

# 1 Introduction

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The diversity of languages, as they have been developed and adapted, is a patent fact of life that cries out for theoretical attention.

(Hymes 1971: p. viii)

## 1.1 Preamble

Humankind today speaks about 6,500 different, mutually unintelligible languages. These languages belong to at least 250 identifiable large families, though there are various proposals to group these into still larger units. Within these families, there are languages that use a dozen contrastive sounds, and languages that use 100. There are languages that place the subject of the sentence before the verb and languages that put the verb first. There are a few that place the object before either. Some languages mark the relationships between the constituents of the sentence, or between the sentence and the world, by extensive inflection, whilst others use almost none, and rely on independent particles and the order of words.

This book is an investigation of these types of diversity in human language. For each of the different kinds of diversity, we can ask a number of interesting questions. First, why is there diversity at all? Secondly, why is there as much diversity as there is, and why is it distributed as it is and not in some other geographical pattern? The answer to the first question lies in the nature of human language and the way it is used, while the answer to the second lies in the study of history and prehistory, for the geographical distribution of linguistic diversity is a product of the expansions, movements, and organization of human societies through time. This book sets out to tackle both the first and the second questions.

Interest in linguistic diversity as a topic has been growing over the last few years. For the subfields of linguistic typology (Comrie 1989; Croft 1990), linguistic prehistory (Nichols 1990, 1992, 1997; Renfrew 1991; Bellwood 1997), and language endangerment (Robins and Uhlenbeck 1991; Grenoble and Whaley 1998), diversity is the crucial variable to be explained. However, each of these literatures concerns just one aspect of linguistic diversity—the grammatical, the temporal, or the social—and these various factors have never been brought together in a single framework. Nor is the phenomenon of diversity always

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pursued right back to its ultimate causes, with many investigations instead content to note correlations between two linguistic parameters or between a linguistic one and a social one. A broad theory of diversity is thus still needed.

To an earlier generation of linguists, diversity seemed so natural as to require no explanation. For Edward Sapir, for example, language was

a human activity that varies without assignable limit . . . from social group to social group, because it is a purely historical heritage of the group, the product of long-continued social usage. It varies as all creative effort varies—not as consciously, perhaps, but none the less as truly as do the religions, the beliefs, the customs, and the arts of different peoples. Walking is an organic, an instinctive function . . . speech is a non-instinctive, acquired, ‘cultural’ function. (Sapir 1921/1970: 4)

Purely cultural inventions, such as legal systems and currencies, are of course different across different societies, as they have been developed separately at different times and under different conditions. Thus diversity requires no special explanation. However, most linguists today no longer believe that language is a cultural invention. On the contrary, it is held that the production, perception, and acquisition of language are controlled by highly specialized circuits in our brains that are common to all normal members of the species, and are probably specified in our genes to some extent. For modern linguistics, then, ‘language is no more of a cultural invention than is upright posture. . . . Instead, it is a distinct piece of the biological makeup of our brains’ (Pinker 1994: 18).

Now if the language faculty is a general biological attribute of our species, the fact of local diversity is extremely puzzling, for two reasons. First, the brain mechanisms of language learning and structure are presumably identical in all human populations. It is in virtue of this that any child growing up in any culture can acquire the relevant language so quickly and effortlessly. This makes it rather anomalous that there should be such differences between the final language systems of the English, the Edo, and the Enga that they cannot understand each other. We might expect differences in vocabulary reflecting differences in life style and material culture, just as blacksmiths and carpenters have different sets of terms specific to their activities. What we would not particularly expect, but do in fact find, are phonetic, phonological, and grammatical differences that seem entirely unmotivated by differences in situation or life style.

The second reason why it is puzzling to find linguistic diversity between human populations is that the depth of separation between them is not very great. Genetic evidence suggests that the entire species is descended from an ancestral population that was very small until comparatively recently (Stoneking 1993; Rogers and Jorde 1995). It seems that a common human ancestor lived as little as 140,000 years ago (see Relethford 1995: 59; though the implications of this finding for the origin of our species are not simple, since genetic coalescence dates have no necessary relationship with speciation events). Assuming a generation time of

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twenty-five years, that is only 5,600 generations ago. In view of the small population size (and perhaps geographic localization) that must have characterized humanity at this time, it seems likely that all the 6,500 contemporary languages, with all the diversity that they contain, as well as all those that have died out before now, have evolved in no more than this time period.

For such diversity to appear in such a short time suggests that powerful diversifying mechanisms are at work. Evidently those mechanisms have not been equally important in all times and all places. If Great Britain had the same ratio of spoken languages to inhabitants as Cameroon, it would have 1,250 native languages; if the United States had the same ratio as Papua New Guinea, it would have nearly 60,000. On the other hand, the total number of languages in the world is now in catastrophic and accelerating decline. We need, then, to understand both the forces that produce linguistic diversity and those that destroy it.

The contemporary emphasis in synchronic linguistics on the universal nature of language, then, actually makes diversity an important and surprising fact that requires further investigation. In the next sections I consider the theoretical tools that we have to undertake the task, and then the types of diversity that we encounter in the world.

## 1.2. The Family-Tree Model

The great result of nineteenth-century linguistics was the demonstration that many languages of Europe and Asia had a common origin in an extinct ancestral language from which they had ramified like the branches of a tree. The processes by which this had occurred were so regular that the shape of the tree could still be discerned and, even more intriguingly, the characteristics of the ancestral language tentatively reconstructed.

Thus the modern notion of the language family came about. A language family, or a stock, as we shall call it later, is a group of related languages that can be placed in a tree, and must be descended from a common ancestor of which we usually have no record, but about whose characteristics we can make some inferences. The first established and still best-studied example of such a family is Indo-European, which includes under its broad canopy most of the languages of Europe, Iran, and northern India.

Fuelled by their success with the Indo-European and Semitic languages, the family concept and the family-tree model became the organizing paradigm of historical linguistics. In much subsequent literature, then, to explain the diversity of an area has simply meant to reduce a large number of languages to a smaller number of families, and perhaps offer a sketchy tree for the families proposed. Larger families and families of families have been sought out. The early successes of the approach have not been sustained, though: for most parts of the world the

number of families recognized is large (and controversial), the internal geometry of their trees very unclear, and their proto-languages unreconstructed.

In this book, the explanation of linguistic diversity will not mean the search for deep families and family trees. Indeed, there will be little discussion of the classical topics of historical linguistics, such as the regularity of sound change, reconstruction of proto-languages, and so on (for these matters, the reader is referred to any competent textbook such as Trask 1996 or Campbell 1998). This neglect is for two reasons.

First, historical linguistics, or at least that part of it concerned with family trees and reconstruction, is really about *how* languages diverge. It has relatively little to say about *why* they diverge (Campbell 1998: 282), which is our interest here. Even when neat trees are drawn and families established, many of the questions that are of interest in this book are left unanswered. Why did a particular family split into the number of descendants it produced? It was a unified language at one time; why did it not remain so, but split into three or eight of thirty-one separate communities? If languages are always ramifying, then the number of languages in the world should always increase, unless languages also go extinct. In fact, the number is not increasing, and languages are dying out, but we need to know which ones and why. We would also like to know what governs the rate at which languages diverge, and why they diverge in the fairly regular, structural ways that they do and not in some other, entirely different, way. Such questions must take us beyond the ken of historical linguistics and into the realms of other disciplines, as we shall see in Section 1.6; as Lehmann (1962: 200) put it, 'a linguist establishes the facts of change, leaving its explanation to the anthropologist'.

The second reason that the central notion of this book is not the family tree is that, although useful for understanding some types of diversity, the tree model of languages can be misleading for others. This is because languages change by processes of diffusion as well as treelike descent.

Central to the family-tree model is a metaphor of language as a living organism, and an asexual one at that. Thus the starting language produces daughter languages that are not quite the same as it; the daughters produce granddaughters that share their mother's idiosyncrasies but each add a few more of their own. This is very similar to Darwin's account of the evolution of animal species by descent with modification, and indeed the similarity is not accidental, since the discovery of the correspondences amongst the Indo-European languages was in Darwin's intellectual background. He comments in *The Descent of Man*: 'The formation of different languages and of distinct species, and the proof that both have been developed through a gradual process, are curiously parallel. . . . Languages, like species, can be classed in groups under groups, either naturally according to descent, or artificially by other characters . . .' (Darwin 1871: 465).

The assumption in Darwin's words and in the family-tree idea more generally is that each language is an integral entity that evolves by descent with a little

internally generated modification. From time to time there are splits between languages caused, for example, by the speakers becoming separated by natural barriers, and thereafter there is no contact between them, and any modifications arising in the one are not transmitted to the other.

The main problem with the family-tree model, though it provides a good description at a macroscopic level of what happened to certain language families such as Indo-European, is that it does not accommodate all types of linguistic change. Languages are not phylogenetically homogeneous units; instead, their traits often derive from multiple sources in a way that depends on the origin and cultural affiliations of their speakers. I shall give examples below. In order to capture this fact, I will, therefore, present an alternative conceptualization of linguistic diversity, also using a biological analogy, that will be more useful in our investigations. This conceptualization is based on the notions of the linguistic item and the linguistic pool.

### 1.3. The Linguistic Item and the Linguistic Pool

I would like to introduce the notion that there is a human linguistic pool. This is an abstract entity analogous to the human gene pool. It contains all the different bits of linguistic structure that are found in human languages. The atomic elements in the pool, then, are not languages but linguistic items (in the sense of Hudson 1996: 21). A linguistic item is any piece of structure that can be independently learned and therefore transmitted from one speaker to another, or from one language to another. Words are the most obvious linguistic items, but sounds and phonological processes are items too, as are grammatical patterns and constructions. Vowel harmony, for example, must be an item, since there are dialects of Greek in Asia Minor that have gained vowel harmony from Turkish without also gaining the entire stock of Turkish words (Campbell 1998: 74).

No great claim need be made about the cognitive representation of items; the nature of the units that are represented in the mind/brain of language users is a matter of ongoing controversy, and is unlikely to be quickly resolved. Likewise, one can do population genetics or epidemiology without detailed knowledge of the biochemical realization of the traits or diseases whose distribution is under study. What matters for our purposes, as for the population geneticist or epidemiologist, is that linguistic items are potential *replicators*; that is, they could independently pass from one speaker, via the arena of language use, to another. The distributions of different items in the world's languages need not be statistically independent, and indeed very often are not. Groups of words, or of grammatical patterns, are found together, and such covariation is what linguistic typology and historical linguistics seek to explain, by reference either to history or to functional linkage between items, as we shall see.

The item as described here may seem a slightly unfamiliar unit, but in fact such a concept is tacitly present in all studies of languages in space and time, from dialectology and sociolinguistics to linguistic typology and areal linguistics. None of these endeavours could proceed if it did not identify the minimal traits over which speech forms can differ or converge from one point in space or time to the next.

In the linguistic pool there is evolution by descent with modification, but the evolving entities are not languages but individual items. Some items are rare and some are common, and we can place them in phylogenies, though in some cases there may be examples of the same item evolving several times independently. What have we gained by this shift of perspective from the language to the item? The answer is that we can account more generally for similarities and differences between human speech communities. What have we lost? Well, the item approach has one drawback that I feel can be easily overcome and that I discuss below.

Let us take a simple example of why the item approach is more inclusive than the language approach. Phylogenies can be drawn relating most English words to similar items in other European languages. Most of these phylogenies would show the English form branching most recently from the German and Dutch forms, as in the case of English *cow*, which is closer to German *kuh* than any French form. Thus most of the phylogenies for individual items would support the comparative linguist's normal view that English as a whole branched from a Germanic ancestor much more recently than its last common ancestor with French. However, a residue of forms would show the opposite patterning; English *beef* is clearly closely related to French *bœuf* and not to any Germanic form. Further investigation would reveal that most of the culinary terms in English have indeed come from French in waves of borrowing that reflect first the Norman Conquest and secondly the cultural importance of the French in this and other aristocratic domains.

This is where the analogy between an asexually evolving animal lineage and languages stops. Viewing languages as the evolving units does not allow mixing to be accounted for. Since most basic items in English are Germanic, English is assigned to the Germanic branch, and the residue of French items must be dismissed as so much noise in the data. From an item-based perspective, borrowing presents no problem. We can say that the English population is closely affiliated to the German one, but that there has also been a flow of items from the adjacent French population associated with certain demographic and cultural interactions.

Diffusion is not limited to individual words, but may also occur with grammatical patterns. In the Nigerian language Fyem, for example, there are five classes of noun, each of which forms its plural in a different way. Fyem is a Niger-Congo language by the common criterion of relatedness, and three of the plural formation types are also found in other Niger-Congo languages. A fourth type,

however, is characteristic of a local family of Afroasiatic languages, whose speakers the Fyem often marry. The fifth type is widespread in both Niger-Congo and Afroasiatic languages of the region (see Nettle 1998a: ch. 8, for details of the Fyem case). In this case we have to say that the fourth pluralization type in Fyem is phylogenetically related, *as an item*, to the corresponding Afroasiatic item, since it came into the Fyem world through speakers from those languages. However, the Fyem language as a whole is not phylogenetically related to Afroasiatic, since most of the set of the items that make it up are not so descended. Thus our classification of Fyem as Niger-Congo is really a simplification that hides the true, mixed nature of its parentage.

The fact that individual grammatical items can pass between languages that are unrelated in the conventional sense means that there are many linguistic patterns in the world that are not explicable in the conventional family-tree framework. These are known in the literature as linguistic areas; well-known examples are the Balkans, where several key grammatical and phonological patterns cut across several branches of Indo-European and unrelated Turkish; south Asia, with diffused traits linking Indo-European, Munda, Tibeto-Burman and Dravidian, and Mesoamerica, with ten different families and isolates linked by diffused traits (Campbell *et al.* 1986).

At a larger scale, certain items are common in some continents and rare in others in a way that cuts across all identifiable family boundaries (Nichols 1992). Tonality is almost universal in Africa and south-east Asia, but rarer in all other continents. Clause alignment in most languages of the world is based on the nominative/accusative distinction (see Nichols 1992: 65–9 for an explanation). The polar opposite, ergativity, is rather common in the Pacific and Australia but rare elsewhere, whereas languages distinguishing two types of transitive verbs, one of which aligns ergatively and one accusatively, are very common in the Americas. Whether these large patterns represent ancient echoes of the founding populations of the continents, or the effects of long-term areal convergence, we cannot at present say.

Historical linguistics has, of course, always acknowledged the importance of diffusion and borrowing, which can extend not just to individual words but to any type of item. The existence of linguistic areas has long been recognized. However, the fact remains that the only widely used theoretical *model* that exists in historical linguistics is that of the family tree (though see Dixon 1997 for some suggestions towards alternatives). Borrowing and areal phenomena are just noted *post hoc*, and treated as reasons why trees, the basic construct, might be difficult to establish. The assumption remains that the most important component of variation in a set of speech norms will be treelike and reflect descent. It is not obvious a priori that this assumption is justified.

The existence of shared linguistic items between two populations is, then, evidence of some connection (though there is a possibility of independent evolution

if the number of shared items is small), but the nature of this connection varies. Some items are diagnostic of the descent of two languages from a single common ancestor; if whole morphological paradigms are shared, for example, this is the most likely explanation. Other items suggest other kinds of cultural or demographic contact; the word order of languages, for example, tends to converge readily when individuals are bilingual in them. The item approach allows us to capture all types of linguistic change in a single framework.

We can ask, though, how the more familiar constructs of the language and the language family can be retained within an item-based approach. First, within the linguistic pool, there are sets of items which tend to co-occur. That is, speakers who have one of the set have a very high probability of having all the others. These sets are, of course, rather fuzzy, which is to say that some items in the set are only intermittently present or variable in their form, and the composition of the set changes over time. At a given moment, though, where there is a set that is sufficiently different from all other sets that its speakers cannot be understood by anyone else, we say that we have a separate language. I will return to the problems with such a definition of the language in Chapter 4. For now, I will simply accept it.

Now children are often acculturated by a community who mostly have the same set of linguistic items. Thus the set will be passed on as a set, though small modifications will become incorporated for reasons we will discuss in Chapter 2. Where sub-communities become separated, their sets of items will thus diverge, giving the conventional family tree of languages. The language family is thus any group of sets of items that can be placed in a phylogeny. Note that in the item-based framework there is no guarantee that a family tree or a single-parent family will exist for a given language. To the extent that children are acculturated by adults with a mixture of different item sets, languages can be mixed.

In fact, historical linguists have managed to produce family trees of some sort for almost all of the world's languages. This does not mean that item flow between languages, or admixture, is rare. Admixture is omnipresent. However, in most cases, a main line can be identified, which represents the evolutionary pathway of *most* of the items in a language.<sup>1</sup> This is the phylogeny routinely put forward as being that of the whole language. The utility of such a procedure depends on the extent of the admixture. Where admixture accounts for a small proportion of total change, the family tree is informative. Where the admixture has been overwhelmingly important, then trying to draw a single phylogeny for the whole language may become a pointless exercise. This is clearly the case with Creoles and radically mixed languages such as Anglo-Romani and Michif (Thomason and Kaufman 1988; see also Bakker and Mous 1994), but it may not be restricted to extreme situations. For the case of Fyem, for example, I argued that more could

<sup>1</sup> In fact, in the establishment of phylogenetic relatedness, not all items weigh equally, since there is a core of items that are clearly more phylogenetically conservative than others.

be discovered of the Fyem past by studying patterns of admixture than by trying to bludgeon the data into a family tree (Nettle 1998a), and similar problems with trees have been reported by scholars studying many different regions (e.g. for Africa, Dimmendaal 1995; for Australia, Dixon 1997; for the Pacific, Grace 1996, Ross 1996).

What historical linguistics has generally failed to consider, until very recently, is that the extent to which the variation in a set of languages is treelike is itself a datum of interest, and ways of measuring this should be devised. A treelike structure bears witness to a rapid geographical or demographic expansion of one group, perhaps associated with economic changes in prehistory; a less dendritic structure suggests various possibilities, such as a long period of *in situ* evolution with high rates of exogamy, or extensive multilingualism (Dixon 1997). Thus the fact that such a good family tree can be produced for Indo-European and Bantu is not just a piece of good fortune but a piece of information about prehistory, and the fact that no such tree can be established in Australia is not a nuisance but a finding.

At the beginning of this section I mentioned that the linguistic-item approach to diversity had drawbacks as well as advantages. The principal drawback is the following: in the history of languages, items do not change independently, as we shall see in later chapters. Instead, they are to some extent coordinated in a system. This was the basic positive insight of structuralism. A classic example is that of vowel systems (Martinet 1955; Disner 1984). However many vowel sounds a language has, they will tend to be organized in such a way as to be as distant as possible from each other within phonetic and acoustic space. If one vowel sound undergoes historical change, then it will often cause the others to move in a coordinated way, so that in the end optimal spacing will be re-established. The chains of vowel movement so caused can be extremely complex and last several hundred years, as has happened in modern English (see Labov 1994 for a full discussion).

This coordination amongst items is to be expected if languages are seen as organic wholes. However, I believe it can be captured equally well from an item-based perspective. Items are separable, but their evolutionary trajectories are affected by other items around them. In the same way, the evolutionary trajectory of a given animal will depend heavily on which other animals and plants are around. Thus there are emergent regularities in nature at the level of the ecosystem or the ecological community. Languages are just the same; every item evolves in an ecosystem formed by the other items around it in the linguistic pool. There are emergent regularities at the language level, which the behaviour of vowel systems illustrate, because of this ecological linkage. It seems, though, that the item approach can capture both the mixability of languages and their internal coherence.

### 1.4. Levels of Diversity in the Linguistic Pool

We have now introduced the notions of the linguistic item and the linguistic pool that will serve as our conceptual framework for the whole book, and shown how the familiar concepts of the language and language family can be derived from them. In this section I will argue that three different types of diversity can be identified in the human linguistic pool. Each of these types shows a different pattern and requires a different explanation. The remainder of the book will be devoted to those patterns and explanations.

The first type of diversity is simply the number of different languages in a given geographical area. Papua New Guinea and Paraguay are roughly the same size and have nearly the same population, but Papua New Guinea has over 850 indigenous languages, whilst Paraguay has scarcely more than twenty. Papua New Guinea is clearly more diverse in this sense. I call this type of diversity *language diversity*.

The second type of diversity we wish to identify is *phylogenetic diversity*. This is the number of different lineages of languages found in an area. It can be measured at various levels—that of the subfamily of languages, or that of a higher phylogenetic node such as the stock (Nichols 1990: 477–9). There is no necessary correlation between language diversity and phylogenetic diversity. Central Africa is extremely high in language diversity, but almost all of the languages belong to the Bantu family of Niger-Congo. Thus the region is rather poor in diversity at all phylogenetic levels higher than the language itself. Tropical South America, on the other hand, is not particularly high in language diversity but contains representatives of dozens of language families. It is, therefore, high in phylogenetic diversity.

The third and final type of diversity is *structural diversity*. It seems that there are certain fundamental loci in the structure of every language that must be filled, and there are a number of alleles (alternative items) for these loci that are found in the language pool. For example, in the ordering of the major constituents (Verb, Subject, Object), languages can favour the verb first (e.g. VSO, as is found in Maasai), verb second (e.g. SVO, as in English), verb finality (e.g. SOV, as in Khalkha Mongolian), or free order. Now the structural diversity of a particular region on some parameter is the extent to which its languages vary on that parameter. This is potentially independent of both the language diversity and the phylogenetic diversity of the region, since there are parameters, such as word order, on which languages of the same family differ, and languages of completely different families often converge. Structural diversity is thus an independent dimension of diversity in the language pool.

The distinction between the three levels of linguistic diversity forms the backbone of this book. For each type of diversity, we ask how much diversity there is, how it is distributed, and why it has evolved. Chapters 4 and 5 are devoted to

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language diversity, Chapter 6 to phylogenetic diversity, and Chapter 7 to structural diversity. Before embarking on those investigations, some preliminaries are in order. In the remainder of this chapter I briefly discuss my general approach, and in the next chapter I set the scene for the subsequent ones by asking why there is any diversity in language at all—in other words, what the mechanisms are which cause human languages to diversify.

### 1.5. Justification, Disguised as Apology

As the reader may have remarked, the questions to be tackled in this book are of a very general nature, and I approach them at a macroscopic level. Attempting to survey such a broad remit in a single swoop may appear to exceed the bounds of good sense. After all, the causes and pathways of language diversification in Mexico may be quite different from those that obtain in Melanesia, and any attempt to subsume them under some kind of universal schema might obscure more than it reveals. In my defence, I would argue that asking very general questions is not only interesting, but is a valid strategy in the pursuit of knowledge.

Science does not proceed by a steady accumulation of facts. It is rather an intermittent sequence, consisting alternately of the setting-out of broad frameworks for understanding phenomena, and the execution of extremely detailed empirical studies that may show those frameworks to be inadequate. There is surprisingly little contemporary literature on the reasons for linguistic diversity, and so this book is intended to set out some broad theory. We cannot explain everything about the distribution of the three types of diversity, or even come close. I hope instead to clarify the *main* factors involved, and the *kinds* of answers we would expect where as yet we have none. More detailed studies of individual languages and individual communities will be needed to put some flesh on the bones discussed here. Without having some bones first, however, you can do nothing with flesh except leave it in a heap. I therefore apologize to anthropologists for the broad generalizations about societies made in Chapters 4 and 5, to theoretical linguists for the simplistic view of linguistic change in Chapters 3 and 7, and so on. One cannot simultaneously maximize precision and generality. The former is rather traded off against the latter. I have tried to retain sufficient precision for the results to be meaningful, by subjecting all the hypotheses put forward to rigorous quantitative tests, but this book is unavoidably at the high-generality end of the continuum.

Methodologically, too, the approach used here may seem unfamiliar, particularly to linguists and linguistic anthropologists. Studies in those disciplines often proceed inductively, characterizing the situation in a particular language or society, and then perhaps moving on to see if the same holds true in some other area. Sampling is opportunistic, data are introduced anecdotally, methods are

qualitative, and no clear division is made between the generation of hypotheses and their testing. Now this kind of inductive methodology can surely provide useful insight and generalizations about language and society. However, it is perhaps overly concerned with the single case, and has difficulty furnishing general explanatory hypotheses, let alone testing them (and indeed, for these reasons, sub-fields of linguistics such as typology have had to abandon them for more formal methods).

The methodology used in this book is somewhat different, and will be more familiar to evolutionary biologists. Each chapter seeks a general model (ideally quantitative) of how some aspect of diversity may evolve. The predictions of that model are then tested statistically against quantitative data drawn from the literature on that topic. Both general models and large statistical data sets tend to alarm, perhaps justifiably, those working in the humanities tradition, with their nuanced qualitative knowledge of the single case. However, as I have made clear, there should be no conflict between these approaches. They should stimulate each other; they are the two sides of a dialectic.

### 1.6. The Need for an Interdisciplinary Approach

Linguistic diversity is, as I have said, an under-theorized topic. It falls through the gap between disciplines. Anthropologists and geographers tend to be mainly interested in language as a marker of social affiliation or historical origin, and so they are not much concerned with phoneme mergers or morphological reorganization, which are undeniably the province of linguistics. Historical linguistics deals with those processes, but makes no attempt to explain the social and geographical origins of diversity. Even in Nichols's (1992) path-breaking study, whose insights we shall be drawing on several times, the ultimate causes of diversity are relegated to 'external factors' that 'cannot figure in a linguistic model, except as unknowns' (Nichols 1992: 209). The way in which the languages of the world have diverged thus never receives a unitary treatment. It follows that any attempt at one, including the present thesis, *must* be interdisciplinary in its scope.

This book is primarily a work of linguistic anthropology rather than linguistics. Its aim is to elucidate how languages have diversified through space and time, and not to provide a framework for understanding the internal structure of language. Indeed, the present work presupposes that such frameworks are available, though they are not discussed in much detail. From time to time, though, I shall venture into the arena of language structure. This is mildly audacious; the separation between the sciences of society and the science of the structure of language has come to be very great, and linguists generally seem to assume that studying social, spatial, or historical patterns of language *use* is of little value for understanding language *structure*.

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This attitude is part of a wider mentality in the human sciences that promotes compartmentalization. Reading professional journals or visiting universities, one would be forgiven for thinking that human beings engaged in a series of distinct, non-overlapping behaviours: economic behaviour, where they worked and gained money; social behaviour, where they associated with each other quite independently of their economic behaviour; linguistic behaviour, where they learned to produce utterances of various types quite independently of the social setting; cultural behaviour, where they performed strange acts determined by the invisible monolith of their culture, and so on. Of course, this is not true. Every economy is also a social and cultural system, and a language lives only because there is a society to speak it and a cultural framework that transmits it. Where an economy changes or a society changes composition, languages and cultures live, mutate, or die out, as we shall see.

In defence of compartmentalization, scholars argue that a premature attempt at reduction of phenomena in one domain to those in another leads to little understanding of either domain. Language, culture, and social systems all have an inherent logic of form and change that can be understood only by careful, perhaps comparative, study on their own terms. The great successes of the special human sciences, such as structuralism in linguistics, relied on a restriction of the domain of enquiry to a limited system, which turned out to have important internal regularities.

We must beware of a facile equivocation between description and explanation here. It may be true that linguistic structure must be *described* in its own terms, and cannot be ontologically reduced to system-external factors such as economics or general psychology. It does not follow that linguistic structure is to be *explained* without reference to external factors. Languages may be autonomous objects, but they are best viewed as objects of the third kind (Keller 1994). That is, they are obviously not natural objects (objects of the first kind). Nor are they deliberate human productions (objects of the second kind), since people do not intentionally create their languages. They are not even aware of most of the rules they effortlessly use or the linguistic changes in which they participate. However, this does not mean that the history of a language has nothing to do with the behaviour of speakers. Languages are still the consequences of speakers' actions, just not the outcome of their intentions. The structure of language has emerged from the kind of messages speakers wish to convey and the kind of cognitive, perceptual, and articulatory mechanisms they have to convey them, either by biological evolution, or by cultural evolution, or more likely by some combination of the two. Precisely the same is true of social and cultural systems; they must ultimately be seen as emergent consequences of individual people's adaptive behaviour in different circumstances (Herrmann-Pillath 1994).

Thus disciplinary boundaries, and those who are too quick to defend them, should be treated with suspicion. Even if it is true that, as Saussure contended, the

object of linguistics is language studied 'in and for itself', it does not follow that the explanation should only be in terms of language. Nor should the explanation of social phenomena be limited to cultural rules. Faced with a phenomenon, our first step must always be to describe it on its own terms. We then explain it by showing how it emerged from forces which are more basic and better understood. I will thus be linking the distribution and evolution of languages to facts about social organization, and facts about social organization to the economic necessity of procuring subsistence in different environments. I thus concur with Thomason and Kaufman (1988: 4) that the history of a language should be treated as a function of the history of its speakers.

This strategy does not deny the valid distinction between the structure and the use of language. I merely believe that use can influence the evolution of structure, just as the ever-present pressures of climate and economy influence sociocultural systems. Compartmentalization has been useful for such disciplines as anthropology and linguistics, both methodologically, as it has allowed exact and rigorous characterizations of the phenomena at hand, and sociologically, as it has allowed them to emerge as distinctive intellectual communities. Ultimately, however, too much compartmentalization leaves the two disciplines like the Danae sisters of classical Greek mythology, each of whom was condemned forever to pour water into her own separate and bottomless container.<sup>2</sup> Linguistic diversity is at once a structural, a social, and an economic phenomenon, and so, to paraphrase William Labov, only a set of propositions that relate general findings about linguistic diversity to general properties of human beings or of human societies will deserve to be called a theory of linguistic diversity (after Labov 1994: 5).

<sup>2</sup> Wolf (1982: 11) attached this beautiful metaphor, which I have also borrowed elsewhere, to the social sciences in general.