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Essay review

Can cultural evolution bridge scientific continents?

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Cultural Evolution: Conceptual Challenges, Tim Lewens. Oxford University Press (2015). 224 pp. Price £25.00. Hardcover, ISBN: 978-0-19967-418-3

I

The gap between, on the one side, anthropology and sociology, and, on the other, biology and psychology, sometimes feels like a kind of intellectual Bosphorus: a place where the so-called 'hard' and 'soft' sciences meet, separated by a strait that divides two modes of enquiry and ways of knowing that can seem to come from different continents. What is plain to one can seem absurd to the other. The methods and findings of each can be of much mutual relevance, but the modern history of these waters has too often been one of division rather than synthesis.

Over the past 5 years, Tim Lewens—Professor of Philosophy of Science at the University of Cambridge—has held a major grant from the European Research Council, which aims to expose unacknowledged philosophical differences between the two sides of the strait: differences, for instance, about the nature of human nature, and about what constitutes scientific explanation. His new book, *Cultural Evolution: Conceptual Challenges*, is a major output of this project. In it, Lewens focuses his energies on one of the most prolific recent attempts to bridge the divide, namely research pursued under the banner of 'cultural evolution', and epitomised by the work of Rob Boyd, Pete Richerson, Joe Henrich, and their colleagues (see e.g. Boyd & Richerson, 1988; Henrich, 2015; Mesoudi, 2011; Richerson & Boyd, 2005). Lewens aims in particular to elucidate what the cultural evolutionary project can contribute to contemporary debates about human nature and human life, and whether any of the concerns raised by its sceptics are well-founded. This is, in short, a philosophical evaluation of the cultural evolutionary project.

Lewens goes about his work with care, and in a largely systematic way. A brief summary of the structure of the first chapter of the book—"What is cultural evolutionary theory?"—will suffice to illustrate. §1.1 outlines the chapter to come. §1.2 introduces the first and most intuitive of three types of cultural evolutionism: the *historical* approach. §1.3 is one paragraph long, and it diagnoses the fact that historical evolutionism is not a new idea in and of itself: nobody would deny that cultures change over time. §1.4 and §1.5 then introduce the second and third types of evolutionism: the *selectionist* and *kinetic* approaches (see below for discussion). §1.6 introduces the closely related idea of an epidemiology of representations, and §1.7 points out the remaining holes in this informal taxonomy. In this way, we are systematically introduced to the various vessels that exist for navigating the relevant waters. Subsequent chapters each address a variety of important philosophical questions about the cultural evolutionary project, and all are structured just as cleanly as this—as is the book as a whole, in fact. All in all, *Cultural Evolution: Conceptual Challenges* is a model example of the sort of careful conceptual ground clearing that is the stock-in-trade of philosophers of science. It would be an excellent starting point for anybody wishing to read an independent, evaluative guide to the cultural evolutionary project.

II

As mentioned above, Lewens makes a distinction between *selectionist* and *kinetic* approaches to cultural evolution. Selectionist approaches are those that are committed to the view that the conditions for natural selection hold for culture, at least to some interesting extent; or, put another way, that cultural items are engaged in some sort of competitive (Darwinian?) struggle. The kinetic label is less familiar. The idea is that just as the kinetic theory of gases aims to explain large-scale phenomena (pressure, temperature, etc) as the aggregation of many small-scale events (interactions between individual molecules), kinetic approaches to culture aim at the same. They ask: by what process do many individual human interactions aggregate to widely shared patterns of culture? The challenge is to describe the link between the micro

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and the macro, in ways that are compatible with methodological individualism.

Lewens presents the cultural evolutionary project as kinetic first, and selectional second. It is certainly true that both these agendas are present, but unlike Lewens, I don't believe that kinetic explanations are the ultimate end goal of the cultural evolutionary project. Boyd, Richerson, Henrich and their colleagues are indeed kinetic theorists, and they advocate a broadly selectional approach to that problem, but the link between macro and micro does not seem to me to be the ultimate objective of their work. It is instead a means to a different end, namely to explain human minds and human behaviour.

By way of illustration, consider the introductions to the project's major books. Boyd and Richerson's *Culture and the Evolutionary Process* (1988) begins by making the point that culture complicates the question of how Darwin's theory of natural selection can be used to explain human behaviour. Their self-set goal is to address this. As they put it, "this book outlines a Darwinian theory of the evolution of cultural organisms" (p.2). Note the final two words: not "culture", but "cultural organisms". Boyd and Richerson were both originally trained in biology, and their goals here remain biological ones: to use an evolutionary approach to explain the form and behaviour of a certain type of species, namely those with culture. In pursuing this goal they have made important contributions to the anthropological goal of explaining culture itself, but this is not their foremost concern. This remains true in their more recent and more accessible book, *Not By Genes Alone* (2005). The clue is in the name: what they want to explain is human minds and human behaviour, and the point they want to make is that to do this, you can't just look at genes and genetic evolution (this is why they are sometimes called 'Dual Inheritance Theorists'). They write that one of the main headline points they want to make is that "culture is critical for understanding human behaviour" (p.3). They could also have stressed that the opposite is true too; but they do not, because that is not their main concern. This is why ideas about biological processes—such as, say, cultural group selection—are far more prominent and important in the work of cultural evolutionists than are ideas about cultural processes (such as, say, habitus). More generally, when they write that culture is critical, the main targets they have in mind are others who also aim to explain human minds and behaviour, in particular sociobiologists, evolutionary psychologists, and human behavioural ecologists. In all, while the cultural evolutionary project certainly does develop kinetic and selectionist explanations of culture, some of which are important in their own right, these contributions to knowledge do not seem to be the ultimate *raison d'être* of the work.

An important point of comparison here is with the work of Dan Sperber and his colleagues (the 'Paris school'; see e.g. Boyer, 1998; Claidière, Scott-Phillips, & Sperber, 2014; Morin, 2016; Sperber, 1996; Sperber & Claidière, 2008; Sperber et al., 2010). Unlike Boyd, Richerson, Henrich, and their colleagues (the 'California school'), the Paris school really do aim at kinetic explanations of culture as ends in their own right. This is clear throughout Sperber's seminal book *Explaining Culture* (1996), but you don't need to pick up the book to see this, since the goals are stated right there in the title. Lewens recognizes that the California school and the Paris school are each important points of contrast for one another, but he does not see that in at least this one important respect they are close to opposites. The California school aims to explain human minds and human behaviour, and they develop explanations of culture as a means to this end. In contrast, the Paris school aims to explain culture, and they develop explanations of human minds and human behaviour as a means to that end. This difference of agenda may help to explain why, despite several years of mostly productive dialogue, the two schools of thought do still sometimes seem to talk past one another (compare e.g. Henrich & Boyd, 2002, with Claidière & Sperber, 2007). It seems a missed opportunity that Lewens does not bring attention to this difference. In fact, Lewens chooses to not much discuss the Paris school, beyond the extent to which they are relevant to his main topic, which is the output of the California school.

III

Lewens' headline conclusions are balanced. On the one hand, he articulates well why population thinking can and should be a very important tool for the study of cultural dynamics. On the other hand, he frequently warns against overreach. Darwin's theory of natural selection provides a framework around which the biological sciences are organised, and some cultural evolutionists have argued that the social sciences can and should be similarly organised around some version of cultural evolutionism. Consider, for instance, the subtitle of Alex Mesoudi's book *Cultural Evolution*: "How Darwinian theory can explain human culture and synthesize the social sciences" (2011). Lewens assesses the arguments for this claim in some detail, and concludes very much against it: "there is little credible prospect for radically reorganizing the social sciences around a central commitment to a selectionist approach to cultural change… what evolutionary approaches have to offer is more modest" (p.183). What cultural evolutionists have to offer the social sciences is a set of useful tools, but no grand theory.

One of these useful tools is, as mentioned, mathematical models of population change (these can be populations of individuals, or populations of cultural items, or even both). Indeed, an abundance of such models is how the cultural evolutionary project made its name, and this continues to be an important methodology. Lewens' guide to the merits and perils of the method is recommended reading. Without going into mathematical detail, he explains what these models can tell us, and why. He also highlights, just as importantly, what they cannot tell us, what the potential pitfalls are, and he brings attention to some cases where the findings of modelling work have been overinterpreted.

Models can serve several epistemic functions, but most models of cultural evolution are of one particular type: they are proof-of-concept models, the aim of which is to develop causal explanations (see Servedio et al., 2014). Lewens points out that to accept the conclusions of the models, we should be convinced of three things: (1) that the phenomenon to be explained is real; (2) that the model shows how, given certain assumptions, one particular explanation, and not others, is able to account for the phenomenon; and (3) that the assumptions, both implicit and explicit, are sound. He then takes us through a specific example, namely Henrich's influential model of technological adoption (2001). This model aims to show that the characteristic S-shaped curve is in large part the consequence of conformist bias (the curve is S-shaped because there is slow adoption at first, then faster adoption, and then slow again as the technology becomes widespread). In this case, what needs to be shown is: (1) that technological adoption really does follow an S-shaped curve; (2) that a group of conformist individuals will produce an S-shaped curve, under a range of general conditions, but groups of individuals with other types of psychological dispositions will not; and (3) that the psychological dispositions invoked by the model (specifically, a particular type of conformist bias) are genuine. If all these conditions are satisfied, then we should, Lewens explains, accept Henrich's claim that of patterns of the adoption of technology are in large part explained by patterns of conformity.

Let us accept condition (1). Lewens examines conditions (2) and (3) in some depth, and concludes that both are less secure than they initially appear. Perhaps much less so, in fact. (2) is less secure

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