

Cambridge University Press

978-1-107-01487-9 - Illuminating Dark Networks: The Study of Clandestine Groups and Organizations

Edited by Luke M. Gerdes

Index

[More information](#)*Index*

- Abu Hamza, 59, 167, 167n11
 Abu Qatada, 59
 Abu Zubaydah, 8–9
 Afghanistan, 24–25, 64, 167–68,
 176t.11.1, 176–77, 181, 183
 agents
 functional roles, 39, 45, 47, 50, 104,
 111, 179–80
 key actors, 35, 37, 39, 46, 49, 59, 64–65,
 105t.7.1, 104–7, 109, 111, 113, 117,
 120, 126, 128, 146, 148, 172–73,
 178t.11.2
 algorithm, 3, 53, 74, 120, 147,
 149, 221
 bootstrap sampling, 7
 community detection, 5, 143–47,
 149–50, 156, 199, 204,
 209–10, 212
 dark sampling, 133–34
 development, 12–13, 40
 hierarchical agglomeration, 209
 IFL-LEARN, 146
 Johnson's direct, 219
 Louvain, 145, 148, 148n2, 150–51
 MANCaLog, 144–46
 Poisson, 205, 209
 scaling, 121
 Singular Value Decomposition (SVD),
 162–63, 170
 SNIC, 145, 149
 text mining, 4, 85, 89, 94, 101
 TIP-DECOMP, 145, 147
 al-Muhajiroun, 4, 58n2, 52–59, 64n3,
 62–65, 68–69, 115
 al-Qaida, 1, 9, 24, 30, 56, 58, 63, 103,
 117f.7.4–18, 123, 133–34, 167, 181,
 190, 194
 al-Shabaab, 103, 105t.7.1, 112
 anthropology, *See* ethnography
 Armed Islamic Group (GIA), 161
 Army of God (USA), 161
 arrest, 39–40, 42, 46–51, 144, 149,
 153–55, 160n3
 Azzam, Abdullah, 25

 Barabasi, Laszlo, 11
 bin Laden, Osama, 25, 56–57, 59, 117
 Bush, George W., 1, 8

 Cameron, David, 1
 Center for Computational Analysis
 of Social and Organizational
 Systems (CASOS), 4, 55, 57–58,
 62, 220
 centrality, 7, 13, 15–16, 20, 29, 33, 33n3,
 35, 37–39, 43, 45, 47, 49–50, 59, 62,
 64n3, 64–65, 68, 71, 106–7, 109, 123,
 126, 128, 130, 133–36, 138–39, 141,
 172, 198, 215, 217, 222t.14.4, 229,
 238, 241
 Bell's subgroup, 5, 7, 125–26, 128, 130,
 132, 138, 141
 betweenness, 10, 16, 33, 37, 43, 49, 59,
 64, 215
 Bonacich power, 17
 closeness, 10, 35, 37, 49, 215
 degree, 9–10, 16, 33, 37, 43, 46–47, 49,
 106, 190, 215

252 *Index*

- centrality (*cont.*)
 eigenvector, 17, 59, 61t.4.3, 61–62, 64–65, 67t.4.5, 106, 132t.8.1, 135, 139f.8.14, 140f.8.15, 139f.8.16–41, 222t.14.4, 224t.14.5, 224t.14.6–25
 limitations, 216
 Chemical, Biological, Radiological, and Nuclear (CBRN) weapons, 6, 157–63, 165–66, 168–69
 cliques, 21–22, 24, 28, 107, 141, 144, 188, 225
 clustering, 165t.10.2, 166n9, 165–68
 complexity, 38, 42–43, 73–74, 123–25, 141, 198, 202
 computer science, 12, 39, 51, 53, 68, 70
 confirmation bias, 63, 69–70, 85, 117, 121, 123, 136, 138–39, 177
 crime, 2, 20, 41
 gangs, 5, 143–50, 154–56
 narcotics, 2–3, 39–40, 45, 50–51, 104, 147–48, 155
 pirates, 104
 sex trafficking, 45
 Darul Islam, 177–78, 181, 183–84
 data
 ambiguity, 12, 28, 52, 56–58, 104, *See* relationship types: ambiguous
 availability, 26, 116, 121, 123, 198
 big data, 8, 68, 74, 77–78, 83, 85, 93, 104, 116, 121
 bipartite, 21–22, 24, 27, 106, 175
 classified, 26
 cleaning, 105, 112–13, 115, *See* data: errors
 clustering, 6, 49, 134, 157–58, 163, 165–66, 169
 coding, 19–22, 24, 26–28, 32, 38, 68, 86–88, 90, 93, 121, 157, 159–60, 160n4, 165n8, 165–66, 177, 221
 collection, 2, 4, 12, 37, 42, 52, 54, 58, 62n3–64, 68, 76, 78, 85, 93, 104, 112, 117, 119–21, 124, 132, 134, 139, 141, 173–74, 184, 198
 errors, 57, 59, 64n3, 62–65, 69, 84, 104, 107, 120, 124, 132, 135–38, 159
 longitudinal, 6–7, 49, 51, 73, 77–79, 83, 93, 150, 171–75, 177, 183–85, 200, 205–6, 210, 212, 216–17
 Montreal municipal wi-fi, 199, 203–4
 multi-modal, 106
 open-source, 4, 30, 52–54, 56, 58, 64n3, 62–65, 68, 84, 103–6, 110–13, 115–19, 119f.7.6, 121–22, 159, 167, 175
 sampling (dark), 133, 135, 140
 sampling (general), 218, 224
 sampling (random), 138–40
 sampling (snowball), 121, 133, 135, 138, 140, 173
 sources, 54
 structured, 104
 transformation, 23, 27, 78
 unioning, 17, 27, 30
 unstructured, 104
 weighted, 27, 106, *See* networks: weighted
 density, 5, 10, 16, 29, 49–50, 75–76, 78, 147, 149, 166, 188
 Department of Defense (DoD), 1, 52, 68–69, 84, 123, 143, 171, 214
 Department of State, 109
 dimensionality, 3–4, 17, 19–20, 26, 28–30, 32–33, 35, 37, 104
 Dynamic Actor-Oriented Models (DAOMs), 7, 217, 220–21, 224
 Dynamic Network Analysis (DNA), 48–49, 51, 57, 68
 education, 22–23
 Egypt, 109, 112, 115
 Enron, 105t.7.1, 107
 epidemiology, 199, 202
 ethnography, 53–54, 62, 68–70, 83, 86, 122, 173
 event size, 24, 28
 exchange theory, 3, 8, 13, 107
 Exponential Random Graph Models (ERGMs), 216–17, *See* tools: SIENA
 extremists, 1–2, 25, 53, 84, 86, 93, 99, 160, 160n4, 168, 190, 193–94
 Faust, Katherine, 11, 22, 215, 234
 fragmentation, 40, 42, 222t.14.4, 224t.14.5, 224t.14.6–25, *See* networks dismantlement
 Freeman, Linton C., 10, 15, 128, 215
 geography, 5, 143, 156
 geo-spatial analysis, 72–74, 76–81, 83, 85, 101, 143, 145, 156, 208
 Volunteered Geographic Information (VGI), 78
 geo-temporal analysis, 4, 71, 77, 79, 81, 83, 113, 115, 156, *See* data: longitudinal

- Global Positioning System (GPS), 72, 93
 Granovetter, Mark, 20–21, 146
 Guttman pattern, 85, 90
- HAMAS, 117f.7.4–18
 Hekmatyar, Gulbuddin, 25
 Hezb-e-Islami, 25
 Hizballah, 63
- Indonesia, 6, 24, 30, 88–89, 93, 96f.6.6, 96f.6.7, 95f.6.8–97, 99–101, 180, 183–84, 190
 information cascades, 146
 Innocence of Muslims (film), 105, 111–12, 115–16
 insurgency, 14, 25, 124, 143
 intelligence community, 3, 52, 68
 International Crisis Group, 30, 175
 Internet, 4, 12, 71, 85, 89n1, 93, 101, 103–4, 121, 189n1, 214, 237
 Iraq, 1, 7, 220
 isolates, 30, 32, 35, 43–44, 175
- Jemaah Islamiyah, 25, 30, 123, 176t.11.1, 177t.11.1, 176–78, 178t.11.2, 181, 183–84, 190, 194
 John Jay and ARTIS Transnational Terrorism Database, 20–22, 24
- Ki-moon, Ban, 1
 KOMPAK, 176t.11.1, 176–78, 181, 183–84
- law enforcement, 5, 28, 39–43, 46–51, 143–46, 148, 153, 155–56, 168
 Chicago Police Department, 6, 143–44, 153–56
 Leinhardt, Samuel, 10
 levels of analysis, 186–87
 logic programming, 143
- Malaysia, 180
 mathematics, 12, 22, 39, 198
 matrix
 adjacency, 13, *See* matrix: adjacency
 affiliation, 22, 27–28, *See* data: bipartite
 multiplication, 22, 24, 27, 162
 Median Additive Projection Process (MAPP), 28
 Milgram, Stanley, 216
 minimal loop, 219
 Modifiable Areal Unit Problem (MAUP), 72, 74
- Mohammad, Khalid Sheik, 30
 Mohammed, Omar Bakri, 53, 55t.4.1, 55–56, 59
 money, 2, 15–16, 26, 40, 42, 200–1
 Myanmar, 105t.7.1, 109, 111–12
- nested sets, 186–90
 network science, 2, 9, 12, 14, 18–19, 71, 123, 138, 200, 214, 216
 networks
 adaptability, 43, 49–50, 104
 affiliation, 24
 cellular, 188–90
 dismantlement, 40, 42, 44, 46, 62
 disruption, 40, 47, 105, 171–72, 184
 efficiency, 41
 evolution, 51
 governance, 187–89
 multi-modal, 142
 one-mode, 22, 27
 scale-free, 41, 41n1, 43–44, 188–89
 small-world, 188–89, 216
 strengths, 41
 targeting, 42–43, 46–47, 62, 125–26, 128, 130, 132–34, 136–37, 142, 172
 topology, 224, *See* Topological Network Analysis (TNA)
 weaknesses, 41, 141
 weighted, 3, 26–27, 33, 35, 37–38, 46–47, 106–7, 191–92, 194, *See* data: weighted
- Newman, Mark, 143, 147
- Obama, Barak, 1, 75, 109, 120
 operational security (OPSEC), 71, 76, 133, 188
 organizations, 2, 5–6, 18, 20, 22, 58n2, 72, 76, 81, 86, 95, 97, 101, 104, 116, 132, 144, 148, 151–52, 156, 158, 186, 188
 dynamics, 124
 learning in, 48, 51
 membership, 132, 144, 175, 183–84, 204
- Pakistan, 24, 59, 176t.11.1, 180–81, 183
 physics, 12
 POICN database, 159n1, 159–60
 power, 16–17, 107
 protests, 81, 99, 110–11, 113, 116
 psychology, 25
- Quadratic Assignment Procedure (QAP), 20, 30–32, 32t.2.1

Cambridge University Press

978-1-107-01487-9 - Illuminating Dark Networks: The Study of Clandestine Groups and Organizations

Edited by Luke M. Gerdes

Index

[More information](#)254 *Index*

- radical movements, *See* extremists
radicalization, *See* extremists
Rasch model, 90, 97
Reid, Richard, 59
relationship strength, 20–22, 24
relationship types, 21, 24, 26–27
 advice, 20
 ambiguous, 25–26, 80–81
 communication, 17, 175
 dyadic, 10–11
 education, 183
 enmity, 26
 exchange, 13–16
 family, 19, 21, 25–26, 104, 214
 financial, 19, 24, 26, 84–85, 214
 friendship, 2, 13, 15, 17, 19–21, 26, 29,
 108, 175, 203, 214
 functional, 26, 30, 32,
 35, 37–38
 ideological, 24, 26, 85, 104, 182
 logistical, 24–25, 189
 operational, 24–25, 63
 planning, 26
 probabilistic, 28
 professional, 19
 training, 22, 24, 26, 181
 trust, 6, 14, 16–17, 20, 41, 108, 120,
 174, 178–79, 184
 undifferentiated, 19, 32–33, 35, 37–38
Ring Banten, 177–78, 181, 183–84
- Sageman, Marc, 20, 104
scalability, 5, 16, 53, 104
security, 1–2, 41, 46, 50, 54
Sein, Thein, 111
simulations, 39–40, 42–46, 48, 51, 117,
120–21, 138, 199
 agent-based, 172–73, 175, 184–85, 187,
 189–91, 193–94, 196–97, 199–202,
 207–10, 213
 Bayesian, 133, 200
 calibration, 194
 modeling in code, 199, 201–2,
 206, 213
 Monte Carlo, 32
 re-use, 201, 213
 self-documenting code, 202
 stochastic, 6, 171–72, 174–75, 184, 190,
 199, 206, 208, 216
Snijders, T.A.B., 171–75, 199–200
social dynamics, 9, 18
social meaning, 3–4, 9, 11, 13, 16
social media, 4, 71–72, 78, 83–84, 101,
105, 109–10, 120, 142
 blogs, 4, 84–85, 93, 103–4
 bots, 105, 112, 120
 chat rooms, 93
 Facebook 164, 217, 33
 Flickr, 71, 78
 Twitter, 4, 71, 75, 78, 80–81, 84–85,
 93, 95f.6.9–98, 101, 103–5, 105t.7.1,
 107–13, 116, 119–21
social movements, 4, 84–86, 88, 93, 97
Social Network Analysis (SNA), 5, 9,
11–13, 17, 39–40, 42, 51, 59, 71, 124,
143, 155, 172
social science, 11, 21, 39, 53, 68, 83, 85,
168, 183, 187, 189, 196, 198
 generative models, *See* simulations:
 agent-based
social structures, 8
sociology, 13
statistics
 correlation, 33
statistics
 correlation, 3, 31–32, 35, 37–38,
 See Quadratic Assignment
 Procedure (QAP)
 regression, 6, 89–90, 94, 101, 141,
 157–58, 161–63, 165–66, 168–70
 Spearman's Rho, 20, 33, 134, 136
Stochastic Actor Oriented Models
(SAOMs), *See* simulations: stochastic
Strogatz, Steven, 216
subject matter expertise, *See* ethnography
Sudan, 105t.7.1, 113f.7.3–14
surveillance, 26, 39, 42, 46, 49–50, 80
Suu Kyi, Aung San, 111
Syria, 113
- terrorism, 3, 6–7, 13, 20–21, 24–25, 30,
37, 39, 43, 45, 49, 53–54, 56, 58–59,
62–65, 69, 86, 101, 103, 112, 123–24,
157, 159–60, 167n11, 171–74,
176t.11.1, 176t.11.2–78, 184,
188, 198
Australian Embassy bombing (2004),
178t.11.2
Bali bombings (2002), 25, 30, 32,
178t.11.2
Bali bombings (2005), 178t.11.2
Benghazi attack (2012), 105t.7.1, 107,
109–10, 110t.7.2, 112, 115–16
Christmas Eve bombings (2000), 30, 32

Cambridge University Press

978-1-107-01487-9 - Illuminating Dark Networks: The Study of Clandestine Groups and Organizations

Edited by Luke M. Gerdes

Index

[More information](#)*Index*

255

- Jakarta Marriott bombing (2003),
176t.11.1, 178t.11.2
- Kandahar acid attack (2008), 167
- Mike's Bar bombing (2003), 53, 59, 64
- Murder of British soldier (2013), 53
- September 11t.attacks, 1, 30, 32, 53–54,
64, 103, 123, 166, 188
- Westgate Mall attack (2013), 112
- Wood Green CBRN plot (2003), 167
- text analysis, 4, 54–59, 62–65, 68–70, 83
- tie dissolution, 174–75, 201
- tie formation, 6–7, 172–75, 179, 183–85,
188–94, 196–97, 201
- heterophily, 181, 183, 192–93
- homophily, 179–80, 182, 192–93
- Nodal Decision Parameters (NDPs), 7,
218–19, 224
- preferential attachment, 179
- tipping model, *See* information cascades
- tools
 - AnyLogic, 189
 - AutoMap, 4, 52, 54–55, 57–58, 62–63,
65, 68–69, 105, 119
 - Construct, 117
 - GANG software, 5–6, 143–44, 147–50,
154f.9.8, 155f.9.9, 152–56
 - igraph, 209
 - LookingGlass, 4, 84–86, 88, 93, 95, 97,
100f.6.11, 99–101
 - Matplotlib, 153
 - NetMapper, 119
 - Organizational Risk Analyzer (ORA),
30, 52–54, 57, 59, 68–69, 105, 109,
117, 119–20
 - Palantir, 175
 - PyFPDF library, 153
 - REA, 105, 113
 - Scala, 202, 206
 - SIENA, 171, 173–75, 184
 - social media de-identifier, 105, 119–20
 - tool chains, 119
 - TweetTracker, 105, 113, 119
 - Top, Noordin Mohammad, 6, 21–22,
24, 171–72, 174, 176t.11.1,
178–79, 183–84
 - Topological Network Analysis (TNA), 214
 - topology, 5, 7, 76, 214–15
 - transitivity, 16, 179, 181, 192–93, 200
 - triadic closure, *See* transitivity
- United Kingdom, 1, 52–54, 59, 64n3, 101
- United Nations, 1–2, 247
- Violent Non-State Actors (VNSAs), *See*
terrorism
- viral marketing, 143
- visualization, 12, 30, 40, 72, 75, 105,
120–21, 128, 144, 154
- heat maps, 74–77, 80, 83, 93
- Waltz, Kenneth, 186
- warfare, 124
- Wasserman, Stanley, 11, 125, 172,
192, 215
- Watts, Duncan, 11, 216
- West Point, 20
- Yasin, Ahmed, 117