

## Bibliography

- Abbring, 2003 J.H. Abbring. Book reviews: Causality: Models, Reasoning, and Inference. *Economica*, 70:702–703, 2003.
- Adams, 1975 E. Adams. *The Logic of Conditionals*, chapter 2. D. Reidel, Dordrecht, Netherlands, 1975.
- Agresti, 1983 A. Agresti. Fallacies, statistical. In S. Kotz and N.L. Johnson, editors, *Encyclopedia of Statistical Science*, volume 3, pages 24–28. John Wiley, New York, 1983.
- Aldrich, 1989 J. Aldrich. Autonomy. *Oxford Economic Papers*, 41:15–34, 1989.
- Aldrich, 1993 J. Aldrich. Cowles’ exogeneity and core exogeneity. Technical Report Discussion Paper 9308, Department of Economics, University of Southampton, England, 1993.
- Aldrich, 1995 J. Aldrich. Correlations genuine and spurious in Pearson and Yule. *Statistical Science*, 10:364–376, 1995.
- Andersson et al., 1997 S.A. Andersson, D. Madigan, and M.D. Perlman. A characterization of Markov equivalence classes for acyclic digraphs. *Annals of Statistics*, 24:505–541, 1997.
- Andersson et al., 1998 S.A. Andersson, D. Madigan, M.D. Perlman, and T.S. Richardson. Graphical Markov models in multivariate analysis. In S. Ghosh, editor, *Multivariate Analysis, Design of Experiments and Survey Sampling*, pages 187–229. Marcel Dekker, Inc., New York, 1998.
- Angrist and Imbens, 1991 J.D. Angrist and G.W. Imbens. Source of identifying information in evaluation models. Technical Report Discussion Paper 1568, Department of Economics, Harvard University, Cambridge, MA, 1991.
- Angrist et al., 1996 J.D. Angrist, G.W. Imbens, and D.B. Rubin. Identification of causal effects using instrumental variables (with comments). *Journal of the American Statistical Association*, 91(434):444–472, June 1996.
- Angrist, 2004 J.D. Angrist. Treatment effect heterogeneity in theory and practice. *The Economic Journal*, 114:C52–C83, 2004.
- Arah, 2008 O.A. Arah. The role of causal reasoning in understanding Simpson’s paradox, Lord’s paradox, and the suppression effect: Covariate selection in the analysis of observational studies. *Emerging Themes in Epidemiology*, 4:doi:10.1186/1742-7622-5-5, 2008. Online at <http://www.ete-online.com/content/5/1/5>.
- Austin, 2008 P.C. Austin. A critical appraisal of propensity-score matching in the medical literature from 1996 to 2003. *Statistics in Medicine*, 27(12):2037–2049, 2008.
- Avin et al., 2005 C. Avin, I. Shpitser, and J. Pearl. Identifiability of path-specific effects. In *Proceedings of the Nineteenth International Joint Conference on Artificial Intelligence (IJCAI-05)*, pages 357–363, Edinburgh, UK, 2005.
- Bagozzi and Burnkrant, 1979 R.P. Bagozzi and R.E. Burnkrant. Attitude organization and the attitude-behavior relationship. *Journal of Personality and Social Psychology*, 37:913–929, 1979.

- Balke and Pearl, 1994a A. Balke and J. Pearl. Counterfactual probabilities: Computational methods, bounds, and applications. In R. Lopez de Mantaras and D. Poole, editors, *Uncertainty in Artificial Intelligence 10*, pages 46–54. Morgan Kaufmann, San Mateo, CA, 1994.
- Balke and Pearl, 1994b A. Balke and J. Pearl. Probabilistic evaluation of counterfactual queries. In *Proceedings of the Twelfth National Conference on Artificial Intelligence*, volume I, pages 230–237. MIT Press, Menlo Park, CA, 1994.
- Balke and Pearl, 1995a A. Balke and J. Pearl. Counterfactuals and policy analysis in structural models. In P. Besnard and S. Hanks, editors, *Uncertainty in Artificial Intelligence 11*, pages 11–18. Morgan Kaufmann, San Francisco, 1995.
- Balke and Pearl, 1995b A. Balke and J. Pearl. Universal formulas for treatment effect from non-compliance data. In N.P. Jewell, A.C. Kimber, M.-L. Lee, and G.A. Whitmore, editors, *Lifetime Data: Models in Reliability and Survival Analysis*, pages 39–43. Kluwer Academic Publishers, Dordrecht, 1995.
- Balke and Pearl, 1997 A. Balke and J. Pearl. Bounds on treatment effects from studies with imperfect compliance. *Journal of the American Statistical Association*, 92(439):1172–1176, 1997.
- Balke, 1995 A. Balke. *Probabilistic Counterfactuals: Semantics, Computation, and Applications*. PhD thesis, Computer Science Department, University of California, Los Angeles, CA, November 1995.
- Barigelli and Scozzafava, 1984 B. Barigelli and R. Scozzafava. Remarks on the role of conditional probability in data exploration. *Statistics and Probability Letters*, 2(1):15–18, January 1984.
- Bayes, 1763 T. Bayes. An essay towards solving a problem in the doctrine of chances. *Philosophical Transactions*, 53:370–418, 1763. Reproduced in W.E. Deming.
- Becher, 1992 H. Becher. The concept of residual confounding in regression models and some applications. *Statistics in Medicine*, 11:1747–1758, 1992.
- Berk and de Leeuw, 1999 R.A. Berk and J. de Leeuw. An evaluation of California’s inmate classification system using a generalized regression discontinuity design. *Journal of the American Statistical Association*, 94:1045–1052, 1999.
- Berk, 2004 R.A. Berk. *Regression Analysis: A Constructive Critique*. Sage, Thousand Oaks, CA, 2004.
- Berkson, 1946 J. Berkson. Limitations of the application of fourfold table analysis to hospital data. *Biometrics Bulletin*, 2:47–53, 1946.
- Bertsekas and Tsitsiklis, 1996 D.P. Bertsekas and J.M. Tsitsiklis. *Neuro-dynamic Programming*. Athena, Belmont, MA, 1996.
- Bessler, 2002 D. Bessler. On world poverty: Its causes and effects, 2002. <http://agecon2.tamu.edu/people/faculty/bessler-david/WebPage/poverty.pdf>.
- Bickel et al., 1975 P.J. Bickel, E.A. Hammel, and J.W. O’Connell. Sex bias in graduate admissions: Data from Berkeley. *Science*, 187:398–404, 1975.
- Bishop et al., 1975 Y.M.M. Bishop, S.E. Fienberg, and P.W. Holland. *Discrete Multivariate Analysis: Theory and Practice*. MIT Press, Cambridge, MA, 1975.
- Bishop, 1971 Y.M.M. Bishop. Effects of collapsing multidimensional contingency tables. *Biometrics*, 27:545–562, 1971.
- Blalock, Jr., 1962 H.M. Blalock, Jr. Four-variable causal models and partial correlations. *American Journal of Sociology*, 68:182–194, 1962.
- Bloom, 1984 H.S. Bloom. Accounting for no-shows in experimental evaluation designs. *Evaluation Review*, 8(2):225–246, April 1984.
- Blumer et al., 1987 A. Blumer, A. Ehrenfeucht, D. Haussler, and M.K. Warmuth. Occam’s razor. *Information Processing Letters*, 24, 1987.
- Blyth, 1972 C.R. Blyth. On Simpson’s paradox and the sure-thing principle. *Journal of the American Statistical Association*, 67:364–366, 1972.
- Bollen, 1989 K.A. Bollen. *Structural Equations with Latent Variables*. John Wiley, New York, 1989.
- Bonet, 2001 B. Bonet. A calculus for causal relevance. In *Proceedings of the Seventeenth Conference on Uncertainty in Artificial Intelligence*, pages 40–47. Morgan Kaufmann, San Francisco, CA, 2001.
- Boumans, 2004 M. Boumans. Book reviews: Causality: Models, Reasoning, and Inference. *Review of Social Economy*, LXIII:129–135, 2004.

- Bowden and Turkington, 1984 R.J. Bowden and D.A. Turkington. *Instrumental Variables*. Cambridge University Press, Cambridge, England, 1984.
- Breckler, 1990 S.J. Breckler. Applications of covariance structure modeling in psychology: Cause for concern? *Psychological Bulletin*, 107(2):260–273, 1990.
- Breslow and Day, 1980 N.E. Breslow and N.E. Day. *Statistical Methods in Cancer Research; Vol. 1, The Analysis of Case-Control Studies*. IARC, Lyon, 1980.
- Brito and Pearl, 2002a C. Brito and J Pearl. Generalized instrumental variables. In A. Darwiche and N. Friedman, editors, *Uncertainty in Artificial Intelligence, Proceedings of the Eighteenth Conference*, pages 85–93. Morgan Kaufmann, San Francisco, 2002.
- Brito and Pearl, 2002b C. Brito and J Pearl. A graphical criterion for the identification of causal effects in linear models. In *Proceedings of the Eighteenth National Conference on Artificial Intelligence*, pages 533–538. AAAI Press/The MIT Press, Menlo Park, CA, 2002.
- Brito and Pearl, 2002c C. Brito and J Pearl. A new identification condition for recursive models with correlated errors. *Journal of Structural Equation Modeling*, 9(4):459–474, 2002.
- Brito and Pearl, 2006 C. Brito and J Pearl. Graphical condition for identification in recursive SEM. In *Proceedings of the Twenty-Third Conference on Uncertainty in Artificial Intelligence*, pages 47–54. AUAI Press, Corvallis, OR, 2006.
- Butler, 2002 S.F. Butler. Book review: A structural approach to the understanding of causes, effects, and judgment. *Journal of Mathematical Psychology*, 46:629–635, 2002.
- Byerly, 2000 H.C. Byerly. Book reviews: Causality: Models, Reasoning, and Inference. *Choice*, 548, November 2000.
- Cai and Kuroki, 2006 Z. Cai and M. Kuroki. Variance estimators for three ‘probabilities of causation’. *Risk Analysis*, 25(6):1611–1620, 2006.
- Cai et al., 2008 Z. Cai, M. Kuroki, J. Pearl, and J. Tian. Bounds on direct effect in the presence of confound intermediate variables. *Biometrics*, 64:695–701, 2008.
- Campbell and Stanley, 1966 D.T. Campbell and J.C. Stanley. *Experimental and Quasi-Experimental Designs for Research*. R. McNally and Co., Chicago, IL, 1966.
- Cartwright, 1983 N. Cartwright. *How the Laws of Physics Lie*. Clarendon Press, Oxford, 1983.
- Cartwright, 1989 N. Cartwright. *Nature’s Capacities and Their Measurement*. Clarendon Press, Oxford, 1989.
- Cartwright, 1995a N. Cartwright. False idealisation: A philosophical threat to scientific method. *Philosophical Studies*, 77:339–352, 1995.
- Cartwright, 1995b N. Cartwright. Probabilities and experiments. *Journal of Econometrics*, 67:47–59, 1995.
- Cartwright, 1999 N. Cartwright. Causality: Independence and determinism. In A. Gammerman, editor, *Causal Models and Intelligent Data Management*, pages 51–63. Springer-Verlag, Berlin, 1999.
- Cartwright, 2007 N. Cartwright. *Hunting Causes and Using Them: Approaches in Philosophy and Economics*. Cambridge University Press, New York, NY, 2007.
- Chajewska and Halpern, 1997 U. Chajewska and J.Y. Halpern. Defining explanation in probabilistic systems. In D. Geiger and P.P. Shenoy, editors, *Uncertainty in Artificial Intelligence 13*, pages 62–71. Morgan Kaufmann, San Francisco, CA, 1997.
- Chakraborty, 2001 R. Chakraborty. A rooster crow does not cause the sun to rise: Review of Causality: Models, Reasoning, and Inference. *Human Biology*, 110(4):621–624, 2001.
- Chalak and White, 2006 K. Chalak and H. White. An extended class of instrumental variables for the estimation of causal effects. Technical Report Discussion Paper, UCSD, Department of Economics, July 2006.
- Cheng, 1992 P.W. Cheng. Separating causal laws from causal facts: Pressing the limits of statistical relevance. *Psychology of Learning and Motivation*, 30:215–264, 1992.
- Cheng, 1997 P.W. Cheng. From covariation to causation: A causal power theory. *Psychological Review*, 104(2):367–405, 1997.
- Chickering and Pearl, 1997 D.M. Chickering and J. Pearl. A clinician’s tool for analyzing non-compliance. *Computing Science and Statistics*, 29(2):424–431, 1997.

- Chickering, 1995 D.M. Chickering. A transformational characterization of Bayesian network structures. In P. Besnard and S. Hanks, editors, *Uncertainty in Artificial Intelligence 11*, pages 87–98. Morgan Kaufmann, San Francisco, 1995.
- Chou and Bentler, 1995 C.P. Chou and P. Bentler. Estimations and tests in structural equation modeling. In R.H. Hoyle, editor, *Structural Equation Modeling*, pages 37–55. Sage, Thousand Oaks, CA, 1995.
- Christ, 1966 C. Christ. *Econometric Models and Methods*. John Wiley and Sons, Inc., New York, 1966.
- Cliff, 1983 N. Cliff. Some cautions concerning the application of causal modeling methods. *Multivariate Behavioral Research*, 18:115–126, 1983.
- Cohen and Nagel, 1934 M.R. Cohen and E. Nagel. *An Introduction to Logic and the Scientific Method*. Harcourt, Brace and Company, New York, 1934.
- Cole and Hernán, 2002 S.R. Cole and M.A. Hernán. Fallibility in estimating direct effects. *International Journal of Epidemiology*, 31(1):163–165, 2002.
- Cole, 1997 P. Cole. Causality in epidemiology, health policy, and law. *Journal of Marketing Research*, 27:10279–10285, 1997.
- Cooper and Herskovits, 1991 G.F. Cooper and E. Herskovits. A Bayesian method for constructing Bayesian belief networks from databases. In B.D. D’Ambrosio, P. Smets, and P.P. Bonissone, editors, *Proceedings of Uncertainty in Artificial Intelligence Conference, 1991*, pages 86–94. Morgan Kaufmann, San Mateo, 1991.
- Cooper, 1990 G.F. Cooper. Computational complexity of probabilistic inference using Bayesian belief networks. *Artificial Intelligence*, 42(2):393–405, 1990.
- Cowell et al., 1999 R.G. Cowell, A.P. Dawid, S.L. Lauritzen, and D.J. Spiegelhalter. *Probabilistic Networks and Expert Systems*. Springer Verlag, New York, NY, 1999.
- Cox and Wermuth, 1996 D.R. Cox and N. Wermuth. *Multivariate Dependencies – Models, Analysis and Interpretation*. Chapman and Hall, London, 1996.
- Cox and Wermuth, 2003 D.R. Cox and N. Wermuth. A general condition for avoiding effect reversal after marginalization. *Journal of the Royal Statistical Society, Series B (Statistical Methodology)*, 65(4):937–941, 2003.
- Cox and Wermuth, 2004 D.R. Cox and N. Wermuth. Causality: A statistical view. *International Statistical Review*, 72(3):285–305, 2004.
- Cox, 1958 D.R. Cox. *The Planning of Experiments*. John Wiley and Sons, NY, 1958.
- Cox, 1992 D.R. Cox. Causality: Some statistical aspects. *Journal of the Royal Statistical Society*, 155, Series A:291–301, 1992.
- Crámer, 1946 H. Crámer. *Mathematical Methods of Statistics*. Princeton University Press, Princeton, NJ, 1946.
- Cushing and McMullin, 1989 J.T. Cushing and E. McMullin (Eds.). *Philosophical Consequences of Quantum Theory: Reflections on Bell’s Theorem*. University of Notre Dame Press, South Bend, IN, 1989.
- Darlington, 1990 R.B. Darlington. *Regression and Linear Models*. McGraw-Hill, New York, 1990.
- Darnell, 1994 A.C. Darnell. *A Dictionary of Econometrics*. Edward Elgar Publishing Limited, Brookfield, VT, 1994.
- Darwiche, 2009 A. Darwiche. *Modeling and Reasoning with Bayesian Networks*. Cambridge University Press, New York, 2009.
- Davidson and MacKinnon, 1993 R. Davidson and J.G. MacKinnon. *Estimation and Inference in Econometrics*. Oxford University Press, New York, 1993.
- Dawid, 1979 A.P. Dawid. Conditional independence in statistical theory. *Journal of the Royal Statistical Society, Series B*, 41(1):1–31, 1979.
- Dawid, 2000 A.P. Dawid. Causal inference without counterfactuals (with comments and rejoinder). *Journal of the American Statistical Association*, 95(450):407–448, June 2000.
- Dawid, 2002 A.P. Dawid. Influence diagrams for causal modelling and inference. *International Statistical Review*, 70:161–189, 2002.
- De Kleer and Brown, 1986 J. De Kleer and J.S. Brown. Theories of causal ordering. *Artificial Intelligence*, 29(1):33–62, 1986.

- Dean and Wellman, 1991 T.L. Dean and M.P. Wellman. *Planning and Control*. Morgan Kaufmann, San Mateo, CA, 1991.
- Dechter and Pearl, 1991 R. Dechter and J. Pearl. Directed constraint networks: A relational framework for casual modeling. In J. Mylopoulos and R. Reiter, editors, *Proceedings of the Twelfth International Joint Conference of Artificial Intelligence (IJCAI-91)*, pages 1164–1170. Morgan Kaufmann, San Mateo, CA, Sydney, Australia, 1991.
- Dechter, 1996 R. Dechter. Topological parameters for time-space tradeoff. In E. Horvitz and F. Jensen, editors, *Proceedings of the Twelfth Conference on Uncertainty in Artificial Intelligence*, pages 220–227. Morgan Kaufmann, San Francisco, CA, 1996.
- Decock, 2002 L. Decock. Bibliografische notities: Causality: Models, Reasoning, and Inference. *Tijdschrift voor Filosofie*, 64:201, 2002.
- DeFinetti, 1974 B. DeFinetti. *Theory of Probability: A Critical Introductory Treatment*. Wiley, London, 1974. 2 volumes. Translated by A. Machi and A. Smith.
- Dehejia and Wahba, 1999 R.H. Dehejia and S. Wahba. Causal effects in nonexperimental studies: Re-evaluating the evaluation of training programs. *Journal of the American Statistical Association*, 94:1053–1063, 1999.
- Demiralp and Hoover, 2003 S. Demiralp and K. Hoover. Searching for the causal structure of a vector autoregression. *Oxford Bulletin of Economics*, 65:745–767, 2003.
- Dempster, 1990 A.P. Dempster. Causality and statistics. *Journal of Statistics Planning and Inference*, 25:261–278, 1990.
- Dhrymes, 1970 P.J. Dhrymes. *Econometrics*. Springer-Verlag, New York, 1970.
- Didelez and Pigeot, 2001 V. Didelez and I. Pigeot. Discussions: Judea Pearl, Causality: Models, Reasoning, and Inference. *Politische Vierteljahresschrift*, 42(2):313–315, 2001.
- Didelez, 2002 V. Didelez. Book reviews: Causality: Models, Reasoning, and Inference. *Statistics in Medicine*, 21:2292–2293, 2002.
- Dong, 1998 J. Dong. Simpson's paradox. In P. Armitage and T. Colton, editors, *Encyclopedia of Biostatistics*, pages 4108–4110. J. Wiley, New York, 1998.
- Dor and Tarsi, 1992 D. Dor and M. Tarsi. A simple algorithm to construct a consistent extension of a partially oriented graph. Technical Report R-185, UCLA, Computer Science Department, 1992.
- Druzdzel and Simon, 1993 M.J. Druzdzel and H.A. Simon. Causality in Bayesian belief networks. In D. Heckerman and A. Mamdani, editors, *Proceedings of the Ninth Conference on Uncertainty in Artificial Intelligence*, pages 3–11. Morgan Kaufmann, San Mateo, CA, 1993.
- Duncan, 1975 O.D. Duncan. *Introduction to Structural Equation Models*. Academic Press, New York, 1975.
- Edwards, 2000 D. Edwards. *Introduction to Graphical Modelling*. Springer-Verlag, New York, 2nd edition, 2000.
- Eells and Sober, 1983 E. Eells and E. Sober. Probabilistic causality and the question of transitivity. *Philosophy of Science*, 50:35–57, 1983.
- Eells, 1991 E. Eells. *Probabilistic Causality*. Cambridge University Press, Cambridge, UK, 1991.
- Efron and Feldman, 1991 B. Efron and D. Feldman. Compliance as an explanatory variable in clinical trials. *Journal of the American Statistical Association*, 86(413):9–26, March 1991.
- Engle et al., 1983 R.F. Engle, D.F. Hendry, and J.F. Richard. Exogeneity. *Econometrica*, 51:277–304, 1983.
- Epstein, 1987 R.J. Epstein. *A History of Econometrics*. Elsevier Science, New York, 1987.
- Eshghi and Kowalski, 1989 K. Eshghi and R.A. Kowalski. Abduction compared with negation as failure. In G. Levi and M. Martelli, editors, *Proceedings of the Sixth International Conference on Logic Programming*, pages 234–254. MIT Press, Cambridge, MA, 1989.
- Everitt, 1995 B. Everitt. Simpson's paradox. In B. Everitt, editor, *The Cambridge Dictionary of Statistics in the Medical Sciences*, page 237. Cambridge University Press, New York, 1995.
- Feller, 1950 W. Feller. *Probability Theory and Its Applications*. Wiley, New York, 1950.
- Fikes and Nilsson, 1971 R.E. Fikes and N.J. Nilsson. STIRPS: A new approach to the application of theorem proving to problem solving. *Artificial Intelligence*, 2(3/4):189–208, 1971.
- Fine, 1975 K. Fine. Review of Lewis' counterfactuals. *Mind*, 84:451–458, 1975.
- Fine, 1985 K. Fine. *Reasoning with Arbitrary Objects*. B. Blackwell, New York, 1985.

- Finkelstein and Levin, 1990 M.O. Finkelstein and B. Levin. *Statistics for Lawyers*. Springer-Verlag, New York, 1990.
- Fisher, 1926 R.A. Fisher. The arrangement of field experiments. *Journal of the Ministry of Agriculture of Great Britain*, 33:503–513, 1926. *Collected Papers*, 2, no. 48, and *Contributions*, paper 17.
- Fisher, 1935 R.A. Fisher. *The Design of Experiments*. Oliver and Boyd, Edinburgh, 1935.
- Fisher, 1970 F.M. Fisher. A correspondence principle for simultaneous equations models. *Econometrica*, 38(1):73–92, January 1970.
- Fleiss, 1981 J.L. Fleiss. *Statistical Methods for Rates and Proportions*. John Wiley and Sons, New York, 2nd edition, 1981.
- Frangakis and Rubin, 2002 C.E. Frangakis and D.B. Rubin. Principal stratification in causal inference. *Biometrics*, 1(58):21–29, 2002.
- Freedman and Stark, 1999 D. A. Freedman and P. B. Stark. The swine flu vaccine and Guillain-Barré syndrome: A case study in relative risk and specific causation. *Evaluation Review*, 23(6):619–647, December 1999.
- Freedman, 1987 D. Freedman. As others see us: A case study in path analysis (with discussion). *Journal of Educational Statistics*, 12(2):101–223, 1987.
- Freedman, 1997 D.A. Freedman. From association to causation via regression. In V.R. McKim and S.P. Turner, editors, *Causality in Crisis?*, pages 113–161. University of Notre Dame Press, Notre Dame, IN, 1997.
- Frisch, 1938 R. Frisch. Autonomy of economic relations. Reprinted [with Tinbergen's comments]. In D.F. Hendry and M.S. Morgan, editors, *The Foundations of Econometric Analysis*, pages 407–423. Cambridge University Press, 1938.
- Frydenberg, 1990 M. Frydenberg. The chain graph Markov property. *Scandinavian Journal of Statistics*, 17:333–353, 1990.
- Gail, 1986 M.H. Gail. Adjusting for covariates that have the same distribution in exposed and unexposed cohorts. In S.H. Moolgavkar and R.L. Prentice, editors, *Modern Statistical Methods in Chronic Disease Epidemiology*, pages 3–18. John Wiley and Sons, New York, 1986.
- Galles and Pearl, 1995 D. Galles and J. Pearl. Testing identifiability of causal effects. In P. Besnard and S. Hanks, editors, *Uncertainty in Artificial Intelligence II*, pages 185–195. Morgan Kaufmann, San Francisco, 1995.
- Galles and Pearl, 1997 D. Galles and J. Pearl. Axioms of causal relevance. *Artificial Intelligence*, 97(1-2):9–43, 1997.
- Galles and Pearl, 1998 D. Galles and J. Pearl. An axiomatic characterization of causal counterfactuals. *Foundation of Science*, 3(1):151–182, 1998.
- Gärdenfors, 1988 P. Gärdenfors. Causation and the dynamics of belief. In W. Harper and B. Skyrms, editors, *Causation in Decision, Belief Change and Statistics II*, pages 85–104. Kluwer Academic Publishers, Dordrecht /Boston /London, 1988.
- Geffner, 1992 H. Geffner. *Default Reasoning: Causal and Conditional Theories*. MIT Press, Cambridge, MA, 1992.
- Geiger and Pearl, 1993 D. Geiger and J. Pearl. Logical and algorithmic properties of conditional independence. *The Annals of Statistics*, 21(4):2001–2021, 1993.
- Geiger et al., 1990 D. Geiger, T.S. Verma, and J. Pearl. Identifying independence in Bayesian networks. *Networks*, 20: 507–534.
- Geneletti, 2007 S. Geneletti. Identifying direct and indirect effects in a non-counterfactual framework. *Journal of the Royal Statistical Society, Series B (Methodological)*, 69(2): 199–215, 2007.
- Geng et al., 2002 Z. Geng, J. Guo, and W-K. Fung. Criteria for confounders in epidemiological studies. *Journal of the Royal Statistical Society, Series B*, 64(1):3–15, 2002.
- Geng, 1992 Z. Geng. Collapsibility of relative risk in contingency tables with a response variable. *Journal of the Royal Statistical Society*, 54(2):585–593, 1992.
- Gibbard and Harper, 1976 A. Gibbard and L. Harper. Counterfactuals and two kinds of expected utility. In W.L. Harper, R. Stalnaker, and G. Pearce (Eds.), *Ifs*, pages 153–169. D. Reidel, Dordrecht, 1976.
- Gillies, 2001 D. Gillies. Critical notice: Judea Pearl, *Causality: Models, Reasoning, and Inference*. *British Journal of Science*, 52:613–622, 2001.

- Ginsberg and Smith, 1987 M.L. Ginsberg and D.E. Smith. Reasoning about action I: A possible worlds approach. In Frank M. Brown, editor, *The Frame Problem in Artificial Intelligence*, pages 233–258. Morgan Kaufmann, Los Altos, CA, 1987.
- Ginsberg, 1986 M.L. Ginsberg. Counterfactuals. *Artificial Intelligence*, 30(35–79), 1986.
- Glymour and Cooper, 1999 C.N. Glymour and G.F. Cooper, editors. *Computation, Causation, and Discovery*. MIT Press, Cambridge, MA, 1999.
- Glymour and Greenland, 2008 M.M. Glymour and S. Greenland. Causal diagrams. In K.J. Rothman, S. Greenland, and T.L. Lash, editors, *Modern Epidemiology*. Lippincott Williams & Wilkins, Philadelphia, PA, 3rd edition, 2008.
- Glymour, 1998 C.N. Glymour. Psychological and normative theories of causal power and the probabilities of causes. In G.F. Cooper and S. Moral, editors, *Uncertainty in Artificial Intelligence*, pages 166–172. Morgan Kaufmann, San Francisco, CA, 1998.
- Glymour, 2001 C.N. Glymour. *The Mind's Arrows: Bayes Nets and Graphical Causal Models in Psychology*. The MIT Press, Cambridge, MA, 2001.
- Goldberger, 1972 A.S. Goldberger. Structural equation models in the social sciences. *Econometrica: Journal of the Econometric Society*, 40:979–1001, 1972.
- Goldberger, 1973 A.S. Goldberger. Structural equation models: An overview. In A.S. Goldberger and O.D. Duncan, editors, *Structural Equation Models in the Social Sciences*, pages 1–18. Seminar Press, New York, NY, 1973.
- Goldberger, 1991 A.S. Goldberger. *A Course of Econometrics*. Harvard University Press, Cambridge, MA, 1991.
- Goldberger, 1992 A.S. Goldberger. Models of substance; comment on N. Wermuth, 'On block-recursive linear regression equations'. *Brazilian Journal of Probability and Statistics*, 6:1–56, 1992.
- Goldszmidt and Pearl, 1992 M. Goldszmidt and J. Pearl. Rank-based systems: A simple approach to belief revision, belief update, and reasoning about evidence and actions. In B. Nebel, C. Rich, and W. Swartout, editors, *Proceedings of the Third International Conference on Knowledge Representation and Reasoning*, pages 661–672. Morgan Kaufmann, San Mateo, CA, 1992.
- Good and Mittal, 1987 I.J. Good and Y. Mittal. The amalgamation and geometry of two-by-two contingency tables. *The Annals of Statistics*, 15(2):694–711, 1987.
- Good, 1961 I.J. Good. A causal calculus, (I). *British Journal for the Philosophy of Science*, 11:305–318, 1961.
- Good, 1962 I.J. Good. A causal calculus (II). *British Journal for the Philosophy of Science*, 12:43–51; 13:88, 1962.
- Good, 1993 I.J. Good. A tentative measure of probabilistic causation relevant to the philosophy of the law. *Journal of Statistical Computation and Simulation*, 47:99–105, 1993.
- Gopnik et al., 2004 A. Gopnik, C.N. Glymour, D.M. Sobel, L.E. Schulz, T. Kushnir, and D. Danks. A theory of causal learning in children: Causal maps and Bayes nets. *Psychological Review*, 111(1):3–32, 2004.
- Granger, 1969 C.W.J. Granger. Investigating causal relations by econometric models and cross spectral methods. *Econometrica; Journal of the Econometric Society*, 37(3):424–438, July 1969.
- Granger, 1988 C.W.J. Granger. Causality testing in a decision science. In W. Harper and B. Skyrms, editors, *Causation in Decision, Belief Change and Statistics I*, pages 1–20. Kluwer Academic Publishers, Dordrecht/Boston/London, 1988.
- Grayson, 1987 D.A. Grayson. Confounding confounding. *American Journal of Epidemiology*, 126:546–553, 1987.
- Greene, 1997 W.H. Greene. *Econometric Analysis*. Prentice Hall, Upper Saddle River, NJ, 1997.
- Greenland and Brumback, 2002 S. Greenland and B. Brumback. An overview of relations among causal modelling methods. *International Journal of Epidemiology*, 31:1030–1037, 2002.
- Greenland and Neutra, 1980 S. Greenland and R. Neutra. Control of confounding in the assessment of medical technology. *International Journal of Epidemiology*, 9(4):361–367, 1980.
- Greenland and Robins, 1986 S. Greenland and J.M. Robins. Identifiability, exchangeability, and epidemiological confounding. *International Journal of Epidemiology*, 15(3):413–419, 1986.

- Greenland and Robins, 1988 S. Greenland and J.M. Robins. Conceptual problems in the definition and interpretation of attributable fractions. *American Journal of Epidemiology*, 128:1185–1197, 1988.
- Greenland et al., 1989 S. Greenland, H. Morgenstern, C. Poole, and J.M. Robins. Re: ‘Confounding confounding’. *American Journal of Epidemiology*, 129:1086–1089, 1989.
- Greenland et al., 1999a S. Greenland, J. Pearl, and J.M. Robins. Causal diagrams for epidemiologic research. *Epidemiology*, 10(1):37–48, 1999.
- Greenland et al., 1999b S. Greenland, J.M. Robins, and J. Pearl. Confounding and collapsibility in causal inference. *Statistical Science*, 14(1):29–46, February 1999.
- Greenland, 1998 S. Greenland. Confounding. In P. Armitage and T. Colton, editors, *Encyclopedia of Biostatistics*, page 905–6. J. Wiley, New York, 1998.
- Gursoy, 2002 K. Gursoy. Book reviews: Causality: Models, Reasoning, and Inference. *IIE Transactions*, 34:583, 2002.
- Guyon et al., 2008a I. Guyon, C. Aliferis, G.F. Cooper, A. Elisseeff, J.-P. Pellet, P. Spirtes, and A. Statnikov. Design and analysis of the causation and prediction challenge. *JMLR Workshop and Conference Proceedings*, volume 3: WCCI 2008 causality challenge, Hong Kong, June 3–4 2008.
- Guyon et al., 2008b I. Guyon, C. Aliferis, G.F. Cooper, A. Elisseeff, J.-P. Pellet, P. Spirtes, and A. Statnikov. Design and analysis of the causality pot-luck challenge. *JMLR Workshop and Conference Proceedings*, volume 5: NIPS 2008 causality workshop, Whistler, Canada, December 12 2008.
- Haavelmo, 1943 T. Haavelmo. The statistical implications of a system of simultaneous equations. *Econometrica*, 11:1–12, 1943. Reprinted in D.F. Hendry and M.S. Morgan (Eds.), *The Foundations of Econometric Analysis*, Cambridge University Press, 477–490, 1995.
- Haavelmo, 1944 T. Haavelmo. The probability approach in econometrics (1944)\*. Supplement to *Econometrica*, 12:12–17, 26–31, 33–39, 1944. Reprinted in D.F. Hendry and M.S. Morgan (Eds.), *The Foundations of Econometric Analysis*, Cambridge University Press, New York, 440–453, 1995.
- Hadlock, 2005 C.R. Hadlock. Book reviews: Causality: Models, Reasoning, and Inference. *Journal of the American Statistical Association*, 100:1095–1096, 2005.
- Hall, 2004 N. Hall. Two concepts of causation. In N. Hall, J. Collins, and L.A. Paul, editors, *Causation and Counterfactuals*, Chapter 9. MIT Press, Cambridge, MA, 2004.
- Hall, 2007 N. Hall. Structural equations and causation. *Philosophical Studies*, 132:109–136, 2007.
- Halpern and Pearl, 1999 J.Y. Halpern and J. Pearl. Actual causality. Technical Report R-266, University of California Los Angeles, Cognitive Systems Lab, Los Angeles, 1999.
- Halpern and Pearl, 2000 J.Y. Halpern and J. Pearl. Causes and explanations. Technical Report R-266, Cognitive Systems Laboratory, Department of Computer Science, University of California, Los Angeles, CA, March 2000. Online at [www.cs.ucla.edu/~judea/](http://www.cs.ucla.edu/~judea/).
- Halpern and Pearl, 2001a J.Y. Halpern and J. Pearl. Causes and explanations: A structural-model approach—Part I: Causes. In *Proceedings of the Seventeenth Conference on Uncertainty in Artificial Intelligence*, pages 194–202. Morgan Kaufmann, San Francisco, CA, 2001.
- Halpern and Pearl, 2001b J.Y. Halpern and J. Pearl. Causes and explanations: A structural-model approach—Part II: Explanations. In *Proceedings of the International Joint Conference on Artificial Intelligence*, pages 27–34. Morgan Kaufmann, CA, 2001.
- Halpern and Pearl, 2005a J.Y. Halpern and J. Pearl. Causes and explanations: A structural-model approach—Part I: Causes. *British Journal of Philosophy of Science*, 56:843–887, 2005.
- Halpern and Pearl, 2005b J.Y. Halpern and J. Pearl. Causes and explanations: A structural-model approach—Part II: Explanations. *British Journal of Philosophy of Science*, 56:843–887, 2005.
- Halpern, 1998 J.Y. Halpern. Axiomatizing causal reasoning. In G.F. Cooper and S. Moral, editors, *Uncertainty in Artificial Intelligence*, pages 202–210. Morgan Kaufmann, San Francisco, CA, 1998. Also, *Journal of Artificial Intelligence Research* 12:3, 17–37, 2000.
- Halpern, 2008 J.Y. Halpern. Defaults and normality in causal structures. In G. Brewka and J. Lang, editors, *Proceedings of the Eleventh International Conference on Principles of Knowledge Representation and Reasoning (KR 2008)*, page 198–208. Morgan Kaufmann, San Mateo, CA, 2008.
- Hauck et al., 1991 W.W. Hauck, J.M. Heuhaus, J.D. Kalbfleisch, and S. Anderson. A consequence of omitted covariates when estimating odds ratios. *Journal of Clinical Epidemiology*, 44(1):77–81, 1991.
- Hausman, 1998 D.M. Hausman. *Causal Asymmetries*. Cambridge University Press, New York, 1998.

- Hayduk, 1987 L.A. Hayduk. *Structural Equation Modeling with LISREL, Essentials and Advances*. Johns Hopkins University Press, Baltimore, 1987.
- Heckerman and Shachter, 1995 D. Heckerman and R. Shachter. Decision-theoretic foundations for causal reasoning. *Journal of Artificial Intelligence Research*, 3:405–430, 1995.
- Heckerman et al., 1994 D. Heckerman, D. Geiger, and D. Chickering. Learning Bayesian networks: The combination of knowledge and statistical data. In R. Lopez de Mantaras and D. Poole, editors, *Uncertainty in Artificial Intelligence 10*, pages 293–301. Morgan Kaufmann, San Mateo, CA, 1994.
- Heckerman et al., 1995 Guest Editors: David Heckerman, Abe Mamdani, and Michael P. Wellman. Real-world applications of Bayesian networks. *Communications of the ACM*, 38(3):24–68, March 1995.
- Heckerman et al., 1999 D. Heckerman, C. Meek, and G.F. Cooper. A Bayesian approach to causal discovery. In C. Glymour and G. Cooper, editors, *Computation, Causation, and Discovery*, The MIT Press, Cambridge, MA, 143–167, 1999.
- Heckman and Honoré, 1990 J.J. Heckman and B.E. Honoré. The empirical content of the Roy model. *Econometrica*, 58:1121–1149, 1990.
- Heckman and Robb, 1986 J.J. Heckman and R.R. Robb. Alternative methods for solving the problem of selection bias in evaluating the impact of treatments on outcomes. In H. Wainer, editor, *Drawing Inference From Self Selected Samples*, pages 63–107. Springer-Verlag, New York, NY, 1986.
- Heckman and Vytlačil, 1999 J.J. Heckman and E.J. Vytlačil. Local instrumental variables and latent variable models for identifying and bounding treatment effects. *Proceedings of the National Academy of Sciences, USA*, 96(8):4730–4734, April 1999.
- Heckman and Vytlačil, 2007 J.J. Heckman and E.J. Vytlačil. *Handbook of Econometrics*, volume 6B, Econometric Evaluation of Social Programs, Part I: Causal Models, Structural Models and Econometric Policy Evaluation, pages 4779–4874. Elsevier B.V., 2007.
- Heckman et al., 1998 J.J. Heckman, H. Ichimura, and P. Todd. Matching as an econometric evaluation estimator. *Review of Economic Studies*, 65:261–294, 1998.
- Heckman, 1992 J.J. Heckman. Randomization and social policy evaluation. In C. Manski and I. Garfinkle, editors, *Evaluations: Welfare and Training Programs*, pages 201–230. Harvard University Press, Cambridge, MA, 1992.
- Heckman, 1996 J.J. Heckman. Comment on ‘Identification of causal effects using instrumental variables’. *Journal of the American Statistical Association*, 91(434):459–462, June 1996.
- Heckman, 2000 J.J. Heckman. Causal parameters and policy analysis in economics: A twentieth century retrospective. *The Quarterly Journal of Economics*, 115(1):45–97, 2000.
- Heckman, 2003 J.J. Heckman. Conditioning causality and policy analysis. *Journal of Econometrics*, 112(1):73–78, 2003.
- Heckman, 2005 J.J. Heckman. The scientific model of causality. *Sociological Methodology*, 35:1–97, 2005.
- Heise, 1975 D.R. Heise. *Causal Analysis*. John Wiley and Sons, New York, 1975.
- Hendry and Morgan, 1995 D.F. Hendry and M.S. Morgan. *The Foundations of Econometric Analysis*. Cambridge University Press, Cambridge, 1995.
- Hendry, 1995 David F. Hendry. *Dynamic Econometrics*. Oxford University Press, New York, 1995.
- Hennekens and Buring, 1987 C.H. Hennekens and J.E. Buring. *Epidemiology in Medicine*. Little, Brown, Boston, 1987.
- Hernán et al., 2002 M.A. Hernán, S. Hernández-Díaz, M.M. Werler, and A.A. Mitchell. Causal knowledge as a prerequisite for confounding evaluation: An application to birth defects epidemiology. *American Journal of Epidemiology*, 155(2):176–184, 2002.
- Hernán et al., 2004 M.A. Hernán, S. Hernández-Díaz, and J.M. Robins. A structural approach to selection bias. *Epidemiology*, 15(5):615–625, 2004.
- Hernández-Díaz et al., 2006 S. Hernández-Díaz, E.F. Schisterman, and Hernán M.A. The birth weight “paradox” uncovered? *American Journal of Epidemiology*, 164(11):1115–1120, 2006.
- Hesslow, 1976 G. Hesslow. Discussion: Two notes on the probabilistic approach to causality. *Philosophy of Science*, 43:290–292, 1976.
- Hiddleston, 2005 E. Hiddleston. Causal powers. *British Journal for Philosophy of Science*, 56:27–59, 2005.

- Hitchcock, 1995 C. Hitchcock. The mishap of Reichenbach's fall: Singular vs. general causation. *Philosophical Studies*, 78:257–291, 1995.
- Hitchcock, 1996 C.R. Hitchcock. Causal decision theory and decision theoretic causation. *Nous*, 30(4):508–526, 1996.
- Hitchcock, 1997 C. Hitchcock. Causation, probabilistic, 1997. In *Stanford Encyclopedia of Philosophy*, online at: <http://plato.stanford.edu/entries/causation-probabilistic>.
- Hitchcock, 2001 C. Hitchcock. Book reviews: Causality: Models, Reasoning, and Inference. *The Philosophical Review*, 110(4):639–641, 2001.
- Hitchcock, 2007 C.R. Hitchcock. Prevention, preemption, and the principle of sufficient reason. *Philosophical Review*, 116:495–532, 2007.
- Hitchcock, 2008 C.R. Hitchcock. Structural equations and causation: Six counterexamples. *Philosophical Studies*, page DOI 10.1007/s 11098–008–9216–2, 2008.
- Hoel et al., 1971 P.G. Hoel, S.C. Port, and C.J. Stone. *Introduction to Probability Theory*. Houghton Mifflin Company, Boston, 1971.
- Holland and Rubin, 1983 P.W. Holland and D.B. Rubin. On Lord's paradox. In H. Wainer and S. Messick, editors, *Principals of Modern Psychological Measurement*, pages 3–25. Lawrence Erlbaum, Hillsdale, NJ, 1983.
- Holland, 1986 P.W. Holland. Statistics and causal inference. *Journal of the American Statistical Association*, 81(396):945–960, December 1986.
- Holland, 1988 P.W. Holland. Causal inference, path analysis, and recursive structural equations models. In C. Clogg, editor, *Sociological Methodology*, pages 449–484. American Sociological Association, Washington, D.C., 1988.
- Holland, 1995 P.W. Holland. Some reflections on Freedman's critiques. *Foundations of Science*, 1:50–57, 1995.
- Holland, 2001 P.W. Holland. The false linking of race and causality: Lessons from standardized testing. *Race and Society*, 4(2): 219–233, 2001.
- Hoover, 1990 K.D. Hoover. The logic of causal inference. *Economics and Philosophy*, 6:207–234, 1990.
- Hoover, 2001 K. Hoover. *Causality in Macroeconomics*. Cambridge University Press, New York, 2001.
- Hoover, 2003 K.D. Hoover. Book reviews: Causality: Models, Reasoning, and Inference. *Economic Journal*, 113:F411–F413, 2003.
- Hoover, 2004 K.D. Hoover. Lost causes. *Journal of the History of Economic Thought*, 26(2):149–164, June 2004.
- Hoover, 2008 K.D. Hoover. Causality in economics and econometrics. In S.N. Durlauf and L.E. Blume, editors, *From The New Palgrave Dictionary of Economics*. Palgrave Macmillan, New York, NY, 2nd edition, 2008.
- Hopkins and Pearl, 2002 M. Hopkins and J Pearl. Strategies for determining causes of events. In *Proceedings of the Eighteenth National Conference on Artificial Intelligence*, pages 546–552. AAAI Press/The MIT Press, Menlo Park, CA, 2002.
- Howard and Matheson, 1981 R.A. Howard and J.E. Matheson. Influence diagrams. *Principles and Applications of Decision Analysis*, 1981. Strategic Decisions Group, Menlo Park, CA. Reprinted in *Decision Analysis* 2(3): 129–143, 2005.
- Howard, 1960 R.A. Howard. *Dynamic Programming and Markov Processes*. MIT Press, Cambridge, MA, 1960.
- Howard, 1990 R.A. Howard. From influence to relevance to knowledge. In R.M. Oliver and J.Q. Smith, editors, *Influence Diagrams, Belief Nets, and Decision Analysis*, pages 3–23. Wiley and Sons, Ltd., New York, NY, 1990.
- Hoyer et al., 2006 P. Hoyer, S. Shimizu, and A.J. Kerminen. Estimation of linear, non-Gaussian causal models in presence of confounding latent variables. In *Proceedings of the Third European Workshop on Probabilistic Graphical Models (PGM'06)*, pages 155–162. Institute of Information Theory and Automation, Prague, Czech Republic, 2006.
- Huang and Valtorta, 2006 Y. Huang and M. Valtorta. Pearl's calculus of intervention is complete. In R. Dechter and T.S. Richardson, editors, *Proceedings of the Twenty-Second Conference on Uncertainty in Artificial Intelligence*, pages 217–224. AUAI Press, Corvallis, OR, 2006.

- Hume, 1739 D. Hume. *A Treatise of Human Nature*. Oxford University Press, Oxford, 1739. Reprinted 1888.
- Hume, 1748 D. Hume. *An enquiry concerning human understanding*. Reprinted Open Court Press (1958), LaSalle, IL, 1748.
- Humphreys and Freedman, 1996 P. Humphreys and D. Freedman. The grand leap. *British Journal for the Philosophy of Science*, 47:113–123, 1996.
- Hurwicz, 1962 L. Hurwicz. On the structural form of interdependent systems. In E. Nagel, P. Suppes, and A. Tarski, editors, *Logic, Methodology, and Philosophy of Science*, pages 232–239. Stanford University Press, Stanford CA, 1962.
- Imai et al., 2008 K. Imai, L. Keele, and T. Yamamoto. Identification, inference, and sensitivity analysis for causal mediation effects. Technical report, Department of Politics, Princeton University, December 2008.
- Imbens and Angrist, 1994 G.W. Imbens and J.D. Angrist. Identification and estimation of local average treatment effects. *Econometrica*, 62(2):467–475, March 1994.
- Imbens and Rubin, 1997 G.W. Imbens and D.R. Rubin. Bayesian inference for causal effects in randomized experiments with noncompliance. *Annals of Statistics*, 25:305–327, 1997.
- Imbens, 1997 G.W. Imbens. Book reviews. *Journal of Applied Econometrics*, 12(1): 91–94, 1997.
- Imbens, 2004 G.W. Imbens. Nonparametric estimation of average treatment effects under exogeneity: A review. *The Review of Economics and Statistics*, 86(1):4–29, 2004.
- Intriligator et al., 1996 M.D. Intriligator, R.G. Bodkin, and C. Hsiao. *Econometric Models, Techniques, and Applications*. Prentice-Hall, Saddle River, NJ, 2nd edition, 1996.
- Isham, 1981 V. Isham. An introduction to spatial point processes and Markov random fields. *International Statistical Review*, 49:21–43, 1981.
- Iwasaki and Simon, 1986 Y. Iwasaki and H.A. Simon. Causality in device behavior. *Artificial Intelligence*, 29(1):3–32, 1986.
- James et al., 1982 L.R. James, S.A. Mulaik, and J.M. Brett. *Causal Analysis: Assumptions, Models, and Data*. Studying Organizations, 1. Sage, Beverly Hills, 1982.
- Jeffrey, 1965 R. Jeffrey. *The Logic of Decisions*. McGraw-Hill, New York, 1965.
- Jensen, 1996 F.V. Jensen. *An Introduction to Bayesian Networks*. Springer, New York, 1996.
- Jordan, 1998 M.I. Jordan. *Learning in Graphical Models*. Kluwer Academic Publishers, Dordrecht, series D: Behavioural and Social Sciences – vol. 89 edition, 1998.
- Katsuno and Mendelzon, 1991 H. Katsuno and A.O. Mendelzon. On the difference between updating a knowledge base and revising it. In J.A. Allen, R. Fikes, and E. Sandewall, editors, *Principles of Knowledge Representation and Reasoning: Proceedings of the Second International Conference*, pages 387–394, Morgan Kaufmann, San Mateo, CA, 1991.
- Kaufman et al., 2005 S. Kaufman, J.S. Kaufman, R.F. MacLenose, S. Greenland, and C. Poole. Improved estimation of controlled direct effects in the presence of unmeasured confounding of intermediate variables. *Statistics in Medicine*, 25:1683–1702, 2005.
- Kennedy, 2003 P. Kennedy. *A Guide to Econometrics*. MIT Press, Cambridge, MA, 5th edition, 2003.
- Khouri et al., 1989 M.J. Khouri, W.D Flanders, S. Greenland, and M.J. Adams. On the measurement of susceptibility in epidemiologic studies. *American Journal of Epidemiology*, 129(1):183–190, 1989.
- Kiiveri et al., 1984 H. Kiiveri, T.P. Speed, and J.B. Carlin. Recursive causal models. *Journal of Australian Math Society*, 36:30–52, 1984.
- Kim and Pearl, 1983 J.H. Kim and J. Pearl. A computational model for combined causal and diagnostic reasoning in inference systems. In *Proceedings of the Eighth International Joint Conference on Artificial Intelligence (IJCAI-83)*, pages 190–193. Karlsruhe, Germany, 1983.
- Kim, 1971 J. Kim. Causes and events: Mackie on causation. *Journal of Philosophy*, 68:426–471, 1971. Reprinted in E. Sosa and M. Tooley (Eds.), *Causation*, Oxford University Press, 1993.
- King et al., 1994 G. King, R.O. Keohane, and S. Verba. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton University Press, Princeton, NJ, 1994.
- Kleinbaum et al., 1982 D.G. Kleinbaum, L.L. Kupper, and H. Morgenstern. *Epidemiologic Research*. Lifetime Learning Publications, Belmont, California, 1982.

- Kline, 1998 R.B. Kline. *Principles and Practice of Structural Equation Modeling*. The Guilford Press, New York, 1998.
- Koopmans et al., 1950 T.C. Koopmans, H. Rubin, and R.B. Leipnik. Measuring the equation systems of dynamic economics. In T.C. Koopmans, editor, *Statistical Inference in Dynamic Economic Models*, pages 53–237. John Wiley, New York, 1950.
- Koopmans, 1950 T.C. Koopmans. When is an equation system complete for statistical purposes? In T.C. Koopmans, editor, *Statistical Inference in Dynamic Economic Models*, Cowles Commission, Monograph 10. Wiley, New York, 1950. Reprinted in D.F. Hendry and M.S. Morgan (Eds.), *The Foundations of Econometric Analysis*, pages 527–537. Cambridge University Press, 1995.
- Koopmans, 1953 T.C. Koopmans. Identification problems in econometric model construction. In W.C. Hood and T.C. Koopmans, editors, *Studies in Econometric Method*, pages 27–48. Wiley, New York, 1953.
- Korb and Wallace, 1997 K.B. Korb and C.S. Wallace. In search of the philosopher's stone: Remarks on Humphreys and Freedman's critique of causal discovery. *British Journal for the Philosophy of Science*, 48:543–553, 1997.
- Koster, 1999 J.T.A. Koster. On the validity of the Markov interpretation of path diagrams of Gaussian structural equations systems with correlated errors. *Scandinavian Journal of Statistics*, 26:413–431, 1999.
- Kramer and Shapiro, 1984 M.S. Kramer and S. Shapiro. Scientific challenges in the application of randomized trials. *Journal of the American Medical Association*, 252:2739–2745, November 1984.
- Kraus et al., 1990 S. Kraus, D. Lehmann, and M. Magidor. Nonmonotonic reasoning, preferential models and cumulative logics. *Artificial Intelligence*, 44:167–207, 1990.
- Kuroki and Cai, 2004 M. Kuroki and Z. Cai. Selection of identifiability criteria for total effects by using path diagrams. In M. Chickering and J. Halpern, editors, *Uncertainty in Artificial Intelligence, Proceedings of the Twentieth Conference*, pages 333–340. AUAI, Arlington, VA, 2004.
- Kuroki and Miyakawa, 1999a M. Kuroki and M. Miyakawa. Estimation of causal effects in causal diagrams and its application to process analysis (in Japanese). *Journal of the Japanese Society for Quality Control*, 29:237–247, 1999.
- Kuroki and Miyakawa, 1999b M. Kuroki and M. Miyakawa. Identifiability criteria for causal effects of joint interventions. *Journal of the Japan Statistical Society*, 29:105–117, 1999.
- Kuroki and Miyakawa, 2003 M. Kuroki and M. Miyakawa. Covariate selection for estimating the causal effect of control plans using causal diagrams. *Journal of the Royal Statistical Society, Series B*, 65:209–222, 2003.
- Kuroki et al., 2003 M. Kuroki, M. Miyakawa, and Z. Cai. Joint causal effect in linear structural equation model and its application to process analysis. *Artificial Intelligence and Statistics*, 9:70–77, 2003.
- Kvart, 1986 I. Kvart. *A Theory of Counterfactuals*. Hackett Publishing, Co., Indianapolis, 1986.
- Kyburg Jr., 2005 H.E. Kyburg Jr. Book review: Judea Pearl, *Causality*, Cambridge University Press, 2000. *Artificial Intelligence*, 169:174–179, 2005.
- Laplace, 1814 P.S. Laplace. *Essai Philosophique sur les Probabilités*. Courcier, New York, 1814. English translation by F.W. Truscott and E.L. Emory, Wiley, NY, 1902.
- Lauritzen and Richardson, 2002 S.L. Lauritzen and T.S. Richardson. Chain graph models and their causal interpretations. *Royal Statistical Society*, 64(Part 2): 1–28, 2002.
- Lauritzen and Spiegelhalter, 1988 S.L. Lauritzen and D.J. Spiegelhalter. Local computations with probabilities on graphical structures and their application to expert systems (with discussion). *Journal of the Royal Statistical Society, Series B*, 50(2): 157–224, 1988.
- Lauritzen et al., 1990 S.L. Lauritzen, A.P. Dawid, B.N. Larsen, and H.G. Leimer. Independence properties of directed Markov fields. *Networks*, 20:491–505, 1990.
- Lauritzen, 1982 S.L. Lauritzen. *Lectures on Contingency Tables*. University of Aalborg Press, Aalborg, Denmark, 2nd edition, 1982.
- Lauritzen, 1996 S.L. Lauritzen. *Graphical Models*. Clarendon Press, Oxford, 1996.
- Lauritzen, 2001 S.L. Lauritzen. Causal inference from graphical models. In D.R. Cox and C. Kluppelberg, editors, *Complex Stochastic Systems*, pages 63–107. Chapman and Hall/CRC Press, Boca Raton, FL, 2001.

- Lauritzen, 2004 S.L. Lauritzen. Discussion on causality. *Scandinavian Journal of Statistics*, 31: 189–192, 2004.
- Lawry, 2001 J. Lawry. Review: Judea Pearl, Causality: Models, Reasoning, and Inference. *MathSciNet, Mathematical Reviews on the Web*, MR1744773((2001d:68213)):http://www.ams.org/mathscinet-getitem?mr=1744773, 2001.
- Leamer, 1985 E.E. Leamer. Vector autoregressions for causal inference? *Carnegie-Rochester Conference Series on Public Policy*, 22:255–304, 1985.
- Lee and Hershberger, 1990 S. Lee and S.A. Hershberger. A simple rule for generating equivalent models in covariance structure modeling. *Multivariate Behavioral Research*, 25(3):313–334, 1990.
- Lemmer, 1993 J.F. Lemmer. Causal modeling. In D. Heckerman and A. Mamdani, editors, *Proceedings of the Ninth Conference on Uncertainty in Artificial Intelligence*, pages 143–151. Morgan Kaufmann, San Mateo, CA, 1993.
- Leroy, 1995 S.F. Leroy. Causal orderings. In K.D. Hoover, editor, *Macroeconometrics: Developments, Tensions, Prospects*, pages 211–227. Kluwer Academic, Boston, 1995.
- Leroy, 2002 S.F. Leroy. A review of Judea Pearl’s Causality. *Journal of Economic Methodology*, 9(1): 100–103, 2002.
- Levi, 1988 I. Levi. Iteration of conditionals and the Ramsey test. *Synthese*, 76:49–81, 1988.
- Lewis, 1973a D. Lewis. Causation. *Journal of Philosophy*, 70:556–567, 1973.
- Lewis, 1973b D. Lewis. *Counterfactuals*. Harvard University Press, Cambridge, MA, 1973.
- Lewis, 1973c D. Lewis. Counterfactuals and comparative possibility, 1973. In W.L. Harper, R. Stalnaker, and G. Pearce (Eds.), *Ifs*, pages 57–85, D. Reidel, Dordrecht, 1981.
- Lewis, 1976 D. Lewis. Probabilities of conditionals and conditional probabilities. *Philosophical Review*, 85:297–315, 1976.
- Lewis, 1979 D. Lewis. Counterfactual dependence and time’s arrow. *Nous*, 13:418–446, 1979.
- Lewis, 1986 D. Lewis. *Philosophical Papers*, volume II. Oxford University Press, New York, 1986.
- Lin, 1995 F. Lin. Embracing causality in specifying the indeterminate effects of actions. In *Proceedings of the Fourteenth International Joint Conference on Artificial Intelligence (IJCAI-95)*, Montreal, Quebec, 1995.
- Lindley and Novick, 1981 D.V. Lindley and M.R. Novick. The role of exchangeability in inference. *The Annals of Statistics*, 9(1):45–58, 1981.
- Lindley, 2002 D.V. Lindley. Seeing and doing: The concept of causation. *International Statistical Review*, 70:191–214, 2002.
- Lucas Jr., 1976 R.E. Lucas Jr. Econometric policy evaluation: A critique. In K. Brunner and A.H. Meltzer, editors, *The Phillips Curve and Labor Markets*, Vol. 1 of the Carnegie-Rochester Conferences on Public Policy, supplementary series to the *Journal of Monetary Economics*, pages 19–46. North-Holland, Amsterdam, 1976.
- Luellen et al., 2005 J.K. Luellen, W.R. Shadish, and M.H. Clark. Propensity scores: An introduction and experimental test. *Evaluation Review*, 29(6):530–558, 2005.
- MacCallum et al., 1993 R.C. MacCallum, D.T. Wegener, B.N. Uchino, and L.R. Fabrigar. The problem of equivalent models in applications of covariance structure analysis. *Psychological Bulletin*, 114(1): 185–199, 1993.
- Mackie, 1965 J.L. Mackie. Causes and conditions. *American Philosophical Quarterly*, 2/4:261–264, 1965. Reprinted in E. Sosa and M. Tooley (Eds.), *Causation*, Oxford University Press, New York, 1993.
- Mackie, 1980 J.L. Mackie. *The Cement of the Universe: A Study of Causation*. Clarendon Press, Oxford, 1980.
- Maddala, 1992 G.S. Maddala. *Introduction to Econometrics*. McMillan, New York, NY, 1992.
- Manski, 1990 C.F. Manski. Nonparametric bounds on treatment effects. *American Economic Review, Papers and Proceedings*, 80:319–323, 1990.
- Manski, 1995 C.F. Manski. *Identification Problems in the Social Sciences*. Harvard University Press, Cambridge, MA, 1995.

- Marschak, 1950 J. Marschak. Statistical inference in economics. In T. Koopmans, editor, *Statistical Inference in Dynamic Economic Models*, pages 1–50. Wiley, New York, 1950. Cowles Commission for Research in Economics, Monograph 10.
- Maudlin, 1994 T. Maudlin. *Quantum Non-Locality and Relativity: Metaphysical Intimations of Modern Physics*. Blackwell, Oxford, UK, 1994.
- McDonald, 1997 R.P. McDonald. Haldane's lungs: A case study in path analysis. *Multivariate Behavioral Research*, 32(1): 1–38, 1997.
- McDonald, 2001 R.P. McDonald. Book reviews: Causality: Models, Reasoning, and Inference. *Chance*, 14(1):36–37, 2001.
- McDonald, 2002a R.P. McDonald. What can we learn from the path equations?: Identifiability, constraints, equivalence. *Psychometrika*, 67(2):225–249, 2002.
- McDonald, 2002b R.P. McDonald. Review: Judea Pearl, Causality: Models, Reasoning, and Inference. *Psychometrika*, 67(2):321–322, 2002.
- McKim and Turner, 1997 V.R. McKim and S.P. Turner (Eds.). *Causality in Crisis?* University of Notre Dame Press, Notre Dame, IN, 1997.
- Meek and Glymour, 1994 C. Meek and C.N. Glymour. Conditioning and intervening. *British Journal of Philosophy Science*, 45:1001–1021, 1994.
- Meek, 1995 C. Meek. Causal inference and causal explanation with background knowledge. In P. Besnard and S. Hanks, editors, *Uncertainty in Artificial Intelligence 11*, pages 403–410. Morgan Kaufmann, San Francisco, 1995.
- Mesarovic, 1969 M.D. Mesarovic. Mathematical theory of general systems and some economic problems. In H.W. Kuhn and G.P. Szego, editors, *Mathematical Systems and Economics I*, pages 93–116. Springer Verlag, Berlin, 1969.
- Michie, 1999 D. Michie. Adapting Good's  $q$  theory to the causation of individual events. *Machine Intelligence*, 15:60–86, 1999.
- Miettinen and Cook, 1981 O.S. Miettinen and E.F. Cook. Confounding essence and detection. *American Journal of Epidemiology*, 114:593–603, 1981.
- Mill, 1843 J.S. Mill. *System of Logic*, volume 1. John W. Parker, London, 1843.
- Mitchell, 1982 T.M. Mitchell. Generalization as search. *Artificial Intelligence*, 18:203–226, 1982.
- Mittelhammer et al., 2000 R.C. Mittelhammer, G.G. Judge, and D.J. Miller. *Econometric Foundations*. Cambridge University Press, New York, NY, 2000.
- Moneta and Spirtes, 2006 A. Moneta and P. Spirtes. Graphical models for identification of causal structures in multivariate time series models. In *Proceedings of the Ninth Joint Conference on Information Sciences*, Atlantis Press, Kaohsiung, Taiwan, 2006.
- Moole, 1997 B.R. Moole. Parallel construction of Bayesian belief networks. Master's thesis, Department of Computer Science, University of South Carolina, Columbia, SC, 1997.
- Moore and McCabe, 2005 D.S. Moore and G.P. McCabe. *Introduction to the Practice of Statistics*. W.H. Freeman and Co., Gordonsville, VA, 2005.
- Morgan and Winship, 2007 S.L. Morgan and C. Winship. *Counterfactuals and Causal Inference: Methods and Principles for Social Research (Analytical Methods for Social Research)*. Cambridge University Press, New York, NY, 2007.
- Morgan, 2004 S.L. Morgan. Book reviews: Causality: Models, Reasoning, and Inference. *Sociological Methods and Research*, 32(3):411–416, 2004.
- Mueller, 1996 R.O. Mueller. *Basic Principles of Structural Equation Modeling*. Springer, New York, 1996.
- Muthen, 1987 B. Muthen. Response to Freedman's critique of path analysis: Improve credibility by better methodological training. *Journal of Educational Statistics*, 12(2): 178–184, 1987.
- Nayak, 1994 P. Nayak. Causal approximations. *Artificial Intelligence*, 70:277–334, 1994.
- Neuberg, 2003 L.G. Neuberg. Causality: Models, Reasoning, and Inference, reviewed by L.G. Neuberg. *Econometric Theory*, 19:675–685, 2003.
- Neyman, 1923 J. Neyman. Sur les applications de la thar des probabilités aux expériences Agaricales: Essay des principe, 1923. English translation of excerpts (1990) by D. Dabrowska and T. Speed, in *Statistical Science*, 5:463–472.

- Niles, 1922 H.E. Niles. Correlation, causation, and Wright's theory of "path coefficients." *Genetics*, 7:258–273, 1922.
- Novick, 1983 M.R. Novick. The centrality of Lord's paradox and exchangeability for all statistical inference. In H. Wainer and S. Messick, editors, *Principals of Modern Psychological Measurement*. Earlbaum, Hillsdale, NJ, 1983.
- Nozick, 1969 R. Nozick. Newcomb's problem and two principles of choice. In N. Rescher, editor, *Essays in Honor of Carl G. Hempel*, pages 114–146. D. Reidel, Dordrecht, 1969.
- Orcutt, 1952 G.H. Orcutt. Toward a partial redirection of econometrics. *Review of Economics and Statistics*, 34:195–213, 1952.
- O'Rourke, 2001 J. O'Rourke. Book reviews: Causality: Models, Reasoning, and Inference. *Intelligence*, 12(3):47–54, 2001.
- Ortiz, Jr., 1999 C.L. Ortiz, Jr. Explanatory update theory: Applications of counterfactual reasoning to causation. *Artificial Intelligence*, 108(1–2): 125–178, 1999.
- Otte, 1981 R. Otte. A critique of Suppes' theory of probabilistic causality. *Synthese*, 48:167–189, 1981.
- Palca, 1989 J. Palca. Aids drug trials enter new age. *Science Magazine*, pages 19–21, October 1989.
- Paul, 1998 L.A. Paul. Keeping track of the time: Emending the counterfactual analysis of causation. *Analysis*, 3:191–198, 1998.
- Payson, 2001 S. Payson. Book review: Causality: Models, Reasoning, and Inference. *Technological Forecasting & Social Change*, 68:105–108, 2001.
- Paz and Pearl, 1994 A. Paz and J. Pearl. Axiomatic characterization of directed graphs. Technical Report R-234, Department of Computer Science, University of California, Los Angeles, CA, 1994.
- Paz et al., 1996 A. Paz, J. Pearl, and S. Ur. A new characterization of graphs based on interception relations. *Journal of Graph Theory*, 22(2): 125–136, 1996.
- Pearl and Meshkat, 1999 J. Pearl and P. Meshkat. Testing regression models with fewer regressors. In D. Heckerman and J. Whittaker, editors, *Artificial Intelligence and Statistics 99*, pages 255–259. Morgan Kaufmann, San Francisco, CA, 1999.
- Pearl and Paz, 1987 J. Pearl and A. Paz. Graphoids: A graph-based logic for reasoning about relevance relations. In B. Duboulay, D. Hogg, and L. Steels, editors, *Advances in Artificial Intelligence-II*, pages 357–363. North-Holland Publishing Co., Amsterdam, 1987.
- Pearl and Paz, 2008 J. Pearl and A. Paz. Confounding equivalence in observational studies. Technical Report TR-343, University of California Los Angeles, Cognitive Systems Lab, Los Angeles, September 2008.
- Pearl and Robins, 1995 J. Pearl and J.M. Robins. Probabilistic evaluation of sequential plans from causal models with hidden variables. In P. Besnard and S. Hanks, editors, *Uncertainty in Artificial Intelligence II*, pages 444–453. Morgan Kaufmann, San Francisco, 1995.
- Pearl and Verma, 1987 J. Pearl and T. Verma. The logic of representing dependencies by directed acyclic graphs. In *Proceedings of the Sixth National Conference on AI (AAAI-87)*, pages 374–379, Seattle, WA, July 1987.
- Pearl and Verma, 1991 J. Pearl and T. Verma. A theory of inferred causation. In J.A. Allen, R. Fikes, and E. Sandewall, editors, *Principles of Knowledge Representation and Reasoning: Proceedings of the Second International Conference*, pages 441–452. Morgan Kaufmann, San Mateo, CA, 1991.
- Pearl, 1978 J. Pearl. On the connection between the complexity and credibility of inferred models. *International Journal of General Systems*, 4:255–264, 1978.
- Pearl, 1982 J. Pearl. Reverend Bayes on inference engines: A distributed hierarchical approach. In *Proceedings AAAI National Conference on AI*, pages 133–136, Pittsburgh, PA, 1982.
- Pearl, 1985 J. Pearl. Bayesian networks: A model of self-activated memory for evidential reasoning. In *Proceedings, Cognitive Science Society*, pages 329–334, Irvine, CA, 1985.
- Pearl, 1988a J. Pearl. Embracing causality in formal reasoning. *Artificial Intelligence*, 35(2):259–271, 1988.
- Pearl, 1988b J. Pearl. *Probabilistic Reasoning in Intelligent Systems*. Morgan Kaufmann, San Mateo, CA, 1988.
- Pearl, 1990a J. Pearl. Probabilistic and qualitative abduction. In *Proceedings of AAAI Spring Symposium on Abduction*, pages 155–158, Stanford, CA, 1990.

- Pearl, 1990b J. Pearl. System Z: A natural ordering of defaults with tractable applications to default reasoning. In R. Parikh, editor, *Proceedings of the Conference on Theoretical Aspects of Reasoning About Knowledge*, pages 121–135, San Mateo, CA, 1990. Morgan Kaufmann Publishers.
- Pearl, 1993a J. Pearl. Belief networks revisited. *Artificial Intelligence*, 59:49–56, 1993.
- Pearl, 1993b J. Pearl. Comment: Graphical models, causality, and intervention. *Statistical Science*, 8(3):266–269, 1993.
- Pearl, 1993c J. Pearl. From conditional oughts to qualitative decision theory. In D. Heckerman and A. Mamdani, editors, *Proceedings of the Ninth Conference on Uncertainty in Artificial Intelligence*, pages 12–20, San Mateo, CA, July 1993. Morgan Kaufmann Publishers.
- Pearl, 1994a J. Pearl. From Bayesian networks to causal networks. In A. Gammerman, editor, *Bayesian Networks and Probabilistic Reasoning*, pages 1–31. Alfred Walter Ltd., London, 1994.
- Pearl, 1994b J. Pearl. A probabilistic calculus of actions. In R. Lopez de Mantaras and D. Poole, editors, *Uncertainty in Artificial Intelligence 10*, pages 454–462. Morgan Kaufmann, San Mateo, CA, 1994.
- Pearl, 1995a J. Pearl. Causal diagrams for empirical research. *Biometrika*, 82(4):669–710, December 1995.
- Pearl, 1995b J. Pearl. Causal inference from indirect experiments. *Artificial Intelligence in Medicine*, 7(6):561–582, 1995.
- Pearl, 1995c J. Pearl. On the testability of causal models with latent and instrumental variables. In P. Besnard and S. Hanks, editors, *Uncertainty in Artificial Intelligence 11*, pages 435–443. Morgan Kaufmann, San Francisco, 1995.
- Pearl, 1996 J. Pearl. Structural and probabilistic causality. In D.R. Shanks, K.J. Holyoak, and D.L. Medin, editors, *The Psychology of Learning and Motivation*, volume 34, pages 393–435. Academic Press, San Diego, CA, 1996.
- Pearl, 1998a J. Pearl. Graphs, causality, and structural equation models. *Sociological Methods and Research*, 27(2):226–284, 1998.
- Pearl, 1998b J. Pearl. On the definition of actual cause. Technical Report R-259, Department of Computer Science, University of California, Los Angeles, CA, 1998.
- Pearl, 1999 J. Pearl. Probabilities of causation: Three counterfactual interpretations and their identification. *Synthese*, 121(1–2):93–149, November 1999.
- Pearl, 2000 J. Pearl. Comment on A.P. Dawid’s Causal inference without counterfactuals. *Journal of the American Statistical Association*, 95(450):428–431, June 2000.
- Pearl, 2001a J. Pearl. Bayesianism and causality, or, why I am only a half-Bayesian. In D. Corfield and J. Williamson, editors, *Foundations of Bayesianism*, Applied Logic Series, Volume 24, pages 19–36. Kluwer Academic Publishers, the Netherlands, 2001.
- Pearl, 2001b J. Pearl. Causal inference in the health sciences: A conceptual introduction. *Health Services and Outcomes Research Methodology*, 2:189–220, 2001. Special issue on Causal Inference.
- Pearl, 2001c J. Pearl. Direct and indirect effects. In *Proceedings of the Seventeenth Conference on Uncertainty in Artificial Intelligence*, pages 411–420. Morgan Kaufmann, San Francisco, CA, 2001.
- Pearl, 2003a J. Pearl. Comments on Neuberger’s review of Causality. *Econometric Theory*, 19:686–689, 2003.
- Pearl, 2003b J. Pearl. Reply to Woodward. *Economics and Philosophy*, 19:341–344, 2003.
- Pearl, 2003c J. Pearl. Statistics and causal inference: A review. *Test Journal*, 12(2):281–345, December 2003.
- Pearl, 2004 J. Pearl. Robustness of causal claims. In M. Chickering and J. Halpern, editors, *Proceedings of the Twentieth Conference Uncertainty in Artificial Intelligence*, pages 446–453. AUAI Press, Arlington, VA, 2004.
- Pearl, 2005a J. Pearl. Direct and indirect effects. In *Proceedings of the American Statistical Association, Joint Statistical Meetings*, pages 1572–1581. MIRA Digital Publishing, Minneapolis, MN, 2005.

- Pearl, 2005b J. Pearl. Influence diagrams – historical and personal perspectives. *Decision Analysis*, 2(4):232–234, 2005.
- Pearl, 2008 J. Pearl. The mathematics of causal relations. Technical Report TR-338, [http://ftp.cs.ucla.edu/pub/stat\\_ser/r338.pdf](http://ftp.cs.ucla.edu/pub/stat_ser/r338.pdf), Department of Computer Science, University of California, Los Angeles, CA, 2008. Presented at the American Psychopathological Association (APPA) Annual Meeting, NYC, March 6–8, 2008.
- Pearl, 2009 J. Pearl. Remarks on the method of propensity scores. *Statistics in Medicine*, 28:1415–1416, 2009. See also <[http://ftp.cs.ucla.edu/pub/stat\\_ser/r345-sim.pdf](http://ftp.cs.ucla.edu/pub/stat_ser/r345-sim.pdf)>.
- Pearson et al., 1899 K. Pearson, A. Lee, and L. Bramley-Moore. Genetic (reproductive) selection: Inheritance of fertility in man. *Philosophical Transactions of the Royal Society A*, 73:534–539, 1899.
- Peikes et al., 2008 D.N. Peikes, L. Moreno, and S.M. Orzol. Propensity scores matching: A note of caution for evaluators of social programs. *The American Statistician*, 62(3):222–231, 2008.
- Peng and Reggia, 1986 Y. Peng and J.A. Reggia. Plausibility of diagnostic hypotheses. In *Proceedings of the Fifth National Conference on AI (AAAI-86)*, pages 140–145, Philadelphia, 1986.
- Petersen et al., 2006 M.L. Petersen, S.E. Sinisi, and M.J. van der Laan. Estimation of direct causal effects. *Epidemiology*, 17(3):276–284, 2006.
- Poole, 1985 D. Poole. On the comparison of theories: Preferring the most specific explanations. In *Proceedings of the Ninth International Conference on Artificial Intelligence (IJCAI-85)*, pages 144–147, Los Angeles, CA, 1985.
- Popper, 1959 K.R. Popper. *The Logic of Scientific Discovery*. Basic Books, New York, 1959.
- Pratt and Schlaifer, 1988 J.W. Pratt and R. Schlaifer. On the interpretation and observation of laws. *Journal of Econometrics*, 39:23–52, 1988.
- Price, 1991 H. Price. Agency and probabilistic causality. *British Journal for the Philosophy of Science*, 42:157–176, 1991.
- Price, 1996 H. Price. *Time's arrow and Archimedes' point: New directions for the physics of time*. Oxford University Press, New York, 1996.
- Program, 1984 Lipid Research Clinic Program. The Lipid Research Clinics Coronary Primary Prevention Trial results, parts I and II. *Journal of the American Medical Association*, 251(3):351–374, January 1984.
- Rebane and Pearl, 1987 G. Rebane and J. Pearl. The recovery of causal poly-trees from statistical data. In *Proceedings of the Third Workshop on Uncertainty in AI*, pages 222–228, Seattle, WA, 1987.
- Reichenbach, 1956 H. Reichenbach. *The Direction of Time*. University of California Press, Berkeley, 1956.
- Reiter, 1987 R. Reiter. A theory of diagnosis from first principles. *Artificial Intelligence*, 32(1):57–95, 1987.
- Richard, 1980 J.F. Richard. Models with several regimes and changes in exogeneity. *Review of Economic Studies*, 47:1–20, 1980.
- Richardson, 1996 T. Richardson. A discovery algorithm for directed cyclic graphs. In E. Horvitz and F. Jensen, editors, *Proceedings of the Twelfth Conference on Uncertainty in Artificial Intelligence*, pages 454–461. Morgan Kaufmann, San Francisco, CA, 1996.
- Rigdon, 2002 E.E. Rigdon. New books in review: Causality: Models, Reasoning, and Inference and Causation, Prediction, and Search. *Journal of Marketing Research*, XXXIX: 137–140, 2002.
- Robert and Casella, 1999 C.P. Robert and G. Casella. *Monte Carlo Statistical Methods*. Springer Verlag, New York, NY, 1999.
- Robertson, 1997 D.W. Robertson. The common sense of cause in fact. *Texas Law Review*, 75(7): 1765–1800, 1997.
- Robins and Greenland, 1989 J.M. Robins and S. Greenland. The probability of causation under a stochastic model for individual risk. *Biometrics*, 45:1125–1138, 1989.
- Robins and Greenland, 1991 J.M. Robins and S. Greenland. Estimability and estimation of expected years of life lost due to a hazardous exposure. *Statistics in Medicine*, 10:79–93, 1991.
- Robins and Greenland, 1992 J.M. Robins and S. Greenland. Identifiability and exchangeability for direct and indirect effects. *Epidemiology*, 3(2): 143–155, 1992.

- Robins and Wasserman, 1999 J.M. Robins and L. Wasserman. On the impossibility of inferring causation from association without background knowledge. In C.N. Glymour and G.F. Cooper, editors, *Computation, Causation, and Discovery*, pages 305–321. AAAI/MIT Press, Cambridge, MA, 1999.
- Robins et al., 1992 J.M. Robins, D. Blevins, G. Ritter, and M. Wulfsohn. *g*-estimation of the effect of prophylaxis therapy for pneumocystis carinii pneumonia on the survival of AIDS patients. *Epidemiology*, 3:319–336, 1992.
- Robins et al., 2003 J.M. Robins, R. Schemes, P. Spirtes, and L. Wasserman. Uniform consistency in causal inference. *Biometrika*, 90:491–512, 2003.
- Robins, 1986 J.M. Robins. A new approach to causal inference in mortality studies with a sustained exposure period – applications to control of the healthy workers survivor effect. *Mathematical Modeling*, 7:1393–1512, 1986.
- Robins, 1987 J. Robins. Addendum to “A new approach to causal inference in mortality studies with sustained exposure periods – application to control of the healthy worker survivor effect.” *Computers and Mathematics, with Applications*, 14:923–45, 1987.
- Robins, 1989 J.M. Robins. The analysis of randomized and non-randomized AIDS treatment trials using a new approach to causal inference in longitudinal studies. In L. Sechrest, H. Freeman, and A. Mulley, editors, *Health Service Research Methodology: A Focus on AIDS*, pages 113–159. NCHSR, U.S. Public Health Service, 1989.
- Robins, 1993 J.M. Robins. Analytic methods for estimating HIV treatment and cofactors effects. In D.G. Ostrow and R. Kessler, editors, *Methodological Issues in AIDS Behavioral Research*, pages 213–290. Plenum Publishing, New York, 1993.
- Robins, 1995 J.M. Robins. Discussion of “Causal diagrams for empirical research” by J. Pearl. *Biometrika*, 82(4):695–698, 1995.
- Robins, 1997 J.M. Robins. Causal inference from complex longitudinal data. In M. Berkane, editor, *Latent Variable Modeling and Applications to Causality*, pages 69–117. Springer-Verlag, New York, 1997.
- Robins, 1999 J.M. Robins. Testing and estimation of directed effects by reparameterizing directed acyclic with structural nested models. In C.N. Glymour and G.F. Cooper, editors, *Computation, Causation, and Discovery*, pages 349–405. AAAI/MIT Press, Cambridge, MA, 1999.
- Robins, 2001 J.M. Robins. Data, design, and background knowledge in etiologic inference. *Epidemiology*, 12(3):313–320, 2001.
- Rosenbaum and Rubin, 1983 P. Rosenbaum and D. Rubin. The central role of propensity score in observational studies for causal effects. *Biometrika*, 70:41–55, 1983.
- Rosenbaum, 1984 P.R. Rosenbaum. The consequences of adjustment for a concomitant variable that has been affected by the treatment. *Journal of the Royal Statistical Society, Series A (General)*, Part 5(147):656–666, 1984.
- Rosenbaum, 1995 P.R. Rosenbaum. *Observational Studies*. Springer-Verlag, New York, 1995.
- Rosenbaum, 2002 P.R. Rosenbaum. *Observational Studies*. Springer-Verlag, New York, 2nd edition, 2002.
- Rothman and Greenland, 1998 K.J. Rothman and S. Greenland. *Modern Epidemiology*. Lippincott-Raven, Philadelphia, 2nd edition, 1998.
- Rothman, 1976 K.J. Rothman. Causes. *American Journal of Epidemiology*, 104:587–592, 1976.
- Rothman, 1986 K.J. Rothman. *Modern Epidemiology*. Little, Brown, 1st edition, 1986.
- Roy, 1951 A.D. Roy. Some thoughts on the distribution of earnings. *Oxford Economic Papers*, 3:135–146, 1951.
- Rubin, 1974 D.B. Rubin. Estimating causal effects of treatments in randomized and nonrandomized studies. *Journal of Educational Psychology*, 66:688–701, 1974.
- Rubin, 2004 D.B. Rubin. Direct and indirect causal effects via potential outcomes. *Scandinavian Journal of Statistics*, 31:161–170, 2004.
- Rubin, 2005 D.B. Rubin. Causal inference using potential outcomes: Design, modeling, decisions. *Journal of the American Statistical Association*, 100(469):322–331, 2005.
- Rubin, 2007 D.B. Rubin. The design versus the analysis of observational studies for causal effects: Parallels with the design of randomized trials. *Statistics in Medicine*, 26:20–36, 2007.

- Rubin, 2008a D.B. Rubin. Author's reply (to Ian Shrier's Letter to the Editor). *Statistics in Medicine*, 27:2741–2742, 2008.
- Rubin, 2008b D.B. Rubin. For objective causal inference, design trumps analysis. *The Annals of Applied Statistics*, 2:808–840, 2008.
- Rubin, 2009 D.B. Rubin. Author's Reply: Should observational studies be designed to allow lack of balance in covariate distributions across treatment groups? *Statistics in Medicine*, 28:1420–1423, 2009.
- Rücker and Schumacher, 2008 G. Rücker and M. Schumacher. Simpson's paradox visualized: The example of the Rosiglitazone meta-analysis. *BMC Medical Research Methodology*, 8(34):1–8, 2008.
- Salmon, 1984 W.C. Salmon. *Scientific Explanation and the Causal Structure of the World*. Princeton University Press, Princeton, NJ, 1984.
- Salmon, 1998 W.C. Salmon. *Causality and Explanation*. Oxford University Press, New York, NY, 1998.
- Sandewall, 1994 E. Sandewall. *Features and Fluents*, volume 1. Clarendon Press, Oxford, 1994.
- Savage, 1954 L.J. Savage. *The Foundations of Statistics*. John Wiley and Sons, Inc., New York, 1954.
- Scheines, 2002 R. Schemes. Public administration and health care: Estimating latent causal influences: TETRAD III variable selection and bayesian parameter estimation. In W. Klogsen, J.M. Zytow, and J. Zyt, editors, *Handbook of Data Mining and Knowledge Discovery*, pages 944–952. Oxford University Press, New York, 2002.
- Schlesselman, 1982 J.J. Schlesselman. *Case-Control Studies: Design Conduct Analysis*. Oxford University Press, New York, 1982.
- Schumaker and Lomax, 1996 R.E. Schumaker and R.G. Lomax. *A Beginner's Guide to Structural Equation Modeling*. Lawrence Erlbaum Associations, Mahwah, NJ, 1996.
- Serrano and Gossard, 1987 D. Serrano and D.C. Gossard. Constraint management in conceptual design. In D. Sriram and R.A. Adey, editors, *Knowledge Based Expert Systems in Engineering: Planning and Design*, pages 211–224. Computational Mechanics Publications, 1987.
- Shachter et al., 1994 R.D. Shachter, S.K. Andersen, and P. Szolovits. Global conditioning for probabilistic inference in belief networks. In R. Lopez de Mantaras and D. Poole, editors, *Uncertainty in Artificial Intelligence*, pages 514–524. Morgan Kaufmann, San Francisco, CA, 1994.
- Shachter, 1986 R.D. Shachter. Evaluating influence diagrams. *Operations Research*, 34(6):871–882, 1986.
- Shadish and Clark, 2006 W.R. Shadish and M.H. Clark. A randomized experiment comparing random to nonrandom assignment. Unpublished paper, University of California, Merced, 2006.
- Shadish and Cook, 2009 W.R. Shadish and T.D. Cook. The renaissance of field experimentation in evaluating interventions. *Annual Review of Psychology*, 60:607–629, 2009.
- Shafer, 1996 G. Shafer. *The Art of Causal Conjecture*. MIT Press, Cambridge, MA, 1996.
- Shapiro, 1997 S.H. Shapiro. Confounding by indication? *Epidemiology*, 8:110–111, 1997.
- Shep, 1958 M.C. Shep. Shall we count the living or the dead? *New England Journal of Medicine*, 259:1210–1214, 1958.
- Shimizu et al., 2005 A. Shimizu, S. Hyvärinen, Y. Kano, and P.O. Hoyer. Discovery of non-Gaussian linear causal models using ICA. In R. Dechter and T.S. Richardson, editors, *Proceedings of the Twenty-First Conference on Uncertainty in Artificial Intelligence*, pages 525–533. AUAI Press, Edinburgh, Schotland, 2005.
- Shimizu et al., 2006 S. Shimizu, P.O. Hoyer, Hyvärinen, and A.J. Kerminen. A linear non-Gaussian acyclic model for causal discovery. *Journal of the Machine Learning Research*, 7:2003–2030, 2006.
- Shimony, 1991 S.E. Shimony. Explanation, irrelevance and statistical independence. In *Proceedings of the Ninth Conference on Artificial Intelligence (AAAI'91)*, pages 482–487, 1991.
- Shimony, 1993 S.E. Shimony. Relevant explanations: Allowing disjunctive assignments. In D. Heckerman and A. Mamdani, editors, *Proceedings of the Ninth Conference on Uncertainty in Artificial Intelligence*, pages 200–207, San Mateo, CA, July 1993. Morgan Kaufmann Publishers.

- Shipley, 1997 B. Shipley. An inferential test for structural equation models based on directed acyclic graphs and its nonparametric equivalents. Technical report, Department of Biology, University of Sherbrooke, Canada, 1997. Also in *Structural Equation Modelling*, 7:206–218, 2000.
- Shipley, 2000a B. Shipley. Book reviews: Causality: Models, Reasoning, and Inference. *Structural Equation Modeling*, 7(4):637–639, 2000.
- Shipley, 2000b B. Shipley. *Cause and Correlation in Biology: A User's Guide to Path Analysis, Structural Equations and Causal Inference*. Cambridge University Press, New York, 2000.
- Shoham, 1988 Y. Shoham. *Reasoning About Change: Time and Causation from the Standpoint of Artificial Intelligence*. MIT Press, Cambridge, MA, 1988.
- Shpitser and Pearl, 2006a I. Shpitser and J Pearl. Identification of conditional interventional distributions. In R. Dechter and T.S. Richardson, editors, *Proceedings of the Twenty-Second Conference on Uncertainty in Artificial Intelligence*, pages 437–444. AUAI Press, Corvallis, OR, 2006.
- Shpitser and Pearl, 2006b I. Shpitser and J Pearl. Identification of joint interventional distributions in recursive semi-Markovian causal models. In *Proceedings of the Twenty-First National Conference on Artificial Intelligence*, pages 1219–1226. AAAI Press, Menlo Park, CA, 2006.
- Shpitser and Pearl, 2007 I. Shpitser and J Pearl. What counterfactuals can be tested. In *Proceedings of the Twenty-Third Conference on Uncertainty in Artificial Intelligence*, pages 352–359. AUAI Press, Vancouver, BC Canada, 2007. Also, *Journal of Machine Learning Research*, 9:1941–1979, 2008.
- Shpitser and Pearl, 2008 I. Shpitser and J Pearl. Dormant independence. In *Proceedings of the Twenty-Third Conference on Artificial Intelligence*, pages 1081–1087. AAAI Press, Menlo Park, CA, 2008.
- Shrier, 2009 I. Shrier. Letter to the Editor: Propensity scores. *Statistics in Medicine*, 28:1317–1318, 2009.
- Simon and Rescher, 1966 H.A. Simon and N. Rescher. Cause and counterfactual. *Philosophy and Science*, 33:323–340, 1966.
- Simon, 1953 H.A. Simon. Causal ordering and identifiability. In Wm. C. Hood and T.C. Koopmans, editors, *Studies in Econometric Method*, pages 49–74. Wiley and Sons, Inc., New York, NY, 1953.
- Simpson, 1951 E.H. Simpson. The interpretation of interaction in contingency tables. *Journal of the Royal Statistical Society, Series B*, 13:238–241, 1951.
- Sims, 1977 C.A. Sims. Exogeneity and causal ordering in macroeconomic models. In *New Methods in Business Cycle Research: Proceedings from a Conference, November 1975*, pages 23–43. Federal Reserve Bank, Minneapolis, 1977.
- Singh and Valtorta, 1995 M. Singh and M. Valtorta. Construction of Bayesian network structures from data – a brief survey and an efficient algorithm. *International Journal of Approximate Reasoning*, 12(2): 111–131, 1995.
- Sjölander, 2009 A. Sjölander. Letter to the Editor: Propensity scores and M-structures. *Statistics in Medicine*, 28:1416–1423, 2009.
- Skyrms, 1980 B. Skyrms. *Causal Necessity*. Yale University Press, New Haven, 1980.
- Smith and Todd, 2005 J. Smith and P. Todd. Does matching overcome LaLonde's critique of nonexperimental estimators? *Journal of Econometrics*, 125:305–353, 2005.
- Sobel, 1990 M.E. Sobel. Effect analysis and causation in linear structural equation models. *Psychometrika*, 55(3):495–515, 1990.
- Sober and Barrett, 1992 E. Sober and M. Barrett. Conjunctive forks and temporally asymmetric inference. *Australian Journal of Philosophy*, 70:1–23, 1992.
- Sober, 1985 E. Sober. Two concepts of cause. In P. Asquith and P. Kitcher, editors, *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association*, volume II, pages 405–424. Philosophy of Science Association, East Lansing, MI, 1985.
- Sommer et al., 1986 A. Sommer, I. Tarwotjo, E. Djunaedi, K. P. West, A. A. Loeden, R. Tilden, and L. Mele. Impact of vitamin A supplementation on childhood mortality: A randomized controlled community trial. *The Lancet*, 327:1169–1173, 1986.
- Sosa and Tooley, 1993 E. Sosa and M. Tooley (Eds.). *Causation*. Oxford readings in Philosophy. Oxford University Press, Oxford, 1993.
- Spiegelhalter et al., 1993 D.J. Spiegelhalter, S.L. Lauritzen, P.A. Dawid, and R.G. Cowell. Bayesian analysis in expert systems (with discussion). *Statistical Science*, 8:219–283, 1993.

- Spirtes and Glymour, 1991 P. Spirtes and C.N. Glymour. An algorithm for fast recovery of sparse causal graphs. *Social Science Computer Review*, 9(1):62–72, 1991.
- Spirtes and Richardson, 1996 P. Spirtes and T. Richardson. A polynomial time algorithm for determinint DAG equivalence in the presence of latent variables and selection bias. *Proceedings of the Sixth International Workshop on Artificial Intelligence and Statistics*, 1996.
- Spirtes and Verma, 1992 P. Spirtes and T. Verma. Equivalence of causal models with latent variables. Technical Report CMU-PHIL-33, Carnegie Mellon University, Pittsburgh, Pennsylvania, October 1992.
- Spirtes et al., 1993 P. Spirtes, C.N. Glymour, and R. Scheines. *Causation, Prediction, and Search*. Springer-Verlag, New York, 1993.
- Spirtes et al., 1995 P. Spirtes, C. Meek, and T. Richardson. Causal inference in the presence of latent variables and selection bias. In P. Besnard and S. Hanks, editors, *Uncertainty in Artificial Intelligence 11*, pages 499–506. Morgan Kaufmann, San Francisco, 1995.
- Spirtes et al., 1996 P. Spirtes, T. Richardson, C. Meek, R. Scheines, and C.N. Glymour. Using  $d$ -separation to calculate zero partial correlations in linear models with correlated errors. Technical Report CMU-PHIL-72, Carnegie-Mellon University, Department of Philosophy, Pittsburgh, PA, 1996.
- Spirtes et al., 1998 P. Spirtes, T. Richardson, C. Meek, R. Scheines, and C.N. Glymour. Using path diagrams as a structural equation modelling tool. *Sociological Methods and Research*, 27(2): 182–225, November 1998.
- Spirtes et al., 2000 P. Spirtes, C.N. Glymour, and R. Scheines. *Causation, Prediction, and Search*. MIT Press, Cambridge, MA, 2nd edition, 2000.
- Spirtes, 1995 P. Spirtes. Directed cyclic graphical representation of feedback. In P. Besnard and S. Hanks, editors, *Proceedings of the Eleventh Conference on Uncertainty in Artificial Intelligence*, pages 491–498. Morgan Kaufmann, San Mateo, CA, 1995.
- Spohn, 1980 W. Spohn. Stochastic independence, causal independence, and shieldability. *Journal of Philosophical Logic*, 9:73–99, 1980.
- Spohn, 1983 W. Spohn. Deterministic and probabilistic reasons and causes. *Erkenntnis*, 19:371–396, 1983.
- Spohn, 1988 W. Spohn. A general non-probabilistic theory of inductive reasoning. In *Proceedings of the Fourth Workshop on Uncertainty in Artificial Intelligence*, pages 315–322, Minneapolis, MN, 1988.
- Stalnaker, 1968 R.C. Stalnaker. A theory of conditionals. In N. Rescher, editor, *Studies in Logical Theory*, volume No. 2, American Philosophical Quarterly Monograph Series. Blackwell, Oxford, 1968. Reprinted in W.L. Harper, R. Stalnaker, and G. Pearce (Eds.), *Iffs*, D. Reidel, Dordrecht, pages 41–55, 1981.
- Stalnaker, 1972 R.C. Stalnaker. Letter to David Lewis, 1972. In W.L. Harper, R. Stalnaker, and G. Pearce (Eds.), *Iffs*, D. Reidel, Dordrecht, pages 151–152, 1981.
- Stelzl, 1986 I. Stelzl. Changing a causal hypothesis without changing the fit: Some rules for generating equivalent path models. *Multivariate Behavioral Research*, 21:309–331, 1986.
- Steyer et al., 1996 R. Steyer, S. Gabler, and A.A. Rucai. Individual causal effects, average causal effects, and unconfoundedness in regression models. In F. Faulbaum and W. Bandilla, editors, *SoftStat'95, Advances in Statistical Software 5*, pages 203–210. Lucius & Lucius, Stuttgart, 1996.
- Steyer et al., 1997 R. Steyer, A.A. von Davier, S. Gabler, and C. Schuster. Testing unconfoundedness in linear regression models with stochastic regressors. In W. Bandilla and F. Faulbaum, editors, *SoftStat'97, Advances in Statistical Software 6*, pages 377–384. Lucius & Lucius, Stuttgart, 1997.
- Stone, 1993 R. Stone. The assumptions on which causal inferences rest. *Journal of the Royal Statistical Society*, 55(2):455–466, 1993.
- Strotz and Wold, 1960 R.H. Strotz and H.O.A. Wold. Recursive versus nonrecursive systems: An attempt at synthesis. *Econometrica*, 28:417–427, 1960.
- Suermondt and Cooper, 1993 H.J. Suermondt and G.F. Cooper. An evaluation of explanations of probabilistic inference. *Computers and Biomedical Research*, 26:242–254, 1993.
- Suppes and Zaniotti, 1981 P. Suppes and M. Zaniotti. When are probabilistic explanations possible? *Synthese*, 48:191–199, 1981.

- Suppes, 1970 P. Suppes. *A Probabilistic Theory of Causality*. North-Holland Publishing Co., Amsterdam, 1970.
- Suppes, 1988 P. Suppes. Probabilistic causality in space and time. In B. Skyrms and W.L. Harper, editors, *Causation, Chance, and Credence*. Kluwer Academic Publishers, Dordrecht, The Netherlands, 1988.
- Swanson and Granger, 1997 N.R. Swanson and C.W.J. Granger. Impulse response functions based on a causal approach to residual orthogonalization in vector autoregressions. *Journal of the American Statistical Association*, 92:357–367, 1997.
- Swanson, 2002 N.R. Swanson. Book reviews: Causality: Models, Reasoning, and Inference. *Journal of Economic Literature*, XL:925–926, 2002.
- Tian and Pearl, 2000 J. Tian and J. Pearl. Probabilities of causation: Bounds and identification. *Annals of Mathematics and Artificial Intelligence*, 28:287–313, 2000.
- Tian and Pearl, 2001a J. Tian and J. Pearl. Causal discovery from changes. In *Proceedings of the Seventeenth Conference on Uncertainty in Artificial Intelligence*, pages 512–521. Morgan Kaufmann, San Francisco, CA, 2001.
- Tian and Pearl, 2001b J. Tian and J. Pearl. Causal discovery from changes: A Bayesian approach. Technical Report R-285, Computer Science Department, UCLA, February 2001.
- Tian and Pearl, 2002a J. Tian and J. Pearl. A general identification condition for causal effects. In *Proceedings of the Eighteenth National Conference on Artificial Intelligence*, pages 567–573. AAAI Press/The MIT Press, Menlo Park, CA, 2002.
- Tian and Pearl, 2002b J. Tian and J. Pearl. On the testable implications of causal models with hidden variables. In A. Darwiche and N. Friedman, editors, *Proceedings of the Eighteenth Conference on Uncertainty in Artificial Intelligence*, pages 519–527. Morgan Kaufmann, San Francisco, CA, 2002.
- Tian et al., 1998 J. Tian, A. Paz, and J. Pearl. Finding minimal separating sets. Technical Report R-254, University of California, Los Angeles, CA, 1998.
- Tian et al., 2006 J. Tian, C. Kang, and J. Pearl. A characterization of interventional distributions in semi-Markovian causal models. In *Proceedings of the Twenty-First National Conference on Artificial Intelligence*, pages 1239–1244. AAAI Press, Menlo Park, CA, 2006.
- Tversky and Kahneman, 1980 A. Tversky and D. Kahneman. Causal schemas in judgments under uncertainty. In M. Fishbein, editor, *Progress in Social Psychology*, pages 49–72. Lawrence Erlbaum, Hillsdale, NJ, 1980.
- VanderWeele and Robins, 2007 T.J. VanderWeele and J.M. Robins. Four types of effect modification: A classification based on directed acyclic graphs. *Epidemiology*, 18(5):561–568, 2007.
- Verma and Pearl, 1988 T. Verma and J. Pearl. Causal networks: Semantics and expressiveness. In *Proceedings of the Fourth Workshop on Uncertainty in Artificial Intelligence*, pages 352–359, Mountain View, CA, 1988. Also in R. Shachter, T.S. Levitt, and L.N. Kanal (Eds.), *Uncertainty in AI 4*, Elsevier Science Publishers, 69–76, 1990.
- Verma and Pearl, 1990 T. Verma and J. Pearl. Equivalence and synthesis of causal models. In *Proceedings of the Sixth Conference on Uncertainty in Artificial Intelligence*, pages 220–227, Cambridge, MA, July 1990. Also in P. Bonissone, M. Henrion, L.N. Kanal and J.F. Lemmer (Eds.), *Uncertainty in Artificial Intelligence 6*, Elsevier Science Publishers, B.V, 255–268, 1991.
- Verma and Pearl, 1992 T. Verma and J. Pearl. An algorithm for deciding if a set of observed independencies has a causal explanation. In D. Dubois, M.P. Wellman, B. D’Ambrosio, and P. Smets, editors, *Proceedings of the Eighth Conference on Uncertainty in Artificial Intelligence*, pages 323–330. Morgan Kaufmann, Stanford, CA, 1992.
- Verma, 1993 T.S. Verma. Graphical aspects of causal models. Technical Report R-191, UCLA, Computer Science Department, 1993.
- Wainer, 1989 H. Wainer. Eelworms, bullet holes, and Geraldine Ferraro: Some problems with statistical adjustment and some solutions. *Journal of Educational Statistics*, 14:121–140, 1989.
- Wang et al., 2009 X. Wang, Z. Geng, H. Chen, and X. Xie. Detecting multiple confounders. *Journal of Statistical Planning and Inference*, 139: 1073–1081, 2009.
- Wasserman, 2004 L. Wasserman. *All of Statistics: A Concise Course in Statistical Inference*. Springer Science+Business Media, Inc., New York, NY, 2004.

- Weinberg, 1993 C.R. Weinberg. Toward a clearer definition of confounding. *American Journal of Epidemiology*, 137:1–8, 1993.
- Weinberg, 2007 C.R. Weinberg. Can DAGs clarify effect modification? *Epidemiology*, 18:569–572, 2007.
- Wermuth and Lauritzen, 1983 N. Wermuth and S.L. Lauritzen. Graphical and recursive models for contingency tables. *Biometrika*, 70:537–552, 1983.
- Wermuth and Lauritzen, 1990 N. Wermuth and S.L. Lauritzen. On substantive research hypotheses, conditional independence graphs and graphical chain models (with discussion). *Journal of the Royal Statistical Society, Series B*, 52:21–72, 1990.
- Wermuth, 1987 N. Wermuth. Parametric collapsibility and the lack of moderating effects in contingency tables with a dichotomous response variable. *Journal of the Royal Statistical Society, Series B*, 49(3):353–364, 1987.
- Wermuth, 1992 N. Wermuth. On block-recursive regression equations. *Brazilian Journal of Probability and Statistics (with discussion)*, 6:1–56, 1992.
- Whittaker, 1990 J. Whittaker. *Graphical Models in Applied Multivariate Statistics*. John Wiley, Chichester, England, 1990.
- Whittemore, 1978 A.S. Whittemore. Collapsibility of multidimensional contingency tables. *Journal of the Royal Statistical Society, Series B*, 40(3):328–340, 1978.
- Wickramaratne and Holford, 1987 P.J. Wickramaratne and T.R. Holford. Confounding in epidemiologic studies: The adequacy of the control group as a measure of confounding. *Biometrics*, 43:751–765, 1987.
- Winship and Morgan, 1999 C. Winship and S.L. Morgan. The estimation of causal effects from observational data. *Annual Review of Sociology*, 25:659–706, 1999.
- Winslett, 1988 M. Winslett. Reasoning about action using a possible worlds approach. In *Proceedings of the Seventh American Association for Artificial Intelligence Conference*, pages 89–93, 1988.
- Woodward, 1990 J. Woodward. Supervenience and singular causal claims. In D. Knowles, editor, *Explanation and Its Limits*, pages 211–246. Cambridge University Press, New York, 1990.
- Woodward, 1995 J. Woodward. Causation and explanation in econometrics. In D. Little, editor, *On the Reliability of Economic Models*, pages 9–61. Kluwer Academic, Boston, 1995.
- Woodward, 1997 J. Woodward. Explanation, invariance and intervention. *Philosophy of Science*, 64(S):26–S41, 1997.
- Woodward, 2003 J. Woodward. *Making Things Happen*. Oxford University Press, New York, NY, 2003.
- Wright, 1921 S. Wright. Correlation and causation. *Journal of Agricultural Research*, 20:557–585, 1921.
- Wright, 1923 S. Wright. The theory of path coefficients: A reply to Niles' criticism. *Genetics*, 8:239–255, 1923.
- Wright, 1925 S. Wright. Corn and hog correlations. Technical Report 1300, U.S. Department of Agriculture, 1925.
- Wright, 1928 P.O. Wright. *The Tariff on Animal and Vegetable Oils*. The MacMillan Company, New York, NY, 1928.
- Wright, 1988 R.W. Wright. Causation, responsibility, risk, probability, naked statistics, and proof: Pruning the bramble bush by clarifying the concepts. *Iowa Law Review*, 73:1001–1077, 1988.
- Wu, 1973 D.M. Wu. Alternative tests of independence between stochastic regressors and disturbances. *Econometrica*, 41:733–750, 1973.
- Yanagawa, 1984 T. Yanagawa. Designing case-control studies. *Environmental health perspectives*, 32:219–225, 1984.
- Yule, 1903 G.U. Yule. Notes on the theory of association of attributes in statistics. *Biometrika*, 2:121–134, 1903.
- Zelterman, 2001 D. Zelterman. Book reviews: Causality: Models, Reasoning, and Inference. *Technometrics*, 32(2):239, 2001.
- Zidek, 1984 J. Zidek. Maximal Simpson disaggregations of  $2 \times 2$  tables. *Biometrika*, 71:187–190, 1984.