Index

Abrahamson, E., 6
Abstinence to alcohol, 116
Actor-based network dynamics, 33, 36
Adolescence
  alcohol use during, 114–115
  behavior during, 113–114
  definition of, 113
Agresti, A., 26
Agresti, B. F., 26
Albert, R., 8, 67
Alcohol use among adolescents, 114–115
  theoretical model on, 115–134
Alternating network dynamics, 33, 36
Ashlock, D., 52
Automaton, 55
Axelrod, R., 5, 24, 51, 52, 56
Baerveldt, C., 34
Bala, V., 8, 10, 59
Barabási, A. L., 8, 27, 50, 67
Battalio, R. C., 83
Bauman, K. E., 114
Bearman, P. S., 114
Beil, R. O., 83
Belief-based learning, 51
Bentler, P. M., 114
Berminghaus, S. K., 6, 27, 29, 30, 31, 83, 84, 120
Biely, C., 52
Blume, L. E., 6
Bolton, G. E., 4
Bosker, R. J., 126
Bot, S. M., 114, 116
Boudon, R., 9
Buchanan, M., 8
Burgess, R. L., 14
Burk, W. J., 118, 119, 124, 132, 134, 135
Burt, R. S., 5, 7, 49, 56, 73, 75
Bushell, D., 14
Buskens, V., 5, 7, 8, 23, 27, 28, 41, 48, 49, 50, 58, 59, 65, 81, 83, 84, 120
Camerer, C. F., 14, 51, 85
Cassar, A., 6
Catalano, R. F., 114
Cederman, L. E., 12
Cela-Conde, C. J., 52
Centola, D., 6, 83, 114
Centralization, in network, 35, 121–122
Choices, in social relations, 7
Christakis, N. A., 120
Chwe, M. S. Y., 25, 27
Cohen, J. M., 117
Cohen, M. D., 51
Coleman, J. S., 5–7, 9, 10, 23, 48, 82, 85, 114
Coleman’s scheme, for sociological explanations, 143–145

Computational Approaches to Studying the Co-evolution of Networks and Behavior in Social Dilemmas, First Edition. Rense Corten.
© 2014 John Wiley & Sons, Ltd. Published 2014 by John Wiley & Sons, Ltd.
INDEX

Collective action, 25
Computer simulation, 11
Conformity pressure, 115–116
Congleton, R. D., 52
Connections model, 59
Control, for cooperation, 5, 48
Conventions, 3
coordination problems and, 82
and networks, 81–109, 151–166
Convergence of beliefs, 59, 68
Cook, J. M., 24, 83, 114
Cook, K. S., 47
Cooperation, and social networks, 4–5,
47–48
co-evolution of, see simulation
model, on cooperation in social
networks
coopoperation and network effects,
48–49
learning in networks, 50–51
network dynamics, 49–50
related theoretical literature, 51–52
Cooperation problems, 2–3, 140
Cooper, R., 83
Coordination
in collective phenomena, 25
conventions for, 82
failure, 4, 82
game, 3, 5, 25
multi-person, 25, 83
problems, 2, 3, 5–6, 82, 140
and social networks, 26–27
Corbae, D., 15, 86
Corten, R., 23, 47, 59, 65, 81, 113, 120
Crawford, V. P., 85
Currañini, S., 118
Davies, M., 23
Degree of network, 35
DeJong, D. V., 83
Delgado, J., 52
Density
and efficiency in emerging behavior,
27
of network, 35
Deterministic environment, 31
Diekmann, A., 14, 49
Diffusion
of behavior, 6, 23
of information, 13
of innovations, 7, 23
Dishion, T. J., 118
Distance, in network, 35
Dogan, G., 7
Doreian, P., 50
Downing, L., 55, 56
DOWNING strategy, 56
Dragostis, K., 52
Dress codes, 82
Duesenberry, J., 9
Duffy, J., 15, 86
Durkheim, E., 9
Dutta, B., 27, 50
Dyadic cooperation, 47
Dyadic embeddedness, 5
eBay, 58
Economic interactions, 82
Economics, and sociology, 9–10
Efficiency of emergent behavior,
101–107
Efficient equilibrium, 3, 4, 25
Eguíluz, V. M., 52
Ehrhardt, G., 83
Ehrhardt, K. M., 27, 83
Elias, N., 4, 82
Ellickson, R. C., 5, 48, 75
Ellison, G., 6, 27
Elster, J., 9
Embeddedness, in social networks, 5,
47, 48
Empirical research designs, 14–15
Engels, R. C. M. E., 114, 116
Ennett, S. T., 114
Epstein, J. L., 114
Epstein, J. M., 12
Equilibrium selection problem, 11
Erdos-Renyi random graph model, 67
Erev, I., 51
Erickson, B. H., 23
INDEX 171

Esteban, J., 24, 26
Exchange networks, 15
Exit-option, effects of, 52
Experimental methods, use of, for network evolution, 85–86
Fararo, T. J., 9
Fast network dynamics, 33, 36
Faust, K., 15, 34, 57, 125
Fehr, E., 4, 14
Fischbacher, U., 97
Fisher, C., 7
Flache, A., 51, 52
Flap, H., 6, 7, 10, 27, 48, 49, 50
Forsythe, R., 83
Fowler, J. H., 120
Franzen, A., 49
Freeman, L. C., 34
Friedkin, N. E., 1, 6, 23, 83, 115
Friemel, T. N., 121
Fudenberg, D., 55
Gambetta, D., 75
Game theory, 11
Gern, C., 24, 26
Gilbert, N., 12
Giordano, P. C., 114
Global information, 87–88, 90, 92, 95
Global interaction, 83
Goal-directed action, in social networks, 9–10
Gould, R. V., 24, 25, 27
Goyal, S., 8, 10, 27, 29, 31, 59, 84
Graham, J. W., 114, 116
Granovetter approach, 9–10
Granovetter, M. S., 5–7, 9, 10, 48, 56, 83, 114
Greif, A., 5
Greiner, B., 97
Group action, 25
Group identification, 25
Group mobilization, 24–25
Halpin, B., 12
Hansen, W. B., 114, 116
Hardin, R., 3, 4, 25, 27, 41, 82
Harsanyi, J. C., 3, 26, 28, 83, 116
Hauert, C., 51
Hauk, E., 52
Hawkins, J. D., 114
Hayashi, N., 52
Heckathorn, D. D., 3, 9, 25, 42
Hedström, P., 9
Heterogeneity, 91–92, 96, 101–107, 147
Heterogeneous social network, 27
Heterogeneous stable constellations, 90
Hobbes, T., 3, 9
Homans, G. C., 5, 48
Homogeneous stable constellations, 90
Homophily, 24
Ho, T. H., 51
Hume, D., 82
Imitation, and coordination, 115
Index for qualitative variation (IQV), 26
Individual behavior, 1, 85, 101–107
Individual decision-making, 101–104
Individual rationality, and collective rationality, 2
Influence and selection processes, study of, 117–120
Information availability, effect of, 82, 85, 86–96
Inter-firm relations, 148
Irregular network, 6
Jackson, M. O., 7, 8, 11, 27, 29, 30, 31, 33, 50, 59, 84, 88, 89, 118, 120
Jin, N., 52
Josephs, R. A., 116
Kagel, J. H., 14
Kandel, D. B., 23, 117
Kandori, M., 6, 26, 83, 87
Karweit, N., 114
Katz, E., 23
Keser, C., 6, 27
Kirke, D. M., 114, 116
INDEX

Klandermans, B., 25
Knecht, A. B., 14, 84, 85, 113, 118, 119, 121, 123, 124, 132, 134, 135
Knez, M., 5, 49, 56, 73
Knibbe, R. A., 114, 116
Kollock, P., 4
Kolm, S. C., 4
Kosfeld, M., 6, 15, 86
Kreps, D. M., 49
Kretzschmar, M., 7

Laboratory experiments, 14–15
Lazarsfeld, P. F., 24, 114
Learning
  and cooperation, 5, 48–49
  in networks, 50–51
Levine, D. K., 55
Lewis, D. K., 3, 82
Lieberman, E., 51
Lieberson, S., 26
Light, J. M., 118
Lindenberg, S., 10
Linear regression model, 126
Lin, N., 7
Lippert, S., 58
Local information, 87–90, 92, 95
Local interaction, 6
Lohmann, S., 25

Macaulay, S., 5
Macro-level hypotheses, 93–96
Macy, M. W., 6, 25, 51, 83, 114
Mailath, G. J., 26, 83, 87
Marks, G., 114, 116
Marsden, P. V., 1, 6, 23, 83, 115
Marsili, M., 83
Marwell, G., 25
Mass action, 25
McPherson, M., 8, 24, 83, 114
Meeus, W. H. J., 114, 116
Menzel, H., 23
Merton, R. K., 7, 9, 23, 24, 114
Micro-level hypotheses, 93–96
Miller, J. Y., 114
Moffitt, T. E., 114

Mollenhorst, G., 7
Montalvo, J. G., 26
Moody, J., 114
Morris, A. S., 113
Mueller, J. H., 26
Multi-person coordination, 25, 83
Multi-person coordination game, 82–83
  and global interaction, 83
Myopic best-reply model, 145

Name generators, 123–124
Nash equilibrium, 2, 3, 5, 115
Neighbors, 86
Network-based reputation mechanism, 52
Network decay, 57
Network distance, 57
Network dynamics, 7–8, 14, 146
Network embeddedness, 5
  and cooperation, 48
Network homophily, 114
Network level measures, 125
Network structure
  and adolescent behavior, 114
Network variables, 128, 132
Newcomb, M. D., 114
Newman, M., 27, 50
Nowak, M. A., 51
Number of components, 35

Objective function, 117–118
Ockenfels, A., 4
Ohtsuki, H., 51
Oliver, P., 25
Olson, M., 25
Online auction websites, 58
Online social networks, 149
Opp, K. D., 24, 26
Ostracism, 148

Pairwise stability, 30, 59, 88
Pareto-suboptimal conventions, 2, 140
Parsons, T., 9
Payoff-dominant behavior, 83
INDEX 173

Payoff-dominant equilibrium, 3, 5–6, 25
Peer groups, social influence by, 114, see also Alcohol consumption of adolescents, coordination model to Peer influence and selection issues of, 114
Peer pressure, among adolescents, 23
Pemantle, R., 27, 33, 84
Personal networks, 123–124 importance of, 26
Pin, P., 118
Plott, C. R., 14
Polarization, and coordination, 24–26
Preferential attachment model, 67
Prisoner’s Dilemma game, 2–3, 47, 48
Problematic behavior factors triggering, 114 network structure influence on, 114
Public information, restriction of, 26–27
Pujol, J. M., 52
Punishment, for failure of coordination, 116
Pure coordination games, 3
Rabin, M., 4
Rapoport, A., 2, 49
Raub, W., 5, 7, 13, 48, 49, 50, 58
Ray, D., 26
Regression analysis, 125–126 correlations between variables, 128–130 using combined network measures, 130–132 using unreciprocated friendship ties, 132
Reinforcement learning, 51
Reputation effects, 5, 49, 50, 148 in belief-based learning, 51 in broad sense, 49 in narrow sense, 49
Reynal-Querol, M., 26
Riolo, R. L., 51
Risk-dominant behavior, 122
Risk-dominant conventions, 83
Risk-dominant equilibrium, 4, 5–6, 26, 116
Risk threshold, 87
Rob, R., 26, 83, 87
Rogers, E. M., 6
Rogers, W. M., 37
Rosenkopf, L., 6, 83
Ross, T. W., 83
Roth, A. E., 14, 51
Rubinstein, A., 14, 54
Sangüesa, R., 52
Scheider, G., 24, 26
Schelling, T. C., 7, 9
Schmidt, K. M., 4, 14
Schools, as social microcosm, 114
Schuessler, K. F., 26
Schwalbe, U., 6, 83
Schweinberger, M., 108, 118
Scott, J. C., 15, 27
Segmentation and efficiency in emerging behavior, 27 in network, 35
Segregation, in network, 35
Selten, R., 3, 26, 28, 83, 116
Shalizi, C. R., 120
Sherif, C. W., 116
Sherif, M., 116
SIENA analysis and co-evolution, 117–119
SIENA software, 117
Simon, H. A., 54
Simulation model on cooperation in social networks, 52–73 on coordination problems, 27–41
Size, of network, 35
Skyrms, B., 27, 33, 84
Small-world model, 67
Small-world networks, 6, 8, 10
Smith-Lovin, L., 24, 83, 114
Smith, V. L., 14
Snijders, C., 27, 28, 41, 58, 83
INDEX

Snijders, T. A. B., 8, 10, 34, 84, 108, 117, 118, 121, 125, 126
Social conformism, 4
Social control, 48
Social dilemmas, 1
  behavior in, 1–2, 139–140
  cooperation problems, 2
  coordination problems, 2
  in daily life, 2
  definition of, 1
  games, 2
  outcomes of, 140
  and social network, 1–6, 9–10
  types of, 146–147
Social inequality, 7
Social influence by peer groups, 114
Social interactions, 82
Social networks, 1, 23, 139
  and behavior, co-evolution of, 8
  control and learning effects in, 48–49
  cooperation and, 4–5, 52–73, 140
  coordination and, 5–6, 27–41
  development of, 7
  and diffusion, 6, 23
  effects of, 6–7
  micro–macro link and, 10
  social dilemmas and, 1–6
Social Networks, 81
Social order, 2–3
Social relations, 117
Social sanctions, 5
Sociology, and economics, 9–10
Spagnolo, G., 58
Spelling standards, 82
Stable networks, 29, 71
Stable states
  in dynamic networks, 63–65
  in fixed networks, 61–63
Stanley, E. A., 52
Steele, C. M., 116
Steinberg, L., 113
Stokman, F. N., 24, 50
Stovel, K., 114
Strategic alliances, 148–149
Strategic decision problem, 11
Straub, P. S., 98
Strogatz, S. H., 8, 10, 50, 67
Survey methods, 15
Swadi, H., 114
Table manners, 82
Takács, K., 13, 24
Taylor, M., 5
Technological standards, 82
Tesfatsion, L., 52
Theoretical models, 13–14
Theory-gap, in social network research, 10
Third-party information, 52
Thomas, A. C., 120
Threshold models, 6
Threshold models of diffusion, 83
Thurner, S., 52
Ties, creation of, 87
Traffic rules, 82
Troitzsch, K. G., 12
Ule, A., 15, 52
Ullmann-Margalit, E., 3, 82
Utility, coordination and, 115
Uzzi, B., 5, 48
Valente, T., 6, 24
Vanberg, V. J., 52
van der Bunt, G. G., 24
van de Rijt, A., 8
VanderWeele, T. J., 120
Van Huyck, J. B., 83
Vega-Redondo, F., 8, 27, 29, 31, 52, 83, 84
Verbrugge, L., 7
Violent group conflict, 26
Vogt, B., 27, 29, 30, 31, 84, 114
Voss, T., 3, 5
Wallinga, J., 7
Wasserman, S., 15, 34, 57, 125
<table>
<thead>
<tr>
<th>Name</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watts, A.</td>
<td>27, 29, 31, 33, 84, 88, 89, 120</td>
</tr>
<tr>
<td>Watts, D. J.</td>
<td>6, 8, 10, 27, 50, 67, 83, 114</td>
</tr>
<tr>
<td>Weber, M.</td>
<td>9</td>
</tr>
<tr>
<td>Weesie, J.</td>
<td>5, 7, 13, 23, 48, 49, 50, 52, 59, 65, 84, 118, 119, 120, 124, 132, 134, 135</td>
</tr>
<tr>
<td>West, P.</td>
<td>118</td>
</tr>
<tr>
<td>Willer, D.</td>
<td>15</td>
</tr>
<tr>
<td>Wilson, R.</td>
<td>49</td>
</tr>
<tr>
<td>Wippler, R.</td>
<td>10</td>
</tr>
<tr>
<td>Wolinsky, A.</td>
<td>7, 29, 30, 50, 59, 89</td>
</tr>
<tr>
<td>Yamagishi, T.</td>
<td>52</td>
</tr>
<tr>
<td>Young, H. P.</td>
<td>6, 26, 27, 31, 83, 122</td>
</tr>
<tr>
<td>Ythier, J. M.</td>
<td>4</td>
</tr>
<tr>
<td>Zeggelink, E. P. H.</td>
<td>24</td>
</tr>
<tr>
<td>Zijdeman, R.</td>
<td>58</td>
</tr>
<tr>
<td>Zimmerman, M. G.</td>
<td>52</td>
</tr>
<tr>
<td>z-Tree software</td>
<td>97, 159</td>
</tr>
</tbody>
</table>