

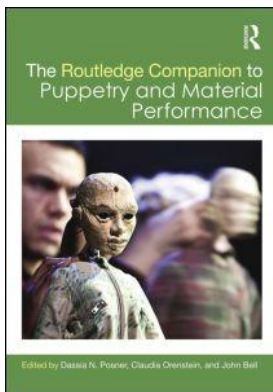
This article was downloaded by: 10.3.97.143

On: 02 Oct 2023

Access details: *subscription number*

Publisher: *Routledge*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: 5 Howick Place, London SW1P 1WG, UK



The Routledge Companion to Puppetry and Material Performance

Dassia N. Posner, Claudia Orenstein, John Bell

From Puppet to Robot

Publication details

<https://www.routledgehandbooks.com/doi/10.4324/9781315850115.ch25>

Cody Poulton

Published online on: 15 Jul 2014

How to cite :- Cody Poulton. 15 Jul 2014, *From Puppet to Robot from: The Routledge Companion to Puppetry and Material Performance* Routledge

Accessed on: 02 Oct 2023

<https://www.routledgehandbooks.com/doi/10.4324/9781315850115.ch25>

PLEASE SCROLL DOWN FOR DOCUMENT

Full terms and conditions of use: <https://www.routledgehandbooks.com/legal-notices/terms>

This Document PDF may be used for research, teaching and private study purposes. Any substantial or systematic reproductions, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The publisher shall not be liable for an loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

Section VI

New Directions and Hybrid Forms

25

From Puppet to Robot

Technology and the Human in Japanese Theatre

Cody Poulton

String Puppet Sanbasō, a *kabuki* dance performed to the accompaniment of a *nagauta* ballad,¹ is one of a long series of felicitous *sanbasō* plays, a performance type that can be found in every major genre of traditional theatre. Indeed, the *sanbasō* (a kind of divine clown who is the sidekick of another god, the Old Man *okina*) is a character whose performance predates Japan's oldest full-fledged dramatic genre, the *nō*, and points to the sacred and ritual origin of all traditional Japanese performance. In the *kabuki* dance, two actors play a marionette of the little god and its puppeteer. When the puppeteer pulls an invisible string, for example, the puppet's hand rises, and it seems as if his entire body is at the beck of his manipulator: limp, inert matter until animated by his controller. It is a brilliant dance, the actor mimicking the jerky, awkward – yet gravity-defying – movements of the little god made of wood and strings.

Watching a performance of this play at the Kabukiza in Tokyo in December 2009, I was struck afresh by the traditional Japanese theatre's delight in metatheatrical techniques that reference not only a plethora of other forms, narrative motifs, and performance patterns (*String Puppet Sanbasō* also references *ningyōburi*, the technique in which *kabuki* actors imitate *bunraku* puppets), but also call to attention the meaning of mimesis itself, its chief purpose arguably being an effort to cheat death. Art's pedigree can be traced back to the Orphic quest to resurrect the dead, to retrieve through recollection what has been lost.²

In her book *Phantasmagoria*, Marina Warner notes that “Thomas Aquinas singled out animation as the defining quality of soul, calling the soul ‘the starting point of all motion in things which live’” (Warner 2006: 47). The uncanny exists when immaterial (“spiritual”) forces are able to reach through and affect physical objects. Thus, there is something uncanny about puppets, where human energy animates lifeless objects. In this sense, puppets serve as a synecdoche of mimesis. In a recent study of automata, Kara Reilly discusses what she calls an “onto-epistemic mimesis” – in short, a “mimesis that changes a person's way of knowing, and by extension their way of being” – which she claims has been at work in the production and reception of automata and other lifelike effigies in European culture since classical times, a process analogous to the introduction of perspective (Reilly 2011: 7).

Recent experiments in robotics, artificial intelligence, and graphic fiction reflect a fascination with the techniques of animation and simulation in Japan that go at least as far back as the puppets of the seventeenth-century theatres of Osaka. The puppet plays for which Chikamatsu Monzaemon wrote in the late seventeenth and early eighteenth centuries were large dolls held, like a ventriloquist's dummy, by a single manipulator. Alongside the theatres on Dōtombori Canal in Osaka, where Chikamatsu premiered his plays, were shows of mechanical automata (*karakuri ningyō*) by artists such as Takeda Ōmi. Yūda Yoshio has suggested that the levers and moving parts that were a feature of the *karakuri ningyō* found their way into the bodies of the puppets used in *ningyō jōruri* (*bunraku*).³ Movable eyes, eyelids, mouths, and finger joints necessitated larger bodies that had to be manipulated by three men visible to the audience. These puppets, ancestors of the *bunraku* dolls of today, made their stage debut in 1734. Linking the evolution of puppetry to Japan's robotics industry, Christopher Bolton remarks that, "the gradual internalization of technology is the central trope of the cyborg and the key step in blurring the lines between bodies and tools, or humans and machines" (Bolton 2003: 741).

It is well known that the term "robot" (derived from the Czech word *rab*, meaning "slave," and its cognate *robota*, meaning "indentured servitude") was coined by Karel Čapek in his stage play *R.U.R* (*Rossum's Universal Robots*), which premiered in Prague in 1921. The play was staged in Japan as early as 1924 under the title *Jinzō ningen* (*Artificial Humans*) at the state-of-the-art Tsukiji Little Theatre and was directed by Hijikata Yoshi, who had seen it performed in Europe. Miri Nakamura has pointed out that *Artificial Humans* sparked a booming interest in robots in Japan, but we have seen that the existence of clockwork automata and sophisticated puppets since as early as the seventeenth century in Japan had already created a fertile environment for technological innovation in this field (Nakamura 2007: 169–190). The country today is at the vanguard of robotics research and development. It was here that industrial robots were first employed on a massive scale during the 1980s as a measure to reduce labor costs, and today Japan produces more robots for domestic and consumer use than any other country in the world (Robertson 2010: 7–8).

Recent collaborations between two leading specialists in the areas of theatre and robot engineering illustrate how these two seemingly disparate fields can stimulate mutual innovation. Ishiguro Hiroshi, born in 1963, is the director of the Intelligent Robotics Laboratory at Osaka National University and has an international reputation for creating doppelgänger androids of himself, his daughter, and other people. Hirata Oriza, born in 1962, won the Kishida Kunio Award, Japan's top drama prize, in 1995 for his play *Tokyo Notes*. He is internationally known for his self-styled "contemporary colloquial theatre" – what critics have dubbed "quiet drama" – hyper-realistic plays that present ordinary people in realistic and singularly undramatic situations (Poulton 2002: 1–8). Hirata has toured extensively abroad, both with his company Seinendan and alone, and frequently collaborates with artists in Korea, France, and Belgium. Hitherto a special advisor on international and cultural affairs to the Japanese prime minister's cabinet, Hirata has been a member of the faculty of the School of Communication Design at Osaka University since 2006. Ishiguro and Hirata's earliest collaboration was a 20-minute play called *I, Worker* (2008), arguably the first play ever presented in which a robot performed the role of a robot.⁴ *I,*

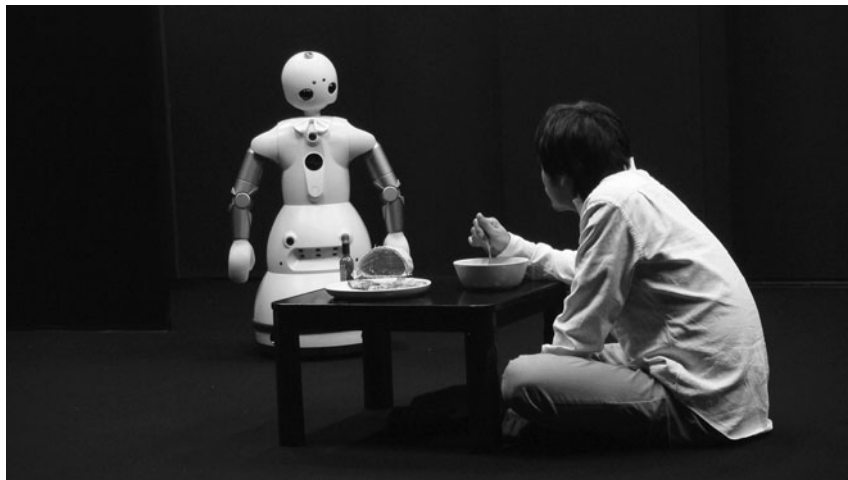


Figure 25.1 The Wakamaru robot, Takeo, converses with his employer, Yúji, in *I, Worker* (2008): written and directed by Hirata Oriza. Photo: © Osaka University & Eager Co. Ltd

Worker is set in the near future. A couple, Yúji and Ikue, live with two robot servants, Takeo and Momoko. As if mirroring the unemployed Yúji, Takeo the “male” robot has also lost his desire to work.

A robot that no longer wants to work can be said to be almost human – he is certainly experiencing an identity crisis as a robot! Hirata and Ishiguro’s aim for this work is to explore the potential for machines to communicate with human beings, and, by extension, the possibility that machines can acquire, at the very least, a semblance of will or consciousness or even feelings – the very stuff that makes us human, a quality which in Japanese is summed up in a single word, *kokoro* (the “heart-mind”). The Wakamaru robots used in this play, created by Mitsubishi Heavy Industries, may look primitive, but they are capable of recognizing individual differences in people and acting accordingly. Their sensors allow them to move through space and manipulate objects. They appear to have free agency and communicate with their human counterparts in this play, but their dialogue has been programmed down to the split second.

Sensors, programming, and remote control: these are the three technical devices that afford a semblance of agency to the modern automata that Hirata and Ishiguro employ in their robot plays. Ishiguro and Hirata followed *I, Worker* with *In the Heart of the Forest*, which premiered at the Nagoya Triennale in August 2010. Hirata had originally written this play for Le Théâtre Royale Flamande in Brussels. Inspired by Joseph Conrad’s *Heart of Darkness*, Hirata conceived of a team of Japanese scientists conducting research in the Congo to precipitate the evolution of bonobos. The work is a meditation on not only race but species as well; in this version, two of the scientists are robots, presenting an opportunity for a further inquiry into whether consciousness can exist in inorganic matter. Having created intelligent machines, humans in this play are poised to create primates that rival humans in their development,

anticipating the premise of the Hollywood film *Rise of the Planet of the Apes* (Rupert Wyatt, director, 2011). Longer-lasting batteries allowed the technicians of *In the Heart of the Forest* to extend the performance life of the Wakamaru robot from 20 minutes to close to an hour and a half; but in the performance I saw, the two robot scientists had run out of “juice,” and “Plan B,” an alternate human scenario, was hastily substituted for that of the robots, who were originally supposed to end the show.⁵

What is human? How do primates, or even robots, differ from humanity? If emotion and fellow feeling – compassion – is the link between humans and primates, what of intelligent machines, who can reason and communicate, but do not feel? Ishiguro has said repeatedly that he is only interested in making robots for what they can teach us about human beings. “Robots and androids,” he says, “are mirrors reflecting what it is to be human” (Ishiguro 2009: 66). And so, to understand what makes humans “tick,” he has decided that the best method is to build one! For his part, Hirata has likened actors to chess pieces, to be controlled by the playwright and director. His unique directorial method is not based on any notion of interiority or quest for a character’s motivation. Instead, his hyper-realistic style is created out of a multitude of formal elements of closely observed human behavior: gestures and speeches modulated by precise calibrations of movement and timbre, volume, and pause of speech. Hirata has said that by carefully calibrating the pacing of dialogue he could create the eerie sensation of consciousness and agency in his automata. By making his audiences weep at a robot’s predicament, he boasts that he has beaten Stanislavsky at his own game:

Most human communication is not empathic but rather based on learned patterns of response to stimuli. My actors were shocked to learn this, but what makes it so congenial to work with Ishiguro is that in fact I used precisely the same vocabulary with Ishiguro’s robots as I do to direct my actors.

(Hirata and Ishiguro 2010: 18)

For his part, Ishiguro Hiroshi claims that “androids can express themselves just as well as human actors. I believe that in theatre there is fundamentally no difference between a human and a robot” (Ishiguro 2009: 19). He is interested in learning more about what he calls “emotional affordances in human-robot interaction.”⁶ This interest mirrors the influence of James J. Gibson’s theory of affordances on Hirata’s own dramaturgical theory. In Gibson’s ecological psychology, the social environment is the key determinant, not individual agency, in human behavior (Gibson 1979).

The Wakamaru robot clearly does not look human, but movement and speech can create the illusion of life. Ishiguro and Hirata even resorted to the traditional puppet theatre to learn how to manipulate their robots, hiring the *bunraku* puppeteer Kiritake Kanjūrō III to give their engineers a primer in the humanizing and gendering of movement.

In his desire to understand what it is that makes us human, Ishiguro is driven by a desire to create even more lifelike androids. For Ishiguro, *ningen rashisa* – human likeness – is almost as good as being human, such that the quest for semblance has



Figure 25.2 Ishiguro Hiroshi and his Geminoid HI-1 (2006): Geminoid HI-1 was developed by Hiroshi Laboratory, Advanced Telecommunications Research Institute International (ATR). Geminoid is a registered trademark of ATR. Photo courtesy of ATR Hiroshi Ishiguro Laboratory

arguably come to trump an understanding of the real: *paraître* stands in for *être*. There is a sense that for Ishiguro a human is a highly sophisticated somatic machine, and all one has to do in order to understand it is to replicate one. Writing for *Wired* magazine's online Malcontents blog, John Brownlee expresses an almost atavistic aversion to Ishiguro's android double of himself, Geminoid HI-1: "It is part cyborg, part real doll, part Shigeru Miyamoto, part Dracula. It is horrible. It hates you. Professor Ishiguro seems oblivious to the bladder-evacuating creep factor of his Geminoid robot" (Brownlee 2007: 1). I find it interesting that in this comment, Brownlee personifies the Geminoid: "it hates you," not "I hate it." The source of his aversion seems to be reflective of a fear that, though it is not human, it is *alive*.

Brownlee's "creep factor" was analyzed 40 years earlier in an article by roboticist Mori Masahiro in the Japanese journal *Energy* (Mori 1970) as "the uncanny valley," whereby excessively realistic simulations of living creatures elicit an instinctive sense of revulsion:

The vertical axis marks the degree to which we feel familiarity with an object. The horizontal axis measures the extent to which that object looks human, with the most mechanical-looking objects at the left end and the most humanlike on the right. [The Wakamaru robot would be located on the graph roughly midway between the industrial and the humanoid robot.]
(Mori 1970 [2012]: 100)

Mori comments that:

As healthy persons, we are represented at the second peak in Figure [25.3] (moving). Then when we die, we are unable to move; the body goes cold,

and the face becomes pale. Therefore, our death can be regarded as a movement from the second peak (moving) to the bottom of the uncanny valley (still), as indicated by the arrow's path in Figure [25.3]. We might be glad that this arrow leads down into the still valley of the corpse and not the valley animated by the living dead.

I think this descent explains the secret lying deep beneath the uncanny valley. Why were we equipped with this eerie sensation? Is it essential for human beings? I have not yet considered these questions deeply, but I have no doubt it is an integral part of our instinct for self-preservation. ...

We should begin to build an accurate map of the uncanny valley so that through robotics research we can begin to understand what makes us human.

(Mori 1970 [2012]: 100)

Intriguingly, in Mori's scheme, *bunraku* puppets have crossed the uncanny valley to the other side where verisimilitude is balanced with familiarity. In the same essay, he writes:

I don't think that, on close inspection, a *bunraku* puppet appears similar to a human being. Its realism in terms of size, skin texture, and so on, does not even reach that of a realistic prosthetic hand. But when we enjoy a puppet show in the theater, we are seated at a certain distance from the stage. The puppet's absolute size is ignored, and its total appearance, including eye and hand movements, is close to that of a human being. So, given our tendency as an audience to become absorbed in this form of art, we might feel a high level of affinity for the puppet.

(Mori 1970 [2012]: 99)

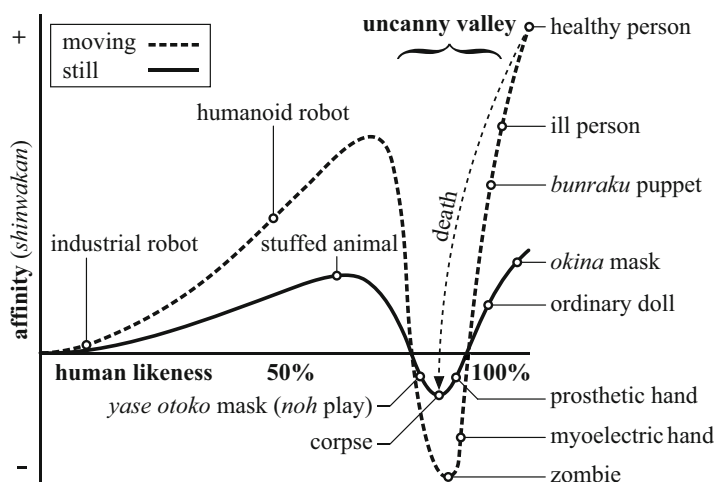


Figure 25.3 Diagram of Masahiro Mori's "Uncanny Valley." Image courtesy of Karl MacDorman. Originally published in *IEEE Robotics and Automation*, 2012, 19(2): 99

It seems significant that puppets and automata have been at the center of many discussions of the uncanny. The classic work on the subject is, of course, Freud's "The Uncanny" ("Das Unheimliche"), (1919) which analyzes E. T. A. Hoffmann's "Der Sandmann" (1816), a story featuring an automaton by the name of Olimpia. But even prior to Freud's groundbreaking work, Ernst Anton Jentsch's "On the Psychology of the Uncanny" (1906) discussed the fear engendered by inorganic matter, like wax figurines and automata, that seemed to be alive.

Perhaps if there comes a time when the appearance, movement, and speech of Ishiguro's androids are refined so much that it becomes impossible to distinguish them from human, they will have succeeded in crawling out of the uncanny valley they still inhabit, and humans will learn to befriend them. Hirata and Ishiguro's theatrical experiments nevertheless serve to refine the communicative (one might even say social) qualities of intelligent machines, a project in which contemporary Japan, with its rapidly aging and decreasing population, is heavily invested. In the near future, Japan's elderly will need companions and caregivers. There is arguably a xenophobic angle to this project: many have commented that robots would be more acceptable to many Japanese than the presence of foreign labor. "When men were no longer found, their place was supplied by machines," Edward Gibbon (1776 [1897]: 15) wrote, referring to the increasing reliance by Roman legions on machines of war to replace old-fashioned military valor, but his remark has a ring of truth when applied to the contemporary scene in Japan.⁷

Humanity's replacement by machines may be said to be the covert message of another Hirata-Ishiguro collaboration, *Sayónara*, which also premiered in August 2010 at the Nagoya Biennale.⁸ Ishiguro's Geminoid F, modeled after a real woman in her mid-20s, is paired with an American actress of about the same age, Bryerly Long, who plays a woman who has been given an android to keep her company in her last hours of life. While the two quote lines of poetry, "dead" matter comes alive as a living organism dies. Depending upon the lighting and the spectator's proximity to the stage, it is difficult for audiences to determine initially which actor is human – both are chair-bound – and having one played by a non-Japanese is an alienation effect that adds to the uncanny nature of the performance. (This uncertainty is confirmed by surveys taken of audiences who have seen the play. According to Yoshikawa Yūichirō, 90 percent of audience members polled found the android "beautiful." This may indicate that, given the appropriate setting, Ishiguro's androids may have crawled out of the uncanny valley.) We understand in the play that the android has been designed to develop increasingly sophisticated algorithms of behavior so as to respond to the "emotional affordances" of the sick Caucasian woman. The poetry the Geminoid recites is intended to express the essence of the woman's state of mind as she faces her own extinction. "Now, who is the girl talking to, her android or herself? Can we call their 'conversation' a dramatic dialogue? Or is it more of a monologue of the invalid girl, since the android chooses the poems she recites to suit her owner's inner state?" asks theatre critic Noda Manabu. "Their dialogue is not strictly between two independent subjectivities," he adds. "Rather, the subjectivity of the invalid girl is defined in terms of inter-subjectivity between her consciousness and the other within her through the play's beguilingly neoclassical dialogic structure" (Noda 2011: 6). This is assuming that the android has no



Figure 25.4 Geminoid F and Bryerly Long in *Sayónara* (2010): written and directed by Hirata Oriza. Photo: © Tatsuo Nambu/Aichi Triennale 2010

consciousness, no subjectivity. Given the present state of the technology, this is no doubt true; but the play is suggesting that there may well come a time in the near future when androids will be aware of themselves and others. Noda himself acknowledges this possibility when he remarks, “We are no longer sure who she is reciting his poem for. Is [the android] addressing her mistress, or has she started to malfunction and begun to talk to herself?” (Noda 2011: 7).

The android, as it were, emerges into self-consciousness through its mirroring of the memories and feelings of others – namely, the terminally ill woman and her dead father, thus perhaps suggesting an immortality of the “soul” through technological means. Ishiguro (2009: 25) has written that he is interested in what would remain of a human when everything had been downloaded into a machine. Could a machine then acquire consciousness? The fundamental difference between a machine and a human being, he suggests, is the presence in the human of “noise” (*yuragi*), the term used in electronics to contrast with “signal” – that is, order. Perhaps the element of chaos – what cannot be predicted or programmed – is what makes us human after all. One should add that this uncertainty regarding the existence of agency in the android is compounded by the fact that Geminoid F’s speech is performed by an act of ventriloquism: an operator behind the scenes speaks for and electronically directs the movement of the android as one would a puppet. Ishiguro has said that operating an android often gives one an eerie sense of extending one’s perceptual field, such that one becomes, as it were, embodied by the android and can feel when the android is touched, for example (H. Ishiguro, pers. comm., 4 August 2011).

One of Ishiguro’s latest androids, Geminoid DK, modeled after Associate Professor Henrik Scharfe of Aalborg University in Denmark, is a significant advance on earlier models, both in appearance and realistic movement.⁹ Scharfe’s wife jokes that

she prefers Body #1 – Scharfe himself – and that Body #2 – the android – should be sent on the road to lectures and conferences. Maybe we should all get one, but at US\$1 million for a Geminoid, the cost is still prohibitive. Such a scenario is nevertheless the premise for the Bruce Willis vehicle, *Surrogates* (Jonathan Mostow, director, 2009). Featuring a cameo by Geminoid HI-1, this film imagines a future in which most of us will have android doubles to do our work and even live our lives.¹⁰ (The film’s conclusion, ironically for Ishiguro but predictably for Hollywood, is the destruction of the androids and a return to embodied humanity, warts and all.) Nevertheless, Ishiguro’s emphasis on appearance over movement – his androids are paraplegic and their upper bodies still move rather awkwardly – limits their practical use and, perhaps even more significantly, suggests, to this writer at least, a failure on the part of Ishiguro to understand such matters as emotional affordance and familiarity. I suspect that Ishiguro’s quest to create ever-more-realistic human simulacra will literally lead to a dead end because humans appear to be hard-wired to recognize movement, even more than physical resemblance, as the prime indicator of life – hence, animation’s etymological link to *anima* (spirit). Current theory posits a neurological basis for our privileging movement over appearance in detecting sentience in others (see, for example, Rizzolatti et. al. 2001). Yet, Ishiguro’s research is exciting because of its interdisciplinary nature: he draws upon the work of not only cognitive scientists and neurologists, but artists as well, and by the same token his research will have important applications to all of these fields. Ishiguro’s collaboration with a playwright and stage director is an especially good sign that artists should have an increasingly significant role to play in technological innovation. Aesthetic considerations have profound existential and social repercussions. As the electronic artist Zaven Paré (who has worked with Ishiguro) has put it, what is required today in robotics research and development is “more dramaturgy, less programming.” In other words, theatre is being used as a platform here for robotics research in order to explore the social dynamics of human discourse, something for which programming alone cannot account (Paré 2011).

In the meantime, Mori’s uncanny valley has now entered the lexicon of popular culture. Roger Ebert (2004: 3) referred to it in a review of the film *Lord of the Rings* and, from *Godzilla* to *Gollum*, the idea almost inevitably enters discussions of how far to push realism in animation, animatronics, and computer-generated special effects. Animated features like the film versions of *Final Fantasy: The Spirits Within* (2001) and *Polar Express* (2004) flopped, it is argued, because they were *too* realistic. Lawrence Weschler quotes Andy Jones, director of *Final Fantasy*, in commenting that the replication of a real human being “can get eerie. As you push further and further, it begins to get grotesque. You start to feel like you’re puppeteering a corpse” (Weschler 2002: 4).

From *The Golem* to *Frankenstein* to *Ghost in the Shell*, writers have explored the philosophical and ethical issues surrounding the creation of artificial life. For his part, Ishiguro’s inquiries into the nature of humanity and the impact of technology upon the human are fact, not science fiction. These issues are too big to do justice to here, but I would like to suggest a few ideas as to what these technologies may bode for the direction that our art, puppetry, may take in the coming years. And here Chikamatsu ought to get the last word.

Mori's idea of the uncanny valley, which has become so central not only to robotics design, but also to the use of animatronics and computer graphics in the film and gaming industries, was surely inspired by remarks by Chikamatsu recorded some 300 years before. As related in Hozumi Ikan's *Naniwa miyage* (Souvenir of Naniwa), Chikamatsu saw the task of the playwright as one in which "the author must impart to lifeless wooden puppets a variety of emotions, and attempt in this way to capture the interest of the audience" (Hozumi 1738, cited in Keene 1955: 386). The text must be animated, "all living and full of action" (Hozumi 1738, cited in Keene 1955: 386). Nevertheless, realism is not the ultimate goal: "In writing *jōruri*, one attempts first to describe facts as they really are, but in so doing one writes things which are not true, in the interest of art" (Hozumi 1738: 388):

Someone said, "People nowadays will not accept plays unless they are realistic and well reasoned out." ... I answered, "Your view seems plausible, but it is a theory which does not take into account the real methods of art. Art is something which lies in the slender margin between the real and the unreal."
(Hozumi 1738, cited in Keene 1955: 389)

Chikamatsu goes on to relate the story of a noblewoman who had a doll made in the likeness of her lover that was so realistic that:

... the only difference between the man and this doll was the presence in one, and the absence in the other, of a soul. However, when the lady drew the doll close to her and looked at it, the exactness of the reproduction chilled her, and she felt unpleasant and rather frightened. Court lady that she was, her love was also chilled, and as she found it distressing to have the doll by her side, she soon threw it away.
(Hozumi 1738, cited in Keene 1955: 390)

In his famous analysis on *bunraku* in *L'Empire des Signes*, Roland Barthes (echoing Kleist's famous characterization of the marionette as an embodiment of prelapsarian grace) argues that *bunraku* problematizes dualistic Western notions of flesh and spirit:

It is not the simulation of the body that [*bunraku*] seeks, but, so to speak, its sensuous abstraction. Everything which we attribute to the total body and which is denied to our actors under cover of an organic, "living" unity, the little man of Bunraku recuperates and expresses without any deception: ... in short, the very qualities which the dreams of ancient theology granted to the redeemed body. ... This is how it rejects the antinomy of *animate/inanimate* and dismisses the concept which is hidden behind all animation of matter and which is, simply, "the soul."

(Barthes 1970 [1982]: 60)

That is not to say, however, that Chikamatsu ignored the metaphor of spirit animating matter in the puppet theatre. It is likely more a problem of translation that

the word “soul” is applied here for the Japanese *tamashii*, a concept of spiritual force which many have noted is not quite equivalent to the traditional Western idea of a “soul.” The Japanese have since ancient times accorded a sense of spirit or consciousness (*kokoro*) to all natural phenomena, from insensible stones to plants and animals. As Ki no Tsurayuki said in his preface to the *Kokinshū*, Japan’s first court anthology of poetry: “when we hear the warbling of the mountain thrush in the blossoms or the voice of the frog in the water, we know that every living being has its song” (Ki no Tsurayuki 1920 [1984]: 35). This animistic instinct at the heart of all puppetry is something which Basil Jones, one of the founders of Handspring Puppet Company of South Africa, the creators of *War Horse*, has also eloquently identified as:

A belief in the life of objects and the life of things around us. We suspect that objects may have life and that dead people might have an afterlife. So when we go into the theatre and the lights go down and we once again are shown objects – i.e., puppets – that are brought to life, I think it ignites a smoldering coal of ancient belief in us that there is life in stones, in rivers, in objects, in wood. I feel it’s almost part of our DNA that we all left Africa believing in the life of things, as animists.

(*Lincoln Center Theater Review* 2011: 12)

Jones has stressed that the *Ur*-narrative of all puppet plays is an existential one: puppets want to live, for puppets can do what no human actor can, and that is play death convincingly.¹¹

What have been called animistic tendencies in Japanese culture find their counterpart in contemporary attitudes toward technology. Jennifer Robertson (2007, 2010) and Robert Geraci (2006), among others, have suggested that Shinto belief has enabled the Japanese people to be more accepting of the presence of robots in their daily life. The issue is more complex, however: for one thing, Japan’s commercial and domestic development of robotics, in contrast to the US focus on military applications, is surely an important factor determining the “friendliness” of Japanese robots. At the same time, modern cognitive science, neurology, and philosophy point toward a more nuanced understanding of consciousness. As Masamune Shirow puts it in his *Ghost in the Shell* manga series, “Generally speaking, what we refer to as ‘spirit’ or ‘soul’ is a very vague concept, including things programmed into, or closely related to, the physical body, such as memory, the results of chemical reactions, etc” (Masamune 1989–1990 [2009]: 100n).

The aim of many traditional Japanese performing arts, like that of contemporary robotics or much computer-generated media, is to create virtual realities. A certain aura of the uncanny is necessary, perhaps, for any work of art – it calls our attention to its own intrinsic energy as a kind of “second life.” But when realism is exploited to the limits of what is technologically possible at any given time, an instinctive human reaction kicks in: realism becomes its opposite, accentuating the falseness of the likeness, and in this falseness lies a kind of weird spiritual charge. Marina Warner notes that “the virtual reality of the internet has forged a new narrative of spirits and specters” (Warner 2006: 376). If monsters are, as Goya said, born of the

dreams of reason, if the uncanny is the disconcerting byproduct of the mimetic instinct in Western art especially, then perhaps the Japanese have discovered a way to domesticate the otherworldly by accommodating it into the common practices of their art and technology, familiarizing it while still acknowledging and even celebrating its essential strangeness. New art and science thus serve to redefine what is “human” by probing the limits of life, where it begins and ends, and who (or what) possesses it. New media and technology, in particular, seem poised to undermine traditional Judeo-Christian concepts of human uniqueness and individual agency, opening us perhaps to something closer to the traditional Japanese worldview – one that is basically pagan – a world of gods and not God. And, as Warner (2006: 378) points out, “a non-Christian, classical, mythical idea about individual potential and polyvalence has set aside a traditional concept of the soul.”

Notes

- 1 A *nagauta* (literally, “long song”), a ballad typically found in *kabuki* dance plays, is sung by a chorus to the accompaniment of a *shamisen*, a three-stringed instrument.
- 2 Margaret Atwood, for example, has suggested that “perhaps all writing, is motivated, deep down, by a fear of and fascination with mortality – by a desire to make the risky trip to the Underworld, and to bring something or someone back from the dead” (Atwood 2002: 156).
- 3 Takeda Ōmi (d. 1704) was the father of Takeda Izumo I (d. 1747), who became manager of Chikamatsu’s theatre, the Takemoto-za, after the retirement of Takeda Gidayū. Takeda Izumo I’s supervision of Chikamatsu’s *Kokusen’ya kassen* (*The Battles of Coxinga*, 1715), with its emphasis on spectacular effects, had a profound impact upon the development of the puppet theatre. See Yūda (1975: 21–40).
- 4 The Portuguese artist Leonel Moura, who in 2010 staged the first-ever version of *R.U.R.* to use robots, claims wrongly that his was the first theatrical production ever to feature real robots and humans together. See http://www.leonelmoura.com/rur_en.html (accessed January 9, 2013).
- 5 Hirata typically factors in the possibility for machine malfunction, scripting alternate scenes for human actors, into his robot plays. This happened in the case of a delayed entrance by the android Geminoid F in a performance in Tokyo in October 2012 of his recent work *Three Sisters: Android Version*.
- 6 See Noda (2011).
- 7 Jennifer Robertson (2007, 2010) has written extensively on Japan’s production of consumer robots as an answer to the declining birthrate.
- 8 Hirata has written a sequel to *Sayōnara*, which premiered in New York at an event commemorating the first anniversary of the March 11, 2011, Eastern Japan earthquake and tsunami. *Sayōnara* and its sequel toured North America in February 2013.
- 9 Videos of the Geminoid DK can be viewed at <<http://www.youtube.com/user/GeminoidDK>> (accessed November 21, 2013).
- 10 A trailer for *Surrogates* can be viewed at <<http://www.youtube.com/watch?v=Qyg4GEjKkM4>> (accessed July 28, 2013).
- 11 Personal communication with Basil Jones at the Puppetry and Postdramatic Performance Conference, University of Connecticut, 2 April 2011. The death of the horse Topthorn in *War Horse* was eerily reminiscent of Enya Hangan’s ritual suicide in the classic puppet play *Kanadehon Chūshingwa* (*Treasury of the Loyal Retainers*, 1748). Upon the deaths of both Topthorn and Enya Hangan, the manipulators in these plays abandon their puppets and leave the stage, turning a once-animate character into inert matter.

Works cited

- Atwood, M. (2002) *Negotiating with the Dead: A Writer on Writing*. Cambridge, England: Cambridge University Press.
- Barthes, R. (1970) *L'Empire des Signes*; trans. Richard Howard (1982) *The Empire of Signs*. New York, NY: Hill and Wang.
- Bolton, C. (2003) "From Wooden Cyborgs to Celluloid Souls: Mechanical Bodies in Anime and Japanese Puppet Theatre," *Positions: Asia Critique* 10: 729–771.
- Brownlee, J. (2007) "Professor Ishiguro's Creepy Robot Doppelganger," *Wired* April 26, <http://www.wired.com/table_of_malcontents/2007/04/professor_ishig/> (accessed July 28, 2013).
- Ebert, R. (2004) "Gollum Stuck in 'Uncanny Valley' of the 'Rings,'" *Chicago Sun Times*, January 11: 3.
- Freud, S. (1919) "The Uncanny," in J. Strachey (ed. and trans.) (1959) *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, vol. 17, *An Infantile Neurosis and Other Works*. London: Hogarth Press.
- Geraci, R. (2006) "Spiritual Robots: Religion and Our Scientific View of the Natural World," *Theology and Science* 4: 229–246.
- Gibbon, E. (1776 [1897]) *The History of the Decline and Fall of the Roman Empire*, vol. 1. London: Methuen.
- Gibson, J. J. (1979) *The Ecological Approach to Visual Perception*. Boston, MA: Houghton Mifflin.
- Hirata, O. and Ishiguro, H. (2010) *Robotto engeki* (Robot Theatre). Osaka, Japan: Osaka University Center for the Study of Communication-Design.
- Hozumi, I. (1738) "Chikamatsu on the Art of the Puppet Stage," in D. Keene (ed. and trans.) (1955) *Anthology of Japanese Literature*. New York, NY: Grove Press.
- Hozumi, I. (1738) "Naniwa miyage," Excerpted in *Nihon koten bungaku taikei* [Collected Works of Classical Japanese Literature], vol. 50, *Chikamatsu jōrurishū* (ge) [Chikamatsu's *jōruri* (part 2)]. Tokyo: Iwanami Shoten.
- Ishiguro, H. (2009) *Robotto to wa nani ka? Hito no kokoro wo utsusu kagami* [What Is a Robot? A Mirror Reflecting the Human Mind]. Tokyo: Kōdansha Gendai Shinsho.
- Jentsch, E. A. (1906) "Zur Psychologie des Unheimlichen"; trans. R. Sellars (1995) "On the Psychology of the Uncanny," *Angelaki: Journal of the Theoretical Humanities* 2: 7–16.
- Ki no Tsurayuki, (1920) "Kanajo," in L. R. Rodd (trans. and ann.) (1984) *Kokinshū: A Collection of Poems Ancient and Modern*. Princeton, NJ: Princeton University Press.
- Lincoln Center Theater Review (2011) "The Magical Life of Objects: An Interview with Adrian Kohler and Basil Jones," *Lincoln Center Theater Review* 55 (Spring): 10–14.
- Masamune, S. (1989–1990) *Kōkaku Kidōtai* [Mobile Armored Riot Police], vol. 1; trans. Frederick L. Schott and Toren Smith (2009) *Ghost in the Shell*. New York, NY: Kōdansha Comics.
- Mori, M. (1970) "Bukimi no tani," *Energy* 7: 33–35; K. F. MacDorman and N. Kageki (trans.) (2012) "The Uncanny Valley," *IEEE Robotics and Automation* 19(2): 98–100.
- Moura, L. (2010) "Robot Theatre," <http://www.leonelmoura.com/rur_en.html> (accessed July 28, 2013).
- Nakamura, M. (2007) "Marking Bodily Differences: Mechanized Bodies in Hirabayashi Hatsunosuke's 'Robot' and Early Shōwa Robot Literature," *Japan Forum* 19: 169–190.
- Noda, M. (2011) "Dramatic Intersubjectivity Called into Question: Oriza Hirata's Robot/Android-Human Plays," Paper presented at the annual conference of the International Federation for Theatre Research, Osaka, Japan, 11 August 2011.
- Paré, Z. (2011) "More Dramaturgy, Less Programming," Paper presented at the Puppetry and Postdramatic Performance Conference, Storrs, Connecticut, 3 April 2011.
- Poulton, C. (2002) "Introduction to *Tokyo Notes*, a Play by Hirata Oriza," *Asian Theatre Journal* 19: 1–8.

- Reilly, K. (2011) *Automata and Mimesis on the Stage of Theatre History*. Basingstoke, England: Palgrave MacMillan.
- Rizzolatti, G., Fogassi, L., and Gallese, V. (2001) "Neurophysiological Mechanisms Underlying the Understanding and Imitation of Action," *Nature Reviews Neuroscience* 2: 661–670.
- Robertson, J. (2007) "Robo sapiens japonicus: Humanoid Robots and the Posthuman Family," *Critical Asian Studies* 39: 369–398.
- (2010) "Gendering Humanoid Robots: Robo-Sexism in Japan," *Body and Society* 16(2): 1–36.
- Warner, M. (2006) *Phantasmagoria: Spirit Visions, Metaphors and Media into the Twenty-First Century*. Oxford, England: Oxford University Press.
- Weschler, L. (2002) "Why Is This Man Smiling?" *Wired* 10(6), June, <<http://www.wired.com/wired/archive/10.06/face.html>> (accessed July 29, 2013).
- Yūda, Y. (1975) "The Formation of Early Modern *jōruri*," *Acta Asiatica* 28: 21–40.