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ARTIFICIAL EXO-SOCIETY MODELING:
A NEW TOOL FOR SETI RESEARCH

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One of the newest fields of complexity research is artificial society modeling. Methodologically related to artificial life research, artificial society modeling utilizes agent-based computer simulation tools like SWARM and SUGARSCAPE developed by the Santa Fe Institute, Los Alamos National Laboratory and the Bookings Institution in an effort to introduce an unprecedented degree of rigor and quantitative sophistication into social science research. The broad aim of artificial society modeling is to begin the development of a more unified social science that embeds cultural evolutionary processes in a computational environment that simulates demographics, the transmission of culture, conflict, economics, disease, the emergence of groups and coadaptation with an environment in a bottom-up fashion. When an artificial society computer model is run, artificial societal patterns emerge from the interaction of autonomous software agents (the "inhabitants" of the artificial society). Artificial society modeling invites the interpretation of society as a distributed computational system and the interpretation of social dynamics as a specialized category of computation.

Artificial society modeling techniques offer the potential of computational simulation of hypothetical alien societies in much the same way that artificial life modeling techniques offer the potential to model hypothetical exobiological phenomena. NASA recently announced its intention to begin exploring the possibility of including artificial life research within the broad portfolio of scientific fields comprised by the interdisciplinary astrobiology research endeavor. It may be appropriate for SETI researchers to likewise commence an exploration of the possible inclusion of artificial exo-society modeling within the SETI research endeavor.

Artificial exo-society modeling might be particularly useful in a post-detection environment by (1) coherently organizing the set of data points derived from a detected ETI signal, (2) mapping trends in the data points over time (assuming receipt of an extended ETI signal), and (3) projecting such trends forward to derive alternative cultural evolutionary scenarios for the exo-society under analysis. The latter exercise might be particularly useful to compensate for the inevitable time lag between generation of an ETI signal and receipt of an ETI signal on Earth. For this reason, such an exercise might be a helpful adjunct to the decisional process contemplated by Paragraph 9 of the Declaration of Principles Concerning Activities Following the Detection of Extraterrestrial Intelligence.