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Toward Abiozoomorphism in Social Robotics? Discussion of a New Category between Mechanical Entities and Living Beings

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Abstract

Social robotics designed to enhance anthropomorphism and zoomorphism seeks to evoke feelings of empathy and other positive emotions in humans. While it is difficult to treat these machines as mere artefacts, the simulated lifelike qualities of robots easily lead to misunderstandings that the machines could be intentional. In this post-anthropocentrically positioned article, we look for a solution to the dilemma by developing a novel concept, "abiozoomorphism." Drawing on Donna Haraway's conceptualization of companion species, we address critical aspects of why robots should not be categorized with animals by showing that the distinction between nonliving beings and living beings is still valid. In our phenomenologically informed approach to social robotics, we propose that the concept of abiozoomorphism makes it possible to transcend the strong ethos of biotism that prevails in both robot design and academic research on social robots.

Keywords: anthropomorphism, social robotics, companion robots, pets, abiozoomorphism, post-anthropocentrism

Introduction

Recent theoretical and empirical studies on social companion robots have suggested that these machines fall into the category of *companion species* (Kerruish 2016; Šabanović 2020), a concept that has been reinvigorated from Donna Haraway's (2003) categorization of animals as companion species. Kerruish (2016) proposes that social robots, as artificial pets, could be categorized as companion species on the grounds that interactions between the human and the robotic animal consist of bonding and co-shaping, similarly to human–pet interactions. In 2020, Šabanović supported the view by presenting the idea of domesticated robots as pet-like "creatures of possibilities"—which are defined by Agamben (1999) as entities with a repertoire of bodily actions and experiences. Šabanović (2020) emphasized interactions that celebrate the otherness of the interactional counterpart (cf. Sandry 2015). In other words, pets—including robot pets—are acknowledged as embodied actors with their own unique histories, and as interactional partners they ought to be acknowledged and respected.

The intriguing attempts to stretch the concept of companion species to cover social robots inspire discussion about how we deal with a radical gap between the mechanical and the living. Social robots are becoming increasingly biomimetic, complex, and animal-like machines, but there has been much less discussion of what kind of negative aspects this comparison provides to our understanding of pets or animals in general. Our position is aligned with the understanding that considering organic and inorganic beings equal is neither socially nor ecologically sustainable when it comes to human–robot interaction (Bryant 2014).

In this article, we address critical aspects of why robots cannot or should not be categorized with animals, although this has been attempted in studies of living and robotic pets as companion species (Kerruish 2016; Šabanović 2020). This article is motivated by the observation that narratives in the many influential studies of social robotics describe robots as persons with human-like abilities, radically stepping out of the category of mere machines (e.g., Breazeal 2002). Inspired by scholars who intersect a posthuman position with critical research on robotics (Braidotti 2013; Coeckelbergh 2017; Richardson 2015) and critical animal studies within cognitive sciences (de Waal 2001; Meijer 2019), our aim is to suggest a posthuman approach to the discussion of social robotics that is sensitive to the ecological destruction and commodification of animal bodies.

Following the post-anthropocentric paradigm where human superiority and separateness are challenged (Alberro 2020), we aim to diminish the boundary between humans and other animals while making a clear distinction between animals and lifeless entities. We argue for a narrative where all animals, humans included, are distinct from robots and, moreover, perceived as superior to robots. We hope to contribute to the posthuman discussion on human–robot interaction, where the boundary between humans and other animals is diminished, while that between animals and machines is sustained.

Specifically, our main contribution is a new concept, "abiozoomorphism," that attempts to capture the simulated liveliness of social robots without drifting into misunderstandings of their intentional abilities. First, social robots and their interactions are explicitly designed and determined by people, whereas house pets, however domesticated over the millennia, have their own lives, initiatives, and cognition. Second, although robots can be understood as sharing the same evolutionary history and the same basic building material pool, they are not biological, nor do they undergo the evolutionary process presented by Charles Darwin's *On the Origin of Species*. We note this while understanding that this is obviously something that both Kerruish and Šabanović acknowledge when they propose a more creative use of the term "companion species." After all, in the context of cybernetics, Haraway (2007) herself suggests wheelchairs as something to be considered as a companion species. In animistic cultures (e.g., Japan), robots and even smartphones are perceived as belonging to a third category, between the living and the lifeless—anthropomorphized as not alive, but not soulless machines either (Barile and Sugiyama 2015, 415; Šabanović 2014; Parviainen et al. 2019). Still, when it comes to robots, we argue that it is particularly questionable to use the term "species" because this adds to the unrealistic expectations and uninformed mental representations people have about anthropomorphized machines.

Third, we challenge the discussions where robots are expected to be presented as *intentional actors* in our communities (Čaić, Odekerken-Schröder, and Mahr 2018; Wirtz et al. 2018). Based on the way we have observed the emergence of service robots—and the media's attention to them—their role as acknowledged actors may even have already gone too far (Parviainen and Coeckelbergh 2020). Acknowledging robots as actors in their environments would not necessarily be a negative categorization per se, but calling them intentional actors

and a companion species is a harsh reminder of how we disregard, oppress, and treat living things on this planet. While there may also be people who are not canonically acknowledged as *actors* in their communities, in this article we focus on animals and, particularly, why their role and societal rights have not advanced at the speed and with the devotion that some social robots seem to enjoy.

2. From Anthropozoomorphism to Abiozoomorphism

Social robots are reprogrammable mechatronic machines that are defined as possessing "individual histories" of perceiving and interpreting their environment and understanding social action, and they are designed mainly for communication and interaction with people according to an assigned role, such as coaching or entertaining (Bartneck and Forlizzi 2004; Fong, Nourbakhsh, and Dautenhahn 2003; Höflich 2013). Defining social robots as having an individual history and understanding of anything, let alone social actions, is building a narrative where robots are seen as stepping out of the category of mere machines and into the category of life-perceiving entities. Social robots have gradually been utilized in assistive tasks of geriatric care, customer service, and teaching, where their work does not involve any type of understanding or spontaneous interaction (Thamil Amudhu in press; Turja et al. 2020). Rather, they are used as preprogrammed platforms for media content. A more accurate definition for these mechatronic machines would be that they can be programmed to detect and interact with their environments and store the data they receive via their sensors and user interface.

Social representations people construct of robots in their minds are guided by direct, indirect, and vicarious experiences (Kellert 2002). While direct experience refers to first-hand user experiences, indirect experience originates from observing robots and their use in a spectator's role. Vicarious experience refers to information received from the media – both fact and fiction. Media exposure plays an important role in forming social representations about robots, and fictive robot illustrations especially may cause people to have exaggerated views of robots' abilities and features (Lee and Šabanović 2014; Righetti and Carradore 2019, 450). However, people generally still consider robots mostly as lifeless industrial machines instead of, say, humanoid-shaped social robots (Eurobarometer 2015).

The design of robotic bodies has intentionally utilized features identified as human or animal characters so that the user can more effortlessly form a relationship with the robot (e.g., Breazeal 2002). "Anthropomorphic interfaces" utilize human features in trying to humanize machines and to have the user identify and empathize with a more lifelike robot (Draude 2017). In parallel, zoomorphic interfaces refer to animal-like qualities in design. The dynamics of zoomorphism and anthropomorphism is closely linked to the design of social robots because, for example, animal-shaped robots can have human-like gestures, or fictional (sci-fi) robot characters can combine animal and human figures (Parviainen et al. 2019).

By definition, anthropomorphism refers to the installation of human characteristics, gestures, or emotions in nonhumans, such as animals, inanimate objects, or imaginary objects, dichotomizing humans and all other things. Surprisingly or not, anthropomorphism in social robotics has been selective: the appearance and gestures of robots are humanized, while the functions of internal organs, for example, have not been imitated by software or hardware. The study of anthropomorphism involves many fields of science – from psychology, philosophy, and anthropology to animal science and evolutionary biology. Most scientists agree that anthropomorphism is a human genetic trait that allows us to see the world involuntarily through a similar lens. However, anthropomorphism is also a culturally constructed and learned

behavior. Thus, critical anthropomorphism claims that we can also learn to see differently (Burghardt 1991).

Critical zoological research has highlighted the dangers of "anthropocentric anthropomorphism" (human-centered humanization) in interpreting animal behavior. This refers to a situation in which animals, in particular, are associated with human characteristics, regardless of how different species biologically perceive the world. In the context of anthropocentric anthropomorphism, there has also been talk of Bambification (de Waal 2001). This refers to a situation where objects are shaped, or animals are bred, in a way that specifically appeals to the human need for care. Where robots are concerned, Bambification means that consumers' feelings are appealed to through "cute" figures that combine human and animal traits.

We look at the design of anthropomorphic robotics in two dimensions. One objective in robot design is to create human-like android robots (e.g., the Sophia robot), while the other is to take advantage of human-like features without trying to develop human imitations. The latter form seeks a balance between two aspects: the robot should simulate human-like features, but it should not look too much like a human. Robot designs by Japanese and Korean companies, in particular, have sought inspiration from the world of cartoons and animated fictional characters. It can even be argued that the aim of designing animation-inspired robot models is to place two-dimensional figures in three-dimensional, moving robotic beings. For Generation Y, having grown up with computer-animated characters produced by Disney–Pixar, Studio Ghibli, and other companies, the characters' transformation into three-dimensional moving robots is perhaps more natural than for previous generations. Brenda Laurel (2013), one of the pioneers of anthropomorphic interfaces since the early 1990s, has explored the relationship between human–computer interaction and storytelling or fiction. She sees anthropomorphic interfaces as a kind of theatre or performance.

Laurel's ideas resonate with the notion of *trivial anthropomorphism* developed by John Simons (2002). By this, Simons refers to animate fictional characters that are brought to the natural world and are treated as if they are living beings. Trivial anthropomorphism, he says, typically occurs in the works of Helen Beatrix Potter. The talking animal characters, such as Peter Rabbit, in Potter's children's books are anthropomorphic creatures who "live" in the natural world and share it with humans. In the framework of social robots, the notion of trivial anthropomorphism opens up a new zone that is not completely real but not entirely fictional because it takes place in everyday environments, such as at home or in the office. In this realm, human–robot interaction is somewhere between the imaginary and the real world, thus building a performing stage for everyday life. A daily conversation with and showing affection for a robot companion is not a sign of madness, but becomes an acceptable adult playground. We suggest that this imaginary living-happily-with-robots zone indicates a more normalized culture where the line between the living and the inanimate is blurred.

While we agree that humans developing relationships with anthropomorphic or zoomorphic interfaces enter a new realm that is neither completely imaginary nor completely real but something in between (Höflich 2013; Šabanović 2014; Taipale, Turja and Van Aerschot 2020), we argue against any similarities drawn between human–animal and human–robot interactions. Among the entities mentioned—humans, animals, and robots—the more clear-cut divide should be between biological beings and mechanical beings. This is where the difficulty of using the concepts of anthropomorphism and zoomorphism with the emerging social robots lies.

While zoomorphism and anthropomorphism are closely connected in social robotics in the sense of "anthropozoomorphism," we propose a novel concept—abiozoomorphism—that captures the ideas of anthropozoomorphism and robotics as an intensive phenomenon where traits and qualities of the living are associated with lifeless objects. The first part of the word abiozoomorphism, "abiotism," comes from the Greek word bíos ("life"), with the prefix "a" for "opposite"—or "without life." Our notion of abiotism is inspired by visual artist Simona Koch's (2020) formulation that, "There are things in the world that are said to not be living and yet they are in motion, can store information and are crucial building blocks for the bodies of living creatures." Social robots can be considered abiotic entities in the sense that they are not living, and yet their motion, gestures, and material shapes can evoke strong emotions in humans. By combining abiotism with zoomorphism—"abiozoomorphism"—we emphasize animal-like qualities in social robots whose shape and motion can be highly captivating, creating the impression of a living being in what remains a nonliving entity. The use of abiozoomorphism is rationalized to discursively diminish the gap between humans and other animals in comparison to robots. Social robots are designed to resemble basically any living entity. As the term anthropozoomorphism already shows, in social robots, the gap is already blurred.

The following sections will lead us to the discussion of motivation in human interactions, with an emphasis on how biological and mechanical beings differ in the sense of being mentally present or absent in an interactive situation. Based on four premises, we infer that robots are unworthy of the status of companion species.

3. Boundaries between Nonliving Things and Living Beings

As we noted above, Haraway's (2003) view of animals, especially pets, as companion species has been suggested to cover social robots as well (Kerruish 2016; Šabanović 2020). Throughout her work, Haraway has highlighted how nonhuman living beings and nonliving entities shape humans and, in particular, reshape our notions of subjectivity and gender. Central to this notion is how these nonhumans are not only passive recipients of human agency, but also socially active partners.

In her early works, Haraway reflected on breaking down the boundaries between humans, animals, and objects. In "A Manifesto for Cyborgs" (Haraway 1985), she argues that divisions between three entities—humans, animals, and machines—have been minimized throughout human history. She suggests that crucial boundary breakdowns have changed the definition of what is deemed cultural or otherwise natural. The first such boundary was between humans and animals, and it fell in the nineteenth century after *On the Origin of Species* was published by Darwin. By the late twentieth century, the boundary between humans and animals was thoroughly breached (Haraway 1997, 405). One of the consequences of this has been that many people no longer feel the need for such a separation, and the connection between humans and other living creatures provides both pleasure and economic benefits.

As the industrial revolution arrived, the boundary between human and animal organisms and machines became porous. As economic dependence on machines accelerated, machines became an inseparable part of what it is to be human; our capabilities, as well as those of tamed animals (cattle, pigs, chickens, etc.), expanded in industrial and technological food production. Haraway (1985) argues that the machines of the late twentieth century have blurred the distinction between organisms and artificial objects, but she does not claim that that distinction has fully disappeared:

> *Late-twentieth-century machines have made thoroughly ambiguous the difference between natural and artificial, mind and body, self-developing and externally designed, and many other distinctions that used to apply to organisms and machines. Our machines are disturbingly lively, and we ourselves frighteningly inert.* (68)

Haraway's words, "disturbingly lively," create the impression that she is concerned that machines are replacing human activity and thinking. What is crucial in Haraway's discussion is that she does not claim that the division between the living and the inanimate has been broken, but that it has been crossed. By this, we mean that the inanimate object cannot become alive even though these objects appear to us to be "disturbingly lively."

Haraway is concerned that, through technological advancement, complex machines can become gradually miniscule in size or, in the case of software, altogether invisible. Machines of the twenty-first century are mainly based on quintessentially microelectronic devices: they are everywhere and they are invisible. Silicon semiconductor chips pervade all of life's domains; thus, it is difficult to decide where machines end and humans begin. As a result, boundaries between the cultural and the natural became increasingly invisible, but machines are still not alive.

In broadening her focus from cyborgs to companion species in *The Companion Species Manifesto* (2003), Haraway addresses entities, such as pets and laboratory animals, that are neither nature nor culture, turning to the notion of "companion species." By this concept, without the singularity, she refers to nonhuman entities that are associated with domestic animals, laboratory animals, and symbiotic bacteria, as well as various nonliving technologies, potentially including social robots. In *When Species Meet*, Haraway (2007) continues to examine the ongoing entanglement between humans and nonhumans. Throughout the book, Haraway emphasizes that humans and their myriad non-human companions (domestic animals, bacteria, etc.) are engaged in historically and culturally situated manners that reshape all of the implicated parties (31).

Haraway uses her father's wheelchair as an example to expand the notion of "companion species" (167). After surviving childhood tuberculosis, her father was perpetually dependent on a wheelchair. She states that encounters between companion species wear away the category separations not only between humans and animals, but also between living and nonliving entities. Frank Haraway would quite literally not have been the man he was without his physical aids, so through this example Haraway shows that instruments are active agents whose role in everyday life is considerable.

Following Haraway (2003), some scholars see social robots in the mutually constitutive category of companion species (Kerruish 2016; Šabanović 2020). Certainly, social robots are engaged in constant historical and cultural processes in which their characteristics are shaped by animal figures and therefore are reshaping human understanding of companionship with nonliving objects. In addition, their position in everyday life is considerably less significant than that of, for example, a computer, mobile phone, or tablet, not to mention pivotal technological tools, such as wheelchairs for the paralyzed or glasses for the near-sighted. Most importantly, social robots cannot cross the line between inanimate and living beings, even though robot discourses tend to enliven them as persons and actors. Engineers are still unable to transform inanimate machines, such as social robots, into living beings that can become sentient and intentional creatures.

4. Four Premises for not treating Social Robots as Companion Species

4.1. Premise I: People Look for Intrinsic Motivation from Their Interactional Counterparts

Many people talk to their pets, well knowing that the pets do not understand the complex meanings of the human world that are expressed in human language. Still, pet owners' verbal and gestural communication is not "talking to a wall," as is very much the case when having "a dialogue" with pet robots. A pet snake does not discern a human's emotional state as dogs presumably can, but both respond, sometimes in surprising ways, to a human presence through their movements, sounds, and postures. From the human perspective, there is a difference between solitary mental presence (with robot pets) and shared embodied co-being (with animal pets). Wright (1984) formulated this by saying that people value the fact that their interactional counterpart is *willing to be there*—referring to the intrinsic motivation to be in someone's company.

The motivation to be present voluntarily is considered crucial for meaningful and reciprocal interaction (Nor-Arevian et al. 2015). Intrinsically motivated interaction cannot be achieved if either of the counterparts is forced to be there via, say, programming or physical restraints. Uncaged pets have usually the option to be present or to leave. At least animals possess a chance of free will, although pets can be both domesticated and dominated. A robot, on the other hand, wants nothing and does what it is preprogrammed or manually operated to do. With robots, we have "companions" that not only lack intrinsic motivation, but also can be quite concretely switched on and off (Seibt 2021).

Acknowledgedly, pets that are not under physical restraint can be under mental restraint via domestication, training, and discipline. This emphasizes how the "intrinsic motivation of animals" includes a significant element of how people perceive their pets and their willingness to be in their presence. People are known to interpret their pets' anxiety through their behavior and expressions (Jones and Gosling 2005). With a robotic pet, usually designed to substitute for a dog or a cat, people have no means to interpret its anxiety or its intention to be there. With a robotic dog, one does not observe signs of interactional motivation, either in a positive context (e.g., approaching people) or in a negative context (e.g., separation anxiety or snapping at unfamiliar people; Jones and Gosling 2005).

The importance of mutual intrinsic motivation in social interaction is likely a significant part of the fact that people will choose a real pet over a robotic one (Crockett et al. 2019). To know what a robot is is to know that, instead of any intrinsic motivation to be present in a situation, you can only expect a simulation of being heard and seen.

4.2. Premise II: The Former Premise Is the Reason That People Are Prone to View Robots as Having Traits and Intentions of a Living Entity

Social robots usually imitate either humans or animals in their exterior appearance and style of interaction, so that it is easier for us to embrace them despite the fact that robots are not mentally present in reality. To enhance and deepen the human–robot interaction, social robots are given features associated with a biological entity capable of emotions. The simulated emotions indicate to the human that the entity has intrinsic motivation to interact with us and, hence, we get more out of the human–robot interaction—although obviously through some level of deception.

Deception has been discussed frequently in the ethics of robotics, but instead of talking about fraud or deception, we use here the concept of "biotism." In biology, biotic factors are understood as living organisms, including animals, birds, plants, fungi, and other similar creatures. Our notion of biotism, however, refers to discourses, ideologies, and practices through which nonliving objects are made to create impressions of living creatures even though they are inherently abiotic beings. Movements and gestures play a key role in biotism.

Masahiro Mori's (1970) seminal research on humanoid robots suggested that our affective reactions to robots have strongly influenced how these objects move, creating the illusion of "self-moving" living beings. Taking this idea further, robots' gestural movements and their intellectual capabilities are seen as intrinsically connected (Parviainen et al. 2019). Maurice Merleau-Ponty's (1962) phenomenological discussion of motor intentionality as embodied intelligence illuminates reasons that we are inclined to associate bodily movements and gestures with cognition.

Specifically, bodily movements and gestures are the means through which any animate body explores its world, enacts intentions, and inherently makes sense of the world to solve problems. Merleau-Ponty (1962) stated that the living body's orientation in the world does not require representations of the situation created by the mind, but motor intentionality involves the immediate sense of embodied agency. Unfortunately, we take this complex process for granted. For example, when a person grabs a glass of water, he or she does not need to consciously use his or her mind to place every finger of his or her hand around the glass; rather, when he or she feels thirsty, his or her hand finds a glass next to the computer on the table, lifts it up in opposition to the gravity of the Earth, and moves it through the air toward his or her lips to drink the water. Our understanding of something as ordinary as drinking water turns out to be a fairly complex blending of simulated perceptions, feelings, and actions associated with drinking water within specific social and cultural contexts. It involves bodily activities related to the perception of qualities, forms, spatial locations, internal structure, spatial relations, and the like, and activities of simulated body movement and object manipulation that are appropriate in various cultural settings (Johnson 2015).

The intelligence of robots is vastly different from that of humans or animals, even though we misleadingly use the same word for each concept. Due to the necessity of representation, the machine cannot move intentionally as humans and animals can. Robotic "embodied intelligence" is based on programming to simulate simple, everyday tasks. This requires the creation of a four-dimensional (time–space) representation to calculate its movement trajectories so that the robot can perform actions. Therefore, robots' embodied intelligence is completely different from that of living bodies. In artificial intelligence and robotics, this is well known as *Moravec's paradox*—that high-level reasoning requires very little computation, but low-level sensorimotor skills require enormous computational resources (Moravec 1988, 15–16).

Because social robots, such as Zora/Nao or Pepper, are designed to create a strong impression of being alive through their movements, people are not necessarily prepared to treat them as mere machines. Thus, Breazeal (2002) has suggested that we have a tendency to interact with social robots as if they are people or pets. Following Kahn et al. (2006), we argue that there is a need for a new conceptual category in addition to the traditional distinction between animate and inanimate.

4.3. Premise III: Humans and Animals Are Driven by Their Intrinsic Motivations

Both humans and animals have been a subject of psychological research in which behavioral patterns have been hypothesized, observed, and concluded (Shettleworth 2001). The psychological development of humans and the most popular pets—cats and dogs—follows the same synergy of nature and nurture (Salonen 2020). Over time, studies have questioned the speciesism (i.e., bias in viewing and preferring some species over others) in our culture that has emphasized human uniqueness when it comes to motivation and emotions.

(Neuro)psychological and ethological studies have discovered evidence of humans' and other mammals' similarities in brain structure, but also in their self-awareness, motivation, and emotions, which seem to be generally shared among members of the animal kingdom (Halperin 1995, 493; Lang and Davis 2006; Lazarus 1991). Some mammals, such as chimpanzees, orangutans, dolphins, elephants, and wolves, have a sense of self that has been observed in, for example, the classic mirror experiments (Boysen and Himes 1999; Gallup 1970; Gatti et al. 2020; Plotnik, de Waal, and Reiss 2006). Hence, for the present, the studies imply that a sense of self is an attribute associated with intelligent gregarious mammals.

Animals more generally are, however, able to spread empathy-related emotions, such as distress and contagious joy, and to express rescue behavior (Adriaense et al. 2020; Burkett et al. 2016; Hollis and Nowbahari 2013; Tedeschi, Garrity, and Garrity 2009). These behaviors all indicate higher-level individual motivation beyond mere reflexive or instinctive reactions. Moreover, in addition to empathy-related emotions, animals also express "cost-reinforced honesty"; that is, animals are intrinsically willing and able to lie and deceive for their own benefit (Rowell, Ellner, and Reeve 2006).

Different species of social animals have similar and peculiar traits, such as yawn contagion (Massen and Gallup 2017) or mobbing behavior (Hoogland and Sherman 1976). Why do certain similarities between humans and other animals get a stamp of approval while others are bypassed as anthropomorphism? Persistently, the Cartesian presumption guides people to think that only humans have feelings. That is the reason that a dog is not acknowledged as "being ashamed," but only as "appearing that way"—because by acknowledging a dog's emotions, we would be humanizing it. Indeed, there seems to be a persistent conflict between acknowledging the emotional states of other animals and fearing anthropomorphizing and Bambification.

However, anthropocentric thinking loses even more momentum when the focus moves to the family Hominidae. What would it even mean to anthropomorphize great apes, such as chimpanzees and orangutans? Would it not be to acknowledge that all higher-level primates share similar features when it comes to inner mental states? What single secular argument supports the hypothesis that humans are the only great apes with basic emotions and the means to express them?

In fact, anthropodenialism refers to the mindset—or, dare we say, culture—where characteristics shared by humans and other animals are blindly rejected (de Waal 2006). This blindness can stem from various cultural understandings, such as religious beliefs about people being created in "God's own image," or the selfish need to consider anything and everything based on its production value and monetary worth. To categorize all other animals into entirely different levels of being by denying their sentient or emotional qualities (de Waal 2006, Proctor 2012) is perhaps one way to live with the inconvenient fact that people have quite literally enslaved the animal world.

4.4. Premise IV: Robots Are Not Capable of Having Intrinsic Motivation

If we studied robots by their behavioral patterns alone, we would conclude that some social robots are like people or pets. However, this would be due only to the fact that the robots were designed to behave this way. In other words, to see the differences between appearance and reality, we cannot be restricted to the behavioral research tradition when observing a nonbiological entity. The concept "what you see is what you get" does not apply to robots. When it comes to any observed emotions or motivation, what you see is a simulated truth. If we wanted to argue that someone or something has motivation or intentions, studies would need to support this using evidence from neuroimaging (see Lang and Davis 2006) or insights from the subjects' inner mental states. In contrast, robots do not have brains or mental states to examine. In the design of social robots, the sense of self is simulated by the robot's preprogrammed features, such as learning and reacting to its name (e.g., Paro seal), or scripts where it describes itself and its background (e.g., Pepper).

Returning to Haraway's example of her father's wheelchair as an active agent, we assume that social robots not only are passive recipients of human agency, but also can be considered as agents without equating them with living (domestic) animals. Haraway's idea comes close to one of the principal ideas in Actor-Network theory (ANT) that grants human and nonhuman actors equal amounts of agency within webs or actor-networks (Latour 1993). The core of this theory is the principle of the radical symmetry between human and nonhuman actors, which dissolves modernist demarcations between, on one hand, living, consciously acting subjects and, on the other hand, merely instrumental deaf–mute objects (Parviainen and Coeckelbergh 2020).

Nonliving objects, such as social robots, are not accountable for their actions, but their gestures and actions still have a considerable amount of emotional influence on human activities. In fact, social robots are never pure neutral instruments, but hold vital affective qualities that both attract and repel human users. Bennett (2010) talks about "thing-power" as the vividness of an object and the ability of inanimate objects to produce dramatic and subtle effects. Instead of only addressing social connection between people, material objects, such as social robots, works of art, or sacred objects, have been observed to bring together subjects and mediate new relations around these objects. The vividness of social robots easily leads to misinterpretations of their abilities; thus, we argue that a new ontological category is needed to separate social robots both from living beings and from instruments.

5. Conclusions

Throughout this article, we have been concerned that animals and, particularly, their societal rights have not advanced at the speed and with the devotion that some social robots seem to enjoy. Technophiles of today's society tend to embrace the importance and power of artificial intelligence in finding solutions for societal issues, and to downplay human intelligence, but especially the intelligence of other animals. Bear in mind that our objective in this article is not primarily to show cognitive similarities between humans and other animals, but by adopting an ecological and ethical approach to social robotics, we have developed a new conceptualization to address the difference between animals and robots, between the living and the artificial.

Despite the long and religion-colored discussions of the differences between humans and other animals and the accusations of anthropomorphizing and transferring human emotions to animals, a large number of animal species has the ability to be strategic and mentally present

in interactional situations. At the very least, by observation and neuropsychological evidence, we have *no* reason to hypothesize that mammals in general do not have higher-level motivation. The similarities in emotional expressions in humans and other animals, as observed by Darwin 150 years ago, suggest that a wide range of animals also have central emotional states (Anderson and Adolphs 2014). At the same time, we have *all* the reason to claim that robots do not have motivational states of their own. Robots do not have an initiative mindset, the will to choose where they are, or any intrinsic ambition to do anything.

Yet there seems to be greater concerns over the Bambification of animals in bedtime stories than over designing sympathetic social robots for the consumer market. Animals are denied especially any characteristics that would suggest they have feelings and motivations anywhere close to what humans have (de Waal 2006). At the same time, robots are designed in a way that would arouse positive feelings such as social belonging in their human users. The special role that robots have in our culture is shown when choosing human–human interaction over robots can actually be viewed as a form of speciesism (Lancaster 2019; Schmitt 2020), that is, speciesism against robots in preference of human interaction. In an opposite vein, there are also implications of the human–robot dichotomy still being more rigid than the human–animal dichotomy (Bryson et al., 2020). This is an area in need of future studies, especially in the development where social robots are becoming gradually more common, causing changes in the general representations of robots (Piçarra et al., 2016).

Following the traditional dichotomy between humans and other animals, robot studies use a narrative where lively and social robots are understood as either anthropomorphic or zoomorphic designs. However, we question the relevance of the distinction between the two and argue that it only reflects the artificial dichotomy between humans and animals as reference systems for robots (Lagerstedt and Thill 2020). We have suggested that the concept of abiozoomorphism makes it possible to transcend the strong ethos of biotism that prevails in both robot design and academic research on social robots. "Abiozoomorphism" attempts to capture the simulated liveliness of social robots without drifting into misunderstandings of their intentional abilities, still not underestimating their aptitude to appeal to people's emotions. Thus, abiozoomorphism can be seen as a new conceptual category between animate and inanimate.

We believe that developing such a new category is important for at least two reasons: (1) to prevent robots from being equated to animals and (2) to recognize the specific nature of social robots compared with other technologies. Regarding the latter case, first, we argued that trivial anthropomorphism in an animistic sense opens up a new zone that is not completely real but not entirely fictional. In this realm, human–robot interaction is somewhere between the imaginary and the real world, thus building a performing stage for everyday life. Second, social robots as agents do not "disappear" as many tools and ubiquitous technologies in the use of our everyday life.

The abiozoomorphic approach does not support views of categorizing robots as mere tools, properties, or 'slaves' (Bryson 2010; Johnson 2006), even though robots are significantly different from animals with direct moral standing (cf. Coeckelbergh 2020). Rejecting the idea of robots from being equated with animals, abiozoopomorphism has its strongest opposition against the persisting ideology where the majority of animals are treated as nothing more than objects and have only production value, while robots are given birth certificates (Šabanović 2014) and honorary citizenships (Parviainen and Coeckelbergh 2020). If animal rights had historically been taken as seriously as people seem to take robots, we would most likely, by now, refer to animals as persons (Taylor 2007)—perhaps not citizens, but at least persons. In

addition to the fact that personhood is not extended to animals, in some languages there has been debate over whether or not pets should be referred to using the pronouns "she" and "he" instead of "it." Ultimately, only the future will show whether humanoid robots achieve the honorary status of personhood, with personal pronouns and all, before animals do.

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