

These are Nicolas Claidière's thoughts on the [workshop on cultural evolution](#) convened by Dan Dennett in Santa Fe in May 2014. Dennett's introduction is [here](#).

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(Clarification: I use disagreement in the sense of interesting topic that could be discussed/researched further and questions in the sense of more precise ideas that could help sort out disagreements.)

Interrogation: It just dawned on me that we could have discussed a, maybe important, academic matter: that of our presentation to other academics. When talking about our respective work we often refer to alternative theories (e.g. dual-inheritance, attraction, memetic, etc) which I think gives the wrong impression. Given the amount of agreement that we have seen during this meeting I think it would be more productive to present ourselves as having a common goal with diverging interests rather than competing views on the same phenomena. A first simple way of achieving this is would be to not present our respective work in terms of alternative theories but just refer to actual articles (so instead of saying 'memetic theory assumes that', I am now going to say 'Dan Dennett told me that'). Another, more complicated way would be to agree on a common denomination (I am really bad at the naming business so I won't even try to make a suggestion here) that could for instance figure in the title of the report Dan will prepare and that we might want to publish (I personally would like that). Anyway, I thought I would throw this out because I would like to hear what you think about that.

## 1. The populational approach to the study of cultural evolution

Agreement: I think we all agree that approaching cultural evolution as a population of cultural variants (aka meme, items, tokens, etc.) that are transmitted by individuals is insightful. I think we also all agree that the right ontology is at the token level for that kind of description and that zooming in/out of the token by token description provides different insights.

Disagreement: The extent to which the Populational view of cultural evolution is Darwinian is unclear. It could to some interesting extent not be Darwinian at all, in the minimal sense proposed by PGS. Or it could fit the minimal definition but be closer to marginal rather than paradigm cases (that's what I think). Or maybe this is not an interesting question anyway (RB).

Questions: An outstanding question with respect to the Darwinianism (or Darwiniality????) of cultural evolution is the role of multiple parents in generating offspring, thereby blurring genealogical relationships. One example is the case of language phylogenies and the possibility that they are an example of phylogenies without underlying Darwinian populations. Another project concerns the development of a PGS space for cultural evolution.

## 2. The origin of complex design

Agreement: Culture is adapted in the sense that some serious lifting in design space has been achieved and to some interesting extent this comes from cumulative cultural evolution, the gradual accumulation of cultural modifications over time. Social learning is essential to go beyond individual learning and explain the lifting but explaining exactly how social learning improves the lifting is still debated.

Disagreement: The origin of complex cultural adaptations can come from high fidelity copying (arising from various processes such as imitation, teaching and demonstration) associated to selective processes (view of RB, PJR, JH, DD, SB?) and/or it can arise through a combination of

constructive processes, such as individual learning, associated with low-fidelity transmission (as in the apprentice model; view of DS, KS, OM, NC?).

Question: I think the burden of proof lies with the second view here, since it is clear that high-fidelity copying plus selection leads to adaptation. Experiments addressing the role of individual learning plus low-Fi transmission would be useful.

### 3. The balance between selection and transformation

Agreement: The evolutionary change between two time steps can be partitioned into transformative (aka directed variation, directed change, constructive processes, etc) and selective processes (through differential multiplication brought about by conformity, prestige, etc). The Price equation and RB's model of selection/mutation balance could provide a useful illustration here. The outcome of the evolutionary process depends on the relative strength of transformative vs. selective processes and is likely to vary substantially between cases.

Questions: To me experiments in which we can partition the evolutionary change between transformative vs. selective processes can provide valuable insight into cultural evolution.

### 4. The future of memetic

Agreement: The meme's eye view provides a useful perspective on cultural evolution and asking "who benefits?" can force us to take into account the fact that cultural evolution need not happen because it benefits individuals in any way. This is especially valuable when there is a conflict between the meme and the host.

Disagreement: It is not clear if memes are, or ought to be, replicators. Replication happens in cultural transmission but given the usual amount of directed changes that occurs, replication probably is a more marginal than paradigm case.

Questions: It is unclear whether culture evolves to become more 'replication like' or not.

### 5. Topics on which I am agnostic

Gene-culture coevolution: I think we have undeniable evidence of gene-culture coevolution (e.g. lactose, etc) but it is unclear to me to what extent gene-culture interactions matter in cultural evolution in general. For instance, I can imagine gene-culture coevolution being very important in cases related to disease resistance and food consumption, both having strong effects on biological fitness. I am more sceptical about other domains because I don't think that the cultural variation that has strong fitness effects will in general last long enough for biological evolution to act substantially. In other words, I think that for culture and genes to coevolve a certain number of special conditions have to be met and that this is not generally the case. That however, is more a hunch than a claim and I am not competent to discuss the archaeological/genetic evidence here.

Cultural group selection: Again, it seems to me that as presented by RB and PJR, there is no reason not to expect some cultural group selection but the amount and the role in cultural evolution is still unclear to me.