Investigating the Relationship Between Anthropomorphism and Point of View by Analyzing the Visual Structure of Film in “Hunters and Hunted” (2009)

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Abstract

This paper examines the creation of anthropomorphism through a point of view focusing on visual structure in the "Hunters and Hunted" (2009) documentary. One of the criticisms of wildlife films is the anthropomorphism of animal behavior and relationships in ecosystems in these documentaries, as it can lead to distortions of animal behavior in ecosystems. One of the aims of this article is to indicate the part of anthropomorphism that is created through the point of view and through the visual form of the work, so in order to avoid anthropomorphism in films, more attention should be paid to the form of aesthetic. Point-of-view analysis shows that subjective point of view (P.O.V) shots leads to anthropomorphism from the perspective of non-human beings. With this in mind, the different perspectives were explored in "Hunters and Hunted" from the "life" (2009) series. Surveys show that from 475 shots of this documentary, 14 shots are from the first person's point of view from an animal perspective to advance the narrative. The structure of the P.O.V created in these shots shows that the shot / reverse angle shot pattern was used to create the subjective point of view and the image composition and also editing played a key role in creating the P.O.V shots in this documentary.

Keywords: Anthropomorphism, Aesthetics of image; Cross-cutting; P.O.V shot.

1. Introduction

As the environmental crisis escalates, the relationship between cinema and the environment has attracted the attention of scholars and critics with diverse theoretical backgrounds. These studies led to the formation of a new field of cinematic studies called Ecocinema. It encompasses a wide range of topics such as the perceptual effects of cinema on audiences, the effects of the cinema industry on environmental pollution and how the ecosystem is represented in various fictional and documentary genres.

One of the major criticisms of wildlife documentaries from an ecological criticism is the anthropomorphism of animal behavior and the relationships that exist in this ecosystem. Anthropomorphism is one of the ways that has been widely used since ancient times to represent the attitudes and behaviors of non-human beings and has, of course, aroused much agreements and oppositions. While one group believes that the similarity of relationships between ecosystems and animal behavior with humans leads to a misunderstanding of their behavior and ecosystem reality (Ruether, 1996), another group believes that anthropomorphism can help to understand animal behavior (Bekoff, 2003). But there seems to be a great deal of cognitive confusion about the attribution of human traits to non-human beings, which makes avoiding it inevitable (Asquith, 2011). One point that has drawn the attention of many critics in film analysis on environmental issues is to consider the various aspects of anthropomorphism in film (Ganetz, 2004). Although Anthropomorphism in wildlife documentaries has been analyzed in various respects, such as the vocabulary, language, and grammatical structure of narration (Sealey and Oakley, 2013), few studies have addressed the film's visual structure in the creation of Anthropomorphism.

In this paper the relationship between anthropomorphism and point of view with focusing on cinematic image was analyzed. For this purpose, at first, the relationship between anthropomorphism and point of view was studied. Then, by categorizing the types of viewpoints in wildlife documentaries, it was considered how the film's visual structure produces different point of views. Next, the point of view in the various shots of “Hunters and the Hunted” (2009) was extracted with regard to the visual structure to finally answer the question of how the visual structure of the film can lead to anthropomorphism.

2. Anthropomorphism in Wildlife Documentaries

2.1. Anthropomorphism

Anthropomorphism consists of the two Greek words “anthropos” meaning human and “morphe” meaning form (Guthrie (2008)). The literal meaning of the term has been translated into credible encyclopedias of the world such as...
Oxford⁴ and Cambridge⁵ to attribute human aspects and traits to objects, events, or animals. Phenomena that seem to date back to history and go back to a time when cavemen used some human characteristics in animal painting (Horowitz, 2007). There is not much consensus on the origins of anthropomorphism. While David Hume sees anthropomorphism as a way of understanding the unfamiliar world by using human perceptual patterns, Freud considers anthropomorphism as a way to make sense of communication with the unknown world and transform it into a safe place to live (Guthrie, 2008). Perceptual ontologists also believe that anthropomorphism stems from the uncertainty of human perception and the pragmatic need to distinguish oneself, human message and human footprint in a vague world (Guthrie, 2008). Therefore, this phenomenon seems to be a natural tendency in human beings when confronted with its peripheral world to understand this complex world under a conceptual system (Mitman, 2009).

But another group of dissidents has an ontological criticism of the anti-anthropomorphism tendency. Their basic critique is of the idea that man is the only being capable of thinking, planning, and experiencing pain and pleasure (Bekoff, 2003). In other words, the assumption that any mental ability displayed by man is solely his own is largely self-centered and erroneously held that humans are separate beings from the natural world (Horowitz, 2007).

Some others, by highlighting the ecological function of anthropomorphism, find this tendency useful in drawing people's attention to indigenous issues (Butterfield et al., 2012; Gray et al., 2007). According to these critics, the attribution of human traits to other creatures has attracted more human attention to biomass, thereby raising public awareness of ecological issues and striving to preserve them (Burger et al., 2004).

Finally, it should be noted that some scholars consider anthropomorphism to be inevitable because they believe that human beings see things, animals and nature through their minds (Horowitz, 2007). This, of course, does not appear to be a refutation of the anthropomorphism critique, but rather, given the assumption of the existence of anthropomorphism, it calls for a conscious look at it and the functions of anthropomorphism.

Given the above, it can be said that anthropomorphism as an artistic and storytelling tool is rooted in ancient cultures, but what seems to be the critical critique of today is looking at anthropomorphism as a cognitive tool for understanding the behaviors of nonhuman beings that consider them behaviorally and mentally similar to humans, although this resemblance is not based on objective and empirical observations. Therefore, anthropomorphism is seen as distorting biodiversity and misunderstanding it.

2.2. Anthropomorphism of Animals in Wildlife Documentaries

Anthropomorphism in wildlife documentaries can be explored in two aspects: formally and contextually. Contextually, anthropomorphism can be traceable to the attribution of traits and characteristics to the wildlife that are specific to human society. Issues such as the emphasis on gender segregation, the emphasis on the core and focus of the family on animal life, paternal and maternal sacrifice, the mourning of the death of children, and ethical concepts such as loyalty are among the topics that form the content of these documentaries. According to Mittman, the Walt Disney Company's "Real Life Adventures" wildlife collection had an undeniable role in consolidating concepts such as family, gender, community, and the admiration of superior human moral qualities as the subject of wildlife documentaries (Mitman, 2009).

According to critics such as Bousé, the attribution of human characteristics to animals in wildlife documentaries in order to attract more leads the audience to ignore existing and actual relationships in nature in favor of entertainment (Bousé, 2003). Because animal characterization based on human patterns in these documentaries eliminates their behavioral complexities in order to create empathy in the audience and turns the animals into human scarecrows (Vivanco, 2013). In addition, the hero and anti-heroism in the wildlife shapes viewers' beliefs, and therefore society, about different animals, and the conventional notions of good, bad, evil, and bloodthirsty animals in general are dual. It imposes values on the world such as good / bad, beautiful / ugly, kind / bloodthirsty, wise / ignorant, and honest / malicious. Imposes contractual concepts and value binaries such as good / bad, beautiful / ugly, kind / bloodthirsty, wise / ignorant, and honest / malevolent that are fundamentally human society. The point that Luis Vivanco describes with the Relationship of Spectorship. In his opinion, wildlife documentaries, by displaying the social and geographical distance that this environment has to viewers' daily lives, shape the perception of the environment based on Relationship of Spectorship (Vivanco, 2013). The result is a process of films that reflect

¹https://en.oxforddictionaries.com/definition/anthropomorphism,
²https://dictionary.cambridge.org/dictionary/english/anthropomorphism
the dominant ideology and standardize certain forms of socio-political beliefs and forms as self-evident, without taking into account the realities in the world around us (Vivanco, 2013). In fact, it seems that in this way, a certain ideology of moral, gender, and social behavior is attributed to the animal community, which is the natural function of visualizing and inheriting specific social, political, intellectual and contractual patterns within the audience.

Alongside the content analysis of these documentaries, some critics have focused on the relationship between anthropomorphism and form structure. The aesthetic structure of these documentaries, according to Kiss, seems to reproduce anthropomorphism in these documents. The close-ups in these films, for example, create a false and unrealistic intimacy between the human audience and the animal subject Boué (2000) and Boué (2003). In this regard, Jennifer Ladino looks at the relationship between how the camera is represented and the nature and structure of the camera and believes that the camera has become Speciesist (Ladino, 2013). For Ladino, the camera is Speciesist when the anthropocentric view dominates the subject's representation. Then, it depicts wildlife as a human society. In his view, this is due to the fact that humans have invented, built and developed the camera based on their visual patterns, so the camera is the closest to the human eye. So knowing that the image of wildlife is full of ideological and genre expectations (Ladino, 2013) it can be expected that such an image would provide a false visual account of the animal world and their behavior on a cinematic basis and easily reduces the understanding of animal behavior based on human behavior and provides inaccurate information about the real life of animals (Ladino, 2013).

According to the foregoing, anthropomorphism in cinema seems to be a narrative-drama tactic aimed at depicting the life of these animals and creating a dramatic suspense that is appealing to audiences that caused by form elements such as visual arrangements, narrator voice and impressive musical accompaniment.

3. Point of View and Anthropomorphism

3.1. Point of View

The point of view refers to the angle of presentation of narrative events (Harland, 1388/2009). In distinguishing between the narrative verb and the narrative text, Branigan believes that the point of view is the relationship between the narrative verb or the various narratives and the context of the narrative (Branigan, 1997/1997). The point of view analysis, therefore, identifies how the form and content of the story are intertwined and identifies the narrator's relationship with the author, the story, and the characters of the story (Martin, 1386/2007). Therefore, changing the point of view can lead to the transformation of the story and create different aesthetic and perceptual effects (Martin, 1386/2007). In a general classification, a written story is narrated through the following four points of view:

- **First Person**: Narration is carried on by one of the characters in the story as the narrator, and through it the audience becomes familiar with the characters and events of the story (Martin, 1386/2007).
- **Second Person**: The narrator addresses his audience directly and the reader enters the text as one of the characters.
- **Third Person**: The narrator tells a story about others (Martin, 1386/2007). Thus either he has no definite existence or he is the one who transmitted the story and none of the characters in the story.
- **Alternating person**: Despite the general tendency to use one angle throughout the novel, various writers have tried to create more creative storytelling situations using a combination of the above.

Except for the above segmentation, it should be noted that according to the narrator's consciousness, the narrator can be limited or the omniscient (Martin, 1386/2007). The omniscient is aware of all the events, characters, people, and times, including the thoughts of all the characters. Whereas in limited omniscient point of view, the narrator is limited to the consciousness of one of the characters.

3.2. Point of View in Film

In order to determine the point of view of the film, one must consider the composition of the image, the location of the camera, and how it is edited (Katz, 1394/2015). Because changes in various visual elements such as image composition, subject position relative to the camera, camera movement and image editing have produced different cinematic images and thus create a different cinematic world. Since the above factors vary in different shots, rather than the point of view of the film, it is necessary to speak of the point of view of each shot (Katz, 1394/2015), which is recognizable in two levels within the shot and in relation to its previous and subsequent shots, which are arranged on the basis of fiction and narrative.

Because from the point of view, our perception of the image space depends on the view of the individual (Branigan, 1997/1997) so aesthetic tools and techniques such as angle, height or distance from the camera can have different perceptual effects. Different shots, such as P.O.V shots, dialog, aerial shots, followed by camera movement, focal length and rotation in different directions, represent different viewpoints in combination with the story position and narrative status of the film. Thus the point of view in the film changes according to the logic of the narrative. Like (P.O.V), which restricts the spectator's perception to the perception of the character from which the film is portrayed (Branigan, 1997/1997). Because in these shots, by distinguishing between the subject and the object and the observable world and the observer, the audience is positioned in the camera.

In cinema, all point of views that are commonplace in literature are used to advance the narrative of the film, with the exception of the second-person viewpoint in the film, due to the technical difficulties it creates in telling the story. Given this, it can be said that a combination of the first and third person narrative modes is common in films.
3.2.1. First Person
Memorizing, confessing, telling a story or describing the characters' inner states in their own language are all examples of first person point of view in cinema. Visually, P.O.V shots, first person shots and follow shots represent the first person point of view. Because prolonged use of the first-person point of view makes it unpleasant to watch, few films use this approach to narrate the whole story of the film.

3.2.2. Third Person
Third-person narration is the conventional style of narration in mainstream cinema (Katz, 1394/2015). The writings or voice of the narrator at the beginning, middle or end of the film to introduce the time and place of the event, the characters, the pre-historic events or the characters' endings, or the story are all examples of this narrative style in the film. Aerial or long shots as a master shot can be part of this style of narration.

3.3. Point of View and Anthropomorphism in Wildlife Documentaries
Anthropomorphism in Wildlife Documentaries through the Point of View can be examined through modes of narrations and aesthetic analysis of the image.

3.3.1. Modes of Narrations
The narration of wildlife documentaries is usually done in a combination of the following two ways:

1. Human narrator: The documentary narrative goes through a human narrator. Sometimes the narrator is present on the screen, in which case the term Presenter can be used for this style. And sometimes only the narrator's voice over the image describes the story. A combination of both approaches is common in wildlife documentaries. Usually the documentaries called “Blue chip” uses the narrator's voice over film image like BBC documentaries such as Earth, Blue Planet and Life, produced by Attenborough (1982). The conventional point of view in this mode of narration is the third person. The use of a third-person viewpoint in these documentaries guarantees the scientific credibility and legitimacy claimed by these documentaries that works to gain the viewer's confidence. Sometimes the narrator uses narrative tactics such as suspense to convey information, in which case the third person point of view is limited. In another kind of these documentaries, the presenter plays a key role in the development of the narrative. In this case, events are described in the language of the presenter and links to various shots, such as the Steve Beckshal and Steve Erwin documentaries, which are the most successful examples of this. These narrators are often experts or scientists in the biological, animal and plant sciences and they use scholarly and popular literature in documentary narratives to reach audiences. That highlights the presence of a capable presenter. Most of these narrators look directly at the camera and addressing audience and, in the third person, they describe the events that take place inside shot and often behind them. Some narrators, such as Bekshal and Erwin, act as documentary characters in moments of film that increases the appeal of these films. In this case, the story is told first-person.

Anthropomorphism in this way of narration depends on the tone, grammatical structure of the sentences, and the interpretations that these narrators are used to describe animal behavior and relationships in the ecosystem. Therefore, language have an essential role in creating anthropomorphism.

2. Nonhuman narrator: The events of the film are told through the language of a plant, animal, or environmental phenomenon. In this case, either the narrator himself is present in the shot or the shot is presented from his mental point of view. In this narrative mode, the point of view is the first person from the perspective of the nonhuman. It has ultimate identification with the documentary characters by embedding and simulating of emotions, feelings and human attributes to animals. Since this narrative mode is based on the assumption that the nonhuman has thought and behaved like human logic and as human, this kind of narrative mode causes anthropomorphism.

3.2.2. Aesthetic Analysis of Image
As mentioned in the preceding sections, each shot has a point of view that can be identified by the composition of the image, the camera movement, the focal length change, and the front and back shots arranged according to the narrative logic. For example, the point of view in the aerial shots used extensively in wildlife documentaries can be both the omniscient third person that visually inducing the presence of the camera allows the viewer to see everything and be the first person to represent a bird's point of view.

Given this, if the composition of the image and the editing of the shots evoke the P.O.V of the animal, plant or any other creature or natural phenomenon, as it means showing the scene from their point of view, it means narrating the story from a first-person point of view and one of the facets of anthropomorphism that is aesthetically derived from a complex combination of different cinematic techniques. Changing the focal length or moving the camera like Penn and Tilt to the sides, in the form of P.O.V shots and based on the narrative logic of the film, can also be interpreted similarly. For example, a shot in direction of animal eyes after a close-up shot of that animal, evokes the animal's P.O.V. In this case, the gaze in the close-up shot is linked to the next shot of the animal P.O.V and the audience is connected to what the animal is looking at by continually editing. Since the camera lens is made and developed based on the patterns of human vision, by replacing the nonhuman eye with the camera lens, the animal's visual qualities and understanding of the environment around him are assumed to be human.
4. Data and Method

4.1. Method of Analysis

In this paper, the creation of anthropomorphism through point of view is explored by analyzing the visual structure of the film. As each shot has a point of view, first, shots of selected documentary were separated and numbered and then the viewpoint of each shot is determined by the composition of the image and, more importantly, in the relationships between the shots. In each shot, the camera's position is determined by the shot's size, angle, height and distance from the subject, and then the type of camera movement and focal length change in the shot is analyzed, and finally, according to the temporal position of the shot in film based on the documentary narrative logic, the point of view of each shot is specified.

4.2. “Hunters and Hunted”

“Hunters and the Hunted” documentary is the seventh episode of a 10-episode series entitled "Life", produced by the BBC’s BBC Natural History Unit in collaboration with Discovery Television and Sky Television in 2009. Production planning for the collection, with the supervision and narration of Attenborough (1982), took four years. The series has been filmed on all seven continents and benefited from many technical innovations at the time of production. It is one of the most successful wildlife collections to win many awards.

Of the ten episodes, the rest are restricted to a certain type, except for the first and seventh episodes. Episode 7, entitled "Hunted and hunters," is devoted to hunting and escape patterns for various mammals. 11 sequences and 475 shots forms the structure of this episode in the following table:

| Sequence Number | Sequence time (Minutes) | Sequence title          | Number of shots |
|-----------------|-------------------------|-------------------------|-----------------|
| 1               | 05:41                   | cheetah                 | 46              |
| 2               | 05:31                   | ibex                    | 40              |
| 3               | 03:52                   | bulldog bat             | 36              |
| 4               | 03:32                   | stoat                   | 27              |
| 5               | 03:15                   | bottlenose dolphin      | 30              |
| 6               | 03:37                   | brown bear              | 32              |
| 7               | 05:41                   | Ethiopian wolf          | 50              |
| 8               | 02:23                   | star-nosed mole         | 30              |
| 9               | 03:57                   | chital deer             | 78              |
| 10              | 02:45                   | California Ground Squirrel | 41         |
| 11              | 07:24                   | orca (killer whale)     | 65              |
| sum             |                         |                         | 475             |

5. Point of View in "Hunters and Hunted" (2009)

Of the 475 shots in this documentary, 460 shots are narrated from a third-person viewpoint and 14 shots are narrated from a first-person viewpoint. The point of view in this documentary, based on their separate sequences, is as follows:

| Sequence Number | Number of shots | Point of view |
|-----------------|-----------------|---------------|
|                 |                 | First person  | Third person  |
| 1               | 46              | 6             | 40            |
| 2               | 40              | 0             | 40            |
| 3               | 36              | 0             | 36            |
| 4               | 27              | 5             | 22            |
| 5               | 30              | 0             | 30            |
| 6               | 32              | 0             | 32            |
| 7               | 50              | 2             | 48            |
| 8               | 30              | 0             | 30            |
| 9               | 78              | 0             | 78            |
| 10              | 41              | 1             | 40            |
| 11              | 65              | 0             | 65            |
| sum             | 475             | 14            | 461           |

As mentioned, anthropomorphism occurs visually with P.O.V shots, which means narrating film with a first-person point of view from a nonhuman perspective. Therefore, the shots that are first-person point of view have been analyzed as follows:
5.1. First-Person Narrator
- The six first-person point of view of the first sequence are narrated from the cheetah's perspective.
- The five first-person point of view of the fourth sequence are narrated from the stoat's perspective.
- The two first-person point of view of the seventh sequence are narrated from the wolf's perspective.
- The one first-person point of view of the tenth sequence are narrated from the squirrel's perspective.

5.2. The First Sequence
- Shots 13, 14, 16, 17, 19 and 20 of this sequence are narrated from the cheetah perspective.
- The 12th shot is a close-up of the cheerful eyes of the cheetah that looks out into the outer space of the frame. To the cheetah’s gaze, shots of the herd of snakes are depicted. With this template, the 13 and 14 shots are the cheetahs P.O.V’s. The same pattern is repeated for shot 16 (row 1, table 3).
- To create the first-person point of view in shot 17, the reversed pattern described above is used. As in shot 17, a picture of a zebra comes to in direction of the cheetah look like in shot 18 and then shot 18, which is a close up of Cheetah. Then two close up of the zebra herd that makes these two shots as a cheetah’s P.O.V. (row 2, table 3).
- Editing plays a key role in creating this template. The visual structure of the film, of course, is such that it enhances the sense of collision through cross-cutting.
- Cheetah's line of sight corresponds well to the angle of next shot which has been caused by the continuity editing.

5.3. The Fourth Sequence
- Shots 2, 4, 6, 8 and 10 of this sequence are narrated from the perspective of stoat.
- Before the above shots, first comes a medium or close-up shot of a stoat that draws attention to the space outside the frame then followed by and in the direction of stoat look, shots come as stoat's P.O.V (row 3, table 3).
- Cross-cutting and continuity editing play a significant role in creating this pattern. That produce this pattern by matching the direction and angle of the camera in shots.
- Moving inside shots and resizing the frames in the first, third, and fifth shots Indicates that the subsequent shots are stoat's P.O.V (row 4, table 3).

5.4. The Seventh Sequence
- Shots 29 and 33 of this sequence are narrated from the perspective of Ethiopian wolf.
- The first-person point of view in both of the above shots is based on the shot/ reverse angle shot pattern. However, in Figure 33 this pattern is reversed. That is, first a shot of the mouse that comes to the attention and then a shot of the wolf.
- Shots 28 and 34, which represent the wolves 'POVs in the 29's and 33's, do not show close-ups of the wolf's head or eyes, but wolf's movement and the mouse's gaze indicate that the shots' 29s and 33s are POV wolves. (Row 6, Table 3).
- Cross-cutting between wolf and mouse movement and adherence to the principles of continuous editing play a significant role in creating spatial consistency and validity between shots.
- In these two shots, there is no camera movement and focal length change. However, in both frames, despite the frame being close-up, a slight movement of the mouse indicates that attention is drawn to the approaching danger.

5.5. The Tenth Sequence
- Shot 17 of this sequence are narrated from the perspective of Squirrel.
- As with the classical pattern used in previous sequences, first comes a close-up of the squirrel (albeit with very limited technical limitations in image recording) and then a shot from snake come, that based on camera angle and the eyesight, formed on the basis of a continuity editing pattern, acts as a squirrel POV (Row 7, Table 3).

In this shot, there is no change in focal length or camera movement.

Table-3. P.O.V shots in "hunters and Hunted"
6. Result and Discussion

How ecosystems are represented in wildlife documentaries, in a way that is consistent with ecological issues, has led to critical scrutiny in various aspects. One of these critical aspects is the use of anthropomorphism as a way of explaining and understanding the behavior of creatures in these documentaries. Anthropomorphism has been widely criticized for abandoning the biological contexts in which animals live in order to resemble the characteristics of a human society such as personalizing animals according to genre patterns and narrative conventions. Since the resemblance of nonhuman behaviors to humans is not based on objective observations, anthropomorphism can lead to a reduction in the recognition of the behaviors of different biological species and distort public beliefs about ecosystems.

Anthropomorphism seems to reproduce not only at the content level but also at the form level of the work. Because representation is done through a mediator tool that is the form of the work. Because the media and its aesthetic techniques have created and evolved over time, there is a human-centered approach to the representation of phenomena by these media. Hence, every representation inevitably carries with it cultural and ideological implications. Problems that can be specifically articulated in the relationship between anthropomorphism as an epistemological concept and point of view as an aesthetic tool.

In wildlife documentaries, two first-person and third-person points of view are used to advance the narrative, which can be traced at both the level of the narration and the visual structure of the film. If the film is narrated by animals as fictional characters or from their perspective, then the point of view is first person. The third-person point of view is the presence or absence of the narrator in the film, which explains the events and narrates. If the narrator is not part of the events within the film, in which case he becomes the first narrator. Anthropomorphism is created in both ways when the narrator describes the animals’ emotions and mentalities through their language.

The aesthetic analysis of the image in "Hunters and Hunted" (2009) shows that of the 475 shots in this documentary, 14 shots use first-person point of views from an animal perspective to advance the narrative. The structure of the P.O.V created in these shots shows that the shot / reverse angle pattern was used to create the point of view of the subject. Image composition and editing play a key role in creating P.O.V shots in this documentary. Because by coordinating the angles, heights, and sizes of the images on the one hand, and by applying cross-cutting and observing the principles of continuity editing, the first-person point of view of the nonhuman subject is produced.

7. Conclusion

Based on the investigations conducted through this study we can conclude that There is no doubt that such animals can be rewarded and threatened, but their behavior is no guarantee that they are experiencing the emotions that people have. Anthropomorphism can be defined as the attribution of human motivation, characteristics, or behavior to artifacts, animals, and natural phenomena. Using a more precise terminology we could say that it consists of explaining nonhuman behavior as motivated by human feelings and mental states, i.e., human folk psychology. In fact, humans speak to non-humans, may quarrel with them, scold or compliment them, etc. The attitude of treating artifacts or animals as if they were humans occurs very early in life appearing to be a fundamental aspect of human cognition. In children as young as two years it manifests in pretend play.

In contemporary research the phenomenon of anthropomorphism has been studied from different perspectives. One approach consists of analyzing the origin and development of this human predisposition in order to highlight the conditions under which the attribution of human mental features to nonhumans is actually carried out. This means considering two fundamental questions: the first question concerns how humans manage interactions and develop feelings like familiarity and empathy, and how they attribute mental states. The other question regards particular features - if there are any- that nonhuman have to possess in order to elicit anthropomorphization. This is a theme that has been extensively treated within robotics since Mori’s proposal of the uncanny valley.

Another approach addresses moral issues. It has been shown that children under certain conditions may very precociously attribute benevolent or malevolent attitudes to objects. Moreover, moral characteristics are often attributed to pets and animals in general, both to whole species and to single individuals. This in turn influences how humans evaluate animals’ rights. Furthermore, a systematized form of anthropomorphism pervades most religions, and as such is a central topic in the cognitive theories of religion.

In all the aspects reviewed so far, anthropomorphism is the object of scientific inquiry. There is also an additional perspective where anthropomorphism is analyzed as a methodological component inside a different scientific enterprise, notably in domains such as ethology and animal cognition. There is an ongoing debate among scientists about the merits or harm of anthropomorphism in the scientific study of animal behavior. Often anthropomorphism is seen as the risk of misattributing human-like abilities to non-humans, but there is also a heuristic value of a kind of "controlled" anthropomorphism in helping to predict animal behavior.

In this Research Topic we intend to take stock of the current developments of research on anthropomorphism and we are looking for manuscripts that address questions pertaining to any aspect relevant to the topic. We welcome theoretical contributions, original research articles as well as reviews and opinion notes, coming from all areas of psychology and cognitive science including anthropology, human and animal cognition, neuroscience, philosophy, and robotics.
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