

## Chapter 1 Introducing Linguistics Joyce Bruhn de Garavito

### “Delving Deeper”

#### The evolution of language

Any discussion of what makes us human often includes language as the most noticeable ability that distinguishes us from other animals. There are many other suggestions to describe how our nature differs from the animal kingdoms: tool making, hunting at a distance, culture, walking upright, opposition of the thumb to the other fingers, etc. However, the capacity that seems to make humans truly unique is language. In our use of language we surpass by far any other creature on earth. The question is how we got to be able to use language for so many and varied purposes. At what point in our evolution did language emerge?

What do you think is the main obstacle to answering questions about the evolution of language? You guessed it! Language leaves no fossils behind to show us how or when it emerged. In spite of this, how language evolved has given rise to a great deal of speculation throughout history. In the 19<sup>th</sup> century, some of the ideas were so far-fetched that the Société de linguistique de Paris (the Paris Linguistics Society) banned discussions on the subject. However, Charles Darwin himself speculated that human language evolved from primitive animal communications.

Recently the topic of the evolution of language is gaining interest again, this time on firmer foundations. In the first place, although language does not leave any fossils, real fossils can tell us something about when the conditions for language were met: a large brain structurally similar to ours and the shape of the vocal tract. As you will read in Chapter 15 Neurolinguistics, there are specific areas of the brain that are known to be essential to the production of language. It seems that these areas were already relatively well developed in some of our possible ancestors, such as Homo Habilis, who lived 2.3 to 2.5 million years ago. However, the brain of Homo Habilis is considerably smaller than ours. Homo Sapiens (that is, us) emerged around 400,000 years ago—so did Neanderthals, who had brains as large or larger than ours. It is possible that language was already in use by this time.

Regarding the vocal tract, you will read in Chapter 2 Phonetics, that it is important for the larynx to be relatively low in the throat so that we can produce a large number of sounds. We do this by using the vocal tract as a phonation box, in the same way as the shape and size of a stringed instrument influences the sound. Again, by 400,000 years ago, fossils from Homo Sapiens show the right configuration of the mouth, tongue, and larynx.

However, assuming that by the time of Homo Sapiens, and perhaps before, we find the necessary biological pre-conditions for language, we still have not explained what brought about the evolution of a system that allows us to produce an unlimited number of meanings from a small number of discrete units. That is, how is it we can combine a small set of sounds or gestures, which in themselves have no meaning, into words, phrases, and sentences that can be used to express an infinite number of concepts, ideas, needs, beliefs, and much, much more. Was the change gradual, as standard approaches to evolution would predict, or was it at least in part a sudden change? Was

language brought about by a need to communicate, for example when organizing groups for hunting at a distance, or was language born from a new way of thinking about the world in terms of abstract concepts? Did this ability develop uniquely from the social interactions that also permitted human culture and art to develop, or was it fundamentally a biological change, or a mixture of both?

Although most of these questions have not been answered, and perhaps never will, we can learn a great deal from studying animal communication systems. Researchers have studied communication among many species looking for differences and similarities to human languages. For example, many songbirds develop the songs of their species by listening to other members. If they are deprived of the opportunity, they will still produce song, but it will be quite defective and much less elaborate compared to that of their species. This also happens if they are exposed to birdsong after a particular age or critical period. One could even say their song is ungrammatical, that is, it does not follow the rules that adult birds follow (see Chapter 5 Syntax for a definition of grammaticality). However, if these birds in turn reproduce, subsequent generations do develop a song with a distinct pattern that begins to approximate one which is typical of the species. There are two things that we can take away from this in relation to human language and the similarities with birds: (a) there is a critical period within which children can acquire language, after which it is almost impossible for them to develop a systematic grammar (see Chapter 12 First Language Acquisition); and (b), language is both the product of biology and of culture. In other words, a child needs exposure to language within a certain period in order to effortlessly acquire the language of their family and community, in the same way as a bird needs exposure before a certain period.

Another system of knowledge that may be linked to the development of language is the development of number. Very young children and some animals such as dolphins and apes seem to share an innate knowledge of the concept of number, at least up to three or four. But numbers above that can obviously be learned. And children and other species also share the same difficulties in regards to numbers above four: it is easier to tell the difference between quantities of things if the quantities are far apart rather than close together. That is, it is easier to recognize the difference between 20 items and 10 but not so much between 20 and 18; and the higher the number the more difficult it is to calculate. We need this number ability to survive: if we are looking for food it is good to know that three coconuts are better than one coconut. Could this primitive number system, which can also be extended to an unlimited set of units, be somehow related to language? This is a line of research that may prove fruitful in the future.

One of the most important current ideas regarding the origin of language is the gestural hypothesis (Corballis, 2003). According to this hypothesis, language first appeared as a system of gestures. When the ancestors of humans first walked erect, their hands were left free to use for communication. In fact, we still use our hands extensively when speaking, and some gestures such as pointing seem universal. For a long time it was believed that only humans were capable of interpreting pointing as a gesture for focusing the attention of another person on something in the environment. Parents use pointing extensively, and children learn to interpret and use it early on. However, for a long time it was believed that neither monkeys nor apes were capable of learning to refer to something by pointing, and, in fact, apes in the wild have never been seen to do this. We do know that other animals point, for example dogs. Recently researchers have found that apes

in captivity have learned to point without being specifically taught to do so, and only in circumstances where it would be appropriate (Leavens, 2019). This finding lends some support to the gestural hypothesis. However, it is still not clear why, at some point, humans chose to communicate mainly through sounds.

Another hypothesis regarding how language evolved is much debated. According to Hauser, Chomsky, and Fitch (2002), there is only one aspect of language that is specifically human and not found elsewhere: recursion, that is, the ability to apply a rule over and over again, as shown in (1). All other aspects of language can be found in the animal kingdom.

- (1)     a. This is the house.  
          b. This is the house that Jack built.  
          c. This is the cheese that lay in the house that Jack built.  
          d. And so on.

To summarize, interest in how, when, and why language evolved in humans has been increasing in recent years. The questions have been refined, and different approaches are being investigated. Although it is doubtful whether we will ever know the complete story, even understanding some aspects of the evolution of language in humans is very satisfying.

## References

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