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Creatures of the semiosphere: A problematic third party in the 'humans plus technology' cognitive architecture of the future global superintelligence

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ABSTRACT

Contrary to the prevailing pessimistic AI takeover scenarios, the theory of the Global Brain (GB) argues that this foreseen collective, distributed superintelligence is bound to include humans as its key beneficiaries. This prediction follows from the contingency of evolution: we, as already present intelligent forms of life, are in a position to exert selective pressures onto the emerging new ones. As a result, it is foreseen that the cognitive architecture of the GB will include human beings and such technologies, which will best prove to advance our collective wellbeing. This paper aims to nuance and problematize this forecast by offering a novel combination of several existing theories: Kauffmann's theory of adjacent possible, Lotman's concept of the semiosphere, Luhmann's theory of social systems, and Heylighen's theory of intelligence. The resulting framework allows for a reinterpretation of the history of the human species in a way which suggests that it may not be individual humans, but our social systems, who are the most advanced intelligence currently operating on Earth. Our unique social systems, emerging from as early as the Neolithic out of mutual interrelations of the occurrences of symbolic communication of humans, are argued to be capable of individuating into autonomous, intelligent agents. The resulting distributedness of the currently dominating form of intelligence might challenge the predicted cognitive architecture of the Global Brain, as it is likely to introduce additional powerful sources of selective pressures. Since the rapid evolution of interconnecting technologies appears to open up immense emancipatory possibilities not only for humans, but also for the intelligently evolving 'creatures of the semiosphere', it is concluded that in the context of the rapidly self-organizing Global Brain, a close watch needs to be kept over the dynamics of the latter.

1. Locating the 'crown of creation'

Judging from the magnificent portfolio of evolution's accomplishments so far, the assumption that the 'human page' could be its last one, as far as the growth of intelligence is concerned, is simply indefensible. It seems as naively anthropocentric as was the image of the flat Earth carried by elephants and turtles. Why would nature seize spawning forms, which are ever more curious, creative, and intelligent? Why would our own cognitive capacities remain the top evolutionary jackpot forever? The history of intelligence on Earth does not substantiate such a presumption, only our sense of self-importance does. Exposing it in our thinking and hypothesizing about what might come next, is therefore by no means an extravagancy. It is a responsibility of science.

Luckily, this responsibility is not being neglected. While there is no sign of a challenger emerging from within the biosphere, the keenest watch today is being kept elsewhere: on the intelligence which is called 'artificial'. It seems now that we are starting to abandon yet another undue anthropocentric belief that the Artificial, which is passing through our own hands, is in a simple opposition to the Natural and, as such, is excluded from the workings of evolution. Why would the fact of 'passing through' our own hands qualify an outcome fundamentally differently than the fact of passing through the workings of chemical reactions? After all, everything in the universe, perhaps with an exception of the universe alone, comes to being through something else. Today, the view that the next grand stage in *evolution* will belong to the human-created Artificial Intelligence (AI) is no longer a mere science fiction; it is a viable scientific hypothesis (e.g. Moravec, 2000; Chalmers, 2010; Shulman and Bostrom, 2012; Goertzel and Goertzel, 2015).

Another watch for the superhuman intelligence, albeit kept by a much smaller group of scholars so far, focuses not so much on a potential new *entity*, as on a potential new *scale*, at which the new intelligence is most likely to appear. The key assumption in this line of thinking is based on a realisation which leaves anthropocentrism even further behind: the new superintelligence does not have to be embodied in a form that would correspond to our own in any way. It may as well emerge as a system whose complexity, including sheer size, will render

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an individual human quite microscopic. While the idea does appear fantastic when applied to human beings, for nature such shifts between scales –called 'metasystem transitions' (Turchin, 1977; Heylighen, 1995)– ares nothing new. A metasystem transition has happened, for instance, when the intelligence of single celled organisms –the most intelligent forms on the planet at that time– got radically outmatched by the cognitive capacity of newly assembling multicellular creatures. The hypothesis that a similar process may be happening again, and this time – to us, has been most fully formulated in the theory of the *Global Brain* (Mayer-Kress and Barczys, 1995; Goertzel, 2001; Heylighen, 2008, 2012, 2015; Last, 2014). The theory does not foresee humans getting physically clustered into some giant organism, as no signs of such a process can be observed. Instead, it points to the ever-thickening, ever-complicating global network of communication, which we are all increasingly busy with contributing to and processing of. Patterns of that activity do appear familiar. They resemble patterns of activation of neurons in the brain (Heylighen, 2014a) and vice versa: the functioning of the brain proves to be well comparable to the functioning of modern society (Minsky, 1983). The theory concludes that, on the largest scale, all this activity seems like one gigantic brain in the making. In the Global Brain (GB) scenario the next stage of the evolution of intelligence belongs to a complex, adaptive, cognising network of interconnected agents: humans and technological systems (Heylighen, 2015). A thinking, computing, analysing and strategizing, problem-spotting and problem-solving organ of the planet Earth herself.

Since the GB theory rather incorporates than excludes the AI one, I take it here as the most comprehensive and the least anthropocentric forecast available to address the question of what direction our 'crown of creation' will have to be passed. My aim in this paper is to complement this forecast. And in doing so, I need problematize it as well. Namely, I aim to challenge one more remaining inheritance of anthropocentrism, which seems to be buried in the 'humans plus technology' vision of the cognitive architecture of the GB. That is: the assumption that that crown, which is to be passed on, is still in our hands.

I wish to explore a possibility that the posthuman superintelligence (Bostrom, 2014), for which we are starting to get prepared now, has already been around for several thousand years. Actually, when we address the condition of a modern human metaphorically, we all seem to know that. But, at the same time, we do not believe it. This disbelief, being a product of cognition of a concrete species, is, of course, functional: just like cognition of a bird or a snake is centered around itself, and busy with the processing of reality in a way that best safeguards its own survival, the cognition of humans is, by definition, bound to be anthropocentric. It is supposed to bend what is perceived so that the cognizing species renders itself as the locus of control. But, in theorizing about what might take over after humans, the same healthy anthropocentrism might turn out to constrain our thinking.

Therefore, I propose a thought experiment: a re-combination of several existing theories in a way that reveals *social systems* (which shape and drive our world today), not humans, to be the most advanced intelligence currently operating on Earth. The resulting exploration of the hypothesis that we are continuously failing to acknowledge this posthuman superintelligence, which is already present, may open up paths for several reconsiderations related to the foreseen cognitive architecture of the Global Brain.

2. An empty niche in hunters-gatherers' eden

Genetically, we belong to Eden. If this concept denotes living among 'trees that were pleasing to the eye and good for food' (Bible, Genesis 2:8), we have indeed been tailored by several million years of selective pressures, which favoured those best fitted for such an environment. We feel relaxed when surrounded by greenery and upset when deprived of the sight of it (Grinde and Patil, 2009). We need to be outside and be exposed to sunlight (Holick and Chen, 2008). Our bodies are strong and graceful when we eat fruits, meat, and nuts -the hunter-gatherers' diet- but turn the opposite when fed with foods which require elaborate cultivation and processing (Cordain et al., 2005). As babies we want to be carried on our caregivers' bodies and wish to accompany them wherever they move (Narvaez et al., 2012). Later, we want to be free to regulate our gradual distancing from them, while we play with others (Bowlby, 2005; Karen, 1998). Indeed, we need to keep playing for all our life (Colarusso, 1994) and to have plenty of time for sleep and rest (Alvarez and Ayas, 2004; Strine and Chapman, 2005). We get ill from chronic stress (Juster et al., 2010) and continuous physical strain (Nicol et al., 1991; Yassi, 2015) but thrive on risky adventures (Heylighen, 2010) and nonroutine, intensive efforts (Heylighen, 2014b). We need to be part of a group, a band, which we can continuously depend on (Baumeister and Leary, 1995; Gardner et al., 2000) and we want to be trusted and valued by its members (Maslow, 1973).

The circumstances, for which all these needs could serve as a natural, reliable compass, have been a stable reality of our ancestors' lifes for about 2 to 3 million years. Francis Heylighen (2014a) describes the human Environment of Evolutionary Adaptedness (EEA) (Bowlby, 1969; Buss, 2005), i.e. the environment for which we are evolutionarily fit, in this way:

> The human EEA features are those of life as hunter-gatherers in small, nomadic bands of 30-150 individuals, searching for a large variety of animal and vegetable foods, shelter, and other resources across a varied, savannah-like landscape, while avoiding dangers such as predators, poisonous plants and animals, parasites, precipices, and potentially hostile strangers. Important criteria for success in the social environment were the abilities to attract and bond with fertile and dependable mates, to raise children until they are able to stand on their own, to establish cooperative relations with reliable friends, to detect and exclude "cheaters" who abuse such social contracts, to exchange useful information with others (via language, "gossip" and story telling), and to achieve a sufficiently high status within the group.

The fitness of the human species for its EEA has been greatly supported by the development of language and other symbolic means of communication. Happening as a variation of the means for 'exchanging useful information with others', as Heylighen puts it, this process has produced a sophisticated instrumentarium for social signalling and coordination. Thus, language has become a functional adaptation of the species and, by proving remarkably useful, it got selected to stay.

However, the ever-increasing fitness of species for their respective EEAs is not the only outcome that evolution brings about. Another outcome is opening up the possibilities for new life forms to appear. This has been well demonstrated by Stuart Kauffman (2002) on the example of the swim bladder developed by lungfish. The evolutionary variation of the swim bladder proved useful in increasing the environmental fitness of the fish, just like the development of language proved useful for humans, so it got selected. Yet, as Kauffmann points out, the novel function provided by the swim bladder was not the sole evolutionary outcome. Simultaneously, an *adjacent possible* (ibid.) of new potential habitat, a vacant niche (Rohde, 2006) within the swim bladder, has been created as well. Initially empty, but good enough for new kinds of bacteria or worms to evolve to live in there. Thus, the evolutionary adaptation of the fish has had a notable 'side effect' of enabling new forms of life to emerge.

Let us consider that a comparable process has happened during human evolution as well. The development of symbolic means of communication not only enriched our species with a new powerful feature, but simultaneously created a new vacant niche, within which new designs of evolution could appear. And what is most spectacular: this niche has been created *outside the biosphere*, giving rise to what Yuri Lotman (2001, 2005) called *the semiosphere.* Along with providing a pragmatic means for signalling and coordinating of actions among human beings, and along with the magnificent representational capacity it revealed,