

**STATISTICS COLLOQUIUM
JOINT
GSAS SOCIETY FOR LAW AND STATISTICS**

MONDAY, OCTOBER 15, 2012
TALK: 4:00 PM — SCIENCE CENTER RM. 309
RECEPTION: 5:15 PM — SCIENCE CENTER, 7TH FLOOR

“On the Causes of Effects”

**Stephen E. Fienberg
Department of Statistics,
Machine Learning Department,
Heinz College, and Cylab
Carnegie Mellon University**

ABSTRACT

While much of science is concerned with the effects of causes, relying upon evidence accumulated from randomized controlled experiments and observational studies, the problem of inferring the causes of effects arises in many practical policy and legal contexts. Discussions of the two concepts, "the effects of causes" and "the causes of effects," go far back in the philosophical literature but remain murky. The statistical literature is only of limited help here as well, focusing largely on the traditional problem of the "effects of causes." Through a series of examples, I review the two concepts, how they are related, and how they differ. I also discuss the challenges for statisticians who should be worried about both problems.