

A whale of a tale: Calling it culture doesn't help

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Abstract. We argue that the function of human culture is to clarify what people value. Consequently, nothing in cetacean behavior (or any other animal's behavior) comes remotely close to this aspect of human culture. This does not mean that the traditions observed in cetaceans are uninteresting, but rather, that we need to understand why they are so different from our own.

One of the unsatisfying things about Hamlet's monologue on human nature is that it fails to specify why we are the paragon of animals. Equally unsatisfying is a monologue from some scientists who argue that we are not so special after all. Both views are wrong-headed. Hamlet was right in seeing us as paragons of a kind, but he simply failed to articulate an interesting theoretical account, and failed to see the logical flaw in creating an intellectual hierarchy among animals. Specifically, why should any particular mental quality be seen as superior when every species has been equipped with a brain that was designed to solve the unique problems that emerged in its evolutionary past. Conversely, those who see nonhuman and human animals as two qualitatively

similar peas in an intellectual pod, have really missed out on what makes our own minds so different. If one can claim, without controversy, that dolphins echolocate and humans don't, why is it controversial to say that we have culture and animals don't? Sure, humans can *sort of* echolocate, and sure, dolphins *sort of* have culture, but "sort of" is only interesting if one can specify the constraints on what prevents the full blown capacity. In the following essay, we don't challenge the interesting observations synthesized by Rendell & Whitehead (R&W) in their target article, but rather, the interpretation of their data and the implications that such work might have for a theory of culture. We make four points: 1. Although we agree that culture must not be defined in such a way that it is

uniquely human, we should use what we know about humans to motivate a theory of culture; in this sense, we adopt a position that is analogous to the debates about human language, and whether other animals do or do not have anything like it. 2. If it is not possible to conduct experiments on cetaceans in order to explore mechanisms of transmission, then perhaps the study of animal cultures should be left to other species; this argument has been made in several areas of animal behavior, including the quantification of life-time reproductive success, a topic for which dolphins are simply ill-suited. 3. We argue that the function of human culture is to clarify what people value, what they take seriously in their daily lives, what they will fight for and use to exclude or include others in their groups. 4. Based on point 3, we argue that nothing in cetacean behavior (or any other animal's behavior) comes remotely close to this aspect of human culture. This does not mean that the traditions observed in cetaceans are uninteresting, but rather, that we need to understand why they are so different from our own.

Like research on chimpanzees, R&W cite numerous examples from whales and dolphins which suggest cultural differences among populations. Although the authors acknowledge that they know little about the actual mechanisms of transmission, they are confident in their claim because neither genetic nor ecological factors can account for the variation between populations and the homogeneity within populations. But do such patterns warrant the conclusion that cetaceans have culture, even if the behaviors are nowhere near as complicated or varied as they are in human societies? More specifically, does the notion of culture in animals help us understand its evolution in humans, or is this a misleading metaphor that might actually block important progress on this problem?

The concept of culture is one of the more elusive concepts in the social sciences. In harmony with many other scientists working on animal behavior, R&W define culture as any behavior that is transmitted over generations by social learning to become a population characteristic. This definition is problematic because it fails to specify the key mechanisms of cultural transmission, and consequently, fails to distinguish between trivial and non-trivial differences between populations. Second, a more meaningful theory of culture, and its evolution, must take into account the two key mechanisms — pedagogy and imitation — in order to show why some cultural differences are trivial while others are non-trivial.

Defining culture in terms of socially transmitted behaviors immediately runs into problems because some behaviors are little more than social practices, while others attain the status of culture. Driving on the right/left side of the road, beyond all doubt a socially transmitted practice, is a trivial behavior utterly lacking in social consequence. When on a given date and hour, Sweden changed its driving practice, Swedish culture did not change, and neither did the accident rate. On the other hand, if on the same date and hour, Sweden had discarded its Lutheran ministers, replacing them with Roman Catholic priests or Orthodox rabbis, Swedish culture would have changed dramatically.

Why is the religion Sweden practices incontrovertibly part of its culture, whereas the side of the road on which they drive is not? When culture is defined as "socially transmitted behavior", this question cannot even be properly addressed. To do justice to the concept of culture we need, not an operational definition, but a theory of culture, one that will, among other things, enable trivial behaviors to be distinguished from consequential socially acquired practices. Such a theory must be built in such a way that animal culture is at least possible.

No one disputes the self-evident distinction between genetically and socially acquired behavior, but it is not a distinction that will clarify the difference between human culture and animal "traditions". Social acquisition is a secondary property of culture, neither a sufficient condition for culture, nor probably even a necessary one. If an individual acquired a culturally important idea by himself, would that make the idea any less cultural?

Most work on animal culture does not do justice to the concept of social acquisition. It is our position that a theory of culture will require a clear exposition of how such acquisition mechanisms either facilitate or constrain the transmission of information from generation to generation. All significant human cultural practices are transmitted by pedagogy, or acquired by imitation. Animals, including whales and dolphins, do not engage in pedagogy, and with the exception of vocal mimicry, evidence for motor imitation is weak as well. In their article, R&W mention a review paper by Caro & Hauser (1992) in which it was claimed that evidence for teaching in killer whales was "weak", and then go on to say based on two additional observations that the evidence is "now considerably stronger." Even if we accept the point that two more cases help, the examples provided are readily explained by something other than teaching: differences in the acquisition of hunting

skills between two individuals are due to individual differences in ability, not their parent's role in providing an opportunity to hunt. This example shows why it is necessary to use experiments and repeatable observations to explore why and how individuals acquire a particular behavior.

All socially-acquired behaviors in cetaceans (chimpanzees too!) appear to be of the trivial variety: carrying sponges on the head, lobtail fishing, beach-rubbing, wagon-wheel defense, etc. All would-be cetacean cultural behaviors appear analogous to driving on one side of the road or the other. What, however, might constitute an important social practice in the cetaceans? The best candidates are likely to be found in the differences in greetings and vocal dialects. For example, it would certainly be non-trivial if groups only allowed migrants in if they immediately imitated their dialect or greeting gesture, or engaged in the same sort of cooperative hunting behavior. Similarly, it would certainly be non-trivial if females rejected the sexual advances of males who failed to speak their dialect. These consequential changes, though originating in acts that are trivial, might be found to develop slowly across generations. But long term observations of cetaceans have so far revealed nothing of the kind. Acts that begin trivial apparently remain trivial. They do not develop into attitudinal changes of a kind that could verge on culture.

We conclude that cetaceans (and chimpanzees) lack culture. This conclusion nonetheless raises many interesting questions for the future. How do humans and cetaceans differ such that, while both species have social practices, only humans have cultural practices? How do cultural practices differ from mere social practices? How much of the difference between them can be explained by language? These are difficult questions, ones that will only be answered by careful experiments investigating the psychological mechanisms guiding cetacean behavior, either in the wild or in captivity.