we might say, sets it off. There have been many suggestions over the centuries to explain how a change might begin. Among them are what must be viewed as virtually urban legends, or folk tales, like the explanation of the Spanish /θ/ where one might expect /s/[120] because a powerful king lisped. His subjects made the same sound, it is said, in order to allow him not to stand out as a figure of pity or ridicule. Such stories have been proven to be untrue and normally, especially for sound change, better explanations can be found, based on human physiology, acoustics, and mental processing.

Since sound change was discussed at some length in Chapters 4 and 5, there is not much to add, except to recall that a change may be initiated by a mispronunciation (a slip of the tongue or some other articulator) or by a need to differentiate sounds which are so much alike that communication is impaired since the difference is not perceptible. The former source of change is a question, most often, of human physiology and the latter is a function of perception and cognition.

We will, in fact, turn to cognition and human nature for a broader approach to the actuation of change. The discussion will be based on the work of Keller (1994) who, himself, turned to the notion of the invisible hand as developed in the work of

120. Many varieties of Spanish, like those in Latin America, show /s/ under the same conditions and /θ/ is, in fact, a marker of the standard dialect of Spain.

18th century Scottish philosopher-economists, in particular Adam Smith. In order to describe and explain economic behavior, Smith considered the intention (or lack thereof) underlying classes of phenomena. The first class are those items which were developed through human purpose and agency (bridges, for example, or roads); they were, to put it another way, creations arising as a result of human intention. Other phenomena (natural types like mountains or streams) were neither human not intentional, but natural; any development comes about through non-human intention, that is, through other natural events; think of the effect of wind or water as a cause of erosion. Keller's contribution is to propose phenomena 'of a third kind', those which were human in causation, but not through intentional development. His non-linguistic example is the traffic jam; it is caused by human action, but not by the purposeful action of creating a traffic jam. Rather, a driver will slow down for some other reason (road conditions, the weather, lack of certainty about directions, and so on) and the cars behind that one will each slow down a bit more than the one in front of it in order not to hit it and thus cause an accident. The traffic jam is certainly of human manufacture, but it is not the intention of the driver to cause the jam and – interestingly – the driver who originally slowed down may be totally unaware of the resulting crawl or total stoppage of cars behind.

Language change, says Keller, is actuated in much the same way, in the sense that the originator of the change does not have any intention of changing language ('today I will invent a new tense' or 'it's time to front this vowel'). Nor is this speaker aware of bringing about change in most instances. Rather, speakers have other goals, particularly in grammar change. They intend, says Keller, to make themselves interesting to the hearer(s) by using a novel metaphor ("He's a beached whale!", meaning he cannot move) or even by playing with analogical forms of a verb or noun rather than the current, irregular form (*brang* instead of *brought* as the past tense of 'to bring', a form which one hears but which has not spread as a new standard).[121] The attempt may also take the form of a new use for a word or expression (think about the spread of *mother of all* from *wars* to almost everything else including the description of a large pizza!). It is here that the desire to imitate something remarked upon (here perhaps for its novelty as a descriptor of size or extent) may take over so that *mother of* gets imitated and extended by others until it loses its innovative force. In this particular case, it has largely disappeared; in other cases, the expression/metaphor/play on words is no longer 'interesting' and becomes part of the language, actuated to call attention to some extraordinary event and spread until it becomes an unremarkable change.

121. Of course, there is also the subconscious or unconscious use of such analogical forms as well. People make mistakes as well as joke about language.

There is a delicate balance here, since the speaker cannot stray too far from the norms of the speech community or s/he will not be understood, and communication will fail. But a not-too-novel, though attention-catching expression or a new verb form may have other – desirable – results. The speaker may reach the goal of gaining the interest of the hearer and thus motivating him or her to buy something, make a decision, change his/her behavior precisely because of the attention-grabbing novelty, or, perhaps be thought entertaining or clever. In these cases, the intention is not to change language, but to achieve, through language use, some other, often social or economic, outcome.

Much of what has been described in this section seems unlikely, however, to be the entire story of the way language change occurs. As such, it is unsatisfactory by itself to many historical linguists since what is described is how change may begin; it still resides in the individual speaker or hearer. What is lacking thus far in this account is a robust and well-accepted theory of the ways in which change moves from the individual to the speech community. Such a theory exists and will be presented in the next section of this chapter, not as a contrast to Keller's work, but as a necessary complement.

3. Spread

3.1 Kinds of spread

Up until now, we have used the term *spread* to capture a generic sense of the second step in language change (again, viewed schematically). A change must be born (*actuation*), an event that occurs usually in the speech of an individual speaker (an idiosyncratic pronunciation, for example) or as some kind of process occurring naturally and spontaneously among members of a speech community (intervocalic voicing where widespread literacy is not a deterrent, for example). In order to become a change, instead of a mere idiosyncratic tic or to be noticed only as a variation, it must become a dominant part of the speech of a community.

The notion of spread is complex, and we will follow William Labov (2007) in a preliminary discussion. He sees it as a two-part phenomenon, which he labels, respectively, *transmission* and *diffusion*. The former term refers to what we may think of as genetic spread, the acquisition of a native language, including variations brought into the speech community by the previous generation. On a broader level, think of the genealogical metaphor of the linguistic tree (Chapter 2); as languages descend from the parent language, they maintain much of the substance of that parent, at least in the short-run, but also reflect certain changes which are not present in the parent or in their sister languages. Diffusion is, on the other hand, the spread of innovation through contact; here consider the wave metaphor (also in Chapter 2), developed to

capture the idea of contact, with borrowing, from one sister on a tree to another. Here we are in the realm of borrowing, carried out on the whole by adults rather than passed down from one generation to another. In what follows, we will speak mostly about diffusion, change in adult (that is non-infant) language, using the overarching notion of spread where the distinction is not relevant.

3.2 The role of variation

In order to grasp the further development of change from the originating individual to the community, we must consider the interaction of language change and broad variation, not just the momentary variation of a new metaphor or a new pronunciation in the speech (perhaps occurring once in a single utterance) of one speaker. What will become particularly clear is the fact that the interaction between variation and change serves as a fundamentally necessary link between synchronic language use, that is, language perception and production within a speech community, and the changes which occur across time. Our topic here, accordingly, is an overview of the way in which a change may be transmitted once it is actuated.

A definition of spread as a whole is somewhat self-evident; it concerns the ways in which a modification in sound, grammar, or meaning, which, as was seen in Section 2, occurs first in an individual or a small speech community, then becomes a part of the way the language develops. Variation occurs in the relatively rare cases where a new innovative form does not disappear, never to be repeated, but rather exists in parallel to an older form for some period of time. Speech communities are not comfortable, however, with free variation of complete synonyms. The differentiation between the two variants, therefore, will be perceived as geographic, perhaps, with one pronunciation or form identified with one area of the region or country, and another with another area. A frequently used (but still valuable example) is the term *soda* (in the eastern part of the United States) as opposed to *pop* (in the Midwest), both to designate sugared gaseous soft drinks. Other variation may be a question of gender (*pretty* for men and *darling* for women to describe a pair of shoes), of age (*you're welcome* used by older speakers of American English today in response to *thank you* and *no problem*, heard increasingly among those in their 20's or younger), or of race and other categories perceived by the community.

3.2.1 *Weinreich, Labov, and Herzog (1968)*

This very important paper examines in detail the nature of variation and its relationship to language change. Its focus is on the ways in which variation occurs, calling attention to the fact that there exist within any given speech group differences which are based on the age of speakers, their gender, their socio-economic status, and other considerations which had been largely neglected in earlier work, certainly as an interrelated

set of variables. Note that Labov (2007) would label this phenomenon as transmission rather than diffusion in his subsequent finer-grained analysis. The major contribution of the article, however, and one which has shaped the way in which language change has been analyzed since then, is the proposal it makes for how a given variation, stemming from an individual, may become part of the speech of a community and how, further, it may subsequently become a fully realized change.

The key here is in the notion of prestige, that is, the value that speakers attribute to a particular form or pronunciation. As was said above, prestige is a component of the social marking which may be assigned to any pronunciation, lexical choice or grammatical expression; cf. Anttila (2003: 436) "And such social factors are also the strongest forces behind the adoption of any language features, including sound change". The easiest place to start is to consider the way the lexicon evolves. Chapter 3 presented a range of ways words change, including extensions of meaning and the appearance of new words. These processes occur all the time, with the new forms or meanings usually perceived as regional difference (as in the example of *soda* and *pop* above), as generational (most adults do not use teenage slang and most teenagers are embarrassed if their parents or teachers use it), or as the vocabulary of a specific ethnic group, race, or profession. On the whole, such differences remain identified specifically with a region, a stage of human growth, a job, or another subclassification of speakers. Again, we are talking about transmission from adult to adult, not diffusion across generations as children acquire their first language.

Consider the spread of terms related to cyber-technology. There was a time when only experts spoke of hardware, software, the central processing unit, disks, and so forth. With the spread of this new and exciting – hence, highly remarked upon and discussed – form of technology, these lexical items entered standard speech, used first by those who, by doing so, could show that they were up-to-date with these newly available machines called computers. Cooking has had the same trajectory. There was a time when only experts, professional chefs and their associates, used terms like *mise-en-place* in English where the rest of us talked of setting out the ingredients we needed for cooking (if we even though of talking about this process at all!). With the increasing recognition of the concept of home cuisine (not just plain cooking), such terms spread through the speech community in part through the media in the voice of 'celebrity' chefs. In the case of technology, we still generally identify the terms with the semantic domain which provided them, although they have been adopted, through metaphor, to other realms. With cooking, most of the terms are more narrowly identified with the original domain, although in both cases their use is no longer a mark of a profession, just of popular interests or hobbies.

Once in a while, however, linguistic units enter the larger speech community and lose their original identification. A group of examples come from the world of jazz which has given standard English such lexical items as *cool* as a term of praise and

blues as a form of music. The former word is a particularly robust example of when a term – once specifically associated with a style of music and those who played it – has extended to standard English. On the way, it spread from a music type to a kind of behavior and outlook, exemplified by jazz players and those who imitated them.[122] Ultimately it lost this network of associations, no longer applied only to those in the jazz world and to those who admired them, and became a very generic term of approbation. Most English speakers (and those in the many languages like French and German which have borrowed *cool*) do not even know its origins in a specific milieu and speech subcommunity. The same can be said about *blues*, although the association with a specific genre of music has remained stronger.

While the lexicon is the most obvious source of examples, we might also look at pronunciation. A case in point is a series of changes leading to competing sounds (showing variation, that is), in late 17th-century Paris. At that point, reflexes of Latin long /e:/, having undergone a progression of changes since the Classical Latin era, were pronounced either [e] or [we]. The former form was a simplification of the latter and had entered Parisian French through the speech of the large number of merchants of Norman origin who had moved from northeast France to the capitol. The result was variation based, at first, on dialects, the Parisian standard and the Norman in-coming form. However, the two variants became identified as well with political factions in Paris and at the court. The [we] (later [wa]) was used by royalty and the [e] by those involved in fomenting the uprisings against the French royal house and French nobility which we know as the French Revolution.[123] In addition to the vowel in words like /kʁe/ (*craie* 'chalk') and /kʁwa/ (*croit* 'he believes') coming from the same Latin /e:/, French has the pair /fʁãse/ (*Français*, a Frenchman) and /fʁãswa/ (*François*, a masculine proper name, equivalent to 'Francis' or 'Frank'), which are from the same etymological source.

3.2.2 Social marking

Neither of the cases just described (lexical items from the jazz subculture and a dialectal borrowing into standard French which became a political marker) is an example of the kind of prestige that usually comes to mind. The jazz community is often one associated with lower socio-economic status than some other arts communities, although all of them consist principally of people whose devotion to art (whatever the form) means lower income than, for example, a business profession. In addition, it is

122. Someone who was *cool* had specific outlooks on the world, dressed in a certain way, frequented jazz clubs, if s/he wasn't a performer, and generally projected a specific kind of image.

123. It is said that the revolutionary philosopher Voltaire took this pseudonym because his real name was Arouet /aʁuwe/ which rhymed with the word for king, *roi*, pronounced /ʁwe/ at the time.

associated (rightly or wrongly) with drug use, another negative attribute. In the case of the French, the merchants from Normandy were not of the nobility or royalty; they were of a lower, though respectable, class and also, at times, stigmatized for having provincial accents. Yet, in both cases, speakers were imitated, and features of their dialects entered the standard language. Why would that be the case?

Part of the answer lies with the influence that popular culture exerts – and has always has – on communities. Over centuries people have imitated the dress of public performers, their fads (it is said that the English early 19th-century poet Byron drank vinegar before meals as a weight control method, with the result that his admirers did the same), and, yes, their speech. It is a way of expressing admiration for art of all kinds. A related reason is that those imitating hope that they too will be admired in the same way; when it comes to jazz, that would be a desire to be 'cool' or 'with it'. Those who imitated Norman merchants were eager to show something negative as well; they wanted to emphasize that they did not (emphatically not) speak like nobility and royalty. This phenomenon is called covert or hidden prestige. To return to linguistic examples,[124] it is not always – or even most frequently – the so-called higher style which is imitated. Young people do not try to talk like their teachers, their parents, or the President of the United States. Rather, to the extent that they imitate, they try to talk like each other, with both pronunciation and the lexicon spreading through a speech community of teenagers, often ultimately from some innovator or speaker of another dialect who is admired by this age group.

The example of teenage speech habits raises one more question. Nothing has been said thus far about the durability of speech forms or pronunciations which arise and spread. There are two possible directions. One is that the teen speech community (to continue with the example which brought us to this question) can be said in certain ways to 'own' the variations. That would make the variation age-specific, used by teenagers and, perhaps, undergraduates, and then gone from the speech of the now older speakers. The disappearance might be motivated by a new desire to sound professional (another kind of desirable marking), or through their interaction in jobs with different generations of speakers, or for other reasons. Other newly of-age speakers (the next high school class, for instance) would maintain some of these variants, recognized as teenage speech. One American English example is *to be like* meaning 'to say' ('so I was like no way and he was like yes way – it really happened'). It seems to recur in teenage speech with each new generation of middle school and high school students, but does not seem to persist widely in each generation of teens as they age.

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124. Speech is only one aspect of human behavior which seems to lend itself to the lens of covert prestige. So do, among others, dress, taste in food, and in music.

The other possibility is that the unit (lexical or phonetic) does indeed remain in the speech of a generational speech community as it gets older. That would mean that over time increasingly older people would use a given form or sound. This is probably the case with *cool* which moved into standard English from the jazz community, imitated by younger speakers who retained this expression of enthusiasm throughout their lives. As will be seen in the last section of this chapter, this scenario, of a more permanent adoption of an attractive variant, may lead eventually to permanent change rather than the coexistence of variants. As a preview, think of the (admittedly slightly bizarre) image of a pronunciation waiting patiently for the disappearance of the final generation of speakers who remember competing variants and not just a single, victorious form.

3.2.3 *Martha's Vineyard*

One more example will make even clearer the very wide range of ways in which social factors may play a role in the spread of language change. Martha's Vineyard is an island off the coast of Massachusetts in the eastern United States. It has been for many years a summer vacation spot for the wealthy, who own or rent cottages (of varying sizes and degrees of luxury), spend time during the summer, and return to Boston, New York, and other, often urban, locations for the winter months. There is a year-round community as well, of farmers, fishermen, and those who make their living from serving summer visitors in a variety of ways. This second community is, economically, at a generally lower level than that of the summer visitors.

Labov (1963; written up again in 2010: 195–196) observed a sound change in progress on this island. The younger year-round residents were divided between those who remained after leaving school to follow their parents into local fishing and farming and those who left for jobs on the mainland. What is important to note is that some of the latter group later returned to the island. What Labov found was that those who had left and returned were more likely to centralize [ay] and [aw] to [əy] and [əw]. He concluded, through interviews and observation, that the intent was to emphasize their differentness from the summer residents. The motivation for sound change, then, is a way of showing local identity, pride at having made a choice to return home permanently, and a strong desire *not* to sound like those who visit and go away.

The key here, as with other examples, is that imitation seems to be of a counter-intuitive group. At first glance, it would seem more likely that particularly those who left the island for jobs would want to sound more like the summer visitors, those with the financial ability to have winter and summer residences. Those who left, after all, become more urban themselves. The desire to fit in may have influenced the way in which these young people spoke when they were working in Boston or New York, earning more than the fisherman and farmers on Martha's Vineyard and living a more

comfortable existence, one which normally is thought of as of higher value. But on their return to the island, they not only reverted to the local dialect to underline their deliberate choice of residence and profession on the island, but went even further in centralizing these diphthongs to make it even more evident that they had chosen the life of their parents and island contemporaries. They certainly had no desire to be mistaken for the summer residents. To return to phenomena of the third kind à la Keller: the intention of these returnees to Martha's Vineyard was to differentiate themselves from the summer visitors, a socio-cultural motivation; they did not directly intend to centralize vowels.

3.2.4 *Other determiners*

In the case of Martha's Vineyard and others we have considered here, group identity comes from variables such as class (roughly understood as family or work-related background), age, gender, and race. Work by Eckert (2000 which brings together earlier research as well) points to another, more nuanced determiner, which is the role that speakers may play within the community which may (or may not) correspond to other variables. Eckert studied the linguistic behavior of high school students in a suburb of Detroit as to the phenomenon known as the Northern Cities Vowel Shift (NCVS; cf. Chapter 4, Section 4.2.2.1). She observed the students for an entire year, everywhere but the classroom,[125] and found distinct correlations in pronunciation for those who identified, respectively, with the "Burn-outs" and the "Jocks". In general, the Burn-outs distanced themselves from the official culture of the school, its institutional norms, which were accepted by the Jocks. The Burn-outs, more specifically, showed a greater degree of the specific vowel diphthongization and centralization which characterize the NCVS, correlating with their much greater adherence to the urban culture of Detroit than to the school and suburban culture embraced by the Jocks. This is particularly true of the newest elements of the shift, affecting /ɛ/ and /ʌ/, where social class is the leading factor (Burn-outs leading Jocks), while the older, better-established elements of the shift /ɔ/ and /æ/ appear to have lost most of their social class significance and rather show differentiation by gender. This short example underlies the complexity of the subject; note that Eckert's study explicitly excludes classroom utterances, looks at each vowel separately as to where its evolution as part of the NCVS occurs, and differentiates class identification (Burn-outs and Jocks) from other indicators of difference.

125. The relative formality of the classroom, especially in the presence of a teacher, often brings about conscious modifications in the speaking styles of the students. Their interactions outside the classroom are more naturally the speech of their communities.

4. Lexical diffusion

The expansion of changes does not occur just across various groups of speakers (as defined geographically, socially, generationally, etc.), but also, it seems, across the units (phonological or morphological) which are being affected by the change in question.

Until now the model being proposed here treats spread as if it were a single event; a linguistic change transmitted through the community in the same way we described the diffusion of regular sound change from one generation to another and from a parent to daughter language. In these instances, the variant would appear every place the condition for it existed; an intervocalic unvoiced obstruent would compete with a voiced form throughout lexicon, for example, until the voiced form ultimately prevailed; this is, as you know, the generic form of a very common phonetic change which occurred in many languages.

It is the case, however, that the variant sometimes appears to spread gradually through the lexicon, so that only a certain category of forms is constructed with one or another variant, seemingly randomly. In English, for example, spelling and pronunciation are not always matched, giving rise to the possibility that some change has only partially spread. The more widely used earlier phoneme /u/ has changed to /ʊ/ in some items, among them *good* and *hood*, but the older sound is still to be found in *food*. In these cases, the sound change (or lack of change) has lexicalized, so that we are sure, as English speakers, when to use /u/ and when /ʊ/. In other cases, there is hesitation which is not clearly dialectal or socially motivated. There are those who call the cover of a house a /ruf/ and some a /rʊf/; some travelers follow a /rut/ and some a /raʊt/.

We can surmise that, where there is variation from one speaker to another or from one lexical item to another, we are talking about points along the pathway from variant to full change. At one end of this path, or continuum, are the *roof/route* examples where there is somewhat free variation, roughly, but not reliably, geographic and/or generational. In the middle of the continuum are cases like *good/food* where there is no hesitation, but two values for the spelled oo coming ultimately from two changes applying to an earlier /o:/. Finally, cases like the voicing of obstruents between vowels in a number of languages exemplify the end point of this diffusion, that is, an exceptionless state. Although there is no longer any evidence of gradual spread in the case of intervocalic voicing, it is highly possible that at some point only some lexical units showed voicing while others still contained the original voiceless obstruents for a longer period of time. In a sense we are dealing with a kind of illusion; what looks like exceptionless change (as proposed by the 19th century Neogrammarians) is almost a coincidence, an example

of a diffused change which has worked its way through the entire lexicon on the speech community.[126]

Other studies by Labov and his students have come to similar conclusions. Spread occurs as a result of the recognition of some socially marked aspect of the unit, but it very difficult to define this aspect without careful observation of the speech community and the time-specific circumstances which influence linguistic choices. This is why the notion of covert prestige (again, the influence of factors which are not immediately obvious and involve spread from speakers who are not easily identified as the leaders of a main-stream community) is so important in understanding how certain changes are spread. No such mechanism has been precisely defined for what is known as lexical diffusion; rather, historical linguists are becoming more cautious in talking about an instantaneous spread of one or another change across an entire lexicon or grammar.

5. The role of frequency and cognitive salience

Social significance is not the only consideration when it comes to the spread of innovative – or just non-standard – units. The marked form, as has already been pointed out, must, in a metaphorical way, pick up a certain momentum; it has to be repeated often enough and by enough different speakers (who in turn will be imitated) to make the form become the standard or at least a recognized major variant. It is tempting, therefore, to see frequency as the major factor in the spread of linguistic innovation and, indeed, this is often the case. Bybee (2003) differentiates, as is important, between type and token frequency, where type refers to a concept, physical or not (*apples, dream*) and token to an instance of the type (*an apple, the dream I had last night*). The effect of frequency which has been described thus far is token frequency, multiple repetitions of a given sound (a highly centralized diphthong on Martha's Vineyard) or form (a lexical item which is no longer the marker of a given sub-community and has become part of the standard). It is easy to see where frequency plays a role in the spread of such items. The effect of token frequency is more difficult to isolate since so many concepts arise as one type and spread as a token. We might consider the replacement of the simple past in French by the compound past, originally used to express perfectivity (*he has gone*) and then extended to past with no relevance to the present (*he went*). Each of these different

126. Labov (1981) tries to resolve the two approaches to the spread of change (exceptionless or diffused) by setting out the conditions for each. By 2010, however (pp. 260–261), he has changed his mind and argues against lexical diffusion based on the imprecision of the notion of 'word' and a lack of specificity on why certain units and not others may display a given change. We will return briefly to this topic below.

constructions is a type (temporal perfectivity as opposed to punctuality) and one can certainly see the relationship between the frequency with which one or the other is used in speech, at first in ambiguous cases, and the eventual change in the grammar of French.

Another way of looking at the phenomenon of spread, however, is to consider not only frequency, but also the notion of salience. It has been referred to elsewhere in this text as the quality which causes some unit (sound or form) to stand out in relationship to those which surround it or to other units of the same type. A more nuanced approach is that of Jaeger and Weatherholtz (2016) who propose that after surprise at the first instance of a unit (an explanation of why it stands out in the first place), repetition of that unit is a second form of salience. This corresponds to the notion that, without multiple repetitions made by speakers in an increasingly wide-spread community, the form will not survive or become more central. But in many cases, we have to consider *why* spread occurs by looking more carefully at the social marking of what is becoming a more integrated part of the speech of a community. One result is that a given unit stands out in relation to others; it is salient in that speakers notice it. This attention does not have to be conscious (and often it isn't, although it may certainly be), but it has to lead to imitation and hence frequency.

It is highly possible that we have a classic 'chicken and egg' dilemma here (which came first?) in that frequency is arguably a component of salience, while salience may lead to frequency. In the final chapter we will return to this question, bringing back into the discussion Keller (1994) and his theory that actuation arises from a set of circumstances which might be paraphrased by a maxim: 'innovate linguistically in order to stand out, but not too much', since too much innovation may render what is said incomprehensible to the listener. The idea that speakers want to stand out can lead, if they are successful in doing so, to the salience of their expression in the minds of readers and listeners.

6. When can we say that change has emerged from spread?

Most of this chapter has addressed the rather imprecise line between variation and change. It is easy to see what the importance is of this relationship; a major component of change comes from what the French linguist André Martinet (1984) called dynamic synchrony, that is a steady state (in the sense that we can capture it at a given moment in time) which includes differences among speakers in what is, at least roughly, the same speech community. It stands to reason: if there is no variation at all, there is no way for a language to change; there is, however, ample empirical evidence that language changes. Again, we will talk about some notions of the actuation of change (innovation and its causation) in Chapter 10. For now, let us take it as given and consider diffusion as a phenomenon of its own.

The key, of course, is that the change, once it arises, manifests itself normally as a variant form or meaning. It then penetrates the speech community until it becomes the dominant variant; we can say that real change occurs when speakers have forgotten that there were ever other variants, an event which occurs most often across generations. To expand, eventually the once-dominant variant begins to be identified with the speech of an older generation, then speakers may only remember hearing the form as 'old-fashioned' or 'archaic', and is finally gone, to be alluded to by historians, be they linguists or other scholars (anthropologists, for example, or literature experts).

In most cases the pronunciation or form disappears completely, although many speakers may use archaisms either in religious observance or as jocular forms. The religious (and hence frozen) forms may be illustrated by the second and third person singular verb forms *hath and hast* which have long disappeared from any geographic or social variant of English. The exception is found in liturgical writing, in particular in the King James version of the Bible, published in the 17th century and still in use. A nice example of jocular – or at least self-consciously archaic – usage is the early modern English form *methinks*, found in the language of Shakespeare and his contemporaries, where it meant 'it seems to me', with *me* as an indirect object and *thinks* taking its subject from whatever thought or event triggered the impression being expressed. It was a standard indirect object pattern in use with a variety of verbs. What remains is this one form, appearing only as a deliberate archaism, more often or not for jocular or sarcastic reasons.

The pattern is parallel to the one by which a generation of immigrants keeps its original language, the next generation may have passive recognition or semi-fluency (they must speak with their parents, after all) and further generations never learn the language of the country from which their ancestors arrived. Here we are not talking about full languages, of course, but forms and sets of forms (phonological or semantic). The result is the same, however, in that the older unit either disappears or changes its meaning and is gradually identified solely with a new meaning or an older, dead or dying, version of the language. In both cases, however, a preferred, more prestigious, unit replaces an older one, and does so at the expense of the older form.

7. Conclusion

At first glance, the division of labor between actuation and spread seems to be clear-cut: actuation concerns itself with where an innovation arises and spread with how it is propagated in a dialect or language, first as a variation and then as a change. In reality, there are multiple factors to keep in mind. For actuation, we considered both overtly intentional and linguistically tacit motivation through the notion of the invisible hand and unintended consequences. Spread, as especially transmission from adult

to adult, involves variation, as was established by Weinreich et al. (1968), and stems often from social (rather than linguistic) judgments of attractiveness of all sorts. While linguists most often focus on the end point of spread (the wide-spread acceptance of a new term, a new pronunciation, or a grammatical expression), we looked as well at transmission due to changes working their way through the lexicon as well as the role of frequency as elements in pathways to change.

Exercises

1. What other examples of non-linguistic phenomena of all kinds (human and intentional, non-human and unintentional, human and unintentional) can you think of? Are there any language changes discussed thus far in this course which would not be of the 'third kind'?
2. Consider the example provided in this chapter of younger speakers using the expression *no problem* where older speakers more often say *you're welcome* as a response to *thank you*. What other generational differences have you observed? What would be evidence for expressions (or even pronunciations) being tied to a certain age group (appearing in generation after generation of teen-agers) as opposed to remaining with the generation as it ages? Why might one or another of these outcomes occur?
3. Consider the dictionary designations of certain words as 'colloquial', 'popular', 'dialectal', 'obsolete', and 'archaic'. How do these labels interact with the notion that variation is a necessary prerequisite for change? Find examples in a standard dictionary of words designated by each of these descriptions; do they illustrate the notion and shed light on the line between variation and change?
4. Can you find examples of pronunciations which illustrate the same designations as those discussed in exercise 3? Grammatical constructions?

For further investigation

William Labov wrote a review (2002) of Eckert's (2000) book. The review is important because it can be characterized as having been written by the founder of the field of sociolinguistics discussing the work of one of the members of the generation which followed in his footsteps. The review is a measured appraisal of Eckert's work; in reading it, note the points of convergence between these two linguists and, more important in some ways, their differences in outlook.

CHAPTER 9

Methodology

1. Introduction: Theory and method

This chapter provides an examination of the ways in which the study of historical change is carried out. It will focus, therefore, on methods. Among the methods are those used to amass and to make sense of data when data are available. Further, it will explore ways of making proposals about the nature of features of a language or language family which existed earlier than any evidence provided by documentation. The data – gathered from documentation or hypothesized – must then be analyzed to lead to proposals as to how and why language changed. This hypothesis building too emerges from adherence to certain methods and approaches. We have already seen one such methodological stance, this one embraced by pretty much all those who study language history in the discussion (Chapter 2, note 25) of the general preference for descriptions or even explanations which arise from the language in question itself, rather than though external phenomena like contact.

Methods, however, do not exist in isolation, without connection to theories of language change. On the contrary, the methods of historical linguistics, like those of all fields, have evolved and been refined in large part because those who use them take very definite theoretical stances as to what data they need to support their explanations of language change and of the nature of Language itself. The previous chapters have touched on specific points of view on the way in which Language functions; consider, for example, the fact that the approach to syntax found in Chapter 7 is based on the idea that grammar is fundamentally meaningful and can be explained in a global fashion through semantic (rather than structural) analysis. As will be laid out in this chapter, one's theoretical beliefs lead necessarily in many instances to the choice of a method (although, as will be seen, there are sometimes no choices as to the approach one takes) and certainly to conclusions as to the nature of change.

Saussure (1916) was very clear about methodology. He compared the study of linguistics to the study of a tree; if we look at it synchronically, that is, at one moment in time, we can see the entire life of the tree through a horizontal cross-section showing all its rings, each one providing information about a single year in the tree's existence (dry or wet weather, full of sunlight or more often cloudy, all of which influence the size and nature of the rings). A diachronic look, however, is akin to a vertical probe which will inevitably furnish what Saussure considered to be an insufficient view of

any one ring and hence will not provide a large amount of information. Those who study language change are not as pessimistic as Saussure about what can be learned, but try to be realistic about the nature of the data available and therefore the scope of the conclusions which can emerge from them. We will return to these points at the end of this chapter and again in Chapter 10.

The chapter is divided, roughly, into two parts, based on the extent to which documentation exists for earlier stages of the language or group of languages being studied. Methods may change depending on how far back in time this documentation reaches, how extensive it is, and how well modern researchers can interpret and read the documents. Section 2 is devoted to the approach known as philology, or the interpretation of texts. In Section 2.1, we will consider the traditional approach to this method and in Section 2.2 a much newer set of techniques which have arisen in this age of computers and, through them, access to extensive data. Following, in Section 3, there will be an introduction to reconstruction (Section 3.1), the series of techniques used when there is no documentation; after a look at theoretical underpinnings, we will explore first comparative reconstruction (Section 3.2) and then internal reconstruction (Section 3.3). Finally, Section 4 is a brief consideration of how the approaches in Section 2 and Section 3 are often combined and may complement each other.

2. Text-based data

There is a great deal of variation among languages and language families as to what data from earlier stages are still available to us, have disappeared to a greater or lesser extent, or, even, ever existed at all in physical (written, engraved, chiseled) form. The existence of written records may, accordingly, vary from none at all to a rich literature of thousands of documents spanning centuries. At the low end of documentation are many indigenous languages of the Americas and Australia which had no writing system until the time of contact with European explorers and missionaries. Often the earliest document in these cases is a translation of the Bible, dating from the 19th or 20th century and constrained by the lexicon and even syntactic resources of its sacred source. Other sources of information are not even documents in the prototypical sense of that term; the oldest Bahasa Malaysia 'text' is an inscription on a small stone dated to the 7th century CE, but not discovered in Sumatra until 1920.[127] At the opposite end of the scale is the extensive documentation of, for example, Greek, with an unbroken record from Archaic to modern, and Latin, again ranging from pre-Classical to

127. The earliest extant written manuscript, however, dates from seven centuries later, a 14th century legal document also found in Sumatra.

modern ecclesiastical forms as well as the Romance daughter languages. The time depth in both these cases is that of centuries before the Common Era (the 9th century BCE in the case of Greek and the 2nd century BCE for Latin).

Until the computer age, most textual work was carried out either through the analysis of manuscripts or the use of compendia of early texts in languages with a sufficiently rich literature to allow for such collections. With the enormous databases facilitated by computers, the field has shifted to some extent, with recourse to easily searchable corpora. Each of these approaches will be taken up in turn.

2.1 Philology

2.1.1 *Definitions*

Philology is a multifaceted, even polysemous notion, with variation in the use of the term over time and over geographic space. In the 19th century, it was the word used to designate what we would now call historical linguistics, and, in fact, the term is still used in that way in parts of Europe. In particular, it has designated (and continues to designate) the study of language change which draws its data from written, often ancient, documents. It has also been understood to mean the close study of these documents for any reason and thus the foundation for branches of cultural history, literary studies, philosophy, and so on. Finally, it is also used to label the preparation of historic texts for linguists, historians, philosophers, and all other scholars whose work depends on the documentation from earlier periods. As can be seen, these uses of the term are interconnected and are not clearly differentiated, but we can perceive a core meaning which concerns the preparation and interpretation of documents from earlier eras.[128]

2.1.2 *Challenges*

At first glance the existence of manuscripts seems to do away with all problems about earlier data. After all, we have a written record of what the language was like, right? It is not at all that easy, however. In this section, we will trace the process of editing and analyzing a medieval western European text; the document will not be specified, but the description is valid for many literary documents of the period in varying Medieval and even Classical languages (Foulet and Speer 1979 provides a more detailed account of philological work).

Let us hypothesize that the historical linguist knows where the manuscript can be found; rare book rooms and libraries around the world collect and preserve them. These libraries are very well catalogued on the whole, and the catalogues are usually available on line. That is, however, just the beginning. Manuscripts from earlier

128. See Winters and Nathan (1992) for an exploration – very briefly summarized in this paragraph – of the meanings and uses of the word *philology*.

periods are not necessarily complete nor in good condition; book worms are indeed a kind of worm and have created many an actual hole in the parchment. We can add the difficulties caused by missing pages, stains, and blurred passages. The manuscripts have to be handled carefully to avoid further damage; in many libraries, even the use of a pen is forbidden, and all notes must be taken in pencil or on a personal device.

The first task is to read the document. Again, this is not trivial even if it is written in the Roman alphabet (as opposed to Greek, for example). Even with contemporary writing, a European handwriting is quite different in many respects when compared to one from North America, so geographic graphic differences exist. An individual's way of writing may also at times present challenges for close friends or members of the same family. Changes over many centuries bring even more difficulties. What modern writers and readers think of as the correct way of forming the letter a (to pick one often problematic form) is not at all the way it was written in Medieval texts. In addition, parchment (treated animal skin) was expensive and scribes saved space by using abbreviations; a p with a horizontal stroke through the downward stem stood for both *pre* and *per*.

Deciphering the letters is just the beginning. In many pre-modern cultures, consistency in the spelling of words is not considered important. This was particularly the case in communities, like those where the early Romance languages were spoken and written, which adapted their writing system from another language, in this case Latin. Where the correspondences of the letter and the sound it represented were the same from one language to another, the use of the alphabet was relatively easy. The problems arose when, over time, sound changes created phonemes unknown to Latin and therefore lacking a letter which could be borrowed. Most troublesome were the various phonetic innovations as to diphthongs and palatalized consonants of Romance. The result is that the /ɲ/, new in early Romance through palatalization of /n/, could be spelled ign, ing, inn, nn, and nh depending on the taste of the scribe, where he worked, and even his mood at the moment; it is not at all rare for two or more of these spellings to exist in what is, in fact, free variation within, say, 10 lines of a manuscript.

Another point of difficulty is that medieval manuscripts are very rarely punctuated. While one could, conceivably, decipher the letter shapes without recourse to meaning (and that would be an immense handicap as philologists studying texts in thus-far unidentified languages can attest), it would be impossible to arrive at the meaning of a document without some hypotheses as to the division of the text into individual words, clauses, and sentences. Literary texts will often also contain conversations; we need to know who is speaking to whom, and without punctuation, this is not always clear. A modern edition of a handwritten text will usually not change the spelling to make it consistent, but will suggest punctuation to make it comprehensible for the modern reader.

There is more linguistic information that can be drawn from manuscripts as well. Thus far, the description of the philological method has assumed a single manuscript

of a given text. It is often the case, however, that a document may exist in multiple – of course handwritten – manuscripts, thus giving scholars a glimpse into the popularity of the religious or literary work in question; more copies extant presupposes more copies at the time the text was being copied. It is assumed that not all of them survive, so that a high number which are still around hints at (but does not necessarily guarantee) greater popularity than the level enjoyed by what is now a single manuscript text. Philologists will compare the various manuscript versions of the text, shedding light on the transmission of the work from scribe to scribe and place to place. This comparison has value for the history of the text and for the language that forms it. With works in rhyme, there is a general agreement that the only words that were most certainly written by the original author were those at the rhyme (based on the idea that it would be too much work to change two lines to maintain a rhyme scheme). Indeed, it is sometimes clear that the rhymes come from one dialect and the interior of the lines (ascribed to the person copying the text) from another. When there is only one dialect, the interior language may seem less archaic than the rhymes; later scribes may have changed the spelling and even the choice of words more freely than words occurring at the rhyme.

Finally, the very nature of the text will be considered since content often dictates the level of language even though, as a rule, most writing is more formal than spoken language. In fact, the very idea that spoken language could be captured in writing did not became widely popular until the 19th century. But plays – and especially comedies – often strive for more authentic spoken language (Plautus's pre-Classical Latin comedies come to mind, as do some characters in Shakespeare's comedies and even tragedies).[129] Fiction is often more informal than non-fiction, and oratory has an even greater formality than many other non-fiction genres. As a result, the editor/philologist can provide commentary as to the level of language, although always with the caveat that since these are written texts they are, even at the least formal, not entirely speech-like.

All of this sounds like painstaking – and hard – work! It is work, although textual edition can be satisfying for those with a taste for detailed analysis. The real excitement comes from the discovery of new manuscript fragments or even whole manuscripts. They are discovered in religious buildings occasionally, like the Coptic manuscript fragment dating from 411 CE uncovered under a collapsed floor in an Egyptian monastery (https://www.librarything.com/topic/25759). Examination has shown it is the last page of a book, where the rest of the book is part of the British

129. The gravedigger in *Hamlet* and the porter in *Macbeth* are good examples; their vocabulary and errors in grammar provide comic relief in plays filled with the high language of drama.

Library in London. Often the fragments were used as end-papers in the binding of other manuscript books.

Another, more extensive find took place in the City Library of London (https://blogs.city.ac.uk/library/2017/04/24/sacrobosco1/) where a librarian and an intern found a full manuscript containing two separate texts in different handwritings and even different colors of ink. Such discoveries of whole texts are rare, but each fragment or full text allows us to gain more knowledge of the language in which the text (fragmentary or whole as it might be) was written, as well as other important insights into historical periods.

To summarize, the traditional philological method calls for interpretation; the text of itself is not ready for linguistic analysis in manuscript form. Rather, the linguist/philologist must decipher the letter forms, develop a theory as to the phonemic value of the letters and word division, assign punctuation to allow syntax to emerge, and draw conclusions as to the date and place of the manuscript, either as a single version of a text or in a network of different versions of the same work.

2.2 Corpus data and mining

With the ever-increasing sophistication of computing applications, text-based data for historical linguistics are being used in innovative ways. It is no longer necessary for a researcher in Old English or one of the Romance languages to collect sufficient data (when such exists) directly from manuscripts or printed editions, either reading one of them at a time or by carrying out side-by-side comparisons, working at all times with the physical documents The work was rewarding, but often very time-consuming and, when the manuscripts were not immediately available in modern editions, quite expensive; trips to examine manuscripts in the libraries which own them, usually in the country where they were written, can be very enjoyable, but cost quite a bit!

Since the advent of computing within the reach of researchers in historical fields, methods have changed, or rather the range of methods has expanded. From the 1990s on, large collections of texts have been collected on-line, gathered into corpora (singular *corpus*, from the Latin meaning 'body'). In some cases, all the documents before a certain date in a specific language can be found at one website and at others selections have been made, usually because there is a wide number of texts still extant. While many of the data for diachronic studies come from written texts, growing numbers of corpora of oral material (obviously from this and the last century and rarely earlier) are also available, so that variation in speech at the modern end-point of change can be broadly studied.

These collections are important in themselves, but the way they are prepared for linguistic research (or other text-based research) is what makes corpora so valuable. They must build on the work of the traditional philologist, so that the documents have

normally been edited as described in Section 2.1. They are then further prepared for availability by means of sophisticated search engines which not only call forth single words or phrases, but also the context in which they are used. With some of them, phonetic transcription has been flagged as well (where it can be known), so, for example, one can search for all examples of rhymes in /[ajz/ in Shakespearean English or in /[oj/ in early French. Other data mining (this is the metaphor used for these searches) can identify strings at the morphemic level, either at the beginning, end, or interior of words. There is even backward search capacity for spelling or, where possible, pronunciation; this allows the research to find, for example, all words in English (or at least in some corpora of spoken English) which end in spelled *ion* or pronounced [ʃən], whether spelled *-tion* or *-cion*, or *-sion*.

Larger units can also be studied based on the mining of corpora. A paper by Heyvaert and Cuykens (2010), for example, looks at finite (*that*) and gerundive (*-ing*) complementation ('I regret that it all happened' as compared to 'I don't regret helping her start out'). For the widest possible data, they searched four corpora (Early English Correspondence, Early Modern English Texts, Late Modern English Texts, and the Collins Birmingham University International Language Database) for a full range of examples of both constructions. They were able to develop a trajectory of the development of each, with *that* as an earlier use and *-ing* expressions appearing more frequently from the 18th century on. They demonstrated that the *that* construction has always had a broader meaning, while *-ing* has narrowed over time so that, unlike *that*, it cannot express two subjects, one for the main verb and one for the verb in the gerundive (*'I regret you not helping her'). These insights are very much supported by the use of corpora since, for one thing, the number of examples at a given time can be compared to the size of the corpus, providing as a result a better sense of how frequent or infrequent a construction might have been at any time.

As a result of these corpora, research can be carried out on all aspects of language through extensive textual evidence, from the phoneme to the syntactic construction and at the level of discourse. There are still limitations, of course. One is the long-known fact about computer-based material: it is only as good as what was programmed (inelegantly expressed as 'garbage in, garbage out'). If the texts are not carefully edited to begin with, and carefully prepared for searches, the results can be incomplete at best and at worst quite misleading. There is also the inescapable fact that in many languages at long periods of their history we do not have many texts to begin with. While it is wonderful to be able to be sure that one has seen *every* example of a given construction in a given early language, if there are only four or five instances at one point in time and perhaps two or three more or less fifty years later, it is still hard to draw conclusions about change, either disappearance or significant increase in use. Those who do serious diachronic work must be careful about their analyses whether their work is based in traditional philology or modern data mining of historical corpora.

3. Reconstruction

In Section 2 were discussed the kinds of evidence for language change which might exist when documents from past times survive to the present. Again, they must be carefully and thoughtfully edited and then can be consulted, either in small numbers of manuscripts (or other kinds of written records) by the philologist or in large amounts of tagged text by the more technologically-minded researcher who works with corpora. But what do we do when texts are not available, either because there never were any at any time or because the textual tradition only goes back to a certain point and ceases to exist further in the past? The current section will address these circumstances or, more accurately, how diachronic studies reach back in time to the prehistory of a given language or language family to hypothesize on what sounds and forms may have existed. Although later parts of the chapter will address as separate topics the two kinds of reconstruction, that is, through the comparison of languages and the comparison of forms within a single language, the same set of assumptions underlies both undertakings. They will be taken up in the next subsection and then referred to as needed throughout the rest of Section 3.

3.1 Underlying assumptions

3.1.1 *Relationships among languages*

In Chapter 2 the genetic model of language relations was presented. As a reminder, languages can be grouped into families which, following this genealogical metaphor, have, if they can be traced back far enough, a common parent. In some cases, we know more or less what the parent language was like; the Romance languages come from some form of Latin (we will return in Section 4 to the hint expressed in 'some form' of Latin) and, as has been said, we have documentation in abundance from Latin as we do for early forms of Greek. In other cases, there is little or no textual evidence and linguists form hypotheses as to the nature of the parent language; this is the case with Proto-Germanic and with Proto-Indo-European about which there have been proposals based on the earliest versions of daughter languages. As will be seen in the rest of this section, these proposals – or hypotheses – are constrained, as they should be, by what we do know.

3.1.2 *The ultimate single form*

It is important to note, as a corollary to the genealogical model of relationships, that we also work on the hypothesis that, all other things being equal, the parent language (or component of the parent language) will not display any variation. As was discussed in Chapter 8, this hypothesis flies in the face of the general belief that no language exists as a monolith. Rather, Language lives in variation, not only dialectal, but also social and generational, where generational variation refers not to change over time, but also

the age-related coexistence of various forms at one point in time. This is indeed something of a dilemma since we base the general nature of reconstructed languages on those which exist in recorded history; how then can we talk about a language without variation? When it comes to phonological or morphological reconstruction of some subcomponent of a language, we can make a plausible suggestion for an initial unity; the problem really arises when we make the same proposal about an entire language, like Indo-European, and, indeed, the further research takes us, the less likely total unity becomes. The enterprise of reconstruction must be thought of as a gradual process of discovery and of the improvement of these hypotheses until we can, again, make plausible suggestions for variation even in reconstructed (and hence theoretically once living) parent languages.

3.1.3 *The regularity hypothesis*

Of equal importance as a foundation for reconstruction is the idea that change is regular, that a given unit will evolve into another given unit under the same circumstances or conditions. We met this concept in the discussion of sound change (think of formulas like x > y / Z); it becomes less imperative for morphology change because of the potentially disruptive factor of analogy and even less certain when we come to syntax change (discussed in Chapter 7 and again below in this chapter). Since much of traditional reconstruction involves sounds, however, the regularity hypothesis is important both for reconstructing unattested sounds and for checking the validity of the reconstruction.

3.1.4 *Occam's Razor*

The Medieval philosopher William of Occam (ca. 1285–1349) is credited with what in Latin is known as the *lex parsimoniae* 'law of parsimony'. Its essence is that, all other things being equal, the solution to a problem should be the simplest one which accounts for all the known aspects of what is being solved, or for as many of them as possible. What is important is that nothing be added in the way of complications beyond what is necessary, that is, called for by the data at hand. The application of this to reconstruction will be illustrated below, but even without elaboration it is clear that when studying sound change we have relied on the basic notion that we don't put in steps which are not called for by the data. For example, why should [t] > [d] intervocalically be thought to go through a stage of [ð] if there is no evidence for this roundabout step, either in textual evidence or in our knowledge of the nature of phonetics? All the more so, why should [t] > [d] go through a stage of [k], which is phonetically wildly implausible?

3.1.5 *Hypothesis construction*

Finally, note that at several points in recent pages the term 'hypothesis' has occurred. A reconstruction is not a fact; it is, rather, a theory. Since it is an extrapolation back in time

from the earliest documentation – understood as the attestation of a language where no oral record otherwise exists – there is no way to prove its validity absolutely. It is a more or less well-founded suggestion (the more complete the explanation of the data, the better it is) of what an earlier stage or even the proto-language might have been like.

Further there no set formula for building this hypothesis of prehistoric sounds and forms. Rather, as the following sections will demonstrate, various rules of thumb (known as heuristics) come into play.[130] The goal is plausibility, based on a sound knowledge of phonetics and the limits to sound change. Scales of possibility are based on what happens most often in documented changes. For example, the voicing of consonants intervocalically is much more usual that devoicing in that environment. It can happen, but it is the responsibility of the linguist who proposes that devoicing has occurred intervocalically as part of a reconstruction to explain why something so counter to the wide range of human languages and to our knowledge of articulation should be posited to make sense of the data. Occam's Razor draws us to the simplest solution, always given the data at hand, but the fact that there might be exceptions to simplicity (or rather a different kind of simplicity because of the complexity of the data) cannot be ignored.[131]

3.2 Comparative reconstruction

This method comes into play for reconstructing some aspect of the unattested parent language of some group of languages which have already been identified as having a common ancestor or where the hypothesis of a common ancestor is being tested. Rather than provide any more theory for the moment, let us work through a short example and see how the underlying assumptions discussed above come into play.

3.2.1 *Language family data*

For the sake of this demonstration, let us presuppose that the family relationship has been established. In reality, it may take an enormous amount of data to determine such

130. To understand the notion of 'heuristic', think about making a stew or a soup: exact measurements and exact lists of ingredients are not necessary ('now, what vegetables in the fridge need to be used up?'). Rather we use our sense of what goes together and in what (rough) amounts. For its opposite, the 'algorithm' or precise formula, think about baking: if we mismeasure or omit an ingredient, the chemistry of baking fails. Have you ever put in too much baking powder in making muffins or omitted it entirely?

131. Not to be discussed in this book are the often very controversial cases of competing reconstructions; the nature of the proto-Indo-European consonant system is a very well-known case which can be hypothesized several ways based on Sanskrit, Greek, Latin, and the earliest known other daughter languages; see Fox 1995 for a discussion.

genetic relationships; remember from Chapter 2 that Sir William Jones had learned Classical Greek, Latin, and Sanskrit before he expressed an opinion about their common ancestor. In other cases, even with the evidence of three languages, the results may not be clear. One can imagine quite a bit of confusion for the naive speaker of English who knows French and does not know German and Dutch, for example. S/he might very well look to some Romance or Latinate source for what we know is fundamentally a Germanic language. And some relationships are solved very slowly; Albanian was a puzzle to linguists for a long time, until it was determined that it was indeed Indo-European (not related to Turkish) and an independent daughter at that, not linked to Greek as was also earlier believed.

For now, let us assume that the Polynesian subfamily of Austronesian is well established and that we can therefore state with reasonable certainty that Hawai'ian, Samoan, and Maori are closely linked, while Fijian is a more distant relative.[132] The small data set, the set of cognates, looks like this:

(1) Polynesian Cognate Set

	Maori	Hawai'ian	Samoan	Fijian	
1.	pou		pou	bou	'post'
2.	tapu	kapu	tapu	tabu	'forbidden'
3.	taŋi	kani	taŋi		'cry'
4.	takere	kaʔele	taʔele	takele	'keel'
5.	hono		fono	vono	'stay, sit'
6.	marama	malama		malama	'light, moon, dawn'
7.	kaho	ʔaho	ʔaso	kaso	'thatch'

In addition to acknowledging the language family, we have also completed one of the basic tasks of comparative reconstruction, that is, setting up the cognates cross-linguistically.[133] Not only are they at least somewhat similar in shape, that is, in the sequence of sounds in each of the cognate sets, but the meaning of each set is constant throughout. Where there is variation, semantic connections can be found, so that #5, 'stay, sit' has two meanings which can be related to each other as can the meanings in #6, 'light, moon, dawn', three manifestations of natural light which might plausibly be referred to by the same word.

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132. The data and the basis for their analysis come from Arlotto (1972). In presenting them, Arlotto points out that there is some debate about Fijian. It may be Polynesian like the other three or else is a member of the closely related Melanesian family. For the sake of this demonstration, the difference is not crucial, but the question being raised by Arlotto shows that family filiations have not all been well established.

133. This is really a tiny cognate set, but the 7 words must be understood as representing many more with similar sound correspondences; remember the regularity hypothesis which was mentioned above and will be returned to below.

3.2.2 *Correspondence sets*

Once we are satisfied that the words are indeed cognate across languages, we look for correspondence sets, the recurring patterns of phonemes. For the consonants in the cognate set above (remember the cognate set is made up of full words), the correspondences are as follows:

(2) Phoneme Correspondence Set

Maori	Hawai'ian	Samoan	Fijian
p	p		b
t	k	t	t
ŋ	n	ŋ	ŋ
k	ʔ	ʔ	k
h	h	f	v
n	n	n	
m	m	m	
r	l	l	l
h	h	s	s

Note that, in establishing these correspondence sets, no correspondence is cited more than once. For the cognates we are working with, this means that word 1 and 2 repeat the *p/p/p/b* correspondence, once in initial position and once intervocalically. In the same way *t/k/t/t* shows up in words 2, 3, and 4, all in initial position, while *t/ʔ/ʔ/t* appears both in initial position (word 7) and intervocalically (word 4). While this is a very small data set, we already have some evidence of the regularity hypothesis in these repeated patterns in this language family, without much differentiation between initial and intervocalic position.[134] We do note that there are two sets including /k/ (compare word 4 and word 7) and will return to this question later since the regularity hypothesis also obliges the reconstruction to account for each of the sets as having a somewhat different reflex.

So, what do we have? The goal is to reconstruct the phonemes of proto-Polynesian through comparisons among daughter languages. We can start with the correspondences where there is no variation in the cognate set. By being mindful of Occam's Razor, we reconstruct an intervocalic */n/ in word 5 and an initial */m/ in word 6. There is no evidence for any intermediate states and therefore hypothesizing any would be adding unnecessary complexity; again, this is the application to reconstruction of Occam's principle.

134. In reality, the position is best described as syllable-initial, and, in fact, syllable form in Polynesian languages is always CV, a consonant followed by a vowel with no following consonant in the syllable coda.

Following another principle, that of regularity, we also acknowledge that in word 3 the other nasal correspondence set *ŋ/n/ŋ/ŋ* cannot have the same resolution as the one yielding /*n/ since the correspondences are not the same. We then evoke a second principle, usually called 'majority rule' and posit */ŋ/ as the proto-form. It is a nasal, occurring in three of the four cognate forms, and allowing for a contrast with the */n/.

In word 6 as well we note /l/ in three of the four daughter languages and /r/ in one. Until there appears evidence to the contrary, we will propose */l/ as the original sound, again based on 'majority rule'. Word 1 illustrates the application of the same principle with a reconstruction of */p/. Several of the words display the correspondence set *t/k/t/t/*, both in initial and in intervocalic positions. Again here, we will use the majority rule and propose */t/.

The /k/ appears in the repeated set k/ʔ/ʔ/k (words 4 and 7) where there is an equal number of instances of each phoneme cross-linguistically. Here a simplicity metric is based on phonetic knowledge: it is much more common to find /k/ > /ʔ/ than vice versa and therefore without the addition of any additional sounds not attested in the data, we come to */k/ as the proto-form.

The final set of correspondence sets, *h/h/f/v* and *h/h/s/s* poses another question. There is no recourse to majority rule in either set and we are faced with two phonemic sets, each with an /h/ in Maori and Hawai'ian and two sets of sounds in Samoan and Fijian. Again, since there are two different results in two of the four languages, we cannot assume that there is one source phoneme for both sets. However, we know from phonetic change elsewhere in the languages of the world that /h/ rarely changes to another sound; if anything, it tends to disappear (Latin /h/ disappears in all the Romance languages and there are dialects of English like London cockney where /h/ disappears as well). We also know from the world's languages that /f/ is a source of /h/ (think of Spanish)[135] and, elsewhere, that /s/ is as well. It is possible to posit a */f/ for the *h/h/f/v* correspondence set (we'll get back to the voiced fricative in Fijian) and a */s/ for the *h/h/s/s* set. What we have proposed, then, is a merger of Proto-Polynesian */f/ and */s/ in both Maori and Hawai'ian.

Finally, note that there is no variation within the correspondence sets when it comes to the vowels. For the reasons we laid out above, we will posit these same vowels as the proto-forms: */i/, */e/, */a/, */o/, and */u/. With that we can summarize the reconstruction three ways, first as proto-forms of each cognate set, then as a phonemic inventory, and finally, by reversing the process we have just gone through, that is, by stating the sound changes involved in arriving at the attested forms from the

135. Latin *filius* 'son' > Spanish /ixo/, spelled *hijo*. The spelled *h* tells us that there was once a pronounced /h/; writing, often more conservative than speech, retains the letter even though the sound has disappeared.

reconstruction. The words are as follows: *pou, *tapu, *taŋi, *takele, *fono, *malama, and *kaso.

The reconstructed sound system looks like this:

*p	*t	*k	*i		*u
*f	*s			*e *o	
*m	*n	*ŋ		*a	
	*l				

The sound changes will be listed language by language:

(3) Sound Changes

Maori	Hawai'ian	Samoan	Fijian
*r > l	*t > k	*k > ʔ	[−voice labial] > [+voice labial]
*f/*s > h	*k > ʔ		
	*ŋ > n		
	*f/*s > h		

3.2.3 *Testing the reconstruction*

The steps taken thus far have allowed us to follow heuristic reasoning, rules of thumb, as well as applications of wider knowledge about phonetics (not necessarily all diachronic) to arrive at an inventory of sounds for Proto-Polynesian. We have also established a series of reconstructed forms and a list of the sound changes which we propose as having taken place in the development of those reconstructed sounds to those in the attested modern languages. What can be considered further tests of plausibility? First, the reconstructed inventory of sounds does not contain many abnormalities. The vowels are a very common set, a rather simple system of five cardinal sounds. The consonant system is only mildly noteworthy for having only voiceless obstruents, as well as three rather common nasals and one lateral. Holes in the system include a voiceless palatal fricative */x/ corresponding to the voiceless stop */k/, and the absence of *[r] alongside *[l]. There is nothing anywhere in the system to hint at problems in the reconstruction.

The last step is to consider the plausibility of the sound changes. Here too the reconstruction is reassuring. Many of the changes, as was noted above, are common across attested histories including both /s/ and /f/ becoming /h/. The liquids, /l/ and /r/, are commonly interchanged, hence their being grouped as a single class of sounds despite quite different articulations (and here it should be remembered that there are many articulatory varieties of "r"). More interesting is the change in Hawai'ian from */ŋ/ to /n/; the change in the other direction is more common especially in the context of a following palatal.

Probably the most interesting of the changes is, again, in Hawai'ian where */t/ becomes /k/ and */k/ becomes /ʔ/. What we have in this case is a chain of changes, thus

akin to the Great Vowel Shift in English (Chapters 4 and 5 have discussions of chains). Here the movement is not in degrees of vowel height as in the English example, but rather in point of articulation among voiceless stops, with a dental/alveolar [t] moving back to [k] and the velar [k] moving even further back to the glottis. The double change adds plausibility to the reconstruction, while the fact that */k/ becoming /ʔ/ in Samoan as well may indicate that the change started there and can be characterized as a drag chain. The change occurring further back in the oral cavity opened a hole in the more central point of articulation which was filled by a consonant coming from even further front.

3.2.4 *Limitations*

The procedures which have been outlined in the last sections, along with the theoretical bases underlying them, have shed light on a great deal of language history for more than a century and a half. There is no doubt that these tools are valuable for developing proposals about unattested stages in the history of a language family. However, there are places where the comparative method does not work. There are, to begin with, cases where languages are truly isolates (Basque, for example which does not seem to have any relatives), so any proposals about earlier stages must be arrived at via philological methods or by language-internal reconstruction. Another confounding factor is contact; a cognate set may have oddities in it because one or more of the reflexes, established through semantic comparisons, is a borrowing. There is, for example, no way to reconstruct the English third person plural personal pronoun (*they*) via comparisons with other western Germanic languages (German /zi/, Yiddish /ze/, Dutch /zaj/; we know from language-external sources that the English form was most probably borrowed from northern Germanic during the Viking occupation of parts of Britain.

3.3 Phylogenesis

What has been laid out in this section is a method for restricting the undocumented past through extrapolation backward in time before the earliest documentation. Similar methodologies were developed, also from the 19th century on, in the biological sciences (see Chapter 2 for a brief introduction), depending on the similarities in physical structure (also using the term 'morphology') among members of a species or even across species to hypothesize on the ancestry of the animals and the way in which families split into subspecies. Think, for example, about the structure of avian wings and human arms as to the number of bones and their configuration (one thicker one closer to the body and two joined in parallel in the further extension). Unlike linguistic reconstruction, of course, biological phylogenesis is making proposals about evolutionary, or deep, time.

There has been a fairly recent upswing in interest in broader issues of family membership, inspired, at least in part, by the dramatic increases in knowledge of genomics (the study of the structure, function, evolution, and mapping of genomes, the set of genes in an organism), in the last decades. It has, speaking broadly, taken two directions in linguistics. One is evolutionary linguistics, hypotheses about the very origin of Language (note the capital L). The other is a much broader view of language families, attempts to find links at a deeper time-depth than before. One of the earliest contemporary proposals was Nostratic (Bomhard 2008). This hypothetical family, which has been explored and criticized for nearly three decades, includes Indo-European, Semitic, and a good part of the languages of Asia.

A more recent proposal is that of the Dene-Yeniseian family (Kari & Potter 2010). The Na Dene languages are spoken in North American and include Eyak, Athabaskan, and Tlingit, while the Yeniseian languages exist in Central Siberia. As pointed out by both by Campbell (2011) and Rice (2011), there are many challenges to this proposal, based on the geographic distance between Central Siberia and North America, time depth, and the small number of cognates, both grammatical and lexical. There is, however, good archeological and anthropological evidence of migration from Eastern Siberia to North America across a now non-existent land bridge, enough that we cannot rule out the hypothesis on purely geographic grounds. When it comes to time depth, one might argue that more sophisticated methodology has allowed proposals calling for earlier (much earlier!) periods of interaction and spread to be uncovered. This point will be taken up again in the exercises at the end of this chapter. As for the validity of cognates, this is an on-going, detailed set of arguments best left for another time.

3.4 Internal reconstruction

The basic premises of internal reconstruction are very close to those for comparative reconstruction. The notion of language family relationships is not as important, although similarities in related languages may add plausibility to a reconstructed set of forms. Regularity and the goal of finding an earlier unattested form are the same, as is recourse to Occam's Razor. What most clearly differentiates the two methods are the data which are examined. While the comparative method applies across languages within a family, internal reconstruction is intended to hypothesize about earlier forms of specific subcomponents of a single language, normally those with related, but not identical, forms like members of a paradigm or forms related by meaning. Most often we can identify an alternation among these related forms, that is, some regularity in the sound pattern which can reduce to a phonological segment or even a single feature. The examples below emphasize the importance in Germanic for the feature of [voice] as well as providing ways of reasoning about earlier forms.

3.4.1 *Some examples*

The following pairs of English verbs and nouns are clearly related, by form and by meaning:

(4)	a.	breath	breathe
		bath	bathe
	b.	mouth	mouth
		house	house.

The first of each pair is a noun and the second a verb, with, in each case (either spelled or not) an alternation in the last sound between a voiceless fricative (/θ]/ in three cases and /s/ in the last) for the nouns or one that is voiced (/ð/ and /z/) for the verbs. The question is then, if there was, in the past, a single form for each pair and, if yes, whether it contained a voiceless or voiced fricative. Note that the final consonant of each verb is voiced, although some are, in written form, followed by an -e̲ (4a) and some are final letters (4b). A first proposal then is that all the form-final consonants of the verbs were once intervocalic, like those of (4a) and that spelling (not sound) changes left some without a written *-e*. Since all the nouns are voiceless, and in a prototypical position for devoicing (final devoicing shows up in many of the world's languages, such as Russian and Old French as well as Germanic), one might hypothesize that the nouns derived from the verbs with devoicing in true final position. The proto-forms, then, contain voiced final consonants which then uniformly devoiced in the derived nominal form.

A second, more extended example, concerns the singular and plural of nouns in modern German:

(5)	Singular	Plural	Translation
	Bad [bat]	Bäder [bɛ:dɐ]	bath
	Maus [maʊs]	Mäuse [mɔɪzə]	mouse
	Raub [raʊp]	Raube [raʊbə]	robbery
	Zug [tsuk]	Züge [tsygə]	train

Each of these pairs illustrates the same pattern: the final consonant in the singular is at the same place of articulation as the stem-final consonant in the plural and has the same manner of articulation; what differentiates them is voicing. But there are other nouns in German which don't follow the pattern:

(6)	Singular	Plural	Translation
	Hut [hut]	Hüte [hytə]	hat
	Fluss [flus]	Flüsse [flysə]	river
	Kauf [kaʊf]	Käufe [kɔjfə]	purchase

In these singular/plural pairs, the final consonants of the singular and the stem-final consonant of the plural are identical. The question, then, is whether the earlier form

of the words in (5), under the assumption that alternations occur later, was the voiceless or voiced reflex (/t/ or /d/, /s/ or /z/, /p/ or /b/, /k/ or /g/, /f/ or /v]/. It is here that Occam's Razor and the regularity hypothesis work together.

The first assumption is that, if indeed there were no alternations if we go far enough back in time, then we cannot posit a single source of the /t ~ t/ singular/plural and for the /t ~ d/ alternations.[136] We also do not want to claim that plurals sometimes took /t/ and some /d/, just so. If we start with the singular as a proto-form, however, we must do exactly that, claim that sometimes, randomly, a singular /t/ remains /t/ and sometimes it becomes /d/ in the plural.

The alternative solution is to start with the plural forms and claim two proto-consonants. In that case, the voiceless consonants remain voiceless when they are word-final (as in 6). The voiced consonants devoice in the same environment (5). It is well known, of course, and discussed in earlier chapters of this book, that final position is frequently a site for devoicing since the voiceless sound might be said to anticipate the totally voiceless silence of the pause following the end of a word. The reconstruction then, for the words in (5) is a stem with a voiced final consonant (*/bad/, */maʊz/, */raʊb/, and */tsug/).[137] For those in (6), on the other hand, the consonant is uniformly voiceless in the reconstructed stems (*/hut/, */flus/, */trep/, */kaʊf/). When we test this hypothesis by considering the sound changes to be posited to account for the modern forms as derived from the theoretical proto-forms, we find that we need two changes, in each case using # to mark the word-final position:

(7) a. *[voiced] > [voiceless] / __#
b. *[voiceless] > [voiceless] / __#

Two different outcomes in the same environment, as depending on the earlier voicing (or lack of voicing) of the stem-final consonant, make sense of the modern differences, confirming regularity through the simplest explanation which accounts for the facts.

3.4.2 *Limitations*

Internal reconstruction is no more foolproof than comparative reconstruction, and for some of the same reasons. Most noteworthy is the case of many highly irregular verbs where we know from other evidence that there was never a single common form. Consider, for example, the forms of the English verb *to be*: not only is the present tense *am, are, is* in the singular, but the past includes *was* and *were*. A close examination of the history of the forms reveals that they come from three different verbs in Old English,

136. The alveolar-dental stop represents all such voiceless/voiced pairs set out in (5) and (6).

137. We will not discuss the effect of umlaut on the stem vowel in some of the plural forms.

one furnishing forms in **b-* (*be*), one for the source of *am/are*, and a third for the forms beginning with *w-*. Among the source meanings are not only 'be/exist', but also (with an initial *w-*) 'become'. In addition to different meanings in earlier English, the forms are from different dialects, so both semantic blends and contact play a role in thwarting reconstruction of a common form.

In similar fashion the verb *aller* in French is conjugated as follows:

(8) a. *Present:* vais/vas/va/allons/allez/vont
b. *Infinitive*: aller
c. *Future stem:* ir-

The forms in (8) come from the Latin verb *vadere* 'to walk' (some of 8a), *ire* 'to go' (8c), and *ambulare* 'to stroll' (cf. English *amble*, the rest of 8a and 8b). Here we have a blend of verbs with similar semantics and, again, reconstruction would fail even if we could not independently identify the sources of the paradigm; the sound changes which would have to be proposed would be, to put it mildly, quite implausible.

3.5 Syntactic reconstruction

Thus far, the reconstructions presented in this chapter have been morphological or phonological. As was discussed above in Chapter 7, syntactic reconstruction follows a different path and much of its success lies in carefully defining the ways in which change takes place rather than in establishing and comparing cognate sets. Several difficulties have been pointed out, of which the first is the fact that sentences, unlike sounds and (to a great extent) forms, are built during speech. While they have component parts, of course, these parts cannot be easily compared across languages in order to establish cognate sets. And even if one can establish that there are cognate sentences, it is also difficult to tease out the correspondences parallel to those identified in phonological or morphological reconstruction. Finally, since sentences can be so variable, what are plausibility measures for testing change, and particularly syntax change independent of morphology and even phonology (at least on the level of suprasegmentals like sentence stress)?

All this being said, there are ways of defining the task to arrive at some conclusions, at least for carefully defined syntactic structures. Lehmann (1974) makes use of the heuristic 'majority rule' in developing a reconstruction for Proto-Indo-European syntax. He proposes, for example, that we must reconstruct postpositions rather than prepositions because they are documented in Sanskrit, Classical Greek, and early Latin (although in Classical Latin only a few remnants remain). This kind of reconstruction often interacts with typological studies of languages (see Chapter 7 on syntactic universals and the work of Greenberg). Lehmann, through comparison of

the earliest extant Indo-European languages, arrives at the conclusion that there are enough features which correspond to OV languages (including this basic word order itself) that Proto-Indo-European must have had *all* the features of OV languages. There has been much criticism of this conclusion, most of it based on the idea that Lehmann went beyond a reasonable application of typological tendencies to posit hard and fast conclusions. The criticism is certainly valid; what is important here, however, is that, if one does not go too far, syntactic reconstruction is indeed possible within the limitations discussed above.

3.6 Combining methods

Nothing in this section is meant to imply that reconstruction methods are mutually exclusive (any more than that philology and reconstruction cannot be used together as will be discussed in Section 4). It is, however, usually the case that internal reconstruction is applied before comparisons among languages are carried out. It that way, the external comparisons are made with forms that have been hypothesized as predating internal alternation. Let us return to Germanic final obstruent devoicing to illustrate this idea.

In Section 3.3, the historical devoicing of final consonants in German was established as a rule, based on internal reconstruction of voiced final consonants and a process (still alive) by which they become voiceless in word and syllable final position. Yiddish, a related West Germanic language, does, however, have final voiced consonants (/hand/ as opposed to German /hant/ 'hand', for example, or /hɔjz/ as opposed to /haʊs/ 'house'). The question, then, is whether German and Yiddish started the same way with final voiced consonants which remained in Yiddish and devoiced in German or if something else happened (Jacobs 2005 provides a full account of this series of changes).

If we depend solely on the internal reconstruction of final consonants in Yiddish, calling on the simplicity measure of Occam's Razor to guide us, we would arrive at the conclusion that the consonants never devoiced, since hypothesizing devoicing with subsequent revoicing is more complicated that hypothesizing that nothing ever happened. Yiddish then would be considered a conservative language relative to German and Dutch, one in which, in this respect, no change took place from common West Germanic. While historians of Germanic would be obliged, eventually, to find reasons for this conservatism, the results would account for the data. However, it is more probable that Yiddish did undergo devoicing along with other West Germanic languages and that final consonants later voiced again. Although some of the discussion thus far comes from the results of comparative reconstruction (and the questions raised in this particular instance from comparing outcomes of development across related languages), the proof of revoicing comes from data internal to Yiddish.

It is certainly the case that Yiddish has final voiceless consonants; we have been ignoring them to call attention to the voiced final obstruents which correspond to German voiceless finals. However, there are various words ending in final voiceless obstruents which are semantically related to others with voiced reflexes:

(9) veg 'road, way' avek 'away'
faynd 'enemy' faynt hobn 'to hate'
fraynd 'friend' gefraynt 'relatives'

In each of these pairs, the noun on the left ends in a voiced stop, while the form on the right (adverb, verb phrase, collective noun, respectively) ends in a voiceless stop. However, the two members of each pair are semantically connected (for the first consider the English adverb *away* as related to *way* meaning 'road' or 'path'). One can reconstruct a Yiddish voiceless final obstruent through comparison with German and Dutch, as was discussed above. However, something must account for the voiced related forms. The most convincing explanation to date is that indeed final consonants devoiced in all of west Germanic, but that in Yiddish those in paradigms then revoiced. The plural vege /vegə/ retained the /g/ since that obstruent was never final and, by analogy to these non-final forms, */vek/ > /veg/. Before that happened, however, the semantic link between 'path' and adverbial 'away' was lost in the linguistic thinking of speakers of Yiddish and, with no alternating forms to draw it in, the adverb remained /vek/. In the same way, the nouns corresponding to /fajnd/ and /frajnd/ were no longer considered closely related or even 'the same', so that the devoiced form persists both with the idiomatic expression in the case of *faynt hobn* and with the collective use in the case of *gefrayn*.

The historian of Yiddish, to summarize, must call upon the methods of both comparative and internal reconstruction to arrive at an explanation of these data. The methods are not in competition, therefore, but complement each other.

3.7 Shortcomings and challenges in reconstruction

As has been demonstrated, reconstruction is a rather powerful tool, a set of methods which separately or together can often shed light on linguistic stages for which there is no written evidence. The lack of documentation, both written and particularly oral, constitutes a challenge for the methods, however, since without phonetic information it may be hard at times to differentiate narrowly among possible proto-sounds.

The more important caveat, though, is that one must always remember that a reconstruction is a hypothesis. When there is no hard and fast evidence external to the data themselves, one can never be completely sure of the results. They cannot be definitively verified. Linguists have, over the two centuries that reconstruction has been employed, refined the methodology. This brief look at the use of majority rule

and of plausibility tests based on ascertaining what the necessary sound changes might have been is only a very cursory exploration of the detailed consideration applied to this approach. But there is still no proof, except when, after the reconstruction has been hypothesized, documentary evidence is uncovered. One of the most remarkable stories[138] is that of the reconstruction of *coefficients sonores* 'sonorous or sound-bearing coefficients' by Saussure (1879) to explain anomalous syllable types in some of the early Indo-European languages which could not, until then, be reconstructed or explained in any satisfactory way. In order to make sense of the data, Saussure proposed that these coefficients, or factors, must have existed even though there was no direct evidence for them. In the early 20th century, with the discovery of a large number of Hittite tablets covered with writing, he was proven right; there were written symbols, still not yet fully interpreted today, in exactly the syllable types which his hypothetical phonetic units would explain. This is a wonderful event, of course, and one hopes for verification of all reconstructions, but this hope is normally unrealized. In the end, most reconstructions remain hypotheses, some well-grounded in probability and some open to vigorous debate.

4. Philology and reconstruction compared and combined

The methodologies presented in this chapter are in general not mutually exclusive, although one may be more suitable for a given set of data than another. Internal and comparative reconstruction may be applied together to achieve more robust and more plausible results than either one might alone. In the same way, historical linguists may use both the philological method and reconstruction to elaborate their theories. In some ways this is an obvious fact, since reconstructions begin with cognate sets (for the comparative method) or alternating forms (in internal reconstruction) which are attested in writing, even if this is sparse early documentation. It is possible to go further, however, and talk about reconstruction as useful for what has been called the middle ground (Winters 1997). The history of the Romance languages furnishes an example which was touched upon before in the section of Chapter 6 on grammaticalization. Some of the details will be repeated here, but the focus is different.

There is extensive literature in Classical Latin (usually designated as the 1st century BCE and the 1st and 2nd centuries CE) as well as much further work in later Latin. However, the Romance languages are not attested until the 9th or 10th

138. The discovery of Hittite laryngeals is very much abbreviated here; for a fuller description of Saussure's work and its importance, cf. Fox (1995: 173–181).

century in some cases and, for Romanian, not until the 16th century.[139] There is a gap, then, between Latin and Romance, a period often referred to as the Dark Ages, precisely because of the dearth of documentation. There was a relatively sparse written record, not a sufficient amount or of the right sort (much of the Latin was, for example, ecclesiastical, frozen in the liturgy) to shed light on the language of the time.

The Classical Latin future tense was a complex morphological structure with two entirely unrelated formations, one for the first and second verb groups (called conjugations) and the other for the third and fourth. The classes were not differentiated by the semantics of the verbs. (10) below provides the future of a verb from each of the groups:

(10)	First conjugation:	amabit	'he will love'
	Second conjugation:	habebit	'he will have'
	Third conjugation:	ducet	'he will lead'
	Fourth conjugation:	teniet	'he will hold'

Note that in the first and second conjugations, the infix *bi* marks the future, while in the third and fourth conjugations it is the vowel /e/ which contrasts with an /i/ in the present tense of the same verbs (*ducit* 'she leads', *tenit* 'she holds'). This is a complex system, although it stayed in place until for some time after the Classical era, even when sound changes caused the loss of the distinction between future and past. In the first two conjugations (/b/ and the /w/ which marked many past tense forms merged as /ß/), while the merger of /i/ and /e:/ caused confusion between the present and future in the other verb classes.

In the earliest Romance documents, all traces of this future morphology have disappeared, and a new formation based on the infinitive followed by endings has taken its place. In the western Romance languages (French, Italian, and Spanish) the endings are much reduced forms of the Latin verb *habere*'to have', while in eastern Romance there is more variation, with some Italian dialects showing forms of *debere* 'to be obliged' and Romanian using forms of later Latin *volere* 'to want'. All of these sources for future formations are, clearly, modal verbs which semantically can be linked to desire or obligation (think of *have to* in English). What is missing is a clear history of how this new future morphology emerged; we do not have documentation for what happened between the morphology of (10) and these new morphologically complex structures. The historical linguist must, therefore, turn away from philological methods to reconstruction in order to develop of theory of intermediate stages in

139. Since the line between Late Latin and early Romance is not necessarily a clear one, scholars date the emergence of Romance variously. The debate will not be pursued here.

the development from full verbs to affixes (suffixes in most of the Romance languages, although Romanian is closer to English *shall* /*will* in that the future marker precedes the verb). Both sound change and semantic change must be considered since the full Latin verbs are much reduced as these affixes, on the one hand, and the meaning has been specialized, along with the phonological reduction and a new rigidity of word order, to refer to tense.

One more example should be considered briefly, also from the history of the Romance languages. As has been indicated several times, there is a wealth of Classical Latin documentation and, from the early Middle Ages onward, even more in the early Romance vernaculars, a situation which seems to call for philological approaches to Romance data. It is not at all clear, however, that Classical Latin is the direct source for Romance languages, but rather other social dialects of Latin which have been only sparsely documented, in large part because the literary, 'high' language dominated the written tradition. As a result, there have been occasions when reconstruction has allowed for access to unwritten forms which, one would imagine, arose through slang, military and other lower-class dialects, and other sources which would not have been written down at a time when writing was the domain of the upper classes.

5. Conclusion

This chapter is somewhat of a departure from those which precede it since it focuses neither on theories of change nor on the data of specific languages, but rather on how, with the theoretical framework in place, one can examine data and draw conclusions from them. The data come both from documents and from extrapolating backward in time from attested forms to those which, we can hypothesize, must have existed earlier. The methods may be combined (internal and comparative reconstruction, reconstruction and philology) or used individually. Both philological approaches and reconstruction depend on precise work, but neither method is fully formulaic, based on algorithms to be applied like computer code which will take input and guarantee the same output under the same conditions. This is not to say that rigor and the obligation to account for all the data are relaxed somehow. Rather, both methods call for a combination of algorithms and heuristics, a mix of approaches to be used to reach conclusions in conjunction with broad knowledge of language and the possibilities of language change. While the choices made by experienced historical linguists may seem instinctive, they are based on this knowledge and experience as applied to the choice of method and to its potential for solving problems of any specific sort.

Exercises

1. The following excerpt from Shakespeare's "Twelfth Night" has been stripped of punctuation, capitalization, and line divisions, as if it were a Medieval text instead one from a somewhat more modern era:

   oh mistress mine where are you roaming stay and hear your true loves coming who can sing both high and low trip no further pretty sweeting journeys end in lovers meeting every wise mans son doth know what is love tis not hereafter present mirth hath present laughter what's to come is still unsure in delight there lies no plenty so come kiss me sweet and twenty loves a stuff twill not endure.

   Without looking it up in a standard edition, edit the text by dividing it into lines (hint: start with the rhymes), punctuate it, and comment, as a philologist would, on at least two phonological features, two which are morphological, two lexical, and two syntactic. What can the rhymes tell us about pronunciation in Shakespeare's time?

2. Below are a group of first person singular imperfective verb forms of Modern Greek juxtaposed to their perfective counterparts. With these data, you must reconstruct the perfective forms in their underlying historical state upon which the application of ordered diachronic rules will yield the modern perfective forms given below. In this problem, as in others dealing with internal reconstruction, it is important that you identify morphemic constituents correctly.

	Imperfective Aspect		*Perfective Aspect*	
1.	arxizo	I am starting	arxiso	I start
2.	klevo	I am stealing	klepso	I steal
3.	anigo	I am opening	anikso	I open
4.	prosexo	I am watching	prosekso	I watch
5.	grafo	I am writing	grapso	I write
6.	ktizo	I am building	ktiso	I build
7.	pleko	I am knitting	plekso	I knit
8.	ðyalego	I am choosing	ðyalekso	I choose
9.	kovo	I am cutting	kopso	I cut

3. Reconstruct the plural forms of Portuguese. In this problem the Portuguese spelling of the forms – which in part reflect an older stage of Portuguese – are given to the immediate right of the forms in phonemics for your further information. The transcription /y/ indicates a palatal glide (often transcribed as /j/). Note that the acute accent here indicates stress.

	Singular		*Plural*		
1.	/favór/	favor	/favóris/	favores	favor
2.	/krúz/	cruz	/krúzis/	cruzes	cross
3.	/kanál/	canal	/kanáys/	canais	canal
4.	/papél/	papel	/papéys/	papéis	paper
5.	/paúl/	paul	/paúys/	pauis	swamp
6.	/ariból/	arrebol	/aribóys/	arrebóis	surroundings
7.	/kór/	côr	/kóris/	cores	color
8.	/karnavál/	carnaval	/karnaváys/	carnavais	carnival
9.	/baríl/	barril	/barís/	barris	barrel
10.	/brazíl/	brasil	/brazís/	brasis	redwood

4. Reconstruct all the fricatives and nasals in Proto-Burmese and show the correspondences. Disregard the supersegmentals. What do you believe the Maru no. 6. form would have been had it survived? Do not look for conditioning.

	Burmese	*Atsi*	*Maru*	
1.	qwêi	sùi	sā	blood
2.	qéI	s*ît	s*i	die
3.	qa?	sat	sé?	kill
4.	qau?	s*u?	s*ók	drink
5.	ăqê	sìŋ	saŋ	liver
6.	qán	s*ám (knife)	–	iron
7.	aqi?	sik	sák	new
8.	ăqâ	s*ò	s*ō	meat
9.	qôu?	sut	–	wipe

5. Reconstruct the consonantal roots of Proto-Semitic from the Semitic languages given below. Note that typical of Semitic is the discontinuous consonantal root morpheme within which vowels alternate, thereby changing the grammatical form of the morpheme. For example, Arabic /bent/ 'girl' vs. /banat/ 'girls'. The discontinuous root here is b-n-t. Note also that the transcription ḥ indicates a voiceless pharyngeal fricative and t*, d̲ indicate voiceless and voiced interdental fricatives respectively. The transcription k̲ indicates a voiceless velar fricative; b̲, a voiced bilabial fricative; and j, a palatal glide. Disregard the -un of North Arabic which is a case ending. It is of interest to us, that among the Semitic languages, North Arabic is considered the most conservative. Do not look for conditioning.

	Akkadian	*Hebrew*	*Aramaic*	*North Arabic*	
1.	imēru	ḥmōr	ḥmārā	ḥimārun	donkey
2.	uznu	ózen	udnā	udnun	ear
3.	s*ūru	s*ōr	taurā	taurun	bull

4.	eblu	ḥébel	ḥablā	ḥablun	rope
5.	ūmu	jōm	jaumā	jaumun	day
6.	līlātu	lájlā	leljā	lailatun	night
7.	s*ūmu	s*um	tūmā	tūmun	garlic
8.	zaru	zākār	dekrā	dakarun	man

For further investigation

The discussion of phylogenetic approaches to establishing language families is part of a broader approach to what has been called 'mega-reconstruction'. Greenberg (1987), for example, proposes a reconstructed family for indigenous American languages with only three branches. In addition to looking at Greenberg's own work, find reviews and review articles reacting to the proposal (start with Greenberg et al. 1987 and Campbell 1988). What are the objections to Greenberg's reconstruction (look at both the method and his resulting proposal)?

CHAPTER 10

Causation, prediction, and final remarks

1. Introduction

This last chapter will serve several purposes, although all the sections share the common goal of broadening the context for understanding the material in the preceding chapters. This section will provide a summary of these chapters in order to point out the commonalities among the various aspects of language change. In subsequent sections, we will continue to look at what we might call the big picture: the role, if any, of prediction (Section 2), what might be called the most fundamental causes of change (Section 3), and, to conclude the volume, a return to some thoughts on Language (Section 4).

A quick review of the organization of the book reminds us that after two preliminary chapters on the nature of Language and the nature of change, the next five chapters examine the diachronic side of each of the basic components of a language: the lexicon, phonetics, phonology, morphology, and syntax. In each case, the emphasis is two-fold: (1) mechanisms of change (what are meaning/sound/grammar changes in specific languages and how can we describe them) and (2) general considerations of how human cognition interacts with Language and its development over time. Subsequent chapters address the interaction between variation and what can be called definitive change and, finally, the methodologies of historical linguistics, that is, what processes the linguist uses to arrive at conclusions about how and why Language changes. We will broaden the discussion by looking at what generalizations can emerge from the ways in which change takes place in the individual components of Language.

1.1 Generalizations about change and cognition

The most linguistically crucial cognitive function, one that informs our capacity for both comprehension and production, is categorization, the propensity for making sense of the universe of input to the brain by organizing into mental categories the overwhelming amount of input we receive at every moment. More specifically, human language function depends fundamentally on what Lakoff (1987) named semantic (or radial) sets of meanings, categories which are organized around a central meaning or best instance of the unit being thus defined. Remember, though, that the action of categorization as a cognitive function itself does not change, certainly not in the

time depth of linguistic (as opposed to evolutionary) development. Rather, the subject matter of categorization, the material itself and the ways in which this material is organized within the semantic set, is what changes over time. Members of a given set disappear, appear, or becoming more or less central within the set. Preliminary examples come from the realm of oral input. A sound may disappear at the end of a word or appear inserted at the beginning or medially; it can also be palatalized or nasalized without changing its phonetic category. When the sounds in question play a role as phonemes in a given language, the question of categorization becomes more important if one accepts, as is the case in this volume, that each phoneme constitutes a category (parallel to semantic categories) of its own. Modifications may be phonetic, but the appearance or disappearance of a phoneme changes the phonological system of the language in question.

When we turn to the lexicon or the grammar, that is, to units with semantic content of their own, a second important principle emerges: underlying these radial sets is the meaning of the members of the category. While this seems to be a clear and sometimes even unnecessary statement for the lexicon, it is less obvious and deserves more attention when it comes to grammar. Constructions are meaningful units and changes in the structure of grammatical entities are dependent on the same sorts of categorization modifications as are changes in the meaning of a word. A substructure may become more or less like the prototypical or central member; it may also be added to the set as a new use of the construction or may disappear, either completely or to become a member of another category.

Another very important point is one that should be obvious by now: change occurs throughout all languages over time. If we look at any contemporary language, we would have difficulty finding any component (sounds, words, grammar) where no change has occurred over the last centuries; in fact, it would be a rare individual sound or meaning that had remained constant during the span of time for which linguists can examine language history.[140] Further, change interacts with variation in all linguistic components. Language can be said to exist in a state which Martinet (1984) calls 'dynamic synchrony'. What is brought to light by that phrase is the notion that variation in language is pervasive; languages must be studied as ever-changing systems when we look at the range of usage across speakers and circumstances.

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140. As was said in several chapters above, some units are less prone to change and others more so; nasal and liquid sounds often remain the same for longer periods of time while obstruents in the vicinity of palatal elements are very apt to change. In the lexicon and grammar, core meanings may remain longer than syntactic variants which are more metaphorical and thus further extensions from the prototypical meaning. We are speaking of trends, though, and not absolute certainties in any case.

As a way of underlining that idea, think of the distinction between a living and dead language. A living language is one which has native speakers, that is, children for whom it as their first language. In addition, it is also one which, speaking anthropomorphically, always stays dynamic, it keeps moving in the sense of bringing in new variations which may or may not, in the end, be accepted as part of a stable core. A dead language, on the other hand, is only learned as a second language. It remains almost entirely the same over time since it exists primarily for a narrow set of purposes or in only some specific situations, almost always primarily in written form.[141] One exception to its primarily written status is that it may be self-consciously spoken by non-native speakers (there are, for example, on-line forums and university Latin clubs which meet to converse much like modern language clubs).

When it comes to living languages, the line between variation and change is not precise. As was said above, a living language is always in a state of flux. Variation may be identified by speakers as dialectal difference (southern Americans more often say *hey* [he] as a greeting rather than *hi* [haj]), a social difference (*going to* is more formal than *gonna*) or just as an oddity ('Bill insists on saying *zoup* [zu:p] instead of *soup* [su:p], but that's just Bill's way…'). Variant forms may disappear or persist over long periods as such, but at certain times persistent ones may become real changes when competing forms or structures disappear more of less completely. We can talk of this kind of change as being influenced by generational differences or dialects.

Finally, in changes across all components of Language, we can see specific kinds of order, especially once the change is complete and we, as linguists, look back. Looking back, it is worth noting, does not necessarily mean over long periods of time; the next section will discuss prediction, but here let it be noted that some patterns become clear very soon after a change has taken place. It has been well established, for example, that the sounds of a language tend to end up, often after a series of what seem to be isolated changes, with a pattern shift; the articulation of stops in Hawai'ian moved, in separate moves, further back in the mouth (/t/ > /k/ and /k/ > /ʔ/) which can be analyzed after the fact as a chain of changes. For other reasons, sounds will raise or lower with the resultant (but not intentional) wider distance between sounds, thus maximizing acoustic strength and, with it, better comprehensibility.

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141. It has been proposed that Latin is not really a dead language since it is used in the Vatican and by the Roman Catholic Church; a recent Pope used twitter to communicate and tweeted in Latin. While tweets are written and read, they use oral-like language in that the register is a very informal one. Not only are there no native speakers, but all additions to the language (and indeed there are words for 'car', 'computer', and so on, entities which did not exist at the time when the language evolved into the Romance languages) are self-consciously coined, not borrowed or otherwise derived naturally. Some Latinists consider this coinage a kind of intellectual game!

Other patterns emerge in the study of morphological and syntactic change when viewed through a typological as well as diachronic lens. It is this way that the interaction of word order (Verb-Object or Object-Verb) with other syntactic units can be perceived; remember that VO patterns most frequently with preposition + object (English *to New York*) and OV with object + postposition (Japanese *Tokyo ni* 'Tokyo to', therefore English 'to Tokyo'). Morphological patterns can also be perceived by looking back. So, finally, can some instances of the development of morphological units from syntactic constructions; the often-cited Romance future endings arose from forms of the Latin verb *habere* 'to have' following an infinitive to express an obligation to do the action designated by the infinitive.

Change, therefore, takes place in the language through the cognitive functioning of speakers and particularly as a result of our propensity to categorize linguistic units as we do other kinds of input, both physical and mental. These changes occur crucially through changes in the semantic content of linguistic categories, be they lexical, morphological, or syntactic. The changes can be identified and described in retrospect, although the patterns may not seem evident while the changes are actually occurring. What might further happen is that such kinds of changes, once recognized, may be predicted elsewhere; the next section will be devoted to this notion.

2. The potential for prediction

It is often said, usually as a warning to non-linguists or beginning students of historical linguistics, that language change cannot be predicted; historians of language are trained to describe and attempt to explain what happens over past time, but not venture guesses into what will occur in the future. Once we look more closely at the subject, including consideration of some well-established ways of thinking about language change by linguists, it becomes possible to point to some aspects of language which could allow for prediction, albeit speculative to some extent and calling out for great care in application. Perhaps the most obvious of these is the uniformitarian principle (see Chapter 2) which states that changes in the past, including the undocumented past, are, in some ways, of the same type as those which have been studied in documented history or even projected from contemporary variation. We can predict, for example, that a voiced final consonant is likely to become voiceless or that an intervocalic consonant is likely to become voiced, but not when or even if at all. We can say that we know two things: consonants tend to change in voicing under certain conditions and these conditions frequently (but not always) trigger specific modifications. The key here is that we can state a general probability for one or another change to occur, without any certainty for any given language at any given point in its existence. Other approaches to language change are probably weaker predictors than

uniformitarianism, but they are more specific contexts for change and thus merit further examination.

2.1 Aspects of change favoring prediction

2.1.1 *Drift and typological co-occurrence*

Drift is the term used for the concept that a language may follow, over time, "the unconscious selection on the part of its speakers of those individual variations that are cumulative in some special direction. The direction may be inferred in the history of the language" (Sapir 1921: 155). In other words, without conscious consideration (virtually never at play in language change), speakers tend toward specific changes which fit into the overall direction in which some group of features has been moving. The notion of drift is quite abstract and best understood through the examination of data. Sapir provides an elaborate example with his description of the disappearance of the English relative and interrogative pronoun *whom*, which is rarely used today in spoken English and is increasingly infrequent as well in writing. The somewhat archaic sounding pronoun is a reminder that English was once a fully morphologically case-marked language, with the final /*m*/ a marker of objective cases in the masculine. Over time the subject form *who* has largely replaced *whom* ('Who did you see?', 'The man who you met yesterday,' etc.), a change well underway a century ago when Sapir explored the question and now almost complete.

Sapir's contention is that *whom* stood out in the system of English pronouns since the only pronouns which are still differentiated in form according to case are all in the personal system; *he* and *they* as subjects and *him* and *them* as objects in a subcomponent of English grammar which also includes *she/her* and *I/me*. He proposes that we have evidence of drift going all the way back to Indo-European which had a very elaborate case system for all nominals, that is, in nouns, pronouns, and adjectives. Over centuries, Indo-European languages (at least some of Germanic, most of Romance) have abandoned morphological case, not as a single change but as a set of changes leading to the disappearance of case; this is drift.

There is no claim here that drift is fully a predictor of change. To remain with the same example, even within a sub-family where case morphology only remains in the pronoun system, some members of the family may still have cases marked on nouns and adjectives. Romanian is one such language, even though it participated in the general erosion of the Latin nominal case endings. Instead, the case endings on nouns and adjectives derive from post-posed demonstrative adjectives ('that', 'those') serving in transition as articles. We still find a case system in the modern language, just one arising out of another component of Latin, an innovation relative to the other Romance languages. If we look further in the Indo-European family, we find a reduced system in Germanic (English, German, Yiddish, and Dutch) and a still

rather well developed one in Greek and Slavic (Russian, Polish, Czech, etc.). But one can argue, as Sapir did, that it is more likely that a language or language family which has experienced considerable reduction in the case system will experience even more over time. This is so even if the immediate causes are not necessarily the same in all instances and may well take place at different times.

2.1.2 *Typology, grammaticalization, and cyclical change*

We can look at typology and grammaticalization theory as tools for prediction as well. Over many years of the study of change, certain patterns have emerged. In regard to typology, there is a tendency, as was said in Chapter 7, for certain structures to pattern together. With verb-final languages, for example, there are more instances of postpositions than of prepositions with the reverse true when the object follows the verb (Japanese *Tokyo ni* 'Tokyo to' as opposed to English *to Tokyo* where Japanese is normally OV and English VO). Where there is a mismatch (prepositions in the same language at the same time as OV basic word order), we might – cautiously – predict a change to postpositions or vice versa.

This seems to have been the case in the history of Latin (Lehmann 1974). where some of the particles attested in the earliest texts are postpositions, corresponding to a stage of rather strict OV word order Among them is *causa* 'because of' which even in later Latin follows its object. Particles which emerge later are more likely to precede their object, corresponding to less rigid word order overall. Eventually late Latin and the Romance languages have evolved to VO configuration with prepositions predominating. The fact that *causa* remains largely a postposition even in Classical and post-Classical Latin underlies the need for caution in predicting change using typological tools.

In very similar fashion, grammaticalization patterns can give rise to careful prediction. To review, the basic process of grammaticalization is that of lexically full words which become grammatical markers, both free-standing and affixes. We looked in Chapter 7 at various examples, viewed, as most language change is, from the point of view of the results. An example from Japanese might predict further modifications in the expression of sentence relations in that language. In that language, postposed particles indicate the function of nominals in a sentence:

(1) Toshi ga sensei o miru.
Toshi SUBJ teacher OBJ sees
Toshi sees his teacher.

While the origin of the particles is somewhat obscure, at least one theory is that they come from full interjections; the fact that they have been markers of sentence relations since the earliest attested Japanese makes it all the more difficult to hypothesize about their history. To be noted here is that they are written (in Japanese as in English

transliteration) as separate words, and are considered as such by naive native speakers. They are not stressed, however, and there is no juncture between the noun and the particle. In that way, they behave like unstressed clitics and may, someday, be understood and written as endings; this is, of course, something of a bold prediction. If it occurs, we can then say that these particles have followed the steps of grammaticalization from full words (at least reconstructed full words) to unstressed clitics, and then to suffixes (Shibatani 1990: 140ff has a detailed discussion of the history of these particles).

Related to grammaticalization is what Jespersen (1917) called cycles, for example the negative cycle, which was set out in detail for French in Chapter 7. There is a tendency, well studied in several daughters of Indo-European and observed as well in languages as diverse as Hebrew and Japanese, for negative expressions to be reinforced to emphasize the negativity (English *not a chance in the world, not for all the tea in China* and so on must be understood only literally if the negation is removed). Some of these expressions lose their emphatic force and either disappear or become broad expressions of negation (remember that French *pas* 'step' develops from *not a step* to the broad verbal negator meaning simply 'not'). At that point – and this is where the notion of a cycle comes in – another stronger expression replaces the one which may have weakened, generalized, or disappeared. While linguists cannot predict which expressions evolve in one or another way, we can be reasonably confident that this cycle will be perpetuated at least eventually.

2.2 Processes which do not allow prediction

2.2.1 *Emergence*

A current theory of how language is acquired is that of emergence, touched on in Chapter 1. According to this view, children do not learn language per se, but rather are born with the ability to analyze a large amount of input and, largely through the high frequency of repetition, can master the language they hear around them. Language change would emerge, therefore, from changes in frequency in adult speech (through borrowing, fashion, etc.) which might catch the attention of learners and change the grammar they are acquiring. Since it is hard to predict what the input to the child acquiring a grammar might be at any given time, it is hard to predict what changes might take place.

2.2.2 *Competition*

In similar fashion, when two forms or structures are in competition, it is hard to find ways to predict the outcome until such a time as one of the forms has truly become marginalized. To use a phonological example, American English speakers alternate between /ikʌnamɪks/ and /ɛkʌnamɪks/, both pronunciations of *economics*. Neither version has attained any particular value or has been narrowed in a speech

community of use according to any of the social markers (age, gender, race, or even professional contact with the word). We can predict, as the forms occur now, neither which on might prevail nor, even, if the competition will ever be resolved. Grammatical examples include hesitations (the language user's manifestation of competition) between certain past tenses like English *dove* and *dived* and, currently, between the past participles of the verb *to go*; while *he's went to the store* is considered incorrect, it enjoys high frequency and for less educated speakers or those using a more relaxed form of communication it may someday become the standard. Again, it is impossible to predict.

2.3 Factors of change for further exploration

Many other aspects of language change which have been set out in this text neither promote nor disfavor prediction. The introduction to this section included some words about uniformitarianism, a theory which in some ways is a predictor and in other ways cannot be. The predictive force of other factors as well call for further study,[142] including family affiliation, contact, and the role of frequency.

2.3.1 *Genetic affiliation*

The fact that languages are grouped in families may or may not predict the direction of change for any particular member. While some instances of change within a family could have been foreseen (as they are identified through a careful examination of the range of changes in the so-called sister languages), many cannot have been predicted except, perhaps, in a very loose way. Examples from the Romance languages will illustrate this point.

As has been said several times, Latin was an OV language; that is, in most declarative sentences, the object preceded the verb and the verb tended to be clause- (and sentence-) final. All of the daughter languages (those making up the modern Romance family) display a basic VO order. If linguists in the late Middle Ages and early Modern periods were making predictions based on the changes in the languages which showed full Romance features early on, they might have predicted a family change from OV to VO since early signs occurred in all the daughters.

On the other hand, Latin was also what is often called a pro-drop language; that is, the subject pronoun is often not expressed (whether it exists underlyingly in synchronic analysis and 'drops' or simply does not exist at all is a matter for one's

142. It may also be – and probably is – the case that we can never know with full certainty about the predictive force of any aspect of change. To do so, we'd have to look for early signs of change in every language and language family, though, even if such an undertaking were possible, we still would have been looking backward at what happened and not forward to what will happen.

theoretical belief); subject information, including person and number, are encoded in the endings of the verbs. When we look at the most commonly spoken of the modern Romance languages, we see that Spanish and Italian are also pro-drop, but that French is not. There is an explanation in the phonological development of the languages in question: briefly, French underwent more sound changes than its sister languages and the distinctive markers of person and number were largely neutralized for most verb forms, while Spanish and Italian are more conservative in that sound changes were not as far-ranging. The result is that the emergence of obligatory subject pronouns in French and the lack of such development in Italian and Spanish could not have been predicted from the fact that they are all Latin-based languages.

Prediction of specific changes on the basis of shared ancestry is therefore not a sure thing. If we look at some features of a language family we can see that there might have been a degree of certainty in trying to foretell that if one daughter changed in a certain way the others would as well, but this is not at all the case apropos of every – or even most – structures.

2.3.2 *Contact*

In the same way, contact can give rise to some predictions, but usually very broad ones. It is probably safe to say, as was discussed in Chapter 8, that contact will give rise to new lexical items, often in both languages involved in the contact. An incoming language may adopt geographical terms and words for physical items or social concepts not in that language. The language previously in place may also adopt terms for items and concepts which are unfamiliar. All of this is rather safe in foretelling the results of contact and there are many examples in Chapters 2 and 8. On the other hand, even though some change might have been predicted to remedy the Old English conflation of the singular and plural feminine subject pronouns (*hi* was the shared form), it could not have been foretold that English would borrow the plural forms from Norse after the Viking invasions, ultimately giving the modern language the forms *they* and *them*.

2.3.3 *The role of frequency*

Finally, when it comes to prediction, frequency produces mixed results. What seems to be the case is that a certain level of high frequency (if it is not too high) will predict change, while very high and very low frequency will not. Forms of the verb *to be* in many Indo-European languages are very irregular as a result of their very high frequency. The incidence of those forms in normal speech and writing is so great that people do not make errors or let variation enter the language; it can be said that there is simply no respite for these forms. In the same way, the plural of *child* in standard English has not changed (although some dialects may have *childs* in place of *children*) because of the number of times the word is used.

At the other end of the continuum are technical terms and other very low frequency words which do not change because, contrary to the high frequency ones, they are not used often enough (either in the speech of any individual or in the speech of enough members of the speech community) for change to take place. The plural form *oxen* illustrates this tendency; the animal does not figure largely in modern American English culture or speech and the plural, when used, does not seem to be changing. The same can be said for the verb *smite* 'to strike'. Anyone who uses it will know that the past tense is *smote*, but it is used very rarely and mostly in deliberately archaic contexts like sacred writings.

In the middle of the range, however, are many plurals which are regularizing (and the regularization can be cautiously predicted) because they are in a middle frequency zone. Again, in American English, *stadiums* has pretty much replaced *stadia* and *forums* is used rather than the etymological *fora*, with the result that one might predict the spread of *criterions* for *criteria*, although the former form is largely still considered an error.

2.4 Summary

To sum up this section, if we look at the question of prediction, we can review a good number of approaches to language change, both processes (uniformitarianism, grammaticalization, typological and cyclical force) and the ways in which language occurs in the mind and mouth of users (as the results of both contact and frequency). The ability of linguists to predict are uncertain at best and, even where one calls upon prediction, it must be used with caution and with the full understanding that changes sometimes never start whatever seem to be promising circumstances or may fail to spread through the speech community.

3. Fundamental causation

The subject of causation is, like prediction, tricky for the study of language change. It is important to note that the line between what brings about language change (true causation) and pinpointing what has occurred and how (description) is not a firm one. Is, for example, contact a cause or a description as a factor in change? Further, what about basic phonetic events like assimilation? Keller (1994) talks about what change is not; see above here in Chapter 8. It is neither a purely natural phenomenon like an earthquake nor, the vast majority of the time, the result of intentional linguistic action on the part of language users. But Keller's balance between communicative conservatism and innovation to make a point is just the beginning. This section will attempt to propose a certain number of further motivators for change which may be considered at least as much in the realm of causation as that of description.

Another important point was made by Anttila (1989: 179) who opened his chapter on causation by stating: "In short, since everything changes, it would be truly phenomenal if language did not".[143] Anttila is speaking about Language as both a biological system (specifically in regard to phonetics) and a social phenomenon. But human cognition cannot be excluded from any the discussion of the nature of Language; unlike social factors which may be said to reside in the broader speech community, cognitive and biological factors must be associated with the individual. The following sections will suggest some basic causations.

3.1 Biological causation

What can be called biological causation refers most often to changes in the articulation and perception of sounds, either in isolation or in sequences. The articulatory system, in particular, depends on human physiology, with the result that there are certain sounds which do not exist in any language, an apico-uvular trill, for example, or a labio-dental sound with the involvement of the lower teeth and upper lip. The former is an impossibility because the tip of the tongue cannot reach backward in the mouth all the way to the uvular; the latter is possible in the sense that speakers can achieve the configuration, but is never attested because the upper teeth are usually slightly outside the lower lip. Other biological factors which may restrain change include the capacity of human lungs; there is just so much that can be said on one breath and syntactic minimal phrases usually fall within that limit.

3.2 Social causation

Social causation is linked to the human tendency to innovate for non-linguistic reasons which can be summed up as a desire for social success of all kinds (fitting in to or standing out in a given group, rhetorical flourish, jocular effects, and so on). We thus both actuate and spread modifications without usually intending to change language; speakers have other goals in mind like making an impression, expressing admiration, or wanting to seem to be from the same or other social, professional, or economic stratum (Chapter 7 discusses this in more detail). Motivating all of these causes of language change is the nature of the culture (ranging from international through national to very regional) in which the speaker lives or to which s/he aspires. A French accent (if imitated properly) might earn positive attention since there is admiration for French culture in much of North America; sounding like a gangster from New Jersey may have the same effect in other circumstances, even in the same community! But it must be kept in mind that the same linguistic feature may have a

143. This section is based on Anttila (1989), Chapter 9.

different effect under other circumstances. Upper-class British English (or American perception of it, in part through television series depicting early- and mid-twentieth century nobility) is r-less and also pronounces -ing as /ɪn/ instead of /[ɪŋ/. Both these features are treated with much less (if any) respect when the social context is that of the American south.

A second social cause emerges from the need for successful communication in another sense. Neither human hearing nor articulation is perfect, with the result the interaction between speaker and hearer requires, at times, a certain level of redundancy. When we most feel the need to communicate clearly, with speakers of other languages for example, we add extra features to the sounds we pronounce, exaggerating the articulation. We may also undo contractions, saying /dontju/ in place of /dontčə/ *don't you*. This example is synchronic, of course, since native speakers of English (and many high-level non-native speakers) control the amount of articulatory redundancy they can produce. But the need for redundancy shows up as well in the lexicon, diachronically as well as synchronically. The word for 'today' in Old French was *ui* /ųi/, directly derived from Latin *hodie* 'today'. Since /ųi/ might have been confused by hearers with *ier* /je/ 'tomorrow', another single syllable composed of a glide and a high front vowel, redundancy was added in the form of the phrase *aujourd'hui*, literally 'on the day of today'. Further lexical support for this phenomenon is found in modern colloquial French where one might hear *au jour d'aujourd'hui*, etymologically 'on the day of on the day of today' and roughly equivalent to the emphatic 'precisely/exactly today'. It can be argued that the redundancy is a social phenomenon in the sense that it arises from the interaction of speaker and hearer and the need for a high level of clarity to ensure a successful interaction.

3.3 Cognitive causation

Both the sections on biological and social causation are rather short. Most of the motivations for language change reside in the human brain, in our ability to perceive patterns, form categories, and make comparisons between individual items, which is the basis for categorization. We can, in fact, extend this last cognitive function since human beings also find patterns within entire categories in order to arrive at higher order schemas.

3.3.1 *Phonological patterns*

What seems to be a driving force in phonological patterns is a kind of instinct about what patterns are; human beings have a sense of symmetry and balance which functions here. Two examples will underline this notion. First, when we look at sound change, its unconscious motivation may be to fill what may be called phonological holes, that is, gaps in the phonological system where sounds are somehow felt to be

crucially missing. In the history of the Austronesian language Hawai'ian, as was discussed above in Chapter 4, a change took place from Proto-Polynesian to the modern language by which /t/ > /k/ and /k/ > /ʔ/, that is, voiceless stops moved further back (the English word *taboo*, which comes from Polynesian, is *kapu* in Hawai'ian). There seems to have been an unconscious sense that once /k/ moved further back, there was created a gap in the stop system which was filled by a further change.

In similar fashion, speakers not only somehow perceive gaps, but also basic patterns. Languages tend toward articulatory balance, also discussed in Chapter 4. The result, if one looks at a large number of the world's languages, is that two-vowel languages, which are very rare in any case,[144] will have one high and one low vowel, but not, for example, two front vowels or even one high and one mid vowel. With three vowels, the tendency is the triangle, one high front, one high back, and one low. This tendency is dynamic as well; if there are sufficient changes in the vocalic system of a language, there may be a blurring of the distance between the vowels, but eventually the distance will widen again resulting, most often, in a symmetrical pattern.

3.3.2 *Grammatical patterns*

Markedness is a cognitive function which translates into both linguistic and non-linguistic phenomena. Culturally, a tuxedo worn on the beach is highly marked, while a bathing suit is not. The converse is also true, a bathing suit would stand out at a formal reception (dress code: black tie) while a tuxedo would not. Linguistic markedness works in a very similar way. In a language which has a basic VO pattern (like English where the verb precedes the object in a basic (unmarked) sentence), an OV utterance stands out: *I like him* can be compared in this respect to *Him I like*. These patterns (VO and OV) as was said in Chapter 7, imply as well certain other structures (prepositions or postpositions, relative pronoun + relative clause or relative clause + relative pronoun, etc.). When one of these related structures changes in word order, the tendency is to move toward the unmarked, where markedness may be based on the order of basic sentence elements (V and O) or on the order of other, related grammatical units. In the history of Latin, for example, the OV pattern was accompanied by more postpositions, but by the classical era prepositions were prevalent enough that the once unmarked postpositions become rare and highly marked. As the early Romance languages developed VO word order, the relationship between these relationship markers (pre- or post-positions) realigned so that the unmarked relationship between basic order and prepositions was restored. If we think of cognitive functions like the recognition of

144. Ladefoged and Maddieson (1996) mention Margi (Chadic family), Arrernte (Australian), Ubykh and Abkhaz (both Caucasian). In all these cases – and it may be a definitive list – the two vowels are differentiated by height.

the salience of some elements of the grammar as opposed to others, a judgment which can change over time, there is nothing mysterious about these changes: human beings compare, view various elements as marked (or unmarked), and may, sooner or later, bring them into the same basic categories of sentence type. These basic word orders may be thought of as grammatical schemas which influence many of the other structures within the same language. Remember, though, that we are talking about tendencies and potential for change; many language speakers tolerate marked sounds and structures over many generations.

Iconicity is another human cognitive function which may affect language and language change. The principle of iconicity is that some aspect of grammar will reflect some aspect of the world, either external or cognitive. One of the simplest examples is sound symbolism, the tendency in many languages to express small things with high front vowels and larger things with low vowels; birds in English *peep* and large animals may *roar*. Among grammatical examples which have been proposed is the fronting of elements of a sentence ('Him I like' in place of 'I like him') where the less usual (and more marked) word order correlates with the importance of the information expressed by the grammatical object, either for emphasis or contrast. Chinese, to cite another synchronic example, only allows conditional sentences with the condition preceding the result (*if…then*), the logical temporal order. English, on the other hand, allows both *if…then* and *then…if.* We can say either 'If I were rich, I would travel' or 'I would travel if I were rich'. The temporal order calls for wealth first, before it can be spent in leaving home, so Chinese only allows the first of those two formations (Tai 1985 and other articles in that volume).

One of the possible, although not obligatory, forces in grammatical change is toward iconicity; it is an occasional motivation. Arguments have been made (for example Wurzel 1989) that iconicity is the underlying force leading to the regularization of morphological paradigms; the basic point is that units which are semantically more alike tend to become formally more alike as well. This approach provides a motivation in human cognitive functioning for analogical change. Examples in Chapter 6 are relevant here; consider the development of Latin *amare* into French *aimer*, with both the Latin and modern French paradigms displaying regularity in that the verbal stem is never modified from form to form. Remember, though, that the intervening Old French paradigm showed an alternation of /a/ and /aj/ in the stem (*aim* 'I love' as compared to *amons* 'we love'). The subsequent change to full regularity in the modern stem can be seen, then, to be iconically motivated.

3.3.3 *Humboldt's universal*

Finally, one further motivating principle must be considered. Known as Humboldt's Universal, it hypothesizes a human tendency, all other things being equal, to prefer a symmetry between form and meaning, with each form having one meaning and each

meaning expressed by one form. One manifestation of this principle is that there are very few true synonyms in any language. Rather, speakers try to find ways of differentiating similar forms. Consider *rage* and *anger* in English which, native speakers would say, have some differences in meaning or usage; *rage*, as a quick attempt to capture this difference, is a more intense emotion than *anger* and often evaporates more quickly; we express the concept of maintaining anger more frequently than maintaining rage. When synonyms arise from regularization, so that there is a regular and an irregular form, both of which persist, one of the meanings may be modified. A well-known example is that of analogical comparative adjective formations: *older* becomes the unmarked comparative of *old* while the etymological *elder* is narrowed to designate a sibling (*an elder brother*) or a religious official who participates in the management of a place of worship (*a church elder*). In all these cases, change brings speakers closer to the ideal of one form/one meaning although there are many counterexamples in every language in the form of near synonyms, both lexical and grammatical, which persist over long periods of time.

3.3.4 *Summary: Cognitive functioning*

Section 3.3 points out the various ways in which human cognition is to be taken into consideration in the study of language change. As human users of language, speakers and hearers, we make comparisons between linguistic units and, most crucially, categorize them as those which go together and those which do not. This is not solely a linguistic matter; we compare and categorize musical units (melodies, songs, larger pieces) human faces, and even long thin things lying on the ground (is this a snake or just a branch? Do I need to be ready to defend myself or just walk by?). Many of the subcategories of cognitive functioning mentioned above fall into the general notion of categorization: Humboldt's Universal certainly does, as do pattern formation and recognition and iconicity. If we cannot compare and classify, we cannot generalize, a necessary task for pattern formation. If we cannot conceptualize a linguistic pattern, we cannot align it with some real-world pattern and somehow apply iconicity to, for example, word order. In each of these cases, it is the human mind, making sense of the exterior universe as well as the interior conceptual and linguistic universe, which brings about change.

Work by Elizabeth Traugott (for example 1982) is relevant here. It provides examples of development over time of various lexical items' root meaning, external to the speaker, extending to epistemic meaning, with meaning based on human thought patterns, and from there to discourse meaning, a way of binding information systems through linking terms. One of her best-known examples is the history of the adverb *even*. As an external relational word, it designates an equality, a surface with equal height throughout (consider a tranquil lake or even the ocean on a windless day) or equality in the number of items in two piles so that they reach the same measure on

a vertical scale. As an internal, mental notion, it is applied, for example, to competing arguments; one might, for example, decide that the score in a debate is *even*. Nothing about arguments can be piled up or measured, but a mental judgment (that is measurement of comparative achievement) has taken place. Finally, *even* occurs as a discourse marker, as a contrastive element which marks that the previous situation and the one to be discussed now are to be taken as some sort of equals: 'even when he had finished speaking, there was silence'. The implication is that silence prevailed during his speech and the lack of noise can be compared to an equal lack of noise when speech has ceased. This pattern occurs frequently in the development of lexical meaning as well, occasionally, for grammatical structures; consider the example drawn from Sweetser (1992) on the expression of causality in Chapter 3.

In all these cases, what is most important is that language is very much part of human cognitive functioning. A text such as this one on change does not go into a great deal of detail about first language acquisition, but it is safe to assume, as was pointed out in Chapter 1, that children possess the same human mental structures, leading, as their language emerges in early childhood, to their recognition of salience or comparatively greater importance of some parts of the physical and mental landscape, comparisons among those entities, and their categorization. It is here that change can exist, not in the mental structures themselves (certainly not in human historic time), but rather in the ways in which items are assigned salience, patterns are constructed, and categories built and destroyed through comparison and awareness of the outside and interior worlds.

4. Language as a system

The immediately previous section of this chapter brought us back to the ideas which were initially set out in Chapter 1, most importantly the idea that Language has a dual existence as social (exterior to any one user) and cognitive (well settled in the mind of every user). We have added a third dimension, most often relevant for sound, that of the physical realm. Language itself is constrained by the culture it exists in, by the limitations on the human brain, and on the constraints placed on speakers and hearers by human physiology and its interaction with the physical universe. Change in Language cannot be attributed to change in human physical or mental structures because, as has been said already, these structures change in evolutionary time, not historical or even imaginable prehistoric time; *homo sapiens* emerged millennia ago, long before any documentation of language and far too long ago for reconstruction to be a viable tool.

The focus thus far has been on the language user, the speaker and hearer whose physiology, cognitive systems, and social existence shape the way language is produced and perceived; it is by these agencies that it may change over time. The very nature of

Language itself is at play as well, however. It must be a phenomenon (to use as abstract a term as possible) that is capable of changing, in part because of its very nature and not just because of the many ways in which it is used by speakers and hearer. The system must, in theory, have built into it the feature of flexibility, or human physiology and cognition (in the sense of mental structures) would, by their very immutability, have no effect on Language. Clearly this is not the case: there is something about the flexibility of the system which interacts with those social and cognitive aspects of human beings, allowing for variation over relatively short periods of time and resulting in change.

Let us consider what about Language allows for its flexibility and openness to change. At first it seems like a quite rigid system; speakers may be aware of new words or meanings, but perceive grammar as a set of permanent rules, applied either correctly or not, but not variable. If, on the other hand, we look more closely, what is revealed is not a monolithic, fixed system, but rather Martinet's *synchronie dynamique* 'dynamic synchrony,' a perpetually large number of variations in a state of equilibrium. It is this state of equilibrium which masks for the speech user how variable the system really is, but variation is always present, for all the reasons outlined above in Section 4 (and, actually, throughout this book), so that, through any shift in the balance of variations, the potential for change may occur.

To conclude, we can note that complexity does not reside solely in Language itself, though it is clearly a complex system in constant variation. The complexity resides as well in the subcomponents of Language and in their interactions; sounds, forms, and grammatical structures seem to be distinct units, but have a great deal of influence one over the other, both synchronically and diachronically. Finally, human cognition is both complex and variable, seeking to give meaning to the exterior and interior worlds in which we live. It is as this meaning, in the broadest sense, shifts, as it does constantly, that languages – and Language – do as well.

Exercises

1. As was said in the section on prediction, Japanese uses particles to mark the function of words in a sentence (Toshi is a masculine first name):

   a. Toshi ga (subject)
   b. Toshi o (direct object)
   c. Sensei ni rei!
      Teacher in the direction of bow
      Bow in the direction of (the) teacher!

   Today they are written as separate words and are considered to be so by naive native speakers of Japanese. They act, however, as clitics, never stressed and never

occurring except after the nouns whose sentence functions they indicate. Why would we predict that they will eventually become endings, like the case endings of other languages? Why is the prediction not certain?

2. Keeping in mind that prediction is uncertain, what is going on in the language around you that might (MIGHT) become a change rather than a variation?

3. In reviewing the material in this text, can you propose changes where causation is mixed, that is, some combination of physiological, cognitive, and social factors? Not all three factors will necessarily play a prominent role all the time, but two of the three may interact in many of the changes discussed here.

4. At the beginning of Chapter 2, the term 'uniformitarianism' was mentioned and briefly explained. Now that you have considered a range of changes which languages undergo over time, how might you characterize the scope and limits of this hypothesis. Consider physical, cognitive, and social factors in language change in developing a response.

5. Return, finally, to the image of chipping away at what cannot change to find what can, the story of the sculptor and his view of how one produces a statue of an elephant which opened Chapter 1. What have we chipped away and what emerges as the true stuff of language change?

For further investigation

Where do we go from here? What discovery would modify the nature of how language change is studied (use your imagination!)? Lacking a major break-through, what paths should diachronic linguistics take to strengthen and further elucidate its findings? And, lastly, what are the chances – and why – of reconstructing "proto-world"?

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This textbook serves a dual purpose. It is, first, a comprehensive introduction to historical linguistics, intended for both undergraduate and graduate students who have taken, at the least, an introductory course in linguistics. Secondly, unlike many such textbooks, this one is based in the theoretical framework of Cognitive Linguistics, a semantics-based theory which emphasizes the relationship between cognition and language. Descriptions and explanations touch on cognitive, social, and physiological aspects of language as it changes across time. Examples come principally from Germanic (English, German, Yiddish) and Romance (French and Spanish), but with some exploration of aspects of the history of other languages as well. Each chapter concludes with exercises based on material in the chapter and also with suggestions for extensions of the content to wider issues in diachronic linguistics.

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