CHAPTER 14

# ‘Thinking Something Makes It So’: Performing Robots, the Workings of Mimesis and the Importance of Character

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Robots have started appearing as actors of dramatic characters. Robot *characters* first emerged on dramatic stages in the twentieth century[1] but they were always performed by human actors; robots never performed themselves. The practice of robots performing character versions of themselves on stage is a markedly twenty-first-century phenomenon. Two questions drive this chapter, which explores the striking and far-reaching effects and implications of robots cast as the performers of stage characters in dramatic theatre. The first is: what do robots have to do with stage plays? The second inquires into larger and more far-reaching questions about what robots, cast as characters in stage plays, reveal about being human, epistemology, drama and mimesis.

The robot’s presence on stage arises from human beings’ long-standing fascination with one of their ontological ‘others’: the machine. Humanism’s ‘others’ are animals, supernatural creatures and machines; the humanist subject is unique insofar as she is *not* a cat, angel or clock, for example. However, since the Enlightenment, accelerating scientific and technologi-

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cal advancements have drawn the form of the machine gradually closer to that of the human and, in doing so, the machine has become a particularly provocative 'other' for the contemporary human. Sherry Turkle, writing about the psychology of human relationships with technology, posits certain machines, such as the computer, as 'test objects' – images that are sufficiently similar to the human that they work to challenge the ostensible distinctiveness and uniqueness of the human form. The human, comprehending her own form as coming under threat from the other, complexly and paradoxically adapts her comprehension of her form both by seeing herself by means of the 'other' and by distinguishing herself from it. When the status and form of a test object changes as a result of a new technology or new scientific or philosophical idea, the notion of the human changes, too; so when the computer Deep Blue beat the world chess champion at chess, conventional understandings of what it meant to be singularly human were put under stress and were consequently modified.

Turkle proposes that in the late twentieth century, the computer comprised *the* 'test object' for humans. The computer, in seeming to 'think', troubles the Western belief in human uniqueness, elaborated by Descartes's centuries-old proposition: *cogito ergo sum* ('I think, therefore I am'). As Turkle observes: 'people tend to perceive a "machine that thinks" as a "machine *who* thinks"' (my italics; 2005, p. 29). Whether or not a computer can actually think (and this is a matter of fierce debate in analytic philosophy; consider the arguments of Hilary Putnam and John Searle), the *appearance* of thought is sufficient to prompt ontological doubt: what does it mean to think? Do humans think? What is thought? And as Turkle adds, identifying a question historically wedded to the close of the twentieth century and advancements in artificial intelligence: 'What does it mean to be alive?' (1996, pp. 24–5).

I propose that the robot is in the process of becoming the new century's test object in technologically advanced parts of the world, usurping the computer: it carries forward species-specific questions about mind but its physical and animated embodiment graphically poses the question of whether an artefact can be a life form. When the robot finds humanlike form, the question becomes even more specific: can the robot become a human?

It is not just our fascination with the machine as ontological 'other' that drives the recent appearance of robots on stage; it is also that we are on the cusp of what Hans Moravec, renowned futurist and researcher of robotics and artificial intelligence, has called 'The Age of Robots'. In his

paper, Moravec predicted a future in which robots move from being primitive, literal-minded slaves to entities that 'learn like mammals, model their world like primates and eventually reason like humans' (1993). Whereas Moravec's proclamation may have seemed the stuff of science fiction at the tail end of the last century, advancements in robotics now make it sound prescient. Celebrated roboticist Guy Hoffman predicts that 'Somewhere in your future there's going to be a robot in your life. And if not in yours, then in your children's' (2013). Some humans are already sharing their social spaces and worlds with fast-advancing robots; soon the phenomenon is likely to become ubiquitous.

Playwrights and theatre-makers have started responding to this socio-historical technological proposition. In 2006, Elizabeth Meriwether's play *Heddatron* was performed by Les Freres Corbusier in New York. As far as I can ascertain, *Heddatron* was the first play to feature robots on stage performing robot characters. (Richard Maxwell's *Joe* [2002] precedes *Heddatron* but its life-size robot functions metaphorically in the piece 'as the representative of the final stage of the [human] character Joe's life' [Parker-Starbuck 2011, p. 54], as opposed to being an android character in its own right.) Since its first production off-off Broadway, *Heddatron* has enjoyed multiple further productions in North America and in its wake a raft of other plays featuring robots performing robot characters has followed. The play that will be the focus of this chapter comprises one of these: *Three Sisters: Android Version* (2012), a naturalistic drama written and directed by Oriza Hirata and produced by Japan's Seinendan Theater Company, in collaboration with Osaka University Robot Theater Project. *Three Sisters: Android Version* tracks the Company's earlier plays, which also staged robots performing named robot characters: *I, Worker* (2008) and *Sayonara* (2010). A subsequent play, *The Metamorphosis: Android Version*, has since been produced (2014). These plays, which have toured to the USA, France, Spain and Taiwan, feature robots as socially interactive entities and, apart from *The Metamorphosis* (which is based on Franz Kafka's original story), they are located in plausible and mundane contexts in the home.

Relatively little has been published to date explicitly about robots in theatre. Steve Dixon and Philip Auslander are the notable exponents. This century's flurry of mechanical dramatic activity is too recent to have yet generated much in the way of scholarly material although this will undoubtedly follow as theatre scholars, including Jennifer Parker-Starbuck, Sita Popat, David Saltz, Elizabeth Ann Jochum and Kathy Cleland, amongst others, publish their work in the field.

In his chapter, 'Robots', from his monumental book, *Digital Performance: A History of New Media in Theater, Dance, Performance Art, and Installation* (2007), Dixon sets out a number of frames for positioning and studying robots in theatre. Amongst these, and particularly productive, is his theory of 'metallic camp', where 'camp' is understood to denote movement that mimics and exaggerates, but fails to achieve, womanhood or, in the case of performing robots, the human. Dixon observes that 'some degree of camp seems inherent in almost all performing anthropomorphic and zoomorphic robots' (2007, p. 273). He explains the capacity of robots to 'camp[ ] about' as follows:

> When an anthropomorphic robot moves or when a person camps about, it is highly calculated and coded […]. Although robots may not yet be self-aware, they are quintessentially self-conscious entities, calculating and computing their every move. When a humanoid robot moves, just as when someone camps about, it is a knowing and self-conscious performance […]. (p. 274)

Dixon's metallic camp insightfully identifies theatre's robot performers as 'knowing and self-conscious' – that is, their performances of themselves are novel and highly calculated (though it should be clarified that in the work to which Dixon refers, this calculation is performed by human controllers, not by the robots themselves; apart from one notable and very recent exception,[2] stage robots are not autonomous). However, 'camp' also indicates performative qualities of irony and pastiche (Dixon appropriates Susan Sontag's definition of 'camp' as denoting 'love of the unnatural: of artifice and exaggeration' [p. 273]) and 'metallic' points to qualities of loudness, aggressiveness or resistance. I suggest that these qualities no longer resonate in the way that they did earlier this century. Since Dixon's book was published in 2007, robotics research, engineering and applications, along with associated cultural assumptions and expectations about robots, have developed beyond metallic camp. Today, intelligent, autonomous robots are no longer fully fantastical entities, postulated in futuristic, science-fictional terms, which are far advanced of current knowledge; they are becoming science-fact, and this carries implications for modes and styles of robot performance and for associated audience reception. So although irony and self-consciousness abound in Meriwether's 2006 production of *Heddatron*, in which the robots' performance of sexualized and gendered identities might be described as loud and knowing failures,

framed by postmodernist pastiche and cynicism, such qualities are markedly absent, or overwhelmed by other characteristics, in the later plays to which I allude in this chapter. In place of irony there is, increasingly, a tendency towards sincerity arising from an assumption that the future ubiquity of robots is self-evident and natural. While stage robots persist as objects of wonder, they also find more mundane and realistic forms in posthuman living rooms and scenarios, which cast humans and robots in quotidian subject positions as kinds of kin.

Such posthumanist forms and scenarios playfully but earnestly explore pressing questions about the possible shapes and functions that sociable robots might come to acquire and they do so in dramatic forms that are correspondingly sincere. In his chapter (which appears in this volume) on belief and re-enchantment in British theatre, Chris Megson cites Dan Rebellato's argument that a recent tonal shift can be detected in some twenty-first-century plays, from insincerity towards 'radical naivety': 'those moments in play-texts where "the characters are naïve but we are given no reassurance that their authors are any less so"'. The thrust of Rebellato's proposition, as set out by Megson, is that the author, in strategically withdrawing himself from his work, banishes insincerity (along with, presumably and correspondingly, postmodernist self-reflexiveness) and leaves spectators to 'construct meaning and discover interpretative agency in the "blank" spaces left behind'. The retreat of the author leaves space for audience agency and, crucially, belief to emerge. As I will show, in both the gap between, and the interplay of, the drama and its performance, the audience brings its historically and culturally specific knowledge and beliefs (in human beings, robots, life and so on) to bear upon its co-construction of, and engagement with, the play. Furthermore, it does so in a manner that is, I suggest, radically naïve or sincere, framed by a twenty-first-century context that is post-postmodern.

This chapter's interests lie in the realm of theatrical representations of robots and humans located as kin; they also lie in the roles that drama and performance play in engendering audience belief in, and empathy for, new forms of robot 'being'. In focusing upon the role that drama plays in this process, my research distinguishes itself from that of other theatre and performance scholars interested in performing robots, where they pursue robots' cultural associations; their ontological implications for performance, subjectivity and technology; and their aesthetics (focusing, in particular, upon robot appearance, movement and the uncanny). Next to no interest is shown in the dramatic form and context of these robots

(if one discounts the substantial material about Čapek's play, *R.U.R.*). The dearth of scholarly material in this area is unsurprising, given robots' historical rarity as dramatic characters and stage actors. Also, drama may seem a 'retro' form for the 'unveiling' of 'android life' (Parker-Starbuck 2015, p. 121).[3] Quoting a review of *Sayonara*, another play by Seinendan Theater Company featuring Geminoid F, Parker-Starbuck suggests that the director Hirata's work demonstrates 'theatrical thinking that, rather than being futuristic, is actually quite behind the times' (2015, p. 121). Given the humanist perspective and framework of drama, such a view is plausible. As robots propel us deeper into posthuman territory, which embeds technology ever more fundamentally and intimately into the human form and its societies, they may seem to demand the exploration of other theatrical forms that foreground technology and decentre the human. However, I propose that drama presents an innovative context for the robot performer located in an anthropocentric world. The robot is a 'subject technology' (Parker-Starbuck) and, as such, it challenges humanistic beliefs, which underpin dramatic structures. The robot's different relationship with life and death, sensory pleasures, sex, time, memory and so on, means that its placement in plays may act as a spur to drive dramatic innovations. More than this, the robot manifests important and complex effects by virtue of being contextualized in drama. Robots are hybrid signifiers and subjects, and they resonate at multiple levels. Their physical and signifying parts and levels do not (yet) seamlessly coalesce in the way that the parts and processes of human signifiers and subjects generally do in dramatic theatre, which has millennia of tradition behind it. Whereas dramatic tradition – casting certain types of human beings in certain types of stories, behaving in familiar sorts of ways – has a tendency to camouflage the mimetic structures of theatrical representation (particularly in naturalist theatre), the robot performer vividly disrupts it in ways that are akin to those observed by Nicholas Ridout, writing about children and animals on the stage (2006). Though the specific effects of robots differ from those of children and animals, they similarly provoke and disturb the assumptions that audiences hold about human being, presence, life, time, meaning and so forth. It is for these very effects – for the strangeness of the robot's presence on the dramatic stage, combined with its complex signifying power – that the dramatic robot character and actor is so effective at disrupting the heretofore humanistic landscape of the mimetic stage and, by extension, humanistic society. Cast as a humanlike character,

the robot keys into humanist dramaturgical assumptions and conventions, including, importantly, those relating to character: the representation of a psychologically complex yet coherent individual positioned at the centre of the drama and functioning as its motor. However, such dramaturgical conventions, in being applied to a mechanical puppet, demand not a humanistic response but a *post*humanistic one, one that acknowledges, affirms and interrogates the technological and performative constitution of the robot as puppet-agent. My chapter will open up such inquiries by identifying the staging of one particular robot performer and character in one particular play before navigating and charting ways in which this representation engages with, and reveals, the ontology of human being, epistemology, and the workings of drama and theatre.

The approach of this chapter is, firstly, historical: it asks questions about a specific twenty-first-century robot character and performer, cast in a particular theatrical form and social context. Secondly, my theatrical inquiry is philosophical. Writing about automata, which are moving mechanical devices made in imitation of living beings, Bruce Mazlish observes:

> From antiquity to the present, these simulacrums of 'flesh and blood,' […] put directly before humans the question of their difference, if any, from machines. Automata presented to all mankind what philosophy had otherwise reserved for the academies. (1993, p. 31)

In the field of theatre studies, Kara Reilly identifies automata specifically as entertainers; as such, they are located on the stages of theatre history (2011). Reilly's history positions the stage robots under discussion here as the progeny of automata, being similarly performative and mechanical, and in being so, they – along with automata – bestow corporeality to philosophy. Thus functioning, dramatic theatre's mechanical entities, positioned in roles that have been historically devised for, and performed by, humans, reveal the faultlines in conventional beliefs about dramatic characters, actors, mimesis and the human being itself, at the same time as illuminating the ideas and structures that compose them. It is notable that the robot is not cast on stage because a human cannot play a robot character (from *R.U.R.* to Superbolt Theatre's *The Uncanny Valley* [2013], humans have played, and continue to play, robot characters); the robot performer appears on stage because it is a contemporary object of wonder – a particularly spectacular mechanical 'other' – that provokes us to ponder its human- and life-likeness and the sorts of worlds and futures

to which it gestures. In this sense, the stage robot broadly functions as an 'object technology', according to the terms of Parker-Starbuck's cyborg theatre, which is a form of theatre that merges bodies and technologies on stage (2011). We wonder at the strange novelty of the robot playing a dramatic character on stage; we wonder how it works: whether or not it might be, or become, like us. (It looks as if it might be able to communicate and socialize with us in some forms; can it?) Also we wonder if we might be like it: are we, too, kinds of machines? Hiroshi Ishiguro, the robotics engineer who built the Geminoid F robot that performs in *Three Sisters: Android Version*, has repeatedly said that his motivation for making robots is to find out what they can teach us about human beings. Cody Poulton, quoting Ishiguro, writes: '"Robots and androids […] are mirrors reflecting what it is to be human"' (2014, p. 283). And so, in order 'to understand what makes humans "tick," [Ishiguro] has decided that the best method is to build one!' (p. 283). In like manner, plays that cast robot performers to perform robot characters reveal the forms of human being, dramatic character and dramatic theatre itself, because robot actors performing dramatic characters are technologically refracted mirrors of humanist dramatic theatre.

## The Paradoxical Naturalism of *Three Sisters: Android Version*

*Three Sisters: Android Version* is located in a city on the Japanese Pacific coast, a place that once was home to a thriving robotics factory but that now, due to economic decline, has become a backwater. The opening surtitles provided by a filmed recording of the production stipulate: '[i]n a provincial city – used to be a robot production base for a consumer electronics company and has been hallowed [*sic*] out due to [the] yen's appreciation. Only a small laboratory remains now.' The three sisters and brother remain in the city following the death of their father who had been a brilliant researcher in the field of advanced robotics.

The action takes place over the course of one day and is set in the living room of the Fukazawa family home in the not too distant future. The play's exposition reveals that the eldest sister, Risako (Olga in Chekhov's original play), lives here with her younger brother, Akira (Andrey), who has become something of a recluse – a 'shut-in', to use the translation of the Japanese term – and android Ikumi (Irene). Marie (Masha), the middle sister, visits with her husband, Toshio (Kulygin), and the gath-

ered family reflect upon their father's choice of burial site, the economic decline of the town and their dreams for a bright future for Akira in the United States (the idealized location that, to some degree, substitutes for Chekhov's Moscow). The family holds a farewell dinner for Nakano, a family friend and a robotics engineer, who is leaving for a job abroad. Also invited to the dinner are Manuyama, a professor of robotics at the university, and Mineko, his new and much younger wife.

Hirata terms his play's brand of naturalism 'contemporary colloquial theatre' (quoted in Poulton 2014, p. 281). His play, *Three Sisters: Android Version*, seeks theatrically to represent people as they really are today and adopts naturalistic features in order to do so (just as Chekhov's original sought to do). The *Android Version* pictures verisimilitude of action and setting on its stage just as Chekhov's play does: audiences watch live actors speak, move and gesture in familiar contexts. The following passages illuminate the formal resonances across the two historically distant plays, which are bound by their naturalistic interests. J. Douglas Clayton explains that Chekhov sought 'to present characters exactly as they are in real life […], and to sketch them through their random words, silences, and gestures' (2013, p. 25). Hirata, meanwhile, who wrote the *Android Version* and directs Geminoid F's stage performance alongside human actors, does so with a minute attention to detail, carefully calibrating her 'movement and timbre, volume, and pause of speech' in a 'hyper-realistic style [that] is created out of a multitude of formal elements of closely observed human behavior' (Poulton 2014, p. 283).

In fact, naturalist theatre presents an intriguing paradox at the level of human ontology and dramaturgy, one that Hirata cleverly exploits. Naturalism insists upon a physical universe and, basing its drama on close empirical observation, it theatrically represents people as they objectively look, speak, move and act; however, its action lies more properly in the characters' minds and in the audience's imaginations, which are realms that are markedly subjective. Naturalism exploits the gap between what characters do and say and what they might be thinking, and is attentive to what this gap reveals about character psychology. Taking advantage of such an intriguing and paradoxical relationship between naturalistic philosophy and dramaturgy, Hirata's *Three Sisters* insists upon, and theatrically reinforces, a materialist aspect of human being by quite literally staging a machine as a performer and character. Android Ikumi is described in the play as a costly avatar-type android, the implication being that android Ikumi is a kind of virtual, technological puppet, 'controlled' by human Ikumi. In answer to

the young wife, Mineko's, question: '[h]ow much of her [android Ikumi's] words are her own thoughts?' (as opposed to being programmed), the robotics engineer Nakano replies: '[o]h, the android is tracing the thought patterns of the late Ikumi as closely as possible' before crucially adding: '[b]ut acquired knowledge plays a greater part, you know. […] Artificial intelligence is still not very good at talking with strangers.' Here, android Ikumi is described as being both avatar-puppet and a developing intelligence. The implication of Nakano's addendum is that experience, and learning from experience, are necessary for the android to function as a sociable participant in the world. So, at the same time as the naturalistic drama positions android Ikumi as a machine – a product of physical parts and process – it also positions this machine, dramatically and philosophically, at its centre as a self-determining agent and psychologically coherent individual. Android Ikumi is emblematically naturalistic: a product of her past, society and (mechanical) 'physiology' (that is, her specific hardware and software). But despite her plainly materialist form, she is positioned, structurally, as a psychologically coherent and autonomous dramatic character and is rendered, moreover, a character with whom audiences empathize. Questions about how such empathy is generated, and what this might signify, comprise the subjects of the next section of this chapter.

## Believing in a Robot: The Importance of Binocular Vision

The dramaturgical conceit structuring Hirata's *Three Sisters* – and one that this chapter will shortly examine – is that android Ikumi performs the role and character of human Ikumi, who is Risako and Marie's youngest sister. The play's exposition teaches us that android Ikumi was built and programmed by Mr Fukazawa in the image of his ailing youngest daughter, Ikumi. We are told that 11 years have passed since Ikumi's death, during which time android Ikumi has, to all intents and purposes, become sister to her human brother and two elder sisters.

Risako and Marie's apparent belief in android Ikumi as their sister is the first remarkable narrative feature of this play. (I will raise the second in due course.) Android Ikumi is *not* Risako and Marie's real sister; she is, quite literally, her performative android stand-in. The gap between being and seeming, and between performer and character is, in this way, woven into the dramaturgical fabric of the play. What intrigues about the play's self-reflexive foregrounding of mimesis is the implications it raises for, and

about, 'belief'. Risako and Marie regard and treat android Ikumi as if she were the original human Ikumi; their belief in the android correlates with, and in the process, reflexively comments upon, the audience's belief in her (which has wider implications for the capacity of audiences to respond to mimesis by suspending their disbelief and imaginatively and emotionally engaging with the make-believe action on stage). How is such belief constructed? What are the parts and processes that enable it? A study of the form of Geminoid F, the robot that plays the part of android Ikumi in *Three Sisters*, reveals some answers; Geminoid F, via her android performance, estranges the theatrical and human processes of engendering empathy and, in the process, opens them up for inquiry.

The dramatic character android Ikumi is played by the 'actress' Geminoid F. Geminoid F is blatantly not human; she is a mechanical, teleoperated stage puppet. She is 'the "gimmick" of the production' (Parker-Starbuck 2015, p. 116), a form of automaton 'entertainer' (Reilly 2011) about which audiences marvel. Supporting such an emphasis on her marvellous robotic form is the android's corresponding emphasis as such in the drama: Geminoid F's character role and identity are dramatically formulated and foregrounded as being distinctively android (albeit based on a human original). Android Ikumi is dubbed Fukazawa's 'masterpiece' by the play's characters, where 'masterpiece' implies a highly sophisticated mechanical copy, remarkable for its powers of mimesis. (Apparently android Ikumi draws impressively close to its human original.) Despite android Ikumi's similarity with her human original, her mechanically comprised differences are regularly highlighted in the narrative: for example, unlike her human kin, android Ikumi has no knowledge of death, as she herself acknowledges: she cannot sicken and die. This means she has a different relationship with people and time. She also testifies that she can smell but she cannot eat; she cannot lie; and she cannot forget.

Geminoid F and android Ikumi's statuses in, respectively, the production and play, emphasize their android forms. They are, from first to last, located in comparative terms with humans. However, when I first watched the filmed recording of the production, my belief in Geminoid F grew as the play progressed, as did my imaginative and emotional engagement with the character. It seems I am not alone in experiencing such a response. In a review of earlier work by Seinendan Theater Company, also featuring Geminoid F alongside other robot performers (Robovie R3s), Alexis Soloski reports that 'these automata excited sympathy to an equivalent, or perhaps even greater, degree than their human counterparts', before adding:

> Their effectiveness in performance suggests that mimetic engagement on the part of the audience may owe less to actorly skill than to our collective instinct to attribute human feeling – even to decidedly nonhuman performers. Whether these two short plays confused the boundaries between human and robot or explicitly marked them, both pieces relied upon the audience's capacity to create empathic bonds with lifeless objects. (2012, p. 401)

Here, Soloski suggests that 'collective instinct' is the reason an audience sympathizes with lifeless stage robots (by means of attributing them with 'human feeling'). 'Instinct' indicates a natural, or naturally programmed (that is, physiologically involuntary and genetically encoded), and, perhaps, distinctively human, cause for empathy. This does not explain, however, what it is exactly about the non-human object's performance that prompts this 'instinct' in audiences, an instinct to attribute the object with human feeling and, by such attribution, to create an empathetic bond with it. What is it that made me imaginatively and emotionally engage (instinctively or otherwise) with Geminoid F? Soloski's identification of instinct as the provenance of empathy goes part way to opening up and answering my question, but it ignores the role that mimesis plays in the process, and the theatrical artifice that underpins mimesis.

The physical form and performance of the robot on stage are clearly constituent ingredients in a mimetic process that means to inspire audience empathy for its stage objects. Geminoid F's physical form is highly humanlike. At a glance, she passes for a living Japanese female in her twenties. Indeed, you have to look very hard indeed at the figures on stage in *Three Sisters* to distinguish the android from the human when the performers are at rest. However, looking human is insufficient on its own to inspire empathy. Ishiguro, Geminoid F's engineer, holds the view that while humanlike appearance is important, it is so only insofar as it facilitates the expression of humanlike emotion: '[o]f course the robot needs to have a kind of a minimal [humanlike] appearance'; it would be no good for a robot to be, for example, 'just a cup or a kettle [because] this would make it difficult to read the human-like emotions' (Ishiguro 2013). Geminoid F's physical verisimilitude is important, then, to the extent that it facilitates the expression of emotion, and emotional expression is important, I suggest, because it signifies consciousness.

Ishiguro's considerable design investment in Geminoid F's naturalistic facial appearance and capacity to convey emotion arises from the team's ambition to indicate that she is a conscious individual, a form of identity

that is required for the humanufacture[4] of audience empathy. Geminoid F's appearance is only part of the story, however. As Masahiro Mori proposes in his seminal essay, 'The Uncanny Valley' (2012), movement is also key to the path to empathy. (Notably, for some researchers working in this area, such as Jochum and Popat, movement constitutes *the* ingredient in the related, but not mutually exclusive, objectives of promoting empathy and reducing the risk of the uncanny.) According to Mori, movement works to amplify the mimetic effects of lifelike appearance, which are crucial to the production of audience responses of affinity or revulsion. Movement that appears to derive autonomously from Geminoid F functions to animate the android – it appears to confer life upon it – and, along with life, and via its expression of emotions, a form of subjectivity, too. The presence of movement, then, indicates an autonomous agent while the quality of its movement, combined with the robot's appearance, signals its character and identity. (Notably, of course, movement is commonly interpreted as 'expressing', rather than 'signalling', the character and identity of the actor, an interpretation that is informed by humanist theatrical and ontological assumptions.)

In order to assist the humanlike illusion of Geminoid F, the human actors in Hirata's *Three Sisters* are directed frequently (but not always) to be still, and Geminoid F herself is positioned in a wheelchair. Such a positioning of the android limits the necessity for whole body movement, where this would risk unmasking the mechanical puppet form and disrupting the mimesis. Also, and troublingly, the wheelchair is very likely also meant to contribute to the overall impression of android Ikumi's disabled character as quiet, steady and somewhat frail. Unlike some of her more impulsive human dramatic counterparts, whose turns of thought, speech and, on occasion, movements are chaotic, fluid and fast, android Ikumi is characteristically contemplative, and this accords with her relative stillness on stage. It is fitting, then, that Ishiguro and his team concentrate their movement efforts on the area of Geminoid F's head and face where the android Ikumi 'expresses' her emotions: Geminoid F can blink, turn and nod her head, smile, frown, open and close her mouth, and bend slightly forwards.

Despite such mimetic mechanisms, the illusion of Geminoid F as the sophisticated, humanlike android Ikumi periodically breaks down. These mimetic interruptions are particularly pronounced in the early scenes of the production (at least they were in my own experience) and are caused, I suggest, by Geminoid F's failures as a performer. Quite simply, she is a

wooden actor. The gap between Geminoid F: teleoperated puppet, and android Ikumi: a sophisticated, self-determining and intelligent humanoid character, is sometimes too wide. In order to play her part convincingly, Geminoid F should be more responsive to her environment and more graceful in her movement quality. She should be quicker with her cues. Although her voice is human (her recorded dialogue is spoken by an actress and cued by her operator), and is soft and melodious in its tone – features that significantly contribute to android Ikumi's characterization as a certain kind of conscious individual – there are tiny but jarring lags in the delivery of her lines, which slow the action and stunt the illusion. Finally, her lack of eye contact, which is perceptible in the archival film recording (though it may not be from certain positions in a theatre auditorium), signals the absence of any spark of life and, during my viewing of the production, periodically reminded me that the android is neither alive nor human.[5]

Despite Geminoid F's limitations as an actor, it is requisite to note the growing empathy she inspired in me through the course of the performance of *Three Sisters*. As the play progressed and, vitally, as the narrative started to weave its magic, the faults of Geminoid F's performance disturbed me less and less until I hardly saw them. The reason for this, I propose, is that while robot aesthetics and movement quality are obviously crucial ingredients in engendering audience empathy for humanlike objects, the mimetic potential of the performing robot is also inherently reliant upon dramatic forms and structures – for example, character and narrative – particularly given the form that robots are being assigned, both inside and outside the theatre, as 'individuals' in human–robot interactions. So, the choice of naturalism as a dramatic form – the verisimilitude of the world of *Three Sisters: Android Version* and the stage – is obviously key in the production of the illusion, as are the robot's performative indications of an inner conscious life; however, also important to the illusion of subjectivity is the activation of the imaginary in relation to these elements of the real. The imaginary necessarily completes the audience's impression that the mechanical puppet is a feeling and autonomous robot character, and this imaginary realm, in respect of the dramatic android performer, arises from, and circulates in, conventions and ideas about character. These conventions and ideas interact with the physical performer and derive, piecemeal, both from beyond the world of the play and stage, in the form of common cultural representations, and from within it, in the form of dramaturgical parts and principles.

Bert O. States's thesis of 'binocular vision' explains the artful process of granting fictive life to such stage objects as Geminoid F. States argues that the spectator is able to 'hold in mind two categories – that of the real and that of the imaginary' when s/he observes the dramatic stage, fusing them into a single phenomenon (1987, pp. 168–9). Stage objects, cast as dramatic actors, are particularly effective at disclosing the mechanism of mimesis. As Jochum and Murphey observe, the structure of binocular vision is especially pronounced in puppetry and theatre featuring robot performers by virtue of the fact that, unlike human actors, 'puppets and robots are inanimate objects that simultaneously occlude and expose their artificiality' (2014, p. 309). In the gap between what Geminoid F is, and what the android seems to be, and in the complex negotiation between being and seeming, the significance of the imaginary comes into view. The mechanical puppet should not inspire feelings of empathy because it is an object – it is not like us; it is not a conscious subject – but somehow it does, and it does so because, in addition to the reasons already outlined, for the audience, its dramatic form as a living, intelligent, psychologically coherent and sociable (android) individual acts upon, and fuses with, its corporeal form, to produce a new phenomenon, a hybrid phenomenon composed of both imaginary character and real performer (or, to put it in Harawayan and cyborgean terms: material and semiotic). In *Three Sisters*, Geminoid F is cast as the named individual android Ikumi, a naturalistic character that Hirata locates, in the tradition of naturalist theatre, as being *both* self-aware agent *and* product of her past and mechanical constitution (the android version of human 'biology'). In this, Hirata and Ishiguro simultaneously foreground and attempt foreclosure of the gap between being and seeming – between the teleoperated puppet and the android Ikumi, and between the android Ikumi and her human original – where being and seeming are fused by the structure of binocular vision.

Dramatic themes and forms also play a role in creating belief and empathy in *Three Sisters*, including the posthuman form of the character of android Ikumi. Hirata's play, *Three Sisters*, pursues the mood and theme so important in Chekhov's original: dreams and dreaming. In both the original and adapted versions of *Three Sisters*, character dialogue persistently takes us out of the physical present and into idealized memories or possible futures and in the process it foregrounds the imaginative, as opposed to physical (or real), realm. For example, the sisters dwell upon Akira's hoped-for move to the United States, and the characters frequently reminisce by telling stories about an idealized past. Such language features

facilitate the location of much of the play's action in the minds of characters and audiences (as opposed to physically on stage). Such emphasis upon the mental and subjective realms is thematically coherent, given the play's insistence that 'thinking something makes it so', which is explicitly debated by the sisters in a conversation towards the play's end. Risako, having remarked that it is only people who want to keep things as they are that identify labour as 'noble', ironically insists that she likes her work – she wouldn't do it otherwise – before finally volunteering the quip that she has, of course, taught herself to think this way. Android Ikumi follows Risako's reflections with an analogy, saying that if you think something smells good, then it smells good, before concluding: '[a]s we were born from the same father …', the implication being that, irrespective of the precise nature of their births – be these natural or technological – in thinking they are sisters, so they *are* sisters.

This theme of the power of thought and the imagination works to support the special mimetic demands of a play that challenges audiences to invest emotionally in an autonomous character that is performed by a mechanical puppet. This production tests the processes of such emotional investment still further by means of a second remarkable narrative feature (I referred, earlier, to the first: Risako and Marie's belief in android Ikumi as their sister), which comes in the form of a surprising plot twist: in one disorientating moment, a human actress enters the stage, dressed as Ikumi and referred to by her sisters as Ikumi. That this figure is, indeed, human Ikumi (and not some human metaphor of android Ikumi) is promptly clarified. Although the audience has been led to believe, to this point, that human Ikumi died, it becomes apparent that the youngest of the three sisters is not dead at all but alive and well and continuing to live in the Fukazawa household as a 'shut-in' alongside her android double. (Reasons for the public untruth about Ikumi's death, told by the Fukazama family, are never volunteered, but the lengths to which Akira [the brother] goes to hide his own reclusive tendencies suggests that being a shut-in is culturally shameful.) This plot point works to position the two Ikumis in close juxtaposition – indeed, on one occasion they appear side by side on stage – which exposes and occludes their distinct species forms, requiring us comparatively to examine human and android. At the same time, the play, which manifests android Ikumi as a more likeable character than her human original (a feature of character I shall pursue below), presents us with the question: how is it possible to feel more empathy for an android

than a human, particularly when that android is performed by a mechanical puppet?

The answer to this question, I propose, is character. Character is brought to the fore in this play and production, which presents human and android Ikumi as virtually indistinguishable, apart from their species category difference and variations in personality. In appearance, the two appear almost indistinguishable: human Ikumi is of a similar physical size, wears her hair the same way, is dressed precisely like android Ikumi, and is likewise more or less motionless on stage, although she walks rather than wheels herself in her chair. Android and human Ikumi share qualities at the level of personality, too: they are both quiet, thoughtful and have a tendency to be abrupt, which sometimes topples over into rudeness. However, differences are noticeable. In comparison with human Ikumi, the android is relatively sociable, warm and responsive: she sits amongst, and partakes in conversations with, her sisters and guests; her voice is soft in tone; and she smiles. Indeed, of the two, it is human, not android, Ikumi who demonstrates qualities that might be deemed machine-like: human Ikumi seems comparatively cold, frequently dissatisfied, is less eager to please and her voice has a harder, flatter quality to it; in short, during her rare appearances on stage, she is a less sociable participant than her android double to whom the social role of sister in this drama's family is abdicated. Significantly, in performing the role of sister, android Ikumi is treated as being and, by implication, perceived to *be* this role, in a way that human Ikumi is not.

Here we see a demonstration of the significance of dramatic character – composed of personal qualities, roles and identities – in the mimetic process, which fuses the imaginary and the real into a singly perceived phenomenon. Indeed, in *Three Sisters*, the particular quality of subjectivity, which is imaginatively conjured by the play's dramatic treatment of character, does not merely fuse with the physical performance; as the play progresses, increasingly, it overrides it (for example, when Geminoid F's performance failed, I continued to 'believe' in android Ikumi), to generate a total impression of android Ikumi as likeable and as seeming to be, in some important respects, a sociable human like 'us'.

The play's juxtaposition of android and human Ikumi – of copy and original, of humanoid and human – serves other purposes, too. In the slippage between the two, we wonder, first of all: where does android Ikumi start and end in relation to human Ikumi? Marie asks human Ikumi a ver-

sion of this very question: '[y]our android. How much of it is you?' Ikumi answers that the android is the 'present me', different to the person 'I' used to be. Presumably a technological facility enables human Ikumi's experiences somehow to be regularly uploaded to android Ikumi, so that android Ikumi knows what her human counterpart knows. However, android Ikumi differs from, and is more than, human Ikumi because the android is an individual agent in this posthuman world and, as such, draws upon her own experiences, too, which is something Nakano has already taught us and is implied when Mineko asks him: '[b]ut surely the character [of human Ikumi, as it is programmed or uploaded into android Ikumi] gets twisted over time […]?' This is, indeed, the case: android Ikumi's unique experiences, which differ from her human counterpart, manifest in changing character traits: hence the two characters' different qualities.

The further effect (if not purpose) of the slippage between android and human Ikumi has to do with the production's posthumanist exploration of traditionally modern and humanist divisions of human and machine, copy and original. Towards the end of the play, Risako asks android Ikumi: 'Nakano was in love with you, wasn't he?' What is arresting about this question is that android Ikumi did not exist when human Ikumi was friends with, and loved by, Nakano. However, Risako confers human Ikumi's experiences upon the android in a way that blurs the characters (and starts to undo humanist ideas about the finite nature of life, which is bookended by birth and death). In this moment, for Risako – and possibly also for the audience – the two Ikumis become conflated. If I defer to my experience of watching the play, it is also possible that android Ikumi actually replaces her human character original at, or by, this point. In the act of usurping human Ikumi's role as sister in the Fukazawa household, android Ikumi, to all intents and purposes, becomes the youngest of the three sisters. Arising from this substitution is the notion that more important than species identity is character: android Ikumi's character qualities combine with her performance of her narrative role as sister, to produce her as such.

## Conclusion

My reception and reading of android Ikumi, here, is informed by a humanist point of view. However, android Ikumi is not human and certain human experiences are beyond her (in her current form, at least): death, sickness, eating, defecating, having babies, and feeling sensuous pleasure and pain, amongst others. Such differences are largely subjugated, however, by this

play and production, which seek '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' (Poulton 2014, p. 282). By theatrically focusing upon subjectivity and associated qualities of character, Hirata and Ishiguro broadly persist with humanistic dramatic structures, albeit in ways that provocatively interrogate humanist assumptions about human and robot being, the operations of mimesis and the production of empathy. If I consider my own experience of watching the play, these theatre-makers' success in meeting their objective is beyond doubt. Within the theatrical space of seeming, I found myself believing in android Ikumi: I believed she was an autonomous subjectivity; and I found the sort of posthuman future to which this production gestures plausible, a future in which androids and humans sociably interact, albeit on largely humanist terms.

This play and its production are by no means straightforwardly humanist, however, for while Hirata and Ishiguro's project humanizes the robot, it also mechanizes the human. Hirata's view of actors is that they are 'chess pieces, to be controlled by the playwright and director' (quoted in Poulton 2014, p. 283). Elsewhere he asserts that programming androids is no different to directing actors: 'like the actors, [the androids] just recite the selected dialogues' (Hirata 2013). Hirata expands upon this materialist thesis in the following:

> 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. (Quoted in Poulton 2014, p. 283)

Robot and human performers (and their characters, too) are alike conceived by Hirata as being physically and environmentally formed. In these senses they are philosophically and theatrically naturalist (although the Stanislavskian rehearsal methods traditionally adopted in naturalist theatre seem markedly absent in, and alien to, Hirata's directorial approach). The production's human and robot performers are naturalist in ways that are historically distinctive of our new century: the science and technology of our times influence the play's twenty-first-century conceptions of human being and performance.

As Reilly notes in her book on automata in theatre history, automata are productive of what she refers to as 'onto-epistemic mimesis'. The android Geminoid F's form and her mimetic performance of android Ikumi directly shape 'ideas about reality through ways of being (ontology), or ways of knowing (epistemology)' (2011, p. 7). In *Three Sisters*, Geminoid F shapes ideas about reality through ontology *and* epistemology. The stage robot is a mechanical performing *object*, composed of inert matter, masquerading as an artificial life form and intelligence. It is not, itself, a lively and autonomous *subject*; if it is staged, and performs, effectively, it simply appears to be so. Given all this, in ontological terms, Geminoid F encourages us to see ourselves, as humans, in similarly materialist and naturalist terms. In epistemological terms, meanwhile, Geminoid F works in the context of this theatrical space to pit belief against truth, leading us to believe in the android's performance of her character even though we empirically know she is a sophisticated form of mechanical puppet. The android activates a space of seeming and in the foregrounded gap between its real and imaginary forms, it works to locate meaning in constructivist terms across and between performer and performance, dramatic character and spectator.

In a space in which a robot performs 'as if' it is humanlike – that is, it seems to be consciously alert and responsive to its environment; and it seems to act autonomously and intelligently upon that environment – the robot reveals its fundamentally dramatic and performative constitution as a posthumanist character: a mechanical individual, an intelligent, socially participating machine. At the same time, it casts the human in the same light. Furthermore, in the process of locating androids and, by implication, humans as knowable in inherently dramatic and performative terms, the performing robot works simultaneously to clarify the split between actor and character, between being and seeming, and refuses 'real actor' and 'fictional character' their traditional ontological and epistemological dichotomies. In this sense the robot and human are posthumanist. The android: a complex, hybrid figure, highlights its cyborgian constitution and, in its likeness to its human counterparts, it suggests that the humans, too, are cyborgs. Constructed of parts that are temporarily unified to make the humanoid robot appear to be the individual that it is not (not in any humanist sense, anyway), the robot indicates that the individual – her character, her personality – is a dramatic and performative construction that can manifest in the robot as well as the human and in the process, in its constructivist form, it is no more or less real.

## Notes

1. Although Karel Čapek's *R.U.R.* gave dramatic birth to the robot in 1920, it was not until much later in the century that robot characters started reappearing on stages (in the West, at least) with any frequency. However, in all these works, human actors performed the robot characters as opposed to being performed by robots themselves.
2. In June and July 2015, *My Square Lady* was performed at the Komische Oper Berlin. Starring in this production (which was inspired by the musical *My Fair Lady* and George Bernard Shaw's play *Pygmalion*) was Myon, an autonomous learning robot whose education to become more human and to understand theatre comprised the subjects of the performance. I saw the third and final performance of *My Square Lady* on Sunday 5 July 2015. Most remarkable of all about this surprising 'opera' by Gob Squad (in collaboration with the Komische Oper Berlin) is the fact that Myon's performance was 'his' own. As far as I know, Myon is the first of his kind: an 'improvising', autonomous robot (as opposed to a mechanical puppet). As this chapter moves to publication, I am in the process of interviewing Gob Squad about their work on *My Square Lady*, with a view to publishing this material in due course.
3. I would like to thank Jennifer Parker-Starbuck for her generosity in sharing her chapter, 'Cyborg Returns: Always-Already Subject Technology', with me.
4. I coin and use this term to indicate the process of humans making other humans or humanlike artefacts, a process that is predicated on labour and technology. In the instance referred to in the discussion here, the labour indicated minimally signals that of Ishiguro, Hirata, and, differently, the audience, while the technology comprises that of the android and theatre, respectively. Also, adding the prefix 'hu-' to 'manufacture' serves to recognize but reject the gender-specific history of (masculine) humans in English-speaking cultures.
5. In fact, it is possible that Geminoid F's performance as a human is more convincing than I allow here. Some of my students who watched the filmed recording of the play, and whose knowledge of, and expectations about, performing robots in drama was negligible at the time of viewing, reported continuing to believe Geminoid F was a human, albeit poor, actress until her android form became a dramatic focus. Hoffman et al. (2008) recognise the significance of eye contact as part of their work on a robotic puppeteering system used in a theatrical production involving one robot and two human performers on stage.

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