

Football and Mathematics. Premier League and World Cup

Brazil did not win the 2018 World Cup – nor did Germany. Chelsea did not win the 2016 Premier League - nor did Manchester City, Arsenal, Manchester United, Liverpool, Tottenham or Everton. No, what happened was that the less-favoured France won the 2018 World Cup; and the 5000-1 rank outsider Leicester won the 2016 Premier League.

Football, like life itself, is uncertain and probability is a powerful concept for helping us think about that uncertainty. However a good understanding of probability depends on understanding mathematics. At its most abstract level this book addresses a number of fundamental questions:

- What is the set of relevant variables?
- What is the distribution of each variable?
- How do the variables relate to one another?
- How do relationships at an aggregate level relate to relationships at an elementary level?
- How does a variable change over time?
- What mathematical model underlies the observed data?

Football, like life itself, is important to people. Football involves values: success and failure, triumph and disaster, celebration and despondency - all of these so evident on our television screens every weekend evening. Football involves the strong and the weak. It involves competition between agents. At its most abstract level this book addresses the fundamental question:

How do strength and success play out in competition between actors?

The 2017 Yearbook

“It is difficult to imagine, but this volume ranges from an analysis of the evolution of the world system to an essay on Fermat’s last theorem, along with much else. His compass is breathtaking, even audacious. What holds this diversity together is how a study of current social, political, cultural and intellectual events can be located in the longer-term dynamics of the world system. This is achieved by a mixture of qualitative and quantitative materials describing current events and their likely extrapolations. It is a study of how social, political and religious groupings change, identity is expressed and how these interact with each other. Whether or not Gordon Burt achieves this mighty objective will cause debate, but constructive debate. Many social scientists will entertain reservations about his objectives particularly as he claims to follow academic standards in his modelling. To put it succinctly, can a snapshot illuminate the nature of complex time series? Burt certainly provides strong evidence that his innovative methods bear significant fruit even if one questions his methodology, the various and diverse essays make for fascinating reading. For instance, will the current surge of nationalism defeat supra national sentiments and values? Are current observations only a spike or are they harbingers of things to come? By studying how current events are embedded in wider socio political and cultural events (as diverse as Fermat’s last theorem and political events), Gordon Burt claims that such issues can be studied in the context of a new agenda exploring ‘all aspects of society paying special attention to values with special interest in modelling’. Whatever our attitude to this agenda, we should congratulate Gordon Burt on his intellectual audacity.”

Journal of Peace Research Book Notes: <https://www.prio.org/JPR/BookNotes/?x=1208>;

Professor Peter Abell, LSE

“The Values, World Society and Modelling Yearbook 2017 provides a timely and original tour de horizon of today’s world. Based on a large array of data on global trends, Gordon Burt masterfully proves that quantitative analysis can help us navigate through the choppy waters of contemporary political, economic and cultural change. Equipped with this book, we will be better prepared to confront the increasingly serious threats to the liberal world order and our material wellbeing.”

Professor Lars-Erik, Cederman, ETH Zurich

The 2015 Yearbook

“... a remarkable compendium of reflections, reportage, and critical analysis of the year’s events ... bringing a humanistic and scientific sensibility together ... like spending an evening or two in the company of a multifarious, wide-ranging, and original mind.”

Kevin Avruch, School for Conflict Analysis and Resolution, George Mason University

“... a joy. It is alive with insight and written with style and charm. ... enlightening ... not only extremely erudite but *fun* ... much here to convince us that the world is a society, its parts connected in interesting and surprising ways.”

Glenn Palmer Executive Director, Peace Science Society (International), Penn State University

The 2014 Yearbook

“ ... full of surprising and interesting information on a huge range of aspects. The ‘values’ are extraordinarily diverse, the ‘world society’ stretches from the individual to the global ... the final vision intriguing – ‘look at the universe ... and see mathematics’ ... fired by energy and erudition.”

Oliver Ramsbotham, University of Bradford, President of the Conflict Research Society

“... how intellectual curiosity about the world around us can be enriched with the mathematician’s toolkit and a search for simplifying models. He analyzes a series of topics ... noting key empirical facts and events ... trying to think of simple models that can give rise to the observed outcomes and their properties ... There is much to be learned from this remarkable book.”

Kristian Skrede Gleditsch, Department of Government, University of Essex

Gordon Burt was Chair of the Conflict Research Society from 2008 to 2015. He is the author of the *Values, World Society and Modelling Yearbooks: 2014* (2016), *2015* (2017) and *2017* (2018); and of *Conflict, Complexity and Mathematical Social Science* (2010). He has been a researcher in peace and conflict, politics and international relations for over thirty years.

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