



Review article

Language and imagination: Evolutionary explorations[☆]

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ARTICLE INFO

Article history:

Received 29 February 2016
 Received in revised form 24 October 2016
 Accepted 19 December 2016
 Available online 29 December 2016

Keywords:

Imagination (1st order, 2nd order)
 Language
 Working memory
 Evolution
 Discontinuity
 Functional analysis
 Tool making
 Chimpanzee
 Hominin
 Artefact
 Recursion
 Sign
 Arbitrariness
 Crossing
 Concepts system
 Computational system
 Variable
 Desymbolization
 Simplicity (drawing board)
 Society

ABSTRACT

This article provides a functional analysis of the conditions for language to emerge, and analyzes its role in imagination. It starts with some initial reflections on imagination and its evolutionary beginnings in relation to the role of working memory and tool use by chimpanzees and humans up to modernity. It then presents an analysis of what it takes to develop language, and how language gives rise to higher orders of imagination. An important theme in the discussion is which of the changes in the development leading to language may have been gradual and which changes must reflect a discontinuity. It concludes with a paradoxical property of imagination: One part of our mind is able to imagine and create systems that another part of our mind is unable to deal with. It shows how this tension manifests itself in the notion of an impossible language, but crucially also in conceptions of human society at large.

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[☆] This contribution originated as an invited lecture for Master students of the Faculty of Humanities of Utrecht University in 2011. It put certain ideas about language and imagination from Reuland (2010) in a broader context. The idea of writing it up as an article kept lingering for a while until I received Johan and Martin's kind invitation to submit a contribution to the volume on the biology of language they were planning. Right after I finished the first draft in January 2016, I saw that Bob Berwick and Noam Chomsky just published a new book *Why only Us: Language and Evolution*. As one may expect, there is a certain amount of overlap; nevertheless, the focus is different enough, as the reader will see. Time is lacking to do justice to their insights; occasionally, I will point out a relevant link, though. This contribution profited from comments on various versions through time. When I first presented it, I got valuable comments from the students in the audience. Fred Coolidge and Andrea Moro were so kind to send me very helpful comments on the original presentation when I sent them the pdf. I am very much indebted to Bob Berwick, Denis Delfitto, Loes Koring, Marijana Marelj, Lyn Wadley, and Yoad Winter for their comments on the prefinal version of the current contribution. Comments from two anonymous reviewers were very helpful in broadening the perspective and sharpening the argument. And many thanks go to Martin Everaert for leading me through the final stages. All errors are my own. On a final note, for sake of illustration various pictures found on the internet have been used. It was not always possible, though, to trace the original source. Sources for the pictures include: Picture 1 <http://www.visual-arts-cork.com/prehistoric/blombos-cave-art.htm>; Picture 3 <http://humanevolutionb36.weebly.com/cultural-evolution.html>; <http://pages.ucsd.edu/~dkjordan/arch/tools.html>; Picture 4 <http://www.mcescher.com/gallery/back-in-holland/other-world/>; Picture 5 <https://quizlet.com/24728420/arh-2050-midterm-prehistoricneolithic-flash-cards/>; Picture 6 <https://www.eyeonspain.com/blogs/bestofspain/16047/altamira-prehistoric-masterpiece.aspx>; <http://www.art-prints-on-demand.com/a/hieronymus-bosch/the-garden-of-earthly-del-11.html>; <http://metamorphosisofnarcissus.blogspot.nl/>; Picture 8 Le Corbusier, *The Radiant City: Elements of a Doctrine of Urbanism to be Used as the Basis of Our Machine-Age Civilization* (1933) http://florenciabenedetich.blogspot.nl/2012_09_01_archive.html.

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1. For starters

Every scientific inquiry begins with wonder. We are so used to our ability to imagine states of affairs that differ from what the world around us shows us, and to work towards getting them realized that we tend to take it for granted. But, what underlies this ability? To what extent are we unique in this ability? And how did it arise? These are the questions that started intriguing me at some point.

The source of my fascination is what seems to me a paradoxical property of imagination. One part of our mind is able to imagine and create systems, sometimes actually realized in our environment, that another part of our mind is unable to deal with. Being a linguist, I first became aware of this tension in the notion of an impossible language in Chomsky (1965). But looking carefully, one can see it in many other domains. It is this paradox that kept fascinating me, and I hope to be able to convey some of this fascination. Let me start with some initial reflections on this topic. Then I take you to what one may consider the evolutionary beginnings of imagination. After that we will discuss two significant leaps in its development, one intrinsically connected with language. I will end with a discussion of the paradox I mentioned. An important theme in my discussion is which of the changes in our development may have been gradual – just more of the same – and which changes must reflect a discontinuity.

Blombos Cave in South Africa is famous because it has been found to contain some of the oldest traces of human imagination,



Picture 1. Beads and ochre.

dating from some 100,000–70,000 years ago, as in Picture 1, which shows some of the products of such imagination.¹

¹ There is a rich literature on the earliest indications of what one may broadly call ‘symbolic behaviour,’ as a mark of modern ‘humanity,’ see for instance, Henshilwood et al. (2002); d’Errico and Henshilwood (2011), Henshilwood and d’Errico (2011a,b), Wadley (2010, 2011), and references cited there. (See also Botha (2010) for critical discussion of the inferences to be drawn.) These authors put the earliest traces in Blombos Cave at 70–100 ka BP. Note, that henceforth I will mostly be using the unit

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