Panel discussion - Mathematical modeling and anthropology: Its rationale, past successes, and future directions

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PANEL DISCUSSION

MATHEMATICAL MODELING AND ANTHROPOLOGY: ITS RATIONALE, PAST SUCCESSES, AND FUTURE DIRECTIONS

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When anthropologists talk about their discipline as a holistic study of human societies, particularly non-Western societies, mathematics and mathematical modeling do not immediately come to mind, either to persons outside of anthropology or even to most anthropologists. What does mathematics have to do with the study of religious beliefs, ideologies, rituals, kinship, and the like? Or, more generally, what does mathematical modeling have to do with culture? The application of statistical methods usually makes sense to the questioner when it is explained that these methods relate to the study of human societies through examining patterns in empirical data on how people behave. What is less evident, though, is how mathematical thinking can be part of the way anthropologists reason about human societies and attempt to make sense of not just behavioral patterns but the underlying cultural framework within which these behaviors are embedded. What is not widely recognized is the way theory in cultural anthropology and mathematical theory have been brought together, thereby constructing a dynamic interplay that helps elucidate what is meant by culture, its relationship to behavior, and how the notion of culture relates to concepts and theories developed not only in anthropology but in related disciplines. The interplay is complex and its justification stems from the kind of logical inquiry that is the basis of mathematical reasoning. Linking of mathematical theory with cultural theory, we argue, is not only appropriate but may very well be necessary for more
effective development of theory aimed at providing a holistic understanding of human behavior.

**SET OF QUESTIONS ADDRESSED BY PANELISTS**

- What do mathematics and formal modeling have to do with the study of religious beliefs, ideologies, rituals, kinship, and the like?
- What do mathematical and formal modeling have to do with culture?
- What are some of the major papers that have helped to frame the application of mathematical theory and formal models to culture theory?
- What are some of the past successes of mathematical anthropology; that is, what significant issues in cultural anthropology have been effectively addressed through application of mathematical theory and methods?
- What are or should be the goals of mathematical anthropology and/or formal modeling?
- What are some of the basic issues confronting theories about culture and how can mathematical theories and formal models relate to these issues?
- What are the research questions you have been addressing and in what ways have mathematical theory and/or formal models been relevant to your research?
- What are possible directions or research topics that are particularly amenable to mathematical theory and formal methods?
- Does the application of mathematical theory and formal methods help to refine our understanding and definition of basic concepts relevant to cultural anthropology?
- Is cultural evolution a topic that could be effectively addressed by mathematical theory and/or formal methods and if so, in what way?
- How does mathematical theory and formal modeling as applied to cultural anthropology relate to the current interest in agent-based modeling, especially since the latter is often seen as a way to overcome inherent limitations of mathematical modeling?
PANELISTS

- Paul Ballonoff, USA
- Irina Ezhkova, International Institute of Applied Technology, Belgium
- Michael D. Fischer, University of Kent at Canterbury, UK
- Paul Jorion, USA
- David Kronenfeld, University of California, Riverside, USA
- Murray Leaf, University of Texas, Dallas, USA
- F. K. Lehman, University of Illinois, Urbana, USA
- Dwight Read, University of California, Los Angeles, USA (Organizer)
- Sander van der Leeuw, University of Paris, France
- Douglas R. White, University of California, Irvine, USA

1Unable to attend.