

1 Finding our way into the problem: The nature/nurture issue

Why are we the way we are? Are we born that way, or are we products of our environment? Or some mixture? These basic questions lie at the root of any inquiry into human nature.

These questions can be interpreted in various ways. Most often, I find, people tend to think of "the way we are" in terms of differences among individuals: one's "nature" is seen as an issue of metabolism or intelligence or personality. What makes one person fat and another skinny, one sociable and one shy, one good at math and another good at art? Could they have been different if they had been brought up differently? Which things about ourselves can we change, and which are we fated to live with?

Another frequent interpretation of "the way we are" is in terms of differences among groups. Could people differ in intelligence, social behavior, or moral qualities along lines of race or gender or culture? If such differences exist, are they products of heredity or the environment? Far too often, alleged hereditary differences among groups have been used to justify repression, then "supported" with pseudo-scientific evidence. For the moment, let me only observe that even if such differences should exist, they provide no grounds, scientific or moral, for wholesale repression.

The main issues of human nature I want to think about in this book, though, are at the level of the species: What makes human beings the way they are? How are we different from animals? How are we like other animals and different from computers?

In order to find out what *makes* us the way we are, it stands to reason that we have to look closely at the way we are. If we want to know the balance of responsibility between nature and nurture—and how much about ourselves we *can* change—it helps to have a better idea of what the combination of nature and nurture is responsible for. In this book, I want to use human language as a vehicle for examining "the way we are."

I have two reasons for choosing language as a focus. First, the possession of language has always been regarded as one of the major differences between us and the beasts, so it's important to find out just exactly what we've got and they haven't. (We'll see in the next chapter how human language differs from other animal communication.) Second, and to me more important, the modern study of language has uncovered complexities of the mind far beyond what anyone would have imagined thirty years ago—complexities that draw on evidence from, and have implications for, fields as disparate as neuroscience, child development, philosophy, and literary criticism. Consequently, understanding language offers the prospect of integrating biological and humanistic views of "the way we are."

How might we bring language to bear on questions of human nature? One natural way is to ask: How is human experience affected by the fact that we can all speak and understand a language? A number of answers come to mind pretty easily. Most obviously, by virtue of having language, we have access to history: our ancestors have conveyed to us, through either written documents or oral tradition, a record of what happened before we were born. Along with history, we get our culture's accumulation of technology, world views, and rituals—not to mention legal systems, propaganda, gossip, and jokes. Little of this, if any, could be transmitted without language.

Another thing that language does for us is make it possible to coordinate the actions of large numbers of people. A bird's alarm call can make a whole flock flee at once. But people can communicate more differentiated things such as: "When I give the signal, you people over there pull on your ropes, and you people here let go of your ropes, and you other guys over there push like crazy." This kind of directed and coordinated action is hard to imagine without language, and it's necessary in order to do things like erect large structures, a hallmark of advanced civilizations.

The advantage that language is perhaps most often said to confer on us is that it enables us to think. While there is a great deal of truth to this idea—language certainly is invaluable in helping us sharpen certain kinds of thoughts—we should be a little cautious about endorsing it entirely. For one thing, we probably don't want to deny the capability of thought to at least some animals. For another, not all *human* thought requires language. Did it take thought for Beethoven and Picasso to produce their masterpieces? (I think so.) Did it take *language*? (I don't think so.)

Whatever the precise relation of language and thought, though, it is undeniable that human existence is deeply affected by the ability to speak and understand language.

In this book, however, I want to ask a different question about the relation of language and human nature: *What does human nature have to be like to account for the fact that we can all speak and understand a language?* That is, I want to discuss not the *consequences* of having language but rather the *prerequisites* for language: What do we need in order to be able to talk?

It's hard to think up plausible answers to this question. Or rather, the answers that spring immediately to mind turn out to be less than persuasive. For instance, one possible answer is that we have language because we have bigger brains than (other) animals. Let's be a bit more careful, though. After all, there are other animals with big brains—elephants and whales have brains bigger than ours, and the brains of bottlenose dolphins are larger in proportion to body size than ours—but they don't have language (or if they do, it's nothing like human language).

It's natural to think that a big brain makes us more intelligent, and because we're more intelligent we've figured out how to talk. But in what ways does a big brain make us smarter? As we'll see, it's not so obvious how being smart in and of itself makes talking possible.

In fact, there is a basic difficulty with an explanation that relies just on brain size. For now, it can be stated like this: you can't always get an entirely new function out of a device just by adding more of the same parts. To take a crude example, you can't get your car to fly by adding more cylinders to the engine, or more speeds to the transmission, or more wheels or bigger windows. Its existing function of carrying you along the road comfortably may be improved in some way, but the damn thing still only travels on the ground. To get it to fly, you need some sort of structural innovation like wings or a helicopter rotor. A major theme of this book is that the same is true of the brain and language: expanding a monkey's brain to the size of ours would still not enable it to talk. Beyond size, there has to be some difference in the way our brains are put together.

For the moment, the main thing is to appreciate how hard a problem this is. The fact that we can talk (and cats can't) seems so obvious that it hardly bears mention. But just because it's obvious doesn't mean it's easy to explain. Think of another perfectly obvious, well-known phenomenon: the fact that metals turn red when you heat them enough. Why does this happen? It could be otherwise—

they might just as well turn green or not change color at all. It's a simple phenomenon, easily observable, but the explanation isn't simple at all. It turns out to involve at the very least the theories of electromagnetic radiation and quantum mechanics, two of the more amazing intellectual advances of the past century. So it is, I want to suggest, with the human ability to use language.

The basic parameters underlying a theory of language ability were first laid out in the late 1950s and early 1960s by Noam Chomsky, who can justifiably be called the creator of modern linguistic theory (and who is, at the time of this writing, still doing pathbreaking research). I am going to lay these parameters out in a form that I'll call the two Fundamental Arguments. Just to give you an idea of where we are going, let me state them in very abbreviated form:

The Argument for Mental Grammar:

The expressive variety of language use implies that a language user's brain contains a set of unconscious grammatical principles.

The Argument for Innate Knowledge:

The way children learn to talk implies that the human brain contains a genetically determined specialization for language.

These two arguments lead us to the conclusion that the ability to speak and understand a human language (say English) is a complex combination of nature and nurture. Moreover, the part coming from nature involves more than a big brain: it is a specific human adaptation for language learning and use. The next two chapters will work through the Fundamental Arguments; Parts II and III will be spent explaining, qualifying, and elaborating them.

Part IV places the Fundamental Arguments in a larger context. It asks: If the human brain contains unconscious grammatical principles and a genetically determined specialization for language, what are the implications for other aspects of human behavior and experience? We will see that language is a revealing microcosm of the mind as a whole—that similar characteristics emerge in activities as disparate as seeing, thinking, listening to music, and taking part in a social environment. Along the way, we will present a third Fundamental Argument, whose consequences are perhaps even more radical than those of the first two:

The Argument for the Construction of Experience:
Our experience of the world is actively constructed by the unconscious principles that operate in the brain.

I am shaping this book around the Fundamental Arguments because, of all the starting points I know for investigating language, they motivate the deepest possible scientific inquiry. On one hand, as we will see, they force us to integrate all sorts of issues from the broadest range of sources. And on the other hand, they yield the greatest insight into human nature in general: they allow us to see language as part of an integrated whole.