

Department of Mathematics and Statistics

Colloquium Announcement

Friday March 27 2015
University of Saskatchewan

ARTS Building
Room 109
3:30 PM

Renouncing the Sample Space and Revisiting the Foundations of Probability

Speaker: Professor Emeritus Mikelis Bickis
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Abstract:

Renouncing the sample space and revisiting the foundations of probability.

Kolmogorov's foundations of probability defined events as measurable subsets of a sample space. Alternatively, a Boolean algebra of events can be considered primitive irrespective of any underlying sample space. Even more radically, random variables themselves can be posited as primitive undefined objects interpreted as unknown numbers admitting arithmetic operations, but which are only partially ordered. Events are then identified as idempotent random variables. Probability can be introduced by postulating a convex cone of random variables that are expected to be positive, which can be given a behaviouristic interpretation as a set of **acceptable gambles** that are expected to give a positive payoff. The expectation or **prevision** of a gamble is then defined as the supremum price you will pay to accept the gamble.

While De Finetti viewed prevision as a linear function, meaning that the cone of acceptable gambles is in fact a half-space, Williams and Walley allowed for indecision by not requiring that either a gamble or its negative be acceptable. The consequent "lower prevision", thoroughly examined by Troffaes and de Cooman, now becomes a superadditive function which generalizes the classical theory of expectation.

Full Abstract here: <http://tinyurl.com/MSEvent150327>



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