



# THE TRUTH ABOUT LANGUAGE

What it is  
and where it  
came from ●

Michael C.  
Corballis

**Michael Corballis answers some of the hardest questions in science – where did language come from and why do we like it so much? – with his usual verve and humour.**

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While birds can chirp and monkeys can chatter, only humans possess the extraordinary power to tell stories and offer explanations, to explain and persuade, to baffle and bullshit that we call language.

How come? Where did language come from? In this book, Michael Corballis takes on what has been called the hardest problem in science.

From God to Noam Chomsky, many have suggested that language arose suddenly in a way that cannot be explained through ordinary evolutionary processes. Corballis argues otherwise. He uncovers the precursors of language in the ability of mice and other animals to engage in ‘mental time travel’, the use of gesture by apes, the capacity of chimpanzees to step into the shoes (or paws) of others, and the increasing need for social co-operation as hominins left the forest. By adding voice and grammar, language enabled humans to take all those capacities up an evolutionary notch. Now we could share stories, we could work collaboratively in groups, and – as different languages became standardised – we could even learn to dislike different groups and different cultures. We were human.

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# PART ONE

## Background to the Problem

Over a decade ago, Morten Christiansen and Simon Kirby introduced an edited collection of articles on the evolution of language with the chapter title “Language Evolution: The Hardest Problem in Science?” It was framed as a question but may indeed be true as a statement. In this book I attempt a solution—one that is in part speculative but based where possible on facts. Part 1 sets the background and has three chapters.

Chapter 1 describes some of the properties of language that make it seem so intractable. It opens with a quote from a prominent nineteenth-century philologist writing, as many did at the time, in protest against Darwin’s theory of evolution. Language, he thought, was the one obstacle to the idea that human behavior could have arisen through natural selection. Language indeed seems to be unique to our species, and to have properties not easily discerned either in other aspects of human thinking or in the behaviors of our closest nonhuman relatives.

In chapter 2 I outline how the apparent uniqueness and complexity of language have led to the view that language must have been the result of some miracle, whether a gift from the deity, a fortunate genetic mutation, or simply a byproduct of having a large and complicated brain. Prominent among those who argue that language emerged in our species in a single step is Noam Chomsky, the foremost linguist of our time, and his views are supported by many contemporary linguists and anthropologists.

Chapter 3 then provides a background to the understanding of language as a product of gradual evolution. In a post-Chomskian era, some theorists are edging toward a Darwinian account, although there is as yet little agreement as to the main steps.

The stage is then set for a more detailed examination of how language might indeed have evolved.

## THE RUBICON

Where, then, is the difference between brute and man? What is it that man can do, and of which we find no signs, no rudiments, in the whole brute world? I answer without hesitation: the one great barrier between the brute and man is Language. Man speaks, and no brute has ever uttered a word. Language is our Rubicon, and no brute will dare cross it.

So declared Friedrich Max Müller (1823–1900), professor of philology at the University of Oxford, in a lecture on the science of language delivered in 1861. Müller was protesting against Charles Darwin’s famous treatise *On the Origin of Species*, which had been published just two years earlier.<sup>1</sup>

The essence of Darwin’s theory of evolution is natural selection, the process by which biological traits become more or less common in a population. This in turn depends on natural variation between organisms, so that variants with higher rates of reproduction become more populous. The nature of this “selection” is such that it has no purpose or direction. Because the variation is small, evolution works slowly and in small increments. Darwin wrote without knowing anything about genes or DNA, but we now know that genes are subject to mutations, creating the variations upon which natural selection operates.

To Müller, then, the difference between language and animals’ communication was simply too profound to have come about through incremental tweaking—too wide a Rubicon for evolution, with its

mincing little steps, to cross. And language is widely considered the commodity that most clearly defines us as human. Barring exceptional circumstances, we all acquire it. That in itself is not extraordinary, because we also learn to walk, just as birds learn to fly. Language, though, seems different, in that it is complicated and allows a freedom of expression far beyond that available even to our closest nonhuman relatives, chimpanzees and bonobos. Even linguists don't yet fully understand the rules by which we generate sentences or tell coherent stories. In contrast, the "brutes" that Müller disparages communicate in very limited and stereotyped ways, at least if we consider vocal communication. I shall argue later, though, that the seeds for a more flexible form of communication lie in the hands rather than the voice.

The most dominant languages in the modern world are English and Chinese, which are vastly different from one another. Chinese has the largest number of native speakers, but English takes the lead if you include those who speak it as a second language. Chinese is complicated by the fact that there are several versions; these are generally regarded as dialects of a common language but may in fact be as diverse as the Romance languages. Nevertheless the great majority of Chinese people, some 960 million, speak Mandarin Chinese as their native language, and that alone probably puts Chinese in the ascendancy—ahead of Spanish with about 400 million. Ironically, English and Chinese are among the most difficult languages for nonnative speakers to learn. Chinese is a tonal language, and getting the tone wrong can lead to misunderstanding; you may think you're saying *jī*, meaning "chicken," but a false note yields *jì*, meaning "whore." English has consonant clusters that are awkward for non-English speakers, as in *street* or *exempts*, and boasts some twenty different vowel sounds, as in *par*, *pear*, *peer*, *pipe*, *poor*, *power*, *purrr*, *pull*, *poop*, *puke*, *pin*, *pan*, *pain*, *pen*, *pawn*, *pun*, *point*, *posh*, *pose*, and *parade*. Spanish, in contrast has only five vowel sounds.<sup>2</sup>

In spite of the oppressive dominance of English and Chinese, at least six thousand different languages are spoken around the globe, each more or less unintelligible to the rest. An extreme example is



the Pacific archipelago of Vanuatu, with an area of only about 4,379 square miles, which is host to over one hundred different languages.<sup>3</sup> Sometimes we have difficulty understanding even those who supposedly speak the same language; George Bernard Shaw once remarked that “England and America are two countries separated by the same language.” He might also have had Scotland in mind, because the English dialogue in the 1996 movie *Trainspotting*, set in Scotland, required subtitles when shown in the United States. Language is deeply cultural, and serves to exclude outsiders as much as to bind insiders together. As the title of Robert Lane Greene’s recent book puts it, *You Are What You Speak*.

But we shouldn’t be complacent, because it has been estimated that over twenty-four hundred of the world’s languages are in danger of disappearing.<sup>4</sup> Around a quarter of living languages have fewer than one thousand speakers, and many languages spoken by local communities are being replaced by dominant regional, national, and international languages. Mark Turin refers to the loss of languages as “linguicide.”<sup>5</sup>

Sign languages too are diverse, in spite of the fact that signs generally originate as mimed representations of objects or actions. In the course of time, these representations become stylized—or conventionalized, to use the technical term—and so lose much if not all of their pictorial or action-based character. Sign languages are typically invented anew by different deaf communities, and different sign languages are just about as mutually unintelligible as are different spoken languages.

In spite of the extraordinary differences between the languages of the world, though, it seems safe to assume that any person can learn any language, provided they start early in life. This suggests that language is as much biological as cultural—the capacity to learn it is biological, but the form it takes depends on culture. There remains a question as to whether this biological capacity for language is specific to language itself or comes about because we humans are smart and inventive in general ways. Nevertheless, as far as we know we are the only species with that capacity. Our closest nonhuman relatives are

chimpanzees and bonobos, with whom we share a common ancestry dating back six or seven million years. In geological time this is really just an eye-blink away from the present, and it has also been estimated that we share some 99 percent of our genes with these oddly humanlike animals.<sup>6</sup> Attempts to teach them language, though, have failed rather miserably. To be sure, a few have been trained to make simple requests using a form of sign language rather than speech, but there are few if any glimmerings of gossip, reminiscence, observations about the world, storytelling, or explanations of how things work. Parrots can learn to utter words and even give answers to simple questions, but they too do not use language in the flexible way that we humans do. They can be agreeable and friendly companions, but they are not really candidates for a conversation, and they cannot tell us what it's like to be a parrot. Language-wise, we humans seem to be alone in the world—and possibly in the universe.<sup>7</sup>

Language is not only uniquely human—it is also universally so. In every part of the world, people speak (or sign) to one another, although there are of course a few interesting exceptions. Children isolated from human contact do not learn to speak properly (some such cases are the stuff of legend more than of fact). Reports of so-called wild children brought up by animals, including wolves and bears, have long featured in folklore and have formed the basis of such fictional characters as Rudyard Kipling's *Mowgli*, J. M. Barrie's *Peter Pan*, or Edgar Rice Burroughs's *Tarzan*. Whether there are truly instances of human children raised by animals is doubtful.

The celebrated case of Amala and Kamala, two girls reportedly discovered by missionaries in a forest in India and said to have been raised by wolves, turned out to be a ruse to attract funds for the orphanage in which they were eventually placed. The best-documented case of a child deprived of a normal social environment is Genie, a Californian girl who was isolated by her family from infancy until the age of thirteen. When she was then discovered, she attracted great interest from psychologists and linguists, and strenuous efforts were made to teach her to speak. She did develop some ability to communicate by vocalizing and gesturing, and even by drawing, but she never ac-

quired normal grammatical speech.<sup>8</sup> The best she could manage was a kind of telegraphese, a sort of “me Tarzan you Jane” level of speaking. Such examples have led to the idea of a “critical period” for the learning of language; once you pass puberty, it seems, the game is all but over.

What this suggests is that acquiring a first language can take place only when the brain is itself developing. Of course people do learn second languages as adults, but it can be a hard slog, and it seems impossible to get rid of a foreign accent. This is in marked contrast to the effortless way in which young children learn languages. Learning a second language as an adult, moreover, is not the same as learning a first language, because you can use the first language as the scaffold on which to build the second. And because the brain is at its most plastic and impressionable while growing, the secret of language may well lie partly in the prolonged period of growth that our large brains undergo. Most of this growth occurs after birth, so that the developing brain is exposed to the world outside of the womb and can be shaped by the sights and sounds that the world inflicts on us. Compared to monkeys and apes, we humans are born prematurely and spend a longer time to reach maturity. It has been said that in terms of the general pattern followed by other primates, human babies should be born at eighteen months of gestation, not nine. But birth is difficult enough as it is without having to wait another nine months; even I, as a hapless male, can appreciate that.

Early birth was probably driven by the fact that our species, unlike the other apes, elected to stand and walk on two legs rather than four—to reverse the slogan of the rampant pigs in George Orwell’s *Animal Farm*, “two legs good, four legs bad!” This in turn restricted the size of the birth canal, so our kids need to be born before they grow too large. Even so, birth is difficult, as any mother can attest, but the tradeoff is that human babies are exposed to the postwomb environment while their brains are still immature and ready to be shaped by the social and physical environments into which they are born. Our persistent two-legged stance is in many ways an impediment, giving rise to back and neck problems, hemorrhoids, hernias, and of course

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