

# Tackling group-level traits by starting at the start

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# 1 Abstract

We agree, emergent group-level properties are important; however, we disagree that current approaches, especially culture-gene coevolutionary (CGC) approaches, have neglected them. We explain how CGC helps demystify the tumult of humans group-level complexity by ‘starting at the start, and why a) assuming undifferentiated individuals, and b) focusing on cooperation are actually powerful tools to this end.

# 2 Main Text

CGC recognizes the importance of emergent, group-level properties. CGC focuses of the evolutionary causes and consequences of our species capacity to transmit complex cultural information, including the emergence of complex, differentiated, interacting phenotypes that no single individual could have developed in isolation.

Once culture began evolving, fascinating new evolutionary dynamics emerged. These lead our ancestors to conform (Boyd, R., & Richerson, P. J., 1985), imitate prestigious leaders (Henrich, J., & Gil-White, F. J., 2001), differentiate into symbolically marked ethnic groups (McElreath, R., Boyd, R., & Richerson, P. J., 2003), differentiate into specialized economic roles within those groups (Henrich, J., & Boyd, R., 2008), and instantiate complex cooperation-sustaining ecological dynamics and institutions (Chudek, M., & Henrich, J., 2011). These institutions underwent their own interactions and evolutionary dynamics, leading eventually to Roman legions and stock markets. CGC investigates how these dynamics are shaped by two interacting systems of inheritance: genetic and cultural.

From shamans—who magically influence others fortunes—to hipsters—who dislike music once it becomes popular—it is hard to think of a human phenotype that is not a specialized adaptation to the emergent institutions and specialized roles of their peers. Contemporary human societies are a brilliantly complex interplay of emergent roles, institutions, technologies and the socially transmitted concepts and worldviews that support them. We sympathize with Smaldino’s wanting to draw attention to such collective traits. After all, some social scientists have an epistemic commitment to exclusively individual level explanations. However we do not think that making sense of this complex emergent domain is nearly as simple as he implies, and is certainly harder than merely acknowledging its importance. In fact, the CGC approaches that Smaldino criticizes for neglecting emergent traits are some of our best efforts to understand them.

There are two ways scientists can make headway into this emergent cacophony. We could start at the end. We could recognize the existence of group-level traits, measure them and see what effects they have, without worrying too much at first about where they come from. This is what functionalist anthropology and sociology did for many decades.

More recently, cultural psychologists have also started at the end. In cultural psychologists experimental designs and statistical models, group-level collectives, ‘cultures’ (e.g., ‘East Asian’ and ‘Euro-American’ cultures) are, by assumption, fixed, group-level, dichoto-

mous or categorical predictors of individual phenotypic differences. This supposition that group-level traits both exist and shape individual behavior continues to reveal surprising and subtle psychological phenomena (Heine 2012).

The CGC approach is to make sense of the emergent maelstrom of contemporary human societies by starting at the start. Launching from our best descriptions of the world before these complex group-level traits emerged, we reconstruct the underlying individual level interactions that brought them to be. Starting from models of undifferentiated individuals, we show how early kinds of social differentiation could emerge, such as ethnicities, economic stratification, or individuals differentiate by prestige. Next we make sense of how these within-group interactions give rise to stable group-level norms, and maintain them in spite of migration. Equipped with an understanding of why group-level properties exist, and the individual-level underpinnings of how they emerge, survive, change and dissipate, we can begin to postulate explanations of their interactions and histories (e.g., Henrich, J., 2009; Henrich, J., Boyd, R., & Richerson, P. J., 2012; Norenzayan, A., 2013).

Smaldino’s suggestions that we move ‘beyond cooperation’ also misses the value of existing work, which already includes work on emergent phenomena like marriage (Henrich et al. 2012), ethnic groups (McElreath et al. 2003), divisions of labour (Henrich and Boyd 2008), rituals (Atran and Henrich 2010) and ‘innovation-enhancing institutions’. For example, Smaldino points out that the effects of sociality on technological complexity, captured in Henrich’s Tasmanian model (2004), also apply to understanding the effects of different institutions. Oddly, Smaldino seems to contrast his seemingly novel point with the perspective of culture-gene coevolutionists, including Henrich; but Henrich has made this point repeatedly (e.g., Henrich, 2009).

From most vantages, self-differentiating humans are very complex. To build on Smaldino’s example, Roman legionnaires not only came from different ethnic groups, they shopped at markets for goods traded through continent-spanning networks, bemoaned intricate local politics, frequented prostitutes, vilified minorities, blamed supernatural agents for disasters, gave alms to street urchins, cast magic spells to harm others, contributed to public works, sometimes by coercion and sometimes for pay, and tried to incorporate strange foreign ideas into their developing worldviews. Are there simple insights and theorems that can make sense of the tumult of even a single legionnaire’s phenotype? Are we doomed to unintegrated social-scientific micro-theories of each dimension along which individuals differentiate?

The power of cooperation is that it lets us squint our eyes and rotate our vantage until we’re looking at a dimensions that a) permeates everything, at all scales; b) tends to have powerful consequences, and c) usually obeys an orderly set of principles that we can reason about mathematically. Cooperative dilemmas—situations where individuals can gain less (or suffer more) so that others gain more (or suffer less)—are ubiquitous. They arise in interactions among genes, individuals, groups, species, ideas, cultures, institutions, and on and on. Whenever they do arise, they share important properties which we are rapidly coming to understand. Criticizing this emerging understanding for abstracting away the details of the differences between individuals is like criticizing theories of heat for modelling a single scalar rather than the trajectories of every atom in a gas. It confuses a powerful theoretical feature for an accidental omission.

It is one thing, a valuable and worthwhile thing, to acknowledge complex group organization and behavior. We support Smaldino in encouraging it. It is an altogether more difficult thing to formalize, model and ultimately to explain that complexity. The approaches Smaldino accuses of ignoring the group level complexity are actually a principled effort to understand it by starting at the start, rather than in the middle. We wonder what specific psychological, cultural or historical questions Smaldino has tackled with his approach, which have eluded other researchers?

### 3 References

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