The Five-Minute Linguist

Bite-sized essays on language and languages

Edited by E.M. Rickerson and Barry Hilton
‘Wherever you are and whatever you do, language makes a difference!’

— The Five-Minute Linguist
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Foreword

This book is for anyone who has a question about languages or the nature of language—which means just about all of us. But it’s not just a musty academic text for specialists. While written by leading experts on the subject of language, The Five-Minute Linguist is a user-friendly exploration of the basics, a linguistic start-up kit for general readers. It assumes nothing on your part except interest in the subject. Its bite-sized chapters (no more than a few pages each) give authoritative answers to the most frequently asked questions people have about language, and tell the story in a lively and colloquial style. It is a delightful read.

Although the main purpose of the book is to inform, it also aims to encourage the study of language and raise awareness of the nature and diversity of languages on the planet—which is why it is of special interest to us at the American Council on the Teaching of Foreign Languages (ACTFL). You may be aware that the U.S. Senate and House of Representatives designated 2005 as the ‘Year of Languages’ in the United States, to call attention to the importance—and the benefits—of language study. Throughout that year, ACTFL promoted activities aimed at jump-starting a sense of urgency about language. There were lectures and films at universities, poster contests in schools, billboards on highways, statewide language competitions, essay contests, folk festivals,
About the author

Allan R. Bomhard is a linguist living in Charleston, South Carolina. His main areas of interest are distant-linguistic relationship and Indo-European comparative linguistics. He has published over forty articles and five books, and is currently preparing a new book on Nostratic comparative phonology, morphology, and vocabulary.

Suggestions for further reading

In this book: Chapters on the history and origins of language include 4 (earliest language), 6 (the language of Adam and Eve), 7 (language change), 8 (pidgins and creoles), 48 (origins of English), and 54 (Icelandic); chapters focusing on language families include 49 (Native American languages) and 56 (African languages).

Elsewhere:


Ruhlen, Merritt. *A Guide to the World’s Languages, Vol. 1: Classification* (Stanford University Press, 1991). Though this work is a comprehensive and reliable guide to the classification of nearly all known languages, some of the proposals regarding larger groupings remain controversial.

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What language did Adam and Eve speak?

E. M. Rickerson

Does the language of Adam still exist? What language did God speak in the Garden of Eden? Did Adam and Eve speak Indo-European?

In the Old Testament story of the Garden of Eden, Adam was created as a fully-formed modern being, with all the faculties of *homo sapiens*, including the ability to speak. We can only guess what Adam might have said to Eve in their early chats, but we do know that both of them could talk. Eve had a fateful conversation with a persuasive snake, and one of Adam’s first tasks on earth was linguistic: ‘... and Adam gave names to all cattle, and to the fowl of the air, and to every beast of the field’ (Genesis 2:19). But what language did Adam use? Presumably it was the same one in which the serpent’s words were couched and which the first couple heard when they were sternly evicted from Paradise.
It certainly wasn't English, which is a relatively young language, nor was it any of the world's languages that you might think of as 'old', such as Chinese or Greek. Leaving aside the question of how the first language—using people came into being, it is now fairly well accepted that humans were physiologically able to speak—that the vocal apparatus was ready to produce more than the calls or growls of our fellow mammals—at least as early as fifty thousand years ago, or more. Because we can trace languages only as far as their early written records, and because writing itself emerged only around five thousand years ago, we are left with a gap of thousands of years. And throughout those millennia, the language of the first human beings was undergoing constant and profound change. Therefore, whatever else we may say about the original language, it is clear that none of the languages currently spoken on the planet bears any resemblance to what may have been spoken in the legendary Garden of Eden.

That is the modern view, based on what we have learned about language since religious explanations gave way to the patient collection of linguistic data. But before the eighteenth century—from the earliest days of Christianity and through the Middle Ages and Reformation—it was taken for granted that Adam spoke the first language, and that the _lingua adamica_, the language he used, still existed. For most of that time, the leading candidate for the honor was Hebrew, if only because it was the language in which the Old Testament was handed down. In the fourth century St. Jerome asserted that only the family of Eber had not been so foolish as to help build the Tower of Babel. As a result, when God destroyed the Tower and scattered its builders, Eber's people—the Eberites, or Hebrews—were not punished, and continued to speak the original tongue. St. Augustine and other Christian church fathers accepted without question that Hebrew was the _lingua adamica_ and, for the next thousand years or so, almost everyone agreed. I find it ironic that the scholarly discussion of this topic took place in Latin, which was as close to a universal language as there was in Europe during that time—yet no one suggested that Latin could have been the original tongue. The idea of Hebrew as the Adamic language had a firm hold on the imagination throughout the Renaissance, and even beyond.

The nature of Adam's language was an especially hot topic in the sixteenth and seventeenth centuries, when it was thought to be a divine or 'perfect' language, in which words coincided so harmoniously with the things they identified that people understood them without having to be taught their meanings. But not everyone accepted that this perfect language was, or had been, Hebrew. With the Renaissance came a sense of nationhood in Europe, and the _lingua adamic_ idea served as a way to build national pride. In Germany, people rallied to the language of Luther's Bible and asserted that German was closest to the language of Adam; some even claimed that Hebrew was derived from German. Linguistic nationalism also prompted a claim for Dutch or Flemish. The theory ran that citizens of Antwerp were descendants of Noah's son Japhet, who had settled in northern Europe after the Flood and _before_ the Tower of Babel, so that Dutch preserved the purity of the Adamic tongue. Improbable arguments were also made for the divine status of Celtic, Basque, Hungarian, Polish and many other languages. This was the time when Sweden was making itself felt as a world power, so it is not surprising that Swedish too was proposed as the original language, again based on the story of Japhet. And that leads us to my favorite theory: the suggestion that God spoke Swedish in Paradise, Adam Danish, and the snake ... French.

After the Age of Reason loosened the grip of religion on philosophical thinking, the divine origins of language became a lesser concern. In the eighteenth and nineteenth centuries it was gradually understood that words and the things they stand for are not magically connected, and that languages are not divinely given. They are created by human communities, not a heavenly force. It became clear that language was a matter of agreement that certain combinations of sounds would be used to mean whatever a community decided they should mean. Instead of theological debates, scholars in Europe used scientific criteria to compare known languages, figure out how they
are related, and how they developed over time. It is telling that when they discovered Indo-European, they made no claim that it was the original language. That discovery made it clear that it would be difficult if not impossible to penetrate the linguistic past to its absolute beginnings—and that the quest for the Adamic language was over.

About the author

E. M. ('Rick') Rickerson is the General Editor of this book. He is Professor Emeritus of German, Director Emeritus of the award-winning language program at the College of Charleston (South Carolina), a former Deputy Director of the U.S. government’s Center for the Advancement of Language Learning, and an Associate of the National Museum of Language. In 2005 he created the radio series on languages (Talkin’ About Talk) from which The Five-Minute Linguist has been adapted. He is currently a consultant on the development of language programs at the university level.

Suggestions for further reading

In this book: The origins and history of languages are also discussed in chapters 4 (earliest languages), 5 (language relationships), 7 (language change), 8 (pidgins and creoles), 48 (origins of English), and 54 (Icelandic).

Elsewhere:


Eco, Umberto. The Search for the Perfect Language (Blackwell, 1995). A comprehensive and very readable history of the ways in which the idea of an original or perfect language occupied European thinkers for close to two thousand years.

About the author

John M. Lipski is Professor of Spanish Linguistics in the Department of Spanish, Italian, and Portuguese at the Pennsylvania State University. He received his B.A. from Rice University, in Texas, and his M.A. and Ph.D. from the University of Alberta, Canada; he has taught Spanish, Romance, and general linguistics, translation, language acquisition and methodology, Latin American literature, and a variety of language courses at colleges and universities in New Jersey, Michigan, Texas, Florida, and New Mexico. His research interests include Spanish phonology, Spanish and Portuguese dialectology and language variation, the linguistic aspects of bilingualism, and the African contribution to Spanish and Portuguese. He is the author of eleven books and more than two hundred articles on all aspects of linguistics. He is also Editor of the journal *Hispanic Linguistics* and has served as Associate Editor of *Hispania* for Theoretical Linguistics. He has done fieldwork in Spain (including the Canary Islands), Africa, the Caribbean, Central and South America, the Philippines, Guam, and many Spanish-speaking communities within the United States.

Suggestions for further reading

In this book: The ways languages begin and develop are also discussed in chapters 4 (earliest languages), 5 (language relationships), 7 (language change), 11 (grammar), 41 (dialect change), 43 (dictionaries), 48 (origins of English), 50 (Latin), and 51 (Italian). Chapter 23 (sign languages) discusses the importance of children in transforming an invented language into a natural one.

Elsewhere:


Romaine, Suzanne. *Pidgin and Creole Languages* (Longman, 1988). Either of these books would be a good place for readers to pursue the topic of this chapter in greater detail. Holm is more accessible, Romaine more comprehensive.

How many kinds of writing systems are there?

Peter T. Daniels

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How do writing systems differ? Which one is used the most? Could we use a system for English other than an alphabet?

Around the world, a little over thirty different writing systems are in official or widespread use today (counting all the different roman alphabets, like English and French and even Vietnamese as variants of a single one; likewise for all the varieties of Cyrillic and Arabic and so on). Unlike languages, which are all basically alike because every language has to fit into everyone's brain, writing systems are human inventions, and about half a dozen different kinds have been devised over the past five thousand years.

Most familiar, and most widespread, is the alphabet. In an alphabet, each letter represents one consonant or one vowel, and (theoretically) all the consonants and vowels in a word are written
down, one by one, from left to right. But since you read and write English, you know that we are very far from that ideal! Why should *though*, *through*, *tough*, and *cough* all be spelled with *o-u-g-h*? Because we’ve been spelling pretty much the same way for more than five hundred years—since printing got started in England in the year 1475—while the pronunciation of English has been changing gradually over the centuries. Spanish and Finnish and Czech do a lot better in keeping the spelling the same as the sounds. The first language to be written with an alphabet was Greek—and to this day, Greek is written with the Greek alphabet. Every other alphabet in the world is descended from the Greek! Russian and many languages of the former Soviet Union are written with the Cyrillic alphabet, and the languages of western Europe, with the Roman alphabet.

So, too, are many languages that have only recently started being written. Hundreds and hundreds of them, such as Massachusett and Maori, Zulu and Zomi, have had alphabets created for them, usually the Roman alphabet with maybe a few extra letters or some accent marks, by missionaries translating the Bible. These alphabets usually don’t have much use outside the Bible texts and related materials. But sometimes they also get used for personal correspondence, newspapers, and even books and the Internet—and a literate culture has been created.

Before there were alphabets, there were scripts of the kind I call ‘*abjads*’. This seemingly simpler kind of writing can be seen in news photos from the Middle East. If you open a Hebrew Bible or a Qu’ran, you’ll see the letters surrounded by dots and dashes and curls, but if you look at billboards and placards, you’ll just see the letters—Hebrew ones all squared up separate in a row, Arabic ones gracefully joined together to make whole words without lifting the pen. The difference between the holy texts and the street signs, or ordinary books, is that ordinary writing in Hebrew and Arabic only writes letters for the consonants. If you know the languages, you can fill in the vowels on your own as you read. But getting the pronunciation exactly right is very important in holy books, and devout scholars in the early Middle Ages wanted to add helps to the reader. They wouldn’t change the spellings they inherited, so they added in the vowels using dots and dashes around the letters.

The Greek alphabet developed out of the Phoenician abjad. The scripts of India developed out of the closely related Aramaic abjad—but with a difference. In India, linguists *without the benefit of writing* had already created a very sophisticated analysis of the Sanskrit language, and by the third century B.C.E. they had invented a very sophisticated way of writing the vowels (I call this type the ‘*abugida*’). For languages of India and its neighbors in South and Southeast Asia, such as Sanskrit and Hindi and Bengali, Tamil and Thai, you write a plain letter and it reads as a consonant plus ‘*a*’. If you want it to read as the consonant plus a different vowel, you add a mark to it; and if you want it to read as two consonants in a row with no vowel in between, as in *chakra* or *Mahatma*, you attach a piece of the letter for the first consonant in front of the whole letter for the second consonant. It can get complicated!

If we go back before the Phoenician abjad, back to the very beginning of writing, we find that the first writing systems are always ‘logographic’—instead of individual sounds (consonants or vowels), entire words (or word elements, called ‘morphemes’) are represented by a single syllable-sign. The one writing system based on the logographic principle that’s still used today is the Chinese.

Look closely at the characters on a Chinese menu. If you compare them with the English names for foods, you might see which ones correspond to ‘*kung pao*’ and which ones correspond to ‘*chicken*’ or ‘*shrimp*’. With a logographic system you don’t ‘spell’ words, because each character corresponds to a whole word or part of a word. It works very well, but it takes a *lot* of characters, since you need one
or two for virtually every word in the language, and all languages have thousands of words. In the case of Chinese, you can read almost anything published in the language today if you learn about three thousand to four thousand characters.

Now look at a Japanese menu. Alongside the complicated characters that look like Chinese characters (in fact, they are Chinese characters, but each one stands for a whole Japanese word), you'll mostly see simpler characters. These represent the endings on the words, and each of these simpler characters stands for a whole syllable, a consonant plus a vowel. There are just fifty of these symbols, because Japanese syllables are just that simple: a consonant plus a vowel. Su-shi, sa-shi-mi, ki-mo-no.

Other languages are written with this kind of syllable-character, such as the American Indian language Cherokee and the Liberian language Vai. It would be hard to use syllable-writing for English, because English can make really complicated syllables, like 'strengths' and 'splint.' You'd need a lot of different characters to write them all.

Maybe the best writing system ever devised combines the syllable approach learned from China with the consonant-and-vowel-letter approach learned from India: Korean writing, or hangul. On a Korean menu, you'll see squarish shapes that look like simple Chinese characters—but look at them closely and you'll see just forty simple designs (the letters) combined into blocks (the syllables). A great deal of information in a small space!

Different types of writing system work more or less well with different languages; but languages change over time, while spelling systems tend not to, so over time a writing system works less and less well. A glimpse of the history of writing is found in the next chapter.

About the author
Peter T. Daniels is one of the few linguists in the world specializing in the study of writing systems. He has published articles in a variety of journals and edited volumes, and contributed to several encyclopedias. He co-edited *The World’s Writing Systems* (Oxford, 1996) with William Bright and was Section Editor for Writing Systems for the *Encyclopedia of Language and Linguistics* (Elsevier, 2006).

Suggestions for further reading
In this book: Other chapters about writing include 10 (origins of writing), 57 (Chinese) and 58 (Japanese).

Elsewhere:
Jensen, Hans. *Sign, Symbol and Script* (George Allen & Unwin, 1969). These two books may take some effort to find, but each offers a very full history of writing. Diringer is more readable, Jensen more reliable and scholarly.
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Where did writing come from?

Peter T. Daniels

When did writing begin? How did it start? Was it invented more than once?

Dozens of writing systems have been used over the ages around the world, in a bewildering variety. They're written from left to right or right to left or top to bottom or even from bottom to top. Their symbols come in many shapes and sizes. Unlike spoken language, which started tens of thousands of years before writing and whose origins are cloudy, we have a very good idea of how and when writing began. Because fragments of some of the earliest writing still exist, carved on rocks, we can trace its evolution through time.

The discovery of writing was almost inevitable when a society grew complex enough to need it. As long as people are in small groups, everyone knows who did what for whom. But when people settle in towns, commerce becomes more complicated. A potter makes pots, a weaver makes cloth, an administration collects taxes. At some point, there's a need to keep track of everyone's contributions. Records might be kept with knots in string, or with notched sticks. And everywhere, people draw pictures to represent things. In Stone Age caverns, we drew pictures of prey animals. In modern times, we make pictures of things we want people to buy.

A second condition for discovering writing is a certain kind of language, one in which words are likely to consist of only one syllable. The reason seems to be that if you don't already know how to read with an alphabet, you aren't able to break down a syllable into its individual consonants and vowels. And if the words (or morphemes) of your language are mostly just one syllable, then when you write a picture standing for one of them, you're also writing its sound, and its sound can get reused for writing words it's not so easy to make pictures of.

These conditions gave rise to writing at least three times that we know of, and probably more that have left no trace. Writing appeared over five thousand years ago in ancient Mesopotamia (now southern Iraq), representing a now-dead language known as Sumerian. A completely different writing system was created in China close to four thousand years ago for a linguistic ancestor of modern Chinese. And in Middle America around the fourth century C.E. yet another system was developed to write down the Mayan languages. That system died a few centuries later with the Mayan empire. So all the writing systems in the world today can be traced back to just two places: China and Ancient Iraq.

Writing turns out to be a pretty useful thing to have. And once one group discovers it, nearby peoples tend to adopt it too. Japan adopted Chinese characters and started writing Japanese words with them. On the other side of the world, Sumerian writing was adopted for many languages between about 2500 and 1000 B.C.E., early in its history changing in form from pictures to easier-to-write abstractions. Sumerian inspired the Egyptian hieroglyphs we
know from temples and tombs. And hieroglyphs became the raw material for the Phoenician abjad that gave the world its alphabets and abugidas.

There are hundreds of such scripts in use today (now counting each variety of Roman alphabet, say, separately). In addition to Europe and the western hemisphere, they’re used across southern and southeastern Asia and on into Oceania. Most of them use twenty to thirty symbols. But they range in size from a language of the Solomon Islands, with eleven letters, to the Khmer abugida of Cambodia, with seventy-four. They look as different as English, Russian, or Hebrew, but it’s fairly easy to show that every abjad, alphabet, and abugida—the ones I named and many more—has a common origin: ancient Phoenicia on the eastern shores of the Mediterranean.

The Phoenicians brought their abjad to the Greeks, who (accidentally!) turned it into an alphabet and passed it via the Etruscans to the Romans, who gave our letters the shapes they have to this day. Greek was also the model for alphabets in Eastern Europe, such as the Cyrillic alphabet of Russian and other tongues. Another descendant of Phoenician was the Aramaic abjad, from which came writing systems as different-looking as Hebrew and Arabic—and all the writings of India and beyond.

Writing originated from some pretty basic characteristics of human beings and human society. And yet it is not found everywhere. Despite writing’s obvious uses, fewer than half of the world’s languages even have a writing system! Most languages are only spoken. But that’s changing. And as more languages become written, it’s mostly the Roman alphabet, brought to the less-developed world by missionaries and linguists, that’s spreading writing across the globe.

Where would we be without writing? It’s a remarkable part of language—and of human history. Without writing, you could reasonably ask, would history even exist?

About the author

Peter T. Daniels is one of the few linguists in the world specializing in the study of writing systems. He has published articles in a variety of journals and edited volumes, and contributed to several encyclopedias. He co-edited The World’s Writing Systems (Oxford, 1996) with William Bright and was Section Editor for Writing Systems for the Encyclopedia of Language and Linguistics (Elsevier, 2006).

Suggestions for further reading

In this book: Other chapters about writing include 9 (kinds of writing systems), 57 (Chinese) and 58 (Japanese).

Elsewhere:

Jensen, Hans. Sign, Symbol and Script (George Allen & Unwin, 1969). These two books may take some effort to find, but each offers a very full history of writing. Diringer is more readable, Jensen more reliable and scholarly.


11
Where does grammar come from?
Joan Bybee

Does grammar change? What is grammar anyway? Do all languages have it?

All languages have grammar, by which we mean those little function words (the, a, will, some) or prefixes and endings that signal meanings such as past, present and future. Grammar also includes the way we arrange words so effortlessly yet consistently in our native language; for instance, the fact that we say 'the dog is sleeping on the couch' rather than 'is dog insleep couch the on'. Although most of us are aware of words changing, we tend to think of grammar as more stable. But in fact, grammar is also constantly in flux.

The Language Police always deplore the loss of grammar—for instance, the fact that we don't know when to use whom anymore—but it's barely noticed that languages also develop new grammar. And yet they do! All the time.

For example, English has some old ways to indicate future tense by using will and shall. But these days American English speakers and younger Britons hardly use the word shall at all. A new way to mark future has evolved in the last few centuries from the expression be going to plus a verb. So when we say 'it's going to rain', we mean it purely as a prediction about a future event—it doesn't mean that something or someone is going anywhere at all. In Shakespeare's time, on the other hand, if you used going to, it always meant literally that someone was going from one place to another for some purpose.

How did this change happen? It is a process that linguists call 'grammaticalization', through which a word or sequence of words like be going to may acquire a change of meaning and take on a grammatical function. Such changes happen very gradually, over long periods of time, and several things usually happen at once.

The change of meaning often starts when inferences get associated with certain phrases. For instance, if I say 'I'm going to visit my sister' I am telling you both where I am going and what my intentions are. After a while, the intention meaning becomes even more important than the movement meaning. From the intention meaning in turn you can make an inference about what will happen in the future. So eventually, we can use be going to to indicate future.

Humans are very interested in other people's intentions, so expressions of intent are a more important piece of information than expressions about movement in space. So when be going to began to be used for intention it was used more often. When phrases are used a lot they begin to lose some of their impact, and the original meaning seems to get bleached away. They also tend to be said faster, and pronunciation erodes: so when going to came into constant use as a main way to express the future, it started to turn into gonna—a new bit of grammar. Not everybody has yet recognized gonna as a future tense marker, but that is clearly the function it is serving, especially in spoken language. In another hundred years it will no
doubt be firmly entrenched in our grammar books—until another way to express future develops.

Grammaticalization happens over and over, and in all languages. In fact, many languages use a phrase with a verb such as go to signal the future. You can see it in Spanish, French, the African languages Margi, Kongo, Mano and Bari, the Native American languages Cocama and Zuni, the Pacific language Atchin, and many more. One thing that languages have in common is that they develop over time in very similar ways.

And it is not just markers of future time that develop this way, but all kinds of grammatical markers. For instance, it is common for the indefinite article an as in ‘a dog’ to develop from the word for ‘one’. In English, you can still hear the ‘n’ of ‘one’ in the ‘an’ of ‘an apple’. Similarly, in Spanish, French, German and other European languages, the relation between the word for ‘one’ and the indefinite article a or an is quite clear. Spanish un/una, French un/une and German ein/eine all mean both ‘one’ and ‘a/an’.

Or think about prepositions, those little words like at, over, with, above or through that link up with a noun to talk about when, where or how something was accomplished (‘at ten o’clock,’ ‘over the bridge,’ ‘with daring speed’). They too are what we think of as part of ‘grammar’ and have undergone changes in their meaning and use. Our words before and behind, for example, are composed of an old preposition be- and the noun fore meaning ‘front’ and hind meaning ‘the back part of a body’. While these prepositions started out with meanings having to do with space (‘before the castle’, ‘behind the ramparts’), they are now also used for time (‘before noon’, ‘I’m running behind schedule’).

There are many features of grammar whose origins we don’t know, but because the process of grammaticalization is so common, it’s safe to assume that all words and parts of words that have a grammatical function … came from other words.

And that helps us explain how the very first language got grammar. The earliest language was no doubt fairly ‘telegraphic’ in nature, a collection of individual words, supplemented with gestures to convey meaning. But soon after human beings could use words as symbols and join two words together, they surely used some combinations very frequently. With the making of inferences and inevitable changes in pronunciation, the development of grammar was put in motion. And that was a great thing, because—despite its bad reputation among those who struggled with it in school—it is the existence of grammar that makes fluent, connected speech possible.

About the author
Joan Bybee (Ph.D., UCLA) is a Distinguished Professor of Linguistics at the University of New Mexico. At the University of New Mexico she has served as Associate Dean and Department Chair. In 2004 she served as President of the Linguistic Society of America. Professor Bybee is considered a leader in the study of the way language use impacts language structure. She has authored books and articles on phonology, morphology, language typology and language change. Her book The Evolution of Grammar (University of Chicago Press, 1994) uses a database of seventy-six languages to study the way in which languages spontaneously develop new grammatical structures.

Suggestions for further reading
In this book: Other chapters discussing grammar include 12 (universal grammar), 14 (animals and language), and 22 (language deprivation); chapters 7 (language change) and 8 (pidgins and creoles) discuss how grammar changes over time.

Elsewhere:

12

Do all languages have the same grammar?

Mark C. Baker

Is there a universal grammar that underlies all languages? What do English, Mohawk, and Japanese have in common?

Probably no one would claim that all languages have the same grammar. But many linguists believe that all languages have certain basic design features in common, and that it is worth looking seriously into a concept often called 'Universal Grammar'.

If there were such a thing as a set of rules underlying all languages, might that help explain how children can so easily learn their mother tongue—without graduate courses or government funds—even though language is one of the most complex systems of knowledge that any human being acquires?

Perhaps, but it's not easy to see what all languages might have in common—especially if we look beyond the Western European languages, which have many similarities because they share a common history. Each language obviously uses different words, and it seems no less obvious that the rules and patterns for assembling words into phrases and sentences differ widely from one language to the next. Let's look at a couple of non-European examples.

In English, one says 'John gave a book to Mary'; the Japanese equivalent is John-ga Mary-ni hon-o yatta. The words for 'book' (hon-o) and 'gave' (yatta) are different, of course, but so are their positions in the sentence. In English, the verb 'gave' is the second word of the sentence; in Japanese it is the last word. In English, 'book' comes after the verb; in Japanese it comes before the verb. In English the gift recipient 'Mary' comes after the preposition 'to'; in Japanese the recipient comes before ni (the equivalent of 'to'). Not only do you need to learn a new set of words to speak Japanese, you also need to learn a new set of rules for how to combine the words—a new grammar.

The Mohawk language differs from English in a different way. In Mohawk, the sentence 'The man gave a blanket to the baby' could be expressed as Owira'a wa-sh-ako-hsir-u ne rukwe. Word order is not grammatically important in Mohawk: you can put owira'a ('baby'), washakohsiru ('he-her-blanket-gave'), and rukwe ('man') wherever you like and still get the same meaning. What's crucial in Mohawk is the form of the verb: if you replace washakohsiru with wahuwahsiru, the sentence then means 'The baby gave a blanket to the man,' whatever order the words are put in. Stranger still, the direct object 'blanket' is not even a separate word in these sentences. It is indicated by hsir, which combines with the verb root u to make a complex verb ('blanket-gave')—something that is not usually possible in English or Japanese. Indeed, a complex verb can be a sentence unto itself in Mohawk: washakohsiru can stand alone to mean 'He gave a blanket to her.'

Despite differences like these, linguistic research is discovering that the grammars of different languages are much more similar than they appear at first.
The subject in Japanese is at the beginning of the sentence, as it is in English. Did you notice that apart from that, the words in Japanese are in the exact mirror-image order of the English order? The recipient ‘Mary’ comes next to the word meaning ‘to’ in both languages. The direct object ‘book’ comes next to the word meaning ‘gave’ in both languages. Overall, the same kinds of words combine with each other to form the same kinds of phrases in English and Japanese. The only difference is a systematic difference in order—whether verbs and prepositions are put at the beginning of their phrases (as in English) or at the end of their phrases (as in Japanese). That’s why it is right to say that the grammars are almost the same. After all, a picture and its mirror image are not completely different, even though the pixels don’t match up. On the contrary, they are almost the same image—a truth we take advantage of when brushing our teeth or combing our hair.

What about Mohawk, where word order doesn’t seem to matter? The fact that the subject can come before or after the verb does not seem so strange if you have studied Spanish or Italian. In all these languages, the verb changes its form to agree with the subject, so the subject can go anywhere in the sentence and you can still recognize it. How about the way the direct object gets incorporated into the verb in Mohawk? Even here Mohawk is not completely unlike familiar languages. Recall that the direct object appears next to the verb in both English and Japanese. This is also true in Mohawk, with a slight twist: the direct object combines so closely with the verb that the two of them become a single word. The three languages are the same in that the verb combines with the direct object more readily than it does with the subject or some other part of the sentence. The only difference is whether the result of that combination is a verbal phrase (English and Japanese) or a verbal word (Mohawk).

The fact that verbs always combine more closely with direct objects than they do with subjects is a good example of a general law of grammar, which seems to hold for all human languages.

It turns out that there are many such universal laws. In fact, over the past several decades, linguists have uncovered dozens of them. The laws provide the basic skeletal structure of language, which individual languages then flesh out in various ways. Once we dig beneath the surface, languages seem to have as many similarities in their structure as they have differences. So, while it is not quite true that all languages have the same grammar, it is much closer to being true than you might have thought.

About the author

Mark Baker was trained in linguistics at MIT under Noam Chomsky. He is now professor of linguistics and cognitive science at Rutgers University, where he specializes in the word structure and sentence structure of less-studied languages, especially those spoken in Africa and the Americas.

Suggestions for further reading

In this book: Other chapters discussing grammar include 11 (grammar in general), 14 (animals and language), and 22 (language deprivation).

Elsewhere:

Baker, Mark. The Atoms of Language (Basic Books, 2002). A non-technical book-length discussion of the similarities and differences among languages, showing in more detail than this chapter how different-looking languages can be derived from almost the same grammatical rules.

Pinker, Steven. The Language Instinct (Harper Collins, 1994). Chapter 8 addresses the question of how languages differ, putting this question in the context of the overall view that language is an instinct hard-wired into the human brain.

Whaley, Lindsey. Introduction to Typology (SAGE Publications, 1996). An introductory textbook that gives some of the history and main results that come from comparing a wide range of historically unrelated languages.
With the melody imprinted, the first problem babies face is finding the *units* in the speech they hear. Where does one word end and the next begin? By four and a half months of age, they’re well on the way to finding words in the stream of speech that washes over them. They start by recognizing their own name. The first clue is its stress pattern (‘Irving’ is clearly different from ‘Annette’); in very little time, they can distinguish their name (e.g., ‘Irving’) even from other names with the same stress pattern (‘Wilson’, for example). Researchers can demonstrate this by showing that, given a choice, little Irving consistently prefers listening to his own name. Having mastered their names, babies begin to recognize other frequently occurring words—like ‘mama’—that can serve as anchors in the mass of sounds coming at them. (You may have had a similar experience as you began learning a foreign language.) Research tells us that at six months of age babies can recognize a word they hear when it comes after their own name.

Having learned to distinguish words, babies need to figure out what they mean. Naturally enough, some of the first words babies understand the meanings of are ‘mama’ and ‘daddy’. Research tells us that by six months, they attach the word ‘mama’ to their own mother and not to just any woman. Likewise for ‘daddy’. But as their internal vocabularies expand, learning what words mean can be complicated. Imagine yourself in a foreign country where you know very little of the language. A rabbit hops by, and a native says ‘zoxil’. What might ‘zoxil’ mean? ‘Rabbit’ is a pretty obvious guess, but it might not be right. She could be saying ‘look’, or ‘hopping’ or ‘ears’. Picking up the new language this way, it’ll take time for you to sort out the possibilities and add ‘zoxil’ to your vocabulary. Babies are in the same situation. But by twelve months, they seem to interpret words as labels for objects—usually whole objects (like rabbits) as opposed to parts (like ears) or actions (like hopping).

After babies find words and know some meanings comes the step that marks true language acquisition: they begin to learn how words go together to make sentences. They know more about their
language than what they can say—just as you could understand more in a foreign language than you could speak. So while their first spoken words appear at around twelve months of age, they may already understand hundreds of words. By eighteen months, they can understand five- and six-word sentences when they may be saying only one or two words at a time themselves.

Picture an oversize TV screen, split between two moving images: on the left side, Cookie Monster is hugging Big Bird; on the right, Big Bird is hugging Cookie Monster. Babies watch the screen with rapt attention. When they hear ‘Where’s Big Bird hugging Cookie Monster?’ they look more at the right side of the screen than at the left. This means that babies, amazingly enough, are already using grammar, the order of the words in English, to figure out who’s doing what to whom—even if they aren’t saying much at all.

So here’s a paradox: Babies can’t tie their shoes or be left alone for more than thirty seconds, and yet they’re like sponges when it comes to learning languages. The next time you’re tempted to think of a newborn baby as a vegetable, think again! They’re paying attention—and they learn languages better than their older and wiser parents!

About the authors

Roberta Michnick Golinkoff holds the H. Rodney Sharp Chair in the School of Education at the University of Delaware and is also a member of the Departments of Psychology and Linguistics. She directs the Infant Language Project, whose goal it is to understand how children tackle the amazing feat of learning language. Having obtained her Ph.D. at Cornell University, she has produced nine books and many research articles. The recipient of a prestigious John Simon Guggenheim Fellowship and a James McKeen Cattell Sabbatical award, she is frequently quoted in newspapers and magazines and has appeared on Good Morning America and many regional morning television programs.

Kathy Hirsh-Pasek is the Stanley and Debra Lefkowitz Professor in the Department of Psychology at Temple University, Pennsylvania, where she serves as Director of the Infant Language Laboratory. Her research projects in the areas of early language development and infant cognition have been funded by the National Science Foundation and the National Institutes of Health and Human Development and have resulted in nine books and numerous journal publications. She has appeared on Today, 20/20, and other national television programs and is often quoted in newspapers and magazines. She is a Fellow of the American Psychological Association and serves as Associate Editor of Child Development.

Suggestions for further reading

In this book: Other chapters discussing language acquisition by children include 8 (pidgins and creoles), 15 (language and the brain), 22 (language deprivation), 23 (sign languages), and 33 (children and second languages).

Elsewhere:

Golinkoff, R. M. and K. Hirsh-Pasek. How Babies Talk: The Magic and Mystery of Language in the First Three Years of Life (Dutton/Penguin, 1999). This is a fun read that reviews the latest research in language acquisition and offers tips to parents.

Hirsh-Pasek, K. and R. M. Golinkoff. Einstein Never Used Flash Cards: How Our Children Really Learn and Why They Need to Play More and Memorize Less (Rodale, 2003). This award-winning book shows how important language is for reading, expressing emotion, and succeeding at school.
A third striking characteristic is what linguists call 'displacement'—humans can talk about objects that aren't present, like the man in this sentence: 'The weird man you followed last week told me he's considering writing an expose of existentialism.' Still another feature of human language is its ability to talk about abstract notions—like 'weirdness,' 'expose,' and 'existentialism.' Finally, the 'weird man' sentence is one I never used before I wrote it just now. You probably never heard it before, either. All human languages have the ability to create new expressions.

If language necessarily involves all five of those criteria, we have to say that animals do not use language, even though they communicate with one another in ways that share some of its characteristics.

Bees have elaborate dances to tell other bees the location and quality of a food source. The dances have regulated paths and speeds. The orientation of the dancer's head and the vigor of its waggle are significant. Clearly these dances follow rules. They are about food that isn't present (so we have displacement) and about how good the food is (so we have abstraction). And researchers seem to assume that dancing is innate. But creativity is lacking; the amount of information bees can pass on is extremely limited. They cannot communicate, for example, that a new food source is near another well-known one, or that other bees are already approaching the source so that the hive had better hurry if they want any.

Birdsong has also rules. Robin song, for example, has motifs which have to occur in a certain order (a kind of grammar) or other birds will find them unintelligible. The ability to sing is innate, and birds not exposed to song within the first several months of life never develop typical courtship-territorial song. Birdsong does convey emotion, so to that extent it refers to abstractions. We have no evidence, however, that birdsong allows displacement (birds never seem to tell each other that something scary happened to...
them on the other side of the barn, for example); nor do they make up new songs.

Whales and dolphins sing and whistle. The form of their songs follows rules (the complex songs of some whales can go on all day long), and they can convey limited meaning (distress or warning calls), but there's no evidence of the novelty or creativity characteristic of human language. The songs are signatures, simply identifying the members of a pod.

Chimpanzees have grunts, barks, pants, wails, laughs, squeaks, hoots, and calls. They use them to alert others to the location of food sources, to announce a successful kill, to express alarm or danger, to identify themselves, or to express satisfaction. Their postures, facial expressions, and limb gestures play an even greater role in communication. But nothing so far has indicated that any of this follows a set of grammar-like rules.

Turning to the second question, there have been many attempts to teach human language to birds, sea mammals, and primates.

Alex, an African grey parrot that Dr. Irene Pepperberg of the University of Arizona has worked with, has an extensive vocabulary. He can identify objects with English words, by their material, color, shape, and number. He can ask for food that isn’t present. He apologizes when he’s misbehaved. He is quite facile at language and clearly understands what some words mean. Yet, his verbal behavior is erratic in ways unlike even a very young human's.

Dolphins have been taught to respond to hand gestures and are able to interpret new utterances correctly. For example, dolphins who learned that the sequence of gestures PERSON SURFBOARD FETCH means 'bring the surfboard to the person' were able to interpret SURFBOARD PERSON FETCH as 'bring the person to the surfboard'—and quite easily. They recognized a system and used it.

Chimpanzees, gorillas, and bonobos (closely related to chimps) have been taught to use and respond to sign language. The famous chimp Washoe, who learned a simple sign language from her train-

ers, adopted a baby named Loulis; and Loulis is said to have learned to sign from Washoe. A gorilla named Koko is reported to have amassed a vocabulary of over a thousand signs. A bonobo named Kanzi, featured in cover stories in Time, Newsweek, and National Geographic because of his language-like ability, learned to use a keyboard with symbols on it. We are told he could understand over five hundred spoken English words and use about two hundred keyboard symbols to represent set words or actions.

While experiments in teaching human language to animals are suggestive, they leave the basic question unresolved. How great is the ability of animals to use language? Kanzi demonstrates that primates can learn language to some extent; but even if animals have such a capacity, they do not use it among themselves. There seems to be no chimpanzee grammar in the jungle. Nor is there evidence that animal communication systems can express new ideas, a key feature of human language. Language remains the most profound distinction between animals and humans.

About the author
Donna Jo Napoli, trained at Harvard and MIT, is Professor of Linguistics at Swarthmore College. She publishes widely in theoretical linguistics, primarily on the structure of Italian and, more recently, of American Sign Language (ASL). Her books include Language Matters (Oxford, 2003) and Linguistics: An Introduction (Oxford, 1996). She also writes novels for children: http://www.donnajanapoli.com

Suggestions for further reading
In this book: Chapters discussing grammar include 11 (grammar in general), 12 (universal grammar), 13 (infant language acquisition), and 22 (language deprivation).

Elsewhere:
Anderson, Steve. Dr. Doolittle's Delusion: Animals and the Uniqueness of
Human Language (Yale University Press, 2004). Clarifies the distinction between communication and language and argues that while animals have the former, they do not have the latter.

Web sites:

http://www.cwu.edu/~cwuchci/
The site of Central Washington University's Chimpanzee and Human Communication Institute, where scientists use ASL with chimps.

http://www.bga.com/~pixel/fun/alex.htm
An article by Kenn Kaufman about Alex the parrot and his communication with humans.

http://polarization.com/bees/bees.html
About bee dances.

15

How does the brain cope with multiple languages?

Henk Haarmann

Is there such a thing as too much language learning?
How does the brain deal with multiple languages?

Have you ever been faced with uncomfortable amounts of new or complicated information, and said something like 'I feel my head's going to explode'? Well, I don't want to blow anybody's head up, but one of the major aims of many of the chapters of this book is to encourage readers and their children to learn new languages. So, in case you detect cerebral pressure building, let me offer some words of comfort about the magnificent flexibility of the human brain.

Researchers today compare the brain at birth to a kind of ready-to-assemble computer kit: it comes with working components, but they have to be connected before you have a fully functioning computer. In this view the brain comes with readiness for language in general, but acquiring the actual sounds, words, and grammar of a particular language means growing new connections between
neurons, the individual brain cells. This connection-building is what happens as a toddler learns to associate the word ‘dog’ with a four-legged animal and ‘milk’ with what’s in his drinking cup; or as another toddler learns the words ‘perro’ for the same animal and ‘leche’ for the same liquid.

But you may wonder, if a child is hearing both languages, will her brain mix them up and thereby hinder speech? Here’s the comforting fact: the brain — especially in early childhood — has a huge, virtually inexhaustible capacity for making such connections. The more talk children are exposed to in the first three years of life, the better their language skills later. In fact, children exposed to more than one language grow not only the connections that build vocabulary in each language; they also grow connections that help them sort out which language to use in different situations.

They learn, for example, to ask their English-speaking mother for ‘milk’ and their Spanish-speaking grandmother for ‘leche’.

In the past few years we’ve seen some tragic cases in which people adopted babies from orphanages in Eastern Europe and found that, as they grew into childhood, they were handicapped in talking to their American mothers. That wasn’t a result of being confused by hearing a new language. It happened because the orphanages were thinly staffed. People watching the babies gave them minimal care and had little or no time to talk to them. The babies were linguistically starved, and didn’t have the verbal stimulation that leads to normal use of language. Hearing talk, lots of talk, in infancy and later is healthy activity for the human brain, and that seems to be true no matter how many languages are involved.

But there’s more to the story. It seems that there are cognitive advantages in training oneself to keep two or more languages separate. A recent study found that brain regions important for fluent speech were better developed in bilingual speakers than they were in monolinguals, especially when two languages were learned early in life.

Here’s why: When a bilingual child wants to express a word in one language, the brain also activates the corresponding word in the other language. To prevent the word in the other language from being unintentionally spoken aloud, the brain has to suppress it. By having to perform this kind of control, the developing bilingual brain gets a kind of exercise that the monolingual brain does not.

To repeat, learning two languages at an early age is good for the brain — and, you’ll be interested to know, not just for learning to talk. Studies at York University in Canada suggest that early bilinguals also have better cognitive control in certain types of non-verbal tasks. And that was true not just for children but also for middle-aged and older adults. Bilingualism seems to protect healthy older adults from some of the negative effects of aging on the brain. That in itself is an excellent reason to be born into a bilingual family — or to start learning a second language while you’re still in diapers.

About the author

Henk Haarmann is an associate research scientist at the Center for Advanced Study of Language (CASL) of the University of Maryland. He is a cognitive psychologist who has studied language memory through computer modeling and measurement of brain activity. He was born in the Netherlands. He received doctoral training at the Max Planck Institute for Psycholinguistics and the University of Nijmegen in the Netherlands and post-doctoral training at Carnegie Mellon University. Email: hhaarmann@casl.umd.edu

Suggestions for further reading

In this book: Other chapters discussing adult language learning include 27 (foreign accents), 30 (how to study languages), 31 (history of language-teaching methods), 32 (study abroad), and 34 (language-teaching technology); chapters discussing children’s language learning include 8 (pidgins and creoles), 13 (babies and language), 22 (language deprivation), 23 (sign languages), and 33 (second-language learning in elementary schools).

Elsewhere:

28

How are the sounds of language made?

Peter Ladefoged

What kind of sounds make up languages? Do all languages have consonants and vowels? Do they all have the same ones?

Everyone knows that when you talk you use your tongue and lips. You probably also know that speech sounds often involve the action of the vocal cords—nowadays more usually called vocal folds, as they are two thin folds of muscle in the throat that vibrate when air is blown between them. To get the vocal folds to vibrate you have to push air out of your lungs. To talk, we then move parts of the vocal tract and, in various ways, alter its shape to produce consonants and vowels. Here are some examples of how it all works.

The lips are used to make the consonants at the beginning of the English words pea, bee, me. In the p sound, pressure is built up behind the closed lips. The vocal folds do not vibrate and there is usually a little puff of air (called aspiration) when the lips open and before any following vowel begins. This puff of air is missing when you say b, and there may even be some voicing (vocal fold vibration) while the lips are closed. There is always voicing during the lip closure for m in which the air comes out through the nose.

The English consonants t, d, n and k, ng are pronounced in ways similar to p, b, m, except that for t, d, n the air is stopped from flowing out of the mouth by raising the tip of the tongue to form a closure just behind the teeth; and for k, ng the closure is made by raising the back of the tongue to contact the soft palate, the fleshy part at the back of the roof of the mouth. Other consonant sounds, such as those in the words fie, thigh, sigh, shy, don't have a complete closure stopping air from flowing out of the mouth but are produced by forming a narrow gap through which the air hisses and hushes as it escapes. In these sounds the vocal folds are not vibrating. There is, however, another set of fricative sounds in which there is voicing, as in the sounds at the ends of the words move, smooth, ooze, rouge.

Most forms of English have twenty-two consonant sounds and anywhere from thirteen to twenty-one different vowel sounds. You can hear many of the different vowel sounds between the consonants b and d in the words bead, bid, bayed, bed, bad, bawd, booted, bide, bowed, bode, Boyd, bud, bird. It is very difficult to make accurate descriptions of vowels in terms of their tongue and lip positions, but they can easily be specified in terms of their acoustic overtones.

So how do languages differ with respect to the sounds they use? All spoken languages have consonants and vowels, but the sounds of the world's languages vary so extensively that altogether they may have as many as six hundred different consonant sounds and two hundred different vowels as modified by different pitches and voice qualities.

Sounds like p, t, k occur in 98 percent of all the languages in the world. Hawaiian is one of the languages that does not have all three; it lacks t. Interestingly, Hawaiian has only eight consonants, p, k, m, n, w, l, h, and a glottal stop (a closure of the vocal folds), written with an apostrophe, as in the word Hawai'i.
Other languages have consonants that don’t occur in English. Spanish and Italian, for example, have trilled r sounds. Trills made with the lips occur in a number of small, endangered languages such as Melpa and Kele in Papua New Guinea. Lip trills preceded by a special kind of t occur in Oro Win, a language spoken by only half a dozen people living near the border between Brazil and Bolivia. American Indian languages have a wealth of sounds not found in English, sometimes including long strings of complex consonants. In Montana Salish the word for ‘wood tick’ in an English spelling would be something like chchts’elshchen.

The only speech sounds that can be made without using air from the lungs are the clicks that occur in languages spoken in central and southern Africa. These sounds are made by sucking air into your mouth, much as you might do when dropping a kiss on your grandmother’s cheek. A language called !Xóõ, spoken in the Kalahari Desert has eighty-three different ways of beginning a word with a click sound. Zulu, a more well-known language, spoken in South Africa, has three basic clicks, each of which has five variants.

Where European languages stand out is in their number of vowels. French has vowels, not found in English, in which the lips are rounded while the tongue is in the position for the English words tea and day, forming the French words tu ‘you’ and deux ‘two’. The largest number of vowels occur in Dutch and German dialects.

It falls to phoneticians to be concerned with describing the sounds of the world’s languages: what sounds there are, how they fall into patterns, and how they change in different circumstances. Because there are so many languages and dialects, because the vocal apparatus can produce such a wide variety of sounds, and because each of us has a different way of speaking our own language, it is an infinitely challenging task—and one of most fascinating aspects of the study of language.

About the author

Peter Ladefoged, Professor of Phonetics Emeritus at UCLA, was the world’s foremost linguistic phonetician and one of the most important figures in linguistics in the twentieth century. He published ten books and one hundred and thirty scholarly articles on various aspects of the theory and practice of phonetics and the phonetic properties of specific languages. The essay above was one of the last pieces he wrote before his death in early 2006.

Suggestions for further reading

In this book: Other chapters that talk about the sounds of language include 26 (English in the American South) and 27 (foreign accents).

Elsewhere:

Ladefoged, Peter. A Course in Phonetics (Harcourt Brace, 1975; Thomson/Wadsworth, fifth edition 2006). The standard textbook in the field, which has been used to train generations of linguists.

Maddieson, Ian. Patterns of Sounds (Cambridge University Press, 1984). A useful reference text that describes the distribution of sounds in more than three hundred languages of the world. Readers can look up a sound and find which languages contain it, or they can look up a language and find its particular phonetic inventory.

International Phonetic Association. Handbook of the International Phonetic Association (Cambridge University Press, 1999). A comprehensive guide to the phonetic alphabet used by linguists all over the world. The principles of phonetic analysis are described and examples of each phonetic symbol are given.

Web site:

http://www.phonetics.ucla.edu

Some of the sounds of the hundreds of languages Dr. Ladefoged has studied can be heard here.
Can computers teach languages faster and better?

Frank Borchardt

Can you converse with a machine? What technology exists to help people learn languages?

Douglas Adams's *Hitchhiker's Guide to the Galaxy* was filled with wisdom. Big friendly letters on the cover advised, 'Don't panic!' The book's best invention was the Babelfish, which, if you stuck it in your ear, translated for you all the languages of the galaxy. When real-life computers began to offer rudimentary versions of Babelfish-like capabilities, language teachers would have done well to heed the advice on the cover of Adams' *Guide*. Instead, for a very long time, the language-teaching profession seemed to spin its wheels, unsure about how to use the new technology.

It has been commonplace since the days of Marshall McLuhan and Walter Ong to observe that new technologies emulate old ones, at least for a while: printed books pretended to be manuscripts for a good fifty years after Gutenberg's Bible; films at first looked like stage plays; television news sounded like radio; and computer screens still haven't gotten beyond looking like paper. In the language-teaching world, electronic exercises and tests at first consisted largely of multiple-choice and true/false questions, fill-in-the-blanks sentences, and scrambled-sentence exercises, all of which came directly from the printed textbook.

Fortunately, things change. In recent years, the use of technology in language learning has dramatically increased, and its value is now abundantly clear.

An early example is the wholly glossed text, in which an audio or cinematic work is digitized and decked out with every imaginable resource for the learner. A complete transcript of a movie in the target language or a translation into English can be called up with a mouse click; a click on an individual word or phrase can bring up explanations of the grammar and syntax of almost every part of a paragraph, as well as its cultural background. The result is great savings in time, since there is no need for a learner to flip through the pages of a dictionary or grammar book. Examples of language-learning programs using this technology include *Interlex*, *Système D*, *Language Dynamics*, and *Transparent Language*.

More recently, the Internet and World Wide Web have brought remarkable new uses of technology. For the first time, without leaving the desk, a language learner can access reliable grammars, dictionaries, online formal courses, and authentic materials in great abundance.

There are also new ways to practice the language. Drill-and-practice programs, typical of 1960s language-teaching methods, were ridiculed by critics as 'drill-and-kill'; but eliminating such programs may not have been an altogether wise move. Drill-and-practice remains an unavoidable component of adult language learning, and it is something that computers do very well indeed. Now, as a low-end application of technology, instructors can use programs like *Hot Potatoes*, available at no cost, to quickly create exercises based on authentic media found on the Web.
The Web also permits contact—in the target language—with native speakers in countries wherever the language is spoken. One option, of course, is the electronic version of pen pals. Another is the emergence of audio and video ‘podcasts’—created by people all over the globe with the express intent of being downloaded on computers—through which students can tune in subjects of their own interest. The existence of international ‘blogs’ (Web logs) offers a way for learners to read target-language prose, in informal language, which is easier to deal with than formal journalistic or literary prose. Text, audio, and video are available in countless combinations, as are e-mail services, chat rooms and instant messaging in many, many languages. If there is a drawback to such abundance, it is the difficulty of finding a pathway through these resources that will lead the learner rationally and gradually to the next level of proficiency.

To date, most computer-assisted language learning has focused on written language, with sound bytes added so learners can hear the pronunciation of native speakers. But a recent leap forward uses voice recognition technology to allow learners to ‘converse’ with a machine. It is not yet sustained conversation, but the computer can supply a video or audio prompt and gauge the comprehensibility of a student’s response in narrowly-defined scenarios (such as greetings or ordering from a menu). Based on a database of acceptable responses and pronunciations, the machine will either accept the response and move ahead in the conversation, or ask for clarification.

This avalanche of computer-mediated linguistic resources benefits above all the highly motivated autonomous learner, who does well no matter what the circumstances, but it is also being used in structured language classes. Some teachers use ‘discussion boards’ (electronic bulletin boards) for students to work on the language collaboratively: students post comments in the target language, which their fellow students add to. Although it is still written, this kind of language practice is genuine communication which, after all, is what language learning is all about.

So, yes, the computer is in many ways helping to teach languages better, or at least more efficiently; and language study has become more interactive, more exciting. No one claims any longer that technology is going to solve all the problems of language learning. But neither is the new technology an oddity for the educational establishment. While the number of language teachers who use computers in their courses is still relatively small, it is growing daily.

We are a long way from creating artificial intelligence that will let us talk to a machine in the language of our choice. While many young people would not think of wandering about without iPods firmly planted in their ears, the Babelfish is even further off. But we are well launched, and the computer has set the course for a ‘galaxy’ of new approaches to language learning.

About the author

Frank L. Borchardt is Professor of German and Education at Duke University. From 1983 to 1997 he led the projects which produced the CALIS (Computer Assisted Language Instructional System) mark-up language for instructional exercises, and its successor WinCALIS. He was Executive Director of CALICO (Computer Assisted Language Instructional Consortium) and editor of the CALICO Journal from 1991 to 1997. He has served as Seminar Director at the Universidad de las Palmas de Gran Canaria (1993), as Visiting Professor at the Universidad Tecnológica Nacional of Argentina (1997), and as Advisory Professor to Shanghai’s Jiao Tong University (1999). Currently he teaches language and literature in Duke’s German Department and the occasional Educational Technologies seminar in the Program in Education at Duke. For further information, see http://www.duke.edu/~frankbo/frank1.html.
Suggestions for further reading

In this book: For other discussions of adult language-learning see chapters 15 (language and the brain), 27 (foreign accents), 29 (adult advantages in language learning), 30 (language-learning tips), 31 (history of language-teaching methods), and 32 (study abroad). Other linguistic/technological topics appear in chapters 35 (interactive map of U.S. language communities), 45 (machine translation), 46 (Forensic Linguistics), and 47 (the National Museum of Language).

Elsewhere:

An excellent introduction and overview (like so much else in Wikipedia) of computer-assisted language learning.

A general Web site on language-learning technologies. Good overview, good theory, good practice. Has a generally Eurocentric bias, understandable since the project was originally funded by the EU.

http://ltt.msu.edu/vol8num1/net/default.html
Site of the online journal Language Learning & Technology.

http://www.tandf.co.uk/journals/titles/09588221.asp
The online journal for the professional organization devoted to Computer-Assisted Language Learning (CALL).

http://www.eurocall-languages.org/recall/
The online journal for the professional EuroCALL's ReCALL Journal.

http://calico.org/
The site of CALICO (Computer Assisted Language Instruction Consortium).

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What's the language of the United States?

David Goldberg

Isn't the U.S. monolingual? What languages other than English are spoken there? How do you find out who speaks what languages where?

It always seems peculiar when you hear people say that the U.S. is an English-speaking country, and that Americans 'aren't good at languages.' Actually, tens of millions of people in the U.S. speak languages other than English—a lot of other languages. More than 47 million people speak languages other than English at home; about 93 percent of them also speak English. Did you know that people in Idaho speak over seventy languages, including almost a thousand who speak Shoshoni? That over 86 thousand people speak Polish in Chicago? Or that almost half of New York City's residents don't speak English at home? In fact, only the less populated or rural areas of the country are exclusively English-speaking: places like Appalachia, the deep South, and parts of the Midwest. In most of
the country, and especially in the larger cities, multilingualism is the rule.

The language abilities of people in the U.S. are a valuable national resource in many ways, but the nation is not using this resource as well as it might to meet its language-related needs. People who know their family language only in part can be educated to strengthen their language skills, and those who are to any degree bilingual or multilingual have a leg up on learning other languages as well. Support for language education programs already in place would go far towards meeting language shortfalls in government and industry.

How do we know about how many Americans speak which languages and where? By referring to an online Language Map created by the Modern Language Association of America. Using data from the 2000 Census, the MLA has created interactive maps and tables that show the linguistic composition of the entire U.S., state by state, county by county, city by city—down to the neighborhoods defined by postal delivery codes—at the touch of a button.

You can see how languages are distributed across the country, and zoom in on places that have speakers of a language you're interested in. You can call up tables that rank the fifty states according to numbers of speakers for each language. If, for instance, you want to know where Vietnamese is most spoken you'll see that California, Texas, and Washington are the top three states. And tables in the MLA Language Map’s Data Center will show you how well speakers of other languages speak English, too.

If you look at Minnesota, which you may think of as full of Scandinavians, you'll find that Spanish, German and the Southeast Asian language Hmong are the most spoken languages—there are three times as many speakers of Hmong as there are speakers of Swedish, Norwegian and Danish combined. You could look up Androscoggin County in Maine and find that it has 13,951 speakers of French and 271 speakers of German—not to mention well over thirty other languages. You can compare the number of Yiddish speakers in New York with the number in Miami. The Map also gives a breakdown of speakers by age, separating those under the age of eighteen, those between eighteen and sixty-four, and those sixty-five and over. In Brooklyn, for instance, there are over 24,000 Yiddish speakers under the age of eighteen; in Miami, there are none. Data like these may provide clues to a language community’s future—or perhaps to whether new immigrants have come by themselves to work and send money home, or have come with their families to stay.

There are dozens of ways planners, teachers and students, corporate researchers, librarians, or ordinary citizens can use the information presented in the electronic MLA Language Map. Marketers who want to reach speakers of Urdu or Korean can find the postal codes where a mass mailing might be most effective. Government agencies can use it for providing social services, or for disaster preparedness. The Map can tell Justice Department officials which languages they need to use to inform new citizens of their rights and responsibilities; it can tell officials in the Office of Trade and Information how it might help a company with interests in China find Americans who know the language. Perhaps most importantly, the Map can help language learners find a place in the U.S. where they can practice the languages they're studying without spending money to go abroad.

All this wealth of linguistic information existed in the U.S. Census Bureau’s archives, but it was the MLA’s work that made it public, easy to find and easy to use.

The U.S. has long been described as a cultural melting pot into which languages other than English disappear upon arrival. The Language Map reveals that this is far from being the case. You can investigate for yourself by going to www.mla.org, clicking on ‘Language Map,’ and typing in the name of a town or a U.S. postal code (ZIP code). You may get a surprise.
About the author

David Goldberg is Associate Director of the Office of Foreign Language Programs and the Association of Departments of Foreign Languages at the Modern Language Association. He is responsible for the continuing development of the MLA Language Map. Goldberg holds a Ph.D. in Yiddish literature and has taught Yiddish language and literature in heritage language schools and at Columbia University and the University of Pennsylvania. He is the author of an intermediate Yiddish textbook published by Yale University Press.

Suggestions for further reading

In this book: The language landscape of the U.S. is discussed in chapters 25 (revitalizing threatened Native American languages), 26 (English in the American South), 36 (America's language crisis), 37 (Spanish in the U.S.), 38 (Cajun), 39 (German in the U.S.), 40 (Gullah), and 49 (Native American languages). Other linguistic uses of technology are the subjects of chapters 34 (language-teaching technology), 45 (machine translation), 46 (Forensic Linguistics), and 47 (the National Museum of Language).

Elsewhere:

McKay, Sandra Lee and Sau-ling Cynthia Wong, eds. New Immigrants in the United States: Background for Second Language Educators (Cambridge University Press, 2000). Discusses language issues from the perspective of the year 2000 in communities of Americans from Mexico, Puerto Rico, Cuba, Vietnam, Southeast Asia, China, Korea, the Philippines, Russia, and India. Includes studies on language and law, language and education.


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Is there a language crisis in the United States?

Catherine Ingold

What kind of foreign-language capabilities does America need? What gaps are there? What can be done?

Well, if it's not a crisis, it's certainly a serious problem. The U.S. needs professional-level competence in well over a hundred different languages. While some skills are available, there are huge gaps, including some in jobs of tremendous national importance.

Shortages in defense and intelligence have received the most attention, but they aren't the only needs: the globalization of business has radically increased demand for people who can move information from one language to another. You wouldn't be happy with German-only instructions for your car radio, or a computer whose help wizard understood only Japanese: the localization industry (preparing products for use in another language and culture) is a multi-billion dollar business. In addition, many U.S. residents need
language assistance for essential public services until they learn English; U.S. civil rights law requires in many cases that such assistance be made available—in as many as two hundred languages.

You might ask how there can be a problem when there are thousands of kids studying languages in high school and college every year. Well, first of all, America's schools and colleges rarely teach some of the world's most important tongues. How many schools do you know that teach more than a token amount of Mandarin Chinese, the most-spoken language on the planet? Or the languages of Afghanistan and Pakistan?—to say nothing of Arabic, the U.S. government's current highest priority.

Second, in terms of professionally usable skills, the output of America's education system is modest at best. It's not the fault of teachers or students; rather, it results from scant time allotted to language learning. In many countries, children start a foreign language in the fourth or fifth year of primary school and continue it through high school, adding a second foreign language along the way. Few U.S. schools have such programs. That's a real pity, since learning a language to a professional level takes a lot of time; it should include mastering not only general vocabulary but also the technical terms of one or more specific substantive fields—something that rarely happens in American schools. Think about the special language needs of the court interpreter, the social worker, or the hospital nurse.

Professional-level skill can come from living where a foreign language is spoken, but Americans who study abroad are far fewer than their counterparts from other countries, and they often choose English-speaking countries. (Learning to say, 'G'day, Mate' doesn't do much toward filling the gaps in U.S. language capabilities.) Of course there are exceptions: people who love languages and other cultures gravitate to the Peace Corps or diplomatic service. But they are relatively few. In general, professionally useful skill in a language requires a long sequence of education, at least some time spent in a country where it is spoken, and extensive, meaningful use of the language in real-world communication tasks.

Well, how about the immigrants who bring language skills to the U.S.? Aren't they filling the gap? In the 2000 census, forty-seven million people reported speaking a language other than English at home at least part of the time. That count includes two million speakers of Chinese, over 600,000 speakers each of Arabic and Korean, and 300,000 speakers of Hindi. People with skills in those less-taught languages are critically needed. But here's the catch: most language-related U.S. jobs demand professional-level skills in two languages, one of them English, and many newly arrived immigrants don't speak English well enough to fill them. The children of immigrants may speak the family language at home, but once they're in school they quickly switch to English, and by the third generation the family language is gone.

So despite being a nation of immigrants, the U.S. can't produce the capable, well-educated, bilingual professionals it needs without serious investment in training. The excellent Urdu, Chinese, or Persian of the first generation often needs to be complemented by advanced English—well beyond typical school and college offerings in English as a Second Language (ESL). For children of immigrants, high-quality ESL programs, paralleled by development of literacy in their family language, can achieve the goal. In such 'additive bilingual education' programs, strengths in one's best language can be used to leverage development in one's other language.

If its next generation is to fill critical roles in government, business, and community service, America needs to provide wider and deeper education in far more languages—both to introduce new languages to monolingual Americans and to bolster the skills of people who speak another language at home.

In 1958, the Soviet Union surprised the West by putting the Sputnik satellite into space. The U.S. Congress responded by creating a generation of scientists, engineers, and linguists who helped win
the Cold War. September 11, 2001 was another Sputnik moment for America, and at least some members of Congress believe a similar response is needed. They've proposed a national commitment of resources to the teaching of critically needed languages of the Middle East and Asia, comparable to the commitment that was made half a century ago to the teaching of Russian.

About the author

Catherine Ingold is Director of the National Foreign Language Center (NFLC), an action-oriented language policy institute at the University of Maryland, where she is currently Principal Investigator of a large-scale project to develop online language-learning materials at advanced levels in more than thirty critical languages. Other grants include an online heritage language development resource for Spanish (NEH). Dr. Ingold holds an M.A. in Romance Linguistics and a Ph.D. in French from the University of Virginia. At Gallaudet University, she chaired the foreign-language department and served as Dean of Arts and Sciences and then Provost, learning American Sign Language. As President of the American University of Paris, she presided over a faculty with thirty-five native languages and a student body from seventy-six countries. She has been at NFLC since 1996.

Suggestions for further reading

In this book: Opportunities and requirements for professional use of language abilities are discussed in chapters 20 (bilingualism), 42 (language-related careers), 43 (dictionaries), 44 (interpreting and translating), 46 (forensic linguistics), 53 (Russian), and 55 (Arabic). Another view of U.S. language capabilities is presented in chapter 35 (languages of the U.S.).

Elsewhere:

García, Ofelia, and Joshua A. Fishman, eds. The Multilingual Apple: Languages in New York City (Mouton de Gruyter, second edition 2002). For those interested in our heritage language capabilities and trends in minority language use and loss; provides a wealth of information, accessible to the general reader, on immigrant language communities in New York City.

Brecht, Richard, and William Rivers. Language and National Security in the Twenty-First Century: The Federal Role in Supporting National Language Capacity (National Foreign Language Center, 2000). A strategic analysis of this issue from NFLC that has greatly influenced public policy in the wake of September 11, although it was written shortly before that event.

Wiley, Terrence G. Literacy and Language Diversity in the United States (Center for Applied Linguistics, second edition 2005). Addresses a range of education policy issues related to speakers of languages other than English in the U.S. With emphasis on K-12 language and literacy issues, it complements the other two texts.
Elsewhere:


Web sites:

http://www.yleradio1.fi/nuntii
A source for radio broadcasts in Latin.

http://www.promotelatin.org
http://www.promotelatin.org/greek.htm
Both sites provide many informative links on Classics and Classics teaching.

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Who speaks Italian?

Dennis Looney

*When did Latin turn into modern Italian? Do all Italians speak the same language? How many dialects are there in Italy?*

Fragmentation defines the linguistic history of the Italian peninsula more than you can imagine. Shortly after the modern state of Italy was founded in 1861, a politician famously reflected, 'With Italy made, we must now make the Italians.' Making Italians meant first and foremost giving citizens of the new country—who spoke hundreds of dialects—one voice, an official national language. This project took another century to complete.

The earliest example of written Italian appears in a legal document from 960 A.D. The document, about a debate over property boundaries, is mostly in church Latin, but embedded in the judicial commentary is the statement of a plaintiff in his own vernacular: 'I know that those lands ... [have been held by the Benedictine monks].' A monastic scribe dutifully recorded the speech phonetically, beginning 'Sao ke kelle terre ...'—four words strikingly similar to the standard language of today: *so che quelle terre*. Somewhere
around the end of the first millennium, Latin was changing into what we now think of as Italian.

But, of course, the two languages co-existed for many, many years. This posed a problem for writers, especially educated ones. Should they write in Latin, the revered and long-established language of scholars and the church? Or in the vernacular? This later became known as 'the question of the language', and it was not completely resolved until modern times.

In the early fourteenth century, Dante Alighieri considered writing *The Divine Comedy* in Latin but ultimately chose to use the language of the people, specifically the dialect of his town, Florence, and the region around it, Tuscany. Dante's *Comedy* became the touchstone and starting place for most of the subsequent debates about the language. For scholarly Renaissance humanists, as for Dante, the first choice was between Latin and the vernacular. If one chose the vernacular (as most writers did), there was a second decision: which regional version of it? The dialect of Florence or that of Venice or Rome or Milan or some other city or region?

The prestige and political clout of Florentine culture heavily influenced such linguistic decisions. The powerful precedent set by Dante and other Tuscan authors, including Petrarch and Boccaccio, influenced writers from many other parts of Italy. In 1525, Pietro Bembo, a Venetian, proposed a standard Italian vocabulary, grammar, and syntax modelled after Tuscan. Tuscan's dominance over other dialects was reflected in a common saying: 'the Florentine tongue [should be] in a Roman mouth.'

The debate over linguistic models raged into the nineteenth century, when the influential writer Alessandro Manzoni chose the dialect of contemporary Florence for his great historical novel *The Betrothed*. This required Manzoni, whose native dialect was that of Milan, to 'rinse his clothes'—as he colorfully put it—'in [Tuscany's] Arno River.' In the 1860s Manzoni lobbied successfully for educational policies that established the dialect of Tuscany as the standard to be used in schools. By the middle of the twentieth century most Italians spoke a form of the language updated from Dante's medieval Florentine.

In the 1920s and 1930s, Italy's Fascist government undertook, with no great success, a campaign to rid Italian of all foreign influences. The word *sandwich*, for example, was to be ousted by a new made-up word, *tramezzino*, meaning 'the small thing in between'. Legislation in 1938 banished the respectful pronoun *lei* ('you'), requiring instead the 'more Italian' pronoun *voi*. But *lei* and *sandwich* survived and Italian continued to absorb words from other languages, especially English—or more precisely Anglo-American—throughout the second half of the twentieth century and into the twenty-first. For example, the new English word 'to google'—with an Italian verb ending attached—has recently joined the vocabulary of Italy's computer literate: *googleare*. Italians are not as squeamish about foreign influences on their language as their neighbors in France, and many languages other than Italian are used in Italy; fifteen of them (including German, French, Provençal, Slovenian, Albanian, and Greek) were granted official status as linguistic minorities in 1999.

So, with regional dialects and the infusion of words from other languages, is there now a 'real' Italian, universally understood throughout Italy? Yes, there is: approximately 57 million of the country's 60 million inhabitants communicate in the standard language, as do millions of Italian speakers in other countries. People in Argentina speak a version of standard Italian, making Buenos Aires the second largest Italian city in the world. Standard Italian is also an official language of the European Union, Switzerland, and Vatican City. The rise of mass media has spread the standard language into the country's furthest corners, threatening to extinguish the approximately one hundred dialects that still give the peninsula linguistic richness. Between 1955 and 1995 the percentage of speakers who used only dialect dropped from 66 percent to 6.9 percent. The fragmentation of the language is all but over.
Like all languages, Italian has changed a great deal as its national standard emerged, enriched by its many dialects and by foreign borrowings—and it will continue to change. But at bottom its origins are in Tuscany, and Dante would probably have little trouble understanding it even today.

About the author

Dennis Looney (Ph.D., 1987, Comparative Literature, University of North Carolina at Chapel Hill) is an associate professor of Italian at the University of Pittsburgh, with a secondary appointment in Classics; he currently serves as Assistant Dean in the Humanities. He has published articles on Dante, Petrarch, Boccaccio, Ariosto, Tasso, Herodotus, Ovid, and Pinocchio. Compromising the Classics: Romance Epic Narrative in the Italian Renaissance (Wayne State, 1996) won Honorable Mention for the MLA’s Prize for Italian Literary Studies, 1996–1997. He is co-editor of Phaethon’s Children: The Este Court and Its Culture in Early Modern Ferrara (MRTS, 2005) and editor and co-translator of Sergio Zatti, The Quest for Epic: From Ariosto to Tasso (Toronto, 2006).

Suggestions for further reading

In this book: The history of Italian, which grew out of Latin as described in chapter 50, demonstrates many of the same kinds of issues covered in chapters 7 (language change), 11 (grammar), 41 (dialect change), and 48 (origins of English). Other chapters on modern languages include 52 (Spanish, Portuguese, and others), 53 (Russian), 54 (Icelandic), 55 (Arabic), 56 (languages of Africa), 57 (Chinese), and 58 (Japanese).

Elsewhere:


Migliorini, Bruno; abridged, recast and revised by T. Gwynfor Griffith. The Italian Language (Faber, 1984). Comprehensive work on the history of the language from its origins to the twentieth century.

Web sites:

http://www.accademiadellacrusca.it/
Web site of the active linguistic academy founded in the late sixteenth century to create a dictionary of standard Italian based on the rules of Pietro Bembo. English portal.

http://www.dialettitaliani.com/
http://www.dialettando.com/
Both Web sites provide examples of dialects from around Italy (poems, stories, recipes, anecdotes, and proverbs) in addition to dictionaries for translating dialect into standard Italian. In Italian.

http://www.italica.rai.it/principali/lingua/bruni/mappe/flash/regionalok.htm
Web site in Italian that provides an interactive linguistic atlas of the principal dialects of the Italian peninsula.