

Making do without selection—review essay of “Cultural Evolution: Conceptual Challenges” by Tim Lewens

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Abstract Cultural evolution is a growing, interdisciplinary, and disparate field of research. In ‘Cultural evolution: conceptual challenges’, Tim Lewens offers an ambitious analytical survey of this field that aims to clarify and defend its epistemic contributions, and highlight the limitations and risks associated with them. One overarching contention is that a form of population thinking dubbed the ‘kinetic approach’ should be seen as a unifying and justifying principle for cultural evolution, especially when considering the role of formal modelling. This book makes a number of extremely valuable contributions to the literature. However, I argue that not all is as it may seem regarding the kinetic approach and that, while it does little to diminish the book’s value, the use which Lewens makes for it is problematic.

Keywords Cultural evolution · Evolutionary models · Cultural selection · Population thinking

Introduction

In ‘Cultural evolution: conceptual challenges’ (Lewens 2015), Tim Lewens has produced a lucid, authoritative, and impressively wide-ranging philosophical synthesis that nicely compliments some of the other recent books in cultural evolutionary theory, such as Joseph Henrich’s ‘The secret of our success’ (Henrich 2015) and Olivier Morin’s ‘How traditions live and die’ (Morin 2015). Whereas those works can be read as the programmatic manifestos of practitioners, Lewens takes a more deliberately philosophical approach: characterising, defending, and refining the central assumptions and conceptual challenges of cultural evolutionary

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theory and practice, and thereby arguing toward an overall, ecumenical picture of the best way forward for the field that attempts (and in large part succeeds) to put the various disputes and inconsistencies in context.

For such a new and hetero-disciplinary field as cultural evolution this makes the book timely but sets the bar quite high. For example, there is a necessary focus on the more familiar faces and central themes in the literature, largely at the expense of new empirical approaches such as phylogenetic methods (Gray et al. 2015). Even then, the array of conceptual challenges addressed is both diverse and disparate, and this means that some are covered quite rapidly. Lewens prioritises a thematic approach over an historic one, which is an astute way to gather the various threads but requires a certain amount of shoehorning and means that authors, arguments and studies pop up in multiple contexts. Though carefully linked and cross-referenced, each chapter (and numbered sub-section) is almost modular, with issues addressed one by one.

Nevertheless, the book is very readable, and the myriad of issues and approaches discussed make it extremely rewarding for the interested reader (there is an almost unfair richness of potential talking points for the reviewer). In what follows I will (by necessity) gloss over many of these and be a bit nit-picky in others—but this is an artefact of the book's strengths.

Summary

Framework (1–2)

The book begins with two chapters which serve to frame the rest of it: carefully setting out Lewens's basic taxonomy of cultural evolutionary theorising.

The key distinction is with respect to the different starting points and core methodological (and ontological) commitments of different cultural evolutionists. All cultural evolutionists believe that culture evolves, in the extremely weak sense that it changes over time. The broadest and loosest of his categories contains those theorists who have a story about how cultural change tends to occur—any story at all. This is the 'historical' category of cultural evolution. Within that is what Lewens calls the 'kinetic' category, a form of population thinking (in analogy to the kinetic theory of gasses) where cultural change is explained or modelled bottom-up, idealised as occurring via the internal dynamics of populations of more-or-less interchangeable individuals (generally of only a few types).

It is kinetic approaches (the kinetic 'theory', 'approach', and 'perspective' are all used interchangeably with 'population thinking') that Lewens argues are the most fruitful, and he identifies this as the most suitable category to describe the 'Californian' school of Richerson, Boyd, and Henrich, but also the 'Parisian' school associated with Dan Sperber and Morin.¹ While he is careful to acknowledge that the kinetic approach fails to encompass all and every valuable contribution in the literature, to some degree it seems to do double duty as a characterisation of, and a

¹ The terms are shamelessly cribbed from Sterelny (2017).

demarcational principle for, what he sees as the most promising work in cultural evolution research (I will return to this in the discussion).

The kinetic approach is contrasted against the more restrictive ‘selectionist’ approach, which he characterises as involving an explicit commitment to *fitness*. As Lewens sees it (and argues for in chapter 2 and beyond), selectionism of this stripe is too restrictive. In an oft-repeated refrain, kinetic theorists are free to mix and match the populational models best suited to their explanatory targets. A kinetic approach can appeal to social learning and learning biases, as well as signalling or other modelling-apt mechanisms, and the results of such efforts may or may not fall under a selection-like description (involving units of culture being reproduced in a countable, fitness-apt way, akin to genes or other biological individuals). Even if they do, Lewens questions the utility of simply being able to deploy such a description: unless selectionist principles are used in the *construction* of such models, a selectionist gloss after the fact will be vacuous. It is his contention that while many cultural evolutionists are interested in adaptation and use the language of selection, most do not use selectionist principles in any deeply explanatory manner (at least not all the time), so selectionism is not a good catchall characterisation.

To editorialise for a moment, there is something quite appealing about this move. This is not to say that a kinetic theorist will never use fitness or selection-like models, but one advantage of not doing so is avoiding having to talk about the fitness of *what*, and the attendant worries about operationalising the identification and book-keeping of cultural traits which may be ephemeral, dispersed, combine in unusual ways, or admit of degrees. There is no general-purpose analogue to the allele to latch on to in the causal history of cultural traits, and identifying cultural ‘parents’ is complicated given the scope for mixed influences from various (perhaps nebulous) sources, so simply porting over models of selection (from population genetics for example) with an inherently discrete basic ontology and inheritance system looks dubious. Consider a charismatic religious zealot who can either indoctrinate a small number of further zealots, or a larger number of less committed converts: how many converts add up to a zealot, for fitness-purposes? Should we treat the zealotry and the religion as the same trait (admitting of degrees) or distinct (with a vague boundary)? Fitness, in the modern synthesis, is a quantifiable property of basic biological units, so these sorts of questions would need to be answerable *in general* should we commit to selectionism as Lewens describes it. Better to avoid such a commitment except in particular cases where it is clearly justified; this leaves cultural evolution very much its own, multiply realisable beast. It is reasonable to expect it to need some models of its own, many of them bespoke.

In any case, with the notable exception of artefacts which can serve as discrete templates for copying (Sterelny 2006), Lewens in chapters one and two is broadly in agreement with the Parisian school in rejecting the use of replicator models of selection (Sperber 1996, 2000), as well as their further rejection of selectionism as a general methodology (Claidière et al. 2014). But Lewens also identifies the work of Richerson and Boyd (2005) as well as Joseph Henrich as “good examples of kinetic theorists” (p. 16) rather than selectionists, on the basis that, while ‘selection’ is used to self-describe some of their explanations, formal uses of fitness and selection are

not dominant in their work. ‘Cultural selection’, as they use the term in their own descriptions of what they are doing, falls short of selectionism as Lewens defines it. It is in this sense of a rejection of blanket selectionism (not a blanket rejection of selection) that a pragmatic kinetic approach is put forward as the first leg of Lewens intended synthesis for cultural evolution.

The second leg of the synthesis is what he calls ‘methodological adaptationism’, which should not be confused with selectionism. Roughly speaking, whereas selectionism would have cultural selection (of some sort) explaining cultural evolution, adaptationism has selection (of a more familiar, biological sort) explaining cultural *evolvability*. The mechanisms which allow humans to transmit and accrue culture are adaptive traits that have their origin in natural selection, sexual selection or the like; presumably in the Pleistocene, and presumably because accruing cultural traits was adaptive—the exact mechanisms posited should be empirically plausible in this respect. It is under the umbrella of an extremely cautious methodological adaptationism² that Lewens locates one of the main areas of disagreement between the Parisian and Californian schools: the Parisian emphasis on attractors, versus the Californian emphasis on content and transmission biases. Population thinking and adaptationism together constitute the proper, common core of mainstream cultural evolutionary thinkers.

This basic vision for what Lewens calls a pragmatic, eclectic framework is in place by the end of chapter two. Small-scale interactions within populations of similar agents drive cultural evolution, with modelling-apt mechanisms governing those interactions and underpinned by evolved human traits. Within this, the areas of contention are the exact mechanisms to be modelled, and the degree of commitment to evolutionary psychology and other methods in determining this or that behaviour-generating characteristic. It is pragmatic in the sense that no other methodological commitments are mandated, and eclectic in that a wide variety of sciences, disciplines and theoretical approaches will be called on to fill in the gaps. The rest of the book is devoted to thematically addressing issues from the literature in the context of this framework, and thereby defending it. Chapters three, four and five form a loose trilogy around the theory and conceptualisation of the ‘cultural’, and six to nine address issues with modelling approaches and methodology.

Theory (3–5)

I won’t attempt to summarise each of the book’s thematic chapters, as some are less ‘core’ than others. Chapter three for example addresses how to define ‘cultural information’, however Lewens takes a quietist position. He argues that there are no pragmatic issues here for his framework, and ‘cultural information’ can stay in

² This methodology is given a cautious fleshing out in chapter 8. Psychological sciences are to be taken into account but also disciplines such as social anthropology and history; no particular methods are seen as ‘core’. On the whole, the version of cultural adaptationism endorsed is extremely leery of the kind of enthusiastic evolutionary psychology that the term might otherwise conjure up, with Lewens seeing reason “to reject the idea that reflection on the general demands faced by our ancestors in the Pleistocene will offer much heuristic insight when we come to investigate how our minds function right now” (p. 167).

inverted commas, as it were. Chapters four and five follow a similarly hands-off approach with respect to distinctions between human nature and human culture, and the language of biological and cultural inheritance channels. Lewens states that cultural evolution has no ‘deep commitment to any strong notion of human nature’: there are problems with recent accounts of human nature, but cultural evolutionists (who sign up to his programme) don’t really need one.

This is not to say that these chapters serve no purpose: they include some interesting and insightful engagement with a wide range of literature in the course of fending off the various commitments and entanglements that Lewens wishes to avoid. For example, chapter four draws on Cecilia Heyes’s work to convincingly argue that “evolutionary considerations license only the most libertine conception of human nature” (p. 82), and that it is implausible to exclude social learning from it.

The closest that cultural evolutionists need approach this subject is to make sense of gene-culture co-evolutionary models, such as suggested by the famous (Holden and Mace 1997) study of lactose tolerance. It is natural here to think of genetic and cultural factors as contributing ‘channels’ in some sense, evolving in relation to one another (perhaps with the genetic being ‘deep’ human nature, and the cultural being something more ephemeral). The particular conceptual challenge here (as Lewens sees it) comes from developmental systems theory (DST): where the developmental system of cultural phenotype would be the entire complex of interconnected and contextually sensitive resources needed to reproduce it. Lewens agrees with the spirit of DST that “taking ‘channel talk’ too literally can blind us to these complexities” (p. 91), but that this does not undermine basic gene-culture co-evolutionary descriptions. Taking genes, epigenetics and cultural transmission into account, significant and reasonable differences are argued for in: (a) processes of reproduction and transmission, (b) cycles of change which can be nested or structured (for example, with social learning moving rapidly within slower genetic evolution), and (c) different lines of inheritance (vertical vs horizontal/oblique). You can, for example, reasonably ask questions about how faster or horizontal inheritance mechanisms affect slower or vertical ones, while still heeding the lessons of DST and avoiding conceptual entanglements with human nature or innateness.

Again, some of this material is only touched on quite lightly, but the conclusion reached by the end of chapter five is reasonable and ecumenical. Drawing on a distinction from Godfrey-Smith (2009), co-evolutionary modelling is a *research program* (with provisional idealisations in search of particular causal explanations), whereas DST is a *philosophy of nature* (seeking to describe general processes with minimal distortion). The two are not strictly incompatible.

Practice (6–9)

General objections to the methods of that research program are addressed in Chapter six; which provides a defence of the ubiquity and appropriateness of a suitably comported modelling approach. The main opponent and stalking horse here is Tim Ingold, who accuses cultural evolutionary modellers of *circularity* (culture is

mental states, mental states explain culture) and of *fluffing* (my term) the ethnographic data—processing and de-contextualising it in accordance with their own theory to fit the modelling outcome, such that: “the data lose any meaning they might once have had... their significance is derived from the theory, not the world” (Ingold 2007). Lewens’s immediate responses to both charges are assured, but again perhaps a bit brief to be fully satisfying. Circularity is quickly dismissed as a misfire. With respect to fluffing, he rightly points out that ‘thinning out’ the available data set is just part-and-parcel of modelling. This is true, but if the objection was that ethnographic characteristics in particular are deeply context-sensitive or easy to misrepresent when abstracted to the extent required, then the objection just transfers to the whole practice of cultural modelling following Lewens’s move.³ In any given instance of making this move (i.e. an actual modelling project), its justification would rather lie in the robustness of the explanatory payoff.

In any case, the target here is to articulate a more sophisticated set of requirements for the use of kinetic models, and explain how they can be met. Three requirements are set out in 6.4: (a) independently established explananda, (b) *comparative* explanatory advantage of the model over others, i.e. best-fit not just good-fit, and (c) independently plausible traits/mechanisms. In the following section, Henrich (2001) is used as an example of a model that meets (a) and (c) here, but not necessarily (b). This section and the rest of the chapter contain a very useful discussion of the literature regarding how conformist bias and attraction should (or should not) be represented in modelling, the state of the empirical evidence, and what this means for the modelling project as a whole. The chapter is therefore about setting cautious standards for good cultural evolutionary modelling that avoids epistemic problems and pitfalls, as Lewens puts it: “rather than using these problems to fuel a pessimistic attitude... our awareness of them should act as a spur to produce better models” (p. 114).

Chapter seven addresses the elephant in the room with respect to the limitations of so-called kinetic approaches: large-scale social and cultural change sometimes seems to be under the influence of ‘top-down’ forces rather than just ‘bottom-up’ aggregation. There are two broad spoiler effects as Lewens sees it: the idiosyncratic influence of powerful actors on large-scale outcomes, and networks and organisations exerting power or distorting the mechanisms at play. He outlines three possible strategies for the kinetic theorist: (a) *restriction* of kinetic models to target systems where these effects are negligible, (b) *presumption* of these effects as part of the environment, building them into the model somehow (for example via corrective parameters), or (c) some kind of *reductionism* about these effects to explain them in populational terms.

With regard to the third option, Lewens cautiously notes that cultural group selection, networks, and the emergence of social hierarchy are already explanatory targets for kinetic approaches. It is also tempting to think that a niche construction approach might be helpful: networks and institutions can be seen as the persisting

³ If criticised for being racist, you’re not going to satisfy anyone by responding: “I’m a Nazi, of course I’m being racist”.

effects of earlier kinetic, population-level processes; a social version of the ecological inheritance of the niche construction theorists.⁴ However to a certain extent this might miss the point. A kinetic explanation of how populations condense into proto-states with leaders (for example) is just an explanation of how reasonably predictable systems (with idiosyncratic behaviour mostly averaging out) turn into systems that are less so (where small numbers of idiosyncratic individuals determine the outcome to some extent). You might be able to predict the outcome of elections using aggregative models, but not the actions of the winners once they take office. Of course the actual influence of elites is debatable and easy to overstate,⁵ however, in principle some sort of concession to restriction or presumption seems inevitable once individuals or networks (rather than populations) start being given the keys to the kingdom.

Although not described in such stark terms, Lewens acknowledges the limitation; stating that cultural evolution is in no danger of overrunning “the traditional domains of social science”, and that holist or other non-kinetic methods are also available. This section includes a useful discussion of functional holism and functional decomposition in contrast to population thinking, but how non-kinetic methods fit into his overall vision of cultural evolution is not entirely clear. Lewens (as far as I can see) implies that because cultural evolution is best seen as committed to the kinetic approach, it is therefore limited in its scope of application. But it seems open for a critic to use this against that characterising commitment—one philosopher’s *modus ponens* is another’s *modus tollens*. I’m not entirely sure what alternative, more ‘top-down’ explanations might look like,⁶ but there would be demarcation or characterisation questions arising from them: is cultural evolution really that well-defined (and the kinetic approach really that important) if it can start blending into something else that easily?

Rounding off the book are two chapters I will not summarise in any depth. Chapter eight is a cautious discussion of methodological adaptationism and other methodological issues before a final statement of the eclectic synthesis. The final chapter is a case study to “sketch some more expansive roles for cultural evolutionary approaches to the emotions” (p. 171). After a foray into the empirical literature on cultural variation in basic emotions, Lewens argues that even on an embodied conception of the emotions, “there are good reasons to think that cultural processes can affect the development of the emotions, even emotions regarded as basic” (p. 182), and that ‘cultural information’ (for his purposes) can also be borne by the likes of embodied emotional states. In other words, the case study nicely ties together and illustrates many of the themes developed in the book, such as the pragmatic, broadly functionalist approach to cultural information and allowing for a deep, boundary-blurring entanglement of the cultural and the biological.

⁴ My thanks to Kim Sterelny for this point.

⁵ This is hardly a novel thought, as there are obvious parallels to the ‘great man theory’ of history, in contrast to economic determinism.

⁶ Robust psychological traits of the ordinary folk are apparently kosher as far as justifying kinetic mechanisms of attraction or transmission biases, so might there also be robust traits in the psychology of leadership to justify top-down regularities? Or are there macro-level effects we might consider, in analogy to the distinction between microeconomics and macroeconomics perhaps?

Discussion

Taken as a whole, this is a book of impressive philosophical scope, and Lewens surveys and synthesises a broad array of literature while making his case. Insofar as there are thin patches with respect to the depth of coverage or analysis, they are entirely acceptable in a book that also manages to remain this accessible, and speak more of the scope for future work. Several of the chapters (for example chapter six on ‘the perils of cultural models’) are both important and packed with enough novel insight and interesting questions to feel as though they could well have been spun off into book-length projects in themselves. There are also interesting lines of argument about details specific to important research projects. For example, chapter five includes an intriguing and subtle discussion of Henrich and Boyd (1998)’s phased-process model of the evolution of conformist transmission bias, and the conclusions drawn from it. This leads to a convincing argument, building in work from Cecilia Heyes and others and continued in chapter six, that assumptions for the purposes of modelling, concerning innateness and the distinction between individual learning and social learning should be treated with caution.

Despite this and a rich variety of other potential talking points that I’ve skipped, to conclude this review I would like to return to the taxonomic framing device that Lewens employs, and the kinetic approach. This is has already generated some commentary, and there are a number of related issues here: most obviously the characterisation and rejection of selectionism, and the proper bearers of various historied labels such as ‘Darwinian’ or ‘evolutionary’. Beyond the terminological quibble, what is at stake is how many broad categories of theorising are important for explanatory purposes, their proper level of abstraction, and how seriously we should take them.

The literature the is only partially in consensus here, and certainly the terminology is all over the place. Pictured in Figure 1 (in the form of Venn diagrams) are three recent taxonomies of cultural evolution, with line-types corresponding to the same (or at least similar enough) categories. Lewens’s hierarchy of historical, kinetic, selectionist, and replicator approaches mirrors the other breakdowns, such as the three nested ‘categories of explanation’ from Godfrey-Smith (2009); where ‘populational’ is notionally similar to ‘kinetic’ for Lewens but selection-committed approaches are labelled ‘Darwinian’. In Claidière et al. (2014) there is a similar nested structure of ‘explanatory frameworks’ but which includes an ‘evolutionary’ category positioned between the populational and the selectional: “a population is evolutionary if the frequencies of types of different items at any given time step are to a large extent explained as a function of their frequencies at earlier time steps”. Each of these four categories is described as ‘Darwinian’ in some sense, as each of them reflects some aspect of the Darwinian framework, and the authors (from the Parisian school) use the evolutionary versus selectional distinction while contrasting their view with the Californians (Lewens of course disagrees in that he argues the Californians are not full-blooded selectionists). Lewens’s picture of the important explanatory categories is distinctive for including the broader ‘historical’, omitting the Claidière-style ‘evolutionary’, and

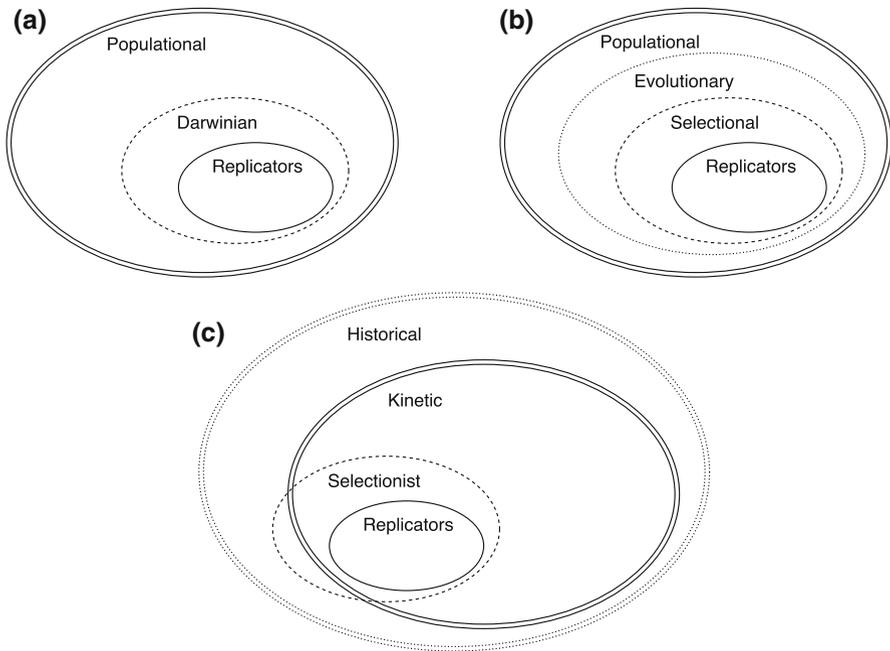


Fig. 1 Categories of explanation from (a) Godfrey-Smith (2009), (b) Claidière et al. (2014), (c) Lewens (2015)

having the kinetic and selectionist partially overlapping rather than nested (a concession to classificational complexity—some authors committed to cultural evolution being selectionist do not use any sort of formal approach that could be described as kinetic).

It is worth acknowledging a few points in passing. Firstly, the Claidière identification of evolutionary populations with frequency-dependent change (read literally at least) is problematic. For example, the frequencies of types of solar system bodies at any given time step are to a large extent explained as a function of their frequencies at earlier time steps, but this is clearly not an evolutionary population. So something else must be built into either this category or else the populational category it is nested within. This raises the issue of how ‘biology-like’ are the populations we want to characterise, and I’ll argue that Lewens’s abstract populational characterisation of the kinetic approach makes this confusion particularly salient. Another abstraction here adds an additional scope for confusion, as these frameworks are intended to be versatile enough to be applied at different levels of explanatory grain and/or different units of analysis, for example either to populations of cultural phenotypes (i.e. to individual people influencing one another) or to populations of cultural traits or tropes themselves. I will skip over the details here, but see for example Acerbi and Mesoudi (2015) for an opinionated overview.

What I suggest is that while Lewens is probably wise to avoid contested terms such as ‘Darwinian’ and ‘evolutionary’, the elevation of the kinetic approach

beyond a mere framing device leaves his overall picture open to questions over how Darwinian or evolutionary it really is, and whether the retreat from selectionism ‘waters down’ cultural evolution too much. Such misgivings have been expressed in earlier reviews of the book, such as Heyes (2016), who is not convinced that selectionism can’t be made to work, and Alberto Acerbi who states: “even acknowledging the importance that nonselectionist dynamics play in culture, it seems reasonable that to study cultural evolution, one should commit at least to the idea that in some domains, or at some level of analysis, selection plays an important role in explaining the spread of cultural traits. If one does not commit to this idea, it seems legitimate to wonder what the reasons are to use the “evolution” label” (Acerbi 2016).

Read uncharitably, this passage is not particularly substantive. It might be tempting to respond that ‘cultural evolution’ is simply the name that this field has. Though it arguably has provenance in Darwin (and passing through the heyday of evolutionary psychology and memetics), the name itself is obviously no reason to avoid a retreat from selectionism if there are substantive reasons for that.⁷ Would a retreat from selectionism be a reason to call it something different? If so, then what? Some might want to be sticklers about the use of ‘evolution’ in science, but if so they should probably take that up first with (for example) astronomers who study ‘stellar evolution’ and organise academic conferences under that banner. As a matter of semantics, it is not unreasonable to say that ‘cultural evolution’ once (presumably) implied a commitment to the centrality of fitness and Lewontin’s three conditions, but now (perhaps) it does not. Implied meanings of scientific labels can change, and if any group should be able to accept this then it should be cultural evolutionists.

Of course there are more than just semantic concerns here. There is also the sense that there is something more ‘Darwinian’ about cultural evolution than captured by the ‘kinetic’ characterisation. When first laying out the kinetic approach in terms of population thinking (in Sect. 1.5), Lewens acknowledges the difficulties with pinning down populational thinking in the Darwinian context. Population thinking has been fleshed out in a variety of different ways for different purposes within cultural evolution (and other domains), and because spelling out what might make it distinctively *Darwinian* is problematic he eschews such attempts. He takes the most inclusive, expansive sense of population thinking as a more well-defined conceptual umbrella: any explanations based on the aggregated effects of small-scale events. This is broad enough to include the kinetic theory of gasses, from which he coins the name.

The worry is that Lewens has not so much resolved a conceptual challenge here as ignored it. And I would go so far as to argue that the label ‘kinetic’ is misleading. The kinetic theory of gasses explains (in principle) via the aggregated effects of small-scale events—but of specific types and governed by conservation laws: particles can pass on properties to others such as momentum, but lose momentum in the process. And in practice, molecular-level modelling of gasses is neither

⁷ As Lewens points out, Darwin had only the most cautious notion of culture evolving; he classifies his overall approach as ‘historical’ rather than selectionist or even kinetic.

desirable nor necessary. While emergent behaviours are possible, runaway processes are constrained, and all this is in sharp contrast to evolutionary models. There are no analogues to social learning in the kinetic theory of gasses nor (thankfully) to outcomes like thermodynamic properties propagating to fixation. Likewise there are no analogues to the conservation of momentum or energy in evolution (cultural or otherwise). In other words, there are *specific features* of both sorts of processes (and models of them) which are lost if they are collapsed under the same minimalist populational umbrella. If so, then taking this as the conceptual baseline or starting point for cultural evolution would fail to do justice to cultural evolution.

In this sense I would argue that the kinetic approach is probably underspecified, and that the label itself is unfortunate. As editorialised during the summary, I find the arguments for retreating from the selectionism commitment compelling. But if population thinking is going to replace selectionism as anything like a basic principle, there seems to be a need for characterising it in a way that is intermediate between Lewens’s kinetic populations and populations subject to selection; or else acknowledge the lacuna with a placeholder and promissory note for future work. I certainly don’t have a more ‘Darwinian’ account to offer here, nor do I defend the evolutionary account set out in Claidière et al. (2014). But the absence of such an account (and walking away from the prospect of one, no matter how pragmatic or well principled), leaves Lewens’s position less than fully satisfying and open to attack from selectionist sympathisers who do have a stable, attractive platform to advertise.

None of this is to say that the spirit of the kinetic approach is wrong, just that kinetic theorists probably deserve a better, more descriptive label (and conceptual umbrella) at some point for what they are doing with their models. Conversely, it raises the issue of how abstract these models should be (and maybe, how tied to biology), and while Lewens has tried to put this matter to bed I’m not sure he has succeeded. As a result, there is a suspicion that the pragmatic, eclectic synthesis Lewens puts forward (framing device or not) is too ecumenical, at least in principle. Defining evolutionary populations is a bit like defining religion in this respect: taking belief in deities as fundamental is clearly too restrictive (the Jains being a counter-example) but defining religion so loosely that it would include any ideology with a worldview (e.g. Leninism) is too loose. Likewise, it seems correct that cultural evolution should not include a commitment to robust selectionism, but wrong that there’s nothing else characteristically *evolutionary* about it.

As noted earlier, Lewens himself agrees that the taxonomy can only be taken so far; that as a framing device it is ‘old and tired’ and fails to find a place for some contributions that he sees as valuable (e.g. Sterelny 2012). This is fair enough, but one wonders if these acknowledged outliers (especially the phylogenetic approach) have been unfairly marginalised in the book as a result. Lewens is correct that a lot of interesting research is occurring at the level of models and mechanistic explanations (and I at least agree with him that selectionist shoehorning is misguided) but they can also be informed by empirically-informed narratives or lineage explanations (see Calcott 2009), and any of these might be open to testing via specialised statistical methods such as cultural phylogenetics. They are their

own beast within cultural evolution, with their own conceptual challenges. Lewens also acknowledges in chapters six and seven that cultural evolution as characterised by the kinetic approach has some fundamental limitations—my misgivings regarding this were aired during the summary. So while many fascinating and sensible conclusions are drawn along the way about what is going on in cultural evolution and how it works best, we have reason to be wary about the exact details of the synthesis he recommends.

Therefore (more in line with the spirit of the book), there is a certain amount of conceptual confusion to clean up, and it is not clear that neat taxonomies of approaches offer much help. There are a number of different ‘explanatory frame’ categories we might recognise in various research projects from the literature or think useful to distinguish, e.g. (a) Lewens’s ‘historical’ (the state at time $t + 1$ determined by something), (b) ‘Markovian’ (state at $t + 1$ determined by state at t), (c) Kinetic-populational (Markovian but restricted to small-scale interactions), (d) Evolutionary-populational (restricted to ‘evolutionary’ interactions of some kind, however these are specified), and then selectionist and/or replicator populations, as well as non-populational selectionist explanations and others. Some of these are special cases of others, some might collapse or be extensionally equivalent, some will overlap, and some will cross-cut with distinctions about what the populations consist of (phenotypic individuals, traits, artifacts, or a liberal plurality of units or levels) and whatever distinctions find a place in logical space for cultural phylogenetics. I would question how useful it is to try to represent all or some of them in an overarching hierarchy, though perhaps I am being too pessimistic and perhaps (for example) ‘hypercube’-style representations such as those used in Mitchell (2000) and Godfrey-Smith (2009) might be helpful to some degree. The alternative would be to simply see them as just individual features of the various approaches that might be taken; and perhaps we should mix and match what works at the theoretical level just as ‘kinetic’ theorists are encouraged to do at the level of models.

Conclusion

There are two ways to read this book. If read programmatically, it makes the offer of a kind of broad-church leadership for contemporary research in cultural evolution while surveying and critiquing it. There might be genuine utility for a philosophical core that the emerging literature might consolidate around, and despite his cautious approach Lewens is firmly optimistic.⁸ This is not to say that nothing is ruled out and everything is permitted, but while no-one gets an entirely free pass, the overall feeling that one takes away from it is a cautious optimism about the ultimate complementarity of the seemingly disparate approaches. However it is very hard to please all the people all the time, and while Lewens has certainly raised the flag for

⁸ The final sentence of the book states what he sees as the promise of cultural evolution: to “show how the natural and social sciences might ultimately be knitted back together.” p. 183.

this particular vision of cultural evolution, I am not sure if as many of the troops will rally to it as they should.

If read as a survey and critique of contemporary cultural evolution research though, its value is unquestionable. Lewens has managed to survey a wide selection of conceptual issues in the literature and make sound, progressive contributions to pretty much all of them while drawing some intriguing connections and offering original analysis. And he has done so in a book that is far more efficient, lively, and accessible than it has any right to be. Students and practitioners of cultural evolution alike will find it extremely useful.

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References

- Acerbi A (2016) Tim Lewens. Cultural evolution: conceptual challenges. *Philos Sci* 84:181–184. doi:[10.1086/688940](https://doi.org/10.1086/688940)
- Acerbi A, Mesoudi A (2015) If we are all cultural Darwinians what’s the fuss about? Clarifying recent disagreements in the field of cultural evolution. *Biol Philos* 30:481–503. doi:[10.1007/s10539-015-9490-2](https://doi.org/10.1007/s10539-015-9490-2)
- Calcott B (2009) Lineage explanations: explaining how biological mechanisms change. *Br J Philos Sci* 60:51–78. doi:[10.1093/bjps/axn047](https://doi.org/10.1093/bjps/axn047)
- Claidière N, Scott-Phillips TC, Sperber D (2014) How Darwinian is cultural evolution? *Philos Trans R Soc Lond B Biol Sci* 369:20130368. doi:[10.1098/rstb.2013.0368](https://doi.org/10.1098/rstb.2013.0368)
- Godfrey-Smith P (2009) Darwinian populations and natural selection. Oxford University Press, Oxford
- Gray RD, Greenhill SJ, Ross RM (2015) The pleasures and perils of Darwinizing culture (with phylogenies). *Biol Theory* 2:360–375. doi:[10.1162/biot.2007.2.4.360](https://doi.org/10.1162/biot.2007.2.4.360)
- Henrich J (2001) Cultural transmission and the diffusion of innovations: adoption dynamics indicate that biased cultural transmission is the predominate force in behavioral change. *Am Anthropol* 103:992–1013. doi:[10.1525/aa.2001.103.4.992](https://doi.org/10.1525/aa.2001.103.4.992)
- Henrich J (2015) The secret of our success: how culture is driving human evolution, domesticating our species, and making us smarter. Princeton University Press, Princeton
- Heyes C (2016) Tim Lewens cultural evolution. *Br J Philos Sci* 67:1189–1193. doi:[10.1093/bjps/axv054](https://doi.org/10.1093/bjps/axv054)
- Holden CJ, Mace R (1997) Phylogenetic analysis of the evolution of lactose digestion in adults. *Hum Biol* 69:605–628
- Ingold T (2007) The trouble with “evolutionary biology”. *Anthropol Today* 23:13–17. doi:[10.1111/j.1467-8322.2007.00497.x](https://doi.org/10.1111/j.1467-8322.2007.00497.x)
- Lewens T (2015) Cultural evolution: conceptual challenges. Oxford University Press, Oxford
- Mitchell SD (2000) Dimensions of scientific law. *Philos Sci* 67:242–265. doi:[10.1086/392774](https://doi.org/10.1086/392774)
- Morin O (2015) How traditions live and die. Oxford University Press, Oxford
- Richerson PJ, Boyd R (2005) Not by genes alone: how culture transformed human evolution. University of Chicago Press, Chicago
- Sperber D (1996) Explaining culture: a naturalistic approach. Blackwell, Cambridge
- Sperber D (2000) An objection to the memetic approach to culture. In: Darwinizing culture: the status of memetics as a science, pp 163–173
- Sterelny K (2006) Memes revisited. *Br J Philos Sci* 57:145–165. doi:[10.1093/bjps/axi157](https://doi.org/10.1093/bjps/axi157)
- Sterelny K (2012) The evolved apprentice: how evolution made humans unique. MIT Press, Cambridge
- Sterelny K (2017) Cultural evolution in California and Paris: a comparative review of Joseph Henrich’s the secret of our success (Princeton University Press, 2016; pp xv, 445) and Olivier Morin’s How traditions live and die (Oxford University Press, 2016; pp xvi, 300). Studies in history and philosophy of science part C: studies in history and philosophy of biological and biomedical sciences (forthcoming)