Applications of Simulation to Social Sciences

departors
Gérard Ballot
Gérard Weisbuch
Table of contents

Introduction: Why Simulation in Social Sciences?
Gérard BALLOT and Gérard WEISBUCH ........................................ 9

Sociology ...................................................................................... 17
The necessity of intelligent agents in social simulation
Rosaria CONTE ........................................................................... 19
False reputation in social control
Mario PAOLUCCI ........................................................................ 39
Searching for Mates Using « Fast and Frugal » Heuristics:
a Demographic Perspective
Francesco C. BILLARI .................................................................... 53
Modeling the temporal coordination of behavior and internal states
Andrzej NOWAK, Robin R. VALLACHER and Wojciech BORKOWSKI .......... 67
Mixing beliefs among interacting agents
Guillaume DEFFUANT, David NEAU,
Frédéric AMBLARD and Gérard WEISBUCH ..................................... 87
Modeling of Social Processes Based on T. Parsons Ideas
Alexander A. LAPTEV .................................................................. 99

Geography and Urbanism .............................................................. 107
A spatial microsimulation of population dynamics in Southern France:
a model integrating individual decisions and spatial constraints
C. ASCHAN-LEYGONIE, H. MATHIAN, Lena SANDERS and K. MÄKILÄ ....... 109
Modelling urban phenomena with cellular automata
Diane VANBERGUE, Jean-Pierre TREUIL and Alexis DROGOUL .............. 127
Simulating accessibility by Swarm
Matteo BELLOMO and Sylvie OCCELLI ........................................ 141

Modelling spatial practices and social representations of space using multi-agent systems – Jean-Luc BONNEFOY, Christophe LE PAGE, Juliette ROUCHIER and François BOUSQUET ........................................ 155

Politics and History ........................................................................ 169
Democratic Voting in Hierarchical Structures or How to Build a Dictatorship
Serge GALAM ............................................................................. 171

Computer simulations of voting systems
Dominique LEPPELEY, Ahmed LOUICHI and Fabrice VALOGNES .......... 181

Towards Computational Institutional Analysis :
Discrete Simulation of a 3P Model
Alain ALBERT and Wolfgang BALZER ........................................... 195

Dreamscape - Testing the Rational Choice Theory
Niels LEPPERHOF ........................................................................ 209

Multi-Agent Modelling of Resource Systems and Markets
Frank BECKENBACH ..................................................................... 221

The Interplay of Power on the Horizon
José Castro CALDAS and Helder COELHO ..................................... 243

Economics: Individual decisions and games .................................... 255
The « mind or no-mind » dilemma in agents behaving in a market
Pietro Terna .................................................................................. 257

Variable Payoffs in the Minority Game
Robert SAVIT, Yi Li and Adrian VANDEEMEN ................................ 271

Cooperation in an Adaptive Network
Martin G. ZIMMERMANN, Victor M. EGUILUZ, Mari SAN MIGUEL and Amado SPADARO ......................................................... 283

Economics: Heterogeneity and market behavior .............................. 299
Generalized Lotka-Volterra (GLV) Models of Stock Markets
Sorin SOLOMON ........................................................................... 301

Psychological factors affecting market dynamics: the role of uncertainty and need satisfaction
Marco A. JANSSEN and Wander JAGER ......................................... 323
<table>
<thead>
<tr>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competition, training, heterogeneity persistence, and aggregate growth in a multi-agent evolutionary model</td>
<td>335</td>
</tr>
<tr>
<td>Gérard Ballot and Erol Taymaz</td>
<td></td>
</tr>
<tr>
<td>Modeling creation vs. diffusion of structured knowledge</td>
<td>353</td>
</tr>
<tr>
<td>Nicolas Carayol</td>
<td></td>
</tr>
<tr>
<td><strong>Economics: Applied market models</strong></td>
<td>369</td>
</tr>
<tr>
<td>Simulating transaction networks in housing markets</td>
<td>371</td>
</tr>
<tr>
<td>Leslie Rosenthal</td>
<td></td>
</tr>
<tr>
<td>An artificial market based on agents with fluid attitude toward risks and returns</td>
<td>385</td>
</tr>
<tr>
<td>Takuya Iwamura and Yoshiyasu Takefuji</td>
<td></td>
</tr>
<tr>
<td>Windows vs. Linux: Some Explorations into the Economics of Free Software</td>
<td>399</td>
</tr>
<tr>
<td>Jean-Michel Dalle and Nicolas Jullien</td>
<td></td>
</tr>
<tr>
<td>Firm Size, Innovation, and Market Share Instability: the Role of Negative Feedback and Idiosyncratic Events</td>
<td>417</td>
</tr>
<tr>
<td>Mariana Mazzucato</td>
<td></td>
</tr>
<tr>
<td>Georg Mueller</td>
<td></td>
</tr>
<tr>
<td><strong>Applications to Management</strong></td>
<td>449</td>
</tr>
<tr>
<td>Business Applications of Social Agent-Based Simulation</td>
<td>451</td>
</tr>
<tr>
<td>Eric Bonabeau</td>
<td></td>
</tr>
</tbody>
</table>