

Chris Smeenk

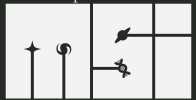
Western University

General Relativity Stands Alone?

Tuesday, 01 October 2019 • 3:30 pm
MSI Conference Room • 3550 University

Eliminative reasoning is an appealing way to establish a theory: observations rule out all the competitors, leaving one theory standing. This only works, however, if we have taken all the alternatives into account. There have been long-standing debates in philosophy regarding the upshot and limitations of eliminative arguments. In this talk, I will defend the virtues of eliminative reasoning, based on seeing how it is used in practice. I will consider one case study of eliminative reasoning in detail, namely efforts to show that general relativity provides the best theory of gravity in different regimes. Physicists have constructed parametrized spaces meant to represent a wide range of possible theories, sharing some core set of common features that are similar to general relativity. The common features are sufficient to determine observational constraints on parameter values, without going through detailed calculations for every theory populating the space. This construction partially counters the worry about whether we have taken all the relevant alternatives into account. I draw two further points from this case study. First, the eliminative arguments have to be considered in the context of a specific regime. Solar system tests of gravity, using the PPN framework, favour GR – or any competing theories that are equivalent to it within this regime. But, second, eliminative arguments in different regimes may be complementary, if theories that are equivalent in regime 1 can be distinguished in regime 2. This leads to a qualified defense of the value of eliminative reasoning.

Institut Spatial de McGill



McGill Space Institute

MSI Seminar Series