

## References

Principles of Complex Systems  
Course 300, Fall, 2008

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## Outline

### References

## References I

- M. Abramowitz and I. A. Stegun, editors.  
*Handbook of Mathematical Functions*.  
Dover Publications, New York, 1974.
- L. Adamic, R. Lukose, A. Puniyani, and B. Huberman.  
Search in power-law networks.  
*Phys. Rev. E*, 64:046135, 2001. [pdf](#) (
- M. Adler.  
Stardom and talent.  
*American Economic Review*, pages 208–212, 1985. [pdf](#) (
- R. Albert, H. Jeong, and A.-L. Barabási.  
Error and attack tolerance of complex networks.  
*Nature*, 406:378–382, July 2000. [pdf](#) (
- P. W. Anderson.  
More is different.  
*Science*, 177(4047):393–396, August 1972. [pdf](#) (
- R. Axtell.  
Zipf distribution of U.S. firm sizes.  
*Science*, 293(5536):1818–1820, 2001. [pdf](#) (
- R. Badii and A. Politi.  
*Complexity: Hierarchical structures and scaling in physics*.  
Cambridge University Press, Cambridge, UK, 1997.
- P. Bak.  
*How Nature Works: the Science of Self-Organized Criticality*.  
Springer-Verlag, New York, 1996.

## References II

- P. Bak, C. Tang, and K. Wiesenfeld.  
Self-organized criticality - an explanation of 1/f noise.  
*Phys. Rev. Lett.*, 59(4):381–384, 1987.
- P. Ball.  
*Critical Mass: How One Thing Leads to Another*.  
Farrar, Straus, and Giroux, New York, 2004.
- J. R. Banavar, A. Maritan, and A. Rinaldo.  
Size and form in efficient transportation networks.  
*Nature*, 399:130–132, 1999. [pdf](#) (
- Y. Bar-Yam.  
*Dynamics of Complex Systems*.  
Westview Press, Boulder, CO, 2003.
- A.-L. Barabási and R. Albert.  
Emergence of scaling in random networks.  
*Science*, 286:509–511, 1999. [pdf](#) (
- E. D. Beinhocker.  
*The Origin of Wealth*.  
Harvard Business School Press, Cambridge, MA, 2006.
- A. Bejan.  
*Shape and Structure, from Engineering to Nature*.  
Cambridge Univ. Press, Cambridge, UK, 2000.
- P. Bennett and P. Harvey.  
Active and resting metabolism in birds—allometry, phylogeny and ecology.  
*J. Zool.*, 213:327–363, 1987.

## References III

-  B. J. L. Berry.  
Déjà vu, Mr. Krugman.  
*Urban Geography*, 20:1–2, 1999. [pdf](#) (田)
-  L. M. A. Bettencourt, J. Lobo, D. Helbing, Kühnert, and G. B. West.  
Growth, innovation, scaling, and the pace of life in cities.  
*Proc. Natl. Acad. Sci.*, 104(17):7301–7306, 2007. [pdf](#) (田)
-  S. Bikhchandani, D. Hirshleifer, and I. Welch.  
A theory of fads, fashion, custom, and cultural change as informational cascades.  
*J. Polit. Econ.*, 100:992–1026, 1992.
-  S. Bikhchandani, D. Hirshleifer, and I. Welch.  
Learning from the behavior of others: Conformity, fads, and informational cascades.  
*J. Econ. Perspect.*, 12(3):151–170, 1998. [pdf](#) (田)
-  P. M. Blau and J. E. Schwartz.  
*Crosscutting Social Circles*.  
Academic Press, Orlando, FL, 1984.
-  K. L. Blaxter, editor.  
*Energy Metabolism: Proceedings of the 3rd symposium held at Troon, Scotland, May 1964*.  
Academic Press, New York, 1965.
-  J. J. Blum.  
On the geometry of four-dimensions and the relationship between metabolism and body mass.  
*J. Theor. Biol.*, 64:599–601, 1977.
-  N. Boccara.  
*Modeling Complex Systems*.  
Springer-Verlag, New York, 2004.

References

References

Frame 5/20



References

References

Frame 6/20



## References V

-  R. B. Cialdini.  
*Influence: Science and Practice*.  
Allyn and Bacon, Boston, MA, 4th edition, 2000.
-  A. Clauset, C. Moore, and M. E. J. Newman.  
Structural inference of hierarchies in networks, 2006. [pdf](#) (田)
-  A. Clauset, M. Young, and K. S. Gleditsch.  
On the Frequency of Severe Terrorist Events.  
*Journal of Conflict Resolution*, 51(1):58–87, 2007. [pdf](#) (田)
-  J. S. Coleman.  
*Foundations of Social Theory*.  
Belknap Press, Cambridge, MA, 1994.
-  M. H. DeGroot.  
*Probability and Statistics*.  
Addison-Wesley, Reading, Massachusetts, 1975.
-  P. S. Dodds and D. H. Rothman.  
Scaling, universality, and geomorphology.  
*Annu. Rev. Earth Planet. Sci.*, 28:571–610, 2000. [pdf](#) (田)
-  P. S. Dodds, D. H. Rothman, and J. S. Weitz.  
Re-examination of the “3/4-law” of metabolism.  
*Journal of Theoretical Biology*, 209(1):9–27, March 2001.  
. [pdf](#) (田)
-  P. S. Dodds and D. J. Watts.  
Universal behavior in a generalized model of contagion.  
*Phys. Rev. Lett.*, 92:218701, 2004. [pdf](#) (田)

References

References

Frame 7/20



References

References

Frame 8/20



## References IV

-  S. Bornholdt and H. G. Schuster, editors.  
*Handbook of Graphs and Networks*.  
Wiley-VCH, Berlin, 2003.
-  R. L. Breiger.  
The duality of persons and groups.  
*Social Forces*, 53(2):181–190, 1974.
-  S. Brody.  
*Bioenergetics and Growth*.  
Reinhold, New York, 1945.  
reprint, .
-  J. Carlson and J. Doyle.  
Highly optimized tolerance: A mechanism for power laws in design systems.  
*Phys. Rev. Lett.*, 60(2):1412–1427, 1999. [pdf](#) (田)
-  J. Carlson and J. Doyle.  
Highly optimized tolerance: Robustness and design in complex systems.  
*Phys. Rev. Lett.*, 84(11):2529–2532, 2000. [pdf](#) (田)
-  E. Castranova.  
*Synthetic Worlds: The Business and Culture of Online Games*.  
University of Chicago Press, Chicago, IL, 2005.
-  I. D. Chase, C. Tovey, D. Spangler-Martin, and M. Manfredonia.  
Individual differences versus social dynamics in the formation of animal dominance hierarchies.  
*Proc. Natl. Acad. Sci.*, 99(8):5744–5749, 2002. [pdf](#) (田)

References

Frame 6/20



## References VI

-  P. S. Dodds and D. J. Watts.  
A generalized model of social and biological contagion.  
*J. Theor. Biol.*, 232:587–604, 2005. [pdf](#) (田)
-  S. Douady and Y. Couder.  
Phyllotaxis as a dynamical self organizing process Part I: The spiral modes resulting from time-periodic iterations.  
*J. Theor. Biol.*, 178:255–274, 1996. [pdf](#) (田)
-  S. Douady and Y. Couder.  
Phyllotaxis as a dynamical self organizing process Part II: The spontaneous formation of a periodicity and the coexistence of spiral and whorled patterns.  
*J. Theor. Biol.*, 178:275–294, 1996. [pdf](#) (田)
-  S. Douady and Y. Couder.  
Phyllotaxis as a dynamical self organizing process Part III: The simulation of the transient regimes of ontogeny.  
*J. Theor. Biol.*, 178:295–312, 1996. [pdf](#) (田)
-  R. M. D’Souza, C. Borgs, J. T. Chayes, N. Berger, and R. D. Kleinberg.  
Emergence of tempered preferential attachment from optimization.  
*Proc. Natl. Acad. Sci.*, 104:6112–6117, 2007. [pdf](#) (田)
-  W. Feller.  
*An Introduction to Probability Theory and Its Applications*, volume I.  
John Wiley & Sons, New York, third edition, 1968.
-  R. Ferrer i Cancho and R. Solé.  
The small world of human language.  
*Proc. R. Soc. Lond. B*, 26:2261–2265, 2001. [pdf](#) (田)

References

Frame 8/20



## References VII

- R. Ferrer i Cancho and R. V. Solé.  
Zipf's law and random texts.  
*Advances in Complex Systems*, 5(1):1–6, 2002.
- R. Foote.  
Mathematics and complex systems.  
*Science*, 318:410–412, 2007. [pdf](#) (田)
- M. T. Gastner and M. E. J. Newman.  
Shape and efficiency in spatial distribution networks.  
*J. Stat. Mech.: Theor. & Exp.*, 1:01015–, 2006. [pdf](#) (田)
- R. Gibrat.  
*Les inégalités économiques*.  
Librairie du Recueil Sirey, Paris, France, 1931.
- M. Gladwell.  
*The Tipping Point*.  
Little, Brown and Company, New York, 2000.
- K.-I. Goh, G. Salvi, B. Kahng, and D. Kim.  
Skeleton and fractal scaling in complex networks.  
*Phys. Rev. Lett.*, 96:Article # 018701, 2006. [pdf](#) (田)
- M. C. González, C. A. Hidalgo, and A.-L. Barabási.  
Understanding individual human mobility patterns.  
*Nature*, 453:779–782, 2008. [pdf](#) (田)
- I. Gradshteyn and I. Ryzhik.  
*Table of Integrals, Series, and Products*.  
Academic Press, San Diego, fifth edition, 1994.

References

References

Frame 9/20



References

References

Frame 10/20



## References IX

- C. A. Hidalgo, B. Klinger, A.-L. Barabási, and R. Hausman.  
The product space conditions the development of nations.  
*Science*, 317:482–487, 2007. [pdf](#) (田)
- R. A. Hill, R. A. Bentley, and R. I. M. Dunbar.  
Network scaling reveals consistent fractal pattern in hierarchical mammalian societies.  
*Biology Letters*, 2008. [pdf](#) (田)
- T. P. Hill.  
The first-digit phenomenon.  
*American Scientist*, 86:358–, 1998.
- B. A. Huberman and L. A. Adamic.  
Evolutionary dynamics of the World Wide Web.  
Technical report, Xerox Palo Alto Research Center, 1999.
- B. A. Huberman and L. A. Adamic.  
The nature of markets in the World Wide Web.  
*Quarterly Journal of Economic Commerce*, 1:5–12, 2000.
- H. J. Jensen.  
*Self-Organized Criticality: Emergent Complex Behavior in Physical and Biological Systems*.  
Cambridge Lecture Notes in Physics. Cambridge University Press, Cambridge, UK, 1998.
- N. F. Johnson, M. Spagat, J. A. Restrepo, O. Becerra, J. C. Bohorquez, N. Suarez, E. M. Restrepo, and R. Zarama.  
Universal patterns underlying ongoing wars and terrorism, 2006. [pdf](#) (田)
- E. Katz and P. F. Lazarsfeld.  
*Personal Influence*.  
The Free Press, New York, 1955.

References

References

Frame 11/20



References

References

Frame 12/20



## References VIII

- M. Granovetter.  
Threshold models of collective behavior.  
*Am. J. Sociol.*, 83(6):1420–1443, 1978. [pdf](#) (田)
- M. Granovetter and R. Soong.  
Threshold models of diversity: Chinese restaurants, residential segregation, and the spiral of silence.  
*Sociological Methodology*, 18:69–104, 1988. [pdf](#) (田)
- M. S. Granovetter and R. Soong.  
Threshold models of interpersonal effects in consumer demand.  
*Journal of Economic Behavior & Organization*, 7:83–99, 1986.  
Formulates threshold as function of price, and introduces exogenous supply curve. [pdf](#) (田)
- J. T. Hack.  
Studies of longitudinal stream profiles in Virginia and Maryland.  
*United States Geological Survey Professional Paper*, 294-B:45–97, 1957.
- A. Hemmingsen.  
The relation of standard (basal) energy metabolism to total fresh weight of living organisms.  
*Rep. Steno Mem. Hosp.*, 4:1–58, 1950.
- A. Hemmingsen.  
Energy metabolism as related to body size and respiratory surfaces, and its evolution.  
*Rep. Steno Mem. Hosp.*, 9:1–110, 1960.
- A. A. Heusner.  
Size and power in mammals.  
*Journal of Experimental Biology*, 160:25–54, 1991.

Frame 10/20



## References XI

- J. M. Kleinberg.  
Authoritative sources in a hyperlinked environment.  
*Proc. 9th ACM-SIAM Symposium on Discrete Algorithms*, 1998. [pdf](#) (田)
- G. Kossinets and D. J. Watts.  
Empirical analysis of evolving social networks.  
*Science*, 311:88–90, 2006. [pdf](#) (田)
- M. Kretzschmar and M. Morris.  
Measures of concurrency in networks and the spread of infectious disease.  
*Math. Biosci.*, 133:165–95, 1996.
- P. Krugman.  
*The self-organizing economy*.  
Blackwell Publishers, Cambridge, Massachusetts, 1995.
- T. Kuran.  
Now out of never: The element of surprise in the east european revolution of 1989.  
*World Politics*, 44:7–48, 1991.
- T. Kuran.  
*Private Truths, Public Lies: The Social Consequences of Preference Falsification*.  
Harvard University Press, Cambridge, MA, Reprint edition, 1997.
- P. Laureti, L. Moret, and Y.-C. Zhang.  
Aggregating partial, local evaluations to achieve global ranking.  
*Physica A*, 345(3–4):705–712, January 2004. [pdf](#) (田)
- L. B. Leopold.  
*A View of the River*.  
Harvard University Press, Cambridge, MA, 1994.

References

References

Frame 13/20



References

References

Frame 14/20



## References XIII

- M. Mitzenmacher.  
A brief history of generative models for power law and lognormal distributions.  
*Internet Mathematics*, 1:226–251, 2003. [pdf](#) (田)
- D. R. Montgomery and W. E. Dietrich.  
Channel initiation and the problem of landscape scale.  
*Science*, 255:826–30, 1992. [pdf](#) (田)
- E. W. Montroll and M. W. Shlesinger.  
On  $1/f$  noise and other distributions with long tails.  
*Proc. Natl. Acad. Sci.*, 79:3380–3383, 1982.
- E. W. Montroll and M. W. Shlesinger.  
Maximum entropy formalism, fractals, scaling phenomena, and  $1/f$  noise: a tale of tails.  
*J. Stat. Phys.*, 32:209–230, 1983.
- S. Newcomb.  
Note on the frequency of use of the different digits in natural numbers.  
*American Journal of Mathematics*, 4:39–40, 1881. [pdf](#) (田)
- M. Newman.  
Assortative mixing in networks.  
*Phys. Rev. Lett.*, 89:208701, 2002.
- M. E. J. Newman.  
The structure and function of complex networks.  
*SIAM Review*, 45(2):167–256, 2003. [pdf](#) (田)
- M. E. J. Newman, M. Girvan, and J. D. Farmer.  
Optimal design, robustness, and risk aversion.  
*Phys. Rev. Lett.*, 89:028301, 2002.

References

References

Frame 15/20



References

References

Frame 16/20



## References XII

- A. J. Lotka.  
The frequency distribution of scientific productivity.  
*Journal of the Washington Academy of Science*, 16:317–323, 1926.
- O. Malcai, O. Biham, and S. Solomon.  
Power-law distributions and lévy-stable intermittent fluctuations in stochastic systems of many autocatalytic elements.  
*Phys. Rev. E*, 60(2):1299–1303, Aug 1999. [pdf](#) (田)
- B. B. Mandelbrot.  
An informational theory of the statistical structure of languages.  
In W. Jackson, editor, *Communication Theory*, pages 486–502. Butterworth, Woburn, MA, 1953.
- T. McMahon.  
Size and shape in biology.  
*Science*, 179:1201–1204, 1973. [pdf](#) (田)
- T. A. McMahon and J. T. Bonner.  
*On Size and Life*.  
Scientific American Library, New York, 1983.
- G. A. Miller.  
Some effects of intermittent silence.  
*American Journal of Psychology*, 70:311–314, 1957. [pdf](#) (田)
- J. H. Miller and S. E. Page.  
*Complex Adaptive Systems: An introduction to computational models of social life*.  
Princeton University Press, Princeton, NJ, 2007.

References

Frame 14/20



## References XIV

- M. A. Nowak.  
Five rules for the evolution of cooperation.  
*Science*, 314:1560–1563, 2006. [pdf](#) (田)
- W. H. Press, S. A. Teukolsky, W. T. Vetterling, and B. P. Flannery.  
*Numerical Recipes in C*.  
Cambridge University Press, second edition, 1992.
- D. J. d. S. Price.  
Networks of scientific papers.  
*Science*, 149:510–515, 1965. [pdf](#) (田)
- D. J. d. S. Price.  
A general theory of bibliometric and other cumulative advantage processes.  
*J. Amer. Soc. Inform. Sci.*, 27:292–306, 1976.
- F. Radicchi, J. J. Ramasco, A. Barrat, and S. Fortunato.  
Complex networks renormalization: Flows and fixed points.  
*Phys. Rev. Lett.*, 101:Article # 148701, 2008. [pdf](#) (田)
- P. J. Rentfrow, S. D. Gosling, and J. Potter.  
A theory of the emergence, persistence, and expression of geographic variation in psychological characteristics.  
*Perspectives on Psychological Science*, 3:339–369, 2008. [pdf](#) (田)
- C. J. Rhodes and R. M. Anderson.  
Power laws governing epidemics in isolated populations.  
*Nature*, 381:600–602, 1996. [pdf](#) (田)

References

Frame 16/20



## References XV

- S. Rosen.  
The economics of superstars.  
*Am. Econ. Rev.*, 71:845–858, 1981. [pdf](#) (田)
- M. Rubner.  
Ueber den einfluss der körpergrösse auf stoffund kraftwechsel.  
*Z. Biol.*, 19:535–562, 1883.
- M. J. Salganik, P. S. Dodds, and D. J. Watts.  
An experimental study of inequality and unpredictability in an artificial cultural market.  
*Science*, 311:854–856, 2006. [pdf](#) (田)
- Sarrus and Rameaux.  
Rapport sur une mémoire adressé à l'Académie de Médecine.  
*Bull. Acad. R. Méd. (Paris)*, 3:1094–1100, 1838–39.
- A. E. Scheidegger.  
The algebra of stream-order numbers.  
*United States Geological Survey Professional Paper*, 525-B:B187–B189, 1967.
- T. Schelling.  
Dynamic models of segregation.  
*J. Math. Sociol.*, 1:143–186, 1971.
- T. C. Schelling.  
Hockey helmets, concealed weapons, and daylight saving: A study of binary choices with externalities.  
*J. Conflict Resolut.*, 17:381–428, 1973.
- T. C. Schelling.  
*Micromotives and Macrobbehavior*.  
Norton, New York, 1978.

References

References

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References

References

Frame 18/20



## References XVII

- N. N. Taleb.  
*The Black Swan*.  
Random House, New York, 2007.
- P. Turchin.  
*Historical Dynamics: Why States Rise and Fall*.  
Princeton University Press, Princeton, NJ, 2003.
- D. L. Turcotte, J. D. Pelletier, and W. I. Newman.  
Networks with side branching in biology.  
*Journal of Theoretical Biology*, 193:577–592, 1998.
- P. B. Umbanhowar, F. Melo, and H. L. Swinney.  
Localized excitations in a vertically vibrated granular layer.  
*Nature*, 382:793–6, 29 August 1996. [pdf](#) (田)
- S. Wasserman and K. Faust.  
*Social Network Analysis: Methods and Applications*.  
Cambridge University Press, Cambridge, UK, 1994.
- D. J. Watts.  
A simple model of global cascades on random networks.  
*Proc. Natl. Acad. Sci.*, 99(9):5766–5771, 2002. [pdf](#) (田)
- D. J. Watts, P. S. Dodds, and M. E. J. Newman.  
Identity and search in social networks.  
*Science*, 296:1302–1305, 2002. [pdf](#) (田)
- D. J. Watts and S. J. Strogatz.  
Collective dynamics of 'small-world' networks.  
*Nature*, 393:440–442, 1998. [pdf](#) (田)

References

References

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References

References

Frame 20/20



## References XVI

- S. S. Shen-Orr, R. Milo, S. Mangan, and U. Alon.  
Network motifs in the transcriptional regulation network of *Escherichia coli*.  
*Nature Genetics*, pages 64–68, 2002. [pdf](#) (田)
- G. Simmel.  
The number of members as determining the sociological form of the group. I.  
*American Journal of Sociology*, 8:1–46, 1902.
- H. A. Simon.  
On a class of skew distribution functions.  
*Biometrika*, 42:425–440, 1955. [pdf](#) (田)
- C. Song, S. Havlin, and H. A. Makse.  
*Nature*, 433:392–395, 2005. [pdf](#) (田)
- C. Song, S. Havlin, and H. A. Makse.  
Origins of fractality in the growth of complex networks.  
*Nature Physics*, 2:275–281, 2006. [pdf](#) (田)
- D. Sornette.  
*Critical Phenomena in Natural Sciences*.  
Springer-Verlag, Berlin, 2nd edition, 2003.
- W. R. Stahl.  
Scaling of respiratory variables in mammals.  
*Journal of Applied Physiology*, 22:453–460, 1967.
- C. R. Sunstein.  
*Infotopia: How many minds produce knowledge*.  
Oxford University Press, New York, 2006.

References

References

Frame 18/20



## References XVIII

- G. B. West, J. H. Brown, and B. J. Enquist.  
A general model for the origin of allometric scaling laws in biology.  
*Science*, 276:122–126, 1997. [pdf](#) (田)
- U. Wilensky.  
Netlogo segregation model.  
<http://ccl.northwestern.edu/netlogo/models/Segregation>. Center for Connected Learning and Computer-Based Modeling, Northwestern University, Evanston, IL., 1998.
- G. U. Yule.  
A mathematical theory of evolution, based on the conclusions of Dr J. C. Willis, F.R.S.  
*Phil. Trans. B*, 213:21–, 1924.
- K. Zhang and T. J. Sejnowski.  
A universal scaling law between gray matter and white matter of cerebral cortex.  
*Proceedings of the National Academy of Sciences*, 97:5621–5626, May 2000. [pdf](#) (田)
- G. K. Zipf.  
*Human Behaviour and the Principle of Least-Effort*.  
Addison-Wesley, Cambridge, MA, 1949.

References

References

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