



Animals are diverse: distinct forms of animalized dehumanization

Verónica Sevillano^{1,*} and Susan T. Fiske²

The animal stereotype approach dissolves ‘animals’ into diverse images depending on their species. First, we reviewed recent research showing the attributes socially ascribed to different animal species. Next, we discussed how the animal stereotype approach may complement dehumanization by broadening the distinct forms of animalized dehumanization based on 1) intentions (warm, friendly, and harmful), 2) abilities (perceptual and cognitive), 3) physical appearance (size, aesthetic appeal), 4) affective capacities, 5) physiological needs, and 6) domestic–wild nature.

Addresses

¹ Department of Social Psychology and Methodology, Universidad Autónoma de Madrid, Madrid, Spain

² Department of Psychology, Princeton University, NJ, USA

Corresponding author: Sevillano, Verónica (veronica.sevillano@uam.es)

* Twitter account: @VSevillano_UAM

Current Opinion in Behavioral Sciences 2023, 51:101265

This review comes from a themed issue on **Dehumanization**

Edited by **Lasana T Harris** and **Naira Delgado Rodríguez**

Available online xxxx

Received: 31 August 2022; Revised: 28 February 2023;

Accepted: 6 March 2023

<https://doi.org/10.1016/j.cobeha.2023.101265>

2352–1546/© 2023 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

When Mark Twain makes Satan ask God what animals are for, God answers that “they are an experiment in morals and conduct.” Each species presents a single distinguishing characteristic, whereas humanity has all of them in differing degrees [1]. In line with Twain, the animal stereotype approach dissolves the animal image into several distinct images depending on their species. The stereotypes of animal species are the set of shared beliefs about the traits and attributes that people perceive as characteristic of that species [2]. Stereotypes simplify the perception of animals. Whereas certain

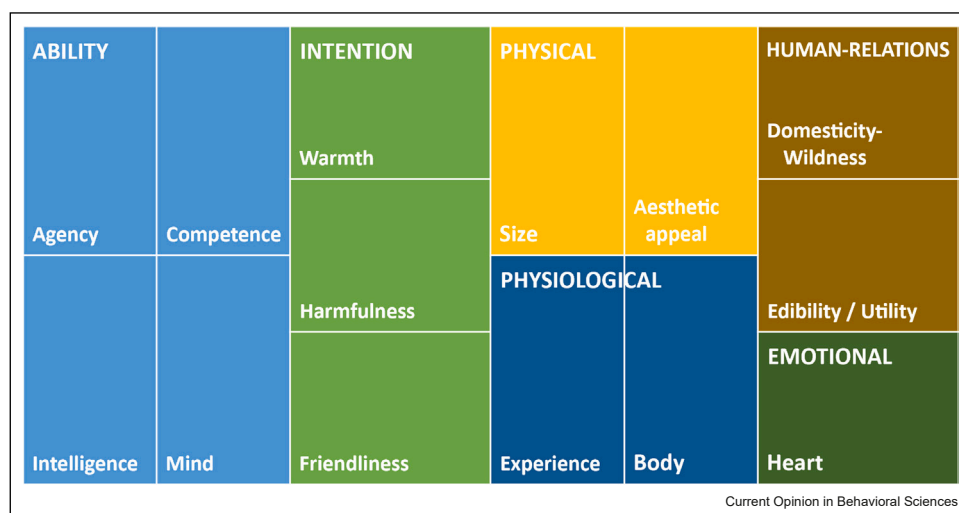
animals *are* intelligent, attractive, big, harmless, domestic, and friendly, others *are* unintelligent, ugly, small, aggressive, wild, and unfriendly. In-between, there is a complete atlas of animal images (i.e. animal stereotypes). The key point this review advances is the existence of differentiated stereotypes of animals, which contrasts with the generic consideration of animals in dehumanization literature. Dehumanization has mainly dealt with the generic animal stereotype: irrational, unintelligent, lacking refinement, and aggressive [3]. This is apparent in blatant dehumanization [4–8]. Similarly, some may argue that dehumanization also deals with the generic stereotype of humans. Our approach may complement dehumanization when the studies intend to compare specific humans and animals.

Throughout the review, we use the term ‘*animalized dehumanization*’ to refer to forms of derogation of individuals by comparing them to animals but without specifying theoretical models (e.g. infrahumanization, animalistic, and blatant dehumanization). When necessary, they are referred to accordingly. This review identifies collections of attributes and traits ascribed to animals (i.e. stereotypes) within stereotype research, social representations, attitudes toward animal species, and capacities associated with animals’ mental life in recent research (2017–2022) to inform about animalized dehumanization. We focused mainly on studies a) exploring differences between animal species (including categorizations) or b) identifying characteristics of specific animals through indirect methods (e.g. open-ended measures, association tasks) that allow determining the salient attributes socially shared by people. First, we reviewed studies about stereotype dimensions and categorizations using the Stereotype Content Model (SCM). Next, we reviewed works focused on animals’ attributes close to but outside the SCM framework. Then, we moved on to characteristics and capacities not appearing in SCM but relevant for animal targets because they can characterize an ample number of animals or result from indirect methods. When available, the emotional and behavioral implications of such attributes are also presented. Finally, we examined studies linking animals’ and social groups’ stereotypes and discussed how animal stereotypes extend the forms of animalized dehumanization. Table 1 lists the articles reviewed, and Figure 1 synthesizes the dimensions and attributes identified for animals.

Table 1**Articles reviewed by topic.**

Topic	Articles reviewed
Animals' attributes	
Animals' stereotypes	Dashper et al. [19]; Fechner et al. [18]; Figueredo [12]; Neves et al. [13,17]; Sevillano and Fiske [16]; Sevillano et al. [14]
Harmfulness, intelligence, and friendliness	Gruel et al. [30]; Henseler et al. [31]; Jurgens et al. [24]; Landon et al. [26]; Nakamura et al. [32]; Navas-Doctor et al. [28]; Rozin and Rubin [29]; Slagle et al. [25]; Vaske et al. [27]
Physical appearance	Collado et al. [45]; Gruel et al. [30]; Henseler et al. [31]; Jurgens et al. [24]; Klebl et al. [44,46]; Landová et al. [47]; Navas-Doctor et al. [28]; Neves et al. [13]; Piazza et al. [50]; Possidónio et al. [49]; Rozin and Rubin [29]; Sevillano et al. [14]; Slagle et al. [25]; Thomas-Walters et al. [48]; Verissimo et al. [43]
Domesticity–wildness	Dhont and Hodson [53]; Holden and Herzog [51]; Jurgens et al. [24]; López-Bao [52]; Loughnan and Davis [55]; Sevillano et al. [14]; Slagle et al. [25]
Mental states	Leach et al. [60]; Pepin-Neff and Wynter [61]; Rottman et al. [62]; Schweitzer and Waytz [59]; Sommer et al. [63]; Weisman et al. [58]
Animals' and groups' stereotypes	Campbell and Bebb [71]; Columb and Plant [69]; LeCouteur and Yong [72]; Quayle et al. [73]; Tipler and Ruscher [70]
Animal metaphors	Haslam et al. [82]; Morera et al. [78]

Note: Reviewed articles may appear in several topics.

Figure 1

Main dimensions and attributes found for animal targets with implications for dehumanization. Ability (intelligence, mind, agency, and competence), intention (harmfulness, friendliness, and warmth), physical appearance (size, aesthetic appeal), physiological (experience, body), human relations (domesticity–wildness, edibility/utility), and emotional attributes (heart).

Stereotype content dimensions of animal species: warmth and competence

The relevant dimensions of social stereotypes differ between models due to their distinct focus, theoretical roots, and methodological approaches [9]. Among these approaches, the SCM [10] has been adapted to animal targets [11]. SCM identified two dimensions of stereotype content: warmth and competence. Warmth entails perceived intent, either positive (i.e. friendly) or negative. In contrast, competence refers to the perceived ability to carry out those intents, either high ability (i.e.

intelligent, confident) or low ability. Animal species vary in stereotypic warmth and competence, resulting in four distinct stereotypes of species according to an animal's social role in human society [11]: *protective stereotype* (dogs, monkeys: high in warmth and competence), *subordination stereotype* (cows, birds: moderate in warmth and low in competence), *threat-awee stereotype* (tigers, bears: low in warmth and high in competence), and *contemptible stereotype* (rats, snakes: low in warmth and competence). This SCM framework has been replicated across 16 species by Swim et al. (unpublished). Through

generalizability analysis and across five cross-cultural samples, Figueredo et al. [12] showed that participants' empathic reactions toward 28 animals were better explained by a categorization based on a coevolutionary relationship between animals and humans (kith and kin — companions and phylogenetically close relatives, domesticated and wild animals) than by categorizations based on animals' utility and cognitive abilities. Kith-and-kin animals (i.e. ape, dog), similar to the protective stereotype, received higher empathy scores, followed by domesticated animals (camel, goat), similar to the subordination stereotype, and last were wild animals (snake, spider), similar to the contemptible stereotype. The authors proposed that the way humans categorize animals depends on their coevolutionary history together and will determine human reactions toward animals. As the study did not include any predator, such as animal SCM did, it is uncertain whether three or four categories of animals better organize animal targets.

The prominence of the warmth (or lack thereof) and competence dimensions was evident for sharks', dolphins', wolves', and bears' stereotypes and social representations. Through a mixed approach, Neves et al. [13] reported that in spontaneous descriptions, sharks' social representation was mainly driven by traits such as threatening and intelligent forming an ambivalent image, whereas dolphins' social representation was very positive, driven by traits such as friendly and intelligent (with the highest frequency of mention). In a follow-up study using rating scales, the threat–awe and protective stereotypes were confirmed for sharks and dolphins, respectively. Using open-ended measures, Sevillano et al. [14] identified the threat–awe stereotype for large carnivores (i.e. associated characteristics, estimated consensus, and valence). Wolves and brown bears were stereotypically perceived as lacking warmth (dangerous, wild, and aggressive) but competent (cunning), among other attributes (beautiful, big, and carnivorous).

Some research documents the implications of SCM's dimensions and animal categories on attitudes, emotions, and behaviors with mixed results. Neves et al. [13] found that warmth but not competence predicted positive attitudes toward shark conservation. However, for dolphins, neither dimension predicted conservation attitudes. Within the SCM and Behaviors from Intergroup Affective and Stereotypes (BIAS) map framework [15], Sevillano and Fiske [16] manipulated the warmth and competence traits of a fictitious animal species and rated people's specific emotional reactions and behaviors toward it. As previously found [11], different stereotypes of animals implied different emotions and behaviors toward those animals. However, findings were not wholly conclusive for all stereotypes. Neves et al. [17] tested the SCM and BIAS map for sharks at the personal

(versus societal) level. In a mediational model, participant beliefs about sharks' warmth positively predicted attitudes toward shark conservation and active facilitation behaviors (i.e. donations for shark conservation) through approach emotions (e.g. curious, enthusiastic). Sharks' competence did not affect respondents' attitudes or donations. However, competence was especially relevant compared with warmth, predicting empathic reactions toward a set of 16 animals (Swim et al., unpublished).

In studies apart from the SCM/BIAS map framework, the effect of animal stereotypes has also been observed in empathic reactions [12] and behavioral measures. In a survey, the stereotype of mares prevented them from being preferred by female riders. Fenner et al. [18] established that, compared with geldings (male horse counterpart), mares were perceived as being similar to stereotypical women, attributing gendered traits to them (low-competence traits: unreliable, unpredictable). Consequently, mares were less preferred by female riders, showing a bias based on gender stereotypes (see also Ref. [19]).

Attributes related to Stereotype Content Model: harmfulness, intelligence, and friendliness

Next, we address studies outside the SCM framework but theoretically closer. Animals' harmfulness or benevolence [20–23], identical to SCM's warmth, was associated with wolves and insects. Wolves' dangerousness stood out in the thematic analysis of stakeholder interviews [24] and in free descriptions by the general population (i.e. the sixth most frequent belief [25]), and predicted perceived risks for humans and less support for wolf management [26,27]. Harmful intent, bites, and disease-related topics of insects were identified in studies of social representations [28] and emotions using a free-association task [29]. Dogs stereotyped as threatening (i.e. the presence of a specific breed in legislative lists) received lower pain sensitivity ratings [30]. Considering a broad number of animal species (mammals, birds, reptiles, and insects), benevolence was revealed as more important for younger children than for adults in a rank-ordered task allocating medicine to save specific animal species [31]. Animals' intelligence, a component of competence, was also key for both children and adults [31], which may indicate its pre-eminence regarding benevolence. Friendliness or sociability, a component of warmth, was the most frequent attribute identified in dog profiles of online rescue networks [32], confirming its relevance for adoption decisions [33–35].

Attributes for animals' physical appearance

An animal's physical appearance is a significant factor in the social perception of species [21,36–41]. Physical

strength and size were empirically associated with wolves, bears, insects, and sharks. ‘Big’ and ‘strong’ are very frequently mentioned attributes for brown bears and wolves, especially for the former [14,24], helping to explain the enhanced fear elicited by bears compared with wolves [42]. The definitions of an insect generated by lay people mentioned their small size (little animal, small) along with the ability to fly [28,29]. In contrast, sharks were perceived as powerful and huge by aquarium visitors [13]. The size of a dog’s breed affected ratings of pain sensitivity: smaller dog breeds were perceived as more sensitive to pain [30]. This was also true when considering diverse animal species (dog, dolphin, monkey, sheep, wolf, parrot, butterfly, shark, jellyfish, worm...) [31]. Across a variety of species, the size of animals affected donations to fundraising campaigns: larger animals achieved higher donations than smaller animals [43].

Using open-ended measures, beauty or aesthetic appeal was also identified as stereotypical or a main symbolic attribute for sharks, dolphins, butterflies, bears, and wolves [13,14,24,25,29]. Beauty influenced moral decisions concerning various animals [44,45], seemingly explained by an animal’s perceived purity [46]. Aesthetic appeal is also a significant contributor to the willingness to support animals [47,48]. In evolutive terms, the animal’s beauty was more relevant for younger children (aged 6–8) than for older children (aged 8–10) or adults in a rank-ordered task of medicine allocation for saving animals [31].

The aesthetic-related attribute cuteness, a perceptual bias associated with infantile physical characteristics (e.g. round head, big eyes), negatively predicted evaluations of acceptability to kill for human consumption and positively predicted feelings of caring and protection toward a variety of animals [49]. For farm animals, Piazza et al. [50] found that baby animals were seen as tender and less appetizing.

Attributes related to human–animal relations: domesticity–wildness

The wild or domestic nature of animals as a primary dimension of perception was found in early studies [36,40], but its presence in recent research is infrequent. Studies centered on large predators found the wild nature of wolves and bears to be a salient attribute [14,24,25]. In a list of 28 descriptions of animals, ‘a wolf living in the wild’ was considered the most natural description, confirming the association of wildness with wolves [51]. This wildness–wolf association has consequences for their conservation, legitimizing a land-sparing approach [52]. Domesticity and wildness were present in two of the three animal categories proposed by Figueredo et al. [12]. Given the relevance of the

nature–culture distinction in animalized dehumanization research, the lack of attention to domestic–wild attributes theoretically related to culture–nature is surprising.

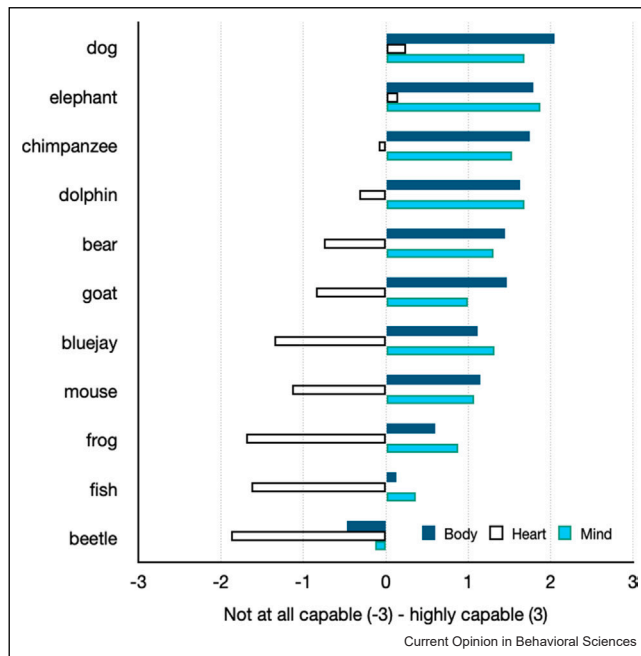
Partially included in the domesticity pole are edibility and utility attributes. The research on edibility has seen impressive development in recent years (see Refs. [53–55]), but it is outside of the scope of this review. The instrumental value of animals received considerable attention in the past [37,56], but it is now infrequent (however, see Ref. [24]).

Attributes for animals’ capacities: mental states

As living beings with minds, animal species vary in the mental dimensions and capacities ascribed by people [57,58]. Mental states are conceptualized across different dimensions, such as experience and agency [57] or physiological, social–emotional, and perceptual–cognitive abilities [58]. Within the Mind Perception Model [57], experience refers to the capacity to feel pain and to be aware; and agency refers to the capacity for moral reasoning and memory. Both dimensions have been equated to mechanistic and animalistic dehumanization [59]. This model describes animals (specifically, frogs, chimpanzees, and dogs) as high in experience and low in agency. That is, people perceive them as especially incapable of self-control, morality, or planning. Indeed, agency-words but not experience-words were more frequently mentioned in descriptions of what differentiates humans from animals [58,59]. Some research findings indicate the relevance of these mind dimensions for certain animals. For example, the capacity of animals for experience/feeling but not agency/thinking affected people’s moral judgments about eating animals [60]; eating sensitive animals was perceived as wrong. On the contrary, respondents who perceived shark bites as intentional (an agency attribute) were more than twice as likely to support lethal policy responses than those who perceived bites as accidental [61]. Although moderately, individuals who value animals over humans attributed more mental capacities to animals than did individuals who value humans over animals [62].

Building on developmental findings, Weisman et al. [58] expanded the Mind Perception Model, distinguishing capacities related to the body (physical and biological needs), the heart (social behavior and emotional states), and the mind (perceptual and cognitive abilities). Their findings showed that all three groups of capacities involved aspects both of experience and agency and that animals differ in their ascribed capacities. In this order (see Figure 2), elephants, chimpanzees, bears, and dogs were perceived as high in body and mind, followed by goats, bluejays, mice, and frogs. Finally, beetles and fish

Figure 2



Means of animals' perceived ability in body, heart, and mind capacities arranged by animal stereotypes. Reanalysis of Weisman et al.'s data [58]. Protective-stereotyped animals (dog, elephant, chimpanzee, and dolphin) were rated higher in body, heart, and mind capacities. Threat-awe-stereotyped animals (bears) were rated moderately high in all three capacities, followed by subordination-stereotyped animals (goat, bluejay). Finally, contemptible-stereotyped animals (fish, beetle) obtained the lowest ratings in all three capacities.

were the lowest in the three capacities. For all animals, the lowest capacity was the heart (feeling embarrassed, love, disrespected, experiencing pride, and guilt), which may indicate a differentiating capacity from humans. Significantly, animals ranked in mind capacities are coherent with animals ranked in SCM's competence (see Figure 2). The importance of mental capacities is shown in several studies. A developmental study testing the differences in moral concern for living (human, dog), robots, and other nonliving entities [63] found that higher levels of ascribed mental life of robots and other nonliving entities predicted moral concern. This was not the case for humans and dogs, arguably because of their high levels of mental life [63]. Both veterinarians and the general public believed pain sensitivity differs among dog breeds (similar to the experience dimension and the physiological capacities), which is argued as a bias associated with breed stereotypes and can lead to harmful practices [30].

To sum up, animals' intentions, abilities, appearance, affective capacities, physiological needs, and wild nature conforms animals' social image (i.e. stereotype content,

social representations, and categories), with several of them previously addressed by animalized dehumanization (see Figure 1). Notably, an important number of the abovementioned animals' attributes are identified by the recent Spontaneous Stereotype Content Model for human groups (e.g. size, beauty) [64], showing a coherent image of living beings. In the following sections, we discuss the relevance of animal attributes in linking animals and social groups.

Shared stereotype content: linking animals and human groups

In the early 20th century, immigrant-animal associations were based on threats shared by both targets: immigrants were bees, snakes, and mosquitos [65]. The highly familiar metaphor *lawyers are sharks* represents the danger posed by the animal and the lawyer [66]. After revealing the scandal of the Uber files, an Uber memo referred to Russia as 'taming the bear' [67]. Such expressions show the associations between immigrants, lawyers, Russian stereotypes, and harmful small animals (cold, incompetent), and shark and bear stereotypes (cold, competent). We reviewed the scarce studies comparing animal and human group stereotypes (see Ref. [68] for a similar approach using the totem concept).

The activation of associations between women and birds through an implicit association test led to women's increased dehumanization, the perception of their incompetence, and sexist hiring decisions [69]. Women's perceived incompetence mediated sexist hiring decisions. Comparing women with predators (versus prey) increased agreement with hostile sexist attitudes, consistent with the idea that women's power is illegitimate [70]. Black (versus White) athletes received more positive comments about their physical qualities than their cognitive qualities [71], and descriptions of male players (versus female) focused on men's heightened physicality (big, strong versus small, little), natural skills, and positive emotions (confidence versus disappointment) [72,73]. These physical qualities coincide with stereotypes of Black people and men, respectively, and help to explain the association between human targets and certain animals: Black athletes with gazelles and men with bulls [71,72].

Implications of animal images for distinct forms of animalized dehumanization

This review's approach allows us to account for distinct forms of animalized derogation of humans based on animals' stereotypes, attributes, and mental capacities. For example, the scarce characterization of animal species in terms of domesticity-wildness reinforces the idea of culture and civilization (versus savage) as a uniquely human attribute that separates humans from *all* other animals, a divide on which animalistic dehumanization is

built [4]. An example of this type of animalized dehumanization would be *Roma people are savage*.

As summarized, animal species varied in the ascribed mental abilities, depending on the specific model [57,58]. This implies that not every animal species will serve as a good comparative target for denying humans' mental states: some species are clearly high in experiential, body, and mind capacities. However, heart capacities (i.e. exercising self-restraint, feeling embarrassed) were low for all animal species, making these capacities a good candidate for dehumanizing people. Indeed, these capacities are clearly similar to the secondary emotions proposed by the infrahumanization model (embarrassment, nostalgia) [6]. This model states that ingroups derogate outgroups by ascribing them fewer secondary emotions that are exclusive to humans. An example of this type of animalized dehumanization is represented in the expression *Artists are undisciplined*.

Different from previous models, the animal SCM builds on the idea that warmth and competence are relevant not only for social human groups but also for how people perceive animals because they show diverse intentions and abilities. Thus, SCM does not assume that warmth and competence distinguish humans from animals [74]. Consequently, derogatory animal metaphors using warmth and competence are better termed generally as examples of animalized derogation, that is, the association of animals and people based on the shared negative-valence attributes. Thus, the metaphor *women are birds* is derogative because it implies that both women and birds are incompetent. Animals that are more negatively perceived — lower in both dimensions — will be better comparative targets for animalized processes. More generally, low-competence animals will serve better as animalizing stimuli because competence is closely related to uniquely human characteristics [75]. An example of this type of animal derogation is how Polish people were represented as *mice* for Nazi cats in the comic *Maus* [76].

An animal stereotype and attribute approach may contribute to explaining certain animal metaphors. Tipler and Ruscher [77] argued that dehumanization models do not cover all possible dehumanizing metaphors, whether or not animal-based (e.g. humans are vegetables/predators). Thus, the dual model of dehumanization [4] does not explain metaphors such as *terrorists are predators* [78] because this metaphor would be considered an example of animalistic dehumanization (i.e. considering terrorists as animals) and the metaphor highlights their lack of emotionality. Accordingly, the metaphor shows mechanistic dehumanization, considering others as objects because of a lack of emotionality and warmth. Within the mental capacities model, the metaphor *terrorists are predators* is explained because terrorists and animals are similar in their low heart capacities

(emotional) and high mind capacities (mental) compared with body capacities (physiological). This view is also coherent with the infrahumanization model [6]. Accordingly, the animal SCM finds that lack of warmth (bad intentions) and high intelligence defines the predator stereotype [11]. Thus, the mental capacities model and SCM better explain these types of metaphors. This is also the case for nondehumanizing animal metaphors (a point previously advanced by Ref. [82]). Animal species stand out in certain characteristics, allowing the exploration of the process of positive animalization of human groups and people. Indeed, although most animal metaphors are offensive without specifying contextual cues or when used as ethnic slurs [81,83], animal metaphors can also be positive, especially those that accurately describe an animal's characteristics [81].

Synthetically, the derogative nature of animalized metaphors may come from at least six aspects perceived about animals: 1) wildness, as originally proposed by dehumanization research (*savage, unrefined, and uncultured* [4,5,8]); 2) emotional attributes, as originally proposed by dehumanization and infrahumanization research (*feeling embarrassed, love, and self-restraint* [79,80]); 3) perceptual/cognitive abilities (*unintelligent, irrational* [80]); 4) physiological abilities (*passionate* [80]); 5) social attributes (*threatening, cold, and unfriendly* [4,70]); and 6) physical appearance (*small, ugly, and weak*). Distinct animals varying in these attributes (high or low) may therefore serve as comparative targets for dehumanization depending on the specific human group (see Figure 2). Thus, the approach complements research on dehumanization, broadening the scope of the characteristics on which human–animal comparisons are based.

Conclusion

This review gathers relevant dimensions and attributes for animal targets that have been identified in animal stereotypes, social representations, and capacities research. Overall, the evidence indicates that SCM's dimensions are important for animal stereotypes in studies within and outside the SCM framework, along with other traits such as physical appearance, domesticity, and mental states. These dimensions and attributes imply evaluative, emotional, and behavioral consequences, indicating their social impact. The current literature reviewed comparing animals' and groups' stereotypes, although scarce, showed that analogies may be based on attributes apart from uniquely human characteristics or secondary emotions. Thus, humans may be animalized in a variety of forms. Future research may explore the robustness of the four-cluster space for animals, the stability of the dimensions for other animal species not addressed herein, and the relevance of dimensions and attributes across age, and the gravity of dehumanization depending on the highlighted animals' attributes.

Funding

V. S. was supported by the Psychology College, Universidad Autónoma de Madrid, Spain.

Author contributions

Verónica Sevillano: Conceptualization, Formal analysis, Writing – original draft preparation. **Susan T. Fiske:** Conceptualization, Writing – review & editing.

Conflict of interest statement

None declared.

Acknowledgements

The authors would like to thank Dr. Fernando Talayero, Universidad de Castilla La Mancha, for his feedback on the draft of this paper; Virginia Navascues and Bronwing Laforet helped with paper format.

References and recommended reading

Papers of particular interest, published within the period of review, have been highlighted as:

- of special interest
- of outstanding interest

1. Twain M, Monteleone C, Blatt R: **Cartas desde la Tierra /Letters from the Earth**; 2006.
 2. Sevillano V, Fiske ST: **Animals as social groups: an intergroup relations analysis of human-animal conflicts**. *Why We Love and Exploit Animals*. Routledge; 2019:254-276.
 3. Haslam N, Loughnan S: **Dehumanization and inhumanization**. *Annu Rev Psychol* 2014, **65**:399-423.
 4. Haslam N: **Dehumanization: an integrative review**. *Personal Soc Psychol Rev* 2006, **10**:252-264.
 5. Kteily N, Bruneau E, Waytz A, Cotterill S: **The ascent of man: theoretical and empirical evidence for blatant dehumanization**. *J Personal Soc Psychol* 2015, **109**:901-931.
 6. Leyens J, Demoulin S, Vaes J, Gaunt R, Paladino MP: **Infra-humanization: the wall of group differences**. *Soc Issues Policy Rev* 2007, **1**:139-172.
 7. Boccato G, Capozza D, Falvo R, Durante F: **The missing link: ingroup, outgroup and the human species**. *Soc Cogn* 2008, **26**:224-234.
 8. Pérez JA, Moscovici S, Chulvi B: **The taboo against group contact: hypothesis of gypsy ontologization**. *Br J Soc Psychol* 2007, **46**:249-272.
 9. Abele AE, Ellemers N, Fiske ST, Koch A, Yzerbyt V, Ellemers L: **Social identity: morality, and diversity: navigating the social world: toward an integrated framework for evaluating self, individuals, and groups**. *Psychol Rev* 2021, **128**:290-314.
 10. Fiske ST, Cuddy AJC, Glick P, Xu J: **A model of (often mixed) stereotype content: competence and warmth respectively follow from perceived status and competition**. *J Personal Soc Psychol* 2002, **82**:878-902.
 11. Sevillano V, Fiske ST: **Warmth and competence in animals**. *J Appl Soc Psychol* 2016, **46**:276-293.
 12. Figueredo AJ, Steklis NG, Peñaherrera-Aguirre M, Fernandes HBF, Cabeza de Baca T, Salmon C, Hernández-Chaves MG, Araya SFA, Pérez-Ramos M, Frias-Armenta M, et al.: **The Adapa tablets and the Tuxtla glyphs: coevolution between human and nonhumanman**. *Anim Evolut Psychol Sci* 2022, **8**:316-332.
 13. Neves J, Giger J, Picarra N, Alves V, Almeida J: **Social representations of sharks, perceived communality, and attitudinal and behavioral tendencies towards their conservation: an exploratory sequential mixed approach**. *Mar Policy* 2021, **132**:104660.
 14. Sevillano-Triguero V, Talayero F, López-Bao JV, Estrella-Aguirre S: **The social stereotypes of wolves and brown bears**. *Hum Dimens Wildl* 2022, **28**:316-332, <https://doi.org/10.1080/10871209.2022.2036392>
 15. Cuddy AJC, Fiske ST, Glick P: **The BIAS map: behaviors from intergroup affect and stereotypes**. *J Personal Soc Psychol* 2007, **92**:631-648.
 16. Sevillano V, Fiske ST: **Stereotypes, emotions, and behaviors associated with animals: a causal test of the stereotype content model and BIAS map**. *Group Process Intergroup Relat* 2019, **22**:879-900.
- This study is one of the first testing experimentally the effect of animal stereotypes on emotions and behaviors within SCM/BIAS map framework. The authors manipulated warmth and competence traits of a fictitious animal species ("Wallons"). The emotions and behavioral tendencies varied according to the specific animal stereotype presented, as expected. Findings also revealed that prey stereotype (warm-incompetent) and predators stereotype's animals (cold-competent) were to some extent elusive, not eliciting specific emotions or being more positively perceived than expected.
17. Neves J, Pestana J, Giger J: **Applying the Stereotype Content Model (SCM) and BIAS map to understand attitudinal and behavioral tendencies toward the conservation of sharks**. *Anthrozoös* 2022, **35**:371-391.
 18. Fenner K, Caspar G, Hyde M, Henshall C, Dhand N, Probyn-Rapsey F, Dashper K, McLean A, McGreevy P: **It's all about the sex, or is it? Humans, horses and temperament**. *PLoS One* 2019, **14**:e0216699.
 19. Dashper K, Fenner K, Hyde M, Probyn-Rapsey F, Caspar G, Henshall C, McGreevy P: **The anthropomorphic application of gender stereotypes to horses**. *Anthrozoös* 2018, **31**:673-684.
 20. Fischer A, Langers F, Bednar-Friedl B, Geamana N, Skogen K: **Mental representations of animal and plant species in their social contexts: results from a survey across Europe**. *J Environ Psychol* 2011, **31**:118-128.
 21. Henley NM: **A psychological study of the semantics of animal terms**. *J Verbal Learn Verbal Behav* 1969, **8**:176.
 22. Hodson G, MacInnis CC, Costello K: **(Over) valuing "humanness" as an aggravator of intergroup prejudices and discrimination**. *Humanness and Dehumanization*. Psychology Press; 2013:94-118.
 23. Piazza J, Landy JF, Goodwin GP: **Cruel nature: harmfulness as an important, overlooked dimension in judgments of moral standing**. *Cognition* 2014, **131**:108-124.
 24. Jürgens UM, Hackett PM, Hunziker M, Patt A: **Wolves, crows, spiders, and people: a qualitative study yielding a three-layer framework for understanding human-wildlife relations**. *Diversity* 2022, **14**:591.
 25. Slagle KM, Wilson RS, Bruskotter JT, Toman E: **The symbolic wolf: a construal level theory analysis of the perceptions of wolves in the United States**. *Soc Nat Resour* 2019, **32**:322-337.
 26. Landon AC, Jacobs MH, Miller CA, Vaske JJ, Williams BD: **Cognitive and affective predictors of Illinois residents' perceived risks from gray wolves**. *Soc Nat Resour* 2020, **33**:574-593.
 27. Vaske JJ, Miller CA, Pallazza S, Williams B: **Attitudes and emotions as predictors of support for wolf management**. *J Environ Psychol* 2021, **78**:101695.
 28. Nava-Doctor JE, Sandoval-Ruiz CA, Fernandez-Crispin A: **Knowledge, attitudes, and practices regarding vector-borne diseases in central Mexico**. *J Ethnobiol Ethnomed* 2021, **17**:45.
 29. Rozin P, Ruby MB: **Bugs are bleh, butterflies are beautiful, but both are bad to bite: admired animals are disgusting to eat but are themselves neither disgusting nor contaminating**. *Emotion* 2020, **20**:854-865.
 30. Gruen ME, White P, Hare B: **Do dog breeds differ in pain sensitivity? Veterinarians and the public believe they do**. *PLoS One* 2020, **15**:e0230315.

31. Henseler Kozachenko H, Piazza J: **How children and adults value different animal lives.** *J Exp Child Psychol* 2021, **210**:105204.
32. Nakamura M, Dhand NK, Starling MJ, McGreevy PD: **Descriptive texts in dog profiles associated with length of stay via an online rescue network.** *Animals* 2019, **9**:464.
33. Protopopova A, Wynne CDL: **Adopter-dog interactions at the shelter: behavioral and contextual predictors of adoption.** *Appl Anim Behav Sci* 2014, **157**:109-116.
34. Sietou C, Fraser IM, Fraser RW: **Investigating some of the factors that influence "consumer" choice when adopting a shelter dog in the United Kingdom.** *J Appl Anim Welf Sci* 2014, **17**:136-147.
35. Wright JC, Smith A, Daniel K, Adkins K: **Dog breed stereotype and exposure to negative behavior: effects on perceptions of adoptability.** *J Appl Anim Welf Sci* 2007, **10**:255-265.
36. Howard DV, Howard JH: **A multidimensional scaling analysis of the development of animal names.** *Dev Psychol* 1977, **13**:108-113.
37. Kellert SR, Berry JK: **Knowledge, Affection, and Basic Attitudes toward Animals in American Society: Phase III.** US Department of the Interior, Fish and Wildlife Service; 1980.
38. Knight AJ: **"Bats, snakes and spiders, Oh my!" How aesthetic and negativistic attitudes, and other concepts predict support for species protection.** *J Environ Psychol* 2008, **28**:94-103.
39. López A, Atran S, Coley JD, Medin DL, Smith EE: **The Tree of life: universal and cultural features of folkbiological taxonomies and inductions.** *Cogn Psychol* 1997, **32**:251-295.
40. Páramo P, Galvis CJ: **Conceptualizaciones acerca de los animales en niños de la sociedad mayoritaria y de la comunidad indígena Uitoto en Colombia.** *Folios* 2010, **32**:111-124.
41. Weiss E, Miller K, Mohan-Gibbons H, Vela C: **Why did you choose this pet?: adopters and pet selection preferences in five animal shelters in the United States.** *Animals* 2012, **2**:144-159.
42. Johansson M, Karlsson J, Pedersen E, Flykt A: **Factors governing human fear of brown bear and wolf.** *Hum Dimens Wildl* 2012, **17**:58-74.
43. Verissimo D, Campbell HA, Tollington S, MacMillan DC, Smith RJ: **Why do people donate to conservation? Insights from a 'real world' campaign.** *PLoS One* 2018, **13**:e0191888.
44. Klebl C, Luo Y, Tan NP, Ping Ern JT, Bastian B: **Beauty of the beast: beauty as an important dimension in the moral standing of animals.** *J Environ Psychol* 2021, **75**:101624.
45. Collado S, Rodríguez-Rey R, Sorrel MA: **Does beauty matter? The effect of perceived attractiveness on children's moral judgments of harmful actions against animals.** *Environ Behav* 2022, **54**:247-275.
46. Klebl C, Luo Y, Bastian B: **Beyond aesthetic judgment: beauty increases moral standing through perceptions of purity.** *Personal Soc Psychol B* 2022, **48**:954-967.
47. Landová E, Poláková P, Rádlová S, Janovcová M, Bobek M, Frynta D: **Beauty ranking of mammalian species kept in the Prague Zoo: does beauty of animals increase the respondents' willingness to protect them?** *Sci Nat* 2018, **105**:1-14.
48. Thomas-Walters L, McNulty C, Verissimo D: **A scoping review into the impact of animal imagery on pro-environmental outcomes.** *Ambio* 2020, **49**:1135-1145.
49. Possidónio C, Graça J, Piazza J, Prada M: **Animal images database: validation of 120 images for human-animal studies.** *Animals* 2019, **9**:475.
- The study offers the largest validated open-source database of animal images.
50. Piazza J, McLatchie N, Olesen C: **Are baby animals less appetizing? tenderness toward baby animals and appetite for meat.** *null* 2018, **31**:319-335.
51. Holden CJ, Herzog H: **Featherless chickens and puppies that glow in the dark: moral heuristics and the concept of animal "naturalness".** *Why We Love and Exploit Animals.* Routledge; 2019:137-153.
52. López-Bao JV, Bruskotter J, Chapron G: **Finding space for large carnivores.** *Nat Ecol Evol* 2017, **1**:1-2.
53. Dhont K, Hodson G: **Why We Love and Exploit Animals: Bridging • Insights from Academia and Advocacy.** Routledge; 2020.
- This book offers a comprehensive perspective on human-animal relations, and the factors driven distinct attitudes and behaviors toward animals. It captures several levels of analysis: interpersonal, intergroup, and societal.
54. Amiot CE, Bastian B: **Toward a psychology of human-animal relations.** *Psychol Bull* 2015, **141**:6-47.
55. Loughnan S, Davies TH: **The meat paradox.** *Why We Love and Exploit Animals.* Routledge; 2019:171-187.
56. Serpell JA: **Factors influencing human attitudes to animals and their welfare.** *Anim Welf* 2004, **13**:S145-S152.
57. Gray HM, Gray K, Wegner DM: **Dimensions of mind perception.** *Science* 2007, **315**:619.
58. Weisman K, Dweck CS, Markman EM: **Rethinking people's •• conceptions of mental life.** *Proc Natl Acad Sci* 2017, **114**:11374-11379.
- This article identifies the main types of capacities in which people think about mental life: body (physiological needs), heart (social and emotional states), and mind (perceptual cognitive abilities). In their study, they compared mental capacities by asking participants to rate forty capacities for a single target (object, animal, or human) instead of comparing targets (mice versus humans). The ample array of mental capacities studied better covers the animals' characteristics: physiological and agentic sensorial abilities (e.g. detecting odors, sensing temperature, perceiving depth). This research considers that dehumanization may come from enhancing or diminishing mental capacities in any of these components which allow to integrate different dehumanization models and animal metaphors
59. Schweitzer S, Waytz A: **Language as a window into mind perception: how mental state language differentiates body and mind, human and nonhuman, and the self from others.** *J Exp Psychol: Gen* 2021, **150**:1642.
60. Leach S, Sutton RM, Dhont K, Douglas KM: **When is it wrong to eat animals? The relevance of different animal traits and behaviours.** *Eur J Soc Psychol* 2021, **51**:113-123.
61. Pepin-Neff C, Wynter T: **Shark bites and shark conservation: an analysis of human attitudes following shark bite incidents in two locations in Australia.** *Conserv Lett* 2018, **11**:e12407.
62. Rottman J, Crimston CR, Syropoulos S: **Tree-Huggers versus human-lovers: anthropomorphism and dehumanization predict valuing nature over outgroups.** *Cogn Sci* 2021, **45**:e12967(n/a).
63. Sommer K, Nielsen M, Draheim M, Redshaw J, Vanman EJ, Wilks M: **Children's perceptions of the moral worth of live agents, robots, and inanimate objects.** *J Exp Child Psychol* 2019, **187**:104656.
64. Nicolas G, Bai X, Fiske ST: **A spontaneous Stereotype Content Model: taxonomy, properties, and prediction.** *J Personal Soc Psychol* 2022, **123**:1243-1263.
65. O'Brien GV: **Indigestible food, conquering hordes, and waste materials: metaphors of immigrants and the early immigration restriction debate in the United States.** *Metaphor Symb* 2003, **18**:33-47.
66. Al-Azary H, Katz AN: **Do metaphorical sharks bite? Simulation and abstraction in metaphor processing.** *Mem Cogn* 2021, **49**:557-570.
67. The Guardian: **Uber Hired Oligarch-linked Russian Lobbyist despite Bribery Fears.** 11th July; 2022. Retrieved 15th July from: <https://www.theguardian.com/news/2022/jul/11/uber-hired-oligarch-linked-lobbyist-russia-bribery-fears>.
68. Lee Y, Chen X, Zhao Y, Chen W: **The quest for today's totemic psychology: a new look at Wundt, Freud and other scientists.** *J Pac Rim Psychol* 2018, **12**:e24.

69. Columb C, Plant EA: **A little bird told me...: consequences of holding an implicit association between women and birds.** *Eur J Soc Psychol* 2019, **49**:589-603.
This research identified a source of gender bias based on animals: the association of women and birds. The implicit association to birds, measured by an implicit task or manipulated through scenarios, affected the willingness to hire female candidates through the mediation of perceived incompetence. The findings show the influence of bird's images on women's stereotypes.
70. Tipler CN, Ruscher JB: **Dehumanizing representations of women: the shaping of hostile sexist attitudes through animalistic metaphors.** *J Gend Stud* 2019, **28**:109-118.
This paper addresses the associations of predators and prey words to women, exemplifying the effect of animal metaphors on human categories' images. Participants exhibit higher hostile sexist attitudes toward women after reading an article using predator-related words. Whereas findings are not well-explained by animalistic dehumanization, the animal stereotypes approach account for them since predators and 'hostile women' may share aggressiveness.
71. Campbell PI, Bebb L: **'He is like a Gazelle (when he runs)''(re) constructing race and nation in match-day commentary at the men's 2018 FIFA World Cup.** *Sport Soc* 2021, **25**:144-162.
72. LeCouteur A, Yong A: **Television commentary on women's and men's Australian Rules football: a thematic analysis.** *Int Rev Social Sport* 2022, **57**:693-714.
73. Quayle M, Wurm A, Barnes H, Barr T, Beal E, Fallon M, Flynn R, McGrath D, McKenna R, Mernagh D, et al.: **Stereotyping by omission and commission: creating distinctive gendered spectacles in the televised coverage of the 2015 Australian Open men's and women's tennis singles semi-finals and finals.** *Int Rev Social Sport* 2019, **54**:3-21.
74. Harris LT, Fiske ST: **Dehumanizing the lowest of the low: neuroimaging responses to extreme out-groups.** *Psychol Sci* 2006, **17**:847-853.
75. Vaes J, Paladino MP: **The uniquely human content of stereotypes.** *Group Process Intergroup Relat* 2010, **13**:23-39.
76. Spiegelman A: **Maus: Relato de un superviviente/A Survivor's Tale.** Mondadori; 2013.
77. Tipler C, Ruscher JB: **Agency's role in dehumanization: non-human metaphors of out-groups.** *Soc Personal Psychol Compass* 2014, **8**:214-228.
78. Morera MD, Quiles MN, Correa AD, Delgado N, Leyens J: **Perception of mind and dehumanization: human, animal, or machine?** *Int J Psychol* 2018, **53**:253-260.
79. Leyens J, Rodriguez-Perez A, Rodriguez-Torres R, Gaunt R, Paladino M, Vaes J, Demoulin S: **Psychological essentialism and the differential attribution of uniquely human emotions to ingroups and outgroups.** *Eur J Soc Psychol* 2001, **31**:395-411.
80. Bastian B, Denson TF, Haslam N: **The roles of dehumanization and moral outrage in retributive justice.** *PLoS One* 2013, **8**:e61842.
81. Haslam N, Loughnan S, Sun P: **Beastly: what makes animal metaphors offensive?** *J Lang Soc Psychol* 2011, **30**:311-325.
82. Haslam N, Holland E, Stratemeyer M: **Kittens, pigs, rats, and apes: the psychology of animal metaphors.** *Why We Love and Exploit Animals.* Routledge; 2019:90-103.
83. Rice DR, Abrams D, Badea C, Bohner G, Carnaghi A, Dementi LI, Durkin K, Ehmann B, Hodson G, Kokdemir D, et al.: **What did you just call me? European and American ratings of the valence of ethnophaulisms.** *J Lang Soc Psychol* 2010, **29**:117-131.