

SEVENTH FRAMEWORK PROGRAMME

"Ideas" Specific programme

European Research Council

Grant agreement for Starting Grant

Annex I - "Description of Work"

Project acronym: SCINAT

Project full title: A Science of Human Nature?

Philosophical Disputes at the Interface of
Natural and Social Science

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Duration: 60 months

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Principal Investigator: Timothy Mark Lewens

Host Institution: University of Cambridge

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Section 1: The Principal Investigator

1(a) Scientific Leadership Potential (max 1 page)

My research is primarily in the philosophy of biology. I also publish regularly in bioethics and the philosophy of risk. The distinguished philosopher of biology Michael Ruse wrote of my first book, *Organisms and Artifacts* (MIT Press, 2004), that it ‘will give an old problem really new life, and must be the starting point for all future discussion.’ In 2007 I published an equally well-received book on the philosophical content and implications of Darwin’s work. Since then I have shifted my attentions to the biological foundations of contemporary political philosophy and medical ethics. This is exemplified in my assessment of appeals to ‘human nature’ in debates about cognitive enhancement (‘Enhancement and Human Nature’, *Journal of Medical Ethics*, 2009), my defence of a limited form of ‘typological thinking’ in biology (‘Evo-Devo and Typological Thinking’, *Journal of Experimental Zoology B*, 2009), and my critique of the tendency of many prominent Rawlsians to divide inequalities into those due to nature and those due to society (‘What are “Natural Inequalities”?’’, *Philosophical Quarterly*, 2010).

In 2010 I have published articles in such front-ranking journals as *British Journal for the Philosophy of Science*, *Biological Reviews*, *Analysis*, and *Philosophical Quarterly*. Evidence of my standing in the bioethics community comes from my recent appointment to the Wellcome Trust’s biomedical ethics funding panel. I have contributed chapters on key topics to the leading reference works of my field (e.g. two *Cambridge Companions*, and *The Stanford Encyclopedia of Philosophy*). My books have been favourably reviewed in prominent science journals (e.g. *Trends in Ecology and Evolution*, *Quarterly Review of Biology*), as well as in philosophy journals (e.g. *Philosophical Quarterly*, *Mind*).

In 2005 my research record was rewarded with a £50,000 Philip Leverhulme Prize, given to ‘outstanding scholars... who have made a substantial and recognised contribution to their particular field of study, recognised at an international level, and whose future contributions are held to be of correspondingly high promise.’ I was equally delighted to have been awarded a Pilkington Prize for teaching in 2008. The Pilkington citation described me as ‘a superlative teacher at all levels,’ who ‘has brought the teaching of the philosophy of biology and biomedical ethics alive across the University.’ This includes the postgraduate level: I currently have seven ongoing PhD students, and I have successfully supervised three completed PhDs, all of whom have gone on to prestigious postdoctoral positions (at Hughes Hall Cambridge, the US National Institutes of Health, and the National University of Singapore).

In addition to my work on the editorial boards of journals, my primary contribution as an editor has been for the *Routledge Encyclopedia of Philosophy*, Online Edition. This is probably the world’s leading reference work in philosophy. Since January 2006 I have been the *REP*’s Philosophy of Biology Subject Editor. I have helped (either through my own grant funding, or through sponsorship of other people’s grants) to bring a number of postdoctoral researchers to Cambridge, including Dr Ulrich Stegmann, Dr Kevin Brosnan, Dr Martin Peterson and Dr Celine Kermisch. I have also continued to knit together the Cambridge bioethics community through my organisation of the Cambridge Bioethics Forum. I have served at the University-level on the committee which organised the successful Darwin 2009 Festival, and at the national level I have recently finished a three-year term on the committee of the British Society for the Philosophy of Science. I have affiliated Cambridge’s HPS Department to an international network of Universities working in the philosophy of biology. I am also a team member of a successful ESF Networking Project on ‘The Philosophy of Science in a European Perspective’.

I have a significant role on national policy bodies. I am a Council Member of the UK’s Nuffield Council on Bioethics, I am on the Science and Trust Expert Group (reporting to the UK Government’s Department for Business, Innovation and Skills), and I also sat for several years on the Expert Panel of the UK Biosciences Futures Forum (a group that was wound up in 2009).

I would classify myself as a ‘consolidator’ for the purposes of this application. I should clarify that the relevant date of award of my PhD is 29th May 2001, as shown on the first scanned page of the PhD certificate. This is the date of formal approval of the PhD. The date of 23rd October 2010, shown on the second page, is simply the date the official certificate was issued.

1(b) Curriculum Vitae (max 2 pages)*Current Positions*

From October 2010: Reader in Philosophy of the Sciences, Department of History and Philosophy of Science, University of Cambridge. Since October 2002: Fellow, Clare College, Cambridge.

Past Academic Positions

October 2006-October 2010: Senior Lecturer, Department of History and Philosophy of Science, University of Cambridge.

October 2002-September 2006: University Lecturer, Department of History and Philosophy of Science, University of Cambridge.

October 2000 to October 2002: Research Fellow in Philosophy of Biology, Clare College, Cambridge.

Primary Research Interests

Philosophy of Biology, Philosophy of Science, Bioethics

Areas of Competence

Metaphysics, Epistemology, Philosophy of Mind

Teaching Record

Lecturing: Courses in Bioethics, Philosophy of Biology, Philosophy of Science.

Masters supervising: Topics in Bioethics, Philosophy of Science, Epistemology, Metaphysics, Philosophy of Mind, Environmental Ethics, Political Philosophy and Philosophy of Biology.

Doctoral supervising: Currently supervisor for seven PhD students. Three successful former PhD students.

Undergraduate supervising: Philosophy of Science, Philosophy of Mind, Ethics, Logic, Metaphysics, Bioethics.

Education History

January 1998 to January 2001: PhD, Department of History and Philosophy of Science, University of Cambridge. Thesis title: *Organisms and Artefacts: Design in Nature and Elsewhere*. Supervised by Nick Jardine.

October 1995 to July 1996: MPhil, Faculty of Philosophy, University of Cambridge. High Pass.

October 1992 to June 1995: BA(Hons), Philosophy, Corpus Christi College, Cambridge. First class degree.

Visiting Positions

May to July 2008: Invited Researcher, Institut d'Histoire et de Philosophie des Sciences et des Techniques, Paris.

October 2001 to October 2002: Visiting Fellow, Science and Technology Studies Department, University College London.

July 2002: Visiting Junior Scholar, Peter Wall Institute, University of British Columbia.

January to March 2001: Visitor, Museum of Comparative Zoology, Harvard University.

October 1999 to October 2000: Academic Visitor, Centre for the Philosophy of the Natural and Social Sciences, London School of Economics.

External Service

Council Member, Nuffield Council on Bioethics (2009-present).

Wellcome Trust Biomedical Ethics Funding Panel (2010-present).

Science and Trust Expert Group Member (2009-present; an advisory body reporting to the UK Government Department of Business, Innovation and Skills).

Expert Panel Member, Biosciences Futures Forum (2006-2009; an advisory body reporting to the UK Government Department of Business, Enterprise and Regulatory Reform).

Programme Committee Member, EPSA (European Philosophy of Science Association) Conference, 2009.

British Society for the Philosophy of Science, Committee Member (2006-09).

Governor, Exeter School, Exeter. (Nominated by the University of Cambridge.) (2007-present).

External Examiner, UCL, Science and Technology Studies Department (2006-10).

External Examiner for PhD Theses at Oxford University, the University of London, the University of Lyon and the Swedish Royal Technological Institute.

Grant Evaluator for BBSRC, Dutch Academy of Sciences, Estonian Science Foundation, French ANR (Agence Nationale de Recherche).

University Service

Director of Graduate Studies, HPS Dept. (2003-4, 2006, 2009-present).
 Elector, Hans Rausing Chair of History and Philosophy of Science (2009).
 Senior Examiner, Pt II History and Philosophy of Science (2008-10).
 Philosophy Strand Coordinator, Darwin 2009 Conference (2005-2009).
 Senior Examiner, Pt IB History and Philosophy of Science (2003-4).
 MPhil Manager, HPS Dept. (2006-7, Michaelmas 2009).
 Course Coordinator, History and Ethics of Medicine (BBS pt II) (2006-present).
 Course Coordinator, Medicine, Ethics and Law (BBS pt II) (2002-2006).
 Member of Executive Committee, Degree Committee, Department Board, College Liaison Committee, Monitoring Committee. (2002-present)
 HPS Departmental Seminar Organiser (2004-5).
 Cambridge Bioethics Forum Organiser and Chair (2002-present).

College Service (Clare College)

Admissions Tutor (2006-7).
 Tutor for Accommodation (2003-5).
 Director of Studies in Philosophy (2003-4, 2006-7, 2008-present).
 Member of College Council (2002-2007).
 Fellowship Committee (2009-2010).

Editorial and Refereeing Work

Subject Editor for Philosophy of Biology, *The Routledge Encyclopedia of Philosophy*, Online Edition.
 Advisory Editor, *Studies in History and Philosophy of Biological and Biomedical Sciences*.
 Editorial Board Member, *Biological Reviews*.
 Reviews Editor, *Studies in History and Philosophy of Biological and Biomedical Sciences* (2002-7).
 Referee for Cambridge University Press, Oxford University Press, MIT Press, Springer, Routledge, Acumen Press, *Australasian Journal of Philosophy*, *Bioessays*, *Biology and Philosophy*, *Biological Reviews*, *British Journal for the Philosophy of Science*, *Canadian Journal of Philosophy*, *History and Philosophy of the Life Sciences*, *International Journal of Risk Assessment and Management*, *International Studies in the Philosophy of Science*, *Journal of Medical Ethics*, *Journal of Risk Research*, *Kennedy Institute of Ethics Journal*, *MIND*, *Philosophical Quarterly*, *Philosophy of Science*, *Studies in History and Philosophy of Science*, *Synthese*.

Grants Held

'The Philosophy of Risk', grant from Pfizer Global Research and Development, £59,100 in 2003-4.
 'Trust and Healthcare', grant from Pfizer Global Research and Development, £50,000 in 2005-6.
 'Human Nature: Assessing the Biological Foundations of Ethics', grant from the Leverhulme Trust and the Newton Trust, £110,000 in 2006-9.
 Crausaz-Wordsworth Fellowship, £5,000 in 2010-11.

Funding ID

I have no commitments to running grants from October 2011 onwards. There is and there will be no funding overlap with the ERC grant requested and any other source of funding for the same activities and costs that are foreseen in this project.

1(c) Early Achievement-Track-Record (max 2 pages)**Publications**

Note: Space limitations mean that only a selection of publications and presentations are listed here. All publications are single-authored, unless otherwise indicated. Applicants are asked to provide citation data for publications. Reliable citation data are difficult to find in the humanities. The bold figures in square brackets give the number of citations of each item, as reckoned by Google Scholar, excluding self-citations.

Books

Darwin. London: Routledge (2007). [**10**]

Organisms and Artifacts: Design in Nature and Elsewhere. Bradford Books, Life and Mind Series. Cambridge, MA: MIT Press (2004). [**44**]

Edited Book

Risk: Philosophical Perspectives. London: Routledge (2007). [**8**]

Articles

‘Natural Selection Then and Now’ (2010) *Biological Reviews* 85: 829-835.

‘Foot Note’ *Analysis* 70, 3 (2010): 468-473.

‘The Natures of Selection’ *British Journal for the Philosophy of Science* 61 (2010): 313-333. [**1**]

‘What are Natural Inequalities?’ *Philosophical Quarterly* 60 (2010): 264-285.

‘The Risks of Progress: Precaution and the Case of Human Enhancement’ *Journal of Risk Research* 13 (2010): 207-216.

‘What’s Wrong with Typological Thinking?’ *Philosophy of Science* 79 (2009): 355-371.

‘Biology, Philosophy of’ in E. Craig (ed.) *The Routledge Encyclopedia of Philosophy*. London: Routledge. Published online Summer 2009:
<http://www.rep.routledge.com/article/Q138>

‘Natural Selection and Adaptation’ in E. Craig (ed.) *The Routledge Encyclopedia of Philosophy*. London: Routledge. Published online Summer 2009:
<http://www.rep.routledge.com/article/Q126>

‘Evo-Devo and Typological Thinking: An Exculpation’ *Journal of Experimental Zoology B: Molecular and Developmental Evolution* 312 (2009): 789-796. [**1**]

‘Enhancement and Human Nature: The Case of Sandel’ *Journal of Medical Ethics* 35 (2009): 354-356.

‘As Nature Intended’ *Biology and Philosophy* 24 (2009): 417-423. (Critical notice of J. Scott Turner, *The Tinkerer’s Accomplice*.)

‘Seven Types of Adaptationism’ *Biology and Philosophy* 24 (2009): 161-182. [**7**]

‘Innovation and Population’ in U. Krohs and P. Kroes (eds.) *Functions in Biological and Artificial Worlds: Comparative Philosophical Perspectives*. Cambridge, MA: MIT Press (2008): 243-257. [**1**]

‘The *Origin* and Philosophy’ in R. Richards and M. Ruse (eds.) *The Cambridge Companion to the Origin of Species*. Cambridge University Press (2008): 314-332. [**2**]

‘Cultural Evolution’ in Edward N. Zalta (ed.) *The Stanford Encyclopedia of Philosophy*,
<http://plato.stanford.edu/archives/spr2008/entries/evolution-cultural/> (Spring 2008 Edition). [**1**]

‘Adaptation’ in M. Ruse and D. Hull (eds.) *The Cambridge Companion to the Philosophy of Biology*. Cambridge University Press (2007): 1-21.

‘Functions’ in M. Matthen and C. Stephens (eds.) *Handbook of Philosophy of Biology*. Elsevier (2007): 537-559. [**6**]

‘Distinguishing Therapy from Research: A Functional Approach’ *Journal of Medical Ethics* 32 (2006), 424-429. [**4**]

‘What is Darwinian Naturalism?’ *Biology and Philosophy* 20 (2005), 901-912. (Critical notice of Hodge and Radick, eds. *The Cambridge Companion to Darwin*.)

‘Realism and the Strong Program’ *British Journal for the Philosophy of Science* 56 (2005), 559-577. (Chinese translation published in *Science and Culture Review*.) [**6**]

‘Prospects for Evolutionary Policy’ *Philosophy* 78 (2003): 483-502. [**3**]

‘The Trials of Life: Natural Selection and Random Drift’ (with Denis Walsh and André Ariew) *Philosophy of Science*, 69 (2002): 429-446. [**72**]

‘Development Aid: On Ontogeny and Ethics’ *Studies in History and Philosophy of Biological and Biomedical Sciences* 33 (2002): 195-218. [**16**]

‘Adaptationism and Engineering’ *Biology and Philosophy* 17 (2002): 1-31. [**15**]

‘Sex and Selection: Reply to Matthen’ *British Journal for the Philosophy of Science* 52 (2001): 589-98. [**10**]

'Function Talk and the Artefact Model' *Studies in History and Philosophy of Biological and Biomedical Sciences* 31 (2000): 95-112. [7]

Invited presentations (since 2008 only)

2010

- 'Essence of Tiger' Philosophy Research Seminar, University of Kent.
- 'Justifying Adaptationism: The Case of Evo-Devo' Department of Theoretical Biology, University of Vienna.
- 'Limits of Adaptation' Panel Discussion, Konrad Lorenz Institute, Altenberg, Austria.
- 'Species, Essence and Explanation' Popper Seminar Series, London School of Economics.
- 'Cultural Evolution: Towards an Eclectic Synthesis' Darwin in China Conference, Beijing.
- 'Philosophy of Science: The Case of Charles Darwin' Groningen Summer Academy, King's College Cambridge.

2009

- 'Darwin and Philosophy' Institute of Biology, East Anglia Branch, Cambridge.
- 'Darwinizing History: What are the Payoffs?' Why aren't the Social Sciences Darwinian? CRASSH/LCHES, University of Cambridge.
- 'Dialogue: Darwin and Philosophy' (with David Papineau) London School of Economics, Forum for European Philosophy.
- 'Darwin's Psychology and Darwinian Psychology' Darwin 2009 Conference, University of Cambridge.
- 'Essence of Tiger' Serious Metaphysics Group, University of Cambridge.
- 'Changing Conceptions of Selection', When Evolution Evolves, AgroParisTech, Paris.
- 'Changing Conceptions of Selection' (Keynote Address), 'Life, Living, Evolution', University of Latvia, Riga.

2008

- 'Charles Darwin: A Philosophical Naturalist' British Humanist Association, Annual Darwin Day Lecture, UCL.
- 'What are Natural Inequalities?' Department of Philosophy, University of Bristol.
- 'The Risks of Enhancement' Swedish/Danish Risk Conference, Luleå, Sweden.
- 'Foot on Natural Goodness' La notion de fonction: des sciences de la vie à la technologie, Collège de France, Paris.
- 'Adaptationism and Evo-Devo' Pitt/Paris Workshop on Adaptationism, Institut d'Histoire et de Philosophie des Sciences et des Techniques, Paris.
- 'Evo-Devo and Typological Thinking: An Exculpation' Department of Zoology, University of Cambridge.
- 'Wimsatt on Modularity and Technology' Maison de la Recherche, Université Paris-Sorbonne (Paris IV).
- 'Natural Selection Then and Now' Evolutionary Perspectives on Epigenesis, University of Bergamo, Italy.
- 'Organisms: A Projectivist Account' The Concept of the Organism, Institut d'Histoire et de Philosophie des Sciences et des Techniques, Paris.

Prizes and Awards

- Crausaz-Wordsworth Fellowship in Philosophy, CRASSH, Cambridge 2011.
- Pilkington Prize for Excellence in Teaching, 2008.
- Philip Leverhulme Prize, 2005. (£50,000 prize "Awarded to outstanding scholars who have made a substantial and recognised contribution to their particular field of study, recognised at an international level")
- Best Paper Award, UK National Postgraduate Analytic Philosophy Conference, 1999.
- Matthew Buncombe prize for best overall performance in the Cambridge Philosophy MPhil programme, 1996.

SECTION 2: The Research project

2(a) Scientific Proposal

Context

Recent years have seen renewed attempts on the part of natural scientists to invigorate and inform the social sciences (Mesoudi et al. 2010, Mesoudi et al. 2006). Two prominent examples include the efforts of cultural evolutionary theorists to account for cultural change and cultural stasis, and the efforts of evolutionary psychologists to provide a scientific account of human nature. The two trends are sometimes seen as mutually complementary, sometimes as antagonistic: cultural evolutionary theory needs to be informed by research on human psychology, and some argue that evolutionary psychology can provide this. In both cases, these efforts have met considerable resistance from the social sciences, especially from social anthropology. Consider the example of Mesoudi et al's long target article in *Behavioural and Brain Sciences*, which aimed to construct a 'unified science of cultural evolution' (Mesoudi *et al* 2006). Their idea was to draw the attention of researchers in the social sciences to the explanatory and heuristic benefits which they saw in an evolutionary framework. Shortly afterwards a strongly-worded response appeared in *Anthropology Today* (Ingold 2007). Tim Ingold argued not so much that an integrated synthesis between cultural and evolutionary approaches was impossible, but rather that the evolutionists had wholly failed to understand the legitimate sources of resistance to neo-Darwinian approaches within social and cultural anthropology. This large project seeks to uncover the philosophical foundations of these disputes, to offer a resolution of them, and ultimately to point the way towards a reconciliation of the two domains.

Scientific importance

The work is of exceptional importance and novelty. It is also timely: the 2009 Darwin anniversary year elicited a range of calls for the 'Darwinisation' of various fields of learning, and these calls have yet to be digested and evaluated. Its ambition is considerable: to attempt a fair-minded unveiling and assessment of a series of philosophical disputes which, although they have not always been recognised, have kept the biological and human sciences from collaborating effectively. With a resolution of these disputes in place, we can perhaps expect greater scientific collaboration across the two domains. The work also contributes to a defensible account of human nature itself, and of the proper relationship of biological and cultural forces as they contribute to similarities and differences in human populations. The work is also methodologically innovative, in three primary respects. First, it attempts to take seriously the methodological and ontological concerns of both social and natural scientists: too often the views of one side in the debate are dismissed without due attention. Second, it combines philosophical and historical perspectives, not merely to understand better the sources of disagreement between these camps, but to learn how one might seek to resolve them. Third, it will have as its output a strengthening of philosophy of anthropology as a sub-discipline within the philosophy of science. This final aim fits well with the Cambridge HPS Department's strengthening of expertise in philosophy of the social science: our most recent appointment to a permanent lectureship (to start in October 2011) was the philosopher of economics Anna Alexandrova.

Interdisciplinary profile

A thoroughgoing interdisciplinary approach will be ensured at all times. The Cambridge-based advisory group (see below for details of its membership) will provide input from across the natural and social sciences. Lewens has a strong track-record in interdisciplinary work. He has recently won Cambridge's first Interdisciplinary Crausaz-Wordsworth Fellowship, which will enable some of the preparatory work for this much larger project to be achieved. In the past year his own work has appeared in leading journals aimed at very different disciplinary readerships: he has published in biology journals, philosophy journals, journals of applied ethics and a risk studies journal. He is well used to sitting in multi-disciplinary working groups and panels, such as the Nuffield Council's current working group on the ethics of organ donation, or the UK Government's Science and Trust expert group. In both of these cases, Lewens has worked with social scientists, natural scientists, and various practitioners (in, for example, medicine and the civil service). Lewens was also a member of the interdisciplinary group that recently gained funding for (and then organised) the highly successful Mellon-Sawyer Seminar Series (2009-10) on 'Modelling Futures: Understanding Risk and Uncertainty'.

Background: What are Cultural Evolutionary Theories?

There are two rather different perspectives from which one might characterise what an evolutionary theory of culture is. One begins from an entirely abstract standpoint. Evolution is change, and a theory of cultural evolution, one might argue, is any theory which explains cultural change, cultural stability, cultural divergence, or cultural homogenisation over time. Such a usage is defensible, but it renders any diachronic theorist of culture an evolutionary theorist, whether they would willingly accept the label or not. Since plenty of theorists of culture—most obviously social and cultural anthropologists—have resisted the evolutionary label, we need to find another perspective from which to make sense of this resistance.

We can do this by understanding cultural evolutionary theories as reactions from within the community of evolutionary biologists to mainstream presentations of the theory. Textbook presentations of evolutionary biology often assume that evolutionary processes must work on genetically inherited variation (Mameli 2004). Researchers steeped in the traditions of evolutionary biology, and familiar with its explanatory tools, may then point out that genes are not the only things passed from parents to offspring (Avital & Jablonka 2000; Jablonka & Lamb 1998; Jablonka & Lamb 2005; Griffiths & Gray 1994; Richerson & Boyd 2005). In the human species (for example) skills, values, folk knowledge, technical scientific knowledge, linguistic expressions and so forth can also be passed from parent to offspring by various forms of learning. If learned skills, or moral values, make a difference to survival and reproduction, then natural selection can promote the spread of skills or moral values, regardless of whether it is genetic inheritance or learning which explains their transmission. What's more, skills and moral values are not only transmitted 'vertically' from parents to offspring: they can be passed from children to their parents, from children to their friends, from teachers to children, from role-models to adults, and so forth. Such forms of transmission further complexify the ways in which a population's makeup can change over time, forcing us to take into account more than vertical transmission. Those who explicitly describe themselves as cultural evolutionary theorists typically use these sorts of insights to argue that a complete account of human evolution needs modification if it is to encompass all the forces which have shaped our own species—and perhaps some cognitively sophisticated animal species—over time (Richerson & Boyd 2005).

Cultural evolutionary theory is itself a broad church. It is opposed to the most straightforward ways of applying Darwinian thinking to human culture, as exemplified by the dominant Santa Barbara School of evolutionary psychology. And yet it remains a recognisably biological way of thinking about human culture, not because it thinks of cultural phenomena as simple products or analogues of biological processes, but instead because it typically recommends that explanatory tools of a kind that have been successful in the biological sciences can be used to good effect when one confronts human culture. These include mathematical models similar to those used within population genetics, as well as various techniques for reconstructing the branching histories of biological species (Boyd & Richerson 1988; Cavalli-Sforza & Feldman 1981; Gray et al. 2007; Mace & Holden 2005).

Our two perspectives on the nature of cultural evolutionary theories allow us to make sense of what might otherwise be a puzzling tension (Lewens 2008). On the one hand a theory of cultural evolution seems non-negotiable: if we are to understand cultural change, there must be some way of explaining it, and whatever explains it will be a cultural evolutionary theory. On the other hand, theories of cultural evolution are up for grabs. Opposition to cultural evolutionary theories come from those who are not opposed to understanding culture, but rather from those who doubt that tools adapted from evolutionary biology provide us with the best way of doing it (Kuper 2000b). Some even go so far as to deny that any strictly 'scientific' account of culture is possible, while acknowledging that a more piecemeal form of interpretative explanation is appropriate (Geertz 1973).

The Questions to be Examined

The philosophical issues underlying these debates focus on five interconnected themes.

i) The Construction of Cultural Niches

Cultural evolutionary theorists themselves often assume that hostility to their discipline is driven primarily by ignorance of what they are attempting to achieve, and of the tools which they are using (Perry & Mace 2010). But there are also philosophical disputes that lie at the root of this hostility. For some social anthropologists, it is simply a mistake to think that explanation of cultural change and cultural variation should be 'scientific', if what one means by this is that it should follow a pattern of explanation usually attributed to physics and chemistry, whereby general explanatory laws underwrite causal relations between the events studied (Risjord

2007). Clifford Geertz has drawn on explicitly philosophical considerations (derived from Gilbert Ryle) to suggest that an understanding of culture should not proceed along the lines of the natural sciences:

Believing, with Max Weber, that man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs, and the analysis of it to be therefore not an experimental science in search of law but an interpretive one in search of meaning. (Geertz 1973, p. 5)

In part, Geertz is pointing out that groups of humans communicate, they formulate public rules of conduct, they develop expectations, and these acts of communication have various complex feedback relationships resulting in the formulation of new rules of conduct, new expectations, and new forms of communication. This is all undeniable, but how, if at all, does it cast doubt on the propriety of applying evolutionary thinking to humans? Here, research will examine whether, for example, one might replace Geertz's 'webs of significance [man] himself has spun' with Laland, Odling Smee and Feldman's language of 'niche-construction' (Laland et al 2001). The cultural environment is sustained by the niche-constructing action of humans; these cultural niches have impact on subsequent evolutionary and developmental trajectories of human populations; and different human populations occupy different cultural niches. Theories of niche-construction stress the reflexive nature of the relationship between organisms and their environments. The development of organisms is guided by stimuli from environments, but those environments are themselves produced by the earlier actions of organisms. The evolution of organisms is affected by selection pressures imposed by environments, but those environments, and the selection pressures they bring, are shaped by the nature of organic activity, including active choice. When Ingold (2007) replied to Mesoudi et al, he worried that dominant evolutionary accounts would struggle to cope with 'historical agency', and that they would render humans passive. However, the theory of niche-construction stresses the mistakes of thinking that adaptation is always produced by environments shaping passive organisms via natural selection. It offers as a corrective the thought that adaptation is often achieved through the alteration of environments by active organisms, and it explicitly endorses the role of active choice in the construction of environments

ii) Interpretation and Ethnography

The suggested *rapprochement* offered by niche-construction is likely to be only partially effective, because it fails to address deeper philosophical concerns about the very possibility of a general scientific framework within which one might construct explanations for intentional behaviour. There is an exceptionally rich set of traditions, in both philosophy and social science, of scepticism about the unity of natural and social science. In some cases this is based on the claim that interpretative explanation of action—the sort of explanation that might 'make sense' of cultural phenomena—is either non-causal, or deeply subjective, or both. There are, of course, equally rich philosophical views that seek to counter these movements: Donald Davidson's claim that reasons can also be causes is a case in point, yet for Davidson, of course, there remain no psychophysical (or psychological) laws of nature. The conjecture to be examined in this element of research is that opposition to cultural evolutionary theories derives from more basic philosophical scepticism about any natural science of human culture. A number of potential responses may open up to the cultural evolutionist, which the proposed research will examine. To give just one example, much cultural evolutionary theory is focused not so much on giving a law-governed account of the rational *causes* of beliefs in cultural groups. Instead, it addresses the *consequences* for the population as a whole when a group of individuals with characteristic cognitive profiles interact with each other. This focus on so-called 'population thinking' is characteristic of leading work in cultural evolutionary theory, especially the work of Boyd and Richerson. This difference in explanatory focus may insulate cultural evolutionary theory from traditional philosophical scepticism about the very possibility of a law-governed science of rational explanation. But the price of such a defence may be considerable, for if successful, the defence may greatly temper the potential ambitions of evolutionary thinkers aiming to revolutionise the social sciences. That is because, in focusing on a populational theory of consequences, one seems to leave interpretive ethnography undisturbed (see also Tehrani 2006).

This strand of investigation also enables the project investigators to examine the degree of conflict between anthropological claims about cultural specificity, and evolutionary claims about cultural universality. Take the examples of the social anthropologist Catherine Lutz, and the evolutionary psychologist Paul Ekman. Ekman (1973) says anger is a universal basic emotion; Lutz says that the Ifaluk people (from the Caroline Islands in Micronesia) recognise an emotion that they call '*song*' (Lutz 1988). *Song* is like anger in some ways, but unlike anger *song* must come from a morally justified cause. It may seem, then, that disciplinary conflict is inevitable: Lutz's picture suggests that *song* does not exist in European cultures, and anger does not exist in the Ifaluk culture. Ekman, meanwhile, appears committed to the view that anger exists in all cultures, Ifaluk included. Mallon and Stich (2000) have argued that we can accept a large amount of what both Ekman and Lutz say. Ekman claims that a small number of emotional 'affect programs' are universal.

This entails that the Ifaluk have the anger affect program. But it does not entail that they have any *concept* of the anger affect program, and it does not entail that recognition of the anger affect program as such plays any role in their social interactions. Ekman's view can be made compatible with that of Lutz if we hypothesise that the Ifaluk use concepts that have their proper application only to affect programs when they are triggered in particular ways. On this view, *song* is something like *the-anger-affect-program-when-triggered-by-a-justified-cause*. Here, the project's investigators will examine how successful the reconciliation offered by Stich and Mallon is likely to be. One large stumbling block may consist in what are viewed as important explanatory goals. A social anthropologist may complain that Ekman's work, even if well grounded, simply will not illuminate what one might think of as the broad politics of *song* in Ifaluk society. Here we need culturally specific investigations of (for example) the sorts of causes viewed as morally justifying, accepted practices for how someone who is *song* will be permitted to treat others (including the person towards whom *song* is directed), and so forth. Work on the interest-relativity of explanation will, it is hypothesised, be illuminating in this context (e.g. Lipton 2004).

iii) Cultural Particles

Tim Ingold (in his recent attack on cultural evolutionary theories) has pointed to problems associated with cultural evolutionary theorists' reliance on the notion of 'cultural traits', understood as particles which can be transmitted through societies (Ingold 2007). Here, conceptual work is needed to clarify the sense in which cultural evolutionary theory relies on a 'particulate' view of the constituents of culture, and the ways in which such views come into conflict with philosophical conceptions of the nature of beliefs, values and so forth. The 'population thinking' which typically characterises cultural evolutionary theories demands that we can characterise cultural entities in the abstract, in ways which allow them to be counted. These theories require, for example, that we can discuss 'having a small family', or 'believing in God', or 'making a traditional basket' in such a way that we can determine, in the population under study, how many instances of these entities may be present. If we cannot do this, then we cannot characterise a human population in terms of the differential representation in that population of one technique compared with another, we cannot characterise the individuals in the population as having cognitive dispositions making it easier for them to learn one technique over another, and so forth. The question for this element of the research is whether this conception of cultural elements as 'particles' can stand up to a series of concerns about whether (for example) the spread of some belief through a given culture is really a matter of transmission from one individual to another, whether items of culture can be transmitted intact across cultural groups, and whether it even makes sense to think of culture as decomposable into separable entities. Such criticisms are familiar from earlier critiques of 'diffusionism' within anthropology, and some social anthropological commentators imply that those earlier critiques suffice to cast doubt on cultural evolution itself (e.g. Bloch 2000). (Interestingly, diffusionism itself was considered an antidote to an earlier form of evolutionism within anthropology—one that has a distant relationship to modern cultural evolutionary theory.) This strand of thinking will lead on to a further evaluation of the extent to which cultural evolutionary theories are inappropriately focused on human individuals, as opposed to social systems. On the face of things, by stressing a concept of culture as something largely contained within individuals' heads, modern evolutionary theorists draw attention away from the functionings of systems as a whole. This latter theme has been a recurring motif, understood in quite different ways, of many large movements in anthropology, especially forms of functionalism and structuralism (e.g. Durkheim 1938, Lévi-Strauss 1969, Radcliffe-Brown 1950; see also Layton 1997 for commentary). The question is whether evolutionary theories can at least partially account for these broader social functional relationships by attending to the causes and effects of changes in population structure.

iv) Typological thinking, nominalism and essentialism

In the middle of the twentieth century, the eminent evolutionary biologists Ernst Mayr (1976) and Theodosius Dobzhansky (1951) argued that Darwin replaced 'typological thinking' with 'population thinking'. The population thinker (so the story goes) sees natural populations as entities that vary in manifold respects: populations should be characterised in statistical terms, and no explanatory reference should be made to stable 'types' underlying observed natural variation. Since then, a fairly widespread consensus has emerged in both biology itself and in the philosophy of biology that being a tiger, or being a human, is not a matter of having some internal constitution characteristic of the species in question. In more technical language, it is said that species do not have intrinsic essences (Sober 1980, Dupré 1981, Griffiths 1999, Okasha 2002), although they may constitute natural kinds (Boyd 1991). This view has not gone unchallenged: part of this project will examine arguments from those such as Michael Devitt (2008), who have tried to resuscitate the essentialist view. This strand will look at the significance of the anti-typological consensus, especially as it plays out when biological and social scientists discuss the propriety of appeals to 'human nature'.

It is sometimes said that species in general are not the sorts of things that have underlying natures, and that we consequently have good biological reasons for thinking that human nature is a spurious concept (Hull 1986). This might be taken to show on biological grounds that realist views of human nature are untenable, and that constructivist views, long championed in the human sciences, are to be preferred. Recall, however, that for the likes of Mayr the population thinker denies an explanatory role for underlying essences, while remaining open to characterising populations in statistical terms. The project will examine the possibility of salvaging a nominalist conception of human nature, while rejecting a stronger typological notion of the human essence. Such a position may also receive endorsement from a form of neo-pheneticist thinking in biology itself: James Mallet (1995) thinks of species as ‘genotypic clusters’, which can be subject to robust statistical characterisation, without having anything that would answer to a traditional conception of essence.

v) *Channels of Inheritance*

Roger Smith, a historian much influenced by social anthropological accounts of the human species, complains that ‘Modern evolutionary accounts of human origins continue to reflect belief that there is an essential human nature, the nature all people share through their common root.’ (Smith 2007) He seems to think that humans, as reflective, language-using creatures, cannot be investigated using the evolutionary tools one uses to investigate other animals. Part of his worry (again prompted by readings of Clifford Geertz) is that human nature could not persist in any stable way when our thoughts, behaviours and even our bodies can be modified in the wake of communication and rational reflection. There are, however, many evolutionary theorists who are happy to acknowledge the significant impact cultural inheritance has on human nature. The question remains: how should we conceive of the relationship between genetic inheritance as it is traditionally conceived in biology, with cultural inheritance that proceeds via learning? One popular way of doing this is via so-called ‘dual inheritance’ theories, which conceive of genetic and cultural inheritance as alternative inheritance channels (Laland et al. 2002). Some anthropologists have been suspicious of thinking of inheritance as something that occurs via distinct channels. It can make sense to ask whether cultural variation, rather than genetic variation, explains some aspect of phenotypic variation in a population. In a group of genetic clones, in which some learn one set of moral values from their parents, and others learn different moral values from their parents, it is obviously not genetic variation that explains variation in the population. But this insight does not legitimate talk of distinct inheritance channels (Gray 1992). In talking of ‘channels’ one seems to imply that some aspects of phenotypic resemblance are controlled by the genetic channel, others by the cultural channel. It isn’t clear how we can demarcate distinct channels of inheritance within the web of developmental relations by which inheritance comes to be realised. This element of research will address the possibility that so-called ‘Developmental Systems Theory’ (DST), developed by Griffiths, Gray and Oyama, might serve as a venue for the integration of biological and cultural conceptions of human nature. DST places stress on the interaction of many different forms of developmental resource—anything from genetic transmission to the passing on of symbionts or the stability of the environmental niche in which parents and offspring develop—in the production of parent-offspring similarity (Gray 1992; Griffiths & Gray 1994; Griffiths & Gray 1997; Griffiths & Gray 2001; Oyama 2000). DST’s advocates have been suspicious of the prospects for locating distinct inheritance channels within this network of interactions. And yet, some DST theorists—most obviously Russell Gray (Gray et al 2007)—have been among the most enthusiastic advocates of cultural evolutionary theory.

2 (b) Methodology

The work has an obvious interdisciplinary character, and relies essentially on input from experts in the social and natural sciences. To this end, collaborative ties have been established with the University of Cambridge's Department of Zoology, Leverhulme Centre for Human Evolution (LCHES), Department of Social Anthropology and Faculty of Philosophy. Distinguished supporters have been enlisted in all of these departments, and they have agreed to form a local Advisory Body. They are:

Prof Nicola Clayton (FRS): Department of Zoology, expert in comparative cognition

Prof Robert Foley (FBA): LCHES, expert in biological anthropology

Prof Dame Marilyn Strathern (FBA): Department of Social Anthropology, expert in social anthropology

Prof Tim Crane: Faculty of Philosophy, Knightbridge Professor, expert in philosophy of mind

All four have expressed willingness to read work, attend seminars, and advise on appropriate readings.

Groundwork will be laid for the project prior to its start date. Lewens has secured a term of sabbatical leave (Easter 2011) at Cambridge University's Centre for Research in Arts, Social Sciences and Humanities (CRASSH) where he will begin to examine the dispute between interpretative and causal models of explanation in more detail. CRASSH also provides an interdisciplinary environment which will allow Lewens to make contact with researchers from diverse disciplines. These contacts will be important as the project unfolds.

In terms of a structure for the project, there will be five key individuals conducting research under the grant: Lewens as PI, two postdoctoral researchers (to be offered four-year positions), and two PhD researchers (to be offered three-year studentships). There will also be a half-time research assistant/administrator. PhD and Postdoctoral researchers will all be recruited in year one of the project, to arrive at the beginning of year two. The questions posed by the project require input at a high level of expertise—specifically at the postdoctoral level—from the history of anthropology and the philosophy of social science. These individuals will provide essential knowledge where Lewens's own background (as a philosopher of biology) is lacking.

Duties of the Half-Time Research Assistant/Administrator (18hrs/week): Responsibilities will include producing literature reviews; drafting reports; sourcing documents; organising conferences; managing overseas visits; keeping records; organising project meetings; taking minutes; keeping project action plan and accounts up to date; maintaining project website; liaising with expert group members and visiting fellows; producing publicity materials; answering queries; liaising with departmental and university administrative staff; general clerical work for the research team.

Justification for a postdoctoral historian of anthropology: As has been explained above, the disputes which are to be explored in their philosophical aspects also have historical dimensions. It is the view, for example, of some social anthropologists that cultural evolutionary theories have already been shown lacking, several times over, and that the proponents of these theories are ignorant of history. In some cases these claims point towards the rejection of so-called 'diffusionist' theories, in some cases towards earlier rethinking of the relationship between cognition and anthropology, in some cases towards ethnographic work that appears to undermine any plausible claims about a universal nature underlying apparent diversity. Detailed historical work will achieve two goals that directly inform the overarching aim of the project. First, this work will increase the quality of philosophical discussion regarding the precise nature of conceptual arguments around the relevance of evolutionary thinking for the social sciences. Second, by explaining the actual grounds for friction between diverse anthropological schools, historical work will also point to the practical difficulties in building a synthesis between these schools. The appointee will be integrated into a world-leading department in history of science. Professor Simon Schaffer, for example, (also within the History and Philosophy of Science Department), is an exceptionally distinguished historian of science with a strong interest in the history of anthropology.

Justification for a postdoctoral philosopher of social science: Although few philosophers specialise in the philosophy of anthropology, the philosophy of social science is a broader and more populated field. Many of the questions that arise in the debates between evolutionists and anthropologists are exemplary of debates treated more generally within philosophy of social science. These include Wittgensteinian themes familiar from the work of Peter Winch (Winch 1958), regarding the very possibility of modelling an interpretive social science along the lines of a causal-explanatory natural science. They also include debates about the proper ontology of social explanation: should culture be understood as a phenomenon reducible to facts about

individual psychologies, or is some form of explanation that grants autonomy to social structural facts appropriate (Kincaid 1996)? It is hoped that by bringing established expertise from philosophy of social science to bear on the specific questions posed by cultural evolutionary theories, the quality of debate in this area will be greatly enhanced.

Two PhD students will also be recruited. They will work under Lewens's supervision, on two questions that lend themselves to treatment within the limited term of a three-year PhD studentship, but which are also essential to provide a rounded account of the relationship between evolutionary and social scientific understandings of culture:

- *PhD Project One—Conceptualising cultural inheritance*: How should we conceive of the relationship between genetic inheritance as it is traditionally conceived in biology, with cultural inheritance that proceeds via learning? One popular way of doing this is via so-called 'dual inheritance' theories, which conceive of genetic and cultural inheritance as alternative inheritance channels (Laland et al. 2002). Some critics have complained that we cannot demarcate distinct channels of inheritance within the web of developmental relations by which inheritance comes to be realised. It raises the possibility that so-called 'Developmental Systems Theory' (DST), might serve as a venue for the integration of biological and cultural conceptions of human nature. DST places stress on the interaction of many different forms of developmental resource—anything from genetic transmission to the passing on of symbionts or the stability of the environmental niche in which parents and offspring develop—in the production of parent-offspring similarity (Gray 1992; Griffiths & Gray 1994; Griffiths & Gray 1997; Griffiths & Gray 2001; Oyama 2000).
- *PhD Project Two—Embodied cognition and cultural evolution*: Does the culture concept underlying much work in cultural evolution exclude so-called 'embodied cognition' or 'extended cognition'? Is the role of artefacts as storehouses of cultural tradition downplayed in evolutionary theorists' conceptions of culture? Boyd and Richerson define culture as 'information capable of affecting individuals' behaviour that they acquire from other members of their species through teaching, imitation, and other forms of social transmission'. The key term 'information' is not given any explicit definition; instead we are told of the sorts of things it is meant to cover. It is, Mesoudi et al say, 'employed as a broad term incorporating ideas, knowledge, beliefs, values, skills, and attitudes.' (Mesoudi et al. 2006) They do not mention artefacts here, and yet anthropologists, as well as cognitive scientists who focus on so-called 'extended cognition', have drawn attention to the ways in which artefacts, too, are parts of culture, and the ways in which they might be said to store transmissible information regarding cultural traditions, status, folk knowledge, or technical knowledge (Clark & Chalmers 1998; Mithen 2000; Sterelny 2006, Henare et al. 2007).

As PI, Lewens will ensure that all philosophical work is informed by the best work in social and natural science. Researchers will be expected to have an outstanding record of academic excellence, and be prepared to familiarise themselves with work in non-philosophical areas.

A distinguished visiting fellowships programme will be established in the Cambridge History and Philosophy of Science Department. Visits by non-philosophers will be especially welcome. We hope to attract workers in (for example) comparative cognition, social anthropology or biological anthropology, who have an interest in foundational debates in these areas. This will insure the ongoing interdisciplinary character of the research. One visiting fellow will be recruited each year, and s/he will come to Cambridge for one term. Funds will be available to house the visitor, provide a research environment in HPS, and pay for a return flight.

In order to ensure genuine cross-disciplinary collaboration, all those involved in the project will attend a weekly reading group. This will bring together PhD students, postdoctoral researchers, visiting fellows and members of the Cambridge Advisory Group, to discuss works of mutual interest.

In years two and four, international workshops will be organised. These will be venues for distinguished scholars to be invited to speak to the Cambridge group, but they will also be foci for the presentation of work by the PhD students, visiting fellows, and postdoctoral researchers. In year five a larger intentional conference will be organised.

Key outputs

Contributors to the visiting fellows' programme, and to the workshops staged throughout the conference, will

be asked to provide research articles for publication in a book (edited jointly by Lewens and the Postdoctoral Researchers) provisionally entitled *Why we Disagree about Human Nature*. A contract will be sought with Routledge, with whom Lewens has already published two books.

The Postdoctoral researchers will each be expected to produce a series of three journal articles across the four years of their tenure, in major peer-reviewed journals.

Each PhD Student will be expected to produce two articles by the end of their PhD tenure, in order to ensure their subsequent employment prospects.

Lewens himself will use the project to complete a book, provisionally entitled *Nature and Culture: Towards an Eclectic Synthesis*. The book will be written over the course of five terms of research leave, costed into the grant. The first of these terms will be taken in the first year of the grant (enabling a thorough proposal to be sent to a publisher, and a contract to be secured), then a full year of sabbatical leave will be taken mid-way through the grant (enabling a complete draft of the book to be finalised and submitted for publication), and a final term of sabbatical will be taken in the final year of the grant (enabling any readers' comments to be taken into account in preparing final revisions). The first part of this book will examine a series of philosophical disputes—primarily located in the philosophy of mind—which underlie apparent disputes between 'interpretive' schools of anthropological thinking and cultural evolutionary theorists. The second part will turn to more metaphysical issues arising from the nature of species, the concept of a species nature, and the relationship between different forms of inheritance. The book will be complemented by a series of three major journal articles (all written by Lewens) focusing on more specialised issues. The first of these (to be aimed at *Philosophy of Science*), will examine the status of species natures in the light of the anti-essentialist consensus in philosophy of biology. The second (aimed at *Biology and Philosophy*) will examine the culture concept typically endorsed by cultural evolutionary theorists, in the light of recent anthropological critiques. The third (aimed at *Ethics*) will subject recent neo-Aristotelian work in meta-ethics to scrutiny, in the light of cognitive anthropological work on intuitive essentialism about species. When Lewens is not on leave, 40% of his time will be devoted to this project, and he will also be committed to supervision and mentoring of the postdoctoral and PhD researchers.

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