

ALAN D. TAYLOR
MARIE LOUISE BAILEY PROFESSOR OF MATHEMATICS
UNION COLLEGE

EDUCATION AND EMPLOYMENT

1969: B.A. (Mathematics), University of Maine, Orono, Maine
1970: M.A. (Mathematics), University of Maine, Orono, Maine
1973: A.M. (Mathematics), Dartmouth College, Hanover, New Hampshire
1975: Ph.D. (Mathematics), Dartmouth College, Hanover, New Hampshire

1970-1971: Instructor of Mathematics, University of Maine
1975-1979: Assistant Professor of Mathematics, Union College
1979-1980: Visiting Associate Professor of Mathematics, Dartmouth College
1979-1982: Associate Professor of Mathematics, Union College
1982- : Professor of Mathematics, Union College

GRANTS-HONORS-AWARDS

RESEARCH: Four National Science Foundation research grants
Distinguished Lecturer for Sigma Xi (2002-2004)
Delivered the annual Gehman Lecture (2002)
Mathematical Association of America–Seaway Section
Invited address at the annual summer meeting (2009)
Mathematical Association of America

TEACHING: Union College Stillman Prize for Teaching (1998)
Clarence F. Stephens Distinguished Teaching Award (2007)
Mathematical Association of America–Seaway Section

SERVICE: Union College Faculty Meritorious Service Award (1998)

SELECTED COLLEGE SERVICE ACTIVITIES

First Secretary of the Faculty under the new governance system (1981-1983)
First Director of the Sloan Program at Union (1983-1985)
Chair of the Department of Mathematics (1985-1988)
First Chair of the Committee on Teaching (1988-1990)
Chair of the Department of Mathematics (1990-1991)
Chair of the Science Division (1993-1996)
Co-Chair of the Middle States Steering Committee (1998-2000)
U2K and the Creation of the House System (1999-2002)
Minerva Council (2002–2005)
Chair of the Department of Mathematics (2009-2014)

PATENT

Computer-based method for the division of ownership of goods. Patent No. 5,983,205 (2/9/99);
Assignee: New York University. Inventors: Steven J. Brams and Alan D. Taylor

PUBLICATIONS

Books:

1. *Structural Properties of Ideals* (with J. Baumgartner and S. Wagon), Warsaw, Poland: Dissertationes Mathematicae (1982) ISBN 83-01-01506-3.
2. *Mathematics and Politics: Strategy, Voting, Power, and Proof*, New York: Springer-Verlag (1995) ISBN 0-387-94391-9 and 0-387-94500-8. Second edition (with A. Pacelli) New York: Springer-Verlag (2008).
3. *Fair Division: From Cake-Cutting to Dispute Resolution* (with S. Brams), Cambridge, England: Cambridge University Press (1996) ISBN 0-521-55390-3 and 0-521-55644-9.
4. *Simple Games: Desirability Relations, Trading, and Pseudoweightings* (with W. Zwicker), Princeton: Princeton University Press (1999) ISBN 0-691-00120-0.
5. *The Win-Win Solution: Guaranteeing Fair Shares to Everybody* (with S. Brams), New York: Norton (1999) ISBN 0-393-04729-6. Translations have appeared in China, Japan, Russia, Brazil, Korea, and Portugal.
6. *Social Choice and the Mathematics of Manipulation*, Cambridge, England: Cambridge University Press (2005) ISBN 0-521-81052-3 and 0-521-00883-2.
7. *The Mathematics of Coordinated Inference: A Study of Generalized Hat Problems* (with C. Hardin), New York: Springer-Verlag (2013).

Articles and Book Chapters:

1. A canonical partition relation for finite subsets of ω , *Journal of Combinatorial Theory (A)* **21** (1976) 137–146.
2. On splitting stationary subsets of large cardinals (with J. Baumgartner and S. Wagon), *Journal of Symbolic Logic* **42** (1977) 203–214.
3. Partitions of pairs of reals, *Fundamenta Mathematicae* **XCLX** (1978) 51–59.
4. Partition theorems and ultrafilters (with J. Baumgartner), *Transactions of the American Mathematical Society* **241** (1978) 283–309.
5. Ideals on uncountable cardinals (with J. Baumgartner and S. Wagon), *Logic Colloquium* **77**, North Holland (1978) 67–77.
6. Regularity properties of ideals and ultrafilters, *Annals of Mathematical Logic* **16** (1979) 35–55.

7. On saturated sets of ideals and Ulam's problem, *Fundamenta Mathematicae* **CIX** (1980) 37–53.
8. Bounds for the disjoint unions theorem, *Journal of Combinatorial Theory* (A) **20** (1981) 339–344.
9. Diamond principles, ideals and the normal Moore space problem, *Canadian Journal of Mathematics* **XXXIII** (1981) 282–296.
10. A note on a lemma of Shelah concerning stationary sets (with A. Mekler and D. Pelletier), *Proceedings of the American Mathematical Society* **83** (1981) 764–768.
11. Saturation properties of ideals in generic extensions I (with J. Baumgartner), *Transactions of the American Mathematical Society* **270** (1982) 557–574.
12. Saturation properties of ideals in generic extensions II (with J. Baumgartner), *Transactions of the American Mathematical Society* **271** (1982) 587–609.
13. A note on van der Waerden's theorem, *Journal of Combinatorial Theory* (A) **33** (1982) 215–219.
14. Negative partition relations for ultrafilters on uncountable cardinals (with A. Kanamori), *Proceedings of the American Mathematical Society* (1984) 83–89.
15. Separating ultrafilters on uncountable cardinals (with A. Kanamori), *Israel Journal of Mathematics* **47** (1984) 131–138.
16. On the cardinality of reduced power set algebras, *Proceedings of the American Mathematical Society* **103** (1988) 277–280.
17. Separating Collections, *Fundamenta Mathematicae* **133** (1989) 135–145.
18. Diverse homogeneous sets (with A. Blass and P. Erdős), *Journal of Combinatorial Theory* (A) **59** (1992) 312–317.
19. A characterization of weighted voting (with W. Zwicker), *Proceedings of the American Mathematical Society* **115** (1992) 1089–1094.
20. Weighted voting, multicameral representation, and power (with W. Zwicker), *Games and Economic Behavior* **5** (1993) 170–181.
21. Divide the dollar (with S. Brams), *Theory and Decision* **37** (1994) 211–231.
22. An envy-free cake division protocol (with S. Brams), *American Mathematical Monthly* **102** (1995) 9–18.

23. On envy-free cake division (with S. Brams), *Journal of Combinatorial Theory (A)* **70** (1995) 170–173.
24. Preference relations and measures in the context of fair division (with J. Barbanel), *Proceedings of the American Mathematical Society* **123** (1995) 2061–2070.
25. Simple games and magic squares (with W. Zwicker), *Journal of Combinatorial Theory (A)* **71** (1995) 67–88.
26. Old and new moving-knife schemes (with S. Brams and W. Zwicker), *Mathematical Intelligencer* **7** (1995) 30–35.
27. Fair division and politics (with S. Brams), *PS: Political Science and Politics* **XXVIII** (1995) 697–703.
28. Social choice and the Catalan numbers (with S. Young and W. Zwicker), *Mathematics Magazine* **68** (1995) 331–342.
29. A procedure for divorce settlements (with S. Brams), *Mediation Quarterly* **13** (1996) 191–205.
30. Quasi-weightings, trading, and desirability relations (with W. Zwicker), *Games and Economic Behavior* **16** (1996) 331–346.
31. Social Choice: The Impossible Dream, (with S. Brams), chapter in *For All Practical Purposes*, published by W. H. Freeman under the auspices of COMAP, 4th edition (1996), 5th edition (1999), 6th edition (2002), 7th edition (2005), 8th edition (2008), 9th edition (2011), and 10th edition (2016).
32. Fair Division (with S. Brams), chapter in *For All Practical Purposes*, published by W. H. Freeman under the auspices of COMAP, 4th edition (1996), 5th edition (1999), 6th edition (2002), 7th edition (2005), 8th edition (2008), 9th edition (2011), and 10th edition (2016).
33. A glimpse of impossibility, *Perspectives on Political Science* **26** (1997) 23–26.
34. A moving-knife solution to the four-person envy-free cake-division problem (with S. Brams and W. Zwicker), *Proceedings of the American Mathematical Society* **125** (1997) 547–554.
35. Interval measures of power (with W. Zwicker), *Mathematical Social Sciences* **33** (1997) 23–74.
36. A negotiating strategy (with S. Brams), *Corporate Council Magazine* **6** (1999) 47–50.
37. Logic and Modeling, chapter in *For All Practical Purposes*, published by W. H. Freeman under the auspices of COMAP, 5th edition (1999).
38. Trading properties and Alexandrov kernels for Boolean functions (with W. Zwicker),

Discrete Applied Mathematics **107** (2000) 203–214.

39. The manipulability of voting systems, *American Mathematical Monthly* **109** (2002) 321–337.

40. Introduction to *The Geometry of Efficient Fair Division*, by Julius Barbanel, Cambridge University Press, 2005.

41. A paradoxical Pareto frontier in the cake-cutting context, *Mathematical Social Sciences* **50** (2005) 227–233.

42. Tight Bounds on Plurality (with N. Srivastava), *Information Processing Letters* **96** (2005) 93–95.

43. The Manipulability of Voting Systems, chapter in *For All Practical Purposes*, published by W. H. Freeman under the auspices of COMAP, 7th edition (2005), 8th edition (2008), 9th edition (2011), and 10th edition (2016).

44. Borel separability of the coanalytic Ramsey sets, *Annals of Pure and Applied Logic* **144** (2006) 130–132.

45. A peculiar connection between the axiom of choice and predicting the future (with C. Hardin), *American Mathematical Monthly* **115** (2008) 91–96.

46. An introduction to infinite hat problems (with C. Hardin), *Mathematical Intelligencer* **30** (2008) 20–25.

47. Limit-like predictability for discontinuous functions (with C. Hardin), *Proceedings of the American Mathematical Society* **137** (2009) 3123–3128.

48. Mathematics and Voting, chapter in *La Matematica*, vol. 4: Intrecci, ed. Claudio Bartocci and Piergiorgio Odifreddi, Einaudi (2010).

49. Analysis of binary voting algorithms for use in fault-tolerant and secure computing (with K. Kwait, W. Zwicker, D. Hill, S. Wetzonic, and R. Shangping), *Proceedings of the IEEE International Conference on Computer Engineering and Systems* (2010) 273–285.

50. Minimal predictors in hat problems (with C. Hardin), *Fundamenta Mathematicae* **208** (2010) 273–285.

51. Prediction problems and ultrafilters on omega, *Fundamenta Mathematicae* **219** (2012) 111–117.

52. A Paradox Arising from the Elimination of a Paradox (with S. Wagon), *American Mathematical Monthly* (2018), to appear.