

P-959 - HOW CAN NEUROSCIENCE „EXPLAIN“ MENTAL DISORDERS?

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The hope to “explain” mental disorders by biological mechanisms alone does not have such a strong epistemological basis as it appears at the first glance. The stimulating publication “Explaining the Brain” by the philosopher of science Carl F. Craver (2009) highlights criteria for appropriate “mechanistic explanations” in neuroscience: in contrast to deductive-nomological explanations as they are common in physics, the identification of phenomenon-generating mechanisms is sufficient for explanation. This obviously holds true for “intralevel” explanations such as explaining action potentials by ion currents (macro-to-micro reduction). However, at reduction of behavioural phenomena or subjective experience to neuromolecular mechanisms the mind-body problem interferes. Additionally, at present the huge amount of data that is generated by imaging methods and by microarrays requires the application of computational methods that help to reduce complexity. This situation also results in the decomposition of traditional psychopathological concepts. Furtheron, in presenting research results the culture of drawing wiring diagrams is very common. The heuristic value of such qualitative conceptual models of phenomena-generating neural structures is to be discussed in the view of computational systems science. The options and limits of those strategies of explanation in neuropsychiatry is discussed referring to claims to explain working memory deficiencies by neurochemical and neuroanatomical findings.