informatik-Kolloquium

The Department of Computer Science of Johannes Kepler University Linz[1] together with the Austrian Society of Computer Science (ÖGI) invites to the following talk:

Dirk Draheim
Tallinn University of Technology, Estland

Generalized Jeffrey Conditionalization - a Frequentist Semantics of Partial Conditionalization

January 26th, 2018, 11:00
JKU, Computer Science Building (Science Park 3) room **047**

Abstract: We introduce a frequentist semantics for conditionalization on partially known events. This notion of probability is conditional on a list of event-probability specifications, and we denote it as $P(A|B1=b1,...,Bn=bn)$. We call it frequentist partial (F.P.) conditionalization. As in Jeffrey conditionalization, a specification pair B=b stands for the assumption that the probability of B has somehow changed from a previously given, a priori probability into a new, a posteriori probability. We give a formal, frequentist semantics to this kind of conditionalization. We think of conditionalization as taking place in chains of repeated experiments, so-called probability testbeds, of sufficient lengths. We prove that F.P. conditionalization meets Jeffrey conditionalization. Jeffrey conditionalization treats the special case of partitions, i.e., the case in which all of the events are mutually disjoint and sum up to a probability of 100%. With our semantics, these requirements can be dropped so that we can deal with arbitrary lists of overlapping events. This way, F.P. conditionalization generalizes Jeffrey conditionalization, opening it for reassessment and a range of potential applications. The postulate of Jeffrey's probability kinematics, which is rooted in the subjectivism of Frank P. Ramsey, turns out to be a consequence in our frequentist semantics. This way, F.P. conditionalization bridges between the Kolmogorov system of probability and one of the important Bayesian frameworks.

About the Speaker: Dirk Draheim is full professor of information society technologies and head of the large-scale systems group at Tallinn University of Technology. Dirk holds a PhD in computer science from Freie Universität Berlin and a habilitation from the University of Mannheim. From 1990 to 2006 he worked as an IT project manager, IT consultant and IT author in Berlin. In summer 2006, he was Lecturer at the University of Auckland and from 2006-2008 he was area manager for database systems at the Software Competence Center Hagenberg as well as Adjunct Lecturer in information systems at the Johannes-Kepler-University Linz. From 2008 to 2016 he was head of the data center of the University of Innsbruck and, in parallel, from 2010 to 2016, Adjunct Reader at the Faculty of Information Systems of the University of Mannheim. Dirk is co-author of the Springer book "Form-Oriented Analysis" and author of the Springer books "Business Process Technology" and "Semantics of the Probabilistic Typed Lambda Calculus".

Host: *a.Univ.-Prof. Dr. Josef Küng*
Institut of Application Oriented Knowledge Processing (FAW)

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