Chapter

The Phyloempathic Hierarchy: Differential Human Empathy for Different Animal Species

Delroy L. Paulhus

Abstract

Empathy for animal suffering can be powerful, but it varies across animal species. In fact, some people empathize as much (or more) with the suffering of certain animals than they do with human suffering. Beginning with Paulhus and Dean, we review research comparing empathic reactions to a diverse array of animal species, as well as to selected humans. Those authors coined the term *phyloempathic hierarchy* to describe the differential empathy that humans feel toward different species. Sophisticated scaling techniques were applied to determine the unique drivers of empathic responses. Overall, four animal characteristics (the "Big Four") appeared to drive empathic responses: (1) Perceived intelligence, (2) size, (3) esthetic appeal, and (3) lack of harmfulness. Ranking high were monkeys, elephants, dogs, and cats. Younger versions of the same species (e.g., kittens vs. cats) elicited even more empathy. Sharks, cockroaches, and snakes drew the least empathy. Those results have been replicated across 40 years of research from many laboratories and many countries. This hierarchy presents a challenge to relying on empathy in decisions regarding the treatment of animals. Bottom line: The phyloempathic hierarchy resembles but deviates from the phylogenetic hierarchy.

Keywords: empathy, research ethics, anthropomorphism

1. Introduction: Love, hate, and indifference

The human tendency to affiliate with nonhuman animals[1] was explored in Edward O. Wilson's landmark book *Biophilia* [1]. His term "biophilia" was coined to capture the intricate ways in which human and animal life are intertwined. At the time, he noted that 98% of the American population hold global positive views of animals. This chapter focuses on empathy, a specific aspect of that human positivity toward animals.

Standard-bearers of that sentiment include a number of powerful activist organizations (e.g. the Humane Society, ASPCA, PETA, PHAIR): All are devoted to investigating and ameliorating lapses in the humane treatment of animals. Such lapses are usually a matter of indifferent care practices, but they trigger serious

[1] Henceforth, I will refer to "nonhuman animals" simply as "animals."

protests nonetheless. On the other hand, blatant human fear of animals (biophobia) is also a widespread phenomenon [2]. Such hatred for certain animals (e.g. snakes & spiders) can be explained by hard-wired responses traceable to evolutionary dangers [3]. Disgust toward certain animals may have a parallel etiology [4]. Whether positive or negative, culture-specific tendencies are typically established by collecting large samples of raters and assuming a consensus. Such estimates, however, are rather subjective and ephemeral.

2. Individual differences in perceivers

From love to hate to indifference, people vary in their attitudes toward animals. That diversity of attitudes among various demographic groups was investigated at length by Kellert and colleagues [5, 6]. Education, for example, had a clear impact. More educated respondents were more protective, emotionally attached, and factually informed about animals and the natural environment. Among the college-educated, there was little difference in attitudes among science, liberal arts, social science, and education majors. SES differences were evident but far smaller. More recently, Taylor and Signal [7]confirmed that occupation and income did provide a substantial benefit for attitudes to animals.

Women generally tend to score higher on both animal empathy [8, 9] and human empathy measures [10]. Supporting the sex difference. Sueur et al. [11] reported a survey aimed at clarifying how humans project anthropomorphism toward animals. Results showed that men and older participants were less likely to attribute human-like mental states to animals. Overall, gender is one of the most reliable demographic predictors of empathy.

Not surprisingly, the largest group difference was observed when Paul [12] compared the views of animal activists with those of animal researchers. The former group believed that animals suffered more than the researchers believed and that the benefits of animal research were minimal. Because both "expert" groups have a vested interest in their views, the average citizen may find it difficult to draw conclusions.

3. Species differences

The central issue in this chapter is the degree to which people empathize with different animal species. For centuries, zoologists have used the term *phylogenetic hierarchy* to refer to the systematic variation in species complexity. Hence, a key question is whether empathy for animals tracks the phylogenetic hierarchy. If so, we may care about animals to the extent that they are similar to us on that hierarchy.

Unfortunately, most empirical research on human reactions to animals has been limited to people's likes and dislikes of a few scattered species. Hence, generalizations about human-animal empathy have been rather speculative and presumptuous. I will focus on studies that compared empathy for a diverse set of animals.[2]

The first attempt to systematize empathic reactions across the spectrum was reported by Paulhus and Dean [8]. Using a sample of 175 Columbia University students, the authors compared mean reactions across 24 animals. The criterion questions included "Which animals should not be used in medical experiments," and

[2] Methods that ask for "favorite animals" yield slightly different results (e.g., [13]).

"Which animals could be exterminated in an ecological emergency?" The two criteria yielded similar results, which were reported at the 1977 meeting of the American Psychological Association.

The species nominations were as diverse as possible, representing seven classes (mammals, amphibians, birds, fish, insects, reptiles, worms, and snails). Using multidimensional preference scaling (MDPREF; [14]), the authors found that the most significant drivers of people's protective feelings toward animals were the (1) perceived intelligence, (2) size, and (3) esthetic appeal of the animal. Perceived harmfulness tended to diminish empathy. For short, they were dubbed the "Big Four."

As well as the 24 animal species, the authors included several human target groups: experiment volunteers, children, and convicted criminals. Although many animal species drew strong empathy, none exceeded the mean empathy awarded to any of the human groups. However, a significant number of respondents (20%) were exceptions to this rule. That is, they ranked at least one animal species higher than one human group. Typically, that choice was a puppy vs. a convicted criminal. As an analogy to the phylogenetic hierarchy, the authors proposed a novel label for differential empathy based on animal species, namely, *the phyloempathic hierarchy.*

Shortly thereafter, a broader study was undertaken by Steven Kellert [5]. Support for this research included funding from the U.S. Fish and Wildlife Agency. The study included a wider breadth of species (k = 33), a larger sample, and a more representative sample of Americans. However, the ordering of animal attitudes was virtually identical to that reported by Paulhus and Dean [8].[3] Followup studies from our lab revealed similar empathy rankings in other North American student samples, namely, the University of Georgia and the University of British Columbia [16].

The latter program of research covered the widest range of animals (k = 44). In combined results from that three-sample study, the 20 animals receiving the highest empathy ratings were as follows: Monkeys, dogs/cats, gorillas, whales, elephants, horses, bears, kangaroos, porpoises, deer, wolves/coyotes, penguins, rabbits, lions/tigers, cows, raccoons, parrots, pigs, squirrels, and seals. The 20 animals drawing the lowest empathy ratings (starting at the bottom) were as follows: Cockroaches, slugs, alligators/crocodiles, houseflies, eels, spiders, octopus, caterpillars, snakes, sharks, frogs/toads, rats, bats, and fish. Based on the 24 animals in common, we correlated those rankings with the Paulhus and Dean rankings. The rank order correlation was .98.

Between 1978 and 2014, however, some cohort changes were reported by George, Slagle, Wilson, Moeller, and Bruskotter [17]. The greatest mean differences were for traditionally maligned species (e.g. bats, sharks, vultures, wolves, and coyotes), especially wolves and coyotes. The two latter animals may have had increasing contact with humans during that interval. Nonetheless, the overall correlation for the 26 species in common with those ranked by Kellert was .95 [17].

Not every moderator uncovered by Paulhus and Dean [8] has been followed up. But there is good reason to believe that several others are likely to replicate. One is the age of the animal. When the authors added younger animals to the list, the blanket advantage for humans was compromised. Preference for younger patterns extended to (a) cats vs. kittens, and (b) deer vs. fawns. Empathic preference for younger versions is consistent with the pronounced sympathy for the suffering of human children over adults [18]. The youth effect is so strong that some raters felt more empathy for

[3] Our earlier study was acknowledged by Kellert [6]. An even earlier study by Bart [15] was less than systematic.

puppies than for adult humans [19]. It is not clear whether all younger-older comparisons would show the same pattern. Finally, direct comparisons of empathy for human groups with animal species are few and unclear in the outcome. Some writers feel that such comparisons are logically incoherent [20].

Nonetheless, it is evident that empathy for other human beings is not unlimited. Consider the widespread support for corporal and capital punishment in many countries. And mass warfare against international enemies certainly supports the likelihood that empathy for other human animals can easily be nullified by ingroup-outgroup animosity. In fact, blatant cruelty toward other humans is a strong motivator for some individuals [21, 22]. Even more perplexing is the human capability of being empathic to some and cruel to others.

4. Unpacking the drivers

As noted earlier, Paulhus and Dean [8] uncovered several characteristics contributing independently to human empathy for animals. Statistical independence of the 'Big Four' (intelligence, size, esthetic appeal, and harmfulness) was ensured by the authors' choice of scaling method (MDPREF). Here, I draw on the subsequent literature to confirm the impact of each of these four drivers.

1. *Perceived intelligence*: Attributions of intelligence seem tightly linked to attributions of sentience (i.e., self-awareness and consciousness). A centuries-old claim is that animals in a slaughterhouse suffer little because they are unaware of their impending death. Inmates on death row, by contrast, are well-aware of imminent danger. In short, empathy attributions are undoubtedly linked to perceived similarity to humans, that is, anthropomorphism [23].

2. *Size*: Although commonly found [24, 25], this empathy driver has rarely been supported by rational arguments. The heuristic at work seems to be that larger animals must feel more pain— perhaps because their nervous systems are more elaborate or they have more pain receptors, or perhaps because their pain reactions are so apparent?

3. *Esthetic appeal*: As with judging humans [26], physical attractiveness[4] seems to confer a positive halo that enhances empathy for animals [24, 27, 28]. The higher empathy awarded to butterflies over caterpillars is a telling example, after all, they are the same species at different stages of their lifespan [8].

4. *Harmfulness*: When creatures are predatory and potentially harmful to humans (e.g., snakes and sharks), less empathy is awarded. Apparently, their "misbehavior" warrants retribution. One study reported the reverse result, that is, empathy for harmful predators [28]. That result appears to ensue from their over-inclusion of large jungle cats, which are both beautiful and harmful. Multivariate techniques are required to properly establish independent predictors [16].

[4] Although this driver is sometimes simplified to "beauty," it appears to cover tactile appeal, including softness and fuzziness [8].

5. Implications

Empathy for the distress inflicted by animal abuse is a powerful emotion and virtually universal. Wilson [1] captured this sentiment under the label "biophilia." Subsequent empirical investigations, however, have revealed more complexity. For example, the confirmation of a phyloempathic hierarchy, highlighted in this chapter, has raised a number of challenges to a simplistic view. The fact that different animal species draw different levels of empathy requires a compromise to moral absolutism. Even the most extreme animal activists hesitate to argue that stepping on ants should be condemned as harshly as bovine slaughterhouses.

But can there be a practicable cutoff somewhere on the hierarchy—a way of deciding which animals merit enough empathy to "do no harm?" Note that three of the "Big Four" drivers of our empathy (beauty, size, and harmfulness) have dubious connections with experienced pain. Only one, perceived intelligence, has some legitimacy. Why? because it is commonly assumed that our empathy for animals should track the animal's awareness of pain (sentience).

But how to objectively determine their suffering? In some animals, we can hear cries and see other signs of pain. But with others, pain signals are undetectable, or at least, ambiguous. Does the wriggling of fish indicate their suffering? The counterargument is that reflexive behaviors (cockroaches scampering to avoid sudden light) are not foolproof pain indicators [29]. In fact, the nervous systems of some animals are not sophisticated enough to carry pain information.

Our evolutionary roots undoubtedly play a role in our distinctive reactions to different animals [3]. But so do unique personal experiences: Traumatic encounters may have lifelong effects [30, 31]. A further complication is that individual differences within species may be larger than previously thought [32]. Hence, easy generalizations about species may be specious. The pit bull that you encountered may be more aggressive than the one that I encountered.

6. Limitations and future directions

The assumption underlying this chapter is that clarification of our empathy processes can help us decide on how animals should be treated. However, not all commentators agree that empathic reactions should be paramount in such decision-making (e.g., [25, 33]). This view is consistent with a new wave of skepticism about using empathy as the ultimate arbiter of any decision-making (e.g. [34]). Instead, the alternatives favor more objective and utilitarian approaches.[5]

This alternative perspective opens up other contentious issues. Does suffering inflicted by other animals affect us as much as suffering inflicted by humans? In fact, the correlation between human and animal empathy is modest at the trait level. Shocking to some viewers is increased media coverage of animal-on-animal predation and aggression. When viewed objectively, it appears that the latter behavior is more horrifying (e.g. animals being eaten alive; dogfighting). Do those who experience distress at animal abuse show the same concern for animals that are victims of other animals?

Of course, none of these complexities excuse overt animal abuse by humans [36], even if such abuse is limited to the most malevolent human personalities [37]. Nonetheless, it is unclear how cultural, gender, and educational differences are to

[5] Currently, the recent edited book by Sueur et al. [35] is the best source for these diverse perspectives.

be integrated into animal rights guidelines when cultural norms continue to evolve. Consider that American legislation was only recently extended to vertebrates in general, including birds, anurans, fish, and cephalopods [38]. And the U.K. government only recently declared that octopuses, crabs, and lobsters are sentient beings [39]. Nonetheless, these ethical challenges demand vigorous exploration.

Author details

Delroy L. Paulhus
Department of Psychology, University of British Columbia, Canada

*Address all correspondence to: dpaulhus@psych.ubc.ca

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