

## The Priority of the Individual in Cultural Inheritance

Comment on Paul Smaldino, “The Cultural Evolution of Emergent Group-level Traits”

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Smaldino takes the concept of emergent group-level traits to be a “conceptual extension” of the theory of cultural evolution, especially as cultural evolution is conceived by Richerson and Boyd and their collaborators in what Smaldino calls “cMLS” theory. But he also suggests that this conceptual extension involves treating group-level traits as somehow autonomous from, or irreducible to, individual-level traits. For example, he claims that group-level traits “present a unit of cultural selection which is not encompassed by selection on individuals” (sect. 1, para. 2). We see no inherent problem with the notion of group-level *properties* that cannot be reduced to the properties of individuals. However, not all of the properties of a given group (or individual) are heritable, and only heritable properties can be understood as *traits* explained by principles of selection. This creates a problem, because the cMLS framework is fully committed to a notion of inheritance that makes sense only at the individual level, and individuals cannot inherit group-level properties.

The cMLS framework is based on the assumption that cultural learning can be viewed as a form of inheritance, a non-genetic mechanism by which one individual comes to possess the same trait as some other individual. This makes it possible to measure the frequencies of cultural traits in populations of individuals, which in turn makes it possible to explain changes in those frequencies over time. These frequencies are precisely what evolves in cultural evolution; the basic aim of evolutionary theories based on population modeling--both cultural and genetic--is to explain frequencies in populations.

Yet it makes no sense to ask, for a given group, about the frequencies of its group-level properties. To calculate frequencies one must *count individuals*, and individuals cannot possess group-level properties. As Smaldino emphasizes, for a Roman group to be more organized than a Barbarian group is not for the Roman group to have a greater frequency of individuals who possess the trait of being organized. Organization is not a trait possessed by *any* member of the group, so it makes no sense to ask *how many* group members possess the trait.

Moreover, the distinction between genetic evolution and cultural evolution is based on the prior distinction between genetic inheritance and inheritance by learning, and these are facts about how *individuals* acquire traits. To abstract away from facts about inheritance at the individual level is to abstract away from precisely those facts that allow us to distinguish cultural evolution from genetic evolution. This will obviously be a

problem for any attempt to appeal to emergent group-level traits in accounts of gene-culture co-evolution, since these accounts require us to keep track of the distinct contributions made by cultural evolution and genetic evolution.

Of course, patterns of organization and differentiation may be maintained and preserved within groups for long periods of time, across many generations. But the cMLS framework can fully explain this in terms of facts about inheritance among individuals. Suppose a singer wants to form a band that sounds like the Beatles. What would it take for a group to inherit this group-level property? Fortunately, it would be sufficient to find a drummer who imitates Ringo and, separately, a bass player who imitates Paul. There is no need to find a drum-and-bass duo who learned *together* to imitate the Beatles' rhythm section. We can explain the cultural inheritance of the Beatles' distinctive sound by explaining how its individual members copied the distinctive styles of individual members of the Beatles.

Or consider Smaldino's own example of the Inuit method for harvesting eggs. Here two differentiated collaborators are engaged in a culturally inherited practice, but this does not entail that a group (a dyad) has inherited a group-level property. Rather, it entails only that individuals who perform separate roles each have learned, separately, how to play their roles. When a rope-holder learns from a cultural model how to tie a certain knot, and when an egg-gatherer learns from a cultural model which eggs are the best ones, no individual inherits the differentiation or organization that their group possesses. Group-level properties *re-emerge* in each new generation, *after* the events of inheritance have taken place at the individual level.

In order to make sense of group-level properties within the cMLS framework, then, we must resist the temptation to think that "emergent" group-level properties are *autonomous* group-level traits--heritable properties that groups may possess regardless of facts "on the ground" about individuals' histories of cultural learning. Smaldino (p. 34) seems already to have succumbed to this temptation:

The cargo cultists appear to have gotten the idea that, in order to receive cargo, they needed to do more than adopt particular behaviors – they needed to adopt particular social structures. This is significant, because social transmission of behavior is typically assumed to occur at the level of individuals. Here instead we see the transmission of social organization.

For the reasons just given, it is a gross mischaracterization of the cMLS framework to say that social transmission is "typically assumed" to occur at the level of individuals. This assumption is not an optional feature of the theory; to drop it would be to step outside of the cMLS framework altogether. As long as we know which individual-level facts constitute the "inheritance" of group-level properties, the term "group-level inheritance" may be a harmless way of speaking loosely. But to talk of group-level inheritance *instead of* individual-level inheritance, as Smaldino does here, is to imply that there is no need to map group-level inheritance onto prior facts about individual-level inheritance. That is not to offer a "conceptual extension" of the theory of cultural evolution. It is to offer a different kind of theory altogether, a theory that for principled reasons cannot be integrated into the existing theory of cultural group selection.