AI and Ethics (2023) 3:527–538
https://doi.org/10.1007/s43681-022-00186-0

ORIGINAL RESEARCH

Ethical concerns with replacing human relations with humanoid robots: an ubuntu perspective

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Received: 3 March 2022 / Accepted: 1 June 2022 / Published online: 20 June 2022

Abstract
This paper considers ethical concerns with regard to replacing human relations with humanoid robots. Many have written about the impact that certain types of relations with robots may have on us, and why we should be concerned about robots replacing human relations. There has, however, been no consideration of this issue from an African philosophical perspective. Ubuntu philosophy provides a novel perspective on how relations with robots may impact our own moral character and moral development. This paper first discusses what humanoid robots are, why and how humans tend to anthropomorphise them, and what the literature says about robots crowding out human relations. It then explains the ideal of becoming "fully human", which pertains to being particularly moral in character. In ubuntu philosophy, we are not only biologically human, but must strive to become better, more moral versions of ourselves, to become fully human. We can become fully human by having other regarding traits or characteristics within the context of interdependent, or humane, relationships (such as by exhibiting human equality, reciprocity, or solidarity). This concept of becoming fully human is important in ubuntu philosophy. Having explained that idea, the main argument of the paper is then put forward: that treating humanoid robots as if they are human is morally concerning if they crowd out human relations, because such relations prevent us from becoming fully human. This is because we cannot experience human equality, solidarity, and reciprocity with robots, which can be seen to characterise interdependent, or humane, relations with human beings.

Keywords Humanoid robots · Human–robot interaction · African philosophy · Ubuntu · Robot ethics

1 Introduction

In the 2019 documentary film *Hi AI!*, we meet Chuck and Harmony, who are portrayed as attempting to start a romantic relationship. We see them doing things such as sharing a morning coffee, sitting and talking around a campfire, taking a road trip, and generally behaving as if they are trying to get to know one another and are genuinely interested in becoming a couple. This may not seem very remarkable, thus described—but what makes it remarkable is that whereas Chuck is a man from Texas, Harmony is a humanoid robot. Chuck is *anthropomorphising* Harmony and, more than that, he has *replaced* a potential human partner, with a robotic one.

Humanoid robots are robots that are designed and created to specifically look like, and imitate, human beings [39]. Anthropomorphising humanoid robots involves treating humanoid robots in a way that projects humanlike attributes to the robot [11] i.e., it involves treating these robots as if they are human. Is there potentially something ethically problematic about interacting with robots in this way? Especially if such interaction replaces human relations?

Various researchers, in different ways, have emphasised the importance of human–human relations, thereby drawing attention to why replacing human relations with robotic ones is concerning [4, 5, 12, 40, 41, 49, 52, 56].

Drawing upon ubuntu philosophy, this paper puts forward a novel perspective for why we should be concerned about robot relations replacing, and possibly even crowding out, human relations, by emphasising the important role that human relations have in the development of human morality. The thought of humanoid robots crowding out human relations in the sense of completely replacing any kind of human interaction for the human population, is a fairly remote

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possibility. However, in the context of this paper, the notion of crowding out does not refer to a world which is overrun with humanoid robots. Rather, it refers to isolated instances wherein individual people may interact with a humanoid robot on a regular basis, and for various reasons, therefore interact much less with other people. There will be more discussion of this notion of "crowding out" in Sect. 3.

Ubuntu philosophy postulates that we become "more human" through interdependent [19], or humane relations [44, 45] with other human beings. Becoming human in the context of ubuntu philosophy relates to one's morality as a human being. This is because we are not "fully human" only because we are biologically human. We must also exhibit moral characteristics in *interdependent relations with other human beings* to be considered fully human. Thus, being fully human means that one is, particularly, moral in character.

Given the importance that ubuntu places on interdependent human relations in the context of morality, and the concern about robots replacing human relations, ubuntu provides a strong framework from which to analyse why the crowding out of human relations with robotic ones is concerning. Moreover, it stands in contrast to many Western philosophies that have a more individualistic approach to what it means to be human [38, 59].

The robots we see today take on a variety of shapes and forms, and display various capacities which allow them to play different roles in our lives. This paper, however, specifically focuses on *humanoid* robots because of the higher likelihood for people to anthropomorphise these robots, form social and emotional bonds with them and, therefore, possibly allow them to crowd out human relations. Although people do anthropomorphise and form bonds with robots that are not humanoids [6, 39, 42], the more humanlike something looks and behaves, the more likely we are to anthropomorphise and relate to it in a humanlike way [11, 16].

This paper proceeds as follows: Before tackling the main aim of the paper, we first need a clear explanation of what humanoid robots are, as well as the nature of our relations with them. As such, the following section (Sect. 2) will explain just this. In Sect. 3, I briefly discuss some current literature that discusses how robots may replace and crowd out human relations, and why we should be concerned about this. In Sect. 4, I provide an overview of what it means to be human in the context of ubuntu philosophy, and how being human relates to becoming a more moral being. Section 5 will consider the issue of anthropomorphising humanoid robots from the perspective of ubuntu, and argue that we cannot become more fully human through relations with robots. In Sect. 6, given that we cannot become more fully human through relations with robots, I argue that the crowding out of human relations with robotic ones is, from the perspective of ubuntu, morally concerning. Lastly, in Sect. 7, I conclude by briefly summing up my main argument and explaining what it is that we should ultimately take away from my argument.

2 Humanoid robots and the nature of our relations with them

2.1 What are humanoid robots?

Humanoid robots are robots that are "specifically made to look and act like human beings" [39: 8]. To provide a clearer understanding of what humanoid robots are, as compared to other robots that currently exist, Sven Nyholm [39] suggests that we can place robots on a spectrum. On the one end of the spectrum are robots that are not at all human-like in their appearance, nor in the way they function. Examples of such robots include vacuum cleaning robots (such as the well-known Roomba vacuum cleaner), as well as self-driving cars, warehouse robots or assembly-line robots.

On the opposite end of this spectrum are humanoid robots, as defined above. These robots are created to be as realistically humanlike as possible, with the intention for them to possibly be mistaken as human beings. Although we are not yet at the point of seeing humanoid robots that could be mistaken for human beings, this is the intention behind their design. A famous example of a humanoid robot is Sophia.[1] Although the back of Sophia's head is transparent, thus showing the electronics that "bring her to life", Sophia's face is highly humanlike, and she can simulate a range of human facial expressions. Other examples of humanoid robots include Hiroshi Ishiguro's robotic replica of himself,[2] Ai-Da, a robot artist created by gallerist Aiden Meller in collaboration with Engineered Arts,[3] Ameca, also created by Engineered arts,[4] as well as sex robots such as Harmony 3.0, created by Realbotix.[5]

In the middle of the spectrum, are "paradigmatic robots". These robots may have some humanlike features (such as arms, legs, torsos and a faces) but are otherwise highly artificial and mechanical in their appearance. Thus, they are not designed with the intention for them to be mistaken as human beings. An example of such a robot is Pepper created by SoftBank Robotics,[6] which (although it has a face, arms, and a torso) has a shiny, white, mechanical appearance. The

[1] See https://www.hansonrobotics.com/sophia/.

[2] See http://www.geminoid.jp/en/index.html.

[3] See https://www.ai-darobot.com/.

[4] See https://www.engineeredarts.co.uk/robot/ameca/.

[5] See https://futureofsex.net/robots/state-of-the-sexbot-market-the-worlds-best-sex-robot-and-ai-love-doll-companies/.

[6] See https://www.softbankrobotics.com/emea/en/pepper.

focus of this paper is, as mentioned above, on humanoid robots and, specifically, on *current* humanoid robots, such as the likes of Sophia—that is, robots designed and created to be as realistically humanlike as is currently possible.

In order for these robots to be as realistically humanlike as possible, not only are these robots designed to *look* human, but they are also designed to be able to *behave* in humanlike ways, by imitating human behaviour. For example, these robots can speak in a humanlike way through a chatbot function, and can both exhibit and read facial expressions that correlate with human emotion [42].

These capacities are important with regard to making communication between humans and robots effective [42] such that these robots can be as close to being "believably" human as possible. This makes it possible for people to unconsciously behave as if they are communicating with another human being [26], meaning that although human interactants are aware that the robot is not *actually* human, they respond to it *as if* it is human. As noted by Nicole Lazzeri et al. [28: 393]:

> "On first encounter, the believability of a robot is communicated through its physical embodiment which strongly influences people's expectations about how it behaves. Later on the perception of believability of the robot is given by its expressiveness, behaviour and reactions to external stimuli which can make a human-robot interaction more or less natural and lifelike".

Therefore, if the intention behind humanoid robots is for them to be mistaken as human beings, then not only should these robots *look* human, but they need to also exhibit humanlike behaviour.

Humanoid robots are, therefore, a type of *social robot*. A social robot is a robot that is "capable of communicating and interacting in such a sociable way that the robot allows its users to: (1) understand the robot in human social terms; (2) relate to the robot; and (3) to empathize with the robot" [16: 589].

Since the intention behind the design and creation of humanoid robots is for them to possibly be mistaken for human beings, both their humanlike appearance and ability to behave in a humanlike way, are important. Both contribute to the "perception of believability" [28] that these robots are more human than they are machine [16]. This "perception of believability" is possible due to the tendency humans have to attribute human characteristics to things that are not human i.e., the tendency to anthropomorphise.

2.2 The nature of our interactions with humanoid robots

Anthropomorphisation is the tendency to attribute human characteristics to something that is non-human [11]. Luisa Damiano and Paul Dumouchel [11] discuss how anthropomorphism is an "evolutionary adaption": it helped early humans to distinguish between friends and enemies, recognise predators, and form alliances with members of other tribes. It was, therefore, an important survival mechanism. The more humanlike something looks, the greater the possibility for anthropomorphisation to occur. Damiano and Dumouchel [11] note that the tendency to anthropomorphise has traditionally been viewed negatively as a "bias, a category mistake, an obstacle to the advancement of knowledge, and as a psychological disposition typical of those who are immature and unenlightened" [11: 468].

Social roboticists, however, cast anthropomorphisation in a different light: it is seen as a tool which can be utilised to support and improve social exchanges between humans and robots [11]. In the context of humanoid robots, Damiano & Dumouchel note, strong realism in either the humanlike appearance of a robot or autonomous movement/behaviour "allows a robot to reach the 'social threshold' where humans experience its presence as that of another social agent and are disposed to socially interact with the machine" [11: 468]. Takayuki Kanda et al. state that robots with a humanlike body "cause people to unconsciously behave as if they were communicating with humans" [26: 1839] and Maartje de Graaf [16] explains that the physical presence of social robots, such as humanoid robots, as well as their capacity to speak and use humanlike gestures or facial expressions encourages people to interact with these robots as if they are human, and not simply a type of technology. David J. Gunkel [23: 115] writes that the tendency to anthropomorphise is "not a bug to be eliminated or fixed; it is a feature of human sociality". Therefore, social roboticists, in their quest to improve social exchange between robots and humans, take advantage of this feature of human sociality.

Due to the fact that the more humanlike these robots are, the greater the chance for anthropomorphisation is, the tendency to anthropomorphise humanoid robots is significant. More than this, there is also the possibility for people to form emotional bonds with social robots, such that they "establish feelings of reciprocity and mutuality in their interactions with robots" [16: 593] even though these relationships are "unidirectional emotional bonds initiated from the human user" [16, see also 42].[7] This is the case with Chuck

[7] This section focuses on studies which have indicated that people have a positive response to human-like robots. However, it is important to take note of the concept of the "uncanny valley" put forward by Masahiro Mori in 1970. Mori proposed that realistic human-like robots would bring about a sense of unease or revulsion in people. Studies on the uncanny valley, however, have been inconsistent [62]. Moreover, some argue that "exposure to robots over time will reduce aspects of uncanniness, even in humanlike robots that are recognizable as artificial life" [6: 280].

and his sex robot, Harmony, to whom we were introduced in the introduction.

3 The potential for humanoid robots to crowd out human relations

Humanoid robots themselves are a controversial technology, sparking fierce debate amongst scholars who have strong opinions when it comes to how, or whether, this technology should be integrated into society. One need only take note of the controversy that surrounded Sophia the robot in 2017, to gauge the variegated opinions that people hold when it comes to humanoid robots, and the ethical implications of our interactions with them. That year, Sophia was granted honorary Saudi Arabian citizenship, met world leaders (such as Angela Merkel), made an appearance at a UN assembly meeting, and attended the Munich Security Conference. Following this, in some academic circles, Sophia was harshly criticized. In others, however, Sophia, and the way she was being integrated into society, received enthusiastic support [39].

When it comes to humanoid robots in general, some topics of discussion about the ethical implications of our relations with them include: whether these robots are deceptive and whether this deception is ethically problematic [9, 52]; whether these robots could have moral status [14, 15, 37] and, accordingly, whether such robots could, or should, be treated morally well and even granted rights [2, 20, 22, 23, 30]. Specifically, the ethical implication upon which this paper focuses, is whether we should be concerned about humanoid robots replacing human relations.

Several researchers have expressed ethical concerns about this. Some worry about how these human–robot relations may impact people's wellbeing and quality of life [49, 52, 56]. Others are also concerned about how human–robot relations may impact how the people, who are in these human–robot relations, may come to relate to other people [4, 5, 12, 40, 41]. This section will provide a brief overview of some of the literature that speaks to these concerns of robots replacing human relations, so as to situate my own argument within the debate.

In the context of care robots for the elderly, Robert Sparrow and Linda Sparrow [52], and Amanda Sharkey and Noel Sharkey [49] worry that care robots could lead to the elderly being socially isolated as they will have less human contact. This is concerning because of how important human contact is for our wellbeing as it reduces stress and helps prevent cognitive decline [49]. Jennifer A. Parks [41] is concerned that replacing human care workers with robots may negatively impact the elderly with regard to a relational understanding of autonomy i.e., the understanding that "we do not become autonomous persons despite our relationships with others, but because of them" [41, see also 2 & 27]. From this perspective, autonomy develops out of our relationships with others. In the context of care for the elderly, Parks points out that the notion of relational autonomy is "certainly reflected in the long-term care setting, where residents' selves are tied to the quality of relationships with their caretakers and families" [41: 111].

Joanna J. Bryson [5], drawing upon Robin Dunbar [18], argues that "humans have only a finite amount of time and attention for forming social relationships" [5: 5] and that this drive to form social relationships is increasingly fulfilled via "non-productive faux-social entertainment". Thus, in developing relations with robots, we may have less time to spend on relations with other people i.e., robotic relations will crowd out our relations with other people. This is why Bryson [5] is concerned about people mis-identifying with AI i.e., humanising robots.

Sherry Turkle [56] writes about the "robotic moment", which is the term she uses to describe the point we have reached wherein important human relationships are being replaced by robotic ones, such as nanny robots that look after children, or carer robots that look after the elderly. In this "robotic moment" people are socially isolated given that technology only offers an illusion of companionship—hence, we are "alone together".

John Danaher [12] argues that robots (including humanoid robots) could reduce the willingness of people to go out into the world and express their moral agency. This is because people may be more comfortable within the confines of their robotic relationships because the technology bestows upon them pleasurable benefits that they otherwise would have to exercise their moral agency to receive i.e., interact with other people, and take part in modern civilisation. For example, someone who is in a "relationship" with a sex robot (such as Chuck is with Harmony) may lose the motivation to go out into the world and interact with other people because they get all the pleasure they desire from their sex robot. As such, Danaher [12] is concerned that we will become "passive recipients of the benefits that technology bestows" and reduced to mere moral patients in the world. This is concerning because, as Danaher [12: 129] notes, "the ability and willingness to act as a responsible agent is central to the value system in modern liberal democratic states" and, therefore, the reduction of people to mere moral patients has "broad civilization level significance".

In the context of sex robots, Sven Nyholm and Lily Frank [40] write about their concern that these robots may block off relationships with other people. Nyholm and Frank [40] make their case by drawing on Kaspar the robot as an example.[8] Kaspar is a robot designed to "open up autistic children to social interaction with other human beings" [40]. However, they report that the team behind Kaspar is concerned

[8] See https://www.herts.ac.uk/kaspar/the-social-robot

about the possibility that Kaspar could do the opposite i.e., children could become less open to communicating with people should they find interaction with Kaspar to be more comfortable. Nyholm and Frank [40] have the same concern with regard to sex robots. If people form emotional bonds with sex robots, we should be concerned that these robots may block off human–human relationships which, they argue, are more valuable than a human–robot relationship. Also in the context of sex robots, Piercosma Bisconti [4] writes about why and how relations with sex robots may impact human–human relations. The author argues that relations with sex robots may impact relations with other humans in the sense that robots are objects that are always readily available for sex. However, despite being objects, relations with these robots simulate intersubjective relations that we experience with other human beings. As such, Bisconti states that relations with sex robots:

> "produce a dangerous relational dynamic, which may gradually transpose the expectation of objects availability in subjects availability. It mixes objectual relations with intersubjective ones. The more robots reproduce human relationality, the greater this concern is" [4: 569].

Lastly, in the context of robots in the workplace, a recent study by Sangseok You and Lionel P. Robert [61] indicated that workers can become attached to robots, in a way that may be detrimental to relations between colleagues. This is because human–robot teams may fracture into subgroups, such that these groups function as competing teams, rather than as one coherent team. This negatively impacts teamwork within the workplace. One may, then, be concerned about how teamwork dynamics may be affected should robots become a more common occurrence in workplace settings.

These authors have written about different types of robots, primarily focusing on social robots. Since humanoid robots are a type of social robot, the same concerns may arise in the context of interacting with humanoid robots in particular. This is a brief overview of an expansive topic that considers the possible negative impacts of robots replacing human relations. The rest of the paper will now enter this current discussion from a novel perspective, namely, an ubuntu perspective. This is a perspective that has not yet been discussed extensively within the ethics of technology. Interest in this perspective is, however, increasing. For example, Virginia Dignum [17] and Mark Coeckelbergh [10] suggest that the relational perspective on ethics that the ubuntu tradition embodies has a potential to significantly contribute to the ethics of human-technology interaction. And, specifically in the context of robots, Nancy S. Jecker et al. [25] have considered the moral standing of robots from an ubuntu perspective.

So, let us first explore what ubuntu is more generally and then relate it to the topic at hand.

4 Ubuntu and what it means to be human

Before we consider what ubuntu is, it should be noted that I will neither offer a defense, nor critique, of ubuntu philosophy in this paper. Instead, I will simply take the ubuntu perspective as my starting point, and leave critical evaluation of it to some other occasion. With this noted, let us now consider some of the key ideas from this rich and fascinating philosophical tradition. I will offer some general context and then focus on the ubuntu ideas most relevant for the main argument of this paper.

Firstly, Ubuntu originated with Bantu (meaning African people). It is a genre of philosophy that can be referred to as an African form of ethics, which, here, is described as "values associated with the largely black and Bantu-speaking peoples residing in the sub-Saharan part of the continent, thereby excluding Islamic Arabs in North Africa and white Afrikaners in South Africa, among others" [34].

There is no single definition of ubuntu, given that there is no clear English translation for the word "ubuntu" (which is a Zulu[9] word). Moreover, many scholars have written about ubuntu, providing various insights into what ubuntu is, and how it can be mobilised in society [31]. Through a review of literature on ubuntu, however, Cornelius Ewuoso and Sue Hall [12] note that "ubuntu has something to do with what it means to be truly human". The oft-cited Zulu aphorism "umuntu ngumuntu ngabantu" is associated with ubuntu, and roughly translates to "I am because we are", meaning that one is only truly human through one's relationships with other human beings. Thus, at the core of ubuntu philosophy, is the overriding importance of interdependent relationships with other human beings [19]. Therefore, ubuntu, in emphasising the relation between the individual and the community, is a communitarian form of philosophy. This communitarianism grounds ubuntu's relational approach to ethics [24], that stands in contradistinction to many individualistic approaches of the West.

Dorothea Gädeke explains that there are three contexts in which the notion of ubuntu is mobilised:

> "First, Ubuntu as an actual and/or reconstructed worldview and practice ascribed to (precolonial) African

[9] Zulu is the language spoken by the Zulu ethnic group, found in South Africa.

societies [36]; second, Ubuntu as a political discourse, which originated in the fight for liberation in Zimbabwe and South Africa around the idea of mobilizing Ubuntu as a resource to forge a new identity; and third, Ubuntu as a philosophical concept that provides a contribution to philosophical debates, particularly (though not exclusively) with regard to normative issues [34, 38, 45, 50]" [21: 270–271].

Considering what it means to be human according to ubuntu pertains to the third context in which ubuntu is mobilised i.e., ubuntu as a normative philosophy and, particularly, ubuntu as a "perfectionist ideal aiming to develop good character" [21: 271]. This means that ubuntu serves as a philosophical theory which can provide guidance on how human beings can be better, more moral, versions of themselves. Ubuntu as a normative philosophy can also provide an account for morally correct actions [34]. However, perfectionist accounts[10] are dominant in ubuntu literature [34], and it is the perfectionist account on which this paper is focused, since I am particularly concerned with the moral development of human beings in the context of interacting with humanoid robots.

What it means to be human in ubuntu philosophy has a moral character. To be *truly* human, or fully human, one must not only be biologically human, but must also display certain traits or characteristics [44]. In particular, one becomes "more" human by "exhibiting moral traits that humans are in a position to exhibit in a way no other beings can, and secondly, through interdependent relationships" [19]. Thus, in this moral sense, one can be more, or less, human. This is not to say that one literally (biologically speaking) is not human. Rather, it means that one is not fully moral in the way that ubuntu prescribes, and, thus, not fully human in this regard. Therefore, when we want to give someone high praise, we may say that someone has ubuntu[11] [19].

Fainos Mangena [31] notes that Martin H. Prozesky [43] has identified ten traits that are characteristic of ubuntu: humaneness, gentleness, hospitality, empathy or taking trouble for others, deep kindness, friendliness, generosity, vulnerability, toughness and compassion. This list, however, is not exhaustive. What is vital, however, is that these traits are exhibited through interdependent relationships with other humans or, as Mogobe Ramose [44, 45] terms as "humane relations". These humane relations are established by recognising the human-ness of others, and are characterised by human equality, reciprocity, and solidarity [13]. In other words, we are human beings only in relation to other human beings. As Ramose puts things in an almost poetic turn of phrase "one human being is deemed to be the same thing, namely, a human being in relation to another human being" [45: 99].

Thus, this understanding of what it means to be human can be, as was noted above, characterised as a perfectionist account: through displaying "other regarding" [19] traits in the context of interdependent relationships, we become more human. Thus, in becoming more human, we become morally better versions of ourselves. The notion to strive to become more human is particularly important in ubuntu philosophy. So much so that Augustine Shutte writes that according to ubuntu philosophy, we are actually morally obligated to become fully human, stating that "[our] deepest moral obligation is to become more fully human. And this means entering more and more deeply into community with others" [50: 30].

Notably, such a conception of what it means to be human stands in stark contrast to Western understandings that have typically dominated academia [38]. This is because most Western accounts have a strong focus on individual goods and individual autonomy as grounding for what it means to be human [60]. For example, and as noted by Munyaradzi Felix Murove: "Cartesian rationality has been seen as representative of modern western individualism which emphasizes the individual's incommunicability and singularity as something indispensable to what it means to be a person" [38: 42]. According to ubuntu, however, what it means to be human "is not an incorrigible property of the individual but something that is shared with others and finds nourishment and flourishing in relationships with others" [38: 42].

Now having an understanding of what it means to be fully human in ubuntu philosophy, we may consider how, from the perspective of ubuntu, the crowding out of human relations by robot relations may be morally concerning. Given ubuntu's emphasis on humane, or interdependent, relations with other human beings, this approach to ethics provides an interesting, and strong, framework to analyse why we should be concerned with robots replacing, and possibly crowding out, human relations.

5 We cannot become fully human through relations with humanoid robots

Given that, according to ubuntu, we become more fully human through interdependent, or humane, relations with other human beings, the question arises: what does this perspective imply for someone, such as Chuck, who has

[10] Perfectionist ethics relates to ethical theories that "direct each human being to perfect himself as much as possible, or at least to some threshold level" [59].

[11] This is similar to when members of the Jewish community sometimes use the Yiddish expression whereby they say that somebody is a real "Mensch", which also means "human" but has the intended meaning that they are a good person with a great character [55].

replaced a human partner with a robotic one? Does this impact Chuck's potential to become more fully human given that, according to ubuntu, one can be more or less human (as discussed in Sect. 4)? In the following section, I provide an argument for why we cannot become more human through relations with humanoid robots and, therefore, cannot become more moral versions of ourselves within these robotic relations. Formulating this argument allows me to provide an ubuntu perspective on why we should be concerned about robots crowding out human relations, thus adding to the already variegated discussion that surrounds this concern. The argument comprises of two premises and a conclusion, each of which I will state, and then elaborate upon in relation to the sections above.

5.1 Premise 1: we become more fully human through humane relations with other human beings

As was noted above, there is no single way to explain how one becomes fully human in ubuntu philosophy. However, the essence is the same i.e., by having other regarding traits or characteristics within the context of interdependent, or humane, relationships. There is no exhaustive list of what these traits or characteristics actually are. As such, I will focus on the characteristics of human equality, reciprocity, and solidarity, upon which Gädeke [21] focuses. Gädeke [21] does not explicitly define these terms individually. However, it is stated that these terms specifically reflect the idea that "one human being is deemed to be the same thing, namely, a human being in relation to another human being" [45: 99]. I specifically focus on these characteristics because they lend themselves well to being applied in the context of human–robot relations, thus making my arguments clear.

Returning to the premise, what is important to note here is that one can only experience *genuinely* human equality, reciprocity, and solidarity with another human being. Thus, one can only have humane relations with other human beings, meaning that one can only really become more fully human through relations with other human beings.

Thinking about only being able to experience humane relations with human beings, takes me to my next premise as I begin to think about whether we could have humane relations with humanoid robots, given the tendency we have to anthropomorphise and emotionally bond with them in a humanlike way.

5.2 Premise 2: we cannot have humane relations with humanoid robots

Humanoid robots are not human. When thinking about what it means to be human, we may consider the topic from a purely biological perspective i.e., we are human beings because we are a part of the human species. However, debates surrounding what it means to be human also consider capacities humans have, that make them distinct from other species. For example, Jeremy Waldron [57] argues that what makes us equally human is, ultimately, "personal autonomy, the ability to reason, the capacity for moral thought and action, and the capacity for love". Which capacities are most important and why is, however, disputed.

As far as certain capacities are concerned, humanoid robots may be able to imitate humanlike capacities. For example, thinking about the capacities mentioned above, a robot could behave as if it loves someone. Harmony may, for example, behave as if she loves Chuck. These robots, however, do not actually have the capacity to love a human. Thus, the relationship between a human and a robot is unidirectional in nature: although a human may build an emotional bond with a robot, and possibly feel a loving sentiment towards it, the robot cannot reciprocate this sentiment. This is because robots do not have the capacity feel emotions, such as love [16, 47].

Regarding autonomy, robots may have functional autonomy, in the sense that they can, to an extent, perform some tasks on their own. Thus, a robot may *seem* to have personal autonomy. However, functional autonomy does not equate to the autonomous agency humans beings have, since the autonomous agency human beings have refers to "agency involving a certain amount of independent thinking and reasoning guided by some particular outlook on life, the capacity to reflect self-critically on one's actions and decisions, and so on" [39: 54]. Thus, in this regard, robots cannot be said to be autonomous, the way in which humans are autonomous.

Regarding rationality, some put forward that self-consciousness is a necessary requirement for rational thought: "rationality requires self-knowledge which itself implies self-consciousness" [51]. Currently, robots are not self-conscious and, therefore, from this perspective, cannot be said to be rational [51]. And Dieter Schönecker, from a Kantian perspective, argues that robots cannot be said to even think the way in which humans do, thus they cannot have any rational thoughts [48]. We can also argue that current robots do not have the capacity for moral thought and action, the way humans do i.e., they are not moral agents, the way human beings are, since robots cannot be considered to be full moral agents. According to Peter Asaro, considering today's technology, robots could possibly have "dynamic moral intelligence", meaning that an ethical system has been designed into the robot. However, these robots are not full moral agents, given that full moral agency would require "further elements such as consciousness, self-awareness, the ability to feel pain or fear death, reflexive deliberation and evaluation of its own ethical system and moral judgements,

etc."[12] [1: 11]. Moreover, Coeckelbergh [8] notes that rationality is a condition for moral agency. As such, if robots cannot be considered rational, then they cannot be considered as moral agents. Rationality is a condition for moral agency.

Thinking about certain capacities that one needs to have to be considered human, brings up objections about human beings who may not have these capacities, or the fact that some human beings have these capacities in varying degrees. In this regard, it can be argued that what matters is the fact that, biologically speaking, human beings share organic features that enable them to at least develop these relevant capacities [40]. Robots, however, are not biologically human. Thus, they cannot be said to currently have the potential to develop these capacities. Therefore, they cannot be considered to be human, if we consider a capacities approach to what it means to be human.

In an attempt to create artificial intelligences (AIs) and robots that can possibly have human capacities, however, there are some on-going research projects that are aimed at reverse engineering the human brain so as to create human-like artificial intelligence, such that we could see AIs and robots with human capacities. One such is example is the EU-funded Human Brain Project, at least as that project was conceived at its beginning.[13] If such projects are indeed ultimately successful, perhaps then we could create artificially intelligent robots that are indistinguishable from humans as far as their capacities are concerned.

If robots were to have capacities typically associated with what it means to be human, would this then call into question what it means to be human, and whether such robots could be seen as members of the human species? This is an interesting and very important debate, and the subject matter of a lot of fascinating science fiction. However, this paper focuses exclusively on *current* robotic technology. Since we do not have robots that can be biologically a part of the human species, nor do we have robots that genuinely have human capacities, we may argue that present-day humanoid robots are not human[14] in both these senses. Returning to premise 2, since humanoid robots are not human, we cannot have humane relations with them, because relations with robots cannot be characterised by *human* equality, solidarity and reciprocity. I will consider each characteristic to make clear why this is the case.

Firstly, the relation cannot be characterised by human *equality* given that these humanoid robots are not themselves a part of the human species. This is the case from an ubuntu perspective and, generally, from a Western perspective too, given that robots are not biologically human, nor do current robots have capacities that could grant them status as human. This was explained above. As such, we are not equal in nature.

Danaher [13] argues for the contrary view: namely, the possibility for there to be equality between humans and robots in the context of friendship. For Danaher [13], equality means that the human and the robot have similar powers or similar capacities. Although many robots may not now have similar powers or capacities, it is not a technological impossibility that they may one day do so. However, given that I am focused on current humanoid robots, it is safe to say that we do not *currently* have robots with similar powers and capacities as compared to human beings. As Danaher [13: 10] himself notes, as things are now, "… we are their masters and they are our creations. Until they achieve some greater-than-human powers, they will always be subservient to us". This is not to say that human beings necessarily treat these robots as being subservient. Someone such as Chuck may not. However, that we have created and designed them for our own *use,* means that humans and robots do not have equal standing.

Moreover, Nyholm [39] notes that the kind of equality we demand in the context of friendship rather relates to equality in terms of equal moral standing. Helen Ryland [46] argues in a similar way. If, for there to be genuine equality between a human and a robot, it would mean that humans and robots need to have equal moral standing, then it becomes difficult to see (at least currently) how there could be genuine equality between humans and robots. As Nyholm [39] points out, in our current society, inequality in rights and moral status remains between humans and robots, and this may remain the case. At least this would be so if Bryson [5] is right that robots will always be—or are always likely to be—property of human beings, who own and are able to buy and sell the robots.

Secondly, although humanoid robots can interact with us in an apparently reciprocal way (they can talk back to us, for example, or imitate human emotions), this reciprocity is not

[12] The topic of rational thought and artificial moral agency in artificial intelligence and robotics is a contested one. This is, therefore, a limited discussion which focuses on some authors who negate the presence of these capacities in robots, since this allows me to formulate the argument I put forward in this paper. Someone who considers the possibility of rationality in machines from a different perspective is Tshilidzi Marwala [32] who argues that machines can be more rational than humans. Someone who argues for an understanding of robots as moral agents is John Sullins [53]. Coeckelbergh [8] argues for the notion of robots *appearing* as moral agents.

[13] It should be noted that during the last few years, the initial ambitions of the project have become a little less ambitious [54].

[14] In light of development that sees AI and robots becoming more human, it is also interesting to think about ways in which humans may merge with technology (such as with brain implants, for example). Humans may become more like cyborgs and, subsequently, more like robots. While robots are becoming more human, could we human beings become more like robots? However, someone such as Andy Clark [7] argues that we are, already, cyborgs given our utilisation of various kinds of technology.

indicative of *genuine* human sentiments, since robots only simulate human behaviour. As such, there is no genuine *reciprocity*. This is due to the unidirectional nature of relations with robots. As was stated in Sect. 2.2, relationships with robots are "unidirectional emotional bonds initiated from the human user" [16: 593, see also 47]. For example, we may relate to a robot and come to care for a robot, but this robot does not care for us. It does not reciprocate this genuine human sentiment because it does not have the capacity to do so. Any interaction on the robot's part is (at least currently) simulated behavior. Since the foundation of being human in ubuntu rests upon other regarding characteristics in the context of interdependent relationships, then reciprocity is important. For a human could show other regarding characteristics towards a robot (such as care), but a robot cannot genuinely reciprocate this other regarding characteristic. It can only imitate behaviour that would simulate care.

Thirdly, there is also no human *solidarity*. If we treat humanoid robots in anthropomorphising ways, we could possibly identify with them as human (because we view them and relate to them as human) and, therefore, feel some sense of solidarity with them [60]. Thaddeus Metz [35: 393] states that solidarity requires "attitudes such as affections and emotions being invested in others". Thus, given the potential to anthropomorphise and emotionally bond with humanoid robots, a human being could have such solidarity with a robot. However, this solidarity cannot be reciprocated, given that robots do not have such "attitudes such as affections and emotions" that they could invest in a human being. Moreover, how can something which is not human, have an understanding of what it means to be human, such that they can feel solidarity with other humans? There would need to be some kind of mutual understanding here, where the robot essentially understands what it means to be human and, therefore, identify with someone as a human.

5.3 Conclusion: we cannot become more fully human through relations with humanoid robots

Although we can relate to, and interact with, humanoid robots as if they were human, we cannot become fully human through these relations, because they are not *humane* relations. If we understand humane relations to be characterised by *human equality, reciprocity,* and *solidarity*, then we cannot experience such humane relations with humanoid robots, due to the reasons provided above.

This argument may seem limiting. Could robots not help us become human in an instrumental way i.e., by helping us develop skills that would help us to interact socially with other human beings which, in turn, could help us to become more fully human? As Tony J. Prescott & Julie M. Robillard [42: 9] note: "social robots can support the acquisition of social skills, act as catalysts for forming relationships with other people, and bolster feelings of self-worth that could encourage relationship seeking".

For example, this is the intention behind the robot, Kaspar, that is designed to "open up autistic children to social interaction with other human beings" [40: 411]. In opening them up to social interaction with other human beings, this creates more opportunities for these children to have humane relations with others as they grow up. In this way, Kaspar the robot could be seen to help these children in becoming fully human from an ubuntu perspective i.e., aid them in developing their moral character. The potential for robots to support human–human interaction is supported by studies that found that social robots "prompted conversations between residents [of an old adult community] and drew them into the community space" [42: 7].

This may also be claimed to be the case with sex robots. Some argue that sex robots could be a therapeutic tool used to treat victims of sexual abuse. Neil McArthur [33: 41], for example, states that "people who have experienced sexual trauma often find it difficult to form intimate relationships. Sex robots might help people overcome such trauma through sexual experiences that are safe and controlled". David Levy [29] has argued that sex robots could be used more generally for people who experience "psychosexual hang-ups". In both cases, robots could help people to interact more with other human beings and, therefore, develop interdependent relations with them. Thus, from an ubuntu perspective, robots could be seen to help in our becoming more human. In this regard, robots can be seen as mediators between human beings in that they help shape human relations. From this perspective of technological mediation, robots should not be seen in opposition to human beings, but should be seen as extensions of human beings, and may be part of what it means to be human in a technological world [58].

In response to this, I argue that even if this may be a possibility (that robots can mediate relations between human beings and, therefore, help us become more human) my argument remains the same. This is because it is still the case that we cannot become more fully human through relations with robots in isolation. In light of the arguments above, it is not the interaction with the robot *itself* that would help us to become more fully human. It is the robot helping us to develop certain skills which, in turn, may help us to cultivate relations with other human beings. Accordingly, this may then create the opportunity for us to become more fully human. However, it remains the case that we cannot become more human through interactions with humanoid robots *alone*. Given this, I turn to the final point of this paper: that relations with robots, such that they crowd out human relations, are morally concerning from the perspective of ubuntu.

6 Replacing human relations with humanoid robots: an ubuntu perspective

Above, I argued that, from the perspective of ubuntu, we cannot become more human through relations with humanoid robots, because we cannot have humane relations with them. If we understand humane relations to be characterised by human equality, reciprocity, and solidarity, then we cannot experience such humane relations with humanoid robots.

Given this, I will now argue why we should be concerned about robots replacing, and possibly crowding out, human relations. As discussed in Sect. 3, there is concern about robotic relations replacing human relations. The authors discussed above have different reasons for voicing their concern, mainly by pointing out why it is important that we prioritise human relations over robotic ones: human relations are more valuable [40] and improve wellbeing, especially with regard to decreasing stress levels, reducing cognitive decline [49, 52] and helping with the development of relational autonomy [41]. Robotic relations, however, lead to social isolation [56] and may lead to people being less willing to express their moral agency [12]. They may also have a detrimental impact upon how we interact with other people [4].

Such replacement of human relations with robotic ones may occur because, as Bryson [5] points out, we have a finite amount of time to spend on forming social bonds. If this finite time is spent on forming social bonds with robots, this means we have less time to form social bonds with other humans, hence the risk of robots replacing, and crowding out, human relations.

Why is this concerning from the perspective of ubuntu? First, since we can only become more fully human through relations with human beings then, if robotic relations crowd out relations with human beings, there is less opportunity to foster interdependent relations with other human beings. Thus, this may negatively impact our potential to become more fully human. This can be seen as a moral concern since becoming fully human means becoming a more moral human being.

Second, in the context of ubuntu, there is a moral obligation to become more fully human. According to ubuntu, we have an imperative, or obligation, to "become human" [21, 45, 50]. Referring back to Shutte [50: 30], "[our] deepest moral obligation is to become more fully human. And this means entering more and more deeply into community with others". In a significant sense, replacing human relations with robots takes us out of this community with others, thus preventing us from fulfilling this important moral obligation. Thus, I argue that replacing human relations with robots such that they crowd out human relations, is morally concerning.

It could here be argued again that, instrumentally, robots could help us enter more deeply into the community with others (as was pointed out in Sect. 5.3 above). However, robots could only help us to enter more deeply into the community if we do not allow them to replace and, possibly, crowd out human relations. Moreover, if Bryson [5] is correct about us having a finite amount of time to spend on forming social relations, and we spend this finite amount of time forming relations with robots, then robots can, indeed, prevent us from entering more deeply into community with other people.

7 Conclusion

This paper has considered ethical concerns with replacing human relations with humanoid robots. I have argued that relations with humanoid robots wherein we treat them as human do not help us to become fully human, because we can only become fully human through interdependent, or humane, relations with other human beings. Should robotic relations replace and crowd out human relations, this is morally concerning given that, from the perspective of ubuntu, being fully human means being a particularly moral person. Moreover, ubuntu postulates that we have a moral obligation to become more fully human. Thus, from an ubuntu perspective, having anthropomorphising relations with humanoid robots, such that they crowd out human relations, is morally concerning.

Given the widespread interest in the development of humanoid robots, what can we ultimately take away from this conclusion? Thinking about the benefits and drawbacks of the creation and utilisation of humanoid robots is nuanced. This is not an all or nothing scenario where we can easily argue for or against their development. Rather, it is a case of thinking carefully about how we design these robots, and where in society we advocate for their use. The point here is that, given the moral concern that arises in the context of human–robot relations, we should at least be aware of how important it is to also maintain and cultivate relations with other humans. Thus, we must be careful not to allow robot relations to crowd out human ones.

Since the field of humanoid robotics is rapidly advancing, and effort is being made to make these robots as humanlike as possible so as to fulfil human social roles in society (such as sex robots, companion robots or care robots), it is important that we consider how this technology may impact us. Considering this from an ubuntu point of view provides a novel, and important, perspective.

Acknowledgements I would like to thank Sven Nyholm for his guidance and feedback provided throughout writing this paper. I would also like to thank Lily Frank, Ingrid Robeyns and Peter-Paul Verbeek for their feedback on later drafts. A thank you must also be extended to researchers in the Ethics of Socially Disruptive Technologies research programme for their feedback on presentations of this paper, as well as feedback received from various audience members at which I presented my initial ideas. Thank you, also, to two anonymous reviewers for your valuable comments and insight.

Funding This work is part of the research programme Ethics of Socially Disruptive Technologies, which is funded through the Gravitation programme of the Dutch Ministry of Education, Culture, and Science and the Netherlands Organization for Scientific Research (NWO Grant number 024.004.031).

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