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SOME REFLECTIONS ON THE POSSIBILITY OF NATURALIZING THE MIND

Andrej Ule*

Faculty of Arts – University of Ljubljana
Ljubljana, Slovenia

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ABSTRACT

The article examines whether it is possible to provide a coherent naturalist account of the emergence of the mind (spirit), construed as a plethora of mental abilities that are present in living beings. I analyze Bateson's information-system theory of mind, Peirce's theory of semiotics, and some biosemiotic proposals. All of these conceptions fail to provide a plausible theoretical explanation of the emergence of the mind, particularly (i) the emergence of the interpreters of signs, and (ii) the emergence of the experiential perspective out of the non-living nature. I argue for a hypothesis based on the idea of the trans-objective perspectivity dimension, i.e. the real possibility of acquiring a more or less distinctive experiential perspective in the form of like-to-be-X for all sufficiently developed natural entities. Taking on an experiential perspective also entails a greater sensitivity to not only actual, but also potential events, e.g. a greater sensitivity to everything that can be "useful" or "harmful" to the system in question.

KEY WORDS

mind (spirit), information system, semiosis, biosemantics, experiential perspective

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*Corresponding author, η: andrej.ule@uni-lj.si; +386 1 241 1102;
Faculty of Arts, Aškerčeva 2, SI – 1000 Ljubljana, Slovenia

INTRODUCTION

Human mental abilities are inextricably connected with a potentially infinite capacity of relating individual thoughts, emotions, and feelings to other thoughts, emotions, and feelings. What seems to be at work here, is a latent or potential infinitude and inexhaustibility of mind/spirit[1]. This infinitude/inexhaustibility is especially prominent in the domain of thought and language. Every thought or proposition can be expanded with, or linked to, other thoughts or sentences (be it of the same or some other language). This phenomenon is present already in logics.

Every affirmative proposition, every propositional thought with the contents *p*, is logically equivalent to the proposition, thought *p* and (*q* or non-*q*), as well as to the proposition, thought *p* or (*q* and non-*q*). All this seems evident enough. But the same proposition, thought is also logically equivalent to the proposition, thought if (if *q*, then *q*), then *p*, and to certain other propositions of similar nature. At first, this procedure might strike us as nothing but a rather extravagant exercise in "logification", but it should be noted that, from a purely logical point of view, it is perfectly acceptable. It seems that every proposition implicitly presupposes all other propositions, as it is possible to substitute q with any other proposition. The same idea can be found in Wittgenstein's Tractatus: "If elementary propositions are given, then at the same time all elementary propositions are given" [1; p.524]. In other words, every proposition entails the possibility of any other proposition; and similarly, every propositional thought entails the possibility of any other propositional thoughts.

Every sensible proposition (thought) thus "implies" the whole logical field of language or thought, i.e. all possible logical operations pertaining to both itself and to other possible propositions (thoughts). There are, of course, infinitely many propositions of this sort; but this infinitude is always in potentia, never in actu. What is crucial, however, is that it is concurrent with every individual proposition and every propositional thought, and is not an "extra ingredient" or something "programmed into" the brain. The implication above is not of a logical "if-then" type, but is rather an expression of a relationship between the actual and the potential, which (in a typical Wittgensteinian sense) might be said to disclose itself in the proposition (thought), if/when the latter is used (thought) by someone. As this, in my opinion, surpasses the abilities of modern computers, it is safe to assume that none of them is (as of yet) capable of speaking and thinking. It is just that people interpret their "behaviour" as speech or thought.

In what follows, I will thus speak of human mental (spiritual) abilities, because the association of actuality and potentiality seems to be characteristic of all, and only of, mental (spiritual) abilities. These abilities, in themselves, form a unity of actual mental phenomena of a special type (e.g. thoughts, propositions, imaginings, metaphors, aims, longings), and pertain to the endless possibilities of relating and associating phenomena with other similar phenomena. They require that there be present a unique type of acuity for not only actual, but also potential processes, especially for actual and potential personal actions as well as for actions related to other living beings. This, in turn, presupposes the existence of relatively complex cognitive situational models, elaborate "theories of mind", and the ability to grasp the actuality and potentiality of oneself in and through these models. We normally attribute mental (spiritual) abilities to human beings only, but as recent research shows, glimmers of mental (spiritual) abilities seem to be already present in higher animals (e.g. primates, dolphins and whales, some birds) [2, 3].

This by no means precludes the possibility of computers and other information tools instantiating the required mental abilities, but in order to do so, the information they receive and process needs to become relevant to themselves, and not only to those who partake in their "services". This, on the other hand, means that they need to acquire a specific type of experiential perspective, i.e. a discriminative capacity that would enable them to perceive and evaluate situations that are relevant

for them from the point of view of the information system as a whole. But despite all the recent developments in the field of computer science and artificial intelligence, we are still, as far as I know, nowhere near this goal. For more on this topic see my chapter in the book Mind in Nature [4].

In order to provide a "naturalist" account of mental (spiritual) abilities in living beings in general and human beings in particular, we need to somehow "naturalize the mind". This, however, is easier said than done. So far, there have been but few serious attempts to provide a non-reductionist naturalist account of the mind (spirit), i.e. an account that would not reduce it to an anthropomorphic way of interpreting phenomena that has developed in the course of natural and cultural evolution.

One of the more serious attempts at a non-reductionist, but naturalist, account of the evolution and emergence of the mind (spirit) is the so-called system theory of the mind (spirit), an older, but still very interesting and important proposal by the American biologist and therapist Gregory Bateson. The most concise portrayal of his position can be found in his last book *Mind and Nature* [5], where he enumerates 10 criteria for ascribing a character of mindnedness/spirit to a given being, process, or system, among others:

1) a mind is an aggregate of interacting parts or components,
2) the interaction between parts of mind is triggered by difference, difference is a nonsubstantial phenomenon not located in space or time; difference is related to negentropy and entropy rather than to energy,
3) mental process requires collateral energy,
4) mental process requires circular (or more complex) chains of determination,
5) in mental process, the effects of difference are to be regarded as transformations (i. e. coded versions) of events which preceded them. The rules of such transformation must be comparatively stable (i.e. more stable than the content) but are themselves subject to transformation,
6) the description and classification of these processes of transformation disclose a hierarchy of logical types immanent in the phenomena. [5; p.92].

A system in possession of all these characteristics is believed to be a mental system, e.g. a system of mind, possessing mindedness in the broad sense of the term. Bateson is convinced that these criteria are met by different processes: thinking, evolution of life, ecology, life, learning, etc. This, of course, makes for a very broad and somewhat surprising list of mental or spiritual processes. Note that the list does not include experiential consciousness: the latter, in Bateson's view, is a mere epiphenomenon of deeper, unconscious mental activities. The mind is believed to be immanent in natural processes and systems of a certain kind, and is not transcendent to nature. According Bateson, it is the fifth criterion that is essential for the mind (spirit); the criterion is eloquently phrased in Bateson's memorable definition: (a bit of information) is a difference which makes a difference. This definition borrows heavily from the classical Shannonian idea of "minimal information", construed as a minimal difference capable of being registered by the information system, but it augments it with an additional requirement of information having to bring forth some subsequent (novel) difference. But where is this new difference supposed occur? In a system or a process that is "susceptible" to certain types of differences and reacts "accordingly", i.e. follows a certain set of rules and thereby triggers a new difference within itself. This difference can then initiate a cascade of new differences in the system (for instance, acting on the appropriate perceptual organ, a visual signal can be said to be efficient only if it represents a spatial or temporal difference in relation to the previous state of that organ; this difference can then be transformed into a corresponding difference of nerve impulses travelling along the nervous system and undergoing further transformations, it might even create a simple conscious impression, which, in turn, engenders yet another simple difference).

Another feature of mental processes, according to Bateson, is that the transformation of differences occurs in terms of rule-governed coding and decoding, corresponding to specific

logical demands, e.g. a demand that every coding or decoding occurs in a specific "context of understanding", where the determinants of the context must consist of, or take on, a certain value or bit of information within the context itself. This requirement draws on Russell's theory of logical types, in which no class (set, context) can be a member of itself, as this would entail a series of logical or communication paradoxes. This is the central point of Bateson's sixth criterion for the existence of the mind (spirit), namely the existence of a hierarchy of logical types of coding or transformation contexts, construed by Bateson as a hierarchy of messages, meta-messages, meta-meta-messages, etc. This hierarchy is immanent in the information system itself, and is not merely ascribed to it by human theories, descriptions, etc.

Bateson feels that a system possessing mental (spiritual) characteristics is capable of autonomously regulating its own behaviour in its environment. Moreover, such a system is capable of dying, i.e. its information circuits can get disrupted, resulting in the loss of autonomy; it is capable of forming memories, learning, and learning about learning; and finally, it is capable of associating with other systems of similar nature and constituting larger wholes, which may, in turn, become new, broader systems of mind [5; p.127].

Next, Bateson tries to answer the question as to whether systems of mind are necessarily conscious. On his view, this is by no means the case, as he conceives consciousness as merely an epiphenomenon of higher mental (spiritual) processes. They are, however, capable of operations that are not as complex, namely of recognizing similarities and differences between their own qualities and qualities of other systems. In one of his previous books, a collection of articles entitled Steps to an Ecology of Mind, Bateson enumerates several characteristic features of systems with mental properties. One of these features, for instance, is the fact that properties belong to the system as a unit, and not to its parts [5; p.322]. For this reason, questions of the type "Can a computer think?" or "Is the mind in the brain?" make no sense, because a single computer is but a segment in a larger network, which includes people who work with the computer, and either provide the computer with the necessary information or use the information provided by the computer. It is only in relation to this larger system that we might legitimately ask whether "a computer capable of thinking or not", and the answer, according to Bateson, would be a definite "yes". This does not, however, mean that the system is necessarily conscious, since consciousness is not an indispensable ingredient of the mind (spirit) and thought. Similarly, it makes little sense to say that the mind (spirit) is in the brain, because the brain is merely one of the subsystems in a human being, and a human being is itself a constituent of a larger system of life that sustains it [5; p.323].

According to Bateson, the "human mind" (spirit) can be said to exist only within this larger system (e.g. it is neither in the brain nor in the individual), but this does not mean that the system itself is necessarily conscious. Bateson was one of the forerunners of the so-called extended mind hypothesis, according to which the mind (spirit) is not confined to, but extends beyond, the brain or an individual thinking organism. By following this line of thought, Bateson wanted to transcend what he felt to be a set of senseless dualisms, e.g. a dualism between mind (spirit) and matter or between interiority and exteriority. Bateson's theory is very intriguing, but obviously deficient, as it fails to account for one of the key features or aspects of mindedness: namely how is it that the system in question is capable of understanding bits of information, messages, and signs. This deficiency stems from the fact that "to understand" entails the ability "to experience" and "comprehend" the information that the mental (spiritual) system receives from, or transmits to, other mental (spiritual) systems. I feel that this deficiency in Bateson's theory may be eliminated or at least alleviated with the help of Peirce's semiotics.

Charles Sanders Peirce formulated an important hypothesis about nature, behaviour, and logics of signs. Peirce defines signs as meaningful entities, whose meaning is determined by a triadic relation between (i) the physical or mental presence of a sign functioning as a representant,

i.e. as a means of representing something (the so-called "Firstness"), (ii) the represented object (the so-called "Secondness"), and (iii) the interpretant who understands the sign as meaningful and situated in relation to the represented object (the so-called "Thirdness") [6]. The fundamental relation between individual signs can thus be construed as follows: The interpretant A interprets (understands) the sign B as a representant of the object C.

According to Peirce, this triadic relation constitutes a basic unit that could not have come into being from individual elements taken separately or from three subordinate dyadic relations: presence of a sign – represented object; interpretant – represented object; and interpretant – presence of a sign. In his view, the mental (spiritual) component of this triadic relation, is to be found in the interpretant and is embodied in the human ability to understand linguistic and non-linguistic signs and thoughts. Peirce's thesis about the essentially triadic semiotic relation is, of course, in stark contrast to the well-established structuralist (Saussurean) thesis which argues for a dyadic nature of semiosis (conceived as a relation between the sign and the signified), but this is a topic I do not intend to address in the present article. Personally, of course, I prefer Peirce's thesis.

Peirce is also known for introducing the important distinction between different types of signs: icons, indexes, and symbols. An icon refers to an object because of its similarity to that object, so the only thing the interpretant has to do, is to recognize this similarity. An index refers to an object by means of a specific causal chain, and is construed as an indirect effect of the object appearing in a given situation; the interpretant must therefore recognize this causal connection, and use it to arrive to a "conclusion" about the emergence of the represented object. A symbol refers to the represented object on account of special rules or conventions that are accepted in the society of its users. The interpretant needs to learn these rules or conventions, and only then is he or she able to understand the symbol. A typical example of this would be linguistic signs. Peirce was convinced, however, that the ability for semiosis is not limited exclusively to human beings, but can also be found in higher animals.

Given the fact that, according to Peirce, all causal activity consists of dyadic cause-and-effect sequences, the semiotic relation can be said to transcend all types of causality as well as the domain of physical reality as such. For Pierce, the existence of a physically irreducible triadic relation, which is presupposed by all meaningful forms of sign use, figures as evidence of the non-physicality of the mind (spirit) and its existence in nature. Similar to Bateson, Pierce refrained from drawing any conclusions to the effect that the mind is transcendent to nature, but instead hypothesized that the ability to form semiotic relations emerged spontaneously in the course of biological and cultural evolution of living beings. Near the end of his life, Peirce seems to have opted for a version of Pantheism or, more precisely, Panpsychism, maintaining that all nature, be it animate or inanimate, is potentially mental. However, he believed the mind (spirit) to be present in nature only latently, crystallizing or manifesting itself, as it were, through the evolutionary process in human beings capable of semiosis, i.e. in their ability of meaningful sign production and utilization. This, of course, is reminiscent of Bateson's idea of the evolution of systems of mind (the so-called Creatura) against the background of physical nature (the so-called Pleroma), as well as of Whitehead's process metaphysics [7].

In his writings, Bateson never explicitly mentions the triadic semiotic relation; it seems that he is completely satisfied with the postulated processes of message coding and decoding, processes that can be of a more automatic (e.g. in lower life forms) or a more conscious or goal-directed nature (e.g. in human beings and higher animals). However, and as already mentioned, these processes might be said to contain the mind (spirit), only if they meet the criteria for the emergence and existence of the mind (spirit). A more thorough analysis of Bateson's theory reveals that, although he never explicates it, he too is aware of the semiotic triad. For instance, he often speaks of the interconnectedness of three different phenomena: momentary affection (momentary "perception of qualia", in modern parlance), simple perception, and simple learning (e.g. formation

of elementary habits). Bateson claims that these three units form a fundamental biological process that is present in all living beings capable of perceiving their environment. This, in turn, reminds us of Peirce's tripartite relation of firstness, secodness, and thirdness, laid out at the level of the elementary "habit formation".

On a somewhat higher level, Bateson postulates a similar triad: (i) the ability to receive structure/form – (ii) simple awareness of structure/form – (iii) forming of more complex patterns which connect simple perceptions into complex sensations. And on an even higher level, we find the following triad: (i) sensitivity to aesthetic awareness – (ii) receiving of information – (iii) "consciousness of the sacredness of nature" [8]. Just like with Peirce's semiosis, these postulated triads appear to be closely interconnected, and it therefore seems perfectly plausible to augment Bateson's criteria with an additional requirement: every system that is to be designed as a "system of mind" has to be capable of establishing and maintaining a triadic semiotic relation of sign, object, and interpretant.

A more recent version of the theory of the emergence of mind (spirit) in living nature can be found in biosemiotics, a scientific discipline dedicated to the study of the emergence and the existence of semiotic relations in living nature. The main thesis of biosemiotics is that the essence of all life forms (not only animal, but also plant, bacterial, and viral) is semiosis; or in other words, the essence of life is said to consist of signs, codes, and bits of information [9-12,]. This, of course, immediately raises an important question as to whether it is legitimate to project Peircean notion of semiosis, postulating the existence of interpretants of signs, onto all aspects of life, for it seems that, for instance, the genetic coding and decoding in DNA and RNA – two processes that unfold automatically, unconsciously, and causally – can be carried out without the presence of an interpretant. It might even turn out that it is human beings who instil these processes with a Peircean-semiotic character, e.g. that we as human beings have taken on the role of additional interpretants of what goes on in nature. But there are other possible interpretations: some authors have proposed that the cellular system responsible for producing proteins on the basis of messages encoded in the genetic structure of the DNA molecules might function as an elementary sign interpretant, i.e. that it might constitute a rudimentary form of Peircean semiosis (1). In this respect, one would be wise to adopt the view of Thomas Sebeok, who claims that there is no definitive dividing line between the semiotics of living systems (zoo-semiotics) and the anthropo-semiotics. Sebeok draws on the work of French biologist and philosopher Francois Jacob who maintained that mammals are capable of engaging with certain objects even if they do not perceive them. Sebeok traces this phenomenon back to the ability to form symbols, a sort of filter between the organism and its environment [11; p.302].

We can now provide an outline of the fundamental idea behind the attempts to naturalize the mind (spirit), as construed by Peirce, Bateson, and some authors in the field of semiotics, namely the idea that there exists an evolutionary continuum in the development of semiosis, a continuum ranging from the most simple living organisms up to human beings, which makes it plausible to speak of "mind in nature". But this account leaves some unresolved issues. If Peirce's idea about the triadic nature of every semiotic relation is, in fact, true, along with the postulated irreducibility of the dyadic cause-and-effect relations that are said to hold between events, then it seems uncertain how one might account for the emergence of semiosis from the inanimate, causally-determined nature. Similarly, it is far from clear how, on a Batesonian view, information systems, capable of "mapping" features of their environment, could emerge from physical and chemical processes. Peirce proffered to "solve" the question of the emergence of semiosis with his pan-spiritual hypothesis, claiming that semiosis pervades all nature, including the so-called inanimate matter, e.g. atoms. Bateson was much more modest in his claims, and refused to expand the mind (spirit) on nature as a whole: on his view, basic constituents of matter, e.g. atoms or atomic particles, do not possess the characteristics that are typical of information systems and therefore cannot be said to possess a mind. This is why Bateson was unable to explain how information systems might emerge from non-information systems.

Advocates of the Batensonian view have proposed different ways of improving on Bateson's theory and bridging this theoretical gap. Tyrone Cashman, for instance, claims that the "mapping" is to be conceived as founded on the ability of an organism to actively react on objects of its perception and simultaneously perceive the effects of its actions. This gives rise to a simple two-way loop between the indirect perception of the environment and the direct action within the environment, a loop that is believed to constitute the basis for semiosis and intentionality of experience [13]. Terrence Deacon and Jeremy Sherman, on the other hand, suggest that the missing evolutionary link between inanimate and animate world could be found in the so-called auto-cells. Auto-cells are said to consist of reciprocal links between auto-catalytic circuits and processes accompanying their spontaneous enclosure from the life-threatening environmental effects. The molecular basis of such an enclosure is believed to derive from the end results of the auto-catalysis. Even today, similar systems can be found in simple viruses lacking the DNA and RNA molecules. According to Deacon and Sherman, such auto-cells provide glimpses into the rudimentary forms of individuality, which have played a crucial role in the development of goal-orientation, perception, and evaluation [14]. Both hypotheses are interesting, and might turn out to be a necessary natural condition for the emergence of simple semiosis in living organisms, but a lot of ground needs to be covered before we will be able to explain the first real natural coding processes and systems that can be found in the RNA and DNA molecules.

Biosemioticists tend to evade the question as to how semiosis is supposed to have emerged from the non-semiotic physical and chemical reality. Such an evasive attitude does not solve the problem, of course, but merely postpones it to a later date, when an acceptable naturalist account is expected to be found. One might, of course, take recourse to a transcendent explanation, i.e. an explanation evoking supernatural entities (e.g. creationism), but the advocates of the naturalisation of the mind (spirit) do not normally accept explanations involving supernatural forces. I would like now to take a note of what seems to me an even greater problem, a problem that has already been briefly alluded to, but has not yet been dealt with appropriately: namely, is it really possible to develop a naturalist account of the emergence of organisms with personal (inner) experiential perspective? To have an experiential perspective is, in my opinion, a necessary condition for the emergence of higher forms of semiosis, forms that include complex perceptions of different life situations and anticipations of possible future occurrences, e.g. an ability to anticipate how other organisms would react to one's behaviour in a given situation. It should be emphasized that having a personal experiential perspective does not necessarily entail being conscious of oneself, having an idea of the self, etc. These are instances of higher forms of experiential perspective that cannot be (as far as the available information goes) extended beyond the human world. Roughly speaking, the minimal requirement for a (rudimentary) experiential perspective would be an ability of an organism to organize sense impressions in accordance with the self-representation, i.e. to form a center of sense impressions that might serve as a starting point or a central referential point in the evaluation of not only potential, but also actual events in the environment of that organism [4; pp.176-177].

It is safe to assume that all organisms with brains (e.g. vertebrates or higher) have the capacity of mapping their outside world in the form of inner representations, but it is only higher vertebrates that are capable of mapping themselves within a given environment. There is, indeed, only a small step between this capacity and the personal experiential perspective. But here, a question arises: "Where" does this perspective come from, given that it is impossible, as indicated by logical analysis, to translate or reduce it to third-person descriptions. This is the main topic of the famous paper "What is it like to be a bat?" by Thomas Nagel [15]. Moreover, the experiential perspective necessitates the existence of the so-called qualia, i.e. the irreducible qualities of those feelings that, according to the representational view, are located "inside" of an organism (or on its bodily surface). These feelings cannot be fully reduced to representations of the objective

state of affairs that lacks any kind of experiential perspective. This is why I have repeatedly suggested that, in addition to time-space dimensions, the material reality itself (i.e. the material cosmos) must also possess the perspectivity dimension, i.e. the real capacity of acquiring more or less pronounced experiential perspectives of the type "like to be X" for all sufficiently developed natural beings [16; pp.315-321, 17; pp.67-175, 4; pp.83-188].

At this point, I consider the idea of "perspectivity dimension" to be a useful metaphor for the trans-objective capacity of acquiring the experiential perspective for all sufficiently developed natural beings, and not as a full-blown theoretical concept. But already as a metaphor, it provides plenty of material to elaborate on the concept of the perspectivity potential. I do not expect there to be any measurable determinants that would tell us how a given being positions itself in relation to this dimension, although I do distinguish between different levels or intensities of such a positioning. I also maintain that it is possible to move up and down the "perspectivity positioning axis": from the most rudimentary forms of positioning without cognitive consciousness, through emotional positioning, up to the mental consciousness of the personal self, which is typical of human beings. It is possible that there exist even higher forms of consciousness.

I think that, on the principal level, we need to ascribe the capacity of taking on the experiential perspective to all beings that have a sufficiently developed acuity for how their own lives relate to the lives of other living beings in their surroundings. If we accept the existence of the trans-objective capacity of taking on a personal experiential perspective that is inherent in nature and can manifest itself under specific circumstances, then it might be possible, at least in principle, to account for any transformation from a state of no experiential perspective (a state describable solely in 3rd-person terms) to a state, in which a given being acquires a generic and individual experiential perspective (a state describable in 1st-person terms). Note that this does not exclude certain inanimate beings, e.g. artificial intelligence systems or robots. I have no intention of developing my basic assumption into a panpsychist system of any sort (in the vein of Peirce and Whitehead, but also of Nagel), that is to say, I do not subscribe to the idea that there exists a cosmic or trans-cosmic consciousness, cosmic or trans-cosmic mind, etc. However, my hypothesis does not preclude this type of consciousness or spirit. It can also allow for the fact that many natural beings have some sort of pre-conscious acuity for the real potential that is available to all natural beings through the dimension of perspectivity. But it cannot, at least at this point, critically evaluate just how far "back" into animate or inanimate matter this acuity actually goes.

Taking on the experiential perspective includes a more pronounced acuity for not only potential but also actual events, e.g. an increased acuity for everything that might "benefit" or "threaten" the existence of a system that is in possession of some form of semiosis (or "mind", according to Bateson). This increases the ability of the system to survive under precarious, potentially detrimental circumstances. I believe that human beings possess a generic evolutionary-acquired and socially-/culturally-conditioned experiential perspective, which is not homogenous, but differs in form and degree: in addition to emotional and sentient self-awareness, there is thus also rational self-awareness (awareness of one's self).

With this, I may return to the beginning of my paper, namely to the question of how it is possible to grasp propositions and thoughts in the space of logical operations performed upon them. It was pointed out that every proposition, every thought implicitly refers to a potentially unlimited set of other propositions or thoughts with which it can combine to form new propositions or new thoughts. It was also mentioned that this implicit reference should not be construed in terms of physical causality, but in terms of special ways of interpreting signs, or in this particular case, of linguistic or mental signs pertaining to a state of affairs described by a given proposition or thought. What we are dealing with here, is thus an example of the inability to reduce the triadic framework of semiosis to a conjunction of dyadic relations. But according to my hypothesis,

the emergence of the capacity for thought and speech in evolution could, at least in principle, be accounted for by a special, evolutionarily and then socio-culturally substantiated form of semiosis based on a highly developed form of experiential positioning of speaking and thinking agents. It seems to me self-evident that a mentally and linguistically articulated experiential perspective entails (among other things) an implicit utilization of an unlimited potential for logical operations on propositions (thoughts), although this ability has not been developed to the same degree in all people. Of course, all that has been said so far does not even touch upon the emergence and development of social and cultural forms of the mind (spirit), forms which I (following the Hegelian tradition) refer to as "the objective spirit" (for example, the explanation of the development of language), but I hope to have at least laid a foundation for a future naturalist account.

REMARK

[1]In the Anglo-Saxon literature, both terms are used, sometimes denoting the same set of phenomena. Given the fact that the term "spirit" is frequently laden with metaphysical and religious undertones, I prefer to use the term "mind", although the latter also carries with it a certain baggage of semantic difficulties.

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