

# Curriculum vitae

Antony Galton

September 5, 2012

<b>Name</b>	Antony Peter Galton
<b>Date of birth</b>	23rd July 1952
<b>Qualifications</b>	B.A. (Cantab) Mathematics (First Class), 1974 Ph.D. (Leeds) Philosophy, 1981
<b>Appointments:</b>	1984–86 Research Fellow, Department of Philosophy, University of Leeds 1987–98 Lecturer in Computer Science, University of Exeter 1998– Reader in Knowledge Representation, University of Exeter

## 1 Research

### (a) General description of research fields

I gained my Ph.D. from the Department of Philosophy at the University of Leeds, where I was supervised by Dr Timothy Potts. The title of my thesis was *The Logic of Aspect: An Inquiry into the Semantic Structure of Ordinary Temporal Discourse*. In it I extended the Tense Logic formalism of Arthur Prior to provide an account of aspectual phenomena in language. This required the introduction of a far-reaching distinction between states and events, which was incorporated into the formalism. After gaining my PhD I revised my thesis for publication; it was published in 1984 by Oxford University Press under the title *The Logic of Aspect: An Axiomatic Approach*.

I was appointed to a research fellowship in Philosophy at Leeds in 1985. There I continued working on temporal logic formalisms, but now with a focus on potential applications in the area of Computer Science and Artificial Intelligence. While there, I organised a conference on *Temporal Logics and their Applications*, which brought together both Computer Scientists and Philosophers for a fruitful two-day meeting. A collection of papers from the conference, under my editorship, was published by Academic Press in 1987.

I was appointed to a lectureship in Computer Science at Exeter in 1987. Since then my research has largely been of an interdisciplinary nature, encompassing elements of Computer Science, Philosophy, Cognitive Science, Mathematics, and Geography. I have worked on Artificial Intelligence, Knowledge Representation, Logics for Temporal and Spatial Reasoning, Spatial and Temporal Ontologies, Geographical Information Science, and the Philosophy of Computation. Besides my conference and journal publications in these areas, I have published a book, *Qualitative Spatial Change* (OUP, 2000) which covers many of the topics, computational, mathematical, and philosophical, which I have explored in my research.

My research on temporal reasoning in AI has been influential in the field, most particularly with regard to the question of how to choose the most appropriate formalism for a particular application (e.g., whether to use instants or intervals, reified or unreified formulae, first-order or modal temporal logic). In the spatial area, my work has particularly addressed two issues which are recognised as being of major importance for the future development of spatial information systems, namely the integration of object-based and field-based representations, and the proper handling of the temporal dimension. My work in these areas has been frequently cited as highly innovative.

## **(b) Research grants**

1988: Royal Society award in the European Science Exchange Programme for 2-month visit to the Laboratoire pour Recherche en Informatique, Université de Paris-Sud, Orsay (FF.14000).

Mar–Jun 2005. EPSRC overseas travel grant EP/C014502/1, Spatio-temporal Geographical Information Science. £2563 to support the cost of a two-month sabbatical visit to the National Center for Geographical Information and Analysis at the University of Maine.

June 2005. £6000 from Ordnance Survey for a research consultancy on the problem of vagueness and indeterminacy in geo-spatial data.

August 2005. £36000 from Motorola to support the funding of a three-year studentship to work on Spatial Non-monotonic Reasoning by Categorical Interpolation.

June 2010–June 2011. EPSRC grant EP/I007555/1, Spatio-temporal knowledge representation for emergency management. £30020.36.

## **2 Teaching**

*Courses taught in Exeter.*

During my time at Exeter most of my teaching has been on formal, mathematical, and philosophical aspects of Computer Science, including, at the undergraduate level, topics such as

- Discrete Mathematics
- Formal Logic and Knowledge Representation
- Philosophy of Artificial Intelligence
- Theory of Computation
- Formal Languages and Automata
- Abstract Data Types
- Complexity Theory
- Denotational Semantics

and, at masters level,

- Logics for Artificial Intelligence
- Logic Programming
- Spatial and Temporal Representations
- Ontology for Information Systems
- Logic and Philosophy of Mathematics

In addition I undertook a certain amount of teaching for the Cognitive Science programme (now discontinued), on the following topics

- Logic, language, and thought
- Scope and limitations of logical formalisms
- Aspects of spatial cognition
- Philosophy of mind and consciousness

Since October 2004 I have several times given lectures on Ethics and Professionalism for the Social & Professional Issues module taken by first-year Computer Science students.

*Courses taught elsewhere.*

As a research fellow in Leeds (1985–6) I lectured on Formal and Philosophical Logic to second-year Philosophy Students.

In July 1996 I was appointed Visiting Professor in the Department of Computer Science at the University of Skövde, Sweden. In this capacity I presented 16 hours of lectures each year on Advanced Logic as part of that department’s M.Sc. course in New Generation Representations. I had been giving some of these lectures on an *ad hoc* basis each academic year since 1991–2. I resigned from this position in June 2003.

*Tutorials, project supervision, etc.*

I act as personal and academic tutor to approximately 30 students from the degree programmes which the College is involved in teaching. This involves fortnightly group meetings with first- and second-year tutees, and termly individual meetings with all tutees, with additional contacts as circumstances demand.

I regularly supervise third-year Computer Science project students, involving weekly meetings of up to half an hour for each project.

### **3 External Examining**

#### **(a) Taught degrees**

University of Dundee: MPhil in Cognitive Science, Diploma/MPhil in Logic, Text and Information Technology, MPhil in Computing, Text and Cognition. (October 1995–September 1999)

University of Dundee: Honours and Advanced Programme modules on Logic and Computing and Implementing Cognitive Systems. (October 1996–September 1999)

University of Leeds: MEng/BSc Artificial Intelligence, MSc Artificial Intelligence, MSc Advanced Computer Science (October 2011–present)

#### **(b) Higher degrees by research**

Krysia Broda: PhD, University of London (Imperial College), November 1991.

Craig MacNish: PhD, University of Cambridge, April 1992.

Jixin Ma: PhD, University of Greenwich, July 1994.

David Evans: PhD, University of London (Imperial College), November 1997.

Brandon Bennett: PhD, University of Leeds, March 1998.

Philippe Muller: PhD, L’Université Paul Sabatier, Toulouse III, France, December 1998.

Xuegang Wang: PhD, University of Leeds, January 2000.

Shyamanta Hazarika: PhD, University of Leeds, January 2003

John Kerins: PhD, UMIST, March 2004

Argyrios Vasilakopoulos: PhD, University of Manchester, May 2006

Robert Trypuz: PhD, University of Trento, Italy, December 2007

David Mallenby: PhD, University of Leeds, December 2008

Laure Vieu: Habilitation à diriger des recherches, Université Paul Sabatier, Toulouse III, December 2009

Adam Trybus: PhD, University of Manchester, December 2011

### **4 Postgraduate Supervision**

*Masters*

Carlos Martinez-Mascarua, MSc dissertation, 1989: *Temporal Reasoning and Partial Orders*. MSc awarded.

Christopher Cooper, MSc, 1994–5: *Retrieval of Qualitative Information from Discrete Analogue Representations of Space*. MSc awarded 1996.

Gerardo Rodriguez-Hernandez, MSc dissertation, 2011: *Prototyping a Web-Based Ontology Population System*. MSc awarded.

Asma Akhter, MSc dissertation, 2011: . MSc awarded 2012.

#### *Ph.D.*

John Gooday, PhD, 1990–1994: *A Transition-based Approach to Reasoning about Action and Change*. PhD awarded 1994.

Rashmibala Pandya, PhD, 1993–1997: *A Multi-layer Framework for Higher Order Probabilistic Reasoning*. PhD awarded 2000.

Richard Meathrel, PhD, 1997–2001: *A General Theory of the Boundary-based Approach to Two-dimensional Qualitative Shape Representation*. PhD awarded 2002

James Hood, PhD, 2002–2007: *How to be determinate about indeterminate location*. PhD awarded 2008.

Michael Barclay, PhD, 2006–2011: *Reference Object Choice in Spatial LanguageL Machine and Human Models*. PhD awarded 2011.

Zena Wood, PhD, 2006-2011: *Detecting and Identifying Collective Phenomena Within Movement Data*. PhD awarded 2012.

Maximilian Dupenois, PhD, 2008-2012: *Identification of Change in a Dynamic Dot Pattern and its use in the Maintenance of Footprints*. PhD awarded subject to corrections.

Internal examining: I have acted as internal examiner to 11 PhD students and 1 MPhil student.

## **5 Administration**

### **(a) School administrative responsibilities**

Director of Education for Mathematics and Computer Science (August 2010– )

Director of Undergraduate Studies for Computer Science (August 2006–July 2010)

Director of Research for Computer Science (February 2006–July 2010)

Programme coordinator for Computer Science degrees (2005– )

Deputy Director of the Cognitive Science programme (2004–2007)

School Management Committee (August 2001–July 2004; November 2005–July 2007)

Head of Computer Science Department (August 2001–July 2004)

Third-year project co-ordinator (1990–1995, 2000–2004)

Head of Artificial Intelligence & Information Engineering research group (Jan 1997–2003)

Computer Science Examinations officer (1987–2001)

Co-ordinator for third-year Computer Science courses (1988–1996, 1997–2001)

Acting Chair of Computer Science Teaching Committee (Jan–Sept 1998)

Postgraduate publicity officer for Computer Science (1997–1998)

Organiser of Computer Science seminar programme (1993–1997)

Chair of Computer Science appeals committee (1995–1996)

Computer Science Staff/student Committee (1987–1989)

### **(b) University administrative responsibilities**

School representative on Undergraduate Faculty Board (2006–2008)

Elected departmental representative on Science Faculty Board (1992–1998)

Science Faculty representative on University Ethics Committee (1997–2000)

Music Advisory Committee (1997–2000)

Programme Co-ordinator for HND Computing at Truro College (2001–2003)

### (c) Initiatives

The former departmental procedures for handling setting and marking of examinations, and the presentation of results, were largely established single-handed by me. This includes devising a new algorithm for the computation of *prima facie* degree classes from raw marks, and the introduction of more sophisticated methods for presenting statistical analyses of exam results to the examining boards. Much of this has now been rendered obsolete by the introduction of a centralised system for use throughout the University (SITS).

I played a major part in setting up two new degrees, both at the initial planning stage and the detailed development and implementation, namely BSc Information Technology Management for Business, to which the first students were admitted in October 2007, and the new BSc Computer Science (replacing a previous degree of the same name which admitted its last intake in October 2008), due to admit students from October 2012.

## 6 External Recognition

### (a) Prizes, etc

1. Best paper award (with Marta Fraňová) for *Failure analysis in constructive matching methodology*, presented at the 11th European Meeting on Cybernetics and Systems Research, Vienna, April 1992.
2. Best paper award for *Pareto-optimality of Cognitively Preferred Polygonal Hulls for Dot Patterns*, presented at the International Conference on Spatial Cognition, Freiburg, Germany, September 2008.
3. Best paper award (with Zena Wood) for *A New Classification of Collectives*, presented at the Fifth International Conference on Formal Ontology in Information Systems, Saarbrücken, Germany, November 2008.

### (d) Invited talks, etc.

1. April 1987: 'What is this thing called Semantics'. Invited paper, Conference on Logic and Linguistics at Leeds University.
2. March 1990: 'What, if anything, is a Process?'. Invited paper, University of Bradford.
3. February 1991: Invited participant in a round-table workshop entitled 'Footprints of the Brain in the Syntax of Natural Language' held at the Neurosciences Institute, New York.
4. May 1991: Invited paper on Causal Reasoning, University of Birmingham.
5. May 1991: 'Action and Computation'. Invited paper, British Society for the Philosophy of Science conference on *Philosophy and the Cognitive Sciences*, University of Birmingham.
6. February 1992: 'On Keeping (Formal) Logic in its (Proper) Place'. Invited paper, Queen Mary and Westfield College, London.
7. September 1992: 'On the notions of specification and implementation'. Invited paper, Royal Institute of Philosophy conference on *Philosophy and the Cognitive Sciences*, University of Birmingham.
8. February 1993: 'Qualitative Reasoning about Continuous Motion'. Invited paper, University of York.
9. March 1993: 'Qualitative Reasoning about Continuous Motion'. Invited paper, University of Leeds.
10. October 1993: 'Time and Continuity in Philosophy, Mathematics, and Artificial Intelligence'. Invited paper, 7th International Congress of the German Society for Semiotics, Tübingen.

11. March 1994: 'Discrete Representations of Continuous State-spaces'. Invited paper, Queen's University, Belfast.
12. June 1994: 'Discrete Representations of Continuous State-spaces'. Invited paper, University of Sheffield.
13. January 1995: 'How to Get Rid of Unwanted Fuzz'. Invited paper, University College of Swansea.
14. March 1995: Series of five invited lectures on 'Space, time, and movement', 8th International School in Philosophy and Artificial Intelligence, Bolzano, Italy.
15. September 1995: 'Modes of Overlap'. Invited paper, 2nd Workshop of the European Qualitative Spatial Reasoning Network (SPACENET), Semmering, Austria.
16. February 1996: 'On the Bewitchment of our Spatial Intuition by means of Point-Set Topology'. Invited paper, University of Manchester.
17. July 1966. Appointed Visiting Professor in the Department of Computer Science at the University of Skövder, Sweden. In this capacity I presented 16 hours of lectures each year on Advanced Logic as part of that department's MSc course in New Generation Representations. I resigned from this position in July 2003.
18. May 1997: 'Qualitative and quantitative representations: their nature and relationship'. Invited paper, University of Dundee.
19. November 1997: 'Continuous change in spatial regions'. Invited paper, University of Keele.
20. December 1997: Series of eight invited lectures on 'Spatial and Temporal Representations', Universidad Nacional del Sur, Bahía Blanca, Argentina.
21. September 1998: 'Some correspondences between spatial and temporal representations'. Invited talk, annual meeting of the Italian Association for Artificial Intelligence, Padova, Italy.
22. September 1998: 'Continuous change in spatial regions'. Invited paper, LADSEB-CNR, Padova, Italy.
23. November 1998: Invited to contribute article on Temporal Logics to the Stanford On-line Encyclopedia of Philosophy. (Article published in 1999.)
24. July 2001: 'On the Ontological Status of Geographical Boundaries'. Invited contribution to Meeting on Fundamental Questions in GIScience, Palace Hotel, Manchester.
25. August 2001: 'The QSS Framework for Modelling Qualitative Change: Prospects and Problems for GIScience'. Invited contribution to ESRC Seminar on Spatial and Temporal Representation in Geography, Burleigh Court, University of Loughborough.
26. March 2002: 'A formal theory of objects and fields'. Invited paper, University of Birmingham.
27. August 2003: Invited to contribute 2000-word article on 'Temporal Logic' to the 2nd Edition of the *Encyclopedia of Language and Linguistics*, to be published by Elsevier in 2005/6.
28. October 2003: 'Operators vs Arguments: The Ins and Outs of Reification'. Invited talk, PHILOG Conference on the Logic of Time and Modality, Roskilde University, Denmark.
29. July 2004: 'The Church-Turing Thesis: Still valid after all these years?'. Invited talk, Workshop on Language and Complexity (Fundação Oriente/Fundação Calouste Gulbenkian), Convento da Arrábida, Portugal.
30. November 2004: Invited to contribute to a special issue of the *Journal of Applied Mathematics and Computation* (Elsevier) on Hypercomputation.

31. March 2005: 'Objects and Events in Geo-spatial Data Models'. Invited talk, University of Greenwich.
32. March 2005: Invited to contribute a chapter on Temporal Logic to the CRC Handbook of Dynamic System Modelling (ed. Paul Fishwick).
33. March 2005: Invited to contribute a chapter on Causal Reasoning to a Springer volume on AI and Smart Homes (ed. J. C. Augusto)
34. February 2006: Invited to contribute entry on 'Processes and Events' to the *Encyclopedia of GIS*, published by Springer in 2008.
35. June 2006: Keynote lecture, 13th International Symposium on Temporal Representation and Reasoning (TIME 2006), June 15-17, 2006, Budapest, Hungary.
36. November 2006: Keynote lecture, 4th International Conference on Formal Ontology in Information Systems (FOIS 2006), Baltimore, Maryland, USA.
37. December 2007: Invited talk, Annual Meeting of the Interdisciplinary Laboratory on Interacting Knowledge Systems, Trento, Italy.
38. May 2008: 'In search of objective criteria for evaluating polygonal outlines for two-dimensional dot patterns'. Invited talk, Universidad Politécnica de Madrid.
39. October 2009: Invited to contribute a chapter on Logics of Time and Tense to the Routledge Companion to the Philosophy of Language.
40. January 2010: Invited lecture series (6 hours) on Spatio-Temporal Knowledge Representation, given as part of the Third Indian School on Logic and its Applications (ISLA 2010), Hyderabad, India.
41. February 2010: 'How is a Collection Related to its Members?'. Invited talk, Third Interdisciplinary Ontology Meeting (InterOntology10), Tokyo, Japan.
42. August 2010: 'The Formalities of Affordance', Keynote talk, Workshop on Spatio-Temporal Dynamics, 19th European Conference on Artificial Intelligence (ECAI 2010), Lisbon, Portugal.
43. June 2011: 'Life and Motion of Collective Phenomena', Keynote talk, Workshop on Collectives in Space and Time, Rostock, Germany.
44. February 2012: 'The Ontology of States, Processes, and Events', Invited talk, Fifth Interdisciplinary Ontology Meeting (InterOntology12), Tokyo, Japan.

### **(e) Consultative work**

1. Refereeing of book proposals for Academic Press, Kluwer Academic Press, MIT Press, Oxford University Press, Springer-Verlag, UCL Press, Wiley, World Scientific Press.
2. Refereeing of papers submitted to AI Communications, Annals of the Association of American Geographers, Annals of Mathematics and Artificial Intelligence, Applied Ontology, Artificial Intelligence Journal, Artificial Intelligence Review, Automated Software Engineering, Bulletin of IGPL, Computer Vision and Image Understanding, Computers, Environment and Urban Systems, Data and Knowledge Engineering, DIRASAT (University of Jordan), International Journal of Geographical Information Science, International Journal of Human-Computer Studies, International Journal of Man-Machine Studies, International Journal of Software and Informatics, Journal of Applied Logic, Journal of Applied Non-Classical Logics, Journal of Artificial Intelligence Research, Journal of Automated Reasoning, Journal of Data Semantics, Journal of Geographical Systems, Journal of Logic and Computation, Journal of Logic, Language, and Information, Journal of Spatial Science, Knowledge and Information Systems, Logic Journal of the IGPL, Notre Dame Journal of Formal Logic, Philosophical Papers, Philosophical Studies, Pragmatics, Software Practice and Experience, Spatial

Cognition and Computation, *Studia Logica*, *The Computer Journal*, *Transactions on Knowledge and Data Engineering*.

3. Regular refereeing of papers for international conferences, including COSIT, ECAI, FOIS, IJCAI, KR.
4. Refereeing of workshop proposal for international conference IJCAI'95
5. Refereeing of Research Grant Applications for SERC/EPSRC (October 1993, March 1994, April 1995, May 2000, October 2002, August 2004, March 2005, December 2006, September 2007, June 2009, July 2009, May 2010).
6. Refereeing of Information Technology Advanced Fellowship applications for EPSRC (October 1994, October 1998)
7. Refereeing of NATO Collaborative Research Grant, February 1996.
8. Refereeing of Research Grant Application for Hong Kong UGC, February 2000.
9. Refereeing of Research Grant Applications for the Leverhulme Trust (December 2002, December 2003).
10. Refereeing of Research Grant Application for the Royal Society, November 2007.
11. Refereeing of Research Grant Application for the US National Science Foundation, October 2007.
12. November 2003: Invited to act as second reader for a chapter in a collection of original papers on the Logics of Space (edited by Johan van Benthem, Ian Pratt-Hartmann, and Marco Aiello).
13. April 2008: Reviewer for Chancellor Chair for Research Excellence, Brock University, St Catharines, Ontario, Canada.

#### **(f) Conference organisation, etc**

1. Organiser, Conference on Temporal Logics and their Applications, Centre for Theoretical Computer Science, University of Leeds, January 1986.
2. Principal Organiser, AISB Workshop on Spatio-Temporal Reasoning (Leeds, April 1994)
3. Area Chair for Knowledge Representation, 11th European Conference on Artificial Intelligence (Amsterdam, August 1994).
4. I have served on the programme committees for many national and international conferences and workshops, including AICS (2002), COSIT (1995, 1999, 2001, 2003, 2005, 2007, 2009, 2011), ECAI (1996, 1998, 2000), FOIS (2001, 2004, 2006, 2008, 2012), JELIA (1994, 1996), KR (1998, 2002, 2004, 2006, 2012), TIME (1996, 1997, 2002, 2008, 2009, 2012),
5. On editorial board of *Applied Ontology* (IOS Press).
6. Associate Editor of *Artificial Intelligence* (Elsevier) for four years from January 2007.
7. On editorial board of *Spatial Cognition and Computation* (Taylor & Francis)
8. On editorial board of *Journal of Earth Science Informatics* (Springer)
9. On editorial board of *Journal of Spatial Information Science*
10. Programme Chair, Sixth International Conference on Formal Ontology in Information Systems, Toronto, Canada, May 2010.
11. Programme Chair, Eleventh International Conference on Spatial Information Theory, to be held in Scarborough, Yorkshire, September 2013.

## 7 Publications

### (i) Books

1. **Antony Galton**, *The Logic of Aspect: an Axiomatic Approach*, Clarendon Press, Oxford, 1984.
2. **Antony Galton**, editor, *Temporal Logics and their Applications*, Academic Press, London, 1987.
3. **Antony Galton**, *Logic for Information Technology*, John Wiley and Sons, Chichester, 1990.
4. **Antony Galton**, *Qualitative Spatial Change*, Oxford University Press, 2000
5. **Antony Galton** and Riichiro Mizoguchi (eds.), *Formal Ontology in Information Systems: Proceedings of the Sixth International Conference (FOIS 2010)*, IOS Press, 2010.

### (ii) Chapters in books/proceedings

6. **Antony Galton**, 'Temporal logic and computer science: An overview'. In Antony Galton, editor, *Temporal logics and their applications*, pages 1–52. Academic Press, London, 1987.
7. **Antony Galton**, 'The logic of occurrence'. In Antony Galton, editor, *Temporal logics and their applications*, pages 169–196. Academic Press, London, 1987.
8. **Antony Galton**, 'A critique of Yoav Shoham's theory of causal reasoning'. In *Proceedings of the Ninth National Conference on Artificial Intelligence*, pages 355–359. AAAI Press/MIT Press, 1991.
9. **Antony Galton**, 'Reified temporal theories and how to unreify them'. In *Proceedings of the 12th International Joint Conference on Artificial Intelligence*, pages 1177–1182, 1991.
10. Marta Fraňová and **Antony Galton**, 'Failure analysis in constructive matching methodology: a step towards autonomous program synthesis'. In R. Trappl, editor, *Cybernetics and Systems Research '92*, pages 1553–1560, 1992.
11. Craig MacNish, **Antony Galton**, and John Gooday, 'QSQR: Quantitatively scoped qualitative reasoning'. In Erik Sandewall and Karl-Gustav Jansson, editors, *Scandinavian Conference in Artificial Intelligence*, pages 30–37, Amsterdam, 1993. IOS Press.
12. **Antony Galton**, 'Aspectual prototypes'. In Kevin Ryan and Richard Sutcliffe, editors, *AI and Cognitive Science '92*, pages 330–333. Springer-Verlag Workshops in Computing, 1993.
13. **Antony Galton**, 'On the notions of specification and implementation'. In Christopher Hookway and Donald Peterson, editors, *Philosophy and Cognitive Science*. Cambridge University Press, 1993. Royal Institute of Philosophy Supplement No. 34.
14. **Antony Galton**, 'Towards an integrated logic of space, time, and motion'. In *Proceedings of the Thirteenth International Joint Conference on Artificial Intelligence (IJCAI'93)*, 1993.
15. **Antony Galton**, 'Die Logik des Vorkommens', in B. Kienzle (editor), *Zustand und Ereignis*, pages 377–412. Frankfurt am Main: Suhrkamp, 1994. (German translation of 'The logic of occurrence' (listed above).)
16. **Antony Galton**, 'Lines of sight'. In Mark Keane, Pádraig Cunningham, Mike Brady, and Ruth Byrne, editors, *AI and Cognitive Science '94*, pages 103–113. Dublin University Press, 1994. (Proceedings of the Seventh Annual Conference, September 8–9, 1994, Trinity College Dublin.)
17. **Antony Galton**, 'Time and Change for AI'. In Gabbay, Hogger, and Robinson (eds.), *Handbook of Logic in Artificial Intelligence and Logic Programming*, Volume 4, pages 175–240. Oxford, Clarendon Press, 1995.

18. **Antony Galton**, ‘Verb Aspect and Prototype Theory’. In *Proceedings of the 1st European Conference on Cognitive Science (ECCS’95)*, pages 121-128. ARC/INRIA, 1995.
19. Rashmibala Pandya and **Antony Galton**, ‘Logic and Uncertainty: Steps Towards a Theory of Higher-Order Probabilities’. In *Applied Decision Technologies*, Brunel Conference Centre London, 3–5 April 1995, pages 303–322. Unicom Seminars Ltd, 1995.
20. **Antony Galton**, ‘A Qualitative Approach to Continuity’. In P. Amsili, M. Borillo, and L. Vieu (eds.), *Time, Space and Movement: Meaning and Knowledge in the Sensible World*. Institut de Recherche en Informatique de Toulouse, June 1995.
21. **Antony Galton**, ‘Towards a Qualitative Theory of Movement’. In A. U. Frank and W. Kuhn (Eds.), *Spatial Information Theory: A Theoretical Basis for GIS*, Proceedings of the International Conference COSIT’95, Semmering, Austria, September 1995, pages 377–396. Springer-Verlag, 1995.
22. Rashmibala Pandya and **Antony Galton**, ‘Multi-layer Thinking in Logic and Probability’. In D. L. Lowe, K. B. Korb, J. J. Oliver (eds.), *ISIS: Information, Statistics and Induction in Science*, Melbourne, Australia, August 1996, pages 141–151. World Scientific, 1996.
23. **Antony Galton**, ‘The Church-Turing Thesis: Its Nature and Status’. In A. Clark and P. Millican (eds.), *Machines and Thought: The Legacy of Alan Turing*, pages 137–164. Oxford University Press, 1996.
24. **Antony Galton**, ‘Taking Dimension Seriously in Qualitative Spatial Reasoning’. In W. Wahlster (ed.) *Proceedings of the 12th European Conference on Artificial Intelligence*, pages 501–505. John Wiley and Sons Ltd, 1996.
25. **Antony Galton**, ‘Space, Time and Movement’. In O. Stock (ed.), *Spatial and Temporal Reasoning*, pages 321–352. Kluwer Academic Publishers, 1997.
26. **Antony Galton**, ‘Continuous Change in Spatial Regions’. In S. C. Hirtle and A. U. Frank (eds.), *Spatial Information Theory: A Theoretical Basis for GIS*, Proceedings of International Conference COSIT’97, Laurel Highlands, Pennsylvania, USA, October 1997, pages 1–14. Springer-Verlag, 1997.
27. **Antony Galton** and Richard Meathrel, ‘Qualitative Outline Theory’. In Thomas Dean (ed.), *Proceedings of the 16th International Joint Conference on Artificial Intelligence (IJCAI’99)*, Stockholm, Sweden, 31 July-6 August 1999, pages 1061-66.
28. **Antony Galton**, ‘The Mereotopology of Discrete Space’. In Christian Freksa and David Mark (eds.), *Spatial Information Theory: Cognitive and Computational Foundations of Geographic Information Science (Proceedings of International Conference COSIT’99, Stade, Germany, August 1999)*, pages 251–266. Springer-Verlag, 1999.
29. **Antony Galton**, ‘Temporal Logic’. In the Stanford Electronic Encyclopedia of Philosophy, <http://plato.stanford.edu/entries/logic-temporal/>, 1999.
30. **Antony Galton**, ‘Continuous Motion in Discrete Space’. In Anthony Cohn *et al.* (eds.), *Principles of Knowledge Representation and Reasoning: Proceedings of the Seventh International Conference (KR’2000)*, Breckenridge, Colorado, USA, 11–15 April, 2000, pages 26–37.
31. Richard Meathrel and **Antony Galton**, ‘Qualitative Representation of Planar Outlines’. In Werner Horn (ed.), *Proceedings of the 14th European Conference on Artificial Intelligence (ECAI 2000)*, Berlin, Germany, August 20-25, 2000, pages 224–8.
32. **Antony Galton**, ‘Transitions in Continuous Time, with an Application to Qualitative Changes in Spatial Relations’. In H. Barringer *et al.*, *Advances in Temporal Logic (Proceedings of the 2nd International Conference on Temporal Logic, ICTL’97)*, pages 279–297. Kluwer Academic Publishers, 2000.

33. Brandon Bennett and **Antony Galton**. ‘A Versatile Representation of Time and Events’. Fifth Symposium on Logical Formalizations of Commonsense Reasoning, New York, May 2001, <http://www.cs.nyu.edu/faculty/davise/commonsense01/papers.html>.
34. Rodolfo Gómez, Juan Carlos Augusto and **Antony Galton**, ‘Testing an Event-Specification Language’. Proceedings of the Thirteenth International Conference on Software Engineering and Knowledge Engineering (SEKE’01), Buenos Aires, Argentina, June 13–15, 2001.
35. Richard Meathrel and **Antony Galton**, ‘A Hierarchy of Boundary-based Shape Descriptors’. Proceedings of the Seventeenth International Conference on Artificial Intelligence (IJCAI’01), Seattle, Washington, U.S.A, August 2001, pages 1359–1364.
36. **Antony Galton**, ‘A Formal Theory of Objects and Fields’, in D. Montello (ed.), *Spatial Information Theory: Foundations of Geographic Information Science* (Proceedings of International Conference COSIT 2001, Morro Bay, California, USA, September 2001), pages 458–473.
37. **Antony Galton** and Juan Carlos Augusto, ‘Stratified Causal Theories for Reasoning about Deterministic Devices and Protocols’, in M. Fisher and A. Artale, *Proceedings of the 9th International Symposium on Temporal Representation and Reasoning (TIME’02)*, IEEE Computer Society, 2002, pages 52–54.
38. **Antony Galton** and Juan Carlos Augusto, ‘Two Approaches to Event Definition’, in A. Hameurlain, R. Cicchetti, and R. Traunmüller (Eds.), *Databases and Expert Systems Applications*, proceedings of the 13th International Conference DEXA 2002, Aix-en-Provence, France, September 2002, Springer-Verlag LNCS 2453, pages 547–556.
39. Sameer Singh and **Antony Galton**, ‘Pattern Recognition using Information Slicing Method (PRISM)’. *Proceedings of the 15th International Conference on Pattern Recognition (ICPR’02)*, Quebec (11-15 August 2002).
40. **Antony Galton**, ‘On the Ontological Status of Geographical Boundaries’, in M. Worboys and M. Duckham (eds.), *Foundations of Geographic Information Science*, Taylor and Francis (2003), pages 151–171.
41. **Antony Galton**, ‘Desiderata for a Spatio-temporal Geo-Ontology’, in W. Kuhn, M. Worboys, and S. Timpf (eds.), *Spatial Information Theory: Foundations of Geographic Information Science* (Proceedings of International Conference COSIT 2003, Kartause-Ittingen, Switzerland, September 2003), Springer-Verlag, 2003, pages 1–12.
42. **Antony Galton**, ‘Multidimensional Mereotopology’, in Didier Dubois, Christopher Welty and Mary-Anne Williams (editors), *Proceedings of the Ninth International Conference on Principles of Knowledge Representation and Reasoning (KR2004)*, Whistler, BC, Canada, June 2-5, 2004. American Association for Artificial Intelligence, 2004, pages 45-54.
43. **Antony Galton** and James Hood, ‘Qualitative Interpolation for Environmental Knowledge Representation’, in Ramon López de Mántaras and Lorenza Saitta (eds.), *Proceedings of the 16th European Conference on Artificial Intelligence (ECAI2004)*, IOS Press, 2004, pages 1017–18.
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