Archaic man meets a marvellous automaton: posthumanism, social robots, archetypes

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> By the late twentieth century, our time, a mythic time, we are all chimeras, theorized and fabricated hybrids of machine and organism; in short, we are cyborgs.
>
> (Haraway 1994, p. 83)

> On the contrary, every civilized human being, however high his conscious development, is still an archaic man at the deeper levels of his psyche.
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> (Jung 1931, para. 105)

Can the archaic man survive in cyborgs? In the first instance this is an epistemological query, to do with what psychologists need to know. Jung contested the assumption that studying 'primitive' mentality is irrelevant for understanding the psychology of modern persons. 'On the contrary,' he stressed in a talk given in 1930 to a literary fraternity near Zurich (Bishop 2008), published under the title 'Archaic Man'. In the 1980s, unrelated to Jung's work and outside psychology in general, scholars began speaking of a posthuman condition. 'We are cyborgs,' declared Haraway in a now-famous piece that was first published in 1985, pointing to 'reconceptions of machine and organism as coded texts through which we engage in the play of writing and reading the world' (Haraway 1994, p. 86). By the 2000s, technological feasibilities of creating humans with machine parts and genetically enhanced bodies, as well as machines with humanlike or superhuman intelligence, started to fire debates as to whether this would dehumanise us or enhance humanness (Wilson & Haslam 2009). Either way, the survival of the archaic acquires ontological connotations, to do with beliefs about what it means to be human.

Social robotics is a 'special case' among the new technologies because it promises (or appears to promise) to populate our homes, schools, hospitals and shops with entities that have populated the imagination for millennia: a manmade humanoid automaton. However, social robots—defined as physically embodied intelligent systems that are capable of interacting with humans—can vary in physical appearance from android through creature-like to purely utilitarian. Their interactions with humans vary from limited autonomous behaviours to scenarios in which the robot is fully teleoperated by a technician. When these robots are put on the market for uses in elderly care, hospitals, childcare and more, their insertion into everyday settings raises a gamut of practical issues (ethical, legal, political, psychological) of a very different kind than the various messages historically communicated through legends of humanoid automata.

After the next section, the following two sections contrast the continuity of the core image across diverse settings with the discontinuities of its signification and significance in different contexts. It is tempting to consider the image as archetypal—though this begs the question of what exactly is an archetype, hence touches upon a protracted debate in Jungian circles that I shall leave mostly at the background in this paper. The present focus is the imaginal interface with the technology.

In the context of science and technology studies, Suchman describes human-machine reconfigurations that have primed us to an imminent realization of 'the fantasy of the sociable machine' (Suchman 2007, p. 235) and points to 'rhetorical leaps' that 'conjure into existence an imaginative landscape increasingly populated by "socially intelligent" artefacts … things that both think and feel like you and me' (ibid., p. 238). My starting point is the premise that the imaginative landscape into which these machines are stepping is prefigured by myth, legends and modern science fiction that have populated the 'popular' imagination with marvellous automata. But while social robotics might appear to be realising an archetypal fantasy, this technology too creates new realities.

Locating analytical psychology in relation to posthumanism

Like the terms postmodernism and postmodern, posthumanism and posthuman elude a precise definition. The terminology covers a loose constellation of scholarly critiques on emerging worldviews and lifestyles associated with the 'new' technologies: 'the posthuman view configures human being so that it can be seamlessly articulated with intelligent machines' (Hayles 2008, p. 3). Kurzweil's (2005) subtitle, *The Singularity Is Near: When Humans Transcend Biology*, encapsulates the critiqued vision at its extreme while Hayles' (2008) book, *How We became Posthuman*, first published in 1999, exemplifies the critique. Haraway commented in an interview that Hayles' book is located 'at the right interface—the place where people meet IT apparatuses, where worlds get reconstructed as information' (Gane & Haraway 2006, p. 140). Living at this interface has repercussions for mental health (e.g. Tyminski 2015, Rytovaara 2015) as well as changing clinical practice and training (Merchant 2016). However, a distinction may be drawn between three thematic domains, which are discrete yet flow into each other:

Theme I: Critical explorations of how new technologies are rewriting our understanding of the world and therefore of human existence.

Theme II: Futuristic predictions about actual outcomes of the technologized world, including claims that human existence itself would be altered.

Theme III*:* Investigations and commentaries concerning the effects of present-day technologies on individuals' lives (including the kind of phenomena of immediate concern in psychotherapy).

The relevance for analytical psychology differs across those domains. Claims that convergent technologies are changing our collective consciousness (Theme I) do not inherently challenge Jung's insistence that archetypes are 'structural elements of the human psyche in general, and, like the

morphological elements of the human body, they are *inherited*' (Jung 1951, para. 262). The archaic man that has survived into modernity can presumably carry into future eons and new understandings of existence. Rather, innatism has been challenged from within analytical psychology by analysts who draw upon recent advances in neuroscience and cognitive science towards revising the concept of archetypes (e.g. Knox 2009, Hogenson 2009).

The archaic man might become an endangered species for a different reason in the context of Theme II, under which I cluster predictions that the convergence of new technologies—artificial intelligence (AI), information and communication technologies (ICT), biotechnology, genetic manipulation, nanotechnology, robotics—will profoundly reconfigure human existence itself, not merely human understanding:

> The Singularity will allow us to transcend these limitations of our biological bodies and brains. We will gain power over our fates. Our mortality will be in our own hands. … By the end of this century, the nonbiological portion of our intelligence will be trillions of trillions of times more powerful than unaided human intelligence.
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> (Kurzweil 2005, p. 23)

If this happens, the classic Jungian model would become redundant even if it were correct all along, since it grounds the psyche in the body. This grounding is even stronger in Jung's discussion of the *unus mundus* premise, namely the assumption of unity underlying the multiplicity of the empirical world. While some interpret it as assigning archetypes to the structure of the universe itself (cf. Atmanspacher and Fach 2013), for Jung-the-psychologist a key point was 'the undeniable fact that causal connections exist between the psyche and the body,' pointing to their unitary nature (Jung 1955-56, para. 767). The recurrent motifs that Jung regarded as archetypal are symbolic representations of commonalities of the bodily lived experience of human beings who, by the fact of being alive, experience the world within the constraints of human biology. 'In reality we can never legitimately cut loose from our archetypal foundations … any more than we can rid ourselves of our body and its organs without committing suicide,' averred Jung (1951, para. 267). If future humans transcend their bodies, as a species we might evolve out of those archaic traits postulated by Jung.

We are not there yet as a species, but as a society we seem to have arrived at what Turkle (2011) calls the 'robotic moment', a situation marked by a readiness to accept robots as relationship partners. She attributes this readiness to a loss of authenticity in relationships that is brought about by the isolating effect of social media, the internet and communication devices such as mobile phones (Theme III). The relevance for the theory and practice of analytical psychology thus depends also on which particular technologies are held in focus. Whereas ICT may be linked to issues of mental health, and brain imaging technology enables advances in neuroscience that contribute to practitioners' knowledge, it is difficult to see a direct relevance of nanotechnology.

Finally, a distinction ought to be drawn between a science (as a body of knowledge) and the technologies that make scientific knowledge possible. Sociologist of science Latour (1999) has demonstrated how objects of scientific study, which are taken to be elements of the natural world (atoms,

microbes, molecules, neutron stars etc.), are constructed by means of specific laboratory procedures, various instruments, methods of archiving, and mathematical formulations. Likewise, archetypes as a concept come into existence by means of rational procedures, whereby 'regularities' are first abstracted from phenomena and then explained by applying intellectual tools at one's disposal. Jung applied a concept of evolution that was available to him. A century later, ideas from theoretical robotics, combined with the discovery of mirror neurons, have served as tools with which Hogenson (2009) builds his case for conceptualising archetypes as action patterns.

My topic might seem to overlap Hogenson's (ever so slightly) but my theme and present aims differ from his. This paper does not seek the truth about the nature of archetypes-as-such. My reference to robots is literally to the motif in legends and fiction, and to the actual machines that engineers build.

Marvellous automata

The earliest description of an android I could find is attributed to Lieh Tzu, a Taoist sage who lived in the 5th century B.C. A book of his teachings was compiled circa 350 B.C.. The legend, appearing in translation under the title 'A Marvellous Automaton' (Giles 1912), tells how King Mu on his journey was presented with an artificer named Yen Shih. Asked by the king to show his handiwork, Yen Shih returned the next day accompanied with what appeared to be a man. It walked with rapid strides, moving its head up and down in a natural manner. When Yen Shih touched its chin, the automaton began singing perfectly in tune. When he touched its hand, it started posturing, keeping perfect time. The king, looking on with his favourite concubine and other ladies, could hardly believe that the automaton was not a real man. Towards the performance's end, the automaton flirted with the ladies. This angered the king, and he would have put Yen Shih to death on the spot. In mortal terror, the artificer instantly pulled the automaton to pieces to show that it was but a conglomeration of leather, wood, glue and paint, variously coloured white, black, red and blue. When the artefact was reassembled, it was as good as when it was first brought in. Delighted, King Mu drew a deep breath and exclaimed, 'Can it be that human skill is really on a par with that of the Creator?' (Giles 1912, p. 92).

Superficially, the legend seems to celebrate engineering ingenuity. The text continues to tell how Pan Shu, who had created a cloud-ladder by which he could assail the heights of heaven, and Mo Ti, who had made a wooden kite which could fly for three days without coming down, never again boasted about their mechanical skill and ceased to busy themselves with the square and compasses after learning of Yen Shih's wonderful piece of work. However, Lieh Tzu's tales and fables taught Taoist philosophy. Needham interprets this legend as 'essentially a declaration of faith in naturalistic explanations of all phenomena including the behaviour of man', demonstrating the Taoists' view that neither man nor the universe requires a conscious controller (Needham 1978, p. 92). This teaching sharply contrasts the Judeo-Christian moral message of the golem legends of Central European folklore.

A golem, a clay android animated by magic, is devoid of what makes a man *human*, namely a soul, and therefore its creation has disastrous consequences (Kieval 1997). Folklorist Ausubel (cited by Kieval) proposed that the legends historically reflected cultural stresses felt by the Jewish people of Eastern Europe. Golems were created by rabbis to help the people in troubled times. The legends have a distinctly Jewish theological meaning. The Talmud describes Adam as having been created a *golem* (Hebrew: a shapeless mass) before receiving his soul. Only God can give a soul. Hence, 'A man who creates a golem is in some sense competing with God's creation of Adam' (Koven 2000, p. 219, quoting a Kabbalah scholar). In Koven's reading, the golem is 'us, but without a soul'; therefore, to 'meditate on the golem is to meditate on our own existence … understanding how monstrous we would be without a soul' (p. 220). The creation of a golem is viewed negatively—in contrast with Yen Shih's praiseworthy automaton. Whereas the automaton was animated by clever craftsmanship, golems are animated by sorcery. Even in the happy-ever-after legend of Pygmalion, the ancient Cypriote sculptor who fell in love with a beautiful statue he had made, it took a deity to animate the statue. In contrast, the Taoist legend attributes animacy to anatomy (ignoring the fact that unlike the automaton, a living organism who is taken apart cannot be reassembled and live again).

'*A Marvellous Automaton*' may lose its Taoist message when taken out of its indigenous context, but it attests to a very long history of the core image. It is tempting to attribute it to archaic relics in the psyche, and romantically to reflect that although modern lifestyles and technologies make our experiences of the world far removed from how our prehistoric ancestors experienced their existence, the distant past has not vanished. There are reasons to resist the temptation. On the one hand, it could be opined that although legends of marvellous automata are unlikely to have appeared before the invention of machines, they reproduce older manifestations of the same archetype, perhaps already represented in prehistoric humanoid artefacts. On the other hand, controversies surrounding the Upper Palaeolithic 'Venus' figurines (e.g. Nowell and Chang 2014) evince the impossibility of knowing the significance of such artefacts for their makers; and where written records exist there is a multiplicity of meanings and therefore of psychological significance.

Nevertheless, the diversity of conscious meanings does not necessarily refute Jung's (1951) hypothesis of 'autochthonous revival', namely that common unconscious dynamics account for the spontaneous recurrences of the motif. Moreover, a family resemblance among images does not necessarily mean that all of them are archetypal:

> An image can be considered archetypal when it can be shown to exist in the records of human history, in identical form and with the same meaning. Two extremes can be distinguished here: (1) The image is clearly defined and is consciously connected with a tradition. (2) The image is without doubt autochthonous, there being no possibility let alone probability of a tradition. Every degree of mutual contamination may be found between these extremes.
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> (Jung 1954, para. 352)

The familiar robot of modern science fiction is a conscious product with known precursors in legends and literary classics (and those do not exist in identical form and with the same meaning). This robot does not

qualify as archetypal if archetype is understood as strictly belonging to the second extreme—a conception which Jung seems to endorse when postulating 'an autonomous primordial image present in the preconscious makeup of the human psyche' (1948, para 396). However, in the above extract he draws a continuum ('Every degree of mutual contamination …'), not mutually exclusive categories. Elsewhere, the assumption of mutual influence is clearer apropos the mechanism of fantasies in general and literature in particular. Fantasies involve a conscious organisation of unconscious material (Jung 1952, para. 44-5). Literary fiction confronts us with 'a product of complicated psychic activities—but a product that is apparently intentional and consciously shaped' (Jung 1950, para. 134).

Robot as a semiotic object

> The constellation of a delimited (though fluid) set of connotations around 'robot' makes the talked-about robot not simply a topic of conversation but a *semiotic* object, something with meaningfulness beyond the concrete referent. … The talked-about robot has semiotic properties that are not reducible to the machine's technical properties (and vice versa).
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> (Jones 2016, p. 49)

Unless we happen to refer to a robot that actually exists, the talked-about robot exists only by virtue of being talked about. It is a semiotic object in a sense akin to C.S. Pierce's, in whose theory the semiotic object functions as a 'repository of ideas or significant forms' (Pierce [1907] quoted in Bergman 2005, p. 224) and has a triadic structure (real object–sign–interpreter). I use the phrase more loosely. As a semiotic object, 'robot' could be likened to a gravity centre that pulls towards it diverse narratives. A contrast can be drawn with the Jungian concept of cultural complexes, which are defined as 'emotionally charged aggregates of ideas and images that tend to cluster around an archetypal core and are shared by individuals within an identified collective' (Singer 2010, p. 234). Whereas Singer's definition insinuates that an archetype pre-exists the cultural complex forming around it, the 'semiotic robot' hypothesis assumes the primacy of social-psychological processes whereby discursive performances crystallise into core motifs, such as the prototypical humanoid robot that functions as a character in a story or as a trope.

As seen, similar imagery does not necessarily mean a similar psychological function, since the image can be incorporated into very different storylines. The same goes for the stories themselves. Roboticists sometimes cite iconic legends and literary classics as quasi-historical precedents of their field (e.g. Oh and Park 2014, Samani et al. 2012). However, there is a fundamental difference between the history of the craft and the psychological history of the motif. The robot as a subset of the 'double' in myths and literary fiction might serve a desire for immortality (Rank 1914/1971), and there could be additional psychological functions, none of which coincide with engineers' motivations to build automata. A psychological history would tell how vestiges of past meanings of the mythological and literary motif remain alive in the symbolic world into which roboticists' creations are stepping, and how those meanings are being challenged by the arrival of real robots.

The birth of the modern robot as a semiotic object begins with its naming. The word was introduced to science fiction in a 1921 play, *R.U.R.: Rossum's Universal Robots* by Czech author Karel Čapek, though he later revealed that it had been coined by his brother. R.U.R. robots are soulless artificial humanoids made from organic matter using a secret formula. Eventually they revolt. This storyline is by now cliché and was hardly new in Čapek's day. A translator's introduction informs that the playwright spent most of his adult life in a city associated with the medieval legend of the Golem (Koreis, in Čapek 2008). The word 'robot' did not come from nowhere. It used to mean a central European system of serfdom whereby tenants' rent was paid in forced labour or service, which was abolished in 1848. Having to work compulsorily on the property of a local feudal lord was probably still in living memory in Čapek's time and place, the former Austria-Hungary. In Czech, *robota* has the literal meaning of serf labour, and figurative meanings of drudgery and servitude. Similar meanings are found in Polish and Russian. This Central European cloud of meanings has followed the word *robot* when it migrated to the English-speaking world. But something else has been added. Isaac Asimov should be accredited with the modern concept of robots and the term robotics. Whereas *R.U.R.* could be read as a satire about an existing social reality, Asimov's robot fiction predicts the future in a dramatized form. Throughout his robot fiction Asimov makes clear his dislike of the apocalyptic scenario. As Freedman (2009) comments, 'Asimov's demolition … of what he called the "Frankenstein complex" reaches its culmination in the vision of a world ruled benignly by intelligent machines driven purely by rationality and beyond any conceivable partisanship' (p. 11). If Čapek had an idea for a play about intelligent humanoid artefacts who benignly rule the world, his brother probably would not have suggested to call them robots. Semantic meanings of 'robot' continue to evolve with technological innovations. Software robots (bots) such as internet search engines are very distant relatives of the robots imagined by Čapek and Asimov.

Along with technological innovations, the semiotic property of 'robot' is continuously renewed through constellated connotations that are irreducible to a dictionary list of semantic meanings. The semiotic robot comes into being within complex psychosocial dynamics whereby words acquire not only semantic meanings but also qualities of feeling, an aesthetic dimension, and 'local' colouring. The Japanese have adopted the word *robot*, but in this cultural context it lacks the negative connotations of its Eastern European etymology. There arose what MacDorman et al. describe as a 'heroic view of science and technology that developed without resistance from Shinto or Buddhism', in contradistinction to the relationship between science and religion in the West, where 'frequent conflicts arise between scientists and believers' (MacDorman et al. 2009, p. 488). The Japanese's love of robots has its roots in the traditional craft of automata making, puppetry's close connection with Shintoism and its animistic beliefs, and popular culture (e.g. Hornyak 2006; Sone 2008, Schodt 2007). Karakuri puppets may be comparable with European automata due to being mechanical, but they belong to a rich tradition of Japanese puppets, including theatrical Bunraku puppets and various kinds of puppets used in Shinto festivals, very much alive in modern

Japan. There is an aesthetic element also in European automata of old. They combined mechanical engineering with beauty and entertainment. However, unlike Japanese puppets, European automata lacked religious associations (not to be confused with the theological message of Jewish folklore). Voskuhl remarks that none of the late 18th century texts about the making of android automata by the Swiss clockmakers Pierre and Henri-Louis Jaquet-Droz did not convey any interest in metaphysical or ethical consequences of creating mechanical humans. She concludes that these texts and their subject matter attest to 'a key paradox underlying the history of modernity, the mass production of individuals and of individuality' (Voskuhl 2007, p. 422). Indeed, it was the century in which La Mettrie closed his treatise *L'Homme Machine* with the statement, 'Let us then conclude boldly that man is a machine' (1748/1912, p. 148).

The modern understanding of what it means to be human has been profoundly shaped by assertions of the machine metaphor as well as by strong resistances to it. On the one hand, the technology came first and provided us with the possibility of the metaphor. Because we build machines 'we always try to explain the living organism in terms of mechanism' (Lacan 1991, p. 31). On the other, because we have had this metaphor it is possible to imagine and then try to build machines like us. For instance, roboticist Rodney Brooks declares, 'My own beliefs say that we are machines'; and concludes that in principle it is 'possible to build a machine from silicon and steel that has both genuine emotions and consciousness' (Brooks 2002, p. 180); or, as he stated elsewhere,

> Could a robot ever really want anything? The hard-core reductionists among us, myself included, think that in principle this must be possible. Humans, after all, are machines made up of organic molecules whose interactions can all be aped (we think) by sufficiently powerful computers.
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> (Brooks 2000, p. 86)

It seems to me that, by their very denial that there is anything 'special' about humans, self-professed reductionists such as Brooks are ironically deploying the very quality that makes humans special, and which is irreducible to algorithms; namely, the creative imagination and the ambition to translate its products into reality.

Marvellous automata of myth and fiction live on, sustained by the oscillating rhythm of utopian and dystopian narratives, but increasingly robots are also machines that do exist and with which people expect to interact. The results of a poll conducted with 2,000 members of the public reveal acceptance of their inevitable arrival. 'Third of Britons fear rise of robots, says poll,' declared the headline, and the lead paragraph added, 'One in 10 questioned expect to see RoboCop-style police in 10 years' time, with 17% willing to "have sex with an android"' (*The Guardian*, 6 May 2014). Arguments for and against robots that prioritize wellbeing and welfare tend to equate human flourishing with the quality of life to which we are accustomed but wish to improve. This humanist narrative persists in parallel to (and sometimes at loggerheads with) a technology-driven narrative. To quote computer scientists endorsing the latter, 'the world is driven and run by technological developments, and … robots are here for further enhancements

and new applications. It means no less than that technology dictates the governance' (Herik et al. 2011, p. 107). The utopian scenario in this case is not human flourishing but the flourishing of a lifestyle characterised by human-machine coexistence: 'It is the authors' belief that if society can accept a machine that can have the capacity to successfully emulate the reciprocation of love, it will have a positive effect towards a deeper and more intimate relationship between humans and machines' (Samani et al. 2012, p. 5). Cynics might say that these authors are leaving society no choice: the loving machine is coming whether we want it or not, so we'd better learn to love it.

The Pygmalion complex

An illusion of machine sociality is created through narratives and rhetorical manoeuvres that bring to the foreground particular constructions of the robot. It is easy to slide into imagining robots entering already existing social spaces as copies of human beings and pets. But when robots leave the lab they create new environments for their users. Baudrillard defined simulacra as copies of things that do not have an original anymore or never had one to begin with—a *precession of simulacra*: 'It is no longer a question of imitation, nor duplication …It is a question of substituting the signs of the real for the real … an operation of deterring every real process via its operational double' (Baudrillard 1981, p. 2). For example, Paro is a cuddly seal robot developed by Japan's AIST and marketed as a therapeutic aid primarily for use in residential elderly care. According to its makers' promotional text, the robot 'allows the documented benefits of animal therapy to be administered to patients in environments such as hospitals and extended care facilities where live animals present treatment or logistical difficulties' (Paro n.d., online). Paro moves its head and legs, makes sounds imitating the voice of a real baby harp seal, and tailors its reactions to each person's behaviour. Clearly, it is not a copy of any realistic pet. There are good reasons for the design decision (people are unlikely to have negative memories of real seals; vulnerable people are less likely to be deceived into believing that Paro is a live animal) but it is a new species, a relationship machine.

The precession of these simulacra manifests also in a reinterpretation of myths and legends that reflects the expectation of social-affective interaction between robots and humans. Reviewing the history of social robotics, Oh and Park locate the Pygmalion myth at the apex of fictive representations of 'empathic interaction between humans and robotic creatures' (Oh & Park 2014, p. 16). Yet in Ovid's telling there is no *empathy* between Pygmalion and his statue. Having seen how women live in wickedness Pygmalion chose to remain a bachelor. To compensate for his lack of a partner he carved an ivory figure of a beautiful woman, and fell in love with his creation. Even before the statue became *she*, he 'kisses it and thinks his kisses are returned; and speaks to it; … brings it gifts that please girls … dresses the body, also, in clothing; places rings on the fingers'; and so forth (Ovid 2000, p. 497). After Venus granted life to the statue, Pygmalion married her and she bore him a child, but remains nameless (the name Galatea seems to have been given to her by a post-classical writer). She has no identity, no voice, except as an animated

embodiment of everything her creator wanted in a woman. Pygmalion's yearning to embrace the statue as a living human being is usually interpreted as a male fantasy of the perfect woman. 'Pygmalion and Galatea' was a popular subject for erotic postcards circulating in Russia in the early 20th century (Lahti 1999). Critics of the robotics technology may indeed see a pathology like Pygmalion's in the infatuation with technological simulacra.

As mentioned, Turkle (2011) argues that our habituation into disembodied social interactions has precipitated an acceptance of robot companions, even hankerings for them. For Turkle, Levy's book *Love and Sex with Robots* exemplifies this social malaise. She criticises his campaign for a future in which human-robot marriages are acceptable. Levy seeks to convince us that 'loving a robot will come to be viewed as a perfectly normal emotional experience and that before very long, robots will be regarded by many as interesting, entertaining, and stimulating companions' (Levy 2009, p. 159). Turkle, who is a psychoanalyst, worries that we are losing the 'raw' human quality of being with other people; 'Our new intimacies with our machines create a world where it makes sense to speak of a new state of the self … a subject wired into social existence through technology, a tethered self' (interview with *New Scientist*, 16 September 2006). Tethered individuals do not cultivate 'the ability to be alone and to manage and contain one's emotions', she told the interviewer. By implication, what is being threatened is a model of the self that was articulated in traditional depth psychology: 'In a distinctly intimate way, psychoanalysis defends the private man against the demands made by both culture and instinct' (Reiff 1959, p. 329). The historicity of the construct calls its future into question.

The technology changes the imagined future before it changes prevailing conceptions of the self. We tend to project ourselves into an imaginary space called 'the future' and populate it with robots like us, and then ponder whether it will be a good or bad place to be. The 'romantic' notion of loving a robot who loves you back anthropomorphises the robot. We might picture ourselves in familiar surroundings with our family, friends and colleagues, and then replace some individuals with robots. The lifestyle remains the same. However, alternative visions of intimacies with robots are emerging at the frontier of technoculture, especially in the Far East. Samani and his colleagues are developing robot platforms that emulate human affection processes and (they argue) can therefore generate love between humans and robots. Their Lovotics robot is far removed from anything imaginable as a candidate for marriage. It is a small featureless white furry dome, like a large tea cosy covering a box of tech on wheels; 'an abstract form, … minimalistic and non-humanoid design [that] triggers the imagination of the users as it allows no fall back to any past similar experiences' (Samani et al. 2012, p. 8). Another paper by the same team describes nascent robot culture (Saadatian et al. 2013). Their starting point is an observation of the widespread use of mobile devices and the internet; but whereas Turkle raises concerns, they predict approvingly that 'in a few years the relationship between man and machine will reach even deeper stages of fusion' (ibid., p. 168). This lifestyle

is not merely reliant on the technology for facilitating human activities, wellbeing and welfare; but—like any culture—engenders its own customs, conventions, and so on.

Until recently robots existed only in fiction and thought experiments. The 'classic' science-fiction robot was like a carbon copy of the carbon-based original, for it was assumed that humanlike function depends on the humanoid form. Yesterday's world of tomorrow was populated with those androids. Isaac Asimov wrote *I, Robot* during the 1940s and set the earliest story in 1998. Philip K. Dick's novel, *Do Androids Dream of Electric Sheep?* (first published in 1968) takes place in 1992. In the 1990s we also had hover cars and space colonies according to those writers. Nobody foretold personal computers, smartphones, the internet and social media. The 1990s have landed us in what Floridi calls the infosphere; namely, the whole global informational environment, which is rapidly becoming our ecosystem. It is evolving in ways that fundamentally change our worldview for the 'threshold between here (analogue, carbon-based, offline) and there (digital, silicon-based, online) is fast becoming blurred' (Floridi 2010, p. 8). Research with adult owners of the robodog AIBO and children's attributions of aliveness to AIBO has prompted the researchers to surmise that a new ontological category—a category that disrupts current animate/inanimate distinctions—is emerging (Kahn et al. 2006, Kahn et al. 2013), which resonates with posthumanist claims. The same body of research also suggests that high involvement with technologies such as robot pets might alter the child's social-moral attunement to the world. Citing findings that schoolchildren in technology-rich environments were less likely to view a living dog as 'having the right to just treatment and to be free of harm', Melson points to the 'disturbing possibility that adaptation to robotic interactions may dilute the "I–thou" relationship of humans to other living beings' (Melson 2010, p. 231).

The technology relentlessly marches on. In September 2016, Avatar Mind introduced humanoid iPal as 'a great companion robot for kids. With its cute cartoon outlook, fine craftwork, latest natural language understanding technology, and cloud apps, it will be your child's best friend' (Avatar Mind n.d., online). This sales pitch is the most ambitious to date, but iPal is not the first robot for kids. There is a realistic risk that busy parents will leave a young child alone with the robot for hours, since the robot allows remote monitoring of the child. Since 2008 professor of robotics Noel Sharkey has been protesting that childcare robots could result in psychological damage to children (e.g. Sharkey and Sharkey 2010). However, even if parents use robots responsibly, there might be subtler consequences. Citing Edward O. Wilson's biophilia hypothesis (according to which humans have innate affinity with nature and therefore contact with nature is fundamental for psychological wellbeing), Kahn et al. (2009) raise concerns that future generations, as they gradually adapt to the loss of the natural environment and its replacement with technological nature (e.g. robot pets), will lower the baseline for what counts as a full measure of human flourishing.

Closing reflection and open questions

It is tempting to say that robots are like a mirror through which we see ourselves darkly. Although tales of marvellous automata have served diverse purposes and carried divergent messages across milieus and millennia, their occurrences have in common an image of a manmade thing that is *like us*. Its variations reveal culturally specific conceptions of what it means to be human. However, entering an era in which people are beginning to interact with real automata, it is a mirror that changes us in ways we cannot anticipate. Unlike mirror reflections, social robots are stepping out to enter real-life relationships with people, like mirror reflections that are no longer preceded by the reflected object but engender it.

Whereas Yen Shih's marvellous automaton danced to the amusement of its audience, robots today are built to dance with humans—literally (e.g. Wallis et al. 2009) as well as figuratively. The industry is investing in bringing about a society of human-robot coexistence. Whereas the legends may have carried moral messages, long-term relationships with real robots might affect children's moral development. The prospect of human-robot coexistence raises not only ethical issues concerning human safety, privacy and dignity (Wallach and Allen 2009) but also debates about robot personhood and rights (Coeckelbergh 2010). Neologisms such as roboethics and robophilosophy have been coined so as to give transdisciplinary homes to explorations of myriad issues concerning social robots.

Potential intersections with analytical psychology can be summarised as discrete sets of open questions, though with overlaps. First, since robots have barely begun to enter human lives, the extent to which long-term relationships with robots might be associated with psychopathology remains a matter for speculation. Second, the question, what exactly are archetypes, remains open in the field because there are numerous answers, incompatible with each other; and, in the confines of this paper, because I have skirted around the debate. Instead, I tried to 'test' the utility of the basic concept as a tool towards understanding the phenomena of social robots. Finally, this paper's opener—can the archaic man survive in cyborgs—cannot be categorically answered because (a) there is no consensus about the nature of archetypes, and (b) 'cyborg' is still a metaphor at present (we have not transcended our biology). I have posed it heuristically as a step towards broaching an interface between analytical psychology and the preoccupations of posthumanism.

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