

# SLAPSA IV



***Fourth Meeting of the Saint Louis Area Philosophy of Science Association***

February 25th, 2012

8:30–9:00: Welcome Coffee and Pastries

9:00–10:10-- Kent Staley (St. Louis University)

**Title:** How Hertz Secured Experimental Evidence and What Bayesianism Cannot Do

**Short Abstract:** A principal task in any experimental undertaking is the contemplation of the different ways in which the investigator might go wrong in drawing conclusions from the data gathered (see, e.g., Hon 1989; Mayo 1996). Given that it is not possible typically to eliminate all possibilities of error, the question arises how to prioritize among different error scenarios. In this paper, I present a framework within which to address this question, which I call the secure evidence framework. In the secure evidence framework, inferences from experimental data are justified by methods that (i) establish that the data constitute good evidence for the conclusion and (ii) put investigators in a good epistemic situation for drawing the inference. Such justifying methods pursue aim (ii) at least in part by diminishing the range of scenarios that are simultaneously (a) epistemically possible for the investigators and (b) such that if they are actual, the data fail to be good evidence for the conclusion of the inference. In the present paper I propose to use the example of Heinrich Hertz's experiments on cathode rays (Hertz 1896) to explain briefly this ideal and illustrate the two main categories of strategies for securing evidence.

10:10–11:20 – Jimmy Vaught (St Louis University)

**Title:** Fields and Waves

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**Short Abstract:** Electromagnetic fields and waves seemingly need some kind of background to exist in, but the *aether* has long since been discarded as a means of providing this background. The philosophical thesis of Substantivalism can be offered as an answer to this problem, but Substantivalism is notably less parsimonious than its rival Relationalism when it comes to the number of substances in its ontology, and parsimony is typically a very important litmus test of scientific and philosophical theories. Wouldn't it be wonderful if there was an option that explained the background problem of electromagnetic fields and waves, and was just as parsimonious as Relationalism? I argue that there is, in fact, such a candidate which has heretofore not received the attention it deserves. This candidate is Supersubstantivalism, and in this talk I will argue that this thesis not only satisfactorily addresses the background problem, but also emerges--at least--as parsimonious as traditional Relationalism is. I conclude that as such, it is a better explanation of space-time than either traditional Substantivalism or traditional Relationalism.

11:20–12:30 –Peter Boltuc (University of Illinois Springfield)

**Title:** "Is Non-reductive Machines Consciousness Possible?"

**Short Abstract:** My argument begins with an unsurprising conditional statement: If, in one of the meanings of the term, phenomenal consciousness pertains to the sort of consciousness described in Chalmers' hard problem of consciousness (we may call it hard-consciousness), then it is clear that present-day

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machines or future machines based on similar cognitive architectures are not phenomenally h-conscious. The middle step of my argument is quite naturalistic: If there is h-consciousness then we have good reasons to believe that the mechanism of its functioning will be discovered, eventually. This is not a reductionist move, or an attempt to butcher Chalmers' point that such consciousness is not explainable through the correlates of consciousness. Instead, I claim that we should be able to explain the exact mechanism of creating h-consciousness (even if it is an emergentist phenomenon). The final step of the argument pertains to future engineering: Once we get to understand the mechanism that produces h-consciousness we should attempt, and eventually succeed, to engineer one. Such mechanism would give machines artificial h-consciousness, (as opposed to a bit easier to imagine cyborg consciousness, e.g. coming from rat brains).

12:30-1:30 Lunch

Either in the Morris University Center or off campus

1:30-2:40 Shannon Spaulding (Washington University Post-doctoral Fellow)

**Title:** Mirror Neurons are Not Evidence for Simulation Theory

**Short Abstract:** Recently, there has been a resurgence of interest in theories of mindreading. New discoveries in neuroscience have revitalized the languishing debate. The discovery of so-called mirror neurons has revived interest particularly in the Simulation Theory (ST) of mindreading. In the first article linking mirror neurons and ST, Vittorio Gallese

and Alvin Goldman argue, “The point is that MN activity is not mere theoretical inference. It creates in the observer a state that matches that of the target. This is how it resembles the simulation heuristic. Nothing about TT leads us to expect this kind of matching” (Gallese & Goldman, 1998, p. 498). Both ST proponents and theorists studying mirror neurons have argued that mirror neurons are strong evidence in favor of ST over Theory Theory (Gallese & Goldman, 1998; Goldman, 2006, 2009; Gordon, 2005; Hurley, 2005; Iacoboni, 2009). In this paper I argue against the prevailing view that mirror neurons are evidence for the ST of mindreading. My view is that on an appropriate construal of their function, mirror neurons do not operate like simulation theorists claim.

2:40-3:50 Nils Richards (University of Missouri St Louis)

**Title:** Carving Natural Language at its Joints: Syntax as a Natural-Kind

**Short Abstract:** This paper aims to establish natural language syntax (NLS) as a natural-kind. Once established, the goal is to explore possible implications of syntax's being a natural-kind. I take NLS to be a natural-kind according to four criteria: (1) Causal (2) Explanatory (power in theory/science) (3) Innateness (4) Evolutionary Entrenchment. These criteria will motivate the implications sections of the paper, which focuses on two main implications: First, natural language is not a human invention. And second, NLS could be duplicable by other systems, natural and artificial.

3:50-5:00 –Carl Craver (Washington University)

**Title:** Optogenetics and Maker's Knowledge

**Short Abstract:** Modelers understand a mechanism by representing it in models and programs. Makers understand a mechanism by building it or making it work in new and practically useful ways. I will look at the development of optogenetics, a new neuroscientific technique that gives researchers unprecedented precision in their ability to intervene into brain systems. I use this development as a central example for exploring the dimensions of progress in experimental intervention, and so as an example of the growth of maker's knowledge. My discussion has relevance both to thinking about the goals of science and to thinking about how we might chart progress in our ability to intervene into biological systems.

5:30—Drinks @ Global Brew Tap House

Global Brew Tap House & Lounge is located at 112 South Buchanan Street in Edwardsville.

***Additional Information***

*Directions:* From I-270, take the Hwy. 157 exit and head north to the SIUE campus. Go straight through the stoplight, which puts you on University Dr. University Dr. will lead you onto campus, where you will take a left onto Circle Dr. Follow the signs to the Visitors' parking lot, which will be your 2<sup>nd</sup> right.

The lot is situated between the C.S.S. and the Morris University Center [See map].



*Parking is free in the Visitors' lot on Saturdays.*

*Food and Coffee:* Coffee will be available in the Center for Spirituality and Sustainability both before the sessions begin and after lunch. The Morris University Center, just across the parking lot from the C.S.S also has a Starbucks. On campus lunch options are limited, but the Morris University Center has a general cafeteria as well as some fast food options. For those who venture off campus, you will need to drive, and if you talk to either Judy or Chris, you can get a recommendation according to individual tastes.



The Saint Louis Area Philosophy of Science Association is an organization intended to promote collaboration and cooperation among St. Louis area philosophers of science. We encourage you to consider becoming a member. Membership is \$20 for one year and additional donations are welcome. See our website at:  
<http://slapsa.net/>

SLAPSA 4 Coordinators:  
Judith Crane (SIUE)  
Christopher Pearson (SIUE)

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