Editorial

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The notion of a representation, as it is widely used in cognitive science and in the philosophy of mind, is typically understood as a mental representation, which is associated with mental states such as thoughts, beliefs, desires, perceptions, and so on. Insofar as such states are about something, or refer to something, they represent this something. This aspect of aboutness or reference has been called “intentionality”, and the corresponding content of a mental representation is called “intentional content”.

However, there is yet another meaning to representation. In addition to its intentional aspect, the term representation may be used to characterize the dynamic process of representing, addressing the genuinely relational aspect of a representation. Moreover, representations have phenomenal content: the subjective experience of being in a particular mental state has been phrased as “what it is like to be” in that state. Needless to say, while there is fairly general agreement on the notion of intentional content, the phenomenal content of mental representations is a matter of heated debate.

Representationalist accounts reject that we perceive the world around us as this real world itself; they reject the position of naive or direct realism. Rather, the world around us becomes accessible for us via representations that we experience as our ideas and interpretations of it (indirect realism). This leads to the question of how these interpretations are formed, and by whom, and this entailed a variety of arguments related to what has become known as the homunculus fallacy. There must be more than data flow and (syntactic) information processing in order to perceive and interpret (the intentional content of) a representation. And since any perception and interpretation has to be represented itself, this problem arises recursively, thus implying an infinite hierarchy of entities (homunculi) keeping themselves busy with perceiving and interpreting. Two contributions in this issue of Mind and Matter propose ways to circumvent these problems.

A key notion in this respect that András Balázs employs is the notion of “internal measurement”, which was introduced early on by Howard Pattee. The measurement devices are biomolecular processes, in particular protein enzymes, which “interpret” RNA/DNA chains and, by this process, lead to new kinds of protein behavior as outcomes. Recursive updates due to such “interpretive” measurements entail that each macromolecule is both a measured object and a measuring device. The symbolic
(software) side at this molecular level is described by the syntax of the algorithmic code represented by the amino acids.

In addition to the molecular level, Balázs considers another domain in which he tries to relate depth psychology, the study of the mind, to an ethology that studies corresponding behavioral features in a natural environment. The psychological idea of ultimately instinctive behavior appears as an evolutionary extension, a higher-level representational form, of the primary, molecular processes. In this sense evolution plays a fundamental role in his approach toward a biocomputational theory of cognition, spiced with yet-to-be-tested ideas on how quantum theory may or may not be involved as well.

The account presented by Jochen Szangolies is less overarching, but his focus is related to that of Balázs in an interesting way. He studies a problem analogous to the homunculus fallacy that arises in the theory of self-reproducing cellular automata and was solved by John von Neumann. To begin with, representations are three-place relations between what represents, what is represented, and what uses the representation (the homunculus). The idea then is to collapse this relation, in a non-trivial and non-paradoxical way, to a two-place relation by defining the representation as its own user.

The first step to implement this idea is to ground intentionality in action: a symbol is not only about what an agent may know, it is about that which it makes that agent do: a genuinely pragmatic approach. The second step, and this is where von Neumann’s work on reproduction gets exploited, is a careful separation of syntactic and semantic aspects of a mental representation, both simply copying a certain pattern and interpreting it as a set of instructions to act. In this sense, the form of the mental state induces it to perform actions directed toward its intentional content – the state is both the symbol and the mechanism realizing that symbol’s meaning.

Pete Gunter discusses the way in which Henri Bergson, one of the leading figures in early process philosophy, reacted to the problems of representationalism. Provocatively, Bergson considers the traditional notion of representation as a metaphysical entity introduced to resolve a poorly formulated philosophical and scientific problem, namely our understanding of perception. For Bergson, perception does not add to or copy the given as representation – it actually subtracts from the given. In perception, relevant features are distinguished from irrelevant ones, and the relevant ones are selected as characteristic for the purpose of dealing with the world.

Gunter addresses quite a number of current approaches in cognitive neuroscience and relates them to Bergson’s ideas in an innovative fashion. However, the most significant insight of Bergson is to ground perception in temporality. It is clear that he conceives the mental as processual, en-
dowed with inner duration. But he also applies the concept of duration to the material world, where processes may exhibit hierarchies of durations. The idea of duration connects the mental and the material. We can develop a notion of time in the sense of external duration because we are subject to inner duration, and we have a sense of inner duration because our brains possess external duration. While pure memory is a faculty entirely independent of matter, pure perception is the “ultra-direct realist” limit of perception, which has (almost) no mental share at all.

The article by Terje Sparby addresses the fundamental question of what happens to cognition when the threshold of consciousness is lowered such that layers of the unconscious become consciously accessible, for instance in meditative experiences. One key feature he describes is a gradual loss of distinctions as meditative depth increases. For the standard picture of mental representations this has the consequence that they get blurred and perhaps even dissolved, and this may extend to such basic distinctions as subject and object, ego and world.

Although there is an increasing number of empirical work on meditation research in recent years, Sparby’s proposal of a contemplative phenomenology is primarily based on first-person reports. The impressive examples that he discusses show clearly that the experience of lowered-threshold states, as non-ordinary as it may be, is certainly not void of content. Although our everyday logic may be inappropriate to understand them, he suggests that they follow a different kind of rationality related to Cusa’s coincidence of opposites, to Hegel’s dialectic, and to commentaries on Hegel by William James.

Three book reviews conclude this issue: Roderick Main’s essay review of Beyond Physicalism (edited by E. Kelly, A., Crabtree and P. Marshall), Joshua Farris’ review of Contemporary Dualism (edited by A. Lavazza and H. Robinson), and Thomas Filk’s review of Quantum Mind and Social Science (authored by A. Wendt). Finally, we reproduce an announcement of an upcoming anthology of key articles, and commentaries to them, on topics of the philosophy of mind by the Open Mind Project at Mainz University (edited by T. Metzinger and J. Windt). The collection is accessible online and will soon be published by MIT Press.

Abner Shimony, professor of physics and philosophy, died at the age of 87 years in August 2015. Among physicists, he was mainly known for his achievements concerning theoretical and experimental work on Bell’s theorem and quantum entanglement. His philosophical outlook was much broader and is best characterized by the study of the relationship between the world and our knowledge about it – which he thought was not entirely at variance with the lessons that entanglement has taught us. His latest
PhD student, Gregg Jaeger, wrote an obituary in appreciation of this outstanding scholar that we are more than pleased to publish in Mind and Matter.