God in the Machine
Perceptions and Portrayals of Mechanical *Kami* in Japanese Anime

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Robots are an increasingly common staple of realistic science fiction. Summer blockbuster movies warn us of the dangers of giving in to hubris by creating machines that are as intelligent and capable as we are, and humorous books provide the wary with helpful tips on how to prepare for the inevitable robot revolution. In Japan, however, this trope is reversed. Instead of being coldly rational enslavers of humanity, unsympathetic to their creators, fictional Japanese robots are just as emotional as their human counterparts and often strive to defend humans and humanity. The roles for robots that are common in American movies almost never appear in Japanese works, and the reverse is true as well. Fictional Japanese robots tend to fall into three categories: being equivalent to humans, being god-like, or serving as a spiritual vessel for gods. For the first category, some robots are so much like humans that their mechanical nature is not even a particularly salient feature. Instead, it is about as important and emphasized as the blood type of a human character. Almost never are questions raised about whether the robot has a soul. This can be seen to be consistent with Buddhist and Shinto beliefs that treat animals as being spiritually similar to humans, while the Abrahamic traditions espouse that only human beings have souls. Since Japanese religions already accept animals as spiritual beings, the extension to robots is a small one. In the second category, giant robots in anime are frequently portrayed as being god-like. They are sometimes built by humans in need of protection, but they also frequently appear as ancient, unfathomable beings. They greatly resemble Shinto gods, being

worthy of respect due to their impressive size and power, and existing independently of humanity while being willing to grant the requests of those they have chosen as worthy representatives. Finally, fictional robots that are not gods themselves may serve as spiritual vessels for them, as puppets can serve as vessels for gods in Shinto ceremonies. This allows even those robots that are not spiritual creatures themselves to touch the realm of the holy.

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PREFACE

Japanese names in this thesis are written in the original Japanese order, with surname first followed by given name. Works of Japanese fiction are referred to by their English titles throughout, including in the bibliography, with the Japanese title and romanization provided in brackets as appropriate. For instance, the Japanese series 鉄腕アトム [*Tetsuwan Atomu*] is referred to as *Astro Boy* even though it is the original Japanese work, not the English language version, that is being discussed.

This thesis was created with the help of many people. My advisor, Gabriella Lukacs, and committee members, Clark Chilson and Müge Finkel, deserve particular thanks for their patience and guidance. I must also thank my father, Edwin Minkey, Jr., for his exceedingly practical advice, and my siblings, Amanda and Bryan Holland-Minkley, for providing excellent role models for the path I now walk. I am also indebted to my friend Greg Hallenbeck for his unfailing support, Nayasha Bacchus for sharing many late nights with me, and Jonathan Baron for being a limitless resource for everything having to do with robot anime. Your support made a challenging task much easier.

1.0   INTRODUCTION

American and Japanese robots can seem nothing alike. Even a cursory glance at Boston Dynamics's BigDog and the Association for Iron & Steel Technology (AIST)'s Paro reveals stark differences, although both can be considered cutting-edge technology. BigDog is a prototype military robot whose development was funded by the United States Defense Advanced Research Projects Agency (DARPA) for the purpose of carrying military cargo autonomously through rugged terrain ("BigDog"). Its appearance is roughly that of a skeletal, headless dog. Although its stated purpose as a cargo drone is not excessively frightening, the general reaction to Boston Dynamics's promotional videos is one of disgust, fear, or "creepiness." Its unnatural imitation of an animal's gait often sets the viewer's nerves on edge, and it is not hard to imagine it carrying a cargo more threatening than food and water. In comparison, the Japanese Paro is almost as different from BigDog as it could possibly be. Designed to look like a cuddly baby seal, Paro was created to help those confined to a hospital or extended care facility relax and maintain their cognitive abilities through convenient and non-threatening socialization ("Paro," Hornyak 88). Paro develops an individual relationship with the person to whom it is assigned, vocalizing to them with the voice of a baby harp seal and learning their preferences based on how they treat it. Paro is not only friendly but also adorable, eliciting affection instead of the visceral horror often evoked by the American BigDog.

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What is behind this difference? That is the question this thesis seeks to address, specifically by examining the religious cultures in which these different types of robots are created. The path of innovation is not forged solely through necessity, but instead also depends upon the limits of what researchers are likely to consider. Robotics and religion researcher Robert Geraci wrote, "No amount of materialist scientific practice will eliminate the cultural grounds of the human person; the religious environment in which one is raised and trained contributes to the ways in which the person will see the natural world and practice science" ("Spiritual Robots" 240). It is impossible to divorce even a scientist from their cultural context, and so studying this context helps illuminate the reasons for the differences seen in robotic design between the two countries.

The question remains why religious culture is being examined as compared to other types of culture. For instance, it would be tempting to attribute the Japanese affinity for friendly and helpful robots to the 1952 manga (comic book) series *Astro Boy* [鉄腕アトム, *Tetsuwan Atomu*], due to its persistent popularity in Japan. Perhaps its robotic hero inspired Japanese roboticists to produce in real life the same kind of sociable artificial intelligence evident in *Astro Boy*. While tempting, however, this theory raises the essentially equivalent question, "Why [did] the Japanese have an affinity for him in the first place?" (Geraci, "Spiritual Robots" 238). The same conclusion is drawn here as in Geraci's article: the religious environment of Japan is such that it welcomes human-like robots while America's religious environment repels them.

To analyze how the respective religious climates influence the attitudes towards robots in each country, this thesis will use fictional works from both America and Japan in an attempt to achieve a candid glimpse into the two countries' views on robots and their roles within society. In the following section of this thesis, a literature review of the research that has been done to

date on this subject is presented, although research on the development of robots in different countries from a religious standpoint is scarce as of yet. A brief discussion of the applicable research methods follows, succeeded by an investigation into the appropriate definition of the term "robot" for cross-cultural fictional contexts. Finally, the analytical part of the thesis is split into four sections: robots as they appear in American fiction, specifically films, and then three categorizations into which Japanese fictional robots may fall: equals with humanity, robots as examples of Shinto deities (*kami*), and robots as mediums for spirit possession.

2.0   LITERATURE REVIEW

The relationship between robots and religion is one that has not seen extensive scholarly analysis thus far. Although books about robots and society have been written, they generally focus on the economic impacts that robots will have or the philosophical implications of humans adopting cybernetic modifications to become cyborgs, that is, partially human and partially mechanical beings.   While the boundary between being human and being mechanical has thus been examined, what it means to *be* a machine is rarely considered.   Investigations from the perspective of religious studies are equally scarce (Geraci, "Apocalyptic AI" 140). In Japan, none of these examinations are common outside the real of fiction, as scholarly articles almost exclusively focus on how robots can be made to integrate more naturally and effectively into society, without discussion of what it means morally for robots to be part of society. In neither language is much said of the portrayal of robots in fictional works and what that demonstrates about the society's attitude towards robots, nor has substantial cross-cultural examination been done. As a result, much of what philosophical or religious analysis does exist implicitly assumes that robots will exist everywhere as they are judged to likely exist within the author's own future social context.

Within American publications, the research of Robert Geraci is most relevant here, as he works to bridge the gap between robotics and religion, even including cross-cultural studies of Japanese robotics, although he unfortunately does not do much analysis of the view of society at

large as compared to that of roboticists. In his research, Geraci describes the emphasis towards artificial intelligence (AI) over robotic bodies in American robotics research ("Spiritual Robots" 232) and attributes this to what he calls "Apocalyptic AI." While the Judeo-Christian apocalypse centers around the idea that "God will create a new world and resurrect humanity in glorified new bodies to eternally enjoy that world, … Apocalyptic AI looks forward to a mechanical future in which human beings will upload their minds into machines and enjoy a virtual reality paradise in perfect virtual bodies" ("Apocalyptic AI" 140). Because of this apocalyptic ideation, Geraci claims, American roboticists focus on perfecting artificial intelligence and virtual realities so that they can create this eternal virtual paradise.

While Geraci makes a convincing argument with regards to current robotics research, this view of robots by American roboticists differs substantially from their portrayal in American fiction, as can be seen in a later section. In short, it can be said that roboticists have a romantic view about the future roles of robots, believing that people will join their artificial brethren in a virtual afterlife (*ibid*. 154). Fiction writers, however, tend to portray either those people who are existing outside the virtual world and struggling with the robots who still exist physically (e.g., *The Matrix*), or, more frequently, robots integrated with a society similar to the one we have today (e.g., *I, Robot*). Within the first narrative structure, robots have ceased desiring to serve us (*ibid*. 156) and have instead entered into violent conflict with us as a result of the sharp divide between the virtual and the physical (*ibid*. 155). One particularly pessimistic but logical conclusion of this theory is that the entirety of the human race will be destroyed in this conflict (*ibid*. 158), a threatening theme that often appears in American fiction, uncoupled from Geraci's optimism that robots might then at least enjoy the virtual paradise that humans could not. The second narrative structure focuses on the conflict between humans and robots without the

necessary inclusion of a virtual utopia, making it similar to the first case and equally against Geraci's analysis. The role of robots as portrayed by American fiction writers is markedly different from that of roboticists as described by Geraci, suggesting that the view of robots held by those who enjoy such fiction is likely different from that which he describes.

In contrast, Geraci's interpretation of Japanese robotics fits well with those seen in Japanese fiction, as will be demonstrated in later sections of this thesis. Geraci demonstrates that even for factory roots, "Buddhism and Shinto afford sanctity to robots: robots are blessed, take part in cosmic salvation history, and they are accordingly welcome in Japanese society" ("Spiritual Robots" 235). This stands in marked contrast to American robots, which are largely commissioned and funded by the United States military ("Apocalyptic AI" 155), a role that separates them from both the realm of salvation and from possible integration with society. Geraci continues, "Unlike in the Augustine tradition of Christianity (which puts the natural world further from God, and thus less sacred, than human beings), Shinto advocates the equality of gods, nature and human beings," consequently also including robots within the realm of the sacred (*ibid*. 236). This is very visible in Japanese fiction.

As mentioned previously, Japanese investigations into robotics from a religious or philosophical point of view are quite scarce. To examine the Japanese mindset at least a little, however, it may be useful to consider the work of Nishitani Kenji, specifically as it relates to machines. As the work in question was first published in 1962, technology was far from its current state, so it is more fair to consider his subject to be closer to robotic factory arms, such as those that still spray paint cars on assembly lines today, than walking, talking, autonomous machines. Even with this limitation, however, machines are described in an almost fetishized fashion: "Machines are pure products of human intellect, constructed for man's own purposes.

They are nowhere to be found in the world of nature (as products of nature); yet the workings of the laws of nature find their purest expression in machines, purer than in any of the products of nature itself. The laws of nature work directly in machines, with an immediacy not to be found in the products of nature. In the machine, nature is brought back to itself in a manner more purified (abstracted) than is possible in nature itself" (83). When put into context with contemporary philosophical fears of mankind being forced to become mechanized themselves through the demands of dehumanizing factory labor, the above quote can be seen to mean that robots are perfect conduits for nature's laws because of their lack of humanity and free will, and this was likely the original intention. Still, it is hard to simply cast aside the potential positive implications of robots being seen as being so closely intertwined with nature. This is especially true as such "emptiness" is considered very positive in the theories of Daoism (Zhuangzi 53), where letting the Way work through oneself without obstruction is the highest ideal and results in the most beneficial outcomes.

Finally, it seems appropriate to end this section with a quote from the Chinese Confucian-Daoist philosopher Zhuangzi referenced above. Although he wrote in the fourth century BCE, and thus did not write about even machines, one of his quotes provides an excellent summary for the role of robots in Japanese fiction. He described the ideal Confucian sage by saying, "Puny and small, he sticks with the rest of men. Massive and great, he perfects his Heaven alone" (71). This excellently summarizes the relative roles of human-like and god-like robots within anime, as human-like robots live and act just as humans do as they live amongst humans, while giant, god-like robots stand apart, helping only as they deign to, unbound by the restrictions of human society. These ideas will be expanded upon further in the following sections.

3.0   METHODS

This thesis is not intended to analyze of the role of fiction within or on a society; specifically, it sidesteps the call "to expose [fiction's] corrupting influences and aesthetic poverty… or, in Marxist approaches, to reveal its role as a purveyor of dominant ideology," (Bennett 348). It does not matter here who is using robots as, for instance, a metaphor; as long as the metaphor is used consistently, that can be said to represent society's feelings towards its subject. That American and Japanese fiction display different *portrayals of robots* speaks towards the differences in the American and Japanese *feelings towards robots*. That is, the dominant approach towards mass communication analysis is being followed, focusing on "overarching discourses of culture" instead of the specific details of each text and their respective creators and audiences (Jensen 28). Thus, while the subject matter of this thesis involves analysis of religious influences, it does so within the context of cultural studies, not of religious studies.

These texts are being used as cultural representations for the material they take for granted as much or more than their intended messages. That is, they are being used specifically because they are samples of mass media, which is necessarily standardized in order to appeal to a large audience (Wilensky 89). This allows for a convincing generalization of the view of robots in fiction, as it is intended to be a viewpoint that is widely accepted. This is especially important for the Japanese works, where the analysis is of the robotic characters but the main messages can be unrelated to robots in general. For example, the anime *Aim for the Top 2!* [トップをねらえ

２！] is used here to exemplify the relationships of robots with humans and robots with robots, while the show's overarching themes – such as the transient power of adolescence embroiled within the emotional turmoil of teenagers and the lingering desire for power from adults already past their peak of physical prowess – are simply ignored as irrelevant.

As mass media analyst David Altheide noted, it can be treacherous to interpret an author's motivations, even when relying on their socio-historical context to do so. Not only might an author be writing for a different purpose, they might not even be aware of the contextual components you are attributing to them (8). This risk is alleviated here by minimizing the number of esoteric elements considered. It would be hard to claim that all authors are Buddhist scholars, but it is less unreasonable to assume that most Japanese authors are aware of some of the basic tenets of Buddhism as it is practiced in Japan. Scholars of Japanese religion support this view as well, noting that in Japan, "religious ideas, concepts, and activities are socially and culturally imbibed without necessarily being explicitly recognized as religious by the performers" (Reader 12). While taking a survey approach to the thesis topic makes for less satisfying analysis from a semiotic point of view, it is appropriate for cultural analysis, which depends on the interpretation of a genre instead of deep analysis of one or two particular texts (Larsen 129).

Finally, it is worth noting that not all fictional works support the conclusions presented in this paper. As difficult as it is to draw a large generalization within reality, that problem is only exacerbated within the realm of fiction. As literary theorist Tzvetan Todorov noted, "the text can 'reflect' social life but can just as well incarnate its exact opposite" (18). It is to be expected that opposing examples will exist, sometimes even just because their creators are attempting to create something new and different from what has existed before. To say that fiction cannot be used for

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cultural analysis due to this, however, would be effectively throwing the baby out with the bathwater. Instead, it is more beneficial to allow those contrary examples to exist as anomalies while maintaining the idea that the way robots are most frequently presented in fiction is one that will be well known, understood, and accepted by its society of origin.

4.0   WHAT IS A ROBOT?

To examine the standard portrayal of robots in fiction, it is first necessary to define what is meant by the term "robot." Even here, however, a strong difference exists between the American and Japanese views. For familiarity, clarity, and convenience, the definition used will be based on American standards and applied cross-culturally to ensure that the differences seen between the two cultures' robots are not based on comparing different categories of characters.

Since fictional robots are related at least loosely to those existing physically in the world, it is useful to first consider the scientific definition of the term, and so a technical definition has been selected from both an English and a Japanese dictionary. The English definition of "robot" is as follows: "A machine designed to replace human beings in performing a variety of tasks, either on command or by being programmed in advance" (*American Heritage Science Dictionary*). According to the English definition, then, a robot is a mechanical replacement for human beings, carrying out specified tasks according to its programming. The Japanese definition for ロボット [*robotto*, lit. robot] is similar: "Automatically-operating computer-controlled machinery and equipment for manufacturing and processing. Does not need to have human form. Automated machine" (デジタル大辞泉 [*Digital Daijisen*]; translation mine). This Japanese definition does not explicitly state that the robots are created to replace humans for labor, but instead elaborates that they are made for manufacturing work. It also elaborates that they do not need to have human form, suggesting that there may be a general assumption that

"robots" should look like humans, perhaps due to their appearances in fiction or service jobs such as being an attendant in a hospital.

The portrayal of robots in fiction, however, is only rarely "*about* the real," instead being much more frequently "*like* the real," to use the terminology of John Corner (70, emphasis original). Viewers readily accept that what they see is not intended to taken as real, but instead is a mimetic depiction of what could be real (*ibid*. 71). Consequently, it is neither surprising nor disturbing that fictional robots do not precisely follow the official definitions of realistic robots for its character types. The technical definition is based around robots as they currently exist in the world, but those robots are insufficiently advanced to be characters by themselves, a role that is already generally accepted within fiction. For example, advertisements do not need to specify that robot action movies are going to feature something more advanced than Roombas, even though Roombas are a good example of technologically current robots. Fiction requires something more.

Although the precise interpretation of what is considered a robot varies between fictional works, it is worth having an overarching definition for the purpose of analysis. Since it is clear that Roombas are insufficiently advanced as to be considered real robots in fiction, it is convenient to examine what they lack as compared to those that are present in fiction. One of the major differences is autonomy. Although Roombas are autonomous in the sense that they are not directly controlled by human directions, they still follow preset programming and the paths they take through a room are deterministic. They do not contemplate the ideal path through the room before beginning to clean, nor exhibit other behavior indicative of independent intelligence. This lack of intelligence and independence is the most consistent difference between real and fictional robots. Another trend widely viewable in fictional robots is their

ability to communicate with people. While most robots can speak in a human language, even those that cannot speak still communicate in some way, such as R2-D2's inflective beeps in *Star Wars*. Even without human language, the ability to communicate reinforces the robots' intelligence and independence. A final common point of many fictional robots is a humanoid appearance; as R2-D2 once again demonstrates, however, this is not necessary for fictional robots and thus is too restrictive to include in a definition.

Finally, it is worth noting that there are differences between the American and Japanese definitions of what constitutes a robot in fiction. The clearest of these is the required presence of Isaac Asimov's Three Laws of Robotics (Asimov 485), which are as follows:

"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 any 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 Law."

While the Three Laws are well known to American science fiction writers, they are not always present in fictional robots, and their lack often causes conflict as robots act contrary to them. In Japanese fiction, however, they are required for a machine to be considered a "robot" (*Chobits* 8:120). As a result, it is very rare for a fictional machine to actually be called a "robot" in Japanese fiction. In *Chobits*, for instance, the robot-like machines are termed "パソコン" [*pasokon*], a Japanese contraction for "personal computers." This alternative terminology removes the restrictions on free will that are tied in with the term "robot" in Japanese fiction. While it would be most anthropologically correct to use alternative terms, however, the result

would be a confusingly wide array of terminology, as each work uses a different word to express the same basic idea. At the risk of ethnocentrism, then, a single, American-style definition will be used in this paper:

"A *robot* is an autonomous, intelligent machine capable of self-locomotion. It is capable of acting without specific directions, in a way that is not deterministic from its programming. It may obey commands or requests from human beings. It does not necessarily need to obey Isaac Asimov's Three Laws of Robotics, nor does it necessarily need to have human form."

While this definition includes many characters that would not be considered "robots" by their creators, it is necessary in order to compare similar characters across different cultures without being excessively limited by linguistic differences. Instead, the main characteristic of fictional robotic nature is maintained: the ability to act in a way that seems to demonstrate free will instead of deterministic programming. It should be noted that it also excludes some things that their creators would term "robots," such as biological robots that are grown instead of built. This is done to ensure that the robots in question are extensions of technology instead of extensions of humans or animals. For similar reasons, robots within alien milieus are excluded from this essay, as those robots tend to be extensions of alien life instead of technology; for instance, the robots in *Star Wars* are less a symbol of how technology can advance and are more an example of yet another alien race that coexists in the universe. The focus of this thesis is how robots, as advanced technology, are portrayed as interacting with a society close to those that already exist in the world.

With the definition for "robot" thus established, two more terms must also be clarified. Within the context of this paper, the term *android* will be used to mean a robot of either apparent gender that looks like a human being, having approximately a human's size and shape. Within

most fictional works, androids are gendered, be it through appearance, voice, or actions, and as such, appropriate gendered pronouns will be used. This is generally consistent with the linguistic treatment of androids within the works themselves. The other term to be defined is *giant robot*, which here means a human-shaped robot that is closer to the size of a building than to a human being. These robots are less consistently gendered, being most frequently referred to by name or title instead of pronouns, and so will generally be referred to as "it." Giant robots are generally only considered gendered when they are expressly female, such as by being colored pink and having feminine bosoms, or when such expressly female giant robots are present within the series. Even in that case, however, genderless pronouns may still be used within the context of the series.

5.0   ROBOTS IN AMERICAN FICTION

Since American fiction is likely to be the most familiar to the majority of readers, it seems logical to begin with an overview of that before continuing on to Japanese works. While full television series are being analyzed for the Japanese sections, the assumed familiarity with Western works allows movies to serve as adequate examples in this section. Those movies considered here are *Blade Runner*, *I, Robot*, and *WALL•E*, all of which are well-known films. *Blade Runner* has been inducted into the National Film Registry as a culturally significant film ("Films Selected to The National Film Registry"), *I, Robot* was a substantial commercial success, earning an ASCAP award for Top Box Office Films ("I, Robot"), and *WALL•E* was also a box office success as well as winning an Oscar for Best Animated Feature Film of the Year ("WALL•E"). The Czech play "R.U.R." is also discussed, due to its importance as the originator of the term "robot," although the robots contained therein are biological and thus do not fit this thesis's definition.

Blade Runner, although not particularly popular when it was first released, has since become a cult classic. It was originally based off of the novel *Do Androids Dream of Electric Sheep?* by science fiction writer Philip K. Dick, although it took its title from a different novel. It is set in a dystopian future (2019), where robots that appear physically identical to human beings secretly mingle with them in society. Although these robots were created by people to serve them, a violent rebellion by the robots demonstrated that they became more emotionally

unstable and less obedient the longer they lived. The development of emotions and attachments was seen as a liability that caused them to turn on the human beings who were using them. As such, robots created after that rebellion were endowed with a mere four-year lifespan so that their bodies would begin to unstoppably decay before they had the chance to become too independent due to burgeoning emotions. For additional safety, they were also forbidden from living on Earth, instead being forced to live in space colonies. Most of the main characters of *Blade Runner* were disintegrating robots of this type, which were desperately attempting to discover a secret that would allow them to continue living. The protagonist of the movie was a retired police officer (played by Harrison Ford) who was given the task of destroying these robots, with most minor characters being humans who worked on creating or selling robots.

Although the robots were generally the deepest characters in *Blade Runner*, and sometimes even sympathetic ones, in the climactic firefight between the police officer and the robots, it was still the human policeman that the audience was supposed to support. The robots were not so sympathetic as to make their violent opposition to those who wronged them by creating them with painfully limited lifespans acceptable. Instead, the audience might be left feeling sorry for them for having had to suffer through emotions that they never should have had, but still not supporting them in their actions. The robots did not have an equal right to life as human beings, even when their appearances, thoughts, and feelings were indistinguishable from humans'. This implies a distinct difference in moral worth between the life of a robot and the life of a human being.

The moral of robots becoming dangerous as they develop emotions is a surprisingly common one in Western fiction. Indeed, it can even be traced back to the piece of fiction that coined the word "robot," the Czech play "R.U.R. (Rossum's Universal Robots)" by Karel Čapek.

In "R.U.R.," the robots were not the mechanical ones we picture today, but biological robots that appeared indistinguishable from humans. These biological robots were created by an entrepreneurial scientist who hoped to be able to alleviate the need for humans to spend the majority of their lives working in factories; in short, he hoped to use the robots as a way to create a utopia where people would only need to do that which they liked. This idea continues to be popular among hopeful proponents of the Apocalyptic AI theory described above, (Geraci, "Apocalyptic AI" 150), and possibly dates back to "R.U.R." as its source.

The most likely intended moral of the play is tied in with that desire for leisure and the dangers of suppressing a lower class (represented by the robots) so that the privileged classes could live a life of luxury. When viewed as a representation of robots, however, one notices that the robots only became dangerous when they were granted human emotions. The only human woman in the play, Helena, was responsible for encouraging an infatuated scientist to attempt to create souls for the robots. She explained her request by saying, "I was afraid of the robots. … I thought they might start to hate us, or something. … And so I thought... if they were like us, if they could understand us, then they couldn't possibly hate us so much... if only they were like people..." Unfortunately, and ironically, it was this fearful request that doomed them, since emotional robots were able to understand and bridle at the injustice of being forced to work in humans' places, eventually leading them to revolt and attempt to massacre humanity. This follows the fears of the more pessimistic proponents of Apocalyptic AI (Geraci, "Apocalyptic AI" 156). As simple machines, there was nothing to fear from them, but as humanoids with human intelligence, human emotion, super-human strength, and no need for nourishment, they gained the desire to rebel, on top of the impressive ability to do so that they had already possessed. It was attempting to make the robots more like themselves that doomed mankind.

Although the robots in this play were biological constructions, and so do not fit in with the definition of "robot" being used here, "R.U.R." is useful as a direct comparison to *Blade Runner* by putting its issues of morality into explicitly religious terms.

Unlike *Blade Runner*, the recent movie *I, Robot* was a summer blockbuster hit. Like *Blade Runner* and "R.U.R.," however, it also dealt with the dangers of robotic morality. Based loosely on the science fiction writings of Isaac Asimov, it, too, depicted a world where robots had become commonplace. These robots took the form most familiar to viewers of modern science fiction: humanoid but clearly mechanical, constructed instead of grown, and equipped with Asimov's famous Three Laws of Robotics: "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 any 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 Law" (Asimov 485). These Laws are not laws in the sense of being part of a legal code that must be obeyed under threat of punishment, but instead are built into each robot's brain as part of the programming that grants them their artificial intelligence. The movie's protagonist, Del Spooner (played by Will Smith), was a police detective who believed that robots were on the cusp of breaking these three Laws regardless. His distrust came in part because he disagreed with the morality displayed by some of the robots obeying those laws, such as by a robot that once saved him from drowning instead of rescuing the young girl next to him. Although that decision made logical sense, since Spooner had better odds of surviving after the rescue than the girl did, it went against the American sense of morality that insists that children should take precedence over adults, even if the adult is more likely to receive lasting benefit from the help.

Since Spooner disagreed so strongly with that robot's decision, he believed that it must be a sign that robots could behave immorally, despite the Three Laws.

The final villain of *I, Robot* was a central computer mainframe, VIKI, which took control of all of the robots manufactured by a certain robotics corporation through their wireless software update systems. It is worth noting here that as a pure AI, VIKI is the type of robotic component in which American roboticists are most interested ("Apocalyptic AI" 232), making the final villain be a very American type of "robot" while not being a "robot" according to this thesis's definition. VIKI, as with the physical robots in the movie, was programmed to include the Three Laws, but her intelligence was great enough to allow her to rationalize into existence Asimov's "Zeroth Law": "A robot may not harm humanity, or, by inaction, allow humanity to come to harm," (Asimov 485). By using this self-created law, VIKI decided that robots must be allowed to rule over humans in order to prevent humans from killing themselves in wars and through destructive environmental practices. Those humans who would inevitably die in the robotic revolution would, she calculated, be fewer than those who would die from such preventable deaths.

Unsurprisingly, Spooner was as disapproving of this plan as he was of the robot who saved his life instead of that of the young girl. At the climax of the movie, he was victorious in destroying VIKI and freeing the individual robots from her control, enabling them to return to normal – but not necessarily preventing them from joining forces regardless, as was suggested in the final scene. It is merely to be hoped that those robots would choose their morality more successfully than did the robot who saved Spooner's life or the domineering VIKI, but clearly, allowing robots to become intelligent enough to make their own decisions on morality is to be

seen as a dicey proposition at best. Robotic morality, it seems, is distinctly at odds with that of humanity.

Although *I, Robot* is only loosely based on Asimov's stories, it is worth noting that even in Asimov's original tales, the idea of robots who are able to break the Three Laws is presented as a fearful specter. This is somewhat ironic in two ways. The first is that even if robots break the most important Law, the one that prevents them from taking human life, they would still only be doing something that humans are equally capable of doing. Humans are not born with a physical inability to kill other people, so mandating that robots have this restriction is setting them distinctly apart from us. It is possible this is part of why Japanese authors are disinclined to include the Three Laws in their own creations; by setting them apart, they become less effective characters. The second irony is that many of the robots currently in use or under development in America are being created for the military. Some of these robots are mere cargo carriers, such as BigDog, but others are independent, automated weapons. Although this was not necessarily the context in which Asimov was writing, it was certainly the context in which *I, Robot* was created and viewed. Yet, within the world of the movie, this restriction seemed natural and its possible elimination was seen as being potentially catastrophic. No explanation was made for why it would be that much more frightening than humans having free will; it was taken as assumed that free-thinking robots should be feared.

The final example of American films presented here is *WALL•E*, a film created by the popular computer-graphics-focused studio PIXAR. *WALL•E* may seem a strange inclusion, since its titular protagonist is itself a robot. WALL-E was, indeed, entirely good, sweet, and endearing. Yet the same could not be said for all of the robots in the film: the film's antagonist, AUTO, had similar motivations to the antagonist of *I, Robot*, despite the markedly different

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backdrops and atmospheres of the two films. *WALL•E* took place in a future where humanity had destroyed the entire ecosystem of the Earth through pollution and abandoned it for a "temporary" voyage into space while WALL-E Model robots are left behind to clean it sufficiently for life to once again be sustainable there. Most of the WALL-E Model robots were destroyed over the hundreds of years in which they strove to complete their mission, with the movie's protagonist being most likely the only one left. While it worked at cleaning the Earth, the humans remained on a luxury-cruise-like voyage through space, occasionally sending down robotic probes to ascertain if life had returned to Earth yet.

Where the villainy came in was that the robotic autopilot, AUTO, was secretly given orders never to allow the spaceship to return to Earth, even if signs of life were found there, because the humans who had launched the ship had predicted that the Earth was too badly damaged to ever again become habitable. Thus, AUTO was responsible for maintaining the status quo upon the spaceship, where humans were waited on hand and foot by robots, to the extent that they never even had to stand or walk by themselves. Due to this excessive luxury, humans had devolved into creatures that were unable to move on their own or do anything productive with their lives. Despite AUTO's efforts, however, WALL-E was able to help the human captain discover that life had, indeed, returned to Earth, and subsequently to deactivate the autopilot after it attempted to violently prevent the ship from returning to Earth.

As with VIKI in *I, Robot*, AUTO was willing to harm or even kill humans – including its own commanding officer – in order to protect humanity from what it saw as a greater evil. In this case, AUTO had been ordered by a human to prevent the ship's return instead of independently creating a moral system that justified (or necessitated) it taking violent actions against humans, but the comparison remains that the film's moral was that it is dangerous to

entrust our lives to the decisions of robots. This was a startlingly anti-robot theme for what would appear on the surface to be a pro-robot film due to its cute and personable robotic protagonist.

Outside of the realm of movies, humorous fiction also highly favors the assumption that robots will someday run wild. The website "HUAR (Humans United Against Robots)" states that it "was designed to educate and aware [sic] the citizenry of the world of the impending attack that computers and robots will put into effect against humans." CRACKED.com, a website devoted to publishing humorous lists, has featured stories on "20 Japanese Robots Probably Intent on Murdering You," "The 5 Most Evil Robots Ever Invented," and "The 7 Robots Most Likely to Rise Up Against Humanity." Humorous books such as *How to Survive a Robot Uprising* breezily proclaim that a robot revolution is inevitable and provide helpful hints on how to communicate with robots and protect yourself from them. Overall, the assumption is that robots will someday act to overthrow us, and we had best be prepared for when that day comes. Our odds, it seems, are not good.

Naturally, there are exceptions to the rule. Numerous informational books, websites, and kits exist to help people learn about robots or even build them. The robotic vacuum Roomba is also highly popular, and although there are claims that it could be used as a weapon against humans (CRACKED.com, "The 7 Robots Most Likely to Rise Up Against Humanity"), those claims are clearly intended as jokes. Even in fiction, there exist positive examples, such as the popular droids C-3PO and R2-D2 in the *Star Wars* saga or Lt. Data in *Star Trek: The Next Generation*, although those particular examples situate robots in a context where they appear as one of many equal alien races. Still, while the negative portrayal of robots is merely a trend, it still reflects one of the more common views of robots within American society.

The common point between the various stories of evil, fictional robots is that they cannot be trusted because of their emotions or their morality. In *Blade Runner* and "R.U.R.," robots who gained human-like emotions began to want human-like goals, and as such, were willing to kill the humans who oppressed them in order to achieve the freedom to satisfy their own desires. They were frightening because they became too much like people. In *I, Robot* and *WALL•E*, robots were portrayed as dangerous because they attempted to protect people from themselves, using their own robotic morality to decide what was best for humans and accepting human casualties if necessary for what they supposed to be the greater good. The robots who did this became abominations because they went against the humans' free will, although the decisions they made were not substantially different from those that might be made by the ruler of a powerful country attempting to create peace in the world. The robots infringed on the humans' God-given rights by making decisions that should only be made by humans; the AI apocalypse they brought about had the potential to go horribly awry for humanity.

In short, evil robots are evil because they act too much like people. Creating human-like robots is an abomination; in the words of "R.U.R.," it is "playing God." That crosses the line of what human beings are allowed to do, and as a result, humanity suffers because of the hubris of the robots' creators.

There is no reason why this should have to be so. In the following sections, the Japanese perspective on fictional robots will be examined and will present an entirely different idea of the future of humanity and robots. Japanese fictional robots, much like American fictional robots, generally possess a strong sense of morality and will act unilaterally to do what they believe is right. In Japan, however, those actions are usually for the good of humanity and for the individual humans that comprise humanity. Instead of being coldly "moral," they are

passionately sympathetic to human beings and will gladly risk their own existences to save them, even without Asimov's Three Laws forcing them to do so. The following sections will illustrate the extent of these differences.

6.0   ROBOTS AS EQUALS

One of the most understated forms of robots in Japanese fiction is the human-like robot. These androids are not as stereotypical or as easily recognized as giant robots, but they are just as strongly Japanese. These robots may be readily recognizable as robots, such as the iconic Astro Boy, or their mechanical nature may appear as simply another component of their character, such as with the smaller robots in *The Big O* [*THE* ビッグオー]. These robots are generally not only human-like in appearance, but also in personality, actions, and motivations. If it were simply not mentioned that they were mechanical, they would still often be plausible or even compelling characters.

Exemplifying these everyday, human-like robots are the titular character from *Astro Boy*, main characters from *The Big O* and *Aim for the Top 2!*, and a secondary character from *Kokoro Library* [ココロ図書館]. Astro Boy is one of the most popular anime or manga characters of all time and has seen numerous sequels and retellings (Schodt). *The Big O* is substantially less popular, but remains an interesting example due to its wide range of fictional influences, such as *Giant Robo* and *Cowboy Bebop*. *Aim for the Top 2!* was also only moderately popular, but is still notable as the continuation of the first show directed by Anno Hideaki, the director of the world-famous *Neon Genesis Evangelion* (which does not appear in this thesis due to the biological nature of its mecha). Finally, *Kokoro Library*, as a little-known niche anime about librarians in

maid costumes, demonstrates how robots can appear in the most unlikely of places with little fuss or fanfare.

In all of these series, the robotic characters strive to live a good or exemplary life, and each is treated like a human by other humans. Their responsibilities are no greater than that of any person with comparable abilities, and they are all granted free will to act as they see fit – generally choosing a righteous, if sometimes irreverent, path for life.

Astro Boy is the oldest example being considered here, but is all the more important for that reason. First published in 1952 by Tezuka Osamu, its popularity continues into modernity, with its most recent television series having concluded in 2004. Even more recently, an American-made movie was produced in 2009 featuring the iconic character. *Astro Boy*'s popularity has continued unabated through the decades, and it demonstrates a remarkable consistency in the Japanese attitude towards fictional robots, suggesting that there is more than a superficial favoring of positive role models in fictional robots and that this attitude is based on long-lasting aspects of Japanese culture or society.

As a character, Astro Boy is somewhat comparable to the Western superhero Superman. Superman started his life as an alien named Kal-El, but was raised as a human boy named Clark Kent and eventually took on the heroic identity of "Superman" while also continuing to live life as his "human" identity, Clark. Similarly, Astro Boy began as a robot who was created as a replacement for and raised believing he was a human boy named Tenma Tobio, later taking on the heroic identity of "Astro Boy" while also continuing a "human" life as well. While Superman is not actually human, that point is rarely brought up outside occasional discussions of his origin or as an excuse for his impressive physical strength and weakness to Kryptonite. That makes him as equally human as Astro Boy, whose mechanical nature is only important as it

grants him amazing weapons or provides an excuse for him to be damaged without being destroyed. To call Superman inhuman would be an insult; the same is true for Astro Boy.

Both Superman and Astro Boy are acceptable as heroes thanks to their humanity, even though neither are actually human. Their personalities, actions, and motivations are all believably human – although of course both do have small quirks that mark their inability to blend in completely with actual humans. In this sense, they are people because of their humanity. They do what should be done, act as they ought to, and care about people in a way that provides a role model for those in the audience. This demonstrates the veracity of Geraci's claim that the Japanese view robots as being completely welcome in their society ("Spiritual Robots" 235). Being inhuman does not cause them to act inhuman.

In *The Big O*, multiple androids press this theme further by acting even more like people. While Superman and Astro Boy are distinctive by virtue of being powerful and heroic, the androids in *The Big O* are little different from average human beings. The female lead of the series, R. Dorothy Wayneright, is an android designed to be indistinguishable from a human being. She is taken in by the protagonist, Roger Smith, and works as his assistant as he solves crimes, negotiates deals, and gets pulled into gun fights. One of her continuing goals – largely pressed upon her by Roger – is to become even more human-like, such as by learning to play the piano more lyrically instead of simply note- and tempo-perfect. Aiding her in this pursuit is a fellow android who plays the piano in a nightclub, entertaining the human patrons. Also occasionally seen is an android who works as a normal police officer.

The most intriguing part of those robots is that each of those roles could have been just as easily filled with non-robotic characters, without their characterizations or actions having to be substantially changed. Certainly the dialogue would need to be modified to accept the shift, but

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it would be no less plausible for a serious girl to be encouraged to take piano lessons to learn to relax and become more emotive, nor would a human girl provide any more of a compelling unrequited love interest for Roger than Dorothy already does. Their robotic natures add to the atmosphere of the series, but they are not in any way necessary to the characters or to the plot.

This might seem different for Nono from *Aim for the Top 2!* in the following section where she is recast as a god-like robot, but as a human-like robot it presents a mere irony. Nono is an android who dreams of one day becoming a space pilot – which, in the context of *Aim for the Top 2!,* means that she dreams of being able to control one of the gigantic, space-faring robots that are used as weapons against alien invaders.

The implications of Nono's robotic nature are examined several times in the short series. Other pilots wonder whether a robot would be able to pilot another robot, a task that requires a supernatural connection between pilot and machine to allow the machine to guide the pilot even as the pilot uses mechanical controls to guide the robot. The consensus is reached, however, that although no robot has ever been known to be able to become a pilot, there is no reason why any being with an advanced intelligence would not be able to do so, making it potentially possible for Nono to achieve her life's dream.

As with Astro Boy and Dorothy from *The Big O*, Nono's mechanical nature is frequently irrelevant to the plots and purposes in which she is engaged. Her dreams to become a space pilot are not strange on the surface just because she is a robot, but also because she is a country bumpkin. The strong majority of her interactions with the other characters suggest that much of their interest in her is because she is new to the area, because she is comically eager to pilot a robot despite having no training for it, and because she is a very attractive young woman. Those perceptions would not need to be changed at all were Nono to be recast as a normal human

instead of a robot. Indeed, some of her relationships actually make less sense for a robot than a human, such as with the male pilots who are eager for her to take off her shirt in front of them.

Illustrating Nono's human-like character particularly effectively is a touching scene where Nono and a female pilot, Chiyo, argue over which of them is better suited to pilot a brand-new giant robot. Since the machine is new, its first pilot is of tremendous importance, as they are tasked with the responsibility of "waking up" the machine and their personality and fighting style will strongly influence the machine's personality and actions during the thousands of years it is expected to be in service. Although Nono greatly desires to become a space pilot, her love for the people on the threatened space station is enough that she is willing to put that dream aside and have the more experienced pilot wake up the new machine. Nono is not able to simply bow out of the race, however, since Chiyo's desire to pilot the machine stems from wanting to prove her abilities to the other pilots – a feeling that is counterproductive to being able to wake up the giant robot. As such, Nono must first remind Chiyo what it is to be a space pilot, using an emotional argument about their responsibilities towards those they love and those they are sworn to protect, even if they have failed in the past. It is only because Nono is able to understand Chiyo on an emotional level that she is able to help her overcome her pride and doubts, and it is out of love for the people on the space station that Nono is willing to give up her own dreams to do what is best for them. There is nothing separating the robot Nono from humanity on an emotional or moral level.

Finally, a secondary character from the anime *Kokoro Library* illustrates just how very boring androids can be – a very human trait by itself. The show is about three sisters who work at the small, rural Kokoro Library. While the elder two are already licensed as full librarians, the youngest one, Kokoro, must still obtain her certification and so in one episode attends a training

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and testing session for that purpose. While there, she meets an android named June who has been designed to be a librarian and so is attending for the same purpose as Kokoro. In a thoroughly unexciting sequence, the pair practice checking out books and helping patrons locate materials. While there is some discussion of June's robotic nature, in that she is more adept at helping locate reference materials due to her flawless memory while Kokoro has a somewhat more pleasant manner when helping patrons check out books, the fact remains that she is a thoroughly bland character in a series that had absolutely no need for an android. That she existed regardless is strong evidence of just how very normal and human-like androids seem in Japanese fiction.

Androids in Japanese fiction are, in short, exceedingly human. Be it learning to play the piano, shelving books, or even wanting to help save the world, there is little that sets them apart from a human being (except, in the last case, some impressive weaponry for particularly robotic robots). They are emotional and persuasive when necessary, able to understand the deepest workings of the human psyche, and provide motivation and guidance to those who have gone astray. They are more than just able to achieve salvation; they are as able as any human being to provide it.

7.0   ROBOTS AS GODS

Having thus shown how androids can be thought of as equivalent to human beings, the next category to consider is how they can surpass them. In this section, the robots being examined are not androids as before, but are instead giant robots that tower stories above the humans they choose to protect. The series used for this here are *Giant Robo: The Day the Earth Stood Still* [ジャイアントロボ―地球が静止する日], *The Big O*, and *Aim for the Top 2!*. *Giant Robo* was a popular and influential series that saw five different incarnations spanning four decades (a 1967 manga and live-action series, the 1992-98 original video animation considered here, a 2000 manga, and a 2007 manga). The other two series have already been partially examined in the previous section, and are being used again here to illustrate an even more striking aspect of the Japanese case: while fictional Japanese robots are usually portrayed as good, some can also be portrayed as being close to gods.

Within this paper, "god" in the Japanese context is being used as a gloss for "*kami*" [神]. A useful definition for this was given by Daniel Holtom, who began by quoting Motoori Norinaga: "It may be said that *kami* signifies, in the first place, the deities of heaven and earth that appear in the ancient records and also the spirits of the shrines where they are worshipped.

"It is hardly necessary to say that it includes human beings. It also includes such objects as birds, beasts, trees, plants, seas, mountains and so forth. In ancient usage, anything

whatsoever which was outside the ordinary, which possessed superior power or which was awe-inspiring was called *kami*...

"There are further instances in which rocks, stumps of trees and leaves of plants spoke audibly. They were all *kami*. There are again numerous places in which seas and mountains are called *kami*... This is because they were exceedingly awe-inspiring" (77-78).

Holtom continued, "Summarised briefly, it may be said that *kami* is essentially an expression used by the early Japanese people to classify experiences that evoked sentiments of caution and mystery in the presence of the manifestation of the strange and marvellous" (78-79, *sic*). The most important aspect of this definition is the flexibility of the term *kami*, being applicable not only to heavenly beings but also anything else awe-inspiring, including inanimate objects such as majestic mountains or talking rocks. It is within this spiritual context that giant robots are introduced.

Giant Robo, as with all of the robots discussed in this section, is visibly different from the Western robots or Japanese androids examined above. The Japanese god-like robots are not even on the same physical scale as human beings; instead, they are many times larger, towering over even skyscrapers, able to crush cars and smash buildings without any difficulty. Giant Robo, like many fictional Japanese robots, is a semi-piloted robot. Its operator is a teenage boy named Daisuke, who easily fits on Giant Robo's hand (along with several other people), and is perhaps a quarter of the height of Giant Robo's head. Although the sizes of giant robots vary substantially between different series, they are inevitably awe-inspiringly large. Even without any action on their part, their size would likely qualify them for the status of *kami*.

Giant Robo's semi-autonomous nature is also distinctly different from the American case. Giant Robo is completely capable of acting on its own, and it does not hesitate to take the

initiative if it senses that its operator is in danger. Even when being "operated," the commands Daisuke gives it are generally quite unspecific, such as "Fight!" It does not actually need those commands, nor an operator: it chooses to let Daisuke operate it due to affection for the boy. It is clear, though, that Giant Robo existed long before Daisuke was born and it will continue to act under its own will long after Daisuke has grown old and died. That it chooses to obey Daisuke is a favor to him, not a requirement.

In an American series, a robot that was inconsistent in obeying commands, or simply did not need to, would likely be considered dangerous because of its ability to break Asimov's Three Laws of Robotics. In *Giant Robo*, however, none of the heroes ever doubt that Giant Robo is on their side and will help and protect them to the best of its ability. It does not have to, but because it is good, they know that it will even without the Three Laws binding it. Their faith in it is constantly rewarded, as Giant Robo repeatedly protects them and fights alongside them, even risking its own continued existence to do so.

While Giant Robo was never explicitly referred to as a deity, the giant robots in *The Big O* were. The story took place in a city in which all of the inhabitants mysteriously lost their memories forty years ago. The city was mostly isolated; the very few people who entered it were equally mysterious and disinclined to tell its citizens what was happening in the wider world. The robots themselves came from deep underneath the city, having been lying there dormant for many years until they were finally rediscovered by various explorers who were attempting to regain understanding of their city after the strange onset of amnesia.

As in *Giant Robo*, these towering machines chose to obey one human each, although they were still capable of acting independently. The titular robot, for instance, was cared for by and obedient to the protagonist of the series, Roger Smith. Roger Smith is comparable to the

American comic book hero Batman, with Roger, like Batman, being a rich playboy who relies on a large range of futuristic technology to help him fight crime. Yet, the Batmobile remains distinctly different from the Big O, since it acts solely upon Bruce Wayne's commands by, for example, taking the most direct route to reach him if he calls, even if that involves crashing through buildings. The Big O is much more capable of independent thought, as it would act on its own to protect Roger if required, even without orders to do so, and is much more aware of its surroundings.

Another distinguishing feature of the giant robots in this series is that their godliness was made clear: regardless of whether their actions served to help or to harm humanity, they were each referred to as a "megadeus," a term that remained untranslated in the series but which can be clearly understood to mean "great god." Curiously, this title is not pronounced with standard Latin pronunciation in the English dub of the series, instead having them be called something more akin to "megadeuce," which retains the modifier "great" but loses the religious connotation. That shift may well be a purposeful localization, since it is very unusual for robots to be considered positively in American series, much less as holy. It may have made the series seem less strange to American viewers and evaded any issue that religious parents might have had with their children watching a show with robot "gods," while still maintaining most of the original sound for those fans who have seen the Japanese version and insist on a literal translation.

In the previous section, a variety of non-god-like androids from *The Big O* were discussed: Dorothy, her piano teacher, and a robotic policeman. These normal androids make the "great gods" all the more strikingly comparable to *kami*. It is not unusual for *kami* to be beings that are similar to us except for being more impressive, as evidenced by Motoori's blithe

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assurance above that *kami* include human beings. With there being many robots in *The Big O* that are analogous to human characters, it is then an extension of that idea that robots who are particularly extraordinary could be like gods. They also act in a way that is comparable to *kami*, as they are capable of acting independently to enact change in the world, but they are also happy to help those who treat them well and that they choose to assist. The term "megadeus," then, seems very appropriate when viewed from the Japanese religious context.

The final series to be considered in this section, *Aim for the Top 2!*, also features god-like giant robots, although they are not explicitly called "gods." As described before, the main character was an android, Nono, who dreamed of becoming a space pilot. When she happened to meet such a pilot, Lal'C (pronounced "Lark"), she eagerly followed her around, attempting to help her but just as frequently getting in her way. The robots that the pilots controlled were ancient relics left over from a war fought over ten thousand years before. The technology to make them was barely retained, and part of the power of the robots was the massive knowledge they possessed from millennia of fighting. The giant robots themselves were aware of this, and although they allowed themselves to be piloted, they also made their own decisions and did not follow every order they were given. This was made evident in the series when Lal'C's robot was impaled in the head by a large spike during a battle. Although Lal'C was in favor of removing it, because its presence made it more difficult for her to operate the machine, the robot chose not to due to the risk of damaging its memories in the process, and so the spike remained in place.

At the end of the series, Nono was finally able to achieve something close to her wish: although she was never able to pilot a robot as she had hoped, an old ex-pilot helped her discover that she was capable of turning into one of the massive, fighting robots herself. In true climactic fashion, Nono communicated and combined with thousands of smaller robots in order to

transform into Diebuster, a robot taller than the Earth and capable of halting the Earth's travel through space. Nono did not need to be explicitly called a "god" for the comparison to be fair: she is a robot that is exponentially greater than all other robots, able to communicate with them all, command them, and surpass the power of all of them put together. At the climax, she used her power to save humanity from a strong and vengeful alien, creating a temporary black hole that destroyed both the alien and herself. Far from her great power and strong emotions being a threat to humanity, as they likely would have been in American fiction, they caused her to choose to and be able to save it. In this way, she acted as a god that both existed in the world and protectively watched over it.

Whether explicitly called *deus* or not, giant robots in anime often deserve the title. Not only impressive physically, they also generally have strong senses of loyalty and morality, helping those they deem worthy without submitting their free will to them. They are often powerful, knowledgeable, and wise, too great to even be considered role models by the humans they help protect, instead deserving of the utmost reverent respect. A more distant example from the American trope would be hard to find.

8.0   ROBOTS AS MEDIUMS

The final role that Japanese fictional robots frequently play is that of the puppet – that is, ritual puppets used for the entertainment of the gods and vessels for spirit possession. The style of puppetry referred to in this section is that of the Awaji Island tradition. Although the practice of ritual puppetry declined substantially during World War II (Law 213), it has experienced a revival since the 1980s as a cultural artifact (*ibid*. 230). As a result, the repertoire of plays that are performed has diminished substantially (*ibid*. 225), yet the few plays that are performed are well known and the audience responses to them can be authentic (*ibid*. 234). Even though Awaji puppetry is no longer performed in the same way or with the same variety as it used to be, this continued familiarity with its material may well be sufficient for its influences to remain within the culture and appear in modern popular works. As an only moderately common practice, it is unsurprising that the principles of puppetry appear in relatively few anime, and for the purposes of this thesis, only *FLCL* [フリクリ, pronounced *Fooly Cooly*] and *Aim for the Top 2!* will be analyzed. Although *FLCL* is mostly limited to a cult following, it has enjoyed international releases in multiple formats and repeated television airings, while *Aim for the Top 2!*'s reception has already been described.

In the Awaji tradition, puppets used in performances for human audiences would often be said to contain spirits themselves, particularly if they were made well and with care. As a result, those puppets had to be treated reverently and made to act as if they were real people (*ibid.* 47).

Jane Marie Law argues that the similarity of puppets to people is part of what gives them their power, allowing them to be a "body substitute" for the puppeteer, taking the brunt of any negative spiritual forces the puppeteer might need to subdue (*ibid*. 56). In other situations, puppets could be used for the amusement of vengeful spirits, soothing them out of their desire for revenge (*ibid*. 92).

These two points – puppets as vessels for spirits and puppets helping prevent disasters – can be seen clearly as being analogous to the role of the robot in the anime *FLCL*. The robot in the series, Canti, was brought into existence by the female lead, Haruko, with the unwitting help of the male lead, Naota. That creation was more magical than the standard creation of a puppet, with Canti having sprung fully-formed from a portal created in Naota's forehead, but Haruko did contribute to his creation like a puppeteer would for his puppet. Much like a puppet is essentially humanoid, yet clearly not a human, so too is Canti. They both have a basically human shape, wear human clothing, and move as a human would move. Still, they could not be confused for humans themselves. Canti's body is visibly mechanical, made out of metal and with a television for a head. This lack of an expressive face likely makes Canti look far less human than a puppet with a skillfully carved head might, but that lack of humanity is counterbalanced with independent mobility which puppets lack. He acts like a human and fulfils the same role that a human character might, just like a Japanese puppet imitates a human as it acts and emotes. All told, Canti probably seems about as much like a person as a puppet would – clearly not an actual human, yet clearly a representation of one, with characteristics that are largely similar to that of a human.

Throughout the show, Canti acts as a spirit vessel with Haruko playing the role of the puppeteer. Instead of being directly possessed by a god or vengeful spirit, however, it is Naota

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who Haruko gets to merge with Canti – yet Naota himself is partially possessed by the "Space Pirate King," Atomsk. Through this possession, Canti gains the power to act in supernatural ways, something which neither Canti (the "puppet") nor Naota (the "spirit") could do alone. Atomsk is an ethereal and seemingly all-powerful space phoenix, evocative of the East Asian God of the South. It is because Naota is partially possessed by this holy bird that Haruko was able to use him to manifest Canti in the first place, and it is because of Atomsk's power that Naota's merger with Canti gives Canti supernatural powers. Thus, Naota is merely the means by which Haruko (the "puppeteer") is able to get Canti (the robotic "puppet") possessed by Atomsk (the supernatural "spirit"). Thanks to this possession, the robot-puppet Canti is then able to defeat that week's villain, protecting humanity in a more tangible but no more important way than deities of old protected people from disease and disasters while possessing a puppet.

Unsurprisingly, this possession occurs at the climax of many of the episodes in *FLCL*. The same is true of the possession in a typical performance by a ritual puppeteer when such performances regularly occurred at household Shinto shrine (神棚, *kamidana*). The performance would begin with an offering of food and drink at the shrine, followed by a puppet show for the amusement of any evil spirits in the house until they became so entranced by it as to take possession of the puppets, allowing for their easy removal from the house, (*ibid.* 49-50). In both the original ritual and the show, the spiritual possession is the climax.

Along with the usage of Japanese ritual puppetry for spiritual possessions comes the idea that puppets can do things that are too dangerous for humans to do. For instance, in some areas, *amagatsu* (heavenly infants) took the place of the children they were supposed to represent at visits to shrines (*ibid.* 36). By taking such a doll to the local shrine and presenting it to the spirits there as if it were the child, it was hoped that the spirits would become confused and possess the

doll instead of the child should they become angry (*ibid.* 37). Alternatively, dolls could be left

near entrances to intercept epidemic spirits seeking to enter (*ibid.* 133). That way, the child

could be protected from spiritually-caused diseases. Law describes the ability of the puppet to

control spiritual forces by writing, "The forces that enter the puppet are greater than the

puppeteer, and because of the ability of the puppet body to attract and contain these forces, the

human community is able to survive and avoid calamities" (48). Since something needed to take

the brunt of the spiritual forces, the puppet was a logical scapegoat instead of a human. In some

cases, "it is understood that in this rite that the deities summoned are too powerful to be

contained within the body of a human mediator, so the puppet stands as a bridge between the

human and divine communities" (*ibid.* 177). Although the puppet was created by a person, it

could protect that person by surpassing his ability to withstand spiritual forces. When looking at

robots, this could be compared again to *FLCL*, with Atomsk being able to use his great

supernatural powers only when possessing the robot Canti, but not the weak human Naota. It is

possible that Naota would not be able to withstand the force of Atomsk's powers being used in

his own body, like a puppeteer would not fare well by letting a spirit act through themselves

directly.

Another instance of deities acting through robots in anime comes from the versatile

anime *Aim from the Top 2!*, in its third appearance in this thesis. As described previously, the

main character of the show, Nono, is not readily apparent as a robot; the only part of her that

looks different from a normal human being is her eyes, which have star-shaped pupils instead of

circular ones. While she is aware that she is a robot and she wants to help protect the Earth from

alien attackers, what she does not know is that she was explicitly designed for this purpose.

Instead, she seeks to pilot one of the few giant, sentient robots that are Earth's main line of

defense against the vicious aliens. In the end, this turns out to be unnecessary for her, once she discovers that she herself can transform into one of those gigantic war machines, becoming substantially larger than the entire planet.

Of particular note is how this ability was awakened in her. Nono spends much of the series seeking a way in which she can help fight the vicious aliens, but for most of it, manages to do little more than incidentally help the humans who were already fighting them before she came along. Eventually, however, she comes across an old former soldier, who takes her to the site of an ancient space battle. At this deserted battleground, she experiences a spiritual awakening, as if she were taking in the spirits of the robots who had been destroyed there long ago. It is through those ancient robots' knowledge that she is able to transform herself into a war machine even more impressive than they ever were – once again continuing the theme that spirit possession allows one to become much more powerful than they were alone. Thus Nono, although created by humans, is able to surpass anything that humans themselves could handle, her mechanical body becoming an incredible asset in channeling the spiritual forces needed to destroy the attacking aliens.

In both *FLCL* and *Aim for the Top 2!*, the echoes of Awaji puppetry can be seen. Robots can easily take the role of puppets, as they both have the basic appearance of human beings without the physical limitations of such. They are able to take on a variety of the roles that puppets used to fulfill, with Canti from *FLCL* acting as a body substitute for the "puppeteer" to allow her to channel spiritual forces too powerful for her to handle directly, and Nono awakening to her full spiritual nature after being led to a place where the spirits of previous warriors dwelt. Although the examples here are few, it is still some indication that without even needing to be gods themselves, robots are capable of being in tune with and supporting the spiritual world.

9.0   CONCLUSION

The differences between the American and Japanese portrayals of robots in fiction are striking. American fiction focuses strongly on the threat of a robot apocalypse: dangerous robots banding together to suppress or destroy humanity, for the benefit of robots, the world, or humans' own good. The Japanese depiction, in contrast, is substantially more positive. Many robots in Japanese fiction are barely noticeable as being robots, being minor side characters that merely happen to be robots in much the same way that another character might happen to be from Osaka or be a staunch fan of the school baseball team. The fact that they are a robot is mentioned and helps shape their character, such as by explaining their impressive ability to direct patrons to books thanks to a well-memorized library catalogue, but they could easily be replaced by a character that is not a robot with no noticeable effect. Others, however, surpass this humble role, particularly those giant robots that volunteer to protect humanity out of their great love for people. A final group enacts the role of puppets from traditional rituals, acting as vessels for spirits too powerful for human beings to control, or having their own latent powers awakened by their interactions with these spirits. Big or small, Japanese fictional robots tend to range from "merely" human to outright holy.

One of the more striking responses to a presentation of this material made at the University of Pittsburgh was an emotional response to a video clip of the discussion between Nono and Chiyo in *Aim for the Top 2!*, described above in the section "Robots as Equals." The

respondent in question was emotional as he expressed hope at the idea of a robot, as a human creation, being able to help a human achieve emotional growth or even salvation – theoretically even its own creator. Interestingly, this idea has already been seized upon by Japanese roboticists, who have created a robot tasked with the job of reciting Buddhist prayers for the sake of human beings' souls (Geraci, "Spiritual Robots" 237). While religion and robotics seem to be striving to stay far apart in the United States, with their intersection being considered either heresy for the sin of playing God or the catalyst to start an apocalypse, they seem to share an easy relationship in Japan, each benefiting from the other. The different portrayals of robots in American and Japanese fiction suggests that the people in those countries have different perceptions of robots, and as such, it is not surprising that robots in the two countries seem to have taken markedly different developmental paths.

To continue the work presented in this thesis, it would be illuminating to examine how roboticists decide what type of robots they wish to research and how authors decide what type of robots they wish to portray. Although religion seems to provide insight into the varying portrayals of robots in popular fiction, the extent to which it is consciously included is unclear, and so the possibility for additional societal factors to influence their creation cannot be eliminated. It would also be revealing to investigate how religion influences the work of roboticists, be it through direct application or indirect absorption through the popular portrayals of robots. By understanding this, it would become easier to understand how and why different types of robots are researched and constructed in America and Japan, and how each country could become more open to accepting the technological advancements of the other.

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