

babies – it seems that we sing. And that, according to the theory, is precisely what we are doing. That kind of speech would be a living fossil of this phase in our evolution.

One of the virtues of this theory is that it could solve the paradox of human language that we encountered before, the contradiction about language being at the same time innate and acquired. In fact, what would be innate is our ability to sing. Therefore, babbling babies would not be innately trying to talk, as it seems, but learning to control their vocal tract for singing. In fact, the first vocal manifestations of children are more related to rhythm and intonation than to exclusive elements of language such as vocabulary or syntax. In pre-school classes, including classes in music education, it is normal to see 2-year-old children who still do not talk be able to hum melodies with no problems.

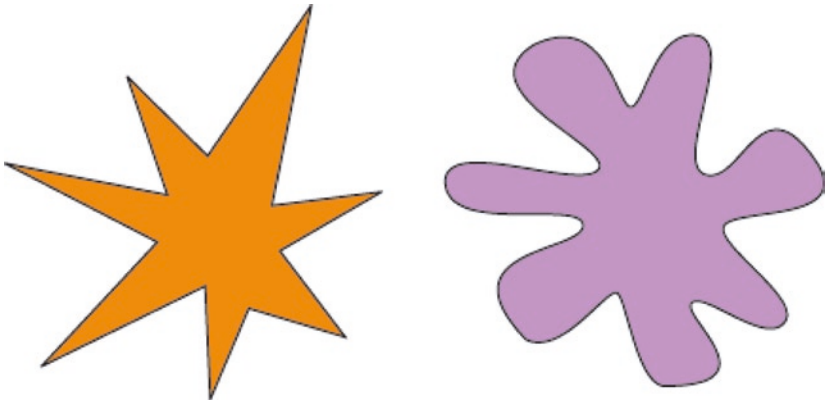
Our remote ancestors would have used music to communicate their mood. From the communication of feelings to the communication of concepts maybe it was just a single step. If those singing ancestors also had in their brains the protolanguage theorized by Bickerton (the one that, in theory, we share with the big apes, and that the common ancestor to them and us should also have had), to make this step could be rather easy¹. But because they did not come from a tradition of talking beings, they had to invent words. Something acquired. But how do you invent words from scratch?

Ferdinand de Saussure defended the principle of the linguistic sign arbitrariness. In his own words: “The connection between the signifier and the signified is arbitrary; given that we understand by sign the total resulting from the association of a signifier with a signified, we can simply say: the linguistic sign is arbitrary. Thus, the idea of South is not linked by any inner relation with the sequence of sounds s-a-U-θ which is its significant; it could be perfectly represented by any other sequence of sounds.”

¹Being true to this theory, from fossil remains the most we could deduce is that Neanderthals sang, not that they talked. Although the complexity of their technology seems to imply the spoken interchange of abstract information, we should not dismiss the possibility of cultural transmission by means of imitation.

But today we know that this arbitrariness is not real. The mechanism to name objects is not completely arbitrary. Those first inventors of words had some guides to follow. For example, onomatopoeic words are abundant in all the languages of the world. This kind of word names objects by imitating how the object sounds (for example cuckoo, kiss, ratchet, to ring, to click, to flush...). It is an obvious way for naming things. In the origin of language there should be a big fraction of onomatopoeic lexis.

On the other hand, in a famous psychological experiment by Vilayanur S. Ramachandran and Edward Hubbard (although originally designed by Wolfgang Köhler), several subjects were asked to identify which of the following images was named booba and which kiki.



From 95 to 98% of the subjects of the experiment picked the jagged orange shape as kiki and the curvy violet shape as booba. Maybe this is because the lips take on a curvy shape when they say the name of “booba,” or maybe because K has a sound harder than B (note also that the shape of the letter K is more similar to the first drawing and B to the second)². In any case, what this

²On the other hand, in tests done by this author, presenting the same images but using changed versions of the names (bibi and kooka), most people chose bibi for the orange star and kooka for the violet cloud. Maybe the choice had as much to do with the vowels that are used as with the consonants. On the other hand, the results of Köhler’s experiment are not reproduced in individuals with autism. The percentage of assignation in this case is close to 50%, that is, as assigning names randomly.

experiment shows is that the naming of objects is not completely arbitrary. Somehow, the human brain is able to establish links between shapes and sounds. For the first speakers, not only the sounds of objects, but also their shapes, could have been a guide for naming objects.

To finish this discussion about the relationship between speech and music, let us interject this thought, without any scientific foundation. Dolphins talk (or at least they do something very similar to human speech). On the other hand, their close relatives, the whales, sing. Did dolphins start as singing animals, too, making the next step to talk? Is music one of the ways towards complex communication?

What Might We Have in Common with E.T.?

Despite its possible relationship with complex communication, in our search for a common language, music is a dead end. We have to search in other places. So let us focus our attention again on the message emitted from Arecibo.

In spite of its defects, the Arecibo message showed us one of the keystones that must be considered in our attempts at communication with other intelligences: the use of numbers as the basis of the message. As we saw when we defined the communication process for having an information exchange between two intelligences, it is necessary that both parties share a common code, a common language. But is it possible to develop a language to communicate with an extraterrestrial civilization that is completely alien in absolutely every possible aspect? Some scientists think so, if the development of such a language starts from a common basis. However, what can we have in common with them?

Of course, both groups live in the same universe, and we are governed by the same laws of nature. If these laws are included somehow in a communication language, this increases the probability that it is usable. (As we saw earlier, this consideration already appeared in the Arecibo message, although in a naive way.) The other thing in common is mathematics (and logic), thanks to its platonic quality of universal knowledge. The ratio between the perimeter and the diameter of a circle is always the same number