

Academic c.v. (Short Version)

Professor Scott Archer Boorman

Born: February 1, 1949
Beijing, China (of U.S. parents; father was U.S. Foreign Service officer)

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Education:

Doctoral: Ph.D., Department of Sociology, Harvard University, 1973.

(Summary of dissertation analysis identifying island model cascade effect in coupled nonlinear dynamic systems: communicated by Professor Kenneth J. Arrow to *Proceedings of the National Academy of Sciences, USA*, 1974, 71, 2103-2107.)

Legal: J.D., Yale Law School, 1978.

College: B.A. *summa cum laude* in Applied Mathematics, Harvard College, 1970.

Academic Positions:

1976- Professor of Sociology, Department of Sociology and
Cowles Foundation for Research in Economics, Yale University.

1974-1976 Professor of Public Policy and Economics, Wharton School of
Public and Urban Policy, University of Pennsylvania.

1973-1974 Assistant Professor of Sociology, Department of Sociology, Harvard
University.

1970-1973 Junior Fellow, Society of Fellows, Harvard University.

Academic Honors:

2009 Recipient, Graduate Mentor Award, Graduate School of Arts and Sciences, Yale University.

2008 Recipient, the James S. Coleman Award Distinguished Career Award in Mathematical Sociology, Mathematical Sociology Section, American Sociological Association.

Peres Prize, Yale Law School (1978) for best student contribution to *The Yale Law Journal*: Note, “A Spreading of Receipts Formula for Creating a Capital Gains/ Ordinary Income Brightline: Contract termination payments and business-versus-investment assets,” 87 Yale L.J. 729 (1978).

Editor, *The Yale Law Journal* (1977-1978).

Graduate Research Associate, Center for International Affairs, Harvard University (1970-1973).

Sophia Freund Prize (Valedictorian), Harvard College Class of 1970.

Phi Beta Kappa, Junior Year at Harvard College (1969).

Books:

The Three Sun Tzus: Analyzing Sun Tzu's Art of War. A manual on strategy.
Cambridge University Press, forthcoming.

(with Paul R. Levitt) *The Genetics of Altruism.* New York and London: Academic Press, 1980. 459 pp

Reviewed in mathematical literature: *SIAM Review* (publication of the Society for Industrial and Applied Mathematics [SIAM]), 1982, 24, 366-68.

The Protracted Game: A wei-ch'i interpretation of Maoist revolutionary strategy.
New York & London: Oxford University Press, 1969. 242 pp.
Paperback edition, 1971. Authorized translations include: French (Paris, Éditions du Seuil, 1972); Italian (Florence: Guaraldi Editore, 1973).

Research & related interests (with illustrative papers):

1. Strategy & logistics

Scott A. Boorman, “A Different Kind of War for the 21st Century” (August 16,

2012 essay circulated to students taking Yale’s “Studies in Grand Strategy”)

Scott A. Boorman, “Fundamentals of strategy: The legacy of Henry Eccles,” *Naval War College Review (NWCR)*, Spring 2009, Vol. 62, No. 2, pp. 91-115.

Eccles Papers Project (for short Project description see the above NWCR paper, p. 107, Note 5) and other military & logistics analysis work continuing in the tradition of Rear Admiral Henry E. Eccles, U.S. Navy (Ret.). Further background on the work of this Project is Scott A. Boorman, *Précis of a Logistics-centered Analysis of War: The “Topical Structural Outline” of Rear Admiral Henry E. Eccles, USN (Ret.), with short commentary*, unpublished, March 30, 2011, 141 pp.

Invited Participant in Yale Brady-Johnson Grand Strategy (GS) program.

2. “Alternatives to rational choice” as area of analysis.

Scott A. Boorman, “A memo on style: reflections on ‘style’ as a sociological concept,” *Yale Journal of Sociology*, Fall 2011, 8, 181-94.

Scott A. Boorman, “Alternatives to rational choice: analytical outline of substantive area. Part I,” Cowles Foundation for Research in Economics, Yale University, Cowles Foundation Preliminary Paper No. 001013 (October 13, 2000).

Scott A. Boorman, “Alternatives to rational choice: analytical outline of substantive area. Parts II & III,” Cowles Foundation for Research in Economics, Yale University, Cowles Foundation Preliminary Paper No. 030116 (January 16, 2003).

3. Mathematical and computational models & model-building

Overview #1: Scott A. Boorman, review essay on John F. Padgett & Walter W. Powell, *The Emergence of Organizations and Markets* (Princeton & Oxford: Princeton University Press, 2012), *Acta Sociologica*, 2014, 57(4), 363-367.

Overview #2: Scott A. Boorman, “A larger model-building context for visual models” (paper prepared to accompany invited presentation at European University Institute [EUI] workshop in Florence, Italy, in March 2010).

Selected article publications

(These are grouped according to the four vertices of the March 28, 2003 analytical diagram, annexed to present c.v. A simplified version of that diagram was published in Spring 2009 NWCR paper, p. 97. For other publications see also JSTOR database.)

I. Bureaucracy & Complex Organizations

“Deception in Chinese strategy,” in William W. Whitson (ed.), *The Military and Political Power in China in the 1970s* (New York: Praeger, 1972), pp. 313-37.

Reprinted (in condensed version) under title of “Stratagem: the Chinese view in the Sun Tzu,” pp. 203ff. in Hy Rothstein and Barton Whaley (eds.), *The Art and Science of Military Deception* (Boston/London: Artech House, 2013).

II. Social Networks (all book and journal article publications listed in this section represent research supported by the U.S. National Science Foundation [NSF])

Note: Because the contemporary social network analysis field contains a number of interrelated but distinct lines of mathematical and/or computational model-building, the research work below is assigned to categories (if a particular publication could be assigned to more than one category, one main category is designated):

II.A = Mathematical models for comparative research on social behavior cases across the animal kingdom (including both invertebrate and vertebrate);

II.B = Blockmodels

II.C = Algebraic models for comparative research on social networks;

II.D = Weak ties and search models;

II.E = Network matching;

II.F = Structural measures and cognitive aspects of networks.

(with Phipps Arabie) “Structural measures and the method of sorting,” in R.N. Shepard, A.K. Romney, and S.B. Nerlove (eds.), *Multidimensional Scaling: Theory and applications in the behavioral sciences*, Vol. 1: *Theory* (New York: Seminar Press, 1972), pp. 225-49. (II.F)

Japanese translation: Tokyo, 1976.

“Mathematical ecology and its place among the sciences. II. Analogues in the social sciences,” *Science*, 1972, 172, 391-394 (review essay building on Robert H. MacArthur, *Geographical Ecology: Patterns in the distribution of species*, New York, Harper and Row, 1972). (II.A)

(with Donald C. Olivier) “Metrics on Spaces of Finite Trees,” *Journal of Mathematical Psychology*, 1973, 10, 26-59. (II.F)

(with Phipps Arabie) “Multidimensional scaling of measures of distance between

partitions,” *Journal of Mathematical Psychology*, 1973, 10, 148-203. (II.F)

(with Paul R. Levitt) “Group selection on the boundary of a stable population,” *Proceedings of the National Academy of Sciences, USA*, 1972, 69, 2711-13. (II.A)

(with Paul R. Levitt) “Group selection on the boundary of a stable population,” *Theoretical Population Biology*, 1973, 4, 85-128. (II.A) (This is an expanded version of the previous paper published in *Proceedings of the National Academy of Sciences, USA*.)

(with Paul R. Levitt) “A frequency-dependent natural selection model for the evolution of social cooperation networks,” *Proceedings of the National Academy of Sciences, USA*, 1973, 70, 187-89. (II.A)

“Island models for takeover by a social trait facing a frequency-dependent selection barrier in a Mendelian population,” *Proceedings of the National Academy of Sciences, USA*, 1974, 71, 2103-107. (II.A) (See also p. 1 above.)

“A combinatorial optimization model for transmission of job information through contact networks,” *The Bell Journal of Economics* (then published by the American Telephone and Telegraph Co.; 1984- published by The RAND Corporation as *The RAND Journal of Economics*), 1975, 6, 216-49. (II.D)

Reprinted: Gernot Grabher and Walter W. Powell (eds.), *Networks*, Vol. II, lead article, assigned there to Part I.A, “Network dynamics: access and leverage” (Cheltenham, UK/Northampton, MA: Edward Elgar Publishing, Nov. 2004/Jan. 2005).

Reprinted: Matthew O. Jackson and Yves Zenou (eds.), *Economic Analyses of Social Networks* (Cheltenham: Edward Elgar, 2013).

(with Ronald L. Breiger and Phipps Arabie) “An algorithm for clustering relational data with applications to social network analysis and comparison with multidimensional scaling,” *Journal of Mathematical Psychology*, 1975, 12, 328-83. (II.B)

Reprinted: John Scott (ed.), *Social Networks* (London: Routledge, 2002), Vol. 1, pp. 333-390.

(with Harrison C. White and Ronald L. Breiger) “Social structure from multiple networks. I. Blockmodels of roles and positions,” *American Journal of Sociology*, 1976, 81, 730-80. (II.B)

Reprinted: John Scott (ed.), *Social Networks* (London: Routledge, 2002),
Vol. 2, pp. 3-53.

(with Harrison C. White) “Social structure from multiple networks. II. Role structures,” *American Journal of Sociology*, 1976, 81, 1384-1446. (II.C)

Reprinted: John Scott (ed.), *Social Networks* (London: Routledge, 2002),
Vol. 2, pp. 54-118.

“Informational optima in a formal hierarchy: calculations using the semigroup,”
Journal of Mathematical Sociology, 1977, 5, 129-147. (II.C)

(with Phipps Arabie and Paul R. Levitt) “Constructing blockmodels: how and why,” *Journal of Mathematical Psychology*, 1978, 17, 21-63. (II.B)

“Mathematical theory of group selection: structure of group selection in founder populations determined from convexity of the extinction operator,” *Proceedings of the National Academy of Sciences, USA*, 1978, 75, 1909-13. (II.A)

(with Paul R. Levitt) “The comparative evolutionary biology of social behavior,”
Annual Review of Sociology, 1980, 6, 213-34. (II.A)

(with Phipps Arabie) “Future prospects of blockmodels,” in H.C. Hudson (ed.),
Classifying Social Data (San Francisco: Jossey-Bass, 1982), pp. 177-98. (II.B)

(with Phipps Arabie) “Algebraic approaches to the comparison of concrete social structures represented as networks,” *American Journal of Sociology*, 1980, 86, 166-74. (II.C)

(with Paul R. Levitt) “The network matching principle: a model of efficient resource allocation by informal social networks in non-profit and other non-market social structures,” *Economics Letters*, 1982, 10, 1-7. (II.E)

III. Information Technology Applications (related analysis of societal effects of such applications has been further developed through a course I have taught in Yale College since 1984, “Computers, Networks, and Society”)

(with Paul R. Levitt) “Deadly bugs,” *Chicago Tribune* magazine *Sunday*, May 3, 1987, text starting on p. 19.

Reprinted by United States Department of Defense for distribution throughout the defense establishment: *Department of Defense Current News – Supplemental (Items of Special Interest)*, May 14, 1987, pp. 34ff.

(with Paul R. Levitt) “Software warfare and algorithm sabotage,” *Signal* (Journal of the Armed Forces Communications and Electronics Association [AFCEA]), May 1988, Vol. 42, No. 9, pp. 75ff.

Reprinted by United States Department of Defense: *Department of Defense Current News – Supplement*, May 19, 1988, pp. B27ff.

IV. Complex Statutes

Report:

Co-author: *Estimates of Income Unreported on Individual Income Tax Returns* (Department of the Treasury, Internal Revenue Service, Publication 1104 (9-79)). 166 pp. (This work was done while on leave from Yale University with the United States Department of the Treasury, Internal Revenue Service, following graduation from the Yale Law School.)

Article:

(with Paul R. Levitt) “Blockmodeling complex statutes: mapping techniques based on combinatorial optimization for analyzing economic legislation and its stress points over time,” *Economics Letters*, 1983, 13, 1-9 (NSF-supported work).

See also Note published in *The Yale Law Journal* (cited on p. 2 above).

Selected Federal Funding History:

1980-84 Principal Investigator, National Science Foundation Grant SES80-04815 to Yale University (“Mathematical Models of Social Networks: Matching, Efficiency, and Structure”).

1975-80 Principal Investigator, National Science Foundation Grant SOC76-24512 and predecessor grants to Yale University and to the University of Pennsylvania (“Mathematical Models of Social Structure and Process”).

Annex to c.v. (further indicating long-term research interests):

Analytical diagram entitled “Four Fundamental Structures: Selected Research Foci” (1 p., March 28, 2003, copy available on request).
