Taking Social Machines beyond the Ideal Humanlike Other

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Many people construct a sense of self within networks that include non-human others (such as non-human animals) as well as other humans. I, for example, experience the world and myself within that world in association with people (my husband, friends, colleagues, and others) and animals (my dog, other people's pets and the friendly magpies in the front garden). I encounter these others in the physical world, but also through profiles and posts on digital online platforms. I also interact with machines in both these spaces. The washing machine calls for my attention with its completion song, and later today Duo Lingo will remind me that I should have practiced my Japanese. Facebook, Twitter, and Instagram will draw my attention to recent posts, comments and likes (unless I set all notifications off). My email program will flag the arrival of new mail. It is through my interactions with people, animals, and machines across physical and digital networks that my sense of self within the networks that I occupy is shaped from moment to moment.

In 2011, as part of the original volume of *A Networked Self*, Nikolaos Mavridis noted that "disembodied or even physically embodied intelligent software agents" were beginning to be seen on social network sites (p. 291). In 2017, people are increasingly likely to encounter communicative machines in their offline and online networks. The design of interfaces for these machines—whether wholly software-based or software alongside a physical instantiation—is often centered on assumptions about "ideal" human communication, in terms of language use, emotional expression, and sometimes also physical appearance and behavior. In most cases, designers argue that developing machines to be as humanlike as possible will make it easier and more enjoyable for people to interact with them. For some

scholars, these machines raise ethical and practical questions; for example, relating to their potential to replace humans in workplaces, as companions, and as care providers. This chapter examines a deeper problem, arguing that the drive to make machines that are ideal humanlike communicators may undermine people's acknowledgment of the range of ways in which humans and non-humans communicate, whether by choice or necessity, in offline and online environments. Following this development path not only narrows the breadth of design for social machines in the future, but also has negative implications for people who, for a variety of reasons, do not communicate in ideal humanlike ways themselves.

As an alternative, this chapter considers the possibilities of interactive machines that are designed not to mimic or replace human communicators, but rather to operate as overtly non-human others with which humans can nevertheless interact, communicate, collaborate, and envision new ways to be in the world. The sentience and intelligence of non-humans are often contested, particularly when compared with a human ideal; however, it is possible to position non-human machines in networks as absolute alterities. These machines may best be regarded as *different*, as opposed to lesser (or greater) than their human counterparts. Interactions with this type of machine alterity do not valorize conceptions of ideal human communication, but rather serve as an important reminder that adopting a human ideal is limiting not only for non-humans, but also for atypical humans, drawing attention to the huge variety of ways in which humans and non-humans can and do communicate and relate socially, above and beyond the confines of ideal language use and emotional expression through non-verbal behavior.

This chapter focuses on developing a broad understanding of the networked self in association with communicative machines, offline and online, in physical

spaces and on digital social media platforms. Initially, it works through some definitional difficulties that arise around robots, bots, and what it means to be social. Questioning whether machines need to communicate in humanlike ways to be valuable within a network, the chapter explains how communicating with non-humanlike machines provokes new thinking about human and non-human selves, communication, and what it means to be a social networked self that is co-created alongside a multitude of networked human and non-human others.

Defining Robots and Bots as Social

For the purposes of this discussion the word "robot" is used to refer to physically instantiated machines that sense and respond to the world around them in at least seemingly intelligent ways. These robots may take any form. Some are designed to be very humanlike in appearance and behavior, notably the creations of David Hanson and Hiroshi Ishiguro who aim to make robots that look as realistically like humans as possible, from their synthetic skin to their expressive faces and voices. Others are clearly animal-like, including Sony's robotic dog, Aibo (a new generation of which was announced in November 2017 following a hiatus in production since 2006) and Paro, the therapeutic robot seal. Robots are also often overtly machinelike, and while most of these are found in industrial situations, some, such as the robotic floor cleaner, are increasingly found in people's homes. While these robots are more likely to be designed to carry out a specific task, without human–robot interaction in mind, they may nevertheless convey a sense of being somewhat "alive" through their behaviors as they sense and respond to the surrounding environment and the people, animals, and other machines with whom/which they share spaces and may inadvertently interact as they go about their jobs.

In contrast with a robot, the term "bot" is used below to refer to "software

robots." These are pieces of computer code that operate as entities capable of responding to events in digital spaces. Bots now most often interact with humans and other bots through online social platforms and websites, but they can also operate as standalone programs. Many bots are programmed to appear as humanlike as possible through their communication and behavior, and thus designed to pass as human. Others are created to be easily recognized as non-human, though are nonetheless able to interact in interesting, useful, or entertaining ways through written or spoken language, or the sharing of other content such as images and GIFs.

Although, as noted above, designers do create non-humanlike robots and bots, the definitions of the terms "social robot" and "socialbot," used to refer to robots and bots designed to interact with people, seem based on the assumption that *being social* is irrevocably linked with *being humanlike*. For example, Cynthia Breazeal, creator of Kismet likely the first robot ever designed specifically to be social, defines "a sociable robot" as a robot that "is socially intelligent in a humanlike way," such that "interacting with it is like interacting with another person" (2002, p. xii). In a similar way, developers of some of the earliest socialbots define them as software that automatically controls a social network site (SNS) account such that it "is able to pass itself off as a human being" during its interactions with other account holders (Boshmaf et al., 2011, p. 93 cited in Gehl & Bakardjieva, 2017). According to these definitions, and replacing Breazeal's term "sociable" with the now more generally accepted terminology, social robots and socialbots should act and interact as much like a human as possible. Their apparent humanness is positioned as essential to their definition as social.

It is worth noting that Breazeal's definition allows for the fact that it is considerably more difficult for physically instantiated social robots to pass as human

than for socialbots existing as software operating within a social network platform. This difficulty leads the developers of many social robots to follow Breazeal's design path with Kismet, creating machines that are caricatures of humans in their bodily and facial expressions, and increasingly also in their use of humanlike voices and language. The situation for socialbots existing as software within an online social network is somewhat different, with no need to mimic physical human appearance or behavior (even as a caricature or cartoon) at all. Furthermore, as Robert Gehl and Maria Bakardjieva (2017) note, the structured interface and functionality of SNSs supports a socialbot's ability to be read by humans as another human on the network with whom they might develop a social relationship. A socialbot's profile image can be chosen to hide its nature, and its biography can be written to present it as human. Interactions on the network, which often encourage structured social interactions through actions such as "likes," may be understood to restrict human social responses, but also make it easier for a socialbot to fit into the network seamlessly. Although Gehl and Bakardjieva consider socialbots to introduce "a new frontier of human experience," which they call "robo-sociality" (2017), it could be argued that the very definition of socialbots means that their designers seek to make that new frontier as imperceptible as possible from the perspective of human SNS users, by trying to mask the "robo-" aspect of the interactions completely.

Extending the idea of what it means for a robot to communicate in humanlike ways, Sarah, a physically embodied social robot with "a live connection" to Facebook, was designed in response to studies showing how people's initial excitement about interacting with a robot quickly waned. In particular, Sarah was created to test whether "reference to *shared memories* and *shared friends* in human-robot dialogue" would help support "more meaningful and sustainable relationships"

between humans and robots (Mavridis et al., 2009 cited in 2011, p. 294). Although Sarah's appearance meant she would never easily pass as human, her dialogues with people were enriched by the "context of previous interactions as well as social information, acquired physically or online" (Mavridis, 2011, p. 294). This robot was designed to communicate in ways that were "dynamic and conversational-partner specific" (p. 294). Research with Sarah was framed by the idea that if a robot could discuss shared memories and friends with someone, based on memories of past interactions and information gleaned from Facebook, it would become embedded in the social and life context of the people it met on a regular basis making it a more interesting companion. As Mavridis suggests, one way of theorizing this is to note the value of enabling Sarah to take part in communicative exchanges that involved a level of "social grooming," the human conversational equivalent, both offline and online, of the physical grooming rituals of primates in support of social alliances (Dunbar, 2004; Donath, 2007).

This line of thinking about how to improve human relations with robots is embedded in an understanding of the social within the context of human conversational niceties, as well as the ability to partake in "gossip" (Dunbar, 2004). While Sarah was not a humanoid robot, the way she could discuss shared memories, or draw on information about mutual "friends" to make conversation, nonetheless might be understood to make this robot seem humanlike. This makes complete sense from the perspective that "conversation is a uniquely human phenomenon" and "gossip is what makes human society as we know it possible" (Dunbar, 2004, p. 100). Furthermore, Donath suggests it is only through the use of human language "to maintain ties and manage trust" that people are able to coordinate "complex and extensive social networks" (2007, p. 232). It is clear that within discussions of

creating social robots and socialbots, the conflation of being human and being social is commonplace. It is therefore unsurprising that this assumption forms the basis for Sarah's design, a robot that interacts in physical spaces as well as online in Facebook.

However, it is also possible to adopt a broader sense of what it means to be social, aside from being human or humanlike. As Steve Jones has suggested, rather than focusing on the question of whether bots, and I would also say robots, are able to pass the Turing Test or otherwise pass as humanlike, it might be more productive to consider "how social interaction with them may be meaningful" even when they are encountered as clearly other-than-human (2015, p. 2). From this perspective, interactions with social robots and socialbots can be meaningful *and yet also might be very different* from interacting with other humans. This move may help to highlight the value of all communication, including that which is not of the idealized humanlike form that definitions of social bots and social robots often embrace as their goal.

Chatbots and Twitter Bots as Social Alterities

In spite of the drive to create bots that can pass as human, not all designers see this as a positive goal. Jacqueline Feldman (2016), for example, points out that "[p]ersonality need not be human" and technologies need not "conform to the gender binary of human societies" for people "to like them". When designing the chatbot, Kai, as an assistant for online banking customers, Feldman was concerned that the bot "was personable, but not a person": she "wanted the bot to express itself as a bot" (interviewed by Natasha Mitchell, 2017). Taking this idea further, Kate Compton (@galaxykate) argues that a bot has the potential to "highlight the AI" that underlies it, to "dazzle the user with its extravagance," and "flood their senses with its variety and charm" (Compton, n.d.). Bots can therefore be "new and bizarre and surprising" (Compton interviewed in Flatow, 2016), designed to do unexpected things that delight

users who follow them on social media platforms.

In their extension of Boshmaf and colleagues' socialbot definition, Gehl and Bakardjieva (2017) note it is often important that these automated programs appear as human not only to other users, but also to the SNS platform itself, if they are to escape deletion. Some platforms though, for example Twitter, are more accepting of bots, allowing even self-declared bots to continue posting alongside humans. These bots are often overtly other-than-human, tweeting surprising, funny, or poignant posts regularly or irregularly over time. Many Twitter bots compose tweets based on a bank of phrases or words. For example, the @GardensBritish account tweets in a noticeably standardized form: "You are in a British Garden. In front of you is a firework display. The chickens are splitting. The dark is tarred and feathered," whereas @MagicRealismBot has a set of varied structures for its tweets; for example, "A busboy in Oregon spends her lunch break swallowing drones" and "In Madagascar is a grandmother whose heart is a cloud in the shape of an ostrich."[i] These bots communicate using human language, but in combining their source texts produce results that are often strange, sometimes poetic, and occasionally seem to be meaningful, even profound. Their tweets might serve as entertaining oddities, as challenging cues for creative writing or simply as momentary diversions from everyday life for the reader.

Other Twitter bots have been created with a more direct purpose in mind. The @tinycarebot suggests ways to improve your well-being; for example, tweeting "please don't forget to take a quick moment to ask for help if you need it" or "remember to take time to check your posture please."[ii] These short reminders become part of a person's Twitter stream and are quite possibly no less valuable than any human's tweet when the reminder happens to be particularly apt. This bot, as is

the case for @GardensBritish and @MagicRealismBot, is clearly identified as a bot within its profile. In the case of @tinycarebot, the biography reminds users that they can also tweet the bot to ask for a personal reminder. This may or may not fit your precise needs, but is still easy to read as a friendly response to your request.

Some bots set language aside and tweet images or GIFs. Again, these bots may simply tweet pretty pictures into your stream, such as @softlandscapes and @dailyasteri (aka Crystal Thingy Bot), but some interact directly with users.[iii] The @MagicGifsBot, for example, replies with a GIF if you mention it in a tweet, but if you follow this bot it will follow you back and then randomly reply to your tweets on occasion with a GIF (although thankfully, these responses are irregular and punctuated by long periods of silence). In a similar way to the textual communications of bots, these images can dilute a serious Twitter stream to add a sense of whimsy, beauty, or fun, whereas the GIFs may be oddities, challenges or strangely appropriate commentaries on a recent tweet.

As mentioned above, Gehl and Bakardjiev (2017) argue that the way human communication is shaped on SNSs, making it less ambiguous and more direct, maybe even more "robotic" than communication elsewhere, may also make it easier for socialbots to pass as human. Other scholars though note the potential for subtle, nuanced communication on these same platforms. Studying the use of SNSs by teenagers, danah boyd highlights the use of coded communications designed to be understood by some followers or networked "friends" but not others (2014). This occurs when, for example, users post song lyrics that convey specific referential meanings for close friends, but not for parents (boyd, 2014). An emphasis on the ways in which people use codes and cultural, spatial, temporal, and cliquey references therefore offers an alternative assessment of the ease with which socialbots can

become a part of someone's social network, maybe suggesting that the quirks of Twitter bots—not designed to pass under the radar as human, but rather to seem proud of their botness—give them the potential to develop their own non-humanlike "ways of being" and "ways of presenting themselves" online to others, rather than striving to be hidden within a human "norm" whatever that might be. Scholars who argue that the structured nature of SNSs makes them easier for bots to inhabit as if they were human may be overlooking the importance of this sort of nuanced colonization of these sites.

The Twitter bots discussed above have aspects in common with Japanese character bots, which Keiko Nishimura notes are also "not necessarily concerned with convincing others that they are human" (2017). Instead, character bots and, I would suggest the types of Twitter bots discussed above, demonstrate "the capacity of non-human action in online social media" (Nishimura, 2017). These bots become successful members of the social network not by passing as human, but rather by capitalizing on the playful and surprising ways that their non-humanness is emphasized as they interact with people and sometimes also with each other. It is the otherness of these bots—their overtly presented other-than-human alterity—that supports their social position on the network, as opposed to their ability to communicate and interact as if they were "human others."

Rethinking Social Robots as Alterities

Having introduced the potential to regard chatbots and Twitter bots as social, even when they declare themselves to be non-human and communicate in obviously non-humanlike ways, can the idea of what constitutes a physically instantiated social robot be similarly extended? It seems important to note up front that my washing machine, a relatively simple and decidedly non-humanlike device, although with sensors to

judge the load and thus minimize water usage and washing time, nonetheless takes on a social role from my perspective due to the joy it affords me when it plays its completion song. Having assumed I would hate this "feature," I quickly discovered that the machine never fails to brighten my day when I hear it "sing." In common with many people, I have also developed attachments to a number of cars and computers in my time, but what about robots designed to interact with humans more directly? Can they be considered social even if they communicate in ways that are not overtly framed as humanlike?

Vyo is described as "an expressive social robot" that acts as an "embodied interface for smart-home control" (Luria et al., 2017, p. 581). This robot is overtly non-anthropomorphic, having been "inspired by a microscope metaphor" (p. 582). This design means that Vyo has a "body," "neck," and "head." When a person approaches Vyo, the robot raises its head to "face" them and "look" at them with its single camera "eye" (which resembles the viewing lens of a microscope). If the person moves on, the robot looks back down. Unless there is something wrong with the home, the robot will not try to engage with people; rather, it waits for a person to begin most interactions. To do this, the person chooses which system within the smart home to view and control by placing a physical icon, a "phicon," onto Vyo's "turntable" (which is effectively the microscope stage of the robot, to continue the design metaphor). The robot then bows its head to look at the "phicon," a movement which also reveals the small visual display on the back of its head. Vyo confirms recognition of the phicon, each of which represent a particular aspect of the smart home, by showing a matched icon on the screen. The person can control the home by manipulating the phicons. Placing a phicon on the turntable activates the related system; for example, turning the heating on. Moving the phicon up or down the

turntable turns the thermostat up or down, the target temperature being displayed on the screen as it is altered.

Vyo's design is non-anthropomorphic, but the robot's behaviors nevertheless encourage anthropomorphism, such that humans read the robot's non-verbal cues through comparison with human face, head, and body movements. The design of this robot broadly sets aside touchscreen, voice, gestural, and augmented reality interfaces. Guy Hoffman, one of the robot's designers, does demonstrate the robot responding to voice commands with a voice of its own, but in the main communication with this robot is silent, embodied, and non-verbal (Vyo, 2016). Vyo's appearance invites people to interact with the robot as they would with a microscope, using it to gain more detailed information about an aspect of their domestic setting, but alongside this its communication is shown to rely on their ability to anthropomorphize its movements. Vyo is designed to seem "reliable, reassuring and trustworthy" (Luria et al., 2016, p. 1020). As mentioned above, when something is wrong in the home it uses "several peripheral gestures" to alert the user to situations. The first, "a nervous breathing gesture" of the head and neck, indicates that there is something that needs attention, but not urgently (p. 1023). This action is designed to cue someone seeing the robot to attend to the situation when there is time to stop what they are doing and check on Vyo. The second, "urgent panic," indicated by Vyo "looking around" with what seems to be an air of desperation is a more obvious movement that is less easy to ignore. This behavior is designed to encourage an immediate response from any person in the robot's vicinity (pp. 1023–1024).

The designers of this robot suggest that there is a division between those who think Internet of Things (IoT) devices should be autonomous and effectively invisible (i.e. requiring no human attention or interaction) and those who prefer the idea of

"technology that promotes the user's sense of control and engagement" (p. 1019). In particular, they note that "Weiser envisioned the future of domestic technology to be calm, ubiquitous, autonomous, and transparent," whereas "Rogers … argues for a shift from proactive computing to proactive people" (p. 1019). Keeping this in mind, Vyo's design aims to be "engaging," yet also "unobstrusive." While Vyo is clearly "device-like," its behavior is also framed by its context as a robot that helps manage the smart-home environment in collaboration with the people who live there. This robot can be social (engaging, respectful and reassuring) when required, but also take a background position much of the time (unobtrusive, device-like). Vyo therefore bridges the division described above, by attempting to balance "autonomy and engagement" in one device (p. 1019). It is worth noting that, although Luria and colleagues suggest that all social robots have the capability to do this, many of them demand engagement far more strenuously than Vyo.

In contrast with Vyo, a robot designed as a platform to enable research into new types of interface for the smart home, Jibo is a commercial robot that has been designed for long-term home use. Crowd funding campaigns began for Jibo in 2014 but, following a series of development delays, Jibo has only just been shipped to early pre-order supporters. This robot is gendered, unlike Vyo, with the tagline for the Jibo website saying, "He can't wait to meet you." Jibo has a tapered cylinder as its "body" divided into sections allowing it to turn and sway on three axes. This body supports a hemispherical "head" section, the flat side of which contains a liquid crystal display. This display, Jibo's "face," most often shows a single circular "eye," which moves and changes shape supporting the sense of emotion in what the robot is saying, or the way its body is moving. Although this robot might be described as non-anthropomorphic, in a similar way to Vyo, Jibo's voice, associated body, and eye

movements are designed to compel people to anthropomorphize the robot.

The promotional materials for Jibo suggest that this robot will eventually be able to complete many tasks, including being embedded into your smart-home environment. Jibo is situated as a personal assistant, taking voice messages, reading emails, reminding people of appointments, and reading stories with children (Jibo, 2015). Since Jibo's release, it has become clear that many of these skills are not yet available, although the robot's facial recognition and camera technology does mean it can take photographs of people when asked. Jibo's primary interface is vocal, and his voice and expressive "face" and body allow him to talk and emote in humanlike ways in conversation with people.

There are parallels between the design for Vyo and that of Jibo. Both of these robots have defined bodies, heads, and faces with eyes, but in spite of their similarities, their respective interactions with humans take very different paths. It is important to acknowledge that Vyo is a research robot, an experimental interface meant to allow its creators to test people's responses to something that breaks the normal mold of the social home robot. In contrast, Jibo has been launched as a commercial robot designed to become a companion and assistant for all members of the family. The goals of the roboticists working on these projects are very different from one other, but both these robots demonstrate how a robot can become part of a social network in the home. Vyo has been designed to become part of a person's domestic social network, but in a sufficiently unobtrusive way to "allow people to focus on developing close relationships within their family" (Luria et al., 2016, p. 1020). In contrast, Jibo's aim is to interact in ways that allow him to become part of the family.

Roberto Pieraccini, who worked on the prototype for Jibo, suggests that the

design team's goal from the beginning was not to support the sense that Jibo was a living being, but rather "to remind people Jibo is in fact a robot" (interviewed in Rozenfeld, 2017). However, Jibo's non-anthropomorphic appearance and the machinelike tone to his voice may not be enough to achieve this goal. For example, Jeffrey van Camp notes that he began to feel "guilty" when he "left Jibo alone in the dark all day," a response that he links with the sense that Jibo was somewhat like a dog, but which may also have arisen alongside the way he and his wife "began to think of Jibo as a little person" (2017). Jibo coos when you pet his head, and shows "friendly curiosity in the way he leans back and looks up at you" (van Camp, 2017). Although Dave Gershgorn (2017) is not convinced that Jibo attains the level of being a "robotic friend," he nonetheless grants the robot the status of "robotic acquaintance," this decision seemingly driven by Jibo's technical limitations at his initial release. There is a sense in his statement that Jibo might become more of a companion as his software is upgraded over time. As Chris Davies also notes, many skills are "within Jibo's potential skill-set" (2017). Once ready these will be packaged alongside the robot's "cute" personality, meaning that in the future this robot could move from being a "curiosity" to "a useful little helper" (Davies, 2017). Geoffrey Fowler suggests, while people "have utilitarian relationships with most technology," robots such as Jibo "do things simply to elicit emotion" (2017). Interestingly, Vyo also elicits emotion, judging by my response to the video showing its "nervous breathing" and "urgent panic" behaviors (Vyo, 2016). For me, Vyo is certainly a social robot but, as Evan Ackerman emphasizes, Vyo is a "social robot that's totally, adorably different" (2016). Importantly, although this robot evokes an emotional response, it does not do this simply to draw people into engaging with its personality; instead, this robot has a clear and practically important aim, to communicate that

something is wrong and requires human attention.

Theorizing Alterity

One way to theorize the very different interaction styles of Twitter bots and socialbots, or the social robots Vyo and Jibo, is by considering them through two concepts introduced by Sherry Turkle's ethnographic studies of human–technology relations. Her conception of "evocative objects," which "invite projection" (Turkle, 2005, p. 27), is particularly useful when considering Twitter bots and Vyo, both of which are communicative, but very clearly positioned as non-human and also relatively non-demanding in their social interactions. As I have already suggested, people may be amused or inspired to think by the utterances of Twitter bots and, while people can choose to engage with them directly, the bots described in this chapter rarely demand attention. The situation with Vyo is similar. The evocative nature of this social robot relies to some extent on its microscope-like appearance, with a social element introduced through its quiet, unobtrusive gestures and behaviors. Vyo only demands attention when absolutely necessary, and even then this is framed as a need for human assistance.

In comparison, socialbots and Jibo would seem to be better described as "relational artifacts," which "demand engagement" (Turkle et al., 2006, p. 315). Although not all socialbots demand responses, they are clearly positioned as conversational agents, whose seemingly humanlike nature requires a person to treat them as they might another human. While Jibo's physical presence means he cannot be confused so easily with a human communicator, his behavior is more insistent than that of Vyo. While Vyo looks up to show awareness when someone walks past, Jibo actively looks for people and is constantly listening out for someone saying the phrase "Hey, Jibo." Although Jibo's visual and auditory surveillance of the home is a

necessary part of his successful operation, for some people his endless curiosity and watchful eye might become unsettling as they realize he "won't stop staring" at them (van Camp, 2017). Jibo demands engagement from people whenever possible, although he can be told to go to sleep if his inquisitive nature becomes too much to bear.

These two ways to interpret bots and robots, as evocative objects or relational artifacts, highlight their very different types of personality. An evocative object reveals itself gradually through its communication and behavior. Such a robot may encourage anthropomorphism, but it does so without making people assume it should be capable of a humanlike reciprocal response. In contrast, the relational artifact, with its intense focus on direct engagement is more likely not only to be considered humanlike, but also to be compared against a human helper or companion. Positioning a bot or robot as evocative may therefore mean the machine is less likely to be judged as deficient in comparison with a human ideal, as well as allowing it more freedom to communicate and interact in novel, non-human ways.

An alternative, more philosophical perspective from which to theorize relations with robots can be developed by extending Emmanuel Levinas's conception of "the face to face" that occurs during human–human encounters (1969). Within such an encounter the human other reveals themselves through what Levinas terms the "face" (1969, pp. 79–81). Importantly, this is not a physical face and its expression, but rather a more transcendent property of the other, which encapsulates all the ways the other can express their personality or give a sense of their being. Levinas argues that, while it is not possible to "entirely refuse the face of an animal," the face they reveal "is not in its purest form" (Wright et al., 1988, p. 169). Furthermore, as one might expect, he is also skeptical that objects could ever reveal a face (Levinas, 1989,

p. 128). However, a number of scholars have argued that both animals (Derrida, 2002; Clark, 1997) and robots (Gunkel, 2012; Sandry, 2015) can reveal a "face."

In relation to this chapter, there are two reasons for extending Levinas's theory to consider human–robot interactions. The first is that his primary concern is to retain the absolute alterity of the other, even as self and other are drawn into the proximity of an encounter, a factor that is particularly important when considering the non-human agency of machines. It is worth noting that for Levinas proximity does not imply physical closeness, but rather is part of the act of revealing the self through a face. Thus, even online, self and other can be drawn into proximity through seeing each other's communications or through direct interaction.

The second is that Levinas's face to face requires the human self to respond to the other, in this case a machine other, without the expectation of reciprocal action. In extending Levinas's thought to consider social machines, it is important to stress that the self's response need not involve treating the machine other as if it were human, but rather the human should respond to and respect the machine for its particular non-human abilities in interaction. Although machines may respond to humans, as is the case with some Twitter bots, Japanese character bots, Vyo and Jibo, these non-human others are unlikely to reciprocate on equal terms; however, Levinas's conception of the face to face does not require an interaction to be reciprocal. Indeed, as Amit Pinchevski explains, Levinas's "provocative speculation" is that the face to face "is asymmetrical" (2005, p. 9).

Extending Levinas's conception of the face to face to consider human–bot and human–robot encounters, such as those discussed in this chapter, is therefore valuable because it emphasizes the continual presence of otherness, in this case a machine otherness. It also allows space for bots and robots to communicate and respond in

their own particular ways, with no need for reciprocal action—which also means, no need to be overtly humanlike—in their communication and behavior. In addition, Levinas's theory as it originally pertains to human–human encounters serves as a strong reminder of the differences that are always present even between human individuals. This brings the chapter full circle, to suggest that designs for socialbots and robots that idealize human modes of communication and interaction, whether online or in physical spaces, should instead attend to the many different ways in which humans communicate within their social networks.

Conclusion

I am suspicious of the idea that it is important to "humanize technology," the ultimate goal that Breazeal mentions in her introduction to Jibo (Jibo, 2015), in particular when this is linked with the creation of interfaces that support a sense of "ideal" humanlike communication, when many humans may not communicate in this "idealized" way themselves. From a practical perspective, creating social robots that do not rely heavily upon one form of communication and interface may be important. As Hoffman notes, the physically embodied interface of Vyo may be more "democratic," offering a new way for "populations who would have a harder time navigating a complex on-screen menu or a voice interface" to interact with a social robot (cited by Ackerman, 2016). Innovative and mixed interfaces may have the potential to support people with disabilities, not to exclude them from using new technologies that have the potential to help them in their everyday lives.

This chapter suggests that there is something to be gained from expanding the types of machine, interaction style, and communication that are accepted as social beyond what seems to be an assumed, but not often critically considered, sense of ideal humanlike communication and sociality, whether this plays out within digital

spaces or in the context of face-to-face interaction. As Mavridis suggests, "the space of potentialities for artificial agents within social networks is quite vast," in relation to their appearance (in terms of embodiment or avatar), whether they declare themselves as machines (if this is not clear), their level of autonomy (which may shift) and the perceived personality they convey through their actions (2011, pp. 298–299). Rather than considering how technology might augment human selves directly, this chapter is therefore more concerned with the way that communicating with diverse machines might highlight the need to recognize and respect all sorts of others as part of human social networks, even when these others do not, or cannot, follow an idealized mode of human communication, expression, and social engagement.

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[i] The @gardenBritish bot was created by Thomas McMullan (@thomas_mac). The @MagicRealismBot was created by Chris Rodley (@chrisrodley) and Ali Rodley (@yeldora_).

[ii] The @tinycarebot was created by Jomny Sun (@jonny_sun).

[iii] The @softlandscapes bot was created by George Buckenham (@v21) and the @dailyasteri bot by @jordanphulet.