

**EXPRESSING THE ORGANIZER OF AN ORGANISM'S BEHAVIOR:
AN EPISTEMOLOGICAL OVERVIEW OF NEUROSCIENCE
A.J.Kulikauskas**

Department of Philosophy, Self Learners Network, Eičiūnai, Lithuania
ms@ms.lt

Background and aim:

Neuroscience, as a discipline, makes many assumptions, as noted by Zavala, Pérez, Muñoz, and Herrera [1999-2000]. We make them explicit by cataloguing the methods by which neuroscientists arrive at conclusions.

Materials and methods:

We collect and systematize the ways that neuroscientists have figured thing out as discussed in Wikipedia articles, the Brain Science Podcast, and related books.

Results:

We outline a system of 24 ways of figuring thing out. In establishing a neural structure, neuroscientists document its activity at rest, at constant voltage or current, the correlates of activity (such as blood flow), and the functional components (such as neurons). Neuroscientists distinguish ever finer structures, identify species in which they function robustly, destroy that functionality, and trace structural evolution. The experimental goal is temporal precision in associating neural processes with experience and behavior. Neuroscientists then interpret "errors" at different levels of awareness: phantoms (false information), illusions (imperfect models), novelties (incorrect predictions), thoughts (mental fictions). We present these and the remaining ways of figuring things out as a comprehensive epistemological system.

Conclusions:

In practice, neuroscience views the brain as the organizer of an organism's behavior. Implicitly, the methods of neuroscience assume and engage the attributes of an organizer whose internal logic interacts with its external environment at various levels of abstraction. The fundamental challenge of neuroscience is to match the physiological activity within brains with the framework of social conceptions by which we interpret not only our internal experience but also our external behavior. For example, we may conceive of walking as a step-by-step process, but our cerebellums do not. Neuroscience develops words and concepts by which we grow aware of how our brains function.