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Ecology and the production of cultural materials: Two empirical illustrations☆

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ABSTRACT

The ecological perspective defended by Baumard & André offer a way to avoid the ambiguities that result from a notion of "inheritance" for cultural materials. It also allows us to formulate more precise empirical hypotheses concerning the motivations for producing cultural materials, as illustrated in the case of inter-group violence and of mystical explanations of misfortune.

The ecological perspective proposed by Baumard and André (B&A) offers a consilient view of cultural evolution that avoids the uncertainties and epicycles associated with the notion of a separate "track" of transmission divorced from the effects of fitness. The proposal is consistent with current views in evolutionary psychology, following which human behavior does not directly optimize fitness, but adjusts to targets specified by cognitive adaptations (Cosmides & Tooby, 2015).

One advantage of this proposal is that it allows us to better formulate empirical hypotheses about cultural attraction, i.e., the recurrence of some cultural materials across times and places (Claidière et al., 2014; Claidière & Sperber, 2024). For a long time, cultural attraction was studied mostly in terms of consumption. The main assumption was that, even if cultural material was randomly generated, it would form the recurrent patterns we do observe among human communities, because evolved mental dispositions make some materials easier to acquire or retain than others — see e.g., an application in the domain of religious concepts (Boyer, 2001). But that kind of argument, postulated in analogy to genetic evolution, is probably insufficient. Indeed, some important cultural attractors are best understood if we complete the consumption-focused picture with a consideration of the fitness-driven motivations for *producing* cultural materials.

A major component of the ecology created by human behavior is the distribution of mental representations in the minds of other individuals in one's social environment (Sperber & Claidière, 2006). As humans are connected to others by multiple links of interdependence, individual fitness depends on these individuals' mental representations, their beliefs and motivations. We should expect that individuals will be motivated to affect that distribution in ways that optimizes their own fitness, by producing public representations (utterances, gestures, artifacts) that modify that distribution.

Seeing the process in terms of production of cultural materials is important because some recurrent properties of human groups' "culture" are best explained in terms of this strategic production of cultural materials. Here are two examples.

1. Outrage and recruitment to coalitional violence

Deadly ethnic riots are generally preceded by waves of rumors depicting outrageous acts of violence committed by ethnic "others". Those are reported (and generally amplified) through many private conversations over the days or weeks before the eruption of violence (Horowitz, 2001). People for instance report that members of the other group have poisoned a well, victimized women or children of "our" group, in a pattern that is best illustrated by the blood libel against Jews (Kieval, 2021). We may explain some of these common themes in terms of consumption. Given universal human moral concerns, there is only a limited repertoire of gross and abhorrent violations of intuitive morality, which would explain the focus on victimized children, sexually assaulted women, barbaric attacks, etc.

However, that consumption view does not account for the way in which these accounts of outrage are communicated. In these otherwise very different historical contexts, a similar scenario unfolds, starting with private conversations and exchanges that provide people with multiple occasions to compare versions of the events and observe how

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many have heard of them, followed by gradually more overt public pronouncements — until another (often minor) incident triggers the explosion of violence (Horowitz, 2001).

A production perspective may be of help, if we consider the strategic cues provided by these conversations. As Petersen et al. observe, "pre-riot rumors emphasize that the enemy group (a) devalues the welfare of the in-group, (b) is powerful and (c) is about to attack" (Petersen et al., 2020, p. 142). But merely proclaiming those facts would not be sufficient. Advocating a preemptive attack against another group is always a risky proposition. One does not know how many members of one's own group would actually join such an operation, how many would ally with the out-group, and how many would remain on the sidelines. In this context, the days spent in exchanging and comparing rumors make sense, as each individual motivated to attack the other group must gauge (and amplify) support for a possible collective attack. That would explain why this pattern of communication before ethnic violence episodes is remarkably similar in otherwise vastly different societies (Horowitz, 2001, pp. 74–108).

2. Explanations of misfortune and strategic limits to cooperation

Interpretations of misfortune are common in the world's cultures. These explanations almost invariably [a] focus on a particular occurrence of misfortune (e.g., Why did the roof cave in when that particular individual was in the house?) rather than general processes that would be involved (e.g., What makes roofs collapse?) and [b] supplement known causal mechanisms (We know that roofs need sturdy support) with various "mystical" processes (some witchcraft is involved) (Evans-Pritchard, 1937). Recurrent themes include the intervention of superhuman agents (gods, ancestors, etc.) as well as witchcraft, karma, and the violation of specific rules or 'taboos'. Why are these explanations so common and so similar? They cannot be motivated by prudence, as they do not provide useable information about avoiding future mishaps (Boyer, 2022).

One may wonder what fitness-related cognitive systems would motivate people to put forth these explanations. A relevant fact is that illness and accidents were a major component of forager existence (Hill et al., 2007) and that in most cases, the only palliative was social support, that is, feeding and protecting an individual who could not reciprocate (Roberts & Manchester, 2005, p. 99). In conditions of high cooperation, victims of misfortune present surrounding individuals with a dilemma. On the one hand, people who experienced hardship (especially illness or accident) will be limited in their capacity to bring us the benefits of cooperation. On the other hand, reputation management would require that we help victims, thereby burnishing our image as generous, dependable cooperators (Sperber & Claidière, 2006). So, one should both provide help, which is costly in terms of resources, and deny help, which is costly in terms of reputation (Boyer et al., 2024a).

Given this dilemma, any account of a person's misfortune that describes the victim as somehow responsible for their fate would provide one with a reason to limit one's contribution to helping the victim, without paying the reputation cost of deserting people when they most need you (Boyer, 2022). Obviously, that would only be the case to the extent that people in one's group share that representation of the victim as (partly) responsible for their misfortune.

This interpretation might explain why the accounts of misfortune are invariably focused on particular cases, and strongly imply that each case is unique — diagnoses cannot be inferred from symptoms, they must be provided afresh by a specialist or by divination (Mercier & Boyer, 2021). This would also account for the involvement of (supernatural) *agents* rather than impersonal processes, as the role of gods, spirits, etc., is generally framed as a reaction to the victim's behavior, a version of events that focalizes the responsibility on the victim. A modern version of this process occurs in modern societies in the form of "victim-blaming", which frees those who adopt that account from the burden of solidarity (Boyer et al., 2024a, 2024b).

1. General remarks

One could cite many more examples of cultural attractors best explained in terms of cultural production, whereby individuals create or adopt accounts of events that favor particular strategic interests. That is true for instance of moralizing religious norms, that individuals adopt when it is in their interest to have others conform to self-restraint norms, as it would be advantageous for them if the general level of restraint was higher in their surrounding communities (Fitouchi et al., 2023; Fitouchi et al., 2025). In a different domain, witchcraft accusations illustrate the fact that individuals need to recruit support from others in order to motivate ostracism and punitive behaviors (Kurzban & Leary, 2001). Again, seeing these accusations in terms of production helps us understand their common themes — as accusations of "mystical harm" are strikingly similar in the world's cultures (Singh, 2021). The way mystical danger is depicted strongly implies that most people in the intended audience might be victims too, unless the alleged witchcraft activity is properly addressed — a theme that in principle should persuade others that the accuser is not (just) following selfish strategic interests.

These examples all belong to the domain of "symbolic" culture (in contrast to technology) that is traditionally seen as decoupled from fitness. As a result, we tend to see such cultural materials mostly in terms of consumption, as byproducts of cognitive processes that make some materials particularly 'easy to think', acquire and transmit. But the examples also illustrate the heuristic value of focusing on the fitness-related motivations for creating and diffusing those cultural materials.

In these different situations, we see that individuals are motivated to modify a community's *common knowledge*. The goal of a witchcraft accusation by A against X is not to express A's belief in X's guilt, it is to turn that belief into common knowledge in the group, to move people from "A believes that X is a witch" to "everyone knows that X is a witch".

These examples also illustrate B&A's points about cultural stability and cross-cultural recurrence. The fact that a person is said to have brought misfortune upon themselves (in some mystical way) is stable across different times and places because it represents a solution to a universal fitness-optimization problem of limiting one's help without risking one's cooperative reputation. It is also likely to be stable in a group, over generations, because once it has been heard by a few people, it constitutes a coordination point. Considering cultural materials from the standpoint of the producers' fitness interests, which is a consequence of the ecological perspective, may free us from the tendency to interpret phenomena of cultural stability (in one group over time, but also across groups) in terms of a fitness-independent track of inheritance.

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