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Casting a sheep's eye on science

Commentary on [Marino & Merskin](#) on *Sheep Complexity*

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Abstract: Marino & Merskin review evidence that sheep are not just passive and reactive creatures. They have personalities that vary from individual to individual and endure over time. It follows that we must rethink what it means to study them scientifically.

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Marino & Merskin (2019) (M&M) urge readers to reconsider the assumption that sheep are just passive and reactive. They have characteristic personalities that vary from individual to individual and remain somewhat invariant over time. In *What Would Animals Say If We Asked the Right Questions?* Despret (2016) analyzes the “observer effect” in the animal sciences: the fact that animals have individual personalities has implications for how we study them scientifically.

What Is Personality? Taking inspiration from Gosling (2008), M&M define personality as “a set of traits that differ across individuals and are consistent over time ... characteristics of individuals that describe and account for temporally stable patterns of affect, cognition, and behavior.” An organism that has a unique personality is not a token that is essentially interchangeable with other tokens; it is a unique individual. (In philosophical terms, an individual is a concrete particular, not an abstract universal.) As M&M put it, “Individual differences in personality contradict the view that other animals are one-dimensional, interchangeable units within a group, population, or species (as we often think of sheep and other herding animals such as cows).” The introduction of the concept of personality into the animal sciences requires a fundamental shift in scientific methodology, especially when we set out to study animal psychology and animal behavior.

The Effect of Personality on Scientific Inquiry. Despret offers an interesting analysis of how animal personality (or what she calls “mood”) affects scientific procedure at its core: in norms of sampling. Scientists make inferences by extrapolating from samples. But to ensure that samples

yield sound conclusions, they must be *representative* (accurately reflecting the characteristics of the larger population) and *random* (all the members of the population had the same chance of being included in the sample). According to Despret, animal personality makes it very difficult — if not impossible — for samples to meet the conditions of representativeness and randomness. This makes observational studies of nonhuman animals with personalities susceptible to “the (human) observer effect” (Izuma 2016), which concerns the many ways the presence of an observer (researcher) can alter the behavior of the object of investigation (human or nonhuman animals).

For example, animals with shy, timid, anxious, and otherwise fearful personalities may not feel comfortable enough around humans to participate in controlled experiments or even to focus on the tasks we set up for them. Perhaps only animals with bolder personalities (adventurous, daring, intrepid) or more willing to please those around them will “play along” with *Homo sapiens* and see a test through to completion. This can sometimes make the sample from which scientists draw conclusions about “species-typical” capacities unrepresentative.

In interactive experiments, researchers can mitigate observer effects by acclimating animals to their presence, but Despret notes that familiarization techniques cannot eliminate them altogether. As soon as we enter the scene, we have already altered the cognitive, social, and behavioral landscape. She illustrates this with Agreil & Meuret’s (2004) work on the food preferences of goats (*Capra aegagrus hircus*). Before conducting their experiment, which entailed following goats and monitoring their food choices, Agreil & Meuret familiarized the goats to their presence with the help of a handler. Although they tried to control all the relevant variables, one key variable they could not control was their own presence in the goats’ world. During the stage of familiarization, Agreil & Meuret realized that different goats responded to them differently depending on their (the goats’) personalities. Some were friendly. Some were shy. Some were hostile. So they decided to work only with those who were comfortable around them and who “seem[ed] indifferent to their permanent presence”; otherwise they could have ended up with uncooperative goats and the study would have fallen apart. Despret notes that even if this decision makes perfect sense, it still violates not only the norm of representativeness, but also that of randomness, since the sample was chosen in accordance with an arbitrary criterion (researcher convenience) rather than chance.

Furthermore, even the friendly goats who became part of the sample weren’t all the same; they reacted to *being followed* differently depending on their personality and place in the social hierarchy. Despret writes: “The continuous presence of the observer could ... contribute to a change in social status of an individual. An aspiring leader could translate the researcher’s interest as encouragement. The fact of being the object of intense interest by a human leads some goats to act like they want to supplant others, take their food, and even pick fights with them.” Conversely, for timid and nervous goats, “being the object of human attention [could have] provoked aggression from their companions.” (For similar observations about sheep, see Despret 2006.) Interestingly, since food has social ramifications among goats, human observation had the effect of changing the feeding behaviors of the goats, which is precisely what the researchers intended to study in the first place.

Anthropologists have known for quite some time that one cannot simply travel to another country, insert oneself in the lives of people from another culture, give out questionnaires, and then draw grandiose conclusions about what “the locals are like” or what

“the locals believe” — especially if one does not speak the local language or know how the people may interpret one’s presence in their midst. Despret invites us to recognize that the same challenge applies to our study of nonhuman animals. Other animals are, in this respect, essentially other cultures (except perhaps *more* alien because theirs is a language we can never learn to the point of fluency).

Conclusion. The point of these remarks is not that we have to abandon the scientific study of animal behavior and cognition when it involves human-animal interaction, but our methodology has to be rethought. In such cases, scientific knowledge cannot be just an extrapolation from random, representative samples. As in anthropology, we cannot create these relationships if, following classical models of scientific objectivity, we keep a cool distance from the animals we study. We need to create a framework of trust so that animals will have a reason to engage with us.

Perhaps the most important implication of this discussion of personality is that we must be wary of negative findings in the animal sciences. We know, for instance, that sheep with bolder personalities are more likely to explore new spaces for food (Michelena, Sibbald, Erhard, and McLeod 2008) and that more “sheepish” sheep tend not to explore new spaces even when hungry (cf. Beauchamp 2017). Bolder sheep might also be more likely to explore human-made tests and puzzles. How should we interpret the “failure” of the timid sheep? Just as it would be absurd to conclude that the sheep who don’t explore new spaces even when hungry must be incapable of experiencing hunger or that they lack the capacity to feed themselves, it would be absurd to conclude that the sheep who don’t show interest in our tests must lack capacity X, Y or Z. Maybe they didn’t understand the puzzle. Or maybe they were too shy, or afraid, or nervous to participate. Or maybe they worried about the social ramifications of participation. Maybe they found the test uninteresting. Or maybe, like *Bartleby the Scrivener*, they simply “preferred not to.”

Lacking a common language with animals, we will never know for sure whether they fail to live up to our arbitrary and sometimes illogical expectations because they cannot or because they choose not to. In a social and scientific world where the observer effect is inescapable, it is always possible that animals aren’t giving us the right answers because *we* aren’t asking them the right questions.

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