

CURRICULUM VITAE

December 2022

PERSONAL DETAILS

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| Name | Cecilia Heyes |
| Date of birth | 6 March 1960 |
| Nationality | British |
| Address | All Souls College, University of Oxford, Oxford OX1 4AL, UK |
| E-mail | cecilia.heyes@all-souls.ox.ac.uk |
| Website | http://users.ox.ac.uk/~ascch/ Wikipedia Google Scholar H=78, total~24000 |
| Qualifications | Bachelor of Science, Psychology, First Class honours, UCL, 1981 Doctor of Philosophy, Psychology, UCL, 1984 Doctor of Science, University of Oxford, 2016 |
| Appointments | Senior Research Fellow in Theoretical Life Sciences, All Souls College & Professor of Psychology, University of Oxford Honorary Professor, UCL |

PREVIOUS APPOINTMENTS

| | |
|-----------|--|
| 1984-86 | Harkness Fellow - Lehigh University, University of Chicago, Tufts, USA |
| 1986-89 | Research Fellow, Trinity Hall, University of Cambridge |
| 1988-93 | Lecturer in Psychology, UCL |
| 1993-96 | Senior Lecturer in Psychology, UCL |
| 1995-2010 | Fellow, ESRC Centre for Economic Learning and Social Evolution (ELSE), UCL |
| 1996-2000 | Reader in Psychology, UCL |
| 1996-2008 | Member, Institute of Cognitive Neuroscience, UCL |
| 2000-2008 | Professor of Psychology, UCL |

HONOURS & AWARDS

| | |
|----------------|--|
| 1987 | Fellow of the 21st Century Trust |
| 2001 | Nordlys Lecturer, University of Tromso, Norway |
| 2002 | UCL Faculty of Life Sciences Teaching Award |
| 2004 | Broadbent Lecturer, British Psychological Society |
| 2004 | British Psychological Society, Cognitive Section Prize |
| 2006 | Chichele Lecturer and Visiting Fellow, All Souls College, Oxford |
| 2010 - present | Fellow of the British Academy, Psychology Section |
| 2012 | Gibson Lecturer, Cornell University, USA |
| 2015 - present | Fellow of the British Academy, Philosophy Section |

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| 2018 | Chandaria Lecturer, Institute of Philosophy, University of London |
| 2018 - 2020 | President, Experimental Psychology Society |
| 2018 - 2020 | Honorary Professor, University of Nottingham |
| 2019 - present | Fellow of the Cognitive Science Society |
| 2022 | Rudolf Carnap Lecturer, Philosophy, Ruhr-Universität Bochum |

RESEARCH FUNDING 1990-2022

Australian Research Council
 Biotechnology and Biological Sciences Research Council
 Economic and Social Research Council
 Engineering and Physical Science Research Council
 European Commission
 Human Frontiers Science Program
 Leverhulme Trust
 Medical Research Council
 Templeton Foundation
 Unilever

PUBLIC WRITING

Furry friends - or just cats and rats. *The Daily Telegraph*, 29 July 1998
[From deflection to despair](#). Review of 'The Enigma of Reason' by Hugo Mercier and Dan Sperber. *The Times Literary Supplement*, 28 July 2017
[New thoughts on thinking](#). *The Psychologist*, July 2018
[How did our minds evolve?](#) *Connect 13*, 2018
[The cultural origins of cognition](#). *Scientific Inquirer*, 8 January 2019
[Cognitive gadgets - how culture works with evolution to produce human cognition](#). *Aeon*, 17 April 2019

PUBLIC BROADCASTING

Absolutely Animals, Channel 4, October 1995
Equinox, Channel 4, December 1995
The Great Ape Trial, Channel 4, December 1995
Women in science. Channel 4, June 1996
Animal consciousness. Channel 4, January 1998
The Material World, BBC Radio 4, January 1999
Do Elephants Weep, BBC Radio 4, September 1999
All in the Mind, BBC Radio 4, September 1999
Inside the Animal Mind, PBS, USA, December 1999
Do animals think? BBC Knowledge, September 2000
Telling Lies, BBC for The Learning Channel, January 2001
[Mirror Neurons](#). All in the Mind, BBC Radio 4, December 2014
[On the Irrationality of Human Thought](#). Times Literary Supplement podcast, July 2017
[Celia Heyes on Cognitive Gadgets](#). Social Science Bites, June 2018

[Cognitive Gadgets](#). Interview by Russell Gray, Director of the Max Planck Institute for the Science of Human History, Jena, Germany, November 2018

[The Evolution of Cognition](#). The Measure of Everyday Life, US public radio, March 2019

[Cultural Evolutionary Psychology](#). The Dissenter, 29 July 2019

[Cognitive Gadgets](#). Brain Science with Ginger Campbell, MD. 28 February 2020

[Cognitive Gadgets: How Culture Influences Thinking](#). The Art and Science of Learning with Dr Kinga Petrovai, 28 July 2020

[Psychological Mechanisms Forged By Cultural Evolution](#). The Psychological Science Podcast, 1 August 2020

[Cognitive Gadgets: The Cultural Evolution of Thinking](#). Nature & Nurture Podcast, 5 May 2021

[Algorithms at Work: The Computer Science of Human Interactions](#). Interview for Audible by Brian Christian and Tom Griffiths, 10 February 2022

[#110 Cecilia Heyes](#), unSILOed with Greg LaBlanc, 9 March 2022

INVITED LECTURES

I have given more than 100 invited lectures at conferences in Asia, Australasia, Europe, and North America. Most were plenary lectures at international conferences. In all cases my participation was funded by the organisers. Submitted conference papers are not listed.

- 1986 *Contrasting approaches to the legitimation of intentional language within comparative psychology*. NATO Advanced Study Institute on the 'Evolution of Intelligence', Poppi, Italy.
- Observational learning in rats*. Association for the Study of Animal Behaviour, Annual Meeting, Royal Zoological Society, London.
- 1992 *Imitation and culture*. International School of Ethology symposium on 'Ontogeny and social transmission of food preferences in mammals', Erice, Sicily.
- 1994 *Phylogenetic surprises*. Biotechnology and Biological Sciences Research Council / Ministry of Agriculture, Fisheries and Food, Animal Behaviour and Welfare Workshop, University of Warwick.
- Genuine imitation?* Human Frontier Science Program Workshop on 'Social learning and tradition in animals', Madingley Hall, Cambridge.
- 1996 *Social cognition in monkeys and apes: The problem of test bias*. Sixteenth Annual Congress of International Primatological Society and Nineteenth Annual Congress of American Primatological Society, University of Wisconsin at Madison, USA.
- 1997 Plenary lecture, *Theory of mind in primates*. International Ethological Congress, University of Vienna, Austria.

Reflections on self-recognition in primates. International meeting on 'Cognitive Ethology', University of Budapest, Hungary.

Do animals think about thinking? Cambridge Philosophical Society meeting on 'Animal Thought', University of Cambridge.

1998 *Transformational and associative theories of imitation.* International conference on 'Social learning and Cultural Transmission', Naples, Italy.

1999 *Transformational and associative theories of imitation.* AISB'99 symposium 'Imitation in Animals and Artifacts', University of Edinburgh.

Plenary lecture, *Imitation, cognition and culture.* International Ethological Congress, University of Bangalore, India.

Imitation as ontogenetic specialisation. Association for the Study of Animal Behaviour meeting on 'Evolution of Mind', Royal Zoological Society, London.

2000 *Evolutionary psychology in the round.* International meeting on 'Evolution of Mind', King's College London.

2001 *Ontogenetic tricks.* Institute of Cognitive Neuroscience (ICN) workshop 'What is special about human cognition?', Institute of Cognitive Neuroscience, London.

Imitation by association. Symposium to mark the retirement of Euan MacPhail, University of Wales at Cardiff, Gregynog, Wales (with E. Ray).

Learning to imitate. Interdisciplinary workshop on 'Imitation, Education and the Brain', funded by the Lifelong Learning Foundation, Institute of Cognitive Neuroscience, London.

Four routes of cognitive evolution. International workshop on 'Evolutionary Psychology' funded by the Macquarie Centre for Cognitive Sciences. Australian National University, Canberra, Australia.

Imitation from Associative Sequence Learning. Joint Institute of Cognitive Neuroscience and Institute of Movement Neuroscience workshop on 'Motor and Cognitive Bases of Imitation', funded by The Wellcome Trust, London.

2002 *Imitation from Associative Sequence Learning.* International conference 'Perspectives on Imitation: From Cognitive Neuroscience to Social Science', funded by the Gatsby Charitable Foundation and the Lifelong Learning Foundation, Royaumont Abbey, France.

Rational Imitation in Birds? International conference 'Rational Animals?' funded by the McDonald-Pew Foundation, University of Oxford, Oxford.

2003 *Four Routes of Cognitive Evolution.* International workshop on 'Bounded Rationality', organised by the ESRC Research Centre for Economic Learning and Social Evolution (ELSE), UCL, and the Centre for Adaptive Behaviour and Cognition (ABC), Max Planck Institute, Berlin.

Imitation: General Processes or Innate Module? International conference on 'Emotion and Learning' funded by the Swedish Foundation for Strategic Research, Lejonadal Castle, Stockholm, Sweden.

2004 *Broadbent Lecture: Mechanisms of Imitation.* British Psychological Society Annual Conference, London.

Cognitive Psychology Award Lecture: Four Routes of Cognitive Evolution, British Psychology Society Cognitive Section Annual Conference, Leeds.

Imitation as a product and a process of cultural evolution. Symposium on 'Evolution of Brain, Cognition and Social Intelligence' funded by the Netherlands Organisation for Scientific Research (NWO), Utrecht University, The Netherlands.

2005 *Plenary Lecture: Imitation in People and Pigeons.* St. Andrews International Conference on Animal Social Learning funded by The Russell Trust and the Association for the Study of Animal Behaviour, St Andrews University, Scotland.

2006 *Chichele Lecture: Beast Machines? The Question of Animal Consciousness.* All Souls College, Oxford.

Chichele Seminar: Mentalising, Metacognition and Animal Consciousness. All Souls College, Oxford

Review Paper: Mirroring, Association and the Correspondence Problem. 22nd International Symposium on Attention and Performance, Chateau de Pizay, France.

Mechanisms of Imitation. GlaxoSmithKlein Lecture on Social Cognition, National Hospital, London.

2007 *Sensorimotor Learning Configures the Mirror System.* Magstim TMS Summer School, London 25-26 May. With C. Catmur & V. Walsh.

- Imitation from Sensorimotor Learning*. CoSy (Cognitive Systems for Cognitive Assistants) Meeting-of Minds Workshop, Paris 16-18 September. Funded by the European Commission.
- 2008 *On the Origins of Imitation and the Mirror System*. Australian Learning Group ‘Special Event’ Lecture, University of Sydney, 17 January.
- Imitation and the Wealth of the Stimulus* (with E. Ray) International conference on Evolution, Development and Intentional Control of Imitation, 5-7 March. Funded by the European Commission.
- Imitation and Evolution*. Evolution of Cognition and Cooperation Workshop, St Martin de Castillon, France, 24-25 May.
- Plenary Lecture: The Social Cognitive Origins of Imitation*. ESCON Transfer of Knowledge Conference, European Science Foundation, Volterra, Italy, 3 September.
- 2009 *The Meaning of Mirror Neurons*. Minds, Brains & Beyond: An international conference in honour of Susan Hurley, Bristol, 20-22 March.
- The Role of Sociocultural Learning in the Development of Mirror Neurons*. The Social Construction of Self (ESF-EuroCORES programme CNCC – Consciousness in Interaction), Alghero, Sardinia, 28-29 September.
- From Imitation to Joint Action*. Joint Action: New Perspectives from Developmental and Cognitive Neuroscience, Amsterdam, Netherlands, 11-12 November.
- 2010 *Automatic Imitation? Perception and Action*, ZiF Bielefeld, Germany, 23-26 June.
- What’s Social About Social Learning? Social Learning in Human and Non-Human Animals: Theoretical and Empirical Dissections*. Kavli Royal Society, Chicheley Hall, 1-2 July.
- What’s Special About Human Cognition? Launch of Calleva Research Centre for Evolution and Human Science*, Magdalen College, University of Oxford, 30 September.
- Mirror Neurons – Adaptation or Association?* McDonnell Foundation Autumn School in Cognitive Neuroscience, University of Oxford, 1 October.
- 2011 *On the Generality of Social Learning*. Comparative Psychology and Animal Minds, Harvard University, Boston, USA, 26-27 March.

The Evolution of Human Cognition. Chichele Lecture, All Souls & Magdalen Colleges, Oxford, 5 May.

Cultural Inheritance of Cultural Learning. New Thinking: Advances in the Study of Human Cognitive Evolution, Oxford, 23-24 June.

The Making of Mirror Neurons. Plenary lecture, Society for Philosophy & Psychology, Montreal, 7 July.

Decluttering Social Learning. Symposium on Animal Cognition, Society for Philosophy & Psychology, Montreal, 8 July.

2012 *Simple Minds: A Qualified Defence of Associative Learning*. Royal Society Discussion Meeting on Animal Minds: From Computation to Evolution, London, 16 January.

Grist and Mills: On the Cultural Inheritance of Cultural Learning. Twenty-Fifth Eleanor J Gibson and James J. Gibson Lecture in Experimental Psychology, Cornell University, 30 March.

Evolution and the Cultured Mind. Seventh Jonckheere Memorial Lecture, University College London, 5 May.

Learning to Mirror. Workshop on Perceptual Learning and Perceptual Recognition, University of Toronto, 11 May.

Making Mirrors: The Role of Associative Learning in the Development of Mirror Neurons. ‘Mirror Neurons: New Frontiers 20 Years After Their Discovery’, Erice, Sicily, 4 September.

Cultural Origins of Cultural Learning. Wenner-Gren Foundation conference on ‘Cultural Evolution: Patterns of Cultural Change and Diversification’, Stockholm, 13-15 September.

2013 *Learning to Read Minds*. Plenary lecture, European Human Behaviour & Evolution Association (EHBEA). Free University of Amsterdam, 24-27 March.

The Development and Function of Mirror Neurons. British Neuroscience Association, Festival of Neuroscience, Barbican Centre, London, 7-10 April.

Cultural Inheritance of Mindreading. Interdisciplinary Summer School on ‘Embodied Inter-subjectivity: the 1st-person and the 2nd-person perspective’. Hotel Apollo, Aegina, Greece, 9-15 June.

Cultural Inheritance of Mindreading. Symposium organised by the Donders Institute for Brain, Cognition and Behaviour, ‘Dialogues on the Mechanisms of Action and Social Interaction’. Radboud University, Nijmegen, 26 June.

Cultural Inheritance of Mindreading. Biennial meeting of the International Society for History, Philosophy and Social Studies of Biology, University of Montpellier, 7–12 July.

Mirror Neurons: From Origins to Function. European Society for Social Cognition (ESCON 2013) Pre-conference on Social Neuroscience. Funded by the European Science Foundation. Vilnius, Lithuania, 28 August.

Cultural Inheritance of Mindreading. Extension and Embodiment in Cultural Evolution. Funded by the Andrew W Mellon Foundation, the University of Cambridge, and the European Research Council. Cambridge, 19-20 September.

Cultural Inheritance of Mindreading. London Evolutionary Research Network (LERN) 11th Annual Conference, University College London, 5 November.

Animal Mindreading: What’s the Problem? Expert Meeting on Animal Cognition, University of Ghent, Belgium, 19-20 December.

2014 Response to Russell Gray’s Nijmegen Lecture *The Evolution of Cognition Without Miracles*. Max Planck Institute for Psycholinguists, Nijmegen, 27 January.

Imitation, Mirror Neurons and the Wealth of the Stimulus. XIX Biennial International Conference on Infant Studies, Berlin, 4 July.

The Cultural Evolution of Cultural Learning. ESRC-funded conference on ‘Social Cognition: Origins, Mechanisms and Disorders’, University of Surrey, 28 August.

Mirror Neurons from Associative Learning. XXVI Annual Meeting of the Spanish Society for Comparative Psychology, University of Minho, Braga, 11 September.

2015 *The Cultural Evolution of Cultural Learning*. Attention and Performance 2015, ‘Attending and Neglecting People’, Tuusula, Finland, 18 May.

Social Learning, Social Transmission, and Inheritance. ‘Inheritance and Cooperation: a Workshop in the Philosophy of Biology’. University of Oxford, 26 June.

On the Origins of Mindreading. Keynote lecture, European Society for Philosophy & Psychology, Tartu, Estonia, 15 July.

The Cultural Evolution of Cultural Learning. A conference in honor of Donald T. Campbell. Lehigh University, Bethlehem PA, USA, 11 September.

The Development of Human Nature. ‘Why do we disagree about human nature? Funded by the AHRC and CRASSH, University of Cambridge, 11 December.

The Cultural Evolution of Cultural Learning. Public lecture, New School of Social Research, New York, USA, 16 December.

2016 *Stealing the Soul of Imitation. Mind & Language* symposium on ‘Imitation’, Birkbeck, University of London. 1 April.

Stealing the Soul of Imitation. 31st International Congress of Psychology, Yokohama, Japan, 28 July.

The Cultural Evolution of Mindreading. Workshop on Social Cognition and Cultural Evolution, Research Centre for Agency, Values and Ethics, Macquarie University, Sydney, Australia, 2 August.

Is Language the Only Innate Cognitive Module? Workshop on the Evolution of Language, Australian National University, Canberra, 4 August.

Cognitive Gadgets: The Cultural Evolution of Thinking. Keynote lecture, Philosophy of Biology at Dolphin Beach X, Moruya NSW, Australia, 12 August.

What’s the Use of Consciousness? Panel discussion with Chris Frith, David Papineau, and Nick Shea, The Royal Institution, London, 28 November.

2017 *Cognitive Gadgets: The Cultural Evolution of Thinking*. The SAGE Center for the Study of the Mind, University of California, Santa Barbara, USA, 25 May.

Cognitive Gadgets. The Human Mind Conference, Møller Centre, Cambridge, 28 June.

Enquire Within: Cultural Evolution and Cognitive Science. Plenary lecture, inaugural meeting of the Cultural Evolution Society, Max Planck Institute for the Science of Human History, Jena, Germany, 13-15 September.

The Chandaria Lectures. Institute of Philosophy, University of London, 8-15 December.

- 2018 *On the Origins of Mindreading*. International conference ‘What is Unique and What is Typical of the Human Mind?’, funded by the Japanese Society for the Promotion of Science, Kyoto University, 30 March.
- Cognitive Gadgets: The Cultural Evolution of Thinking*. Sixth Toulouse Economics and Biology Workshop, ‘Evolution, Cognition and Rationality’, Institute for Advanced Study in Toulouse, 24-25 May.
- Cognitive Gadgets: The Cultural Evolution of Thinking*. Presidential address, joint meeting of the Canadian Society for Brain, Behavior and Cognitive Science (CSBBCS) and the Experimental Psychology Society (EPS), St John’s, Newfoundland, Canada, 4-7 July.
- Author-meets-critics symposium, Cognitive Gadgets*. Department of Philosophy, Australian National University, Canberra, Australia, 1 August.
- Is morality a gadget?* Celebration of Kim Sterelny’s ARC Laureate Fellowship Project ‘The Origins of Social Inequality, Hierarchy, and Social Complexity’ Australian National University, Canberra, 6-8 August.
- 2019 *Cognitive gadgets: Bringing cognitive science to cultural evolution*. Center for Mind, Brain and Culture, Emory University, Atlanta, Georgia, 27 March.
- Cognitive gadgets: Bringing cognitive science to cultural evolution*. Retuning cognition with a pair of rocks: Culture, evolution and technology. Center for Philosophy of Science, University of Pittsburgh, 29-30 March.
- Cognitive gadgets: Bringing cognitive science to cultural evolution*. Mind-Brain Institute & Center for the Advanced Study of Human Paleobiology, George Washington University, 1 April.
- Growing gadgets*. Symposium in honour of Daniel Dennett, Growing Autonomy in Human and Artificial Agents, University of Reading, 8 May.
- Cultural learning as communication: Is morality a gadget?* Culture Conference, University of Stirling, 1 July.
- What is special about human cognition?* Definitions of Humanity: Philosophy, Cognition, Paleoanthropology. Université Bordeaux Montaigne, Archéopole d’Aquitaine, 3 October.
- Rewriting Nature versus Nurture*. The Royal Society at Berlin Science Week, Museum für Naturkunde, Berlin, 7 November 2019
- 2020 [*Cognitive Gadgets: New thinking from old parts*](#). Plenary Lecture, Annual Meeting of the Cognitive Science Society, Toronto (online), 1 August.

- 2021 *The Social Functions and Origins of Metacognition*. 44th Annual Meeting of Japan Neuroscience Society, Kobe (online), 29 July.
- 2022 *Explicit Metacognition – For and From Social Interaction*. Bartlett Prize Symposium in honour of Chris Frith, Experimental Psychology Society, London meeting (online), 6 January.
- Rethinking Norm Psychology*. Theory of Mind, Communication & Culture symposium. Department of Philosophy, University of Warwick (online), 18 February.
- Rudolf Carnap Lectures. University of Bochum, 6-8 June.
- Rethinking Norm Psychology*. Annual Lecture at the Centre for Philosophy and the Sciences, University of Oslo (online), 17 November.
- What Happened to Mirror Neurons?* Donders Lecture, Donders Centre for Neuroscience, Nijmegen (online), 24 November.

COLLOQUIA

I have accepted invitations to give more than 100 seminars for specialist groups of anthropologists, computer scientists, economists, ethologists, evolutionary biologists, neuroscientists, pharmacologists, philosophers, psychologists, and veterinary scientists in Asia, Australasia, Europe, and North America.

- 1985 Lehigh University (Social Relations)
Lehigh University (Psychology)
- 1986 University of Chicago (Committee on the Conceptual Foundations of Science)
University of California, San Diego (Philosophy)
- 1987 University of Cambridge (Experimental Psychology)
- 1990 University of Warwick (Philosophy)
- 1992 Merck, Sharp & Dohme Neuroscience Research Centre (Behavioural Pharmacology)
University of York (Psychology)
Charles University, Czechoslovakia (Center for Theoretical Study)
- 1993 Charles University, Czech Republic (Center for Theoretical Study)
University of Cambridge (Experimental Psychology)
University of Pennsylvania (Psychology)
University of Oxford (Experimental Psychology)
- 1994 University of Cardiff (Psychology)
Anton Dohrn Zoological Station, Italy (Neurobiology)
- 1995 University of Southampton (Biology)
University of St Andrews (Psychology)

University of Newcastle (Psychology)
 Nottingham Trent University (Social Sciences)
 University of Sussex (Neuroscience)
 MRC Cognitive Development Unit, London
 MRC Applied Psychology Unit, Cambridge
 1996 University of Cambridge (Sub-Department of Animal Behaviour)
 University of Bristol (Zoology)
 University of Exeter (Psychology)
 University of Liverpool (Psychology)
 University of California, Davis (Animal Behavior)
 University of California, Los Angeles (Cognitive Science)
 University of California, Los Angeles (Developmental Psychology)
 City University, London (Psychology)
 University of Warwick (Psychology)
 Konrad Lorenz Institute, Vienna
 University of Durham (Psychology)
 University of Oxford (Philosophy)
 2001 Macquarie University, Sydney (Cognitive Science)
 University of Tromsø, Tromsø, Norway (Psychology)
 2002 University of Oxford (Zoology)
 Indiana University - Guest Lecturer, Center for the Integrative Study of
 Animal Behavior (CISAB)
 Royal Holloway, University of London (Psychology)
 Goldsmiths' College, University of London (Psychology)
 2003 University of Exeter (Psychology)
 University of Warwick (Psychology)
 University College London (Psychology)
 2004 Max Planck Institute for Psychological Research, Munich University of
 Vienna (Zoology)
 2006 Hungarian Academy of Sciences (Psychology)
 University College London (Anatomy)
 University of Oxford (Experimental Psychology)
 Cardiff University (Psychology)
 Max Planck Institute for Human Cognitive & Brain Science (Leipzig)
 2007 University of Otago, Dunedin, New Zealand (Psychology)
 2008 University of Auckland, New Zealand (Psychology)
 Macquarie University, Sydney (Cognitive Science)
 Max Planck Institute for Human Cognitive & Brain Science (Leipzig)
 2009 University of Cambridge (Experimental Psychology)
 University of Oxford (Zoology)
 University of Bristol (Veterinary Science)
 University of Birmingham (Psychology)
 University of Hertfordshire (Psychology)
 Birkbeck, University of London (Psychology)
 University of Nijmegen (Psychology)
 University College London (Wellcome Trust Centre for Neuroimaging)

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| 2010 | University of Nottingham (Psychology) University of Glasgow (Psychology) University of Oxford (Anthropology) |
| 2011 | University of Exeter (Psychology) |
| 2012 | University of Oxford (Cortex Club) |
| 2013 | Oxford University Psychology Society |
| 2014 | University of Oxford (Calleva Centre, Magdalen College) University of Reading (Philosophy/Psychology) Oxford University Psychology Society City University of New York (Philosophy/Cognitive Science) |
| 2015 | Central European University, Budapest (Cognitive Science) |
| 2016 | University of Oxford (Bryant Society, St John's College) |
| 2017 | University of Oxford (Experimental Psychology) |
| 2018 | Kyoto University (Graduate School of Education) University of Cambridge (Philosophy) University of Cambridge (Experimental Psychology) University of Kent (Psychology) University of Nottingham (Psychology) University of Adelaide (Philosophy) |
| 2019 | University of Cambridge (Philosophy, Moral Sciences Club) London School of Economics (Philosophy) University of Oxford (Psychology Society) Goldsmiths University of London (Psychology) Queen Mary University of London (Psychology) |
| 2020 | COVID-19 York University, Toronto (Cognitive Science) |
| 2021 | Ghent University (Psychology) Harvard University (Systems Biology) Leiden University (Psychology) University College London (Computational Psychiatry) University of Bern (Philosophy) University of Dusseldorf (Philosophy) University of Edinburgh (Linguistics) University of Oxford (Said Business School) Tilburg University (Artificial Intelligence) |
| 2022 | New University of Lisbon (Philosophy) University of London (Institute of Philosophy) Royal Holloway University of London (Psychology) |

TEACHING

Graduate and Undergraduate Courses

| | | |
|---------|---------------------------|---------------------------------|
| 1988-92 | Psychology for biologists | Undergraduate introduction, UCL |
| 1988-92 | Learning and motivation | Undergraduate Year 3, UCL |
| 1988-04 | Associative learning | Undergraduate Year 2, UCL |
| 1988-06 | Animal cognition | Undergraduate Year 2, UCL |

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| 1990-01 | Animal cognition | Undergraduate Year 3, Cambridge |
| 1990-96 | Philosophy of science | Doctoral and Masters students, UCL |
| 1993-08 | Philosophical theories of mind | Undergraduate Year 3, UCL |
| 1996-05 | Comparative psychology | Doctoral and Masters students, UCL |
| 2007-08 | Advanced research methods | Doctoral students Year 1, UCL |
| 2009 - | Advanced research methods | Doctoral students Year 1, Oxford |

Doctoral Students

Each completed the doctorate successfully in four years or less.

| Dates | Name | Funding | Current Appointment |
|---------|----------------------|---------|--|
| 1990-94 | Christopher Mitchell | MRC | Professor of Psychology, University of Plymouth |
| 1993-97 | Mark Gardner | BBSRC | Principal Lecturer in Psychology, University of Westminster |
| 1993-97 | Elizabeth Ray | BBSRC | Area Coordinator, Waltham Forest Council |
| 1995-99 | Christa Foster | BBSRC | Scientific Officer, Government Department of Social Security |
| 1996-99 | Fiona Campbell | UCL | Research Officer, Unilever Research |
| 1997-01 | Chi-Tai Huang | Taiwan | Lecturer in Psychology, National Chengchi University, Taipei (principal supervisor – T. Charman) |
| 1999-03 | Nicholas Jones | BBSRC | Research Fellow, Institute of Psychiatry (principal supervisor – Sheila Jones) |
| 1999-03 | Charlotte Richards | BBSRC | Investment Analyst, Lane Clark & Peacock |
| 2000-03 | Geoffrey Bird | BBSRC | Professor of Cognitive Neuroscience, University of Oxford |
| 2002-06 | Disa Sauter | UCL | Lecturer in Psychology, University of Amsterdam (principal supervisor – Sophie Scott) |
| 2002-06 | Lee Rowland | BBSRC | Research Associate in Anthropology, University of Oxford (principal supervisor – David Shanks) |
| 2003-06 | Clare Press | BBSRC | Professor of Cognitive Neuroscience, Birkbeck, University of London |
| 2004-08 | Rosetta Mui | Cardiff | Research Fellow, Hong Kong University (principal supervisor – John Pearce) |
| 2005-07 | Jane Leighton | MRC | Director, Nielsen Neuroscience Group |
| 2005-08 | Caroline Catmur | EC | Professor of Psychology, Kings College London |
| 2008-11 | Richard Cook | ESRC | Professor of Psychology, Birkbeck, University of London (co-supervisor – Alan Johnson) |

ACADEMIC SERVICE**International Meeting Organisation & Networks**

- 1993 ‘Anthropomorphism’ symposium, International Society for History, Philosophy & Social Studies of Biology, Brandeis University, USA (with L. Caporeal)
- 1994 International conference on ‘Social learning and tradition in animals’, Madingley Hall, Cambridge, funded by the Human Frontier Science Program (with B. Galef)
- 1998 International conference on ‘Evolution of Cognition’, Altenberg, Austria, funded by the Konrad Lorenz Institute (with L. Huber)
- 2001 Steering committee, international conference on ‘Perspectives on Imitation: From Neuroscience to Social Science’, Royaumont, France, funded by the Lifelong Learning Foundation
- 2005 Symposium on ‘Mechanisms of Imitation’, January meeting of the Experimental Psychology Society, UCL, funded by EPS and ELSE.
- 2005 ‘Evolution in Mind’, a symposium in honour of Henry Plotkin, UCL, funded by UCL and ELSE (with K. Laland)
- 2005 - 2008 Advisory board, ‘Culture and the Mind’, interdisciplinary project funded by Hang Seng Foundation and AHRB (chaired by S. Stich)
- 2007 - 2010 Member of INCORE (Integrating Cooperation Research Across Europe), an EU-funded Coordination Action (directed D. Skuse)
- 2008 International workshop on the ‘Evolution, Development and Intentional Control of Imitation’, Vienna, Austria. Funded by the European Commission (with L. Huber)
- 2010-2020 Member of Scientific Council, Institute of Advanced Study in Toulouse
- 2011 International workshop on ‘New Thinking: The Evolution of Human Cognition’, Oxford, UK. Funded by All Souls College, The British Academy, Guarantors of Brain & Magdalen College Oxford.
- 2013 - 2018 Steering group, Human Mind Project <https://humanmind.ac.uk/>

2020 - Foundations of Values and Value. Network of senior Oxford academics concerned with standards in public life. Convened by Sir Colin Mayer, Saïd Business School, Oxford.

National Committee Membership

| | |
|-------------|---|
| 1994 - 1998 | Experimental Psychology Society |
| 1997 | BBSRC audit team, Roslin Institute |
| 1998 - 2001 | Primate Society of Great Britain |
| 1999 - 2001 | Experimental Psychology Society representative, Institute of Biology |
| 2005 - 2008 | Biotechnology and Biological Sciences Research Council (BBSRC) Animal Sciences Committee |
| 2011 - 2014 | British Academy, Projects Committee |
| 2011- 2015 | British Academy, Psychology Section Committee |
| 2015 | Philip Leverhulme Prizes in Psychology |
| 2018- 2020 | President, Experimental Psychology Society |

Editorial Board Membership

| | |
|---------|---|
| 1988-97 | Quarterly Journal of Experimental Psychology, Section B |
| 1994-97 | Animal Behaviour |
| 2001 - | Biology and Philosophy |
| 2008 - | Behavioral & Brain Sciences |
| 2011 - | Attention & Performance, Advisory Council |

Peer Review: Selected Journals

| | |
|-------------------------------|--|
| Animal Learning & Cognition | Animal Behaviour, Animal Cognition, Animal Learning and Behavior, Behavioral Processes, Journal of Comparative Psychology, Journal of Experimental Psychology: Animal Behavior Processes |
| Cognitive Neuroscience | Current Biology, European Journal of Neuroscience, Cognitive Brain Research, Experimental Brain Research, Journal of Neuroscience, NeuroImage, Nature Neuroscience, Science |
| Developmental Psychology | British Journal of Developmental Psychology, Child Development, Cognitive Development, Developmental Science, Journal of Cognitive Development |
| Human Experimental Psychology | Acta Psychologica, British Journal of Psychology, Journal of Experimental Psychology: Learning, Memory & Cognition, Journal of Experimental Psychology: Human Perception & Performance, Journal of Experimental Psychology: General, Perspectives on Psychological Science, Psychological Bulletin, Psychological Review, Psychological Science, Quarterly Journal of Experimental Psychology, Psychonomic Bulletin & Review |

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| Philosophy | British Journal of the Philosophy of Science, Synthese |
| Interdisciplinary - psychology/philosophy/ evolutionary biology | Annals of the New York Academy of Sciences, Behavioral and Brain Sciences, Biology and Philosophy, Mind and Language, Nature Human Behaviour, Philosophical Transactions of the Royal Society of London: Biological Sciences, Proceedings of the National Academy of Sciences, Proceedings of Royal Society of London; Science |

External Examination

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| 1996-99 | Natural Sciences, Part 1B Psychology, University of Cambridge |
| 2005 - 08 | Undergraduate degrees in Psychology, Cardiff University |
| 2005 | PhD, William Hoppitt, Zoology, University of Cambridge |
| 2005 | PhD, Anna Saggerson, Psychology, Cardiff University |
| 2006 | MPhil, Dalia Danish, Psychology, University of Cambridge |
| 2011 | PhD, Yin Wang, Psychology, University of Nottingham |
| 2012 | DPhil, Tiago Monteiro, Zoology, University of Oxford |
| 2013 | PhD, Sasha Ondobaka, Psychology, Radboud University |
| 2015 | DPhil, Dan Bang, Psychology, University of Oxford |
| 2016 | DPhil, Hannah Hobson, Psychology, University of Oxford |
| 2017 | PhD, John Zerilli, Philosophy, Australian National University |
| 2019 | PhD, David Kalkman, Philosophy, Australian National University |
| 2021 | PhD, Eva Brandl, Anthropology, University College London |

University administration

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|---------|---|
| 1991-96 | Elected, non-Professorial member of UCL Academic Board |
| 1992-94 | Member of UCL Teaching Committee |
| 1998-03 | Member of UCL Biological Services Management Group |
| 2001-02 | Member of UCL Technical Staffs Committee |
| 2010-14 | Member of University of Oxford Medical Sciences Division Ethics Committee |

Departmental administration (Psychology, University College London)

| | |
|-------------------|---|
| 1988-93 | Course Tutor MSc Experimental Methods in Psychology |
| 1993-03 | Director of Animal Laboratory |
| 1993-96 | Postgraduate Tutor |
| 1996-99 & 2002-04 | Director of Postgraduate Research |
| 2001-04 | Member of Professorial Committee & Promotions Sub-Committee |
| 2005-08 | Chair of the Board of Examiners for Psychology |

College administration (All Souls College, University of Oxford)

| | |
|------------------|---|
| 2009 - 2020 | Visiting Fellowships Committee |
| 2010 - 2014 | Academic Purposes Committee |
| 2014 - | General Purposes Committee |
| 2009, 2011, 2021 | Member, Prize Fellowship examination board |
| 2011 - 2012 | Chair, SRF Philosophy Subject Group |
| 2013 | Chair, Prize Fellowship examination board |
| 2014 - | Senior Dean |
| 2014 - | Lord Mallard |
| 2016 - 2019 | Dean of Visiting Fellows |
| 2020 | Chair, PDRF Theoretical Physics Subject Group |
| 2022 | Lead, PDRFs Life and Environmental Sciences |

ACADEMIC PUBLICATIONS

Ten key publications are marked **. I have published 1 monograph, 7 edited collections, 23 book chapters, more than 150 articles in refereed journals, and 16 other academic pieces (e.g., book reviews).

Monograph

1. **Heyes, C. M. (2018). *Cognitive Gadgets: The Cultural Evolution of Thinking*. Harvard University Press.

Edited books and special issues

2. Campbell, D. T., Heyes, C. M., & Callebaut, W. G. (1987). *Evolutionary epistemology bibliography* (pp. 405-431). Springer Netherlands.
3. Heyes, C. M. & Galef, B. G. Eds. (1996) *Social Learning and the Roots of Culture*. Academic Press. Pp. 411.
4. Heyes, C. M. & Huber, L. Eds. (2001) *The Evolution of Cognition*. MIT Press. Pp. 400.
5. Heyes, C. M. & Hull, D. Eds. (2001) *Selection Theory and Social Construction: The Evolutionary Naturalistic Epistemology of Donald T. Campbell*. SUNY Press. Pp. 200.
6. Galef, B. & Heyes, C. M. Eds. (2004) Special issue on ‘Social learning and Imitation’. *Learning and Behavior*, 32, 1-140.
7. Heyes, C. M., Huber, L., Gergely, G. & Brass, M. Eds. (2009) Theme issue on ‘Evolution, Development & Intentional Control of Imitation’. *Philosophical Transactions of the Royal Society, B, Biological Sciences*, 364 (1528).

8. Heyes, C. M. & Frith, U. (2012) Theme issue on ‘New Thinking: The Evolution of Human Cognition’. *Philosophical Transactions of the Royal Society, B, Biological Sciences*, 367 (1599).

Chapters in edited books

9. Campbell, D. T., Heyes, C. M., & Callebaut, W. G. (1987). Evolutionary epistemology bibliography. In W. Callebaut & R. Pinxten (Eds.), *Evolutionary Epistemology: A Multiparadigm Program*. Dordrecht: Reidl. Pp. 405-431.
10. Heyes, C. M. (1987) Cognisance of consciousness in the study of animal knowledge. In W. Callebaut & R. Pinxten (Eds.), *Evolutionary Epistemology: A Multiparadigm Program*. Dordrecht: Reidl. Pp. 105-136.
11. Heyes, C. M. & Plotkin, H. C. (1988) Replicators and interactors in cultural evolution. In M. Ruse (Ed.), *What the Philosophy of Biology Is*. Dordrecht: Kluwer. Pp. 139-162.
12. Heyes, C. M. (1989) Uneasy chapters in the relationship between psychology and epistemology. In B. Gholson, A. Houts, R. Neimeyer & W. Shadish (Eds.), *Psychology of Science*. Cambridge: Cambridge University Press. Pp. 115-137.
13. Heyes, C. M. (1994) Imitation and culture: longevity, fecundity and fidelity in social transmission. In B. Galef, M. Mainardi & P. Valsecchi & M. Mainardi (Eds.) *Behavioral Aspects of Feeding*. Harwood. Pp. 271-287.
14. Heyes, C. M. (1994) Social cognition in primates. In N. J. Mackintosh (Ed.) *Handbook of Perception and Cognition*, Vol. 9. Academic Press. Pp. 281-305.
15. Heyes, C. M. (1996) Genuine imitation. In C. Heyes & B. G. Galef (Eds.) *Social Learning and the Roots of Culture*. Academic Press. Pp. 371-389.
16. Heyes, C. M. (1996) Identifying and defining imitation. In C. Heyes & B. G. Galef (Eds.) *Social Learning and the Roots of Culture*. Academic Press. Pp. 211-220.
17. Caporael, L. & Heyes, C. M. (1996) Why anthropomorphize? Folk psychology and other stories. In R. W. Mitchell, N. Thompson & L. Miles (Eds.) *Anthropomorphism, Anecdotes and Animals*. SUNY Press. Pp. 59-74.
18. Heyes, C. M. (2001) Evolutionary psychology in the round. In C. M. Heyes & L. Huber (Eds.) *Evolution of Cognition*. MIT Press. Pp 1-21.
19. Heyes, C. M. (2001) Introduction. In Heyes, C. M. & Hull, D. L. (Eds.) *Selection Theory and Social Construction: The Evolutionary Naturalistic Epistemology of Donald T. Campbell*. SUNY Press. Pp 1-14.

20. Heyes, C. M. (2002) Transformational and associative theories of imitation. In K. Dautenhahn & C. Nehaniv (Eds.) *Imitation in Animals and Artifacts*. MIT Press. Pp 501-523.
21. Heyes, C. M. (2005) Imitation by association. In S. Hurley & N. Chater (Eds.) *Perspectives on Imitation: From Mirror Neurons to Memes*. MIT Press. Vol. 1. Pp 157-176.
22. Heyes, C. M. & Papineau, D. (2006) Rational or associative? Imitation in Japanese quail. In M. Nudds & S. Hurley (Eds.) *Rational Animals*. Oxford University Press.
23. Bird, G. & Heyes, C. M. (2007) Imitation: thoughts about theories. In K. Dautenhahn & C. Nehaniv (Eds.) *Models and Mechanisms of Imitation and Social Learning in Robots, Humans and Animals*. Cambridge University Press.
24. Heyes, C. M. & Bird, G. (2007) Mirroring, association and the correspondence problem. In P. Haggard, Y. Rosetti & M. Kawato (Eds.) *Sensorimotor Foundations of Higher Cognition, Attention and Performance XXII*. Harvard University Press.
25. Heyes, C. M. (2008) Beast machines? Questions of animal consciousness. In M. Davies & L. Weiskrantz (Eds.) *Frontiers of Consciousness*. Oxford University Press.
26. Heyes, C. M. (2013) What can imitation do for cooperation? In K. Sterelny, R. Joyce, B. Calcott & B. Fraser (Eds.) *Cooperation and Its Evolution*. MIT Press.
27. Heyes, C. M. (2013) Imitation – associative and context-dependent. In W. Prinz, M. Beisert, & A. Herwig (Eds.) *Action Science: Foundations of an Emerging Discipline*. MIT Press.
28. Catmur, C., Press, C. & Heyes, C. M. (2016) Mirror associations. In R. Murphy & R. Honey (Eds.) *The Cognitive Neuroscience of Learning*. Wiley.
29. Pezzulo, G., Frith, U., Hamilton, A., Heyes, C., Iriki, A., Jörntell, H., König, P., Nagel, S., Oudeyer, P-Y., Rupert, R., Tramacere, A. & Vosgerau, G. (2016) Development, acquisition and adaptation of action-oriented processing. In A. Engel, K. Friston & D. Kragic (Eds.) *The Pragmatic Turn: Toward Action-Oriented Views in Cognitive Science*. MIT Press.
30. Heyes, C. M. (2018) Human nature, natural pedagogy, and evolutionary causal essentialism. In: E. Hannon & T. Lewens (Eds.) *Why We Disagree about Human Nature*. Oxford University Press.
31. Heyes, C. M. & Moore, R. (in press) Henrich, Heyes and Tomasello on the cognitive foundations of cultural evolution. R. Kendal, J. Tehrani & J. Kendal (Eds.) *The Oxford Handbook of Cultural Evolution*. Oxford University Press.

Articles in refereed journals

32. Heyes, C. M. (1987) Contrasting approaches to the legitimation of intentional language within comparative psychology. *Behaviorism*, 15, 41-50.
33. Heyes, C. M. (1988) The distant blast of Lloyd Morgan's Canon. *Behavioral and Brain Sciences*, 11, 256-257.
34. Heyes, C. M. (1988) Are scientists the agents in scientific change? *Biology and Philosophy*, 3, 194-199.
35. Heyes, C. M. & Durlach, P. J. (1990) Social blockade of taste-aversion learning in rats: is it a social phenomenon? *Journal of Comparative Psychology*, 104, 82-87.
36. Heyes, C. M. & Dawson, G. R. (1990) A demonstration of observational learning using a bidirectional control. *Quarterly Journal of Experimental Psychology*, 42B, 59-71.
37. Heyes, C. M. & Dickinson, A. (1990) The intentionality of animal action. *Mind and Language*, 5, 87-104.
38. Heyes, C. M. (1991) Who's the horse? *Social Epistemology*, 5, 231-240.
39. Heyes, C. M., Dawson, G. R. & Nokes, T. (1992) Imitation in rats: initial responding and transfer evidence. *Quarterly Journal of Experimental Psychology:B*, 45B, 81-92.
40. Dawson, G. R., Heyes, C. M. & Iversen, S. (1992) Pharmacological mechanisms and animal models of cognition. *Behavioural Pharmacology*, 3, 285-297.
41. Heyes, C. M. (1993) Anecdotes, training, trapping and triangulating: Can animals attribute mental states? *Animal Behaviour*, 46, 177-188.
42. **Heyes, C. M. (1993) Imitation, culture and cognition. *Animal Behaviour*, 46, 999-1010.
43. Heyes, C. M. (1993) Imitation without perspective-taking. *Behavioral and Brain Sciences*, 16, 524-525.
44. Heyes, C. M., Jaldow, E. & Dawson, G. (1993) Observational extinction: observation of non-reinforced responding reduces resistance to extinction in rats. *Animal Learning and Behaviour*, 21, 221-225.
45. Furnham, A. & Heyes, C. M. (1993) Psychology students' beliefs about animals and animal experimentation. *Personality & Individual Differences*, 15, 1-10.

46. Heyes, C. M. (1994) Reflections on self-recognition in primates. *Animal Behaviour*, 47, 909-919.
47. **Heyes, C. M. (1994) Social learning in animals: Categories and mechanisms. *Biological Reviews*, 69, 207-231.
48. Heyes, C. M. (1994) Cues, convergence and a curmudgeon. *Animal Behaviour*, 48, 242-244.
49. Heyes, C. M., Jaldow, E., Nokes, T. & Dawson, G. R. (1994). Imitation in rats: The role of demonstrator action. *Behavioural Processes*, 32, 173-182.
50. Heyes, C. M., Jaldow, E. & Dawson, G. R. (1994) Imitation in rats: conditions of occurrence in a bidirectional control paradigm. *Learning and Motivation*, 25, 276-287.
51. Heyes, C. M. & German, T. (1994) Eye-to-eye but not a meeting of minds. *Current Psychology of Cognition*, 13, 607-614.
52. Chater, N. & Heyes, C. M. (1994) Animal concepts: content and discontent. *Mind and Language*, 9, 209-246.
53. Heyes, C. M. (1995) Self-recognition in primates: Further reflections create a hall of mirrors. *Animal Behaviour*, 50, 1533-1542.
54. Heyes, C. M. (1995) Imitation and flattery. *Animal Behaviour*, 50, 1421-1424.
55. Heyes, C. M. & Dickinson, A. (1995) Folk psychology won't go away. *Mind and Language*, 10, 329-332.
56. Heyes, C. M. (1996) Self-recognition in primates: Irreverence, irrelevance and irony. *Animal Behaviour*, 51, 470-473.
57. Heyes, C.M. (1996). Imagination and imitation: Input, acid test or alchemy? *Behavioral and Brain Sciences*, 19, 131-132.
58. Mitchell, C. & Heyes, C. M. (1996) Simultaneous potentiation and overshadowing in conditioned food aversion. *Learning & Motivation*, 27, 58-72.
59. Reed, P., Skiera, F., Adams, L. & Heyes, C. M. (1996) Effects of isolation rearing and mirror exposure on social and asocial discrimination performance. *Learning and Motivation*, 27, 113-129.
60. Heyes, C. M. (1997) A tribute to Donald T. Campbell. *Biology and Philosophy*, 12, 299-301.

61. Campbell, D. T., Heyes, C. M. & Frankel, B. (1997) From evolutionary epistemology via selection theory to a sociology of scientific validity. *Evolution and Cognition*, 3, 5-38.
62. **Heyes, C. M. (1998) Theory of mind in nonhuman primates. *Behavioral and Brain Sciences*, 21, 101-114.
63. Heyes, C. M. (1998) Liberalism, chauvinism and experimental thought. *Behavioral and Brain Sciences*, 21, 134-148.
64. Heyes, C. M. & Galef, B. G. (1999) Introduction to the Napoli Social Learning conference. *International Journal of Comparative Psychology*, 11, 73-92.
65. Campbell, F., Heyes, C. M. & Goldsmith, A. (1999) Simultaneous stimulus and response learning by observation in the European starling using a two-object / two-action. *Animal Behaviour*, 58, 151-158.
66. Gardner, M. R. & Heyes, C. M. (1999) Splitting, lumping and priming. Commentary on Byrne & Russon. *Behavioral and Brain Sciences*, 21, 690-691.
67. Mitchell, C. J., Heyes, C. M., Dawson, G. R. & Gardner, M. R. (1999) Limitations of a bidirectional control procedure for the investigation of imitation in rats: odour cues on the manipulandum. *Quarterly Journal of Experimental Psychology: 52 B*, 193-202.
68. Heyes, C. M. & Ray, E. (2000) What is the significance of imitation in animals? *Advances in the Study of Behavior*, 29, 215-245.
69. Heyes, C. M., Ray, E., Mitchell, C. & Nokes, T. (2000) Stimulus enhancement in rats: Controls for social facilitation and local enhancement. *Learning and Motivation*, 31, 83-98.
70. Ray, E. D., Gardner, M. R. & Heyes, C. M. (2000) Seeing how it's done: Matching conditions for observer rats in the bidirectional control. *Animal Cognition*, 3, 147-157.
71. Heyes, C. M. (2001) Causes and consequences of imitation. *Trends in Cognitive Sciences*, 5, 253-261.
72. Heyes, C. M. (2001) Theory of mind and other domain-specific hypotheses. Author's Response to Continuing Commentary. *Behavioral and Brain Sciences*, 24, 1140-1145.
73. Heyes, C. M. & Foster, C. (2002) Motor learning by observation: Evidence from a serial reaction time task. *Quarterly Journal of Experimental Psychology*, 55A, 593-607.

74. Heyes, C. M. & Ray, E. D. (2002) Distinguishing intention-sensitive from outcome-sensitive imitation. *Developmental Science*, 5, 34-36.
75. Heyes, C. M. & Saggerson, A. (2002) Testing for imitative and non-imitative social learning in the budgerigar using a two-object / two-action test. *Animal Behaviour*, 64, 851-859.
76. Campbell, F. M. & Heyes, C. M. (2002) Rats smell: Odour-mediated local enhancement in a vertical movement two-action test. *Animal Behaviour*, 63, 1055-1063.
77. Huang, C-T, Heyes, C. M. & Charman, T. (2002) Infants' behavioral re-enactment of 'failed attempts': Exploring the roles of emulation learning, stimulus enhancement and understanding of intentions. *Developmental Psychology*, 38, 840-855.
78. Ray, E. D. & Heyes, C. M. (2002) Do rats in a two-action test encode movement egocentrically or allocentrically? *Animal Cognition*, 5, 245-252.
79. Sherwin, C. M., Heyes, C. M. & Nicol, C. J. (2002) Social learning influences the preferences of domestic hens for novel food. *Animal Behaviour*, 63, 933-942.
80. **Heyes, C. M. (2003) Four routes of cognitive evolution. *Psychological Review*, 110, 713-727.
81. Mottley, K. & Heyes, C. M. (2003) Budgerigars copy 'virtual' demonstrators in a two-action test. *Journal of Comparative Psychology*, 117, 363-370.
82. Heyes, C. M. & Ray, E. D. (2004) Spatial S-R compatibility effects in an intentional imitation task. *Psychonomic Bulletin & Review*, 11, 703-708.
83. Bird, G. & Heyes, C. M. (2005) Effector-dependent learning by observation of a finger movement sequence. *Journal of Experimental Psychology: Human Perception and Performance*, 31, 262-275.
84. Bird, G., Osman, M., Saggerson, A. & Heyes, C. M. (2005) Sequence learning by action, observation, and action observation. *British Journal of Psychology*, 96, 1-19.
85. Brass, M. & Heyes, C. M. (2005) Imitation: Is cognitive neuroscience solving the correspondence problem. *Trends in Cognitive Sciences*, 9, 489-495.
86. Heyes, C. M., Bird, G., Johnson, H. & Haggard, P. (2005) Experience modulates automatic imitation. *Cognitive Brain Research*, 22, 233-240.

87. Osman, M., Bird, G. and Heyes, C. M. (2005) Effector-dependent learning by action observation. *Experimental Brain Research*, 165, 19-27.
88. Press, C., Bird, G., Flach, R. & Heyes, C. M. (2005) Robotic movement elicits automatic imitation. *Cognitive Brain Research*, 25, 632-640.
89. Flach, R., Osman, M., Dickinson, A. & Heyes, C. M. (2006) The interaction between response effects during acquisition of response priming. *Acta Psychologica*, 122, 11-26
90. Heyes, C. M. & Brass, M. (2006) Grasping the difference: What apraxia can tell us about theories of imitation. *Trends in Cognitive Sciences*, 10, 95-96.
91. Huang, C-T., Heyes, C. M. & Charman, T. (2006) Preschoolers' behavioural re-enactment of 'failed attempts': The roles of intention-reading, emulation and mimicry. *Cognitive Development*, 21, 36-45.
92. McGregor, A., Saggerson, A., Pearce, J. & Heyes, C. M. (2006) Blind imitation in pigeons. *Animal Behaviour*, 72, 287-296.
93. Press, C., Gillmeister, H. & Heyes, C. M. (2006) Bottom-up, not top-down, modulation of imitation by human and robotic models. *European Journal of Neuroscience*, 24, 2415-2419.
94. Bird, G., Brindley, R., Leighton, J. & Heyes, C. M. (2007). General processes, rather than 'goals,' explain imitation errors. *Journal of Experimental Psychology: Human Perception and Performance*, 33, 1158-1169.
95. Bird, G., Leighton, J., Press, C. & Heyes, C. M. (2007) Intact automatic imitation of human and robot actions in autism spectrum disorders. *Proceedings of the Royal Society of London: B.*, 274, 3027-3031.
96. **Catmur, C., Walsh, V. & Heyes, C. M. (2007) Sensorimotor learning configures the human mirror system. *Current Biology*, 17, 1527-1531.
97. Heyes, C. M. (2007) Imitation as a conjunction. Commentary on Susan Hurley's 'The Shared Circuits Model'. *Behavioral & Brain Sciences*, 31, 28-29.
98. Mui, R., Hazelgrove, M., McGregor, A., Futter, J., Heyes, C. M. & Pearce, J. M. (2007) The discrimination of biological motion by budgerigars and pigeons. *Journal of Experimental Psychology: Animal Behavior Processes*, 33, 371-380.
99. Press, C., Gillmeister, H. & Heyes, C. M. (2007) Sensorimotor experience enhances automatic imitation of robotic actions. *Proceedings of the Royal Society of London: B.*, 274, 2509-2514.

100. Catmur, C., Gillmeister, H., Bird, G., Liepelt, R., Brass, M. & Heyes, C. (2008) Through the looking glass: counter-mirror activation following incompatible sensorimotor learning. Featured article in *European Journal of Neuroscience*, 28(6), 1208-1215.
101. Gillmeister, H., Catmur, C., Liepelt, R., Brass, M. & Heyes, C. M. (2008) Experience-based priming of body parts: A study of imitation and the mirror system. *Brain Research*, 1217, 157-170.
102. Leighton, J., Bird, G., Charman, T. & Heyes, C. M. (2008) Weak imitative performance is not due to a functional mirroring impairment in adults with autism spectrum disorders. *Neuropsychologia*, 46, 1041-1049.
103. Mui, R., Hazelgrove, M., Pearce, J. M. & Heyes, C.M. (2008) Automatic imitation in budgerigars. *Proceedings of the Royal Society of London: B*. 275, 2547–2553.
104. Press, C., Bird, G., Walsh, E. & Heyes, C. M. (2008) Automatic imitation of intransitive actions. *Brain & Cognition*, 67, 44-50.
105. Press, C. & Heyes, C. M. (2008) Stimulus-driven selection of routes to imitation. *Experimental Brain Research*, 188, 147-152.
106. Press, C., Heyes, C. M., Haggard, P. & Eimer, M. (2008). Visuotactile learning and body representation: an ERP study with rubber hands and rubber objects. *Journal of Cognitive Neuroscience*, 20, 312-323.
107. Catmur, C., Walsh, V. & Heyes, C. M. (2009). The role of experience in the development of imitation and the mirror system. *Philosophical Transactions of the Royal Society B.*, 364, 2369-2380.
108. Heyes, C. M. (2009) Evolution, development and intentional control of imitation. *Philosophical Transactions of the Royal Society B.*, 364, 2293-2298.
109. Press, C., Ray, E. D., & Heyes, C. M. (2009) Imitation of lateralised body movements: Doing it the hard way. *Laterality*, 14, 515-527.
110. Richards, C., Mottley, K., Pearce, J. M. & Heyes, C. M. (2009) Imitation of pecking in budgerigars over a 24-hour delay. *Animal Behaviour*, 77, 1111-1118.
111. Cook, R., Press, C., Dickinson, A. & Heyes, C. M. (2010) Is the acquisition of automatic imitation sensitive to sensorimotor contingency? *Journal of Experimental Psychology: Human Perception and Performance*, 36, 840–852
112. Flach, R., Press, C., Badet, A. & Heyes, C. M. (2010) Shaking hands: priming by social action effects. *British Journal of Psychology*, 101, 739-749.

113. Heyes, C. M. (2010) Where do mirror neurons come from? *Neuroscience and Biobehavioral Reviews*, 34, 575-583.
114. Heyes, C. M. (2010) Mesmerising mirror neurons. *NeuroImage*, 51, 789-791.
115. Leighton, J., Bird, G. & Heyes, C. M. (2010) 'Goals' are not an integral component of imitation. *Cognition*, 114, 423-435.
116. Leighton, J., Bird, G., Orsini, C. & Heyes, C. M. (2010) Social attitudes modulate automatic imitation. *Journal of Experimental Social Psychology*, 46, 905–910.
117. Leighton, J. & Heyes, C. M. (2010) Hand to mouth: Automatic imitation across effector systems. *Journal of Experimental Psychology: Human Perception and Performance*, 36, 1174–1183.
118. Press, C., Gherri, E., Heyes, C. M. & Eimer, M. (2010) Action preparation helps and hinders perception of action. *Journal of Cognitive Neuroscience*, 22, 2198-2211.
119. Shea, N. & Heyes, C. M. (2010) Metamemory as evidence of animal consciousness: The type that does the trick. *Biology & Philosophy*, 25, 95-110.
120. Catmur, C. & Heyes, C. M. (2011) Time course analyses confirm the independence of imitative and spatial compatibility. *Journal of Experimental Psychology: Human Perception and Performance*, 37, 409–421.
121. Catmur, C., Mars, R., Rushworth, M. & Heyes, C. M. (2011) Making mirrors: premotor cortex stimulation enhances mirror and counter-mirror motor facilitation. *Journal of Cognitive Neuroscience*, 23, 2352–2362.
122. Heyes, C. M. (2011) Automatic imitation. *Psychological Bulletin*, 137, 463–483.
123. Press, C. M., Heyes, C. M. & Kilner, J. M (2011) Learning to understand others' actions. *Biology Letters*. doi:10.1098/rsbl.2010.0850
124. Range, F., Huber, L. & Heyes, C. M. (2011) Automatic imitation in dogs. *Proceedings of the Royal Society of London: B*, 278, 211–217
125. Ray, E. D. & Heyes, C. M. (2011) Imitation in infancy: The wealth of the stimulus. *Developmental Science*, 14, 92–105. doi: 10.1037/a0025180.
126. Cook, R., Bird, G., Lunser, G., Huck, S. & Heyes, C. M. (2012) Automatic imitation in a strategic context: Players of Rock-Paper-Scissors imitate opponents' gestures. *Proceedings of the Royal Society of London: B*, 279, 780-786.

127. Cook, R., Dickinson, A. & Heyes, C. M. (2012) Contextual modulation of mirror and counter-mirror sensorimotor associations. *Journal of Experimental Psychology: General*, 141, 774-787.
128. Cook, R., Johnson, A. & Heyes, C. M. (2012) Self-recognition of avatar motion: How do I know it's me? *Proceedings of the Royal Society of London: B*. 279, 669-674.
129. Cooper, R. P., Cook, R., Dickinson, A. & Heyes, C. M. (2012) Associative (not Hebbian) learning and the mirror neuron system. *Neuroscience Letters*, 540, 28-36.
130. Heyes, C. M. (2012) What's social about social learning? *Journal of Comparative Psychology*, 126, 193–202.
131. Heyes, C. M. (2012) New thinking about the evolution of human cognition. *Philosophical Transactions of the Royal Society B*, 367, 2091-2096.
132. Heyes, C. M. (2012) Grist and mills: cultural inheritance of cultural learning. *Philosophical Transactions of the Royal Society B*, 367, 2181-2191.
133. Heyes, C. M. (2012) Simple minds: A qualified defence of associative learning. *Philosophical Transactions of the Royal Society B*, 367, 2695-2703.
134. Santiesteban, I., White, S., Cook, J., Gilbert, S.J., Heyes, C. M. & Bird, G. (2012) Training social cognition: from imitation to theory of mind. *Cognition*, 122, 228–235.
135. Press, C., Catmur, C., Cook, R., Widman, H., Heyes, C. M. & Bird, G. (2012) fMRI evidence of 'mirror' responses to geometric shapes. *PLoS ONE*, 7(12): e51934.
136. Belot, M., Crawford, V. P. & Heyes, C. M. (2013) Players of 'matching pennies' automatically imitate opponents' gestures against strong incentives. *Proceedings of the National Academy of Sciences*, 110, 2763–2768.
137. Catmur, C. & Heyes, C. M. (2013) Is it what you do, or when you do it? The roles of contingency and similarity in pro-social effects of imitation. *Cognitive Science*, 37, 1541–1552.
138. Cook, R., Johnston, A. & Heyes, C. M. (2013) Facial self-imitation: objective measurement reveals no improvement without visual feedback. *Psychological Science*, 24, 93-98.
139. Cooper, R. P., Catmur, C. & Heyes, C. M. (2013) Are automatic imitation and spatial compatibility mediated by different processes? *Cognitive Science*, 37, 605-630.

140. Cooper, R. P., Catmur, C. & Heyes, C. M. (2013) Neither shaken nor stirred: Reply to Bertenthal and Scheutz (2013). *Cognitive Science*, 37, 642-645.
141. Heyes, C. M. (2013) A new approach to mirror neurons: developmental history, system-level theory and intervention experiments. *Cortex*, 49, 2946-2948.
142. Catmur, C., Press, C., Cook, R., Bird, G. & Heyes, C. M. (2014) Mirror neurons: tests and testability. *Behavioral and Brain Sciences*, 37, 177-241. Response to commentaries.
143. Cavallo, A., Becchio, C., Heyes, C. & Catmur, C. (2014). Timecourse of mirror and counter-mirror effects measured with transcranial magnetic stimulation. *Social, Cognitive and Affective Neuroscience*, 9, 1082-1088.
144. Cook, J., den Ouden, H.E.M, Heyes, C. M. & Cools, R. (2014) The social dominance paradox. *Current Biology*, 24, 2812–2816.
145. **Cook, R., Bird, G., Catmur, C., Press, C. & Heyes, C. M. (2014) Mirror neurons: from origin to function. *Behavioral and Brain Sciences*, 37, 177-241. Target article.
146. Heyes, C. M. (2014). False belief in infancy: a fresh look. *Developmental Science*, 17, 647– 659.
147. Heyes, C. M. (2014). Rich interpretations of infant behaviour are popular, but are they valid? A reply to Scott and Baillargeon. *Developmental Science*, 17, 665–666.
148. Heyes, C. M. (2014). Submentalizing: I am not really reading your mind. *Perspectives on Psychological Science*, 9, 131-143.
149. Heyes, C. M. (2014). Tinbergen on mirror neurons. *Philosophical Transactions of the Royal Society B.*, 369, 20130180.
150. **Heyes, C. M. & Frith, C. D. (2014). The cultural evolution of mind reading. *Science*, 344,1243091. DOI: 10.1126/science.1243091
151. Santiesteban, I., Catmur, C., Hopkins, S., Bird, G. & Heyes, C. M. (2014) Avatars and arrows: Implicit mentalizing or domain-general processing? *Journal of Experimental Psychology: Human Perception and Performance*, 40, 929–937.
152. Shea, N., Boldt, A., Bang, D., Yeung, N., Heyes, C. M. & Frith, C. D. (2014). Supra-personal cognitive control and metacognition. *Trends in Cognitive Sciences*, 18, 186-193.

153. de Klerk, C. C. J. M., Johnson, M. H., Heyes, C. M. & Southgate, V. (2015) Baby steps: investigating the development of perceptual-motor couplings in infancy. *Developmental Science*, 18, 270-280.
154. Heyes, C. M. (2015) Animal mindreading: What's the problem? *Psychonomic Bulletin & Review*, 22, 313-327.
155. Heyes, C. M. (2015). Homo imitans? Seven reasons why imitation couldn't possibly be associative. *Philosophical Transactions of the Royal Society: B*, 371: 20150069.
156. Heyes, C. M. & Catmur, C. (2015) A task control theory of mirror-touch synaesthesia. *Cognitive Neuroscience*, 6, 118–147.
157. Heyes, C. M. & Pearce, J. M. (2015). Not-so-social learning strategies. *Proceedings of the Royal Society of London: B*, 282, 20141709.
158. Santiesteban, I., Shah, P., White, S., Bird, G. & Heyes, C. M. (2015). Mentalizing or submentalizing in a communication task? Evidence from autism and a camera control. *Psychonomic Bulletin & Review*, 22, 844–849.
159. Catmur, C., Santiesteban, I., Conway, J. R., Heyes, C. M. & Bird, G. (2016). Avatars and arrows in the brain. *NeuroImage*, 132, 8-10.
160. Heyes, C. M. (2016). Born pupils? Natural pedagogy and cultural pedagogy. *Perspectives on Psychological Science*, 11, 280-295.
161. Heyes, C. M. (2016) Blackboxing: social learning strategies and cultural evolution. *Philosophical Transactions of the Royal Society: B*, 371, 20150369.
162. Heyes, C. M. (2016). Imitation – not in our genes. *Current Biology*, 26, R405-431.
163. Heyes, C. M. (2016). Who knows? Metacognitive social learning strategies. *Trends in Cognitive Sciences*, 20,204-213.
164. Clarke, E. & Heyes, C. M. (2017). The swashbuckling anthropologist: Henrich on 'The Secret of Our Success'. *Biology and Philosophy*, 32, 289–305.
165. Heyes, C. M. (2017). When does social learning become cultural learning? *Developmental Science*, 20, e12350.
166. Heyes, C. M. (2017) Rattling the cage and opening the door. *Developmental Science*. 20, e12416.
167. Heyes, C. M. (2017) Apes submentalise. *Trends in Cognitive Sciences*, 21, 1-2.

168. Heyes, C. M. (2018). Enquire within: cultural evolution and cognitive science. *Philosophical Transactions of the Royal Society: B*. 373: 20170051.
169. Heyes, C. M. (2018) Empathy is not in our genes. *Neuroscience and Biobehavioral Reviews*, 95, 499-507.
170. Bayne, T., Brainard, D., Byrne, R. W., Chittka, L., Clayton, N., Heyes, C. M., Mather, J. et al. (2019) What is cognition? *Current Biology* 29, R608-R615.
171. Catmur, C. & Heyes, C. M. (2019). Mirroring “meaningful” actions: sensorimotor learning modulates imitation of goal-directed actions. *Quarterly Journal of Experimental Psychology*, 72, 322-334.
172. Heyes, C. M. (2019) Précis of *Cognitive Gadgets: The Cultural Evolution of Thinking*. *Behavioral and Brain Sciences*, 42, Target Article.
173. Heyes, C. M. (2019) Cognition blindness and cognitive gadgets. *Behavioral and Brain Sciences*, 42, Response to Commentaries.
174. Heyes, C. M. (2019) Is morality a gadget? Nature, nurture and culture in moral development. *Synthese*. doi.org/10.1007/s11229-019-02348-w.
175. Heyes, C. M. (2019) Testing cognitive gadgets. *Mind & Language*, 34, 551-559.
176. Michel, M. & 57 co-authors (2019) Opportunities and challenges for a maturing science of consciousness. *Nature Human Behaviour*, 3, 104-107.
177. Heyes, C. M. (2020) Psychological mechanisms forged by cultural evolution. *Current Directions in Psychological Science*, 29, 399–404.
178. **Heyes, C.M., Bang, D., Shea, N., Frith, C. D. & Fleming, S. M. (2020) Knowing ourselves together: the cultural origins of metacognition. *Trends in Cognitive Sciences*, 24, 349-362.
179. Yon, D., Heyes, C. M. & Press, C. (2020) Beliefs and desires in the predictive brain. *Nature Communications*, 11, 1-4.
180. Heyes, C.M. (2020) Primer on ‘culture’. *Current Biology*, 30, R1233–R1255.
181. **Heyes, C. M., Chater, N. & Dwyer, D. (2020) Sinking in: the peripheral Baldwinisation of human cognition. *Trends in Cognitive Sciences*, 24, 884-899.
182. Birch, J. & Heyes, C. M. (2021) The cultural evolution of cultural evolution. *Philosophical Transactions of the Royal Society B.*, 376(1828), 20200051.
183. Heyes, C.M. (2021) Primer on ‘imitation’. *Current Biology*, 31, R215–R240.

184. Heyes, C. M. (2021) Imitation and culture: what gives? *Mind & Language*.
<https://doi.org/10.1111/mila.12388>
185. Jagiello, R., Heyes, C. M. & Whitehouse, H. (2022) Tradition and invention: the bifocal stance theory of cultural evolution. *Behavioral and Brain Sciences*, 45, E249: 1-62. Target article.
186. Jagiello, R., Heyes, C. M. & Whitehouse, H. (2022) Bifocal stance theory: An effort to broaden, extend, and clarify. *The Behavioral and Brain Sciences*, 45, E249: 1-62. Response to commentary.
187. Heyes, C. M. & Catmur, C. (2022) What happened to mirror neurons? *Perspectives on Psychological Science*, 17, 153-168.
188. Press, C., Yon, D., & Heyes, C. (2022) Building better theories. *Current Biology*, 32, R13-R17.
189. Dwyer, D. M. & Heyes, C. M. (in press) Fearfulness: an important addition to the starter kit for distinctively human minds. *Behavioral and Brain Sciences*.
Commentary.
190. Heyes, C. M. (in press) Rethinking norm psychology. *Perspectives on Psychological Science*.
191. Heyes, C. M. (in press) Rethinking norm psychology in good company. *Perspectives on Psychological Science*.
192. Heyes, C. M. (in press) The cognitive reality of causal understanding. *Trends in Cognitive Sciences*.
193. Mahr, J. B., van Bergen, P., Sutton, J., Schacter, D. L. & Heyes, C. M. (in press) Mnemicity – a cognitive gadget? *Perspectives on Psychological Science*.
194. Telga, M., Alcalá, J. A., Heyes, C. M. & Urcelay, G. P. (in press) Social overshadowing: Revisiting cue-competition in social interactions. *Psychonomic Bulletin & Review*.
195. Brandl, E., Mace, R. & Heyes, C. M. (under review) The cultural evolution of teaching.
196. Yon, D. & Heyes, C. M. (in prep) Social learning in models and minds.

Other academic publications (e.g. abstracts, book reviews, interviews, technical reports)

1. Heyes, C. M. & Plotkin, H. C. (1984) Abstract: Conspecific learning: a case study of changing fashion in science. *Communication and Cognition*. Special issue for George Sarton Centennial, W. Callebaut, S. E. Cozzens, B. Lecuyer, A. Rip & J. P. van Bendegem (Eds.), Ghent, Belgium.
2. Heyes, C. M. (1985) Evolutionaire kennistheorie. *Tijdschrift Voor Filosofie*, 47, 357-360.
3. Heyes, C. M. (1990) Review of L. D. Smith 'Logical positivism and behaviorism: a reassessment of the alliance'. *Quarterly Journal of Experimental Psychology*, 41B, 325-327.
4. Heyes, C. M. (1990) Review of A. Montefiore and D. Noble (Eds.), 'Goals, no-goals and own goals: a debate on goal-directed and intentional behaviour'. *Quarterly Journal of Experimental Psychology*, 42B, 331-341.
5. Heyes, C. M. (1994) Imitation and self-consciousness in animals: Finding fault with folklore. *Vesmir*, 73, 517-523.
6. Heyes, C. M. (1995) Knowing minds. Review of S. Baron-Cohen 'Mindblindness', and D. Byrne 'The Thinking Ape'. *Nature*, 375. 290.
7. Heyes, C. M. (1998) Abstract: Transformational and associative theories of imitation. *International Journal of Comparative Psychology*, 11. 73-92.
8. Ray, E. D. & Heyes, C. M. (1998) Abstract: Implications of contemporary learning theory for social learning research. *International Journal of Comparative Psychology*, 11. 73-92.
9. Heyes, C. M., Ray, E. & Shaftoe, M. (1999) Imitation and refreshment. Technical report AGR 11378, Unilever Research, UK (Colworth).
10. Heyes, C. M. (2000) We're all nativists now. Review of J. Nadel and G. Butterworth 'Imitation in infancy'. *Contemporary Psychology: The APA Review of Books*, 45, 398-400.
11. Bird, G. & Heyes, C. M. (2003) Abstract: Effector-specific motor representations through observation. *Proceedings of the AISB 2003 Second International Symposium on Imitation in Animals and Artifacts*, p47.
12. Press, C., Bird, G., Flach, R. & Heyes, C. (2005) Abstract: Human and robotic action elicit automatic imitation. AISB'05: Social Intelligence and Interaction in Animals, Robots and Agents. Proceedings of the Third International Symposium on Imitation in Animals and Artifacts (p. 105-108), University of Hertford.
13. Heyes, C. M. (2013) Q&A interview. *Current Biology*, 23, R98-100.

14. Heyes, C. M. (2014) Group-mindedness. Review of Michael Tomasello's *A Natural History of Human Thinking*. *Current Biology*, 24, 344-346.
15. Heyes, C. M. (2015) Book review: 'Cultural Evolution' by Tim Lewens. *British Journal of the Philosophy of Science*. doi: 10.1093/bjps/axv054.
16. Anon (2020) Cecilia Heyes. Vonk, J. & Shackelford, T.K. (Eds) *Encyclopedia of Animal Cognition and Behaviour*. Springer Nature Switzerland