

Autocatalytic Theory of Meaning

Mark D. Roberts

August 11, 2004

Eprint: [cs.CL/9902027](#), [further information](#)

Abstract

Recently it has been argued that autocatalytic theory could be applied to the origin of culture. Here possible application to a theory of meaning in the philosophy of language, called radical interpretation, is commented upon and compared to previous applications.

1 Autocatalytic theory of the Origin of Life.

Gabora (1998) [2] discusses the autocatalytic theory of the origin of life in sections 26-32. Instead of having one self-replicating molecule, there are a set of molecules each of which can replicate a different member of the set. The appearance of such a set may or may not be more likely than the appearance of a single self-replicating molecule. Also such a set may or may not evolve at a fast rate conditioned by selection.

2 Autocatalytic theory of the Origin of Culture.

From sections 33-60 Gabora investigates whether a similar mechanism could explain the origin of human culture. There are various aspects of human culture the origin of which calls for explanation. The central problem is to explain how the mind transforms from being episodic, or only being capable of recalling episodes, to being capable of abstraction. Once the ability to abstract is present it will be selected for and increase, because abstraction allows for creative acts. The transition to an abstracting mind could originate by happening once and then developing - this is the analogy of the self-replicating molecule; or there could be several ideas occurring at once which by chance help in problem solving - this is the analog of a set of molecules each of which replicate a different member of the set.

3 Autocatalytic approach to Language Acquisition.

One may ask how many other topics this mechanism can be applied to. There are several other places where the origin of thing is unclear and development is fast. Unclear origin and fast development are two of the facets that autocatalytic theory might help to explain. This suggests application to language acquisition Pinker (1984) [4].

4 Radical Interpretation.

Radical interpretation, is a part of the philosophy of language concerned with giving an account of how language has meaning. The topic has been developed by Davidson and the original papers collected together in a book Davidson (1984) [1]. The main idea is that one can establish truth or otherwise of sentences by means external to the spoken or written language. Having established truth of a sentence one can gather what it means again by factors external to the spoken or written language. I have compared this process to biological evolution, Roberts (1998) [5]. One of the areas of discussion is how large a structure radical interpretation should apply to. Lewis (1974) [3] and Roberts (1998) [5] argue that it should be applied to more than just language, perhaps to any social structure. Taking this to an extreme would be to apply it to all of culture: Gabora's work can be viewed as embodying this view.

5 Autocatalytic approach to Radical Interpretation.

One can ask what would be the autocatalytic approach to radical interpretation and how it would work. Instead of truth and meaning being assigned to sentences individually they would be assigned to several sentences concurrently. In some ways this is preferable to the standard view as it does not tie meaning down to the specific wording of sentences. One would hope to be able to illustrate how this mechanism would work using the specific test sentences used repeatedly in the philosophy of language such as "snow is white" and "grass is green", but it is not clear how this could be achieved. Perhaps the best way of looking at whether an autocatalytic approach is appropriate is to consider what would happen if meaning was **not** autocatalytic in nature. In this case it would be possible to assign meaning to sentences individually. In other words given a fixed sentence - say "snow is white" it would be possible to assign meaning to it without reference to any other sentence. This position is absurd as it does not allow for the creativity of language, where entirely new sentences are continuously being uttered for the first time. This *reductio ad absurdum* suggests that meaning is indeed assigned in some autocatalytic manner.

6 Acknowledgement

This work has been supported by the South African Foundation for Research and Development (FRD).

References

- [1] Davidson,D.(1984) *Inquires into Truth and Interpretation*. Clarendon Press, Oxford. [2](#)
- [2] Gabora,L.(1998) Autocatalytic closure in a cognitive system: a tentative scenario for the origin of culture. *Psychology* 9(67)1. <ftp://ftp.princeton.edu/pub/harnad/Psycology/1998.volume.9/psy.98.9.67.origin-culture.1.gabora> [web version 1](#)
- [3] Lewis,D.K.(1974) *Radical Interpretation*. *Synthese* 27,331-344. [2](#)
- [4] Pinker,S.(1984) *Language Learnibility and Language Development*, Cambridge, MA: Harvard University Press. [2](#)
- [5] Roberts,M.D.(1998) Does Meaning Evolve? *Behaviour and Philosophy*(2004) [cs.c1/9811004](#) [2](#)