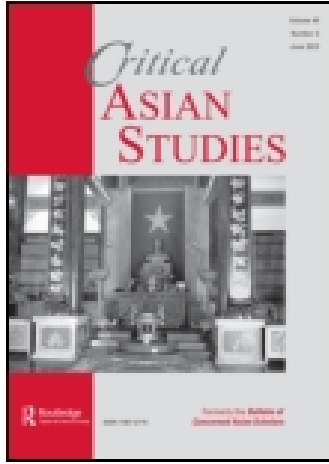


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HUMAN RIGHTS VS. ROBOT RIGHTS

Forecasts from Japan

Jennifer Robertson

ABSTRACT: Japan continues to be in the vanguard of human–robot communication and, since 2007, the state has actively promoted the virtues of a robot-dependent society and lifestyle. Nationwide surveys suggest that Japanese citizens are more comfortable sharing living and working environments with robots than with foreign caretakers and migrant workers. As their population continues to shrink and age faster than in other postindustrial nation-states, Japanese are banking on the robotics industry to reinvigorate the economy and to preserve the country’s alleged ethnic homogeneity. These initiatives are paralleled by a growing support among some roboticists and politicians to confer citizenship on robots. The Japanese state has a problematic record on human rights, especially toward ethnic minorities and non-Japanese residents who have lived and worked in Japan for many generations. The possibility of robots acquiring civil status ahead of flesh-and-blood humans raises profound questions about the nature of citizenship and human rights. Already the idea of robots having evolved beyond consideration as “property” and acquiring legal status as sentient beings with “rights” is shaping developments in artificial intelligence and robotics outside of Japan, including in the United States. What does the pursuit in Japan of interdependence between humans and robots forecast about new approaches to and configurations of civil society and attendant rights there and in other technologically advanced postindustrial societies?

The fact is, that each time there is a movement to confer rights onto some new “entity,” the proposal is bound to sound odd or frightening or laughable. This is partly because until the rightless thing receives its rights, we cannot see it as anything but a thing for the use of “us”—those who are holding rights at the time. — Christopher Stone, 1972¹

Certainly any self-aware robot that speaks English and is able to recognize moral alternatives, and thus make moral choices, should be considered a worthy “robot person” in our society. If that is so, shouldn’t they also possess the rights and duties of all citizens? — Robert Freitas Jr., 1985²

[M]aking the victim of discrimination a robot rather than a human gives me a lot more freedom, and allows me to be far more provocative. — Tezuka Osamu, 2007³

Introduction: From Interaction to Coexistence

Twenty years ago, Japanese robotics was ahead of the curve in pursuing embodied intelligence and building sociable service robots. Japan continues to be in the vanguard of human–robot communication, and since 2007 the state has actively promoted the virtues of a robot-dependent society and lifestyle. Nationwide surveys suggest that Japanese citizens are more comfortable sharing living and working environments with robots than with foreign caretakers or migrant workers. As their population continues to shrink and age faster than in other postindustrial nation-states, Japanese are banking on the robotics industry to reinvigorate the economy and preserve the country’s alleged ethnic homogeneity.

These initiatives are paralleled by growing support among some roboticists and politicians to confer citizenship on robots. The Japanese state has a problematic record on human rights, especially toward ethnic minorities and noncitizens, some of whom have lived and worked in Japan for many generations. Thus, the possibility of robots acquiring civil status ahead of flesh-and-blood humans raises profound questions about the nature of citizenship and human rights. Already the idea of robots having evolved beyond consideration as “property” and acquiring legal status as sentient beings with “rights” is shaping developments in artificial intelligence and robotics outside of Japan, including in the United States. What does the pursuit in Japan of interdependence between humans and robots forecast about new approaches to and configurations of civil society and attendant rights there and in other technologically advanced postindustrial societies?

The robotics industry is arguably more important and more enthusiastically embraced in Japan than anywhere else in the world. Japan presently employs over a quarter of a million industrial robot workers—some of which, lately, have been designed as quasi-humanoids—and that number will likely triple in a decade. Jointly funded since the late 1990s by the government and corporate sectors, robotics and its spin-off industries and products are estimated to generate about \$70 billion in revenues by 2025.⁴

1. Stone 1972, 455.

2. Freitas 1985, 54.

3. Tezuka Osamu, quoted in Schodt 2007, 123.

4. The Ministry of Economy, Trade and Industry (METI) launched the five-year (1998–2002) Hu-

I am especially interested in exploring human–robot interactions in general and the perception in Japan in particular of the social and civil status of robots. Whereas in the United States the majority of robots are funded by and produced for the Department of Defense (and its agencies),⁵ in Japan, robots are increasingly visible in civilian settings, such as hospitals, offices, factories, and the family home.⁶ What I have found either overlooked or under-acknowledged in both the Anglophone and Japanese-language scholarship on domestic service robots is an investigation and analysis of the type or nature of the national-cultural, social-institutional, and family structures within which robots and humans are imagined to coexist. Thus, in this article, I have juxtaposed human rights and robot rights as one way to cast in high relief the social history and cultural dimensions inflecting and informing the discourse of rights in Japan.

What Is a Robot?

In their 1952 “critical review” of the concepts and definitions of culture, anthropologists Alfred Kroeber (1876–1960) and Clyde Kluckhohn (1905–1960) collected 156 versions. Today, anthropologists tend both to leave “culture” self-evident—we always already know what we mean by it—and/or to provide new variants for any one of those 156 versions.⁷ And so it is with the term “robot.” As Illah Nourbakhsh, a professor of robotics and director of the CREATE Lab at Carnegie Mellon University, writes in *Robot Futures* (2013), “[N]ever ask a roboticist what a robot is. The answer changes too quickly. By the time researchers finish their most recent debate on what is and what isn’t a robot, the frontier moves on as whole new interaction technologies are born.”⁸

With this caveat in mind, it is best to attempt a working definition by first considering the etymology of the word “robot.” It derives from the Czech word *robotá*, meaning servitude or forced labor, and first appeared in Czech litterateur Karel Capek’s play *R.U.R., Rosumovi Univerzální Roboti* (*Rossum’s Universal Robots*, 1920), which premiered in Prague in 1921. *R.U.R* is about a factory in the near future where identical artificial humans (androids and gy-

manoid Robotics Project (HRP), followed by the Next Generation Intelligent Robots Project, and most recently, the Living Assist Robots Project. The goal of making robots to augment the labor force and to assist with housework and eldercare involves collaborative research among universities, research institutes, and corporations.

5. Defense Advanced Research Projects Agency (DARPA) is an agency of the U.S. Department of Defense that researches and develops new military technology. The DARPA Robotics Challenge (DRC, 2012–2014) is an international competition with the technical objective of developing ground robots capable of executing complex tasks in dangerous, degraded, human-engineered environments. At the twelfth IEEE-RAS International Conference on Humanoid Robots (29 November–1 December 2012) I attended in Osaka, Japan, several Asian roboticists openly expressed their reluctance to participate in the DRC because of its military orientation. Perhaps ironically, the top contender in the 2013 DRC was SCHAFT, a robot created by Japanese roboticists formerly associated with the University of Tokyo; Google bought SCHAFT in 2013, after the robot’s impressive performances at the DRC (www.darpa.mil/Our_Work/TTO/Programs/DARPA_Robotics_Challenge.aspx).
6. Already, in the wake of PM Abe’s nationalistic reinterpretation of Japan’s “peace” constitution, Japanese robotics research is being incorporated into the weapons economy.
7. Kroeber and Kluckhohn 1952.
8. Nourbakhsh 2013, xiv.

noids) are mass produced as tireless laborers for export all over the world. To make a longer story shorter, newer model robots are provided with emotions and are now able to experience anger at their exploitation, revolt en masse, and kill all but one human, a traditional artisan who encourages one new-model couple to repopulate the world with their own kind! *R.U.R.* was performed in Tokyo in 1924 under the title *Jinzō Ningen (Artificial Human)*. The play, along with Fritz Lang's film *Metropolis*, which was screened three years later, sparked an ongoing fascination with robots in popular culture that, in postwar Japan, includes cartoonist Tezuka Osamu's *Tetsuwan Atomu (Astro Boy)* in the 1950s and the humanoids, animaloids, and cyborgs that dominate *manga* (cartoons) and *anime* (animated films) today.

From the 1920s to the present day in Japan robots have been cast as both threatening *and* helpful to humans. Since the 1960s, however, when the state embarked on a policy of automation over replacement migration to extend the productivity of the domestic workforce, the general trend in Japanese popular media and culture has been to characterize robots as benign and human-friendly. Capek's graphic portrayal in *R.U.R.* of the end of bourgeois humanity at the hands of a violent robot-proletariat helped to shape Euro-American fears about robots that persist to this day. The dystopian play did not, however, compromise the largely favorable acceptance among Japanese of things mechanical, including robots, from the 1920s forward. Since *R.U.R.*, the meaning of "robot" has become closely associated with intelligent machines with biologically inspired shapes and functions, particularly humanoids.

As I noted, roboticists resist defining what exactly a robot it is. However, of all the many definitions of robot, I find the following one usefully comprehensive yet concise: A robot is an aggregation of different technologies—sensors, software, telecommunication tools, actuators, motors, and batteries—that make it capable of interacting with its environment with some human supervision, through tele-operation, or even completely autonomously. The different levels of robot autonomy influence the way that humans and robots interact with one another.⁹

To be called a humanoid, a robot must meet two criteria: it has to have a body that resembles a human (head, arms, torso, legs) and it has to perform in a human-like manner in environments designed for the capabilities of the human body, such as an office or a house. Most Japanese humanoids are gendered female or male. Some humanoids are so lifelike that they can actually pass as human beings—these robots, which are always gendered, are called androids (male) and gynoids (female).¹⁰ It should be clear from these examples that robot morphology is just as diverse as that of humans; they come in every size, shape, and color. All of the robots referred to in this article are enormously complex, layered systems and represent an amalgamation of research across many disciplines, from electrical engineering to child development studies.

9. Beer, Fiske, and Rogers 2010, 74.

10. Regarding robot gender, see Robertson 2010.

Embodied Intelligence

What distinguished Japanese robotics early on—and now almost all roboticists have followed suit—is the concept of embodied intelligence. Researchers point out that “intelligence cannot merely exist in the form of an abstract algorithm but requires a physical instantiation,” or tangible body.¹¹ If a robot is to coexist with humans in environments designed for humans, then it makes sense for a robot to have a human-like body and to learn how to negotiate its surroundings the same way humans do from the day they are born: through motor-sensory experiences.

In robotics, embodied intelligence blurs the conceptual distinction between life and cognition, and between intelligence and consciousness. Whether or not to recognize these conceptual distinctions, or how to reconcile them if recognized, is the subject of heated interdisciplinary debates and a ballooning professional literature that I cannot fully address in this article. Suffice it to say that embodied intelligence refers to a dynamic coupling of a robot with its environment. The actual behavior of the robot emerges from its interaction with the environment “through a continuous and dynamic interplay of physical and information processes.”¹² Some psychologists whose work is especially relevant to humanoid robotics argue that embodiment not only enables but actually constitutes sociality and affective states.¹³

Several leading Japanese roboticists, Takeno Jun’ichi (Meiji University), Maeno Takashi (Keio University), and Miyake Yoshihiro (University of Tokyo), have separately developed artificial neural networks or algorithms necessary for the creation of, in their words, conscious robots.¹⁴ While research on conscious robots, and on consciousness in general, is not limited to Japan, the future applications of sociable, conscious robots are imagined differently in Japan, as I will discuss.¹⁵

Based on his neuroscientific studies, Takeno has developed a “recursive neural network” consisting of independently functioning modules that simulates human consciousness by achieving consistency between cognition and behavior. Basically, the robot is able to distinguish between information already learned and brand new events. This is because familiar information (stored in the memory) is more quickly processed (or “understood”) than unknown information or events, which take more time to upload and process. Takeno also claims that a robot fitted with this recursive neural network (or MoNAD) is self-aware; that is, an image of itself in a mirror is cognized as self and it can distinguish itself from another outwardly identical robot.¹⁶

11. Pfeifer and Scheier 1999. There are various forms of embodiment. Cognitive scientist Tom Ziemke (2003) identifies six in exploring the relationship between types of embodiment and types of cognition.

12. Pfeifer, Lungarella, and Iida 2007, 1088.

13. Barsalou et al. 2003.

14. See, for example, Takeno 2011 and 2012.

15. Long and Kelley (2010) provide a very good and accessible overview. See also, Kuipers (2008).

16. Takeno 2012. Obviously, the discourse of self and non-self is complex and has inspired innumerable dissertations, books, and articles. Suffice it to say for the purposes of my argument,

Outside of the robotics laboratory and the field of neuroscience, three key sociocultural factors influence the way Japanese experience robots as “living” entities. The first is linguistic: In Japanese, two separate verbs can be used to describe existence. *Aru/arimasu* refers to the existence of something, a bicycle, for example. *Iru/imasu* is used to refer to the existence of *someone*. *Iru/imasu* is also used in reference to robots, as in the title *Robotto no iru kurashi* (lit., a lifestyle where robots exist), a book that I will discuss in more detail later.¹⁷

This use of *iru/imasu* in turn may be connected to the influence of Shinto, the second factor. Shinto, the native animistic beliefs about life and death, holds that vital energies, deities, forces, or essences called *kami* are present in both organic and inorganic matter and in naturally occurring and manufactured entities alike. Whether in trees, animals, mountains, or robots, these *kami* (forces) can be mobilized.¹⁸ The third factor concerns the meanings of life and living. *Inochi*, the Japanese word for “life,” encompasses three basic, seemingly contradictory but inter-articulated meanings: a power that infuses sentient beings from generation to generation; a period between birth and death; and, most relevant to robots, the most essential quality of something, whether organic (natural) or manufactured.¹⁹ Thus robots are experienced as “living” things. The important point to remember here is that there is no ontological pressure to make distinctions between organic/inorganic, animate/inanimate, human/non-human forms. On the contrary, all of these forms are linked to form a continuous network of beings.²⁰

The Japanese notions of “being alive” and “living” are thus fundamentally different from the taken-for-granted understanding of these terms in the Euro-American and monotheistic cultural world.²¹ Even in non-Japanese cultures, however, agreeing on what is alive and living is not easy—an issue about which the discussion thread on Physics Forums is quite illustrative.²² As robot intelligence continues to develop, debates in Euro-American circles between supporters and opponents of human exceptionalism, or the idea that humankind is radically different and separate from the rest of nature and other animals, will become more contested.

Robotic Lifestyle

Why robots, why now? The population, and labor force, of Japan is rapidly aging and shrinking. The birthrate presently stands at about 1.3 children per married

that as many scholars have confirmed, Japan is a society in which “the self” is partially porous, situational, relational, and interdependent. Increasingly, psychological anthropologists are realizing this as the “norm” in cultures other than Japan as well, and yet, outside Japan, when it comes to considering the possibility of “robot rights,” the definition of “the self” that is brought into play is that of the singular, rational, intact and internally coherent self.

17. Robo LDK Jikkō linkai 2007.

18. An informative analysis of the relation between manufactured goods and *kami* can be found in Swyngedouw 1993, 55–60.

19. Morioka 1991.

20. Kaplan 2004, 6.

21. Matsushima 2012.

22. See www.physicsforums.com/showthread.php?t=455067.

woman, and around 25 percent of the population of roughly 127.3 million people (which includes about 2 million legal foreign residents) is over 65 years of age; that percentage is expected to increase by 2050 to over 40 percent. The latest estimates produced by the Ministry of Health, Labor and Welfare project that the population will shrink to less than 111 million in 2035 and to less than 90 million in 2055. Briefly, women and men are postponing marriage until their late twenties and early thirties, and some are eschewing marriage altogether, which is (still) the *only* socially sanctioned framework for procreation.²³ Even married couples are opting not to have children; today, house pets outnumber children and companion robots sales are expected to take off. In June 2014, Son Masayoshi, founder and CEO of Softbank, the Japanese telecommunications and internet corporation, unveiled Pepper, the “emotional” humanoid robot, in anticipation of a growing demand for personal robots.²⁴

In short, the state is continuing a postwar trend of pursuing automation over replacement migration. Japan is neither an immigrant-friendly nor an immigrant-dependent nation-state, despite an experiment in the 1980s to recruit South Americans of Japanese ancestry (Nikkeijin) into the labor force.²⁵ Beginning several years ago, in connection with the economic slowdown associated with the persistent recession, Nikkei guest workers were paid to return to the continent. Ironically, the state is once again considering the recruitment of temporary guest workers, this time to assist with the considerable preparations for the 2020 Tokyo Olympics.

The corporate sector and government alike are banking on the robotics industry to reinvigorate the economy and to preserve the country’s much eulogized ethnic homogeneity. Although the population of Japan arguably is more outwardly (phenotypically) homogenous than that of the United States or Brazil, there are many cultural minority and marginalized groups, from the indigenous Ainu to “permanently residing” (*zainichi*) Koreans and Chinese. Not only are robots imagined to replace the need for immigrants and migrant workers, humanoids are being designed to fulfill many roles, including the preservation of “unique” Japanese customs and traditional performing art forms.²⁶ In this connection, to which I will return, there is growing popular support, on the one hand, to deny civil rights to permanent residents and, on the

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23. The vast majority of “single mothers” in Japan are women who are divorced or widowed.
 24. Official estimates put the pet population at 22 million or more, but there are only 16.6 million children under fifteen (Evans and Buerk 2012). Softbank’s Son has long been eager to enter the household robot market. Pepper will retail for \$1,900 when it goes on sale in 2015. Pepper is manufactured by Aldebaran Robotics, which has offices in France, China, Japan, and the United States, and is 78.5 percent owned by Softbank (Emotional robot set for sale in Japan next year 2014).
 25. Brazil has the largest population of people of Japanese ancestry outside of Japan. The 1.5 million Japanese-Brazilians are descendants of the mostly impoverished farm householders who immigrated to South America in the late nineteenth and early twentieth centuries with the support of the Japanese government. As of 2012, about 1.6 percent of Japan’s population consists of immigrants and migrant workers compared to nearly 13 percent for the United States. These figures do not distinguish between economic migrants, refugees, and other types of migrants nor do they distinguish between lawful migrants and undocumented migrants. See en.wikipedia.org/wiki/List_of_countries_by_net_migration_rate.

other, to confer the rights of citizenship and residency to robots and nonhuman animals, and even cartoon characters.

Since 2007, the Japanese state has actively and relentlessly promoted a robot-dependent society and lifestyle. In February 2007 then prime minister Shinzō Abe unveiled *Innovation 25*, a visionary blueprint for revitalizing the Japanese economy, civil society, and “traditional” household by 2025.²⁷ A newly coiffed and rejuvenated Abe was reelected prime minister in December 2012 after serving in that capacity for less than a year in his first attempt, and his plan to robotize Japan is back on the fast track.²⁸ In June 2013, he announced that his administration is earmarking \$24 million toward the development of urgently needed nursing and elder-caregiving robots.²⁹

Nationwide surveys conducted by the Cabinet Office indicate that Japanese citizens are uncomfortable with the idea of being cared for by foreign nurses and caregivers and that over 80 percent are interested in acquiring a robot caregiver. Many elderly people in particular worry about the stress of dealing with linguistic and cultural differences.³⁰ Robots are also imagined in *Innovation 25* as the key to resolving the trend among career-minded Japanese women of delaying or entirely foregoing marriage, and thus reproduction. How exactly?³¹

As illustrated in *Innovation 25*, PM Abe and his advisors believe that robot babysitters, housekeepers, and caregivers will relieve women from household chores and responsibilities, making them more willing to get married and to have more than 1.3 children. Maid robots may do the work, but married women will still be wedded to their homes. Instead of going to an office where they can socialize in person with their human colleagues, the married women of 2025 will telecommute to work. Robots, in short, will reinforce a rigid sexual division of labor and space: males will continue to monopolize the public domain, and females will be relegated to the private or domestic domain. Gendered complementarity and not sexual equality is the unprogressive vision of future

26. Randerson 2007; Mechanical art: Japanese scientists unveil robot calligrapher 2012.

27. For more information on *Innovation 25* and its sociopolitical context, see Robertson 2007. This proposal is accessible on the Cabinet Office (Naikakufu) website: www.cao.go.jp/innovation/.

28. *Innovation 25* was supported by PM Abe’s successors, although not as ardently. Political support for rescue and care robots has grown following the trifold disaster (earthquake, tsunami, Fukushima Daiichi meltdown) of 11 March 2011.

29. The robotic assistants will form an essential part of a plan to address the shortage of care workers in the country as well as nurture new spin-off industries. Left unmentioned, of course, is why there is a shortage of care workers: too few Japanese are interested in that low-paying occupation, and the government administers an unusually grueling Japanese-language exam that has made it virtually impossible for well-trained foreign nurses and care workers (mostly from the Philippines and Indonesia) to pass and thereby find professional employment.

30. Yamazaki 2006; Cabinet Office 2013.

31. Conservatives, like PM Abe (who is married but childless) are quick to blame women alone for the low birthrate. Many women desire a professional career, and it is still the case that marriage and career are considered to be mutually exclusive; the corporate glass ceiling is also very low for working women, who are pressured to retire early to marry and have children. Few full-time employment options are available to married women who wish to return to their careers after their children are older. Not surprisingly, a growing number of women are reluctant to get married, whereupon they will lose both financial independence and any possibility of career advancement.

society in *Innovation 25*.³²

***Koseki*-ism, or Household Nationalism**

As PM Abe's *Innovation 25* clearly shows, the type of family or household in which robots will be included is the "*ie*." Based on the premodern samurai (hereditary warrior class) household, the *ie* was codified in the 1890 Constitution and Civil Code as the smallest legal social unit of society. The *ie* has a househead, usually male, who represents, manages, and maintains the household; other members are protected and also supervised by the head. Properties acquired by members of the household belong to the househead unless otherwise specified. Likewise, the head enjoys the right to determine the residence of members, as well as the right to give consent to the marriage and adoption of members of the house. The *ie* is also defined by a sexual division of labor and gender(ed) roles that each member is expected to uphold.

Despite the fact that in the postwar (1946) constitution the individual is the "sovereign" social unit, the *ie* system persists in two ways: as an *extra-legal* set of customary practices and as a *legal* entity through the *koseki*, or household registration system. In short, it remains the case that through the *koseki* system, the *ie*, or patriarchal extended family household, effectively is *the* primary and indissoluble social unit in Japan today.

The *koseki* is a registry of an *ie*'s (household's) members and a record of all births, deaths, and adoptions. It is also a marriage certificate and a document establishing irrefutable proof of Japanese citizenship, which is based on the principle of *jus sanguinis* ("blood," descent). The only legitimate way for a foreigner to get a *koseki* is to become a naturalized citizen (although this does not necessarily exempt one from differential treatment, especially if the foreigner in question does not "look" Japanese.)³³ Incidentally, robots do not have to naturalize—made by Japanese companies in Japan, they are always already "Japanese." And those humanoids equipped with the most sophisticated artificial intelligence are not allowed to leave Japan!

The *koseki* system fabricates an image of unity: "the Japanese" as the subjects of the nation-state. It does so by repressing and even erasing ethnic, linguistic, and cultural diversity. Many Japanese feminists point to the *koseki* system as fundamentally responsible for perduring sexual inequality despite the constitution's equal rights amendment. They point out that the registry continues to stigmatize women and children who are born outside the framework of marriage, and allows for only one surname to be listed, usually the husband's—there are no hyphenated surnames in Japan.

In short, the *koseki* system sustains deeply entrenched definitions of Japanese nationality, ethnicity, gender roles, and family structure as intrinsically linked through the primacy of blood or descent. These essentially tautological definitions have provided a rationale for conservatives to claim the preservation

32. See Robertson 2007 and 2010.

33. See www.accessj.com/2013/01/koseki-japanese-family-registration.html. Arudou Debito, a naturalized citizen of Japan, has made this contradiction, and the dilemmas it generates, the

of Japan's alleged ethnic homogeneity as grounds for rejecting immigration as a means of growing the population and labor force. Not surprisingly, PM Abe, who is an unabashed nationalist, is one of the most prominent promoters of robotizing Japan with "born in Japan" robots. Robots, in short, are imagined as playing a key role in the stabilization and preservation of not just any family, but specifically the patriarchal extended family, or ie.

Human Rights, Robot Rights: The Unofficial "Official" Story

I have reviewed the central institutions of Japanese society today that provide a platform for human-robot coexistence and a context for the conception and distribution of robot rights. These institutions also constitute the framework within which human rights are conceptualized.

Like human rights, robot rights are much more than lofty, abstract ideas and are contingent upon dominant (even hegemonic) national and local institutions and practices. Although one might assume that robot rights would follow from, or would be a subset of, human rights, I will make a case for arguing the opposite: *that robot rights in Japan both precede and even exceed human rights in some cases*. I will also show that robot rights can serve to highlight by contrast some obstacles to universal human rights legislation in Japan.

As philosopher Charles Taylor (McGill University) observes, the "modern" legal theory of human rights was developed in Europe in the seventeenth century by the Dutch jurist Hugo Grotius (1583–1645) and the English physician-philosopher John Locke (1632–1704). To the former is attributed modern natural law theory and to the latter a theory of knowledge based on sensory-motor experience as opposed to an innate substance. The modern individuals holding these rights are identified as autonomous, rational agents able to perform collectively in the public sphere while managing to exist as independent agents in a market economy.³⁴ This concept of the human being, or the self-aware individual, as the subject of rights is the key concept behind the Euro-American construction of both human rights and robot rights. A distinctly different "neo-communitarian" approach to human rights articulated by the social historian Morita Akihiko (Shōkei Gakuin University) has influenced my analysis of the relationship between human rights and robot rights in Japan. Communitarian here refers to the importance of social institutions in the development of individual meaning and identity. Unlike some of his Japanese colleagues, Morita does not simply dismiss "human rights" as incompatible with something called "Asian values."³⁵ Rather, he makes a more sophisticated argument, insisting that

[u]niversal human rights can and should be justified by different cultures through their own terms and perspectives, expecting that an overlapping consensus on the norms of human rights may emerge from those self-searching exercises and mutual dialogue. Hence...Asian values, whether from Confucianism or Buddhism, can be compatible with human rights as

crux of his human rights activism (www.debito.org).

34. Taylor 2007; Morita 2012, 360.

35. Regarding the issue of "Asian values," see Robertson 2005.

the universal social norm.³⁶

In Japanese, the terms that correspond to human rights, *kenri* and *jinken*, were introduced by Fukuzawa Yukichi (1835–1901), perhaps the most influential intellectual leader of modern Japan.³⁷ Fukuzawa was active at a time defined by the end of a feudalistic system controlled by the Tokugawa Shogunate (1603–1867) and the establishment in 1868 of a constitutional monarchy and an ambitious program of selective modernization or Westernization. For the first time in their 1,500-year history, women and men, girls and boys in Japan learned through mandatory education, military conscription, and the emerging mass media, that they all belonged to the imaginary community of “Japan” (Nihon, Nippon), which was likened to a giant extended family headed by a parental leader, the Emperor Meiji (1852–1912; reigned 1868–1912).

Where Fukuzawa differed from his Euro-American counterparts was in his interpretation of human rights as emerging from within a concentric set of relationships rippling outward from the *ie*, or patriarchal extended family system, at the center and bounded by the nation-state headed by the emperor, who was venerated as a particularly awesome *kami*. The nation-state, by extension, also possessed divine, or *kami*-like properties. For Fukuzawa, whose reading of “natural rights law” was inflected by his grounding in Confucian, Buddhist, and Shinto ideas, the *ie* was the foundation for, and primary distributor of, human rights and, by extension, civil rights. Fukuzawa’s primary term for human rights was *kenri tsūgi*, which can be translated as “the capacity for practical reasoning and for dealing responsibly and dutifully with ongoing events before both a transcendent (supra-social, or *kami*-like) and a secular social community.”³⁸ The view of humans presented in this originary definition of human rights in Japan positions individuals within communities of secular social and supra-social dimensions. This, then, is a historical explanation for the tenacity of the *ie* system as a dominant institution within and against which European ideas like individualism and universal human rights were adopted and adapted. Today, robots are assigned the task of stabilizing the *ie* system in its secular and transcendent dimensions; the *ie* is also the locus of the emergence of robot rights, as I elaborate below.

The Japanese Ministry of Foreign Affairs pays tribute to the United Nations 1948 Universal Declaration of Human Rights.³⁹ However, the absence in Japan of an independent and socially diverse *national* human rights institution

36. Morita 2012, 364–65.

37. Fukuzawa was a teacher, translator, entrepreneur, and journalist who founded Keio University and the daily newspaper *Jiji shinpō*. He visited San Francisco in 1860 as part of a diplomatic mission and, in 1862, served as a translator on the first Japanese diplomatic mission to Europe. His subsequent book *Seiyō Jijō* (Things Western, 1867–1870) was a bestseller. Fukuzawa’s face is on the 10,000 yen note, the highest denomination.

38. Morita 2012, 363.

39. “[The Declaration] states that all human beings are born to be free and have rights to live with dignity. Many people in the world, however, are not able to enjoy these rights. The United Nations has thus engaged itself in activities to improve human rights situations. Japan has strongly supported UN activities in the human rights field, believing that all human rights are universal.” (See www.mofa.go.jp/policy/human/.)

strongly implies that *universal* human rights are regarded by the state as pertaining to the universe outside of Japan. The United Nations Human Rights Committee, which monitors the implementation of the International Covenant on Civil and Political Rights, recognizes this anomaly and has stressed that the protection of human rights and human rights standards should not be determined by popularity polls. The committee is concerned about the repeated use of public opinion surveys to justify attitudes that may violate Japan's universal human rights obligations.⁴⁰ The 2012 and 2013 human rights reports by Amnesty International draw attention to the lengthy detention of refugees seeking asylum, the use of torture to coerce confessions from alleged criminals, and to the subtle and blatant ways in which ethnic minorities, women, and people with disabilities are discriminated against in Japan.⁴¹

Promulgated in 1946, the postwar Constitution of Japan formally adopted human rights, with a provision on "fundamental human rights" (Article 11). This provision, along with Article 9, prohibiting an act of war by the state, has long rankled conservatives. In July 2014, following the lead of hawkish PM Abe, the Diet approved a controversial reinterpretation of Article 9 that will allow Japanese troops to fight overseas for the first time since 1945. Abe has long advocated revising the constitution and its human rights provisions. He and his neo-nationalist cohort argue that, as an artifact of the Allied (mostly American) Occupation of Japan (1945–1952), the postwar constitution promotes "excessive individualism" and a "Western-European theory of natural human rights" and is therefore not really suitable for Japan. The prime minister and his Liberal Democratic Party (LDP) supporters seek to revise the constitution in a way reminiscent of Fukuzawa's originary definition of human rights as paternalistic and as a matter of familial and communitarian civility. Their constitutional revisions make explicit the primacy of the *ie* (patriarchal extended household) and recuperate its nineteenth-century legacy as a microcosm of the nation-state. The LDP's draft of a new constitution replaces universal human rights principles with a unique system of rights based on Japan's history, culture, and tradition, and it emphasizes that individuals who assert human rights should not cause nuisances to others.⁴² As critics within and outside of Japan have opined, PM Abe and his ilk wish to take Japan back to the days of empire and authoritarianism when alternative political sentiments were silenced. Theirs is a rosy nostalgia for a historical record whose actual brutality they are complicit in whitewashing from textbooks; a neo-nostalgia that is of the same postmodern vintage as the robots PM Abe envisions will insure the continuity of the family-like state and its

40. Arudou 2007. The most recent (2012) poll on human rights is accessible at www8.cao.go.jp/survey/h24/h24-jinken/index.html.

41. See www.amnesty.org/en/region/japan/report-2012; and www.amnesty.org/en/region/japan/report-2013.

42. The Liberal Democratic Party, which has mostly dominated Japanese politics since the 1950s, published a draft constitution in which human rights is defined as something "entitled by the State" and grounded in "the State's history, culture and tradition." The household is also recognized as the "natural and basic unit of society." For detailed information in English, see Repeta 2013 and Jones 2013.

filial subjects.

Although their political affinities may not be in lockstep, PM Abe and the most publicly visible roboticists share the belief that robots will reinforce the traditional family values and division of labor promoted in *Innovation 25*. As roboticist Miyake Yoshihiro posts on his website, robots will “be effective for recovering human linkages, social ethics and mutual-reliability that have been lost in the information technology society.”⁴³ Familial or communitarian civility is widely perceived as the affective glue of Japanese society. And that is the rub, for familial civility can nurture—and has nurtured in recent history—an ethno-national endogamy. One can be critical of the real-world, real-time effects of such nostalgic and, in some instances, reactionary, metaphors and symbols, as are many Japanese women and minorities residing in Japan. It remains the case, however, that these metaphors and symbols predominate in the government, the corporate sector, and even the robotics industry, and their influence and impact on the discourse of human rights and robot rights cannot be overestimated. In effect what I am presenting in this article is a reframing of the “official story” of human rights and robot rights in order to expose what is hidden in the political rhetoric.

Laws of Robotics

A comparison of the laws of robotics created by Tezuka Osamu (1928–1989), representing a Japan perspective, and Isaac Asimov (1920–1992), representing a Euro-American perspective, highlights cultural differences in envisaged human–robot interactions. Like his contemporary Asimov, Tezuka was a scientist—a physician—who pursued a career writing science fiction. His cartoon robot, Tetsuwan Atomu (Astro Boy, 1951), is Japan’s most famous humanoid and has played a leading role in fostering a friendly and familial image of robots. Many Japanese roboticists have a picture or figurine of Astro Boy in their laboratory, and many acknowledge the boy robot as stimulating their interest in robotics. Both Tezuka and Asimov presaged the integration of actual robots in everyday life and work, and both drew up laws regulating human–robot interactions that have shaped current debates among roboticists, philosophers, and the public at large.

Tezuka and Asimov were socialized in cultural settings differently shaped by World War II and its aftermath, a fact reflected in how they imagined and described the relationship between humans and robots in their literary work. Because Asimov and Tezuka formulated their laws of robotics before actual human–robot interactions were possible, several roboticists in the United States and Japan recently have proposed alternative laws that address the real world, real-time complexities and dynamics of human–robot coexistence.⁴⁴

43. See www.myk.dis.titech.ac.jp/html/e_ver.html.

44. Murphy and Woods 2009. Although human–robot coworkers are still a rarity outside of factory settings—and outside of Japan (where humanoids are more frequently encountered)—an interdisciplinary group of Euro-American scholars has initiated the new fields of robot ethics and robot rights. They have collectively generated a burgeoning literature, much of which is de-

Asimov's three laws were first elaborated in his 1941 short story "Run-around"; a fourth law, the zeroth law, was created much later, in 1985. (The "zeroeth" law continues the pattern where lower-numbered laws supersede the higher-numbered laws.)⁴⁵

1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.
2. A robot must obey the orders given to it by human beings, except where such orders would conflict with the First Law.
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws.
4. (0). A robot may not harm humanity, or, by inaction, allow humanity to come to harm.

Tezuka drew up ten laws that were published at intervals in his *Astro Boy* comic book series during the early 1950s.

1. Robots must serve humankind.
2. Robots shall never kill or injure humans.
3. Robots shall call the human who creates them "father."
4. Robots can make anything, except money.
5. Robots shall never go abroad without permission.
6. Male and female robots shall never switch [gender] roles.
7. Robots shall never change their appearance or assume another identity without permission.
8. Robots created as adults shall never act as children.
9. Robots shall not assemble other robots that have been discarded by humans.
10. Robots shall never damage human homes or tools.⁴⁶

The differences between the two sets of laws are clear. Asimov's Four Laws are universal in scope and of a comprehensive nature in pertaining to *all* robots and *all* humankind. Some have argued that Asimov's Laws are meant to keep roboticists from exponentially increasing the artificial intelligence of their creations and thereby risking the disastrous scenario penned by Capek in *R.U.R.* A corollary to this interpretation of Asimov's Laws is that as the property of humans, robots must protect themselves from damage, in contrast to biological organisms that protect themselves for their own existence.⁴⁷

Tezuka's Ten Laws are synchronized with dominant Japanese social values and address the integration of robots into human (and specifically Japanese) society where they share familial bonds of kinship and perform familial roles. Important to remember here is that kinship is not dependent upon biological

voted to determining the social-psychological criteria necessary to recognize robots as independent, autonomous agents capable of self-awareness, which are the grounds for legal responsibility. (See www.ieee-ras.org/robot-ethics.)

45. Runaround (1941), in Asimov (1942), republished in Asimov (1991). The Zeroeth Law was introduced in Asimov (1985).

46. *Mushi Purodakushon sbiryōshū 1962–73* 1977. Schodt (2007, 108) has translated the ten laws, although my translation differs in parts.

47. Kerr 2007; Saenz 2011.

relatedness. Moreover, the socio-dynamics of the relationship of (Japanese) humans and (Japanese) robots are determined not by their “species” differences—human versus robot—but by “the *manner* of their bonding,” which is informed by the hierarchical structure of the patriarchal household (*ie*). It is not that kinship forms every important social tie in Japan; rather, important social ties, including those with robots, are understood using the family and household as a metaphor and model.

Another fundamental difference between the robotics laws of Asimov and Tezuka is that whereas Asimov regards robots as he does humans, as completely autonomous agents, Tezuka qualifies the autonomy of robots as contingent upon their interdependence with humans and in the context of kinship. Roboticians raised and socialized in Japan, such as the aforementioned Miyake Yoshihiro, tend to emphasize the inherent virtue of interdependence in the form of “active incompleteness” that occasions an emergent co-created reality between an artificial system (such as a robot) and humans in real time.⁴⁸ Just as roboticians outside of Japan have embraced the concept of embodied intelligence and also the development of humanoids, so too has the idea of interactively contingent autonomy been raised as a pragmatic alternative to Asimov’s Laws. In an article published in 2009, Robin Murphy (Texas A&M) and David Woods (Ohio State University) propose “human-centered Alternative Laws” that incorporate robots into a dynamic system of “social and cognitive relationships” with human groups that have a stake in robots’ activities, which has many similarities to my discussion above about robots as part of a “continuous network of beings.”⁴⁹ In Japan, however, the “human group” is further qualified as “family-like.”

Family for Robots

In large part, Tezuka’s Laws proceed from his easy familiarity with the Japanese family system. Anthropologists refer to the Japanese nuclear family as a “stem family” because although resembling its Euro-American counterparts, it can expand to include several generations and to generate branches. Only one married couple per generation comprises the main household (*bonke*); other offspring or siblings form branch households (*bunke*). A househead is basically the designated caretaker in charge of the continuity of the household through time and space. Significantly, the *ie* includes people who are Japanese citizens but who are not biologically related to a given family—there is no premium on biological membership per se. New members, whether children or adults, may be adopted to add depth and strength to the household, which is, ultimately, an economic, corporate entity that must be reproduced in perpetuity. An entire village could constitute an *ie* in this manner. The nation-state and corporations have been characterized as types of extended families. In 2011, 81,000 adults were adopted in order to secure the continuity of the same number of *ie*. Most

48. Miyake 2005. See also Robertson 2007, 379–80, for a more extensive discussion of cocreation.

49. Murphy and Woods 2009.

were adopted sons-in-law, who assumed the surname of their fathers-in-law.⁵⁰

I have come to realize that robots, and especially humanoids, are being introduced into everyday human society in the spirit of adopted members of a household.⁵¹ In anticipation of a nation filled with homes consisting of human and robot members, a consortium of roboticists, lawyers, and IT specialists held a “Contest of Life with Robot” (*sic*) in public plazas in Kawasaki (2005) and Yokohama (2006, 2007), two cities south of Tokyo.⁵² On a public stage made to look like a typical living room, contestants selected from among lay applicants were invited to enact real-world/real-time interactive scenarios using mostly small humanoid robots provided by several robot labs. These contests formed the basis of the consortium’s guidebook for human–robot coexistence, the aforementioned *Robotto no iru kurashi (Living with Robots)*. One of the chapters in *Living with Robots*, “Robo LDK Sansoku” (The Three Laws of Robo LDK) lays out guidelines for productive and safe human–robot households. LDK refers to “living, dining, kitchen,” the basic studio-like floor plan of a typical Japanese home to which additional rooms are added; thus, a 2LDK is an LDK with two separate rooms. The three laws recall Asimov’s Laws and condense the familial aspects of Tezuka’s Ten Laws:

Law 1: Robots must be useful to humans and provide protection, caregiving, and attend to their spiritual and psychological needs (the usefulness principle).

Law 2: Robots must be able to interact with and relate to humans in a reassuring manner (the safety principle).

Law 3: A robot’s body conforms to its function and role in the household. As a physical body living in close proximity to humans, robots must be able to exercise Laws 1 and 2 (the embodiment principle).⁵³

The authors emphasize that humans can obtain emotional comfort and care (*iyashi*) from robots and can relate to them as familiar and reassuring interlocutors—something that, as noted earlier, some Japanese feel would not be possible with non-Japanese foreigners. They are also attuned to variabilities of embodiment determined by their role and function within the household. As emphasized in PM Abe’s *Innovation 25*, which preceded *Living with Robots* by six months, the three most important features of a roboticized household, and by extension society, are convenience (*benri*), safety (*anzen*), and “ontological security” (*anshin*).

Since the 1920s, but especially since the postwar period, the Japanese public has been regaled in the mass media with stories and future scenarios about co-

50. Mehrotra et al. 2013.

51. Theoretically, at least, there is no reason why intelligent Japanese humanoids could not also become househeads, especially if competent humans are unavailable.

52. *Robotto uitku o tenkai shimasu!* 2007. The first contest in 2005 was held at the Azalea Sunlight Plaza in the Kawasaki City underground shopping street, and the 2006 and 2007 events were held at Queen’s Square in Yokohama. Reports on the events appeared in many online newsletters.

53. The third law underscores the different forms of embodiment: If a robot does not need to grasp things, it may not have fingers (Robo LDK Jikkō linkai 2007, 177–79).

existing with robots. Cartoon and animation robots are often members of human families, as in the case of the hugely popular Doraemon. Doraemon is a blue and white bipedal robotic cat with a huge smile. He travels 200 years back in time to the 1960s in order to change the circumstances of the Nobita family so that they will enjoy a better future.⁵⁴ Whereas Doraemon is invited into the Nobita family as a member, Astro Boy, nearly two decades earlier, was provided with

his own robot family—a set of parents, a brother and sister, and a pet dog.⁵⁵

Honda, maker of ASIMO (Advanced Step in Innovative Mobility), the child-size (130 cm.) mostly white bipedal humanoid, ran an advertisement on the back cover of the January 2003 issue of *Smithsonian* that featured the robot grouped in an “all-American” family portrait (see fig. 1). At the time, the ad was based on the naïve assumption that like Japanese, mainstream Americans would also embrace the humanoid just like they would the golden retriever in the photograph—as a part of the family. The majority of *Smithsonian* readers who blogged re-



**We're building a dream,
one robot at a time.**

The dream was simple. Design a robot that, one day, could duplicate the complexities of human motion and actually help people. An easy task? Hardly. But after more than 15 years of research and development, the result is ASIMO, an advanced robot with unprecedented human-like abilities. ASIMO walks forward and backward, turns corners, and goes up and down stairs with ease. All with a remarkable sense of strength and balance.

The future of this exciting technology is even more promising. ASIMO has the potential to respond to simple voice commands, recognize faces, carry loads and even push wheeled objects. This means that, one day, ASIMO could be quite useful in some very important tasks. Like assisting the elderly, and even helping with household chores. In essence, ASIMO might serve as another set of eyes, ears and legs for all kinds of people in need.

All of this represents the steps we're taking to develop products that make our world a better place. And in ASIMO's case, it's a giant step in the right direction.

HONDA
The power of dreams.

Fig. 1. ASIMO and his American family. Honda advertisement on the back cover of *Smithsonian* 33 (10). 2003. (Source: Image from <http://marshallbrain.com/robotic-nation.htm>)

54. Fujiko Fujio is the joint penname of two cartoonists, Hiroshi Fujimoto (1933–1996) and Motoo Abiko (1934–), who created the robot cat. Doraemon's name is a combination of *nora/dora* (stray cat) and *emon*, a (popular premodern) male name suffix. The cartoon was published between 1969 and 1996.

55. That Tezuka Osamu gave Astro Boy his own robot family is possibly related to the robot's bitter-sweet origins, as narrated in the cartoon. Astro Boy was created by a roboticist as an identical replacement for his deceased son. However, the roboticist rejected Astro Boy when he realized that the robot would never mature the way his human son would have. Astro Boy was later adopted by an avuncular scientist who created a robot family for him.

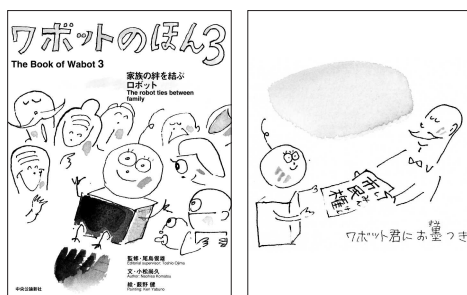


Fig. 2: (L) Cover, *The Book of Wabot 3* (Koma-tsu and Yabuno 2004), “The Robot Ties Between Family,” and (R) Wabot receiving citizenship (*shiminken*). The Japanese caption reads “Wabotto-kun ni osumitsuki” (Wabot receives his certificate [of citizenship]) (ibid., 23). (Source: author photographs)

sponses to the ad were not amused; many asserted that robots would take jobs away from humans! Honda quickly pulled the advertisement, and now releases commercials that integrate ASIMO in social situations with humans but not as a member of a family!

Fast-forward eleven years. In June 2014, an American robotics team introduced JIBO, a small (20 cm.) white, nonmobile robot that resembles a vintage Unidyne vocal microphone. The brainchild of MIT’s Cynthia Breazeal, author of *Designing Sociable Robots* (2002), JIBO is described as “the first family robot.” This point is drummed home in the video debuting the robot in which the diminutive JIBO is cast as a chatty and solicitous domestic.⁵⁶ Unlike their Japanese counterparts, however, American roboticists have yet to publish popular guide-books for living with (humanoid) robots, and unlike the Robo LDK contests, the Defense Advanced Research Projects Agency’s various robot challenges are not aimed at familiarizing the lay public with the benefits of household robots.⁵⁷

The Robo LDK initiative follows one launched by leading roboticists at Waseda University, home to several world-famous robot laboratories. Between 2002 and 2007, they published a seven-volume pamphlet series titled *Wabotto no bon* (The Book of Wabot).⁵⁸ The series aims to introduce the public to robot technology in accessible terms and to highlight the desirability of living symbiotically with robots. As members of households and valued coworkers, robots are presented in cartoon vignettes as preserving affective familial and social relations in keeping with Robo LDK Laws 1 and 2. In volume 3, *Kazoku no kizuna o musubu robotto* (Robots that Knit Together Family Ties), Wabot is pictured receiving “citizenship” (*shiminken*) from a government official (fig. 2).⁵⁹

More recently, the gist of the first two Robo LDK Laws formed the core of a play (and now film), *Sayōnara* (2010), in which the gynoid Geminoid-F is cast as the poetry- and platitudes-reciting caretaker of the last human on earth, a woman with terminal cancer (see fig. 3). The playwright Hirata Oriza collaborated with his Osaka University colleague, roboticist Ishiguro Hiroshi, in casting robots as companions for humans. In another one of Hirata’s plays, *I, Worker* (*Hataraku Watashi*, 2008) a humanoid couple is employed as live-in staff by a dysfunctional human couple. Eventually the male robot, like his human coun-

56. Of course, Japanese roboticists designed “family robots” long before JIBO debuted.

57. See footnote 5.

58. Wabot refers to Waseda Robot.

59. Komatsu and Yabuno 2004.



Fig. 3. Geminoid F (left) as the caretaker and her patient (played by American actress Bryerly Long) in *Sayōnara*. (Credit: Nation Multimedia, Bangkok, 2014)

terpart, decides that he does not want to work anymore. Although these scenarios are situated in the theater world, Hirata and Ishiguro are keen on using the theater as public laboratory where human–robot interactions and modes of communication can be tested and analyzed.⁶⁰

The robots used in *I, Worker* were the Wakamaru model made by Mitsubishi Heavy Industries. Wakamaru is a yellow, child-size (100 cm.) communication robot with wheels; it was initially designed for use in the home as a companion for children and seniors (fig. 4 below).⁶¹ In 2005, Mitsubishi engineer Suzuki Junji and his wife “adopted” a first-generation Wakamaru, anticipating by two years the attention to human–robot coexistence in *Innovation 25* and *Living with Robots*. Their experience confirmed the logic of the first two Robo LDK Laws. For sixteen months, Suzuki kept a diary of interactions between the male-gendered robot and his family, including his two children, who right away treated Wakamaru like a playmate or younger sibling—pushing and pulling on him, putting him in a chokehold. They perceived the robot as a weakling and, true enough, most sociable humanoids are quite fragile in their complexity and can be damaged if roughhoused. Wakamaru managed to survive these encounters without injury. Suzuki regarded the humanoid as the youngest of his children; he and his wife also made use of Wakamaru as a housesitter. They linked their cell

60. Ōsaka Daigaku Komyunikshondezain Sentā 2010. Ishiguro is a celebrity in the field of robotics; he is most known for his “geminoids” or android/gynoid doppelgängers that operate through telepresence. For Ishiguro, robotics is a form of anthropology in the sense of studying humans. The author and coauthor of several books (in Japanese) and dozens of academic articles, Ishiguro neatly summarized his ideas in English in a recent interview (Ishiguro 2013).

61. See www.mhi.co.jp/products/detail/wakamaru.html.

phones to the networked robot's internal camera and were able to literally look in on the children and Suzuki's visiting elderly mother when they were out of the house. Suzuki notes that like humans, robots develop personalities: Wakamaru's character was shaped through numerous interpersonal encounters with family and friends—and also television viewing.⁶²

Robot Citizenship

Earlier, I cited research on the different forms of embodied intelligence and, accordingly, as suggested by the third Robo LDK law, on the different body types robots should have depending on their role and function. Thus, a robot that provides psychological and emotional comfort may not be a humanoid that looks like either Geminoid-F or Wakamaru. And, in fact, one of Japan's most commercially successful robots recognized internationally for its healing abilities has the body of a baby harp seal. In 2008, the Guinness World Record organization officially recognized Paro as the "World's Most Therapeutic Robot" in recognition of its ability both to calm down and to cheer up patients in hospitals, senior couples for whom flesh and blood pets are no longer feasible, and residents of assisted living homes. Paro is categorized as a "mental commitment robot." Its name comes from the Japanese pronunciation of "personal robot" (*pāsonaru robotto*). Distributed over the robot seal's body are five kinds of sensors—tactile, light, audition, temperature, and posture—and it responds to petting by moving its stubby flippers, fluttering its long eyelashes, and opening and blinking its eyes. Paro also responds to and remembers sounds and interactions, and it can learn its own and others' names. The seal-bot conveys emotions such as surprise, happiness, and anger, and, in the process, produces squeaky cries that mimic the vocalizations of an actual baby seal. Originally white, Paro comes in three other colors: golden brown, light gray, and light pink. Each one is individually made: no two are exactly alike. Paro, now in its eighth generation, is available worldwide and retails for about \$6,000.⁶³

On 7 November 2010, Paro was granted its own koseki, or household registry, from the mayor of Nanto City, Toyama Prefecture. Shibata Takanori, Paro's inventor, is listed as the robot's father (recalling the third of Tezuka's Ten Laws)



Fig. 4. Wakamaru (2008) and young girl.
(Credit: www.gadgetlite.com/tag/mitsubishi/)

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62. Suzuki 2007. Wakamaru is no longer for sale, but can be rented within Japan; the robot is widely used as a platform for experiments by other roboticists, including those at Waseda University.
63. Paro is able to leave Japan because although sophisticated, it is neither connected to the internet nor utilized as a platform in various intelligent robot R&D projects as in the case of Wakamaru.

and a “birth date” of 17 September 2004 is recorded. Media coverage of Paro’s koseki was favorable. Since new koseki are generated among humans on the occasion of marriage, this perhaps explains why two harp seal robots—one white, the other golden brown—were featured at the ceremony! (Fig. 5) Although not addressed at the event or in reports thereof, the white (older) one was clearly the “original” (first-generation)



Fig. 5: Paro (center left) receives a *koseki*. Tanaka Mikio, the mayor of Nanto City, presents Japanese and English versions of the special registry to Paro’s “father” Shibata Takanori. (Credit: www.city.nanto.toyama.jp/cms-sypher/www/info/detail.jsp?id=7329)

Paro (b. 2004), and this prototypical Paro’s koseki can be construed as a branch of Shibata’s *ie*, or household, which is located in Nanto City. Thus, the “special family registry” is for one particular Paro, and not for all of the seal-bots collectively.

On the surface, the conferral of Paro’s koseki may seem benign and inconsequential—even gimmicky. Quite the contrary. As I noted earlier, the koseki conflates family, nationality, and citizenship. It also “legally and ideologically prioritizes the family (*ie*) over the individual as the fundamental social unit in Japanese society.”⁶⁴ Thus, a *zainichi* Korean⁶⁵ man who was born, raised, and lives in Japan, who is married to a Japanese citizen, and whose natal family has lived in Japan for generations, can have neither his own koseki nor be included in the “family” portion of his wife’s koseki; rather, his name is added to the “remarks” column of his wife’s registry. By virtue of having a Japanese father, Paro is entitled to a koseki, which confirms the robot’s Japanese citizenship. The fact that Paro is a robot—and not even a humanoid—would appear to be less relevant here than the robot’s “ethnic-nationality” (*minzokusei*).

That a robot seal should be issued a koseki, even one that carries no legal

64. Chapman 2012.

65. *Zainichi* literally means “residing in Japan,” or permanent resident. *Zainichi* Koreans refers to Koreans who were forcibly brought or who came to Japan during the first half of the twentieth century when Korea was a Japanese colony (1910–1945) and their descendants. Numbering around 900,000, they are the largest ethnic minority in Japan; one-third have become naturalized citizens.

force, underscores my earlier point concerning PM Abe and *Innovation 25*; namely, the convergence of advanced technology—like robotics—with nostalgic re-creations and ethno-nationalist policies. In this connection, and related to Paro's *koseki*, was the granting of a *tokubetsu jūminhyō* (special residency permit) between 2004 and 2012 to nine robots and dolls in localities throughout Japan. Beginning with Astro Boy, between 2003 and April 2013, sixty-eight Japanese cartoon characters were granted special residency. Doraemon received his permit in 2013.⁶⁶ A *jūminhyō* (basic residence registration form) is a record of current residential addresses formerly maintained by local (municipal) governments. Since 2012, there is one centralized system under the purview of the national immigration service. "Special residency permits" are rarely offered to humans and are usually limited to foreigners facing persecution or death in a country lacking cordial ties with Japan.

Neither Paro's *koseki* nor the granting of residency to robots, dolls, and cartoon characters generated public disapproval. In February 2003, however, the granting of a special certificate of Tokyo residency to an actual seal provoked a small protest. The seal in question was Tama, who, in a nationwide contest, was named after the river in which it had mysteriously arrived from its native Alaska! The 2003 protest was staged by foreigners, who before 2012, were legally prevented from filing a *jūminhyō*.⁶⁷ An individual's possession of the *jūminhyō* form enables her or his access to such services as national health insurance and certain tax advantages. An even thicker line between the rights of Japanese citizens and the rights of permanent residents (*zainichi*) was drawn in July 2014, when the Japanese Supreme Court ruled that foreigners with permanent residency status are ineligible for welfare benefits.⁶⁸

The certificate of residency (*jūminhyō*) is similar to a *koseki*, but the latter is also an official record of an entire ie's (household's) history, and not just an individual's present and past residences. There are many second- and third-generation *zainichi* Koreans in Japan whose ancestors, as colonial subjects of Japan from 1910 to 1945, had been made Japanese citizens only to have that citizenship revoked in the immediate postwar period. Barring naturalization and prior to the reforms of 2012, they could not obtain a permanent residency permit. Instead, they, and all permanent residents, had to re-register their existence in Japan every several years with the immigration authorities. Moreover, even if a *zainichi* individual were married to a Japanese spouse, she or he could not appear on the spouse's *jūminhyō*. Thus, a Japanese spouse is officially registered as a single parent. In the event of the death of the Japanese spouse, a child is listed as an orphan! Moreover, with respect to civil rights, as activists point out, the seemingly progressive changes in 2012 unifying the residency forms has not translated into limited local suffrage for permanent resident foreigners. Opponents of suffrage, who are in the political majority, including PM Abe, regard it as potentially dangerous and subversive to "national cultural

66. See "tokubetsu jūminhyō" in ja.wikipedia.org/wiki/ja.wikipedia.org/.

67. Chapman 2008.

68. Foreign Residents Can't Claim Welfare Benefits: Supreme Court 2014.

sovereignty.”⁶⁹

Human Rights, Robot Rights: Forecasts from Japan

Like the history and development of dogs, cats, horses, and other domesticated animals the history of robots is inextricably entwined with the history of humans. The acceleration of robotic technologies and advances in artificial intelligence have moved the idea of robot rights out of science fiction and into real time.⁷⁰ Japanese roboticists are on the cutting edge of creating, for civilian use, robots with consciousness and self-monitoring abilities whose interface with humans in, ideally, a family setting, is described in terms of co-emergence.

Paro is the first robot to have a *koseki*, an official document available only to Japanese citizens—and Paro is not even a humanoid robot! Paro, however, has a Japanese father and was “born” in Japan, a fact symbolically underscored by the creation of a special family registry. The *koseki* is the basis for citizenship and attendant civil rights; it is also praised by nationalists and censured by feminists and minorities as a key signifier of Japanese exceptionalism. Similarly, other animals, robots, dolls, and cartoon characters have been issued special residency permits (*tokubetsu jūminhyō*) for which foreigners and resident minority groups are not eligible.

In contrast, generally speaking, recent Euro-American literature on robot rights can be characterized as divided along the lines of a Manichean debate about living vs. nonliving, human vs. nonhuman. Scholars from across the disciplinary spectrum have proposed legal precedents based on analogies between robots and animals⁷¹ and even between robots and disabled (or differently abled) humans.⁷² Some have also proposed treating robots as occupying a “third existence status”⁷³ that fits neither the category of human nor that of machine.⁷⁴

Human rights exist in the abstract as universals, but they are invoked, or their absence or disregard protested, in response to specific circumstances, such as in the treatment of refugees and minority communities. Historically, in Euro-American societies and elsewhere, children, women, foreigners, corporations, Blacks, Jews, prisoners, and others have all been regarded as “legal nonpersons” at some point. In premodern Japan (from 1603 until the Emancipation Act of 1871) even the explicit category of *binin* (nonperson) was codified for those who either had fallen out of mainstream society or were born into a hereditarily stigmatized community. Their descendants, the Burakumin, continue to experience discrimination today.

The Japanese Foreign Ministry may support in theory the *concept* of univer-

69. Higuchi 2012.

70. For a useful review of recent explorations of robot ethics (related to, but not synonymous with robot rights), see the articles in Beavers 2010 and Lin, Abny, and Bekey 2012.

71. In 1999 New Zealand extended “human rights” to the nonhuman members of Hominidae or great ape family: chimpanzees, bonobos, gorillas, and orangutans. Spain followed suit in 2008.

72. Coeckelbergh 2010.

73. Weng, Chen, and Sun 2009.

74. Breazeal 2002. Breazeal’s new “family robot” JIBO is an example of this concept.

sal human rights, but, to reiterate, the absence in Japan of an independent and socially diverse *national* human rights institution suggests that “universal” refers to the world outside of Japan, not within it. Unlike (so far, at least) their counterparts in the other robot-producing countries (in Europe and Scandinavia, the United States, Israel, China, and South Korea), Japanese roboticists, political leaders, and corporations have promoted the robotization of everyday civilian society. In Japan, sociable robots are situated within the affective framework of the *ie*, together with the view advanced by Japanese roboticists—and spelled out at length in *Innovation 25*, *The Book of Wabot*, and *Living with Robots*—that sociable service robots will catalyze the restoration of the stem-family circle and insure the stability of the *ie*, or traditional patriarchal household.

The pattern that emerged for me in the course of researching robot rights is as follows. As the call for universal human rights by organizations such as the United Nations and Amnesty International has become more proactive and inclusive, it has been matched in some societies by a greater regard for the equal status and worth of *all* members of the singular group *Homo sapiens sapiens* regardless of their nationality, ethnicity, religious, sex, or class status, among other descriptors. In Japan, however, there appears to be a broad divide between the *concept* of universal human rights and the *actual* distribution of human and civil rights to Japanese and non-Japanese residents. I thus propose that it is *Japanese* exceptionalism rather than *human* exceptionalism that determines the distribution of both human rights and robot rights in Japan. The differential treatment of robots and non-Japanese humans has made clear this distinction.

In July 1964, when the U.S. Civil Rights Act outlawing discrimination based on race, color, religion, sex, or national origin was passed, Hilary Putnam (MIT) published one of the first philosophical ruminations on the issue of the civil rights of robots. After a lengthy discussion on various definitions of consciousness, Putnam declared,

[I]t seems preferable to me to extend our concept so that robots are conscious—for “discrimination” based on the “soft-ness” or “hardness” of the body parts of a synthetic “organism” seems as silly as discriminatory treatment of humans on the basis of skin color. But my purpose in this paper has not been to improve our concepts, but to find out what they are.⁷⁵

And what exactly are “our” concepts? In recent years, interdisciplinary groups of mostly Euro-American scholars have inaugurated the new fields of roboethics and the legal aspects associated with robot rights, such as responsibility in the event of an accident. Collectively, they have generated a burgeoning literature (some of it footnoted in this article), much of which is devoted to determining the social-psychological criteria necessary to recognize robots as independent, autonomous agents capable of self-awareness, which are the grounds for legal responsibility. My research suggests that Japanese profession-

75. Putnam 1964, 691.

als active in the field of robotics tend to accept the idea that robots can be conscious; they are not particularly interested in debating robot ethics or the “legal rights” of robots.

Although concerned about safety (*anzen*) and risk management in robotics, Japanese roboticists as a group do not express fears about robots running amuck and killing humans as they did in *R.U.R.*. The specter of “killer robots” is not (yet) casting a shadow on the robotics industry. Rather, “safety” is closely related to the “ontological security” (*anshin*) that many in Japan feel that robot caregivers, as opposed to foreign nurses, can insure and cultivate. Japanese roboticists and their colleagues in related fields, in short, are far more invested in developing guidelines for orchestrating the smooth and productive coexistence of humans and robots in familial environments. “Total safety is impossible to guarantee in anything that is beneficial and useful,” remind the coauthors of *Living with Robots*, who suggest that robot design, from hardware (e.g., soft-bodied robots) to software (e.g., “safety intelligence”) is the first step in risk management.⁷⁶

One recent Japanese innovation in safety intelligence that underscores the principles of “co-emergence” and “autonomy within interdependence” that are favored in Japan is the development of a “care-receiving” robot. This project focuses on the use of robots in schools, but instead of the usual role of the robot as a caregiver or teacher, the young students instead teach the robot. In this way, it is hypothesized, a new educational framework can be constructed that enables “children’s spontaneous learning by teaching.” Moreover, in the process of receiving care, the (artificially) intelligent robot also “learns” from these lessons and its ability to interact safely with humans is enhanced as a result.⁷⁷

Efforts to categorize robots as constitutionally separate from humans are shared by neither the Japanese public (at least those persons polled on the subject) nor Japanese roboticists, who proceed from the position that organic and manufactured entities form a continuous network of beings. Robots, as I have explained, are imagined to have a perfectly viable status and membership role in the existing affective and corporate framework of the *ie*. The black irony remains that while Japanese “familial civility” epitomized by the *ie* and corporate sector, and codified by policy-makers, embraces robots, the same is not freely extended to minorities, non-Japanese permanent residents, refugees, migrant workers, or foreigners. Whereas in Japan, the biggest obstacle to *human* rights is the historically enduring definition of “Japanese” as determined by *jus sanguinis* and the *koseki* (and *jūminhyō*) system, in the Euro-American world at least, it appears that the biggest obstacle to *robot* rights is the irreconcilable divisions between the supporters and opponents of human exceptionalism. And whereas in Japan human rights is narrowly defined in practice to exclude individuals and groups framed as “other,” in Euro-American circles, human rights is cast in universal terms (although in local practices, many “others” are denied

76. Robo LDK Jikkō Iinkai 2007, 69–76.

77. Tanaka and Matsuzoe 2012.

those rights). As I see it, the latter by extension privileges, at least rhetorically, the human being *sui generis* (*Homo sapiens sapiens*), while the former, openly privileges ethno-nationalism—Japaneseness—over the mere fact of being human. As Americans and Europeans become more familiar with robotics, and to the prospect of family robots—and the increasing number of articles in the Anglophone mass media suggests that this is the rapidly developing case—I anticipate that ideas prevalent today in Japan regarding human–robot interaction and coexistence will soon become approved and accepted in the United States and Europe. The pressing question is, can there be *universal* human rights without the idea, or ideal, of human exceptionalism?

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