Editorial

Harald Atmanspacher
Editor-in-Chief

Since Franz Brentano’s seminal *Psychology from an Empirical Standpoint* (1874), the concept of intentionality has developed into a key term in several branches of philosophy and psychology. According to Brentano, intentionality characterizes the reference of a mental phenomenon to its content, its direction toward an object, or briefly its aboutness. Brentano himself used the difficult notion of “intentional in-existence”, which has generated much debate, as a key criterion for the mentality of the mind.

The concept of intentionality soon became influential for Brentano’s student Edmund Husserl who, in his *(Fifth) Logical Investigation: Intentional Experiences and Their Contents* (1901) laid the foundation of the project of phenomenological philosophy. Although intentionality in the modern sense does not have a lot in common with later views of phenomenology, it is still a key notion in contemporary cognitive science and philosophy of mind. And since the (re-)birth of consciousness research in the 1970s, intentionality is typically discussed as a hallmark of conscious mental states.

If intentionality characterizes a reference of a mental phenomenon to its content, or a direction toward an object, it is not itself an object but a relation. In contemporary approaches (for instance that of Thomas Metzinger), this relation can be represented as a second-order mental phenomenon, a meta-representation as it were, which encodes the intentional content of the underlying first-order representation. In more colloquial words, this content is nothing else than the meaning of the underlying representation.

Access to intentional contents is typically possible due to a subject’s experience, in modern parlance addressed as a first-person account. Identifying intentionalities of experiencing subjects is a problem for anybody else than the subject itself. A so-called third-person account, that would be needed to achieve this, is typically based on how intentionality is transformed into behavior, and how it leads to action. The essence of this move is the step from semantics to pragmatics.

Pragmatic concreteness reveals whether and how semantic contents, represented by pristine relations of reference, are understood (or not). This is precisely the way in which the pioneers of American pragmatism (Peirce, James, Dewey) wanted the pragmatic stance to be understood: as an attitude due to which knowledge and truth can be approached in a process of inquiry. (Common misconceptions of the pragmatic attitude as
a utilitarian relativism in which means are justified, or even sanctified, by presupposed ends turn the true pragmatic spirit upside down.)

In fact, this pragmatic side is reflected in two variants of intentionality that are no philosophical *termini technici*: intent and intention. They include meaning, but they also include notions such as purpose, plan, aim, project. Thus, they clearly refer to the action that holds the potential to demonstrate how meaning expresses itself and becomes operationally accessible in a third-person sense. The origin of behaviorist psychology can be regarded as an offspring of this idea – which lost proportions in the radicalized doctrine that psychology is nothing else than behavior.

In addition to the general idea of transforming meaning into behavior, the pragmatic stance can yield insight about an *understanding of meaning* by its effect on *behavioral changes*. This is what has been proposed in approaches by von Weizsäcker, Gernert, and others, who tried to develop the notion of pragmatic information beyond syntactic and semantic information (à la Shannon and Carnap). For interested readers, an earlier issue of *Mind and Matter* in 2006 contains a splendid overview of this development by Dieter Gernert.

Such an information theoretical framework suggests itself for those aspects of psychology that can be and have been studied as versions of information processing. However, the range of subdisciplines and frontier areas of psychology is certainly not exhausted by this specific viewpoint. In another earlier issue of *Mind and Matter* of 2008, Walter Freeman has looked into the notion of intention of Thomas Aquinas and compared it with his own conceptions of intention as a key feature of what is currently discussed as the action-perception cycle.

Conceiving the interplay of perception and action (and perhaps cognition in between) *cyclically* expresses the observation that the path from the sensation of a stimulus over cognitive processing to behavioral outputs is not as unidirectional as one might think naively. Indeed, we know today that there are lots of feedback loops going on between them, so that a simplistic cause-and-effect chain is difficult or even impossible to justify.

Many of the encountered problems can be better addressed within modeling frameworks provided by the theory of nonlinear complex systems. Haken and Tschacher give an example in this issue, combining the psychological perspective of cognition with the dynamics of neural networks. More specifically, they present an operational (pragmatic) treatment of intentionality in terms of the dynamics governing the coupled system of a brain and its environment. This “naturalizing” account generalizes the concept of intentionality beyond Brentano’s idea to use it as a defining criterion for mental phenomena.

The same motivation can be seen in the contribution by Jordan and Heidenreich. Here, intentionality occurs on all scales of an organism, from single cells up to processes involving the organism as a whole in interaction
with its environment. Their approach is a “wild system theory” avoiding dualist mind-body dialectics. A key idea in this framework is that features at each particular scale sustain themselves under constraining contexts, typically deriving from larger scales. Their paper argues in detail how a concept of intentionality as directedness toward self-sustainment can be understood at the level of individual neurons.

Another very interesting proposal in this spirit is outlined in the paper by Kloos and van Orden who address intentions by way of voluntary behavior. The body of empirical evidence that they discuss is taken mainly from studies of reaction times in particular tasks – obviously a very basic measure if one is interested in action-perception coupling. Analyzing the changes of reaction times over consecutive repetitions of the task yields scale-free power spectra that can be characterized by one single number, the power-law exponent. Kloos and van Orden present amazingly consistent semi-quantitative relations for the variation of reaction times as a function of skills, task difficulty, and the (voluntary and involuntary) control of degrees of freedom. Their approach holds potential for deeper insights to be unveiled by future work.

Jens Harbecke offers a very detailed and subtle discussion of the problems of mental causation, some attempts to resolve them, and the prices to be paid for the proposed solutions. The causal influence of mental states on future mental states, or even on neural states, is clearly an issue for the actualization of an intention in terms of behavior. The specific appeal of Harbecke’s way to deal with these questions is due his use of formal logic. The rationale behind this is the option to spell out obscure or cryptic verbal arguments in order to see their consequences more clearly. Comparing the almost canonical “supervenience argument” of Jaegwon Kim against mental causation with an anti-physicalist response to it by Scott Sturgeon, Harbecke shows that a number of inconsistencies in Kim’s approach legitimate Sturgeon’s criticism.

If, contrary to Brentano’s suggestion, intentionality is not the defining criterion for the mental and for consciousness in particular, what else might be useful for a definition? Ram L.P. Vimal’s paper on the quest of defining consciousness outlines his viewpoints about what he calls optimal and general definitions. Key ingredients of his corresponding attempts are conscious (and non-conscious) experiences and functions, and he is inclined toward a version of panexperientialism with the mental and the material as derived aspects of basic (proto-)experiences. In such a framework, intentionality is an intrinsic and ubiquitous feature of these (proto-)experiences insofar as they are conceived as irreducibly fundamental.