

From Stone Tools to Language: Pantomime- and Archaeology-Based Models of Protolanguage Compared

What can prehistoric stone tools tell us about the time they were produced and the humans who produced them? Raw material availability, techniques known by prehistoric humans, and maybe even the perimeters of cultural areas for more recent periods. But can they give us a hint at what prehistoric humans were like. Were they capable of producing analogies, and did they have beliefs, did they have language?

These questions are fundamental for determining what humanity is and what its distinctive features are, if any. And if not, is it a matter of degree? The recent rise of cognitive sciences has provoked new interest in these major wonderings resulting in numerous interdisciplinary studies that help us better understand ourselves. Cognitive archaeology tries to answer the above-mentioned questions too; it constantly looks for a human beyond the tool. In this project, we propose to look at the language evolution question from a new perspective, combining a thorough archaeological analysis with an experimental approach.

It is supposed that language developed gradually from a protolanguage, a theoretical stage preceding modern language and lacking grammar. The project aims to estimate if prehistoric humans needed some kind of language at a given moment in prehistory by proposing a theoretical model of protolanguage using the constraints inferred from archaeological material. We will use archaeological artefacts to create a theoretical model of protolanguage because they allow us to concretize it, linking it to a specific moment on a timeline.

By using the attested methodology of cognitive archaeology, a theoretical model of a protolanguage based on the constraints inferred from the archaeological analysis will be proposed and tested against pantomime, a non-linguistic communication means, using experimental semiotics methodology. To do so, we will identify common cognitive capacities needed for tool making and language production, then look for them in the corpus of archaeological data created specifically for this project by studying how the stone tools were made and restoring the chain of actions that transformed a block of stone into a tool. Then these inferences will be transferred to a theoretical model by constraining the length and complexity of utterances, for example. In the test stage of the project, we will see if this model is more efficient than a pantomime by proposing participants to communicate on subjects related to the tool-making process using our model or pantomime. For instance, we can simulate a raw material search by asking a participant to explain to their partner how to find an object in a room. This will allow us to concentrate on the transmission of knowledge which, we hypothesize, requires language more than craft learning, which requires rather long hours of training. We expect that the results will allow us to understand how we can concretize the notion of protolanguage and hypothesize the pertinence of a protolanguage at a given moment in prehistory.

The main expected impact of the study is a better understanding of the protolanguage concept, and how it is different from pantomime, which is a non-linguistic means of communication and thus a sort of baseline for human communication. We also expect that our in-depth analysis of the archaeological corpus will reintegrate the archaeological argument into the field of language evolution, where it is often ignored or used superficially.