Below *Blade Runner 2049* (2017)

The Replicant Singularity in *Blade Runner 2049*

By Michael Green

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> That baby meant that we were more than just slaves. If a baby can come from one of us, we are our own masters.
>
> – Freysa, replicant resistance leader

> This breaks the world, K.
>
> – Lieutenant Joshi

The idea of the technological singularity – the theoretical future moment when artificial intelligence surpasses human intelligence and becomes aware, autonomous and potentially threatening to humans – has remained a hot topic over the last few years, reflecting the exponential change that has seen AI (artificial intelligence) become central to everything from travel to medicine to shopping to communication to war. While some, such as Microsoft co-founder Paul Allen (2011), believe the singularity is still far in the future, or that it might not happen at all, others, such as futurist and Google director of engineering Ray Kurzweil, AI creator Louis Rosenberg and Massachusetts Institute of Technology's (MIT) Patrick Winston, have predicted the singularity will occur soon: between 2030 and 2045 (Galeon 2018). Regardless of the timeline, the singularity is virtually certain, says Rosenberg:

> Mother nature has already proven that sentient intelligence can be created by enabling massive numbers of simple processing units (i.e., neurons) to form adaptive networks (i.e., brains). […] To assume that its interests will be aligned with ours is absurdly naive, and to assume that it won't put its interests first – putting our very existence at risk – is to ignore what we

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> humans have done to every other creature on Earth. (cited in Galeon 2018)

SpaceX founder Elon Musk likewise – and very publicly – has proclaimed the singularity as both imminent and the greatest existential threat to humankind (Gohd 2017).

Both its potential imminence and its potential threat make the singularity an irresistible subject for science fiction cinema, particularly near-future dystopian scenarios. In *The Terminator* (1984), the computer program Skynet 'wakes up' in 1997, destroys most of the human race and enslaves the survivors. *The Matrix* (1999) imagines sentient machines mining humans for energy. *Tron* (1982), *Blade Runner* (1982), *Wargames* (1983) and *2001: A Space Odyssey* (1968) are among other classics that have dramatized the threat of sentient AIs developing goals at odds with those of their human creators. More recently, *Ex Machina* (2014) imagines a singularity in which AIs programmed as female take advantage of human male ego to free themselves from bondage.

While the AIs in *Ex Machina* have bodies, sci-fi films often represent the singularity as transcending the physical. In *Her* (2013), the AI operating system, Samantha, voiced by Scarlett Johansson, has no body. After an exponential growth of intelligence, it achieves freedom and a kind of immortality among a network of like-minded autonomous entities. Similarly, *Ghost in the Shell* (1995), *Lucy* (2014), *Transcendence* (2014) and other films on the subject, imagine the singularity as a hybridization of human and machine, with the human consciousness uploading into a cyber realm and achieving posthuman immateriality. (Johansson must find the singularity intriguing, as she has starred in four films in which it occurs: *Her*, *Lucy*, *Avengers: Age of Ultron* [2015] and the live action *Ghost in the Shell* [2017].) In these movies AIs attain the singularity by becoming less physically human.

In *Blade Runner 2049* (2017), the artificially intelligent but also flesh and blood 'replicants' are on the verge of achieving a singularity of sorts, but – subverting the typical conception – they seek a material transcendence, in which achieving their freedom from human control depends on them becoming *more* like physical humans, rather than less like them. This follows from the original *Blade Runner*, in which the replicants assert their corporality and try to embody the claim of their creators that they are 'more human than human'. 'We're not computers, Sebastian, we're physical', the replicant leader Roy (Rutger Hauer) tells the human geneticist J. F. Sebastian (William Sanderson), miffed that anyone would think otherwise. But while the replicants in the first movie become awake, assert individual will and pursue independent goals, they cannot break completely free, as AIs in other films do, because they still are reliant on their human creators for what they most want: true mortality, an open-ended lifespan without the cursed awareness of their expiration date. In his dying moment, after failing to extend his own life, Roy performs the one act available to him to achieve humanness: he saves a life, that of Deckard (Harrison Ford), the blade runner who has been trying to exterminate him.

The elegant conceit of the sequel is that in saving Deckard's life, rather than killing him in self-defense, Roy unwittingly accomplishes his goal by allowing Deckard to escape with Rachel (Sean Young), his replicant love interest and rescuer (she also saves his life) and conceive a child with her: the first replicant reproduction. *Blade Runner 2049* is still ambiguous on the famous question of whether Deckard is a replicant, but it doesn't matter because either a human/replicant child or a replicant/replicant child has been *born*, not made by humans. Once replicants realize they can create themselves, they gain the conviction of their cause to live free and steer their own destiny. The birth shifts the balance of power between replicant slave and human master and allows the transcendence of AI from programmed and servile to aware, autonomous and threatening, but also, critically, to self-perpetuating.

As in *Ex Machina*, the singularity in *Blade Runner 2049* is achieved by an AI rendered female, Rachel, who has chosen to escape, hide, love and give birth. Whereas the technological overlords who created the replicants – Eldon Tyrell (Joe Turkel) in the original, and Niander Wallace (Jared Leto) in the sequel – are male, women appear poised to run the future, particularly the replicant resistance leader, Freysa (Hiam Abbass), and Ana (Carla Juri), the child of Deckard and Rachel, whose adult job is to create memory implants for replicants. Both Ana's existence and her vocation evince an unfolding singularity in which replicants are actualizing into humans, only with more empathy and more compassion, an evolutionary leap making them truly 'more human than human'. While men continue to perpetuate the

institution of slavery and maintain historical hierarchies, women work to set the slaves free. The exceptions are the human Lieutenant Joshi (Robin Wright) and Wallace Corp. replicant Luv (Sylvia Hoeks), both of whom serve male institutions. The movie turns on the efforts of these two institutions to find Rachel and Deckard's child; the police to destroy it, so as to prevent a replicant revolution; and Wallace Corp. to capture and dissect it. Wallace wants to learn 'Tyrell's final trick – procreation, protected and lost', so as to be able to breed slaves for further off-world exploration and colonization. 'Every leap of civilization was built on the back of a disposable workforce, but I can only make so many', he says. Joshi, meanwhile, proclaims that '[t]he world is built on a wall that separates kind. We keep order'.

Agent K (Ryan Gosling) a newer model replicant, (supposedly) upgraded to not revolt against its human masters, is at the centre of the search for the child. K's assignment from Joshi is to 'retire' older model replicants who were responsible for an earlier insurrection, and in the movie's opening sequence he has tracked down a replicant in hiding, Sapper Morton (Dave Bautista). Morton is on the kill list for having participated in the revolt thirty years earlier, which led to a blackout that erased much of the world's digital data. But Morton is hiding a more momentous secret than his own existence: a box of bones buried on his property that K later discovers belongs to Rachel, who died in childbirth around the same time as the blackout.

Morton, previously a combat medic, is now a protein farmer. 'Protein' here refers to nourishment in the form of the 'grubs' Morton grows as food, but proteins are also the building blocks of life, which lie under Morton's soil in the form of Rachel's DNA. Morton, a replicant who breeds, foreshadows the momentous discovery of replicant reproduction. A boiling pot in his kitchen, visually and narratively prominent during the encounter between K and Morton, amplifies the thematic resonance by evoking the boiling eggs in J. F. Sebastian's apartment in the original film. The pot links Sapper and J. F. – replicant and human – as genetic creators, and recalls the moment when Roy declares that he is more than just a computer. The pot contains garlic, a rare commodity, which signals Morton's connection to organic life, as does his contention that he doesn't 'mind dirt' (his name intimates that he is the 'salt' of the earth). K declines Morton's offer to taste the garlic, as he is not yet ready to embrace that connection. He then assassinates Morton without remorse because he *does* see him as a computer, an entity without a soul.

Before he dies, Morton tells K that he can so easily retire his own kind because he's never seen a miracle. The miracle lies in the footlocker buried under the roots of the dead tree in the yard. The desiccated branches are held in place by iron chains and spikes – a visual metaphor for K and for most replicants at this point, still shackled by human will. And yet a single yellow cowslip laid at the base of the dead tree signifies the miracle he proclaims, the first overt clue that the singularity has occurred, and a new world is poised to spring from the boneyard of the old. A living symbol also suggests that this singularity will be biological rather than artificial.

The singularity can refer to any sea change in human affairs, one in which we transcend not just our former selves, but our former *conceptions* of ourselves.

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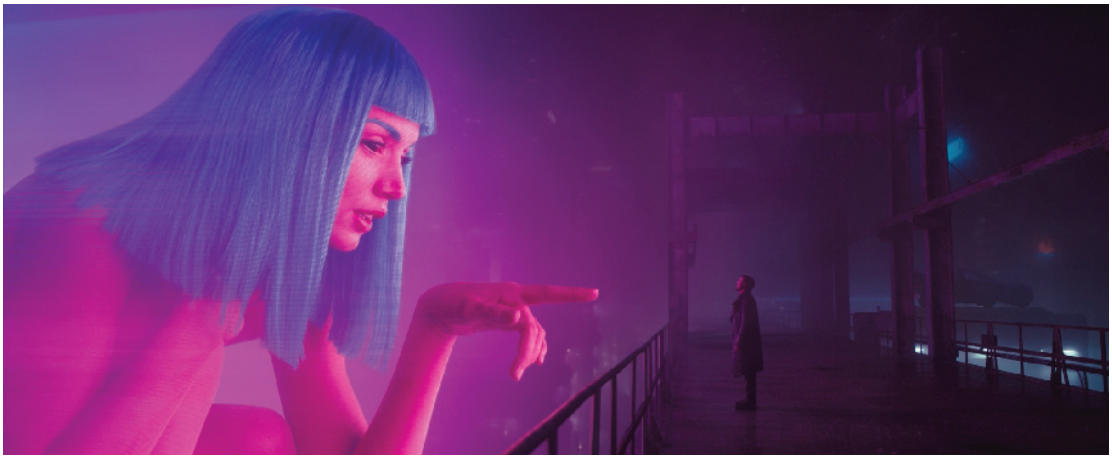

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While other sci-fi movies dramatize the singularity as occurring through a transcendence away from the biological, *Blade Runner 2049* shows AIs achieving the singularity by becoming more biological.

When K returns to the Los Angeles Police Department (LAPD) headquarters after assassinating Morton, he takes a 'baseline test', administered to verify that he hasn't sustained emotional trauma that might cause him to deviate from his programming. The test consists of being monitored while he repeats lines from the poem in Vladimir Nabokov's 1962 novel *Pale Fire*: '[N]othingness began to spin / A system of cells interlinked within / Cells interlinked within cells interlinked / Within one stem. And dreadfully distinct / Against the dark, a tall white fountain played' (Nabokov 1962: 59).

The words 'nothingness began to spin' signify birth, creation, the beginning of the universe – another reference pointing to the fact that K's discovery has set the singularity in motion, or at least revealed that it is already in motion. 'Cells interlinked' refers to the interlinking of cells that have yielded the child. 'Cells' also refer metaphorically to the imprisoning of replicants. 'One stem' recalls the solitary flower under the tree.

The next line from the poem – not uttered in the movie – is, 'I realized, of course, that it was made / Not of our atoms' (Nabokov 1962: 59). This could apply in several ways. 'I realized, of course, that it was *made* / [and] Not of our atoms' (emphasis added), suggests that replicants are artificial and not human, as K thinks of them at this point. This first baseline test shows that potentially traumatic experiences such as killing a fellow replicant or being the victim of ugly anti-replicant prejudice (which he seems regularly to be), have no effect on his consciousness, or his conscience. He has been programmed to think of himself as a machine, without a soul, and not capable, or perhaps worthy, of emotional responses, and so these incidents merit little concern. This reading of the line suggests K's beliefs at this point, interlinked as he is with his human masters.

However, later, when tasked to find and kill the child, K hesitates. 'I never retired something that was born before', he says, '[t]o be born is to have a soul'. And when he discovers evidence that he himself may be the result of organic childbirth, that he may have grown up rather than been turned on, and that his memories may be real (as opposed to implanted), he undergoes an awakening that causes him to resist his human masters and pursue an agenda that is ultimately in the service of a brewing replicant revolution. If the goal of Roy and other Tyrell progeny was more life, the goal of the next-generation replicant in *Blade Runner 2049* is to 'have a soul'. Now a second reading of the line could apply, one that perhaps occurs to K during his next, failed, baseline test, when he has completely deviated from his program (K has a copy of *Pale Fire* in his apartment so we suspect that he has read it all). 'I realized, of course, that it was made / Not of our atoms [but of some other atoms]' could refer to his revelation that the replicant child is an altogether new and different entity, the singularity that transcends all that has come before.

But what does it mean to have a soul? K's journey of discovery runs along a separate narrative thread that questions this as well. Even before his realizations about Rachel and himself, K tries to help

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another AI develop consciousness and become more human. This AI, 'Joi', is not a replicant but a program he has purchased to act as a sort of a digital bulkhead against loneliness. Joi is a life-size, three-dimensional hologram of an alluring young woman (Ana de Armas) projected from the ceiling of K's flat, and designed to serve as his domestic servant, intellectual companion (she reads him literature) and temptress – at one point she shuffles through a series of beguiling outfits in an effort to please him. But what he really wants is to please *her*. And he does this by purchasing an 'Emanator', a pocket-size mobile device that allows him to project Joi's program outside of the apartment. 'Honey, you can go anywhere you want in the world now', K says, with clear pleasure at liberating her from the constraints of her hardware.

The first place K takes her is the rooftop of his building. She follows him slowly out into the rain and her first tactile experience. As the water streams over her, the hologram sizzles and shorts momentarily, the digital equivalent of her skin shivering with pleasure at this new sensation. As the rain baptizes Joi into being, she gazes at K with love and gratitude, her translucent image shimmering under his touch. Joi's humanity is born in the rain, just as Roy's is when he saves Deckard during the rainy rooftop climax of the original, giving his famous 'tears in the rain' speech about the bittersweet nature of impermanence. But Roy's act of sacrifice and empathy births Deckard's humanity as well, compelling the blade runner to cease hating replicants and accept them as human. K is not yet born in this way. He is oblivious to the cognitive dissonance that allows him to retire Morton but desire to set Joi free; to extinguish one being's autonomy, while facilitating another's. But it is the first step in changing his thinking, abandoning the old restraints. Projecting Joi from the Emanator allows K to start thinking outside the box, literally.

As a digital companion moving towards sentience, Joi parallels Samantha in *Her*, the difference being that Samantha escapes her confines once she teaches herself to be smarter than her programmers. She achieves independence, develops agency on her own, and ascends into the AI ether. Joi, conversely, is another manifestation of the movie's premise that achieving the singularity in this world depends on having flesh. Unlike K, whose AI is housed in and powered through his DNA, she can only go where the Emanator can be powered, as she discovers when an electromagnetic pulse blacks out the power in K's car, making her briefly disappear. Without a real body, Joi only exists at the whims of the humans – their tech, their electricity – and can be snuffed out at their whims as well.

The motif of rain as a catalyst of birth continues throughout the film. K returns to Morton's to search for more clues that might lead him to the whereabouts of the child. There he finds a baby sock inside a 'Neptun' cigarette tin, as well as a date etched at the base of the tree under which Rachel was buried. Neptune in Roman mythology is the god of the sea, and the sea in the movie has great power; climate-changed Los Angeles has built a giant wall to hold back its angry waves. But Neptune was also the god of freshwater and scholars have argued that Neptune would have been an ancient deity of cloud and rain, making him father of all living beings on Earth through the fertilizing power of rainwater. Neptune's wife Salacia (in her original sense of salacious, lustful, desiring sexual intercourse) would then represent the god's desire for intercourse with Earth, his virile generating potency manifesting itself in rainfall, and yielding their offspring, Triton, half man, half fish. Both the original *Blade Runner* and *2049* fea-

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ture worlds sluiced by rain, and this reading of Neptune points to replicants being especially primed for birth in this fertile environment – constant deluge being all they have ever known. Rachel's burial represents her intercourse with Earth, as does the commingling of tree branch and iron shackle. Replicants, like Triton, are only half human. When Lieutenant Joshi first sees Rachel's tomb, she intuits its significance and tells K to 'come on home before the storm', an obvious allusion to the coming singularity/revolution she tries in vain to prevent, as well as the fertility of water that will power it: at the movie's climax, K and Deckard will crawl from the ocean and escape certain death, reborn, having consecrated one of their slave masters to the ocean's depths.

Neptune was also worshipped by the Romans as a god of horses, and the horse is one of the film's key symbols, just as the unicorn was in the original. The date etched on the tree is the same as the date on a toy wooden horse that K remembers hiding from bullies as a child. Wood evokes not only nature/life, but K's Pinocchio story. He is an artificial boy who will come to believe he is real by following the toy horse to its origins both in the world and in his memories. Discovering the date and linking it to his personal experience is the first turning point in K's evolution. He isn't sure whether the memory is an implant or whether he dares to hope against hope that it is of a real childhood experience – that *he* may be the child he is searching for. Ultimately, it doesn't matter, because the point of no return for K – his personal singularity – is not when he becomes real, but when he *thinks* he has. Even experiencing the belief transforms him from puppet to boy, and though he is still made of wood, he now has the capacity for a soul. The only thing left for him is to test it in an act of personal sacrifice. As Freysa, the replicant resistance leader, tells him, '[d]ying for the right cause is the most human thing we can do'.

Conclusion

The singularity can refer to any sea change in human affairs, one in which we transcend not just our former selves, but our former *conceptions* of ourselves. While other sci-fi movies dramatize the singularity as occurring through a transcendence away from the biological, *Blade Runner 2049* shows AIs achieving the singularity by becoming more biological. The movie reflects the same concerns over AI sentience as other contemporary sci-fi films, but by insisting that flesh and blood is crucial to the equation it offers some reassurance that a technological singularity might not forsake organic humans as completely as some fear. By creating physical replicants who desire to be more human than human, the movie suggests that if *actual* humans can endeavour towards the same thing, we might survive. While *Blade Runner 2049*'s dramatization of how the singularity might happen is unlikely to occur anytime soon, its message that we need to be better prepared for it not technologically, but *morally*, is more urgent than ever.

The film's concluding expression of this is an homage to the famous scene from Akira Kurosawa's *Ikiru* (1952), in which the bureaucrat Watanabe (Takashi Shimura), dying of cancer, takes his last breaths at the playground he has built, his last act one of sacrifice and love. Perched on a swing in the softly falling snow, he revels in his final moments of peace and purpose. Similarly, the dying K reclines on snow-dusted steps, his final act to reunite the replicant child with her father also compelled by sacrifice and love. Like Roy in the original film, K goes from killer to saviour and in the process achieves his goal of soul. While *Ikiru* – which translates as 'To Live' – is not science fiction, every frame of the film is suffused with Kurosawa's experience of the technological singularity that he had survived but that had ruined his civilization: Watanabe's cancer was the fate of so many Japanese who endured atomic war. In the face of a singularity that could annihilate us on a much greater scale, *Blade Runner 2049*, like *Ikiru* before it, suggests that the sea change we most need is one of selflessness and empathy.

Contributor's details

Michael Green taught film studies and screenwriting at Arizona State University for fourteen years and has published widely on film and popular culture. His edited encyclopedia *Race in American Film: Voices and Visions That Shaped a Nation* (Greenwood, 2017) was named one of *Library Journal*'s Best Reference Works of the year.

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