

FMEC: Overview and Interpretation

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Abstract. This paper is an integrative essay on the activities and intellectual concerns of the FMEC community. The paper frames these concerns around three ‘non-standard’ formalisms (logic, graphs, and procedures), three themes or general problems (representation, inference, and learning), and seven more specific topics (electronic data interchange, electronic contracting, speech acts, special logics, system and process modelling, strategy formation, and computational discovery). In addition, the paper introduces each of the chapters in this book and places them within the general FMEC framework. An appendix to the paper records the bibliographic history of the FMEC community.

1 Introduction

Electronic commerce is an attractive field for anyone interested in originating fresh ideas or in innovatively translating them into practice. Underlying technical progress in computing and communications continues a torrid advance. In consequence the deployment, full exploitation, and even conception of applications enabled by technical progress inevitably lag and go unrealized, at least for a time, sometimes a considerable time. Thus is created a permanent (if moving) frontier, open to insight and rewarding it.

Electronic commerce is equally attractive to those with a taste for fundamental challenges and with aspiration to make foundational contributions. The general challenge is “to expand the realm of the automated in a principled and generalized fashion.”¹ To take up this challenge is to be confronted with any number of fundamental problems, calling for fundamental insight and innovation.

The papers in this volume address both kinds of challenges—e-commerce application challenges and e-commerce fundamental challenges—in detail. It will be useful, for the sake of interpreting these papers, to frame what it is that the FMEC community has been about. For that purpose, three facets or perspectives will serve to characterize, at least roughly, the intellectual concerns that have drawn the attention of researchers in the FMEC community:

¹ Since the early 1980s, this has been Steven O. Kimbrough’s slogan for characterizing the mandate of Information Systems as a discipline.

- Formalisms
- Themes
- Topics

2 Formalisms

Formal modelling requires some formalism or other in which to express models. Moreover, electronic commerce is a capacious area of research and much formal modelling has long been directed at it. What distinguishes FMEC? How is it different from standard modelling work, say, in economics, or the management sciences? The FMEC community may perhaps best (but always approximately) be described as having focused on *non-standard* formal modelling for electronic commerce. What we may call the *standard modelling formalism* employs broadly algebraic (or equational) models of various sorts. The literatures of economics, the management sciences, and the various business disciplines (e.g., marketing, finance) are suffused with models using the standard formalism(s). Moreover, modelling in this style has been present and welcomed in the FMEC literature.²

From the outset, however, the FMEC community has been interested in problems and topics for which other formalisms are most naturally used. These other, ‘non-standard’ formalisms have been of broadly three kinds:

- Logic
- Graphs
- Procedures

Logic. The origin of the FMEC community was a series of Logic Modelling minitracks at the HICSS meetings (Hawaii International Conference on System Sciences), beginning in January 1987 (see §A, below). From the outset, and continuing to the present, a large segment of the FMEC community has focused on the use of formal logic as a modelling tool. The opening article in the first FMEC special issue, “Logic Modeling: A Tool for Management Science” [KL88], presents the case. In a nutshell, the promise of logic modelling is that:

1. Logic models are natural representational formalisms for any target system that is propositional, such as documents and messages used to conduct business.
2. Logic models afford construction of clear and rigorous models; and they bring with them the considerable foundational underpinnings of formal logic.
3. Via the logic programming paradigm, logic models are readily implemented and translated into applications. In this context, we may think of a logic model as an ‘executable theory’.

² E.g., [Jer88,BCK00,Wu97]