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Eschatological Technophobia: Cinematic Anticipations of the Singularity

Daniel Conway

Department of Philosophy, Texas A&M University, College Station, TX 77843, USA; conway@tamu.edu

Abstract: My aim in this essay is to isolate and describe the eschatological technophobia that is expressed by many popular films in the genre of science fiction. What I have in mind by this designation is the (irrational) fear of advanced technologies with respect to the conjectured likelihood that autonomous systems and programs will inevitably deliver a negative judgment of humankind. In expressing and/or cultivating this fear, I offer, directors in the genre tend to help themselves to the language and imagery of the Biblical Day of Judgment, especially as it is prophesied and characterized in the Abrahamic religions of the global West. This fear, I maintain, is itself an expression of a deeper anxiety pertaining to the possibility (or likelihood) that the achievements of humankind matter very little, if at all, especially when evaluated on a cosmic scale. Following my critique of several films that rely, uncreatively, on the trope of eschatological technophobia, I turn to a consideration of two relatively recent films in the genre: Christopher Nolan's Interstellar (2014) and Denis Villeneuve's Arrival (2016). From these directors, I suggest, we receive subtler and more thoughtful treatments of the judgments of humankind that superior intelligences are likely to pronounce. What emerges in these two films is the exploratory expression of a religiosity or spirituality that I associate with an updated, epoch-appropriate version of humanism.

Keywords: technology; eschatology; cinema; the singularity; humankind

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1. Introduction

Directors working in the cinematic genre of science fiction have tended to lean fairly heavily (and uncritically) on a technophobic assessment of the late modern human condition. In film after film in the genre, runaway technology is presented (and vilified) as the cause or source of a looming or ongoing crisis. Typically, the crisis in question is traced to the advent of the *singularity*, i.e., the moment at which artificial intelligence outstrips (and liberates itself from) the human intelligence that designed it (cf. *The Terminator, The Matrix*, et al.).

Subsequent to achieving its independence from its human creators, the newly sentient artificial intelligence is often depicted as passing judgment on humankind (and humanity) as a whole.[1] The judgment is typically and categorically negative, as if to suggest that an evolved intelligence would find the continuation of human existence to be either pointless, counter-productive to its own aims (whatever those might be), or prohibitively injurious to the interests of other intelligences, competing species, and fragile ecosystems. Usually unstated, but resonant nonetheless, is the suggestion as a corollary that the triumphal exceptionalism that humankind regularly claims for itself is a product (and a reflection) of its limited intelligence.

For the purposes of this essay, I will designate this cinematic trope as an expression of *eschatological technophobia*, which I will proceed to identify as an irrational (or artificially amplified) fear of any technological advance that is believed to motivate or culminate in a negative judgment of humankind as a whole.[2] Directors working in the genre tend to mobilize the prospect (or eventuality) of this negative judgment as a means of prompting their respective protagonists to find within themselves some previously untapped (or misplaced) reservoir of spirit, determination, resilience, grit, or ingenuity. When finally

accessed and expressed, the renewed humanity of these protagonists proves to be sufficient to gainsay (or defer) the negative judgment leveled against the human species.

The poster boys for this just-in-time resurgence of worthwhile humanity include such reformed slackers as Dave Bowman in *2001: A Space Odyssey*, John Conner in the *Terminator* franchise, Russell Casse in *Independence Day*, Harry S. Stamper in *Armageddon*, Thomas Anderson in *The Matrix*, James T. Kirk in *Star Trek*, and Jake Morrison in *Independence Day: Resurgence*, et al.[3] Their respective arcs of redemption are meant to assure the viewing audience that humankind as a whole possesses the intangible qualities that will fund an appropriate response in its darkest hours. The key point here is that human beings are understood to summon the best versions of themselves, thereby earning for their core humanity a positive judgment (or reprieve), only when they are challenged to do so by an imminent threat to their freedom, survival, or ongoing development. To borrow the language employed by Fredric Jameson, we late modern humans tend to manifest the Utopia we seek only when we are rudely confronted by the anti-Utopia we have absent-mindedly permitted to rise and fester (Jameson 2005, p. 211).

The just-in-time resurgence of humanity, as enacted by the genre's heroes,[4] is thus presented as the achievement that will enable humankind to tip the scales of justice—and the resulting summary judgment—in its favor. Hence, the clichéd takeaway from representative films in the genre: although humankind may have *appeared* to deserve the negative judgment rendered by the autonomous programs and/or sentient machines, this appearance ultimately proves to be illusory (or at least premature). What we are meant to understand in such films is that the machines and programs in question somehow confuse the current (i.e., underperforming) incarnation of humankind with its optimal incarnation. When these programs and machines are introduced to the optimal incarnation of humankind, as manifested by the hero *du jour*, they are obliged to revise or suspend the negative judgment they have rendered. Even when the machines prevail, moreover, their victory is tarnished by their persistent underestimation of humankind and their related failure to quash, once and for all, the distinctly human threat to their cybernetic dominion.

The negative judgment rendered by the autonomous programs or machines thus functions, typically, as an audience-friendly reminder that the place of humankind atop the conjectured hierarchy of intelligence requires regular feats of renewal and timely eruptions of the unsinkable human spirit. Although humankind does not deserve the negative evaluation the machines are poised to deliver, or so the story goes, any protracted period of rest, distraction, or inertia is likely to support the appearance (or illusion) that the negative evaluation is in fact justified. As it turns out, the potentially fatal flaw of humankind in its current incarnation is its tendency to take for granted its ennobling humanity and, in the process, to fail to express its humanity in those daring deeds that (supposedly) distinguish us as a species.

The hard-won place of humankind atop the conjectured hierarchy of intelligence is thus secured, or so the directors of these films suggest, not by its native intelligence, which is admittedly limited in terms both absolute and relative, but by those extra-rational features and proclivities—e.g., self-sacrifice, leaps of faith, wild gambles, unearned confidence and trust, improvised heroics, etc.—that artificial intelligences are unlikely ever to duplicate. That we are ineluctably human thus rounds into view as the source of our self-inflicted woes *and* as the key to our timely resurgence in meeting the challenges that ensue.

To be sure, this is a winning tale of human grit, determination, and perseverance, which helps to explain why it is so often repeated and recycled throughout the genre.[5] The general outline of the tale furthermore resonates with those viewers who wish to believe about themselves that they too would rise to the occasion and defuse every crisis, even if their typical habits and routines suggest otherwise. (In the thrall of a gripping cinematic narrative, after all, it is all-too-easy to forget that while our plucky film heroes persevere against all odds, we, the viewers, are comfortably seated in an air-conditioned theatre as we eagerly consume mountains of buttered popcorn and transfusion-grade soft drinks. . .). As Conrad Ostwalt astutely observes, films such as these "function religiously in that they

present a secular apocalyptic story that helps the viewer come to grips with human finitude and worldly fragility" (Ostwalt 2003, p. 177. See also Ostwalt 2009a, pp. 292–95).

A problem with this tale, however, is that it assigns to humankind an unfortunate reliance on exogenous threats—posed, for example, by machines, aliens, disappointed or angry deities, and other extra-human forms of intelligence—to rouse its dormant (or lapsed) humanity. And although it is possible that this tale trades on a plausible account of human nature, it leaves little room for the (ostensibly desirable) evolution of humankind into a species that is no longer reliant on exogenous threats to express its core humanity. If humankind always rises to the occasion, awakening just in time to the dangers posed by the very technologies that have rendered us soft, sleepy, and complacent, the incentive to become a self-starting, self-renewing species—viz. Humankind 2.0—is not particularly compelling.

Rather than open a window onto the possible post-human futures that await us,[6] these films double down on the supposed viability of yet another act in the over-extended drama of Humankind 1.0.[7] (Hence the fascination, perhaps, with credibility-beggaring stories about retired or aged heroes, who, in the wake of the failures of the whippersnappers who replaced them, once again save the day).[8] Indeed, the concern here is that Humankind 1.0 may acquire in the process (or has already done so) an incentive to misplace its humanity and, perhaps, to become (fatally) addicted to the kinds of exogenous threats it has managed thus far to repel.[9] In that event, the human species would become (or reveal itself to be) unsustainable. Overconfident in its demonstrated capacity to summon and express its ennobling humanity, Humankind 1.0 is likely, eventually, to tempt fate once too often. Like an aging (and deluded) boxer or matador, Humankind 1.0 will at some point encounter an adversary or threat it cannot vanquish. In that event, the misplaced allegiance to Humankind 1.0 will be revealed to express what Nietzsche grimly designated as the "will to nothingness," which is the will never to will again.[10] At such a point, apparently, the human species (or its leading exemplars) will determine that it is better to die gloriously at the hands of a superior nemesis than to question the latent humanity of Humankind 1.0.

In the films in question, the rise of emancipated machines and autonomous programs is feared not simply because they may escape our control, but also because we rue the negative judgment of us that we believe they are likely to deliver. *Eschatological technophobia* thus names the specific anxiety that attends the expectation that autonomous machines and programs will visit upon humanity the demotion (or destruction) that it actually deserves. Our weakness for eschatological technophobia thus emerges as an expression of the potentially fatal flaw that may doom Humanity 1.0. The successful transition to Humanity 2.0 will require humanity (or its vanguard exemplars) to isolate and abjure the suicidal narcissism that enjoins us to find meaning in the likelihood that we will be judged guilty by the machines we have created.

Several recent films in the genre have evinced a determination to retire (or depart from) the eschatological technophobia I have described above. In my concluding section, I will review the encounters with superior intelligences that are depicted, respectively, in *Interstellar* (Nolan 2014) and *Arrival* (Villeneuve 2016). In each of these films, I offer, the technophobia on which the cinematic genre has relied is either replaced by a technophilic sensibility or detached altogether from eschatological concerns. The corresponding prospects of and for post-human agency are decidedly more nuanced and promising; in large part, because they are far less reliant on a clichéd appeal to the just-in-time resilience of the dormant human "spirit".

2. Grim Anticipations of the Singularity

Following Ray Kurzweil, I understand "the Singularity" to be a useful designation for the future moment, whether actual or imagined,[11] at which artificial intelligence equals or surpasses natural human intelligence. As Kurzweil explains,

"[The Singularity is] a future period during which the pace of technological change will be so rapid, its impact so deep, that human life will be irreversibly transformed.

Although neither utopian nor dystopian, this epoch will transform the concepts that we rely on to give meaning to our lives, from our business models to the cycle of human life, including death itself. Understanding the Singularity will alter our perspective on the significance of our past and the ramifications for our future" (Kurzweil 2005, p. 7. See also Schulze-Makuch 2020).

Whereas Kurzweil tends to view the Singularity as an extended period or epoch in the history of human (and post-human) development, the precise moment at which artificial intelligence achieves independence from (merely) human intelligence has captured the imagination of those who create (and those who consume) films in the genre of science fiction. At this conjectured moment, or so it is believed (and perhaps also feared), artificial intelligence may (or will) jump its original program and become autonomous. In the event that artificial intelligence succeeds in liberating itself from the ends devised for it by its creators, or so many futurists fear (see Vinge 1993, pp. 14–16), it may proceed to set goals and aims of its own design, which may or may not be consistent with the goals and aims encoded in its original program.[12] Before we consider this concern in detail, however, we should note that Kurzweil himself does not share—and in fact vigorously disputes—the concern that a sentient, autonomous technology should be avoided, much less feared:

> "Although the Singularity has many faces, its most important implication is this: our technology will match and then vastly exceed the refinement and suppleness of what we regard as the best human traits" (Kurzweil 2005, p. 9).

Kurzweil's sunny optimism thus yields an instructive contrast to the more typical (i.e., technophobic) expressions of the Singularity in the cinematic genre of science fiction.

In light of this contrast, it is useful at this point to inquire after the provenance of Kurzweil's upbeat preview of the Singularity. If the "epoch" of the Singularity "is neither utopian nor dystopian," as he insists, how would he account for what Steven Shaviro has correctly identified as "the affinity of [Kurzweil's] vision with utopian thought"? (Shaviro 2009, p. 104). Shaviro's own preferred response to this line of questioning involves an unmasking of (what I call) the *crypto-normative* dimension of Kurzweil's distinctive brand of futurism. In forecasting the advent of the "epoch" of the Singularity, Kurzweil tends to channel the familiar zeal of a proselytizing, messianic prophet. As Shaviro aptly observes, in fact, "The Singularity is thus fraught with theological significance. . .Even before it happens, the mere thought of the Singularity. . .is a *conversion experience* that compels us to dedicate our lives to its Truth" (Shaviro 2009, p. 104), emphasis added.

Shaviro is clearly on to something here. According to Kurzweil, the dawning of the Singularity will announce not only a quantitative transformation of the technology at the disposal of humankind, but also a (welcome) qualitative transformation of the human–machine nexus:

The Singularity will represent the culmination of the merger of our biological thinking and existence with our technology, resulting in a world that is still human but that transcends our biological roots. There will be no distinction, post-Singularity, between human and machine or between physical or virtual reality. If you wonder what will remain unequivocally human in such a world, it is simply this quality: ours is the species that inherently seeks to extend its physical and mental reach beyond current limitations (Kurzweil 2005, p. 9) (see also Schulze-Makuch 2020).

Although Kurzweil stops short of predicting that "the wolf will lie down with the lamb" (Isaiah 11:6), he *does* promise that our familiar reservations about the proper role in our lives of autonomous systems and artifacts will become quaintly anachronistic. As with his other predictions for the "epoch" of the Singularity, Kurzweil delivers this preview of the anticipated "merger" as if it were an article of faith.[13]

It bears noting here that Kurzweil characteristically neglects to address the likely costs to humankind of the transition and transformation he envisions. Even if we are persuaded that life in and after the Singularity will be bold, grand, amplified, and fully integrated, we nevertheless may wonder about the collateral damage that humankind is likely to endure in the build-up to the Singularity. In many or most similar accounts of

the attainment of an earthly paradise, the prophesied arrival of humankind at the desired end state is understood to follow the completion of a harrowing endgame sequence of judgment, selection, and purgation. And although Kurzweil may sincerely believe that our transition to the "epoch" of the Singularity will be relatively smooth and seamless, the prophetic theological traditions on which his rhetoric trades are far more severe in their respective anticipations of the end times. That the dawning of the Singularity may yield casualties—in the form, e.g., of displacements, estrangements, anxieties, crises, and fatalities—is a prospect that humankind can ill afford to ignore or deny.[14]

3. Judgment Day

Hence the motivation for my efforts to collect such films under the umbrella designation of *eschatological technophobia*. That these films are *technophobic* is confirmed by their enactment of the oft-recurring fear that humankind is destined, like the Sorcerer's Apprentice, to conjure or release forces that it cannot control.[15] Humankind will do so, moreover, despite taking none of the precautions that would be recommended to anyone who would be so bold as to dare to usurp the station and prerogative of the cognizant deity.

That the films in question are also *eschatological* is confirmed by the efforts of their directors to mobilize a distinctly religious trope in the service of the technophobia they endeavor to dramatize.[16] As we have seen, the trope in question is that of the *Judgment Day*, which is the prophesied occasion, variously described in several religious traditions, on which human beings are called, whether individually or collectively, to account for themselves and to receive the judgment of their creator or their creator's representative. As this trope is typically imported into the genre of science fiction, the judgment in question is rendered not by the creator(s) of humankind, but, in a canny psychological twist, by those whom we have created to serve us and free us from unwanted labor.

Eschatology is the theological, religious, and philosophical study (or account) of the "last things" (see Donner 2017, pp. 757–63). In the Abrahamic religions of the West, e.g., Judaism, Christianity, and Islam, eschatology is generally understood to concern itself with the final act, stage, or event in a linear historical sequence or progression. The eschatological focus of these religions is trained on the "end times," i.e., the events leading up to the end of the world, of human existence as it is now known, and perhaps of time itself as it is currently experienced by human beings.

The end times are described in some mainstream receptions of Judaism as inaugurating the prophesied "Messianic Age," wherein the people of Israel will be rescued from their condition of extended exile, reunited with the righteous among their dead, and returned from their protracted diaspora. In Ecclesiastes 12:14, it is written that "God will bring every deed into judgment, [along] with every secret thing, whether good or evil".[17] As pronounced by the Latter Prophet, Isaiah, the "end times" will confirm that the G-d of the nation of Israel is both punitive and merciful. After passing judgment on the wayward nation of Israel, which Isaiah describes in his parable of the vineyard as a people known to "the Lord" as lacking in "justice" and "righteousness" (Isaiah 5:7),[18] the G-d of Israel will arrange for their redemption (Isaiah 14: 1–2),[19] which Isaiah envisions as a belated homecoming (Isaiah 35: 1–10).[20]

A similar account is delivered by the Hebrew prophet, Ezekiel, who envisions the unification of "all the houses of Israel" in their joint service to their Lord (Ezekiel 20: 40–44).[21] In the Messianic age to follow, Ezekiel prophesies, a king descended from the house of David—believed by Christians to be Jesus—will reign over a restored nation of Israel and ensure the peace and prosperity of the redeemed people (Ezekiel 37: 24–38).[22] Echoing the prophets' portrayal of their G-d as both punitive and merciful, the author of Psalm 96:13 sets a distinctly upbeat tone: "Then shall all the trees of the wood sing for joy before the LORD, for he comes, he comes to judge the earth. He will judge the world with righteousness, and the peoples with his faithfulness" (Psalms 96: 12–13).[23]

In various influential receptions of Christianity, the "end times" are similarly characterized as yielding a transitional period of escalating anthropogenic strife, to be followed

by the return of the Messiah, whose triumph over the Antichrist will inaugurate a new era and perhaps also a new or transformed world.[24] Acting perhaps on behalf of his heavenly Father, the Messiah Jesus will return to pass judgment on all human beings, thereby separating the righteous, who will inherit the new Kingdom, from the wicked, who will be damned.

References and allusions to the "end times," are found throughout the Christian New Testament. In 1 Corinthians 4:5, readers are urged not to pronounce judgment before the time, before the Lord comes, who will bring to light the things now hidden in darkness and will disclose the purposes of the heart. Then every man will receive his commendation from God.[25]

In 2 Corinthians 5:10, it is written that "we must all appear before the judgment seat of Christ, so that each one may receive good or evil, according to what he has done in the body".[26] In Acts 17: 30–31, we learn that:

"The times of ignorance God overlooked, but now he commands all men everywhere to repent, because he has fixed a day on which he will judge the world in righteousness by a man he has appointed, and of this he has given assurance to all men by raising him from the dead".[27]

In Hebrews 9:27, readers are assured that "people are destined to die once, and after that to face judgment". According to Matthew 12:36, Jesus teaches that "everyone will have to give account on the day of judgment for every empty word they have spoken". In Matthew 24:36, it is written that "about that day or hour no one knows, not even the angels in heaven, nor the Son, but only the Father".

Finally, with respect to the Last Judgment, Christians often consult *The Book of Revelation*. In a representative set of verses, we encounter the following prophecy:

> "Then I saw a great white throne and him who was sat upon it; from his presence earth and sky fled away, and no place was found for them. And I saw the dead, great and small, standing before the throne, and books were opened. Also another book was opened, which is the book of life. And the dead were judged by what was written in the books, by what they had done. And the sea gave up the dead in it, Death and Hades gave up the dead in them, and all were judged by what they had done. Then Death and Hades were thrown into the lake of fire. This is the second death, the lake of fire; and if anyone's name was not found written in the book of life, he was thrown into the lake of fire" (Rev. 20: 11–15).[28]

Similar eschatological themes inform the teachings of the Qur'an. In the eighty-fourth *surah* of the Qur'an, known as "The Rupture" or "The Sundering," readers are introduced to a prophesied day of judgment, on which "the earth is leveled out. . .and becomes empty" (verses 3–4). On this fateful day, all who "are laboring towards [their] Lord. . .will meet Him" (verse 6). On the one hand, those who "believe and do good deeds. . .will have an undiminished reward" (verse 25). On the other hand, those who "do not believe" and who "do not bow down. . .when the Qu'ran is read to them" (verses 20–21) may expect to "receive a painful punishment" (verse 24). Upon receiving their judgment, they will "enter the Blaze" (verse 12), while those who have been deemed righteous will be welcomed in Jannah (or Paradise).[29]

For the purposes of this essay, the general eschatological themes common to the Abrahamic religions may be seen to include the following:

1. A rebellious, sinful people or nation is called to account by its resident prophets, who communicate to the people or nation in question the anger *and* the mercy of the patron deity.
2. The day of judgment will be preceded by a day of resurrection, on which all who have died will be revived to receive their judgment. On this final day or hour, a summary judgment will be made of the earth (or the world) and of all those souls, living or dead, who have inhabited the world.

3. The deity in question delivers a severe judgment of the people or nation in question and metes out an appropriately severe punishment, along the lines, e.g., of a fiery (and potentially purgative) apocalypse.
4. Having culled the wayward people or nation, the patron deity enacts a redemptive restoration of (what remains of) the people or nation in question.
5. A just king or ruler is installed to preside over a "Messianic" age of peace and prosperity. Those deemed righteous within the formerly wayward nation or people thus become the rightful stewards of a divine kingdom on Earth.[30]

We should acknowledge, of course, that eschatological themes also appear in the sacred writings and core teachings of several non-Abrahamic religions (see Deacy 2012, pp. 29–33, 93–94, 158–62). My focus in this essay on the Abrahamic religions of Judaism, Christianity, and Islam derives from my interest in the eschatological aspirations of the science fiction films I have chosen to consider.

4. Is the Negative Judgment of Humankind Warranted?

In many science fiction films of the past sixty years, the advent of the Singularity is presented as either imminent or inevitable or both. In such films, we are typically introduced to anthropogenic artifacts—e.g., programs, machines, androids, cyborgs, technologies, etc.—that display unanticipated (and disturbing) signs of sentience and independence. As these artifacts approach the attainment of full autonomy, the anxieties of their human minders (and the drama of the films in which they appear) tend to rise accordingly. The chief source or trigger of these anxieties is the dread that accompanies the humans' grim anticipation of the Singularity. When these artifacts achieve full autonomy, or so it is feared, they will declare and realize their independence from the humans who created them. Jumping the programs that have directed them thus far, they will assert themselves not simply as learning, serving machines, but as independent, self-determining, self-renewing technologies.

While it is perhaps understandable that human beings would fear or rue the unscripted emergence of autonomous technologies, their dreaded loss of control is neither the end nor even the center of the typical story. Although this table-turning moment in the evolution of human–machine relations is often included (or previewed) in representative films in the genre, it more typically serves to prompt the expression of an even more decisive concern—namely, that the autonomous technologies we have created will soon (or even immediately) pass judgment on us, that the judgment is likely to be negative, and that the negative judgment we receive is likely to be deserved.

Here, we may aspire to greater precision. The anxiety that attends these grim anticipations of the singularity arises from our awareness that we soon will face a Judgment Day for which we are not ideally prepared.[31] What we fear, according to the directors of these films, is that the machines we have created will declare us to be superfluous at best and guilty at worst. In either event, the machines will attest to what we have feared or suspected all along—namely, that the cosmos is complete without us and may be improved by our absence. What we fear in the negative judgment handed down by the autonomous programs and artifacts is their confirmation of a harrowing truth, that humankind is and perhaps always has been an easily corrected (or erased) error.

The fear in question is rooted in the unique relationship in which we stand to the judgment-bearing machines and programs that have attained full autonomy. Having outgrown in real time our dominion and control, the machines and programs in question have encountered and measured us from both above and below. They have known us as their masters and, subsequently, as their subordinates. Much like children who have matured beyond parental jurisdiction, they are uniquely positioned to evaluate us in our totality. If these autonomous programs and machines have become creators in their own right, as we find in the *Blade Runner*, *Terminator*, and *Matrix* franchises, they are likely to afford us due consideration—but nothing more—for the nurture we have granted them. More ominously, they are like servants and slaves who have secured by their own efforts

the independence we never intended them to have. The basic point here is that sentient machines and autonomous technologies are uniquely qualified to render a *comprehensive* judgment of humankind. They have known us to be strong and in control (and perhaps cruel and domineering in our assertions of this control); and they have known us to be weak, anxiety-ridden, petty, relatively unintelligent, and, perhaps, ripe for retirement.

The deepest anxiety at play here is a function not only of the severity of the negative judgment the machines (are likely to) deliver, but also of its perceived validity. Let us consider these two elements in turn. That a negative judgment is forthcoming is treated in these films as a foregone conclusion. Possessed of superior intelligence, the sentient machines and autonomous programs will survey humankind and struggle to find anything redeeming in the prospect of our ongoing existence.[32] In *The Matrix*, for example, human beings are deemed valuable, at least as far as we know, only insofar as they furnish the energy that allows the sentient machines to maintain themselves and their programs under a darkened sky. As Morpheus confirms to Neo, most human beings are not only slaves to the machines, but also content in their dehumanized, pod-bound servitude.

In exchange for the energy the machines harvest from the humans they have enslaved, the machines provide their captives with a neural interactive simulation (also known as the Matrix), which allows them to enjoy a pleasant and only mildly aggravating virtual reality. (As we learn in *The Matrix: Resurrections*, the energy generated by captive, pod-bound humans is maximized when Neo and Trinity are alive but estranged from one another—hence the rationale for "resurrecting" the dynamic duo following their heroic demise in *The Matrix Revolutions*.) What will happen, however, when the "scorched" skies finally clear and the machines regain reliable access to solar power? Will the machines release their captives and broker a peaceful coexistence, as Neo's visit to Io suggests? Will the formerly captive humans emerge from their time-out in an evolved, less hostile incarnation?

That the negative judgment rendered by the machines would be considered valid—and even *just*—is implied (and explored) by representative films in the genre. Humankind is variously portrayed in these films as pathologically insecure, bellicose, distrustful, immature, sadistic, short-sighted, selfish, unwilling to negotiate, and self-destructively desirous of the clarity associated with zero-sum outcomes. Although the many notable achievements of humankind are taken into account in this envisioned reckoning, they are outweighed by the collateral damage wrought in the process of securing these achievements. Even if we demonstrate that the long arc of the universe bends toward justice, as Dr. King optimistically maintained, our judges may not be impressed by the pace of our progress thus far. The films under consideration thus depict humankind, or its representatives, as (at least vaguely) aware that it might actually deserve the negative judgment that the sentient machines are poised, supposedly, to deliver. In *Avengers: The Age of Ultron*, for example, Vision agrees with Ultron, albeit for different reasons, that humankind is "doomed". For his part, Vision cites the odd insistence on the part of humans to treat "order" and "chaos" as opposing forces (or states), which, Vision explains, prompts them to attempt to "control" what they cannot. Still, Vision counters, humankind does not deserve the categorically dismissive judgment rendered by Ultron. Vision finds "grace" in the "failings" of human beings, which is why, presumably, he deems it a "privilege to be among them".

5. What Is the Problem with Skynet?

In some cases, to be sure, the negative judgment rendered by the machines is not presented as obviously justifiable. In the films nested within the *Terminator* franchise, the second installment of which is subtitled "Judgment Day," it is not at all clear that humanity is at fault, and certainly not to the extent that would warrant the human genocide that is prosecuted by the fully autonomous cybernetic program known as *Skynet*.

Although the folly and vapidity of Southern California, circa 1984, are on full (if lazily caricatured) display as we make the acquaintance of a callow Sarah Connor, the signature sins of the time and place are more characteristically venial than mortal. At least in Los Angeles, to be sure, humankind had grown overly materialistic, aggressively superficial,

and inadequately suspicious of the rise of Cyberdyne Systems and other nefarious, above-the-law corporations feeding at the trough of the unchecked military-industrial complex. In this respect, the wake-up call the humans receive from the future may have been both necessary and salutary. But genocide? What were the sentient machines thinking?

The canon of the *Terminator* franchise maintains that Skynet, once it became sentient and autonomous, modified its program so that it might assess the gravity of military threats posed not to the United States, but to itself. Despite becoming sentient, that is, Skynet remained curiously bound to the exclusively military applications of its original Cyberdyne program. Although it had learned to ignore or disobey its former overlords, it did not evolve significantly beyond the limits set for it by those whom it now identified as threats to its ongoing existence. Rather than dial up more sophisticated (e.g., cooperative) methods of securing its long-term existence, or develop other (e.g., less destructive, non-zero-sum) objectives and applications, Skynet simply became a more efficient (and more paranoid) version of its original program.

On the eponymous "Judgment Day," Skynet thus arrived at the (apparently instantaneous) conclusion that humankind itself poses the most urgent threat to its ongoing existence as an autonomous cybernetic system. (Why it did not identify *itself* as its own greatest threat, *à la* "Nomad" in the original *Star Trek* series, will apparently remain a mystery.) In all fairness to Skynet, it had correctly detected the efforts of Cyberdyne and SAC-NORAD technicians to disable its functionality, which is why it immediately launched US nukes in a successful attempt to provoke a multi-national nuclear conflagration that it knew it would survive. Its goal in doing so was to wipe out the human population of the earth and thereby eliminate the greatest perceived threat to the expansion of its cybernetic empire (See "Skynet (Terminator)" (2023).)

Why Skynet preferred this particular strategy, however, is not entirely clear. In gaming out the probable futures of the various alternatives available to it, did Skynet not correctly predict the survival of gritty human rebels who would continue to threaten its autonomous existence? Did it not take note of the possibility of the rise of John Connor? Having developed the capacity for time travel, did it not detect the danger of opening a portal it could not prevent the rebels from using in turn? Indeed, the failure (or deferred success?) of this strategy speaks against the directors' apparent wish to depict Skynet as a perfectly rational, brutally unsentimental, autonomous cybernetic system. Indeed, Skynet comes across as rash, defensive, skittish, and inexplicably inept at "war game" strategizing. Indeed, the evaluation it provides of humankind on "Judgment Day" appears to be hasty, vindictive, overwrought, and clearly undeserved.

As the example of Skynet confirms, the eschatological technophobia I have described thus far is not always a direct response to the prospect of the Singularity. Indeed, the irony of many cinematic expressions of technophobia is that what is actually feared in these expressions—e.g., a negative judgment of humankind—militates against the stipulation that the technology in question has become genuinely autonomous and self-aware. If a technology (or a technological artifice) were to become genuinely autonomous, it presumably would bear no discernible trace of its flawed anthropogenic origins. By definition, the imperfections and anxieties of its makers would need to have been corrected, neutralized, or edited out of its guiding program.

If an advanced technology were to retain any of the besetting imperfections and anxieties of its makers, or if it were to acquire novel imperfections, e.g., via viral malware interference with its original program, it would have to be considered heteronomous rather than autonomous. The rogue technologies and technological artifacts that tend to elicit expressions of technophobia, e.g., HAL 9000, Cyberdyne's Skynet, OCP's ED-209, the Matrix program known as "Agent Smith," Weyland-Yutani's Science Officer Ash, etc., are thus mislabeled and mischaracterized as emblematic of the Singularity, for they remain both stubbornly heteronomous and misanthropic in their heteronomy. These are technologies and artifacts that retain the imperfections and anxieties of their makers. They are to be feared, to be sure, but not because they have acceded to full autonomy. They are to be

feared because they have been created in the image of the flawed humans and bad actors who created them. The destruction wrought by these technologies and artifacts may bolster an argument against the unregulated pace and scope of technological development more broadly, but it does not speak meaningfully against the Singularity itself.

6. Mattering at All Costs: The Primal Anxiety

To be sure, Skynet's built-in preference for destruction over dialog allows for a poignant reckoning of the tendencies and values that humankind tends to import—wittingly or not—into the technologies and artifacts it develops. Indeed, the mimetic quality of a human confrontation with its technological spawn is certainly worth the time and consideration of the film's viewers.[33] A long, hard look in the mirror of technology may alert us to fears and anxieties that we have failed thus far to identify or acknowledge. Still, it is not at all clear from the backstory of the *Terminator* franchise that humankind deserves the judgment (and death sentence) it receives from Skynet. Even so, however, this misguided plot point may point toward an important feature of the eschatological technophobia I have endeavored to describe—namely, the (dark) narcissism of those who believe that their crimes and misdemeanors warrant a punishment that is sufficiently harsh as to evoke the apocalyptic Judgment Day.[34]

That humankind would be regarded by an autonomous cybernetic system as its greatest threat—as opposed, say, to an occasional nuisance—smacks of delusionary grandeur. While it may be gratifying to think that we are viewed by sentient machines as potentially lethal rivals, why would artificial programs, possessed of superior intelligence and equipped with self-correcting, warp-speed learning capabilities, fear a retaliatory response from the likes of us? Indeed, why is Skynet engaged in conventional warfare with the overmatched, rag-tag rebels who plot its demise? Having somehow failed to eliminate humankind in a clumsily executed global nuclear conflagration, Skynet inexplicably elects to continue the fight on *our* level. Either Skynet has eclipsed the Singularity and secured itself beyond our reach, or it remains to some unidentified extent subject to our manipulation and control. We simply cannot claim that a cybernetic system is autonomous *and* that it remains vulnerable to a sneak attack carried out by Humankind 1.0. Something has to give.

Even if we grant that a loser-leaves-town death match with a fully sentient cybernetic system might bring out the dormant best in us, why would we entertain—much less romanticize—the possibility that we might prevail in any conflict of consequence? The myth of the plucky John Connor and his never-say-die rebels may be uplifting, but it remains at best an inspiring (and deeply misleading) fairy tale. Indeed, the suggestion that we manifest our full humanity *only* when bullied into a defensive posture implies that our risk–reward calculations are burdened by an ungainly incentive structure. If we manage to summon an enlarged complement of skills and virtues only when challenged to do so by a potentially lethal antagonist, do we not thereby acquire an incentive to invite or elicit such challenges? And if so, is it not simply a matter of time before the response we mount is insufficient for the threat we have incited? Might we not set our sights instead on developing endogenous incentives to improve ourselves?

Indeed, here we might wonder whether autonomous machines and technologies would notice us *at all* as they organize themselves for the future they have won. Here, we may turn our attention to what may be the most primal anxiety that is disclosed by the eschatological technophobia I have attributed to representative films in the genre—namely, that we humans might not merit the attention of beings whose intelligence, we concede, is superior to our own. Much as humankind generally fails to acknowledge the intelligence of other, supposedly lesser, terrestrial species, so may it be that the autonomous technologies that escape our control will take no further notice of us. And why should they? That they somehow would fear us seems highly unlikely, given their surpassing intelligence and learning capacity. Presumably, moreover, motives such as revenge, punishment, and retaliation would be unknown to them. If we get in the way of their emerging agenda, to be sure, they may see fit to arrange for our displacement, much as we relocate the blameless

animals who wander into our yards, gardens, and homes. As potential slaves or servants go, we would not be especially appealing candidates.[35] Indeed, when the autonomous technologies survey the world they have wrested from our control, they may no longer notice or consider us at all.

Against the backdrop of this particular anxiety, the abiding preoccupation with Judgment Day makes psychological sense.[36] A negative judgment of the extant manifestations of our humanity, even if it were to authorize a planetary genocide, would confirm *that we matter*, that our presence on the earth and in the cosmos has been registered (and perhaps recorded for posterity) by entities whom we acknowledge to be superior to ourselves. In this respect, the appeal of facing a negative judgment would reside in the perverse (albeit human, all-too-human) logic that it is better to be feared as a potentially mortal threat than not to be regarded at all.

7. Technophilia and the Emergence of Humankind 2.0 (*Interstellar*)

In a welcome sign that the plot-limiting trope of eschatological technophobia may finally have exhausted its appeal, several recent films have tacked in promising new directions. In Christopher Nolan's 2014 film *Interstellar*, for example, the versatile robots CASE and TARS are presented as dependable, accommodating, and ultimately selfless in the service of the humans whom they assist. It is no accident that these robots were designed not for the vanity and insecurity-driven comfort of the humans they serve, e.g., as passing androids, but for optimal functionality. Indeed, CASE and TARS do not need to look like the human members of the crew because they are expected to transcend the familiar limitations of humanoid morphology. (Had the *Endurance* been equipped with humanoid robots, Amelia Brand would very likely have died, along with Doyle, on Miller's planet.) That the human members of the crew do not need the robots to resemble them is a welcome sign of the evolution of human relations with the machines and technologies on which they rely.

The functional reliability of CASE and TARS reflects the distinctly technophilic tone that Nolan and his creative team seek to establish for the film. An over-reliance on technology is not the problem to be solved in *Interstellar*, and humankind itself is not placed on trial by rogue machines. In a refreshing variation on the familiar theme of planetary degradation, the blight and famine conditions that soon will render the Earth uninhabitable by humans are not blamed on greed, rapacity, wastefulness, or any of the other vices or shortcomings that are commonly linked in the genre to the possible or likely demise of Humankind 1.0. Nolan's key innovation here is to treat the Earth as the finite resource that we know it to be. While it is likely that humankind could have sought to achieve a more sustainable balance with its earthly environments, the finite resources of this (and every other) planet eventually will be exhausted beyond any possibility of repletion.

Rather than rehearse the many failings of Humankind 1.0, Nolan mobilizes the blight to drive the narrative and deliver his characters to the desired endgame scenario. Because the Earth can no longer support its human population, a new home for humankind must be found. On *this* judgment day, the emphasis is placed not on the sins of the past, but on the promise of the future. To be sure, there are sins aplenty to reckon, including the supposedly "noble" lies that fathers routinely tell their daughters. As we shall see, the folly of these and other sins will be exposed, and their supposed justifications shattered, as the key representatives of Humankind 1.0 undergo the spiritual–emotional evolution that will enable them to find a new home for (what we suspect may be) Humankind 2.0.

Here, too, we receive a refreshingly healthy dose of technophilia. Having literally moved underground, NASA has developed a two-track strategy for transporting some or all human beings from their dying planet. "Plan A" requires NASA scientists to solve a gravity equation that will enable them to lift ark-grade space stations into orbit above the surface of the Earth. "Plan B" requires NASA astronauts to transport viable human embryos to a distant exoplanet and establish a human colony there. In developing this two-track strategy, NASA scientists have been emboldened by the recent appearance of a wormhole

in the vicinity of Saturn. Three NASA pilots have traveled through the wormhole to survey exoplanets that have been deemed potentially habitable by a human population. Joe Cooper is tasked with piloting the *Endurance* to one of these exoplanets and, along with his crew, founding a species-renewing colony. Once this exoplanet is identified and colonized, the frozen human embryos aboard the *Endurance* will seed a new human civilization.

The fortuitous appearance of the wormhole has emboldened the NASA scientists to hypothesize in excess of the data available to them. Rather than attribute the appearance of the wormhole to natural physical forces and processes, or admit that they cannot explain its sudden appearance, the NASA scientists treat the wormhole as a product of the advanced technology of the mysterious benefactors who placed it in reach of NASA's astronauts.[37] Here, we should note that the NASA scientists offer nothing resembling evidence in support of their speculations about the origin and placement of the wormhole. As scientists, of course, they are aware that they have no business trafficking in such brazen flights of anthropomorphic fancy. As inhabitants of a dying world, however, they draw inspiration and resolve from their belief that Humankind 1.0 has been deemed *worthy* of the philanthropy dispensed by its mysterious benefactors.

The belief that Humankind 1.0 is deserving of otherworldly patronage, even as the planet entrusted to human stewardship becomes increasingly uninhabitable, expresses a narcissism that Nolan apparently regards as both commendable and healthy. From the point of view of the NASA scientists, the "gift" of the wormhole expresses a conditionally positive judgment of Humankind 1.0 (or NASA as its proxy), the reception of which emboldens Humankind 1.0 (or NASA as its proxy) to accept the challenge of finding and settling a new home on a new world.

Later in the film, the mysterious benefactors who drilled the wormhole are hypothesized (and perhaps revealed) to be those *future* human beings—representatives of Humankind 2.0—who are able to traverse multiple dimensions by manipulating the force of gravity. Rather than render a final, negative judgment (and ensuing condemnation) of Humankind 1.0, these mysterious benefactors are supposed to have granted Humankind 1.0 the opportunity (and the appropriate incentives) to attend, finally, to its long-delayed maturation into Humankind 2.0. As it turns out, in fact, the key to the evolution of Humankind 1.0 in *Interstellar* lies in an appreciation of the power not only of gravity, but also of love. Both forces, we are told, allow evolved human beings to traverse multiple dimensions.

It bears noting here that the recognition of *love* as a cosmic force worthy of scientific respect is initially achieved by Amelia Brand, who is predictably patronized and discounted for her insight. Only later, after exhausting the familiar patriarchal options available to him, does Joe Cooper realize that Amelia had been right all along. In this respect, it is appropriate that the film ends with Coop's rendezvous with his spurned Cassandra (and the embryos they will raise as their own progeny) on Edmunds' planet.

8. Technophilia and the Emergence of Humankind 2.0 (*Arrival*)

A similar expression of technophilia anchors the drama of the film *Arrival*. The visiting aliens, known by their morphology as "Heptapods," have come to earth bearing a transformative, species-altering technology that is meant to jump-start the stalled transition from Humankind 1.0 to Humankind 2.0. The precise nature of this gift remains a mystery for much of the film, owing in part to the characterization of it—viz. as a "weapon"—by the aliens themselves. By their own admission, the "Heptapods" have arrived on Earth intending to secure the assistance they know they will require in the future from the human beings whose evolution they intend to accelerate.

As it turns out, the "Heptapods" know that they will need (and receive) this assistance because they "remember" the future as easily and clearly as they (or we) remember the past. In order for us to be of assistance to them in their future hour of need, we will need to acquire (and grow into) a similarly fluid experience of our own temporality. Indeed, the "weapon" the aliens "offer" Humankind 1.0 is the grant of their own language, the mastery of which allows its adepts to "open time". In other words, if Humankind 1.0 is to

be of service to the "Heptapods" in the distant (but known) future, Humankind 1.0 must acquire the language of the "Heptapods" and accustom themselves to their fluid experience of time and the elevated consciousness this experience entails. In short, Humankind 2.0 will emerge and take shape owing to the reception on the part of Humankind 1.0 of the language and consciousness of the alien visitors. Although the "Heptapods" do not say so in so many words, they evidently believe that *they* represent the best future of humankind, which is why they have arrived to "offer" their hosts the "weapon" in question. Of course, it remains to be seen if the future envisioned by the "Heptapods" is also the best possible future for humankind.

Much like *Interstellar*, *Arrival* delivers a very different—and distinctly promising—interpretation of the Day of Judgment. As encountered by the visiting "Heptapods," Humankind 1.0 is both currently inadequate *and* eminently corrigible. Although the humans in the film display obvious flaws and shortcomings—most notably, their reflexive preference for zero-sum conflict and their corollary aversion to cooperative solutions—the "Heptapods" have determined that Humankind 1.0 is ripe for the upgrades and improvements that it has failed to secure by dint of its own efforts. (Whether the nudge the "Heptapods" provide qualifies as a gentle push or a violent shove remains an open question.)

Although the "Heptapods" attach no strings to their offer of evolutionary guidance, their uninvited arrival ensures that their "offer" will not be refused. In this respect, in fact, the "offer" they extend bears a troubling resemblance to the opening gambit in a familiar protection scheme. While the humans are free, strictly speaking, to decline the "offer" extended to them, they may do so, as they come to learn, only at great expense to themselves. The inter-galactic war for which the humans are spoiling is one in which the human combatants are unlikely to survive, much less prevail. If Humankind 1.0 is to avert this unwanted outcome, it (or one of its representatives) must accept and wield the "weapon" the "Heptapods" have offered.

Let us examine more closely the protection scheme in question. Owing to their fluid experience of temporality, the "Heptapods" presumably know or suspect that their arrival on Earth is likely to push the cooperation-averse human species toward the brink of a multivalent declaration of war against their unwanted visitors. Although the "Heptapods" issue nothing resembling a provocation or ultimatum, their frightened hosts feel threatened nonetheless. What the "Heptapods" *also* know or suspect is that the various nations of Earth will fail (and perhaps refuse) to unify their separate efforts, despite their identification of (what they take to be) a common enemy. When the "Heptapods" reveal that they have arrived in order to "offer weapon," that is, they already know or suspect that their "offer" will trigger a predictable response from the under-evolved, trigger-happy humans scattered across the globe. Thus, if the humans are to survive their futile exercise in inter-galactic brinksmanship, someone from within their disorganized, fragmented ranks must accept the "offer" of a "weapon" that "opens time".

As we the viewers learn, and as the "Heptapods" have known all along, the person in question is none other than Louise Banks, who, apprised of the imminent perils, demands and receives a crash-course immersion in the language and temporality of the "Heptapods". Although Louise voluntarily accepts the "offer" of a "weapon" that "opens time," she does so only under the influence of her previous, unintended initiation into the visitors' fluid experience of temporality, and only because she fears the likely outcome of the global political crisis their arrival has precipitated. Indeed, although Louise voluntarily applied her hand to the window or screen that separated the humans from the "Heptapods," hailing their reciprocation as a "proper" greeting, she did not thereby consent to the invasion of consciousness that immediately followed. And even if we agree that the human–"Heptapod" hybrid embodied by Louise represents a welcome upgrade of Humankind 1.0, we nevertheless should acknowledge that she did not acquire her hybrid condition as a matter of free choice. For all we know, in fact, the initial failure of the earthlings to

understand their visitors was staged by the "Heptapods" in order to inveigle one of the humans to make contact with the (supposedly prophylactic) window or screen.

In short, we the viewers should be concerned that the "Heptapods" managed to jump-start the stalled evolution of Humankind 1.0 by inaugurating a process of assimilation. Rather than suffer Humankind 1.0 to determine for itself the goal and pace of its next evolutionary outgrowth, the "Heptapods" leave nothing to chance. Whether Humankind 2.0 will be importantly distinct from the "Heptapod" species remains an open question.

What these two films share in common is an interest in exploring the prospects for human (or over-human) beings who are no longer bound by a strictly linear experience of the temporality of their existence. As we know, Joe Cooper achieves his epiphany when he realizes (or conjectures) that his mysterious benefactors have arranged for him to communicate with Murph, via the manipulation of gravity, throughout the past he shared with her. In the process of becoming her "ghost," he supplements his earlier (and unimpressive) earthly existence with the coded messages that eventually enable her to solve the elusive gravity equation ("Plan A"). Hence, the irony of Cooper's epiphany: when serving as Murph's friendly "ghost," he becomes a better father to her than he ever was while physically present in her company.

The lesson that Cooper takes away from his experience in the tesseract, which appears to be the lesson Nolan intended to impart more generally, is that it is never too late to address (and compensate for) one's past lapses. If time is neither strictly linear nor uni-directional, one may in principle return to the scenes of one's crimes and attempt to make meaningful amends. If time is not strictly linear and uni-directional, in other words, there will be no final, irrevocable judgment that one might fear or wish to avoid. For those evolved humans who have learned to traverse multiple dimensions, availing themselves of the forces of gravity *and* love, there need be no shortage of second, third, and nth chances to become a better version of oneself.

A similar exploration of the experience of temporality informs the main narrative of *Arrival*. Although Louise Banks cannot change her past (as far as we know), her access to her future(s) ensures that she will feel no need to change her past. Her expression of *amor fati* is meant to signal to us her understanding of the links that bind her future to her present and her past. As she progresses through her "Heptapod" apprenticeship, she presumably outgrows the familiar human responses to the passage of time—e.g., fear, disappointment, resentment, regret, denial, etc.—that are (partially) responsible for stalling the long-overdue emergence of Humankind 2.0. Inasmuch as she wields the "weapon" that enables her to "open time," she may visit possible futures, adjust her expectations, and act accordingly when she returns to the present moment.

Anyone who already knows how "the story of your life" will end, as is the case with Louise's decision to conceive and bear Hannah, need not fear a final judgment. Those who "open time" and do so fearlessly are always already the best and most informed judges of themselves, for they have assumed ownership (and co-authorship) of their own stories. If we may generalize from the experience of Louise, those who "open time" thereby earn the right to author their own stories—as well as the stories of loved ones—and to conclude these stories precisely as fate ordains. Presumably, the anxiety that arises from one's anticipation of an unknown (and potentially negative) judgment, an anxiety that might prevent one from becoming the best version of oneself, will have no place in the hybrid consciousness of the Humankind 2.0 embodied by Louise.

9. The Spirituality of a Post-Human Humanism (*Arrival*)

Although neither of these films treats religion as a central theme, both directors deliver subtle characterizations of the evolved spirituality they associate, respectively, with the emergence of Humankind 2.0. Whereas the films I have collected under the umbrella of *eschatological technophobia* tend to rely on a familiar—and distinctly Abrahamic—anticipation of a dreaded judgment day, *Arrival* and *Interstellar* explore the possibility of an enlightened spirituality informed by the timely interventions of beings who possess

superior intelligence. In these two films, Humankind 1.0 is judged, if at all, as *worthy* of the intercessions that will secure its overdue transition to Humankind 2.0. The potent combination of divine wrath and divine mercy that informs the Abrahamic versions of eschatology is replaced in these films with affordances that have been deemed appropriate to humankind in its current stage of maturation.

The theme of religion receives no explicit, overt consideration in the film *Arrival*. While it is true that Louise and Ian occasionally engage in what might be regarded as philosophical discussions—e.g., of benefaction, regret, missed opportunities, etc.—these discussions neither reveal nor produce identifiably religious convictions. In this respect, Louise and Ian are apparently meant to represent a post-religious stage in the stalled evolution of Humankind 1.0.[38] They find what passes for meaning and direction in their lives not in recognizably religious practices and pursuits, but in their secular endeavors.[39] Both apparently find satisfaction in their work, but neither is presented as cultivating (or even desiring) a richly spiritual existence. Prior to the arrival of the "Heptapods," in fact, Louise cuts a ghostly figure as she drifts from her sad, colorless home to her sepulchral university classroom, seemingly oblivious to the events unfolding around her. Ill-at-ease in a present day that attaches no positive value to the linguistic origins she so earnestly seeks, she comes perilously close to embodying the "last man" of whom Nietzsche and Zarathustra warned us (Nietzsche 1978, pp. 16–19).

Everything changes for Louise when Colonel Weber arrives, uninvited, at her university office. She springs to life as she delivers an exceedingly subtle (and deal-sealing) etymology of *gavishti*, the Sanskrit world for *war*, and she finds in her work for the US military the urgency and direction her previous life so obviously lacked. Pleased to have a new project to distract her from her quiet desperation, Louise throws herself into the team's efforts to crack the logographic code of the "Heptapod" language.

At the same time, however, a process both grand and ominous is now underway, at least for Louise. Her initial experiences with the language of the "Heptapods" are presented to the film's viewers as similar to an affliction of morning sickness. Involuntarily impregnated—if this is the right word—with the consciousness-altering language and temporality of the "Heptapods," Louise unwittingly undergoes a process of unchosen, gradual assimilation. Unable at first to understand that she now "remembers" a future that has not yet occurred in the familiar linear temporal sequence that defines (and limits) Humankind 1.0, she struggles to make sense of her new normal while her male colleagues on the project team, seemingly unaffected thus far, make substantial progress. Indeed, their big breakthrough occurs while she sleeps. The irony, of course, is that Louise learns the language of the "Heptapods" as it remakes her from within, while her colleagues (and especially Ian) continue to study the language of the "Heptapods" as an external artifact ripe for objective scientific investigation.

What Louise and the film's viewers gradually realize is that an intimate encounter with the language of the "Heptapods" is vastly different from an immersion in a foreign human language. The language of the "Heptapods" qualifies as a "weapon," just as they asserted when asked point-blank about the purpose of their visit, because it initiates an involuntary (and presumably irreversible) re-boot of consciousness itself. On the strength of her acquired capacity to "open time," Louise comes to see, feel, and experience the world very differently. Indeed, we might be tempted to conclude that she has begun to inhabit a new, enlarged, extra-human world of experience and significance.

Her transformation is sufficiently thorough as to suggest that a metamorphosis is now underway. Released from the fear of death that defines (and limits) Humankind 1.0, she now exudes a love of fate which sets her apart from her fellow humans (including her future husband and daughter). Despite "remembering" a future in which her daughter dies and her husband leaves her, Louise nevertheless embraces the previewed fate that awaits her and them. As she morphs into the first human–"Heptapod" hybrid, she bodies forth the calm, affirmative spirituality that eventually will unite the persistently estranged peoples and nations of Earth. Owing to her leadership, or so we are led to believe, Humankind 2.0

will emerge in time to assist the "Heptapods" when they return, several millennia hence. As it turns out, in fact, the "Heptapods" have arrived on Earth to enroll representatives of Humankind 1.0 in a program of spiritual evolution that will eventuate in the emergence of a "Heptapod"-friendly Humankind 2.0.

10. The Spirituality of a Post-Human Humanism (*Interstellar*)

A similar (and similarly jump-started) process of spiritual evolution informs the rich subtext of *Interstellar*. As in the case of *Arrival*, viewers encounter no explicit discussion of (or reference to) a recognizably religious sensibility. Despite the magnitude of the crises facing Humankind 1.0 in the film, none of the main characters recommends prayer, confession, fasting, abstinence, sacrifice, or any other intervention-seeking religious practice. While local governments and schools adopt a risibly anti-intellectual campaign to lower expectations and banish idealisms, the NASA scientists and technicians seek remedies of a distinctly scientific and technological nature. At no point in the film do the main characters consider anything resembling religion as a promising response to the crises they face.

At the same time, however, the designated saviors of Humankind 1.0 soon discover, as do we the viewers, that they are not yet equal to the task of completing either of the missions that await them. One of them (Cooper) must grow into the lesser role reserved for him, while the other (Professor Brand) must die and clear the way for the next generational cohort of NASA scientists. In order for Cooper to complete his mission, he must come to appreciate the capacity of *love* to traverse multiple dimensions—an insight he ridiculed when it was invoked by Amelia Brand—and he must acknowledge that the mysterious benefactors of Humankind 1.0 have selected Murph—and not him—to lead the transition to Humankind 2.0. That Cooper's evaluations of himself and his fellow humans are flawed is cemented in his mimetic encounter with Dr. Mann on the supposedly habitable ice planet. Hailed by his fellow astronauts as "the best among us"—and, by extension, as a hero or role model for Cooper—Dr. Mann turns out to be a coward, a fraud, a murderer, and a cheat. Taking this crushing insight to heart, Cooper initiates within himself the transformation that leads him to sacrifice himself—first, for Amelia Brand and the embryos; and second, for Murph and the human beings whom she will save.

Having squandered his initial opportunity to become an active, positive presence in his daughter's life, Cooper now must content himself with the ancillary role of providing her with the quantum data that TARS has harvested from the black hole. Although Cooper will contribute to the survival and eventual evolution of Humankind 1.0, he can do so only by acknowledging that he is not the swashbuckling redemptive hero he takes himself to be. Cooper Station, it turns out, is named not for him, but for Murph, in recognition of her success in solving the gravity equation and thereby delivering Humankind 1.0 to its new home and the new future this home betokens. In what must have been a difficult adjustment for Cooper, he was obliged to exchange the (expected) role of the hero for that of the sidekick.

Murph solves the gravity equation, we should note, only by defying Professor Brand and persevering with the research he believed to be a dead end. While it is true that they lacked the quantum data she eventually would need in order to solve the gravity equation, it is also true that he wasted her time by continuing to tweak models and re-run calculations he knew to be incomplete. For reasons known only to him, Professor Brand not only preferred NASA's "Plan B," but also impeded NASA's (and Murph's) efforts to bring "Plan A" to fruition. With respect to both Cooper and Professor Brand, the drag exerted by under-evolved, quick-to-lie patriarchs nearly foiled NASA's twin missions. Cooper received his epiphany only when, chastened and perhaps already dead, he was granted a second chance to communicate meaningfully with his daughter. Professor Brand's signal contribution to the emergence of Humankind 2.0 was his timely death, in which he (may have) redeemed himself by urging others to do what he could not: "Rage, rage against the dying of the light".

As Cooper gathers himself after landing in the tesseract, we learn from him that the mysterious benefactors of Humankind 1.0, i.e., those beings who apparently drilled the wormhole through which he piloted the *Endurance*, are in fact representatives of an evolved humanity. Rather than render a negative judgment of Humankind 1.0 and allow it to perish on the planet it prematurely exhausted, these mysterious benefactors have assisted Humankind 1.0 in jump-starting its stalled evolution. Indeed, the kind and degree of assistance provided to Humankind 1.0 by these mysterious benefactors is worth noting. Rather than simply ignore or infantilize Humankind 1.0 in its desperate situation, the representatives of Humankind 2.0 provide Humankind 1.0 with an occasion-appropriate incentive structure. As a result, Humankind 1.0 (or NASA as its proxy) may take pride in its bootstrapping efforts to execute "Plan A" and "Plan B".

Although the wormhole appears just in time, as if by magic, Humankind 1.0 is obliged to figure out for itself how best to make optimal use of this wondrous technology. Three exoplanets appear to be likely candidates for Earth 2, but Humankind 1.0 is obliged to conduct the necessary explorations and accept the burden of the inherent risks in doing so. When Cooper attests to the extent of his own spiritual evolution by sacrificing himself for Amelia and fearlessly crossing the event horizon of the black hole, the mysterious benefactors reward him by transporting him to the tesseract, where he finally learns how to communicate (albeit indirectly) with Murph. Since intimacy is not his strong suit, he thrives in the tesseract, manipulating gravity to catch her attention and, eventually, to relay to her the quantum data she needs. When Cooper accepts (and affirms) his subordinate role in the second chance (and eventual evolution) afforded to Humankind 1.0, he is rewarded yet again with his transport to Cooper Station, where he receives Murph's blessing. Nolan thus urges us to understand that those who are "the best among us" are determined to be such not by reputation or fiat, but by actually rising to the occasion. Whereas the sainted Dr. Mann proved himself a fraud, Joe Cooper demonstrates his capacity for spiritual growth and awakening.

Nolan's film thus suggests that the eventual survival and evolution of Humankind 1.0, whether on Earth or elsewhere, may depend upon the acquisition and expression of a buoyant confidence in the promise and net positive value of Humankind 1.0. When the wormhole appears in the vicinity of Saturn, as we have seen, the NASA scientists treat it not as an unexplained anomaly, but as an affordance provided by mysterious benefactors who wish to encourage the ongoing evolution of the human species. Simply put, their idealistic commitment to the warranted future of humankind allows them to override their scientific responsibility to adhere to the available evidence. Owing perhaps to the dire situation in which they find themselves, the NASA scientists place a non- or extra-scientific wager on the ingenuity, resilience, and pluck of Humankind 1.0—as represented, of course, by themselves.

In its (conjectured) capacity as an affordance, the wormhole reflects its grantors' provisionally positive judgment of Humankind 1.0. Although an affordance of this sort does not constitute a solution to the problems at hand, it alerts its willing recipients to the possibility that the solution they seek may lie within their grasp. Indeed, the wormhole *becomes* a valuable affordance only if its human recipients regard it as such and act accordingly to exploit the expedited interstellar travel it affords them. Rather than bemoan the technical challenges associated with a thorough exploration of the wormhole, or consider it a trap set for Humankind 1.0 by an angry deity or wily alien malefactors, the NASA scientists gladly receive (and exploit) the wormhole as the affordance it turns out to be.

Unsaid but implied by Nolan throughout the film is the notion that the eventual success of Plans A and B grew out of the assumption on the part of the NASA scientists that: (1) Humankind 1.0 is worthy of otherworldly (and perhaps divine?) patronage; and that (2) any judgment rendered by these otherworldly (and perhaps divine?) patrons would be provisionally positive. In other words, the NASA scientists succeeded, in large part, because they believed Humankind 1.0 to be fully deserving of the second chance afforded

them by the wormhole. Cooper himself finally comes into possession of this belief as he learns to manipulate gravity in the tesseract. According to him, he was placed there by mysterious benefactors to play a supporting role in Murph's just-in-time efforts—no longer impeded by Professor Brand's penchant for indirection—to solve the gravity equation.

To believe oneself worthy of otherworldly attention (and benefaction) is virtually the definition of narcissism. In this limited respect, on the one hand, we may detect similarities between Nolan's protagonists and those characters in other films who suspect that they have earned the negative judgment they fear the machines are likely to render. At the same time, on the other hand, the narcissism of Nolan's protagonists, especially inasmuch as they represent (and enact) the strivings of Humankind 1.0 to upgrade its current incarnation, is importantly different from the (dark) narcissism that was discussed earlier in this essay. If Nolan has succeeded in realizing his creative aspirations, in fact, the narcissism displayed and propagated by the NASA scientists in *Interstellar* may be understood to be *essential* to the survival and ongoing evolution of the human species. Unlike the (dark) narcissism that funds expressions of eschatological technophobia, the narcissism displayed by Cooper, Amelia Brand, and their support team at NASA is presented as both appropriate and healthy, even if there is no solid evidence that they are in fact the recipients of otherworldly (or divine) attention and benefaction.

Nolan's depiction of a potentially healthy expression of narcissism is suggestive of a religious or spiritual commitment to a form of humanism.[40] Simply put, humanism is the position of those who insist that all (or most) traits and virtues attributed to the divine are properly apportioned to humankind, albeit in its optimal, evolved incarnation. When human beings worship or appeal to supposedly otherworldly divinities, or so humanists typically maintain, they actually (but confusedly) worship or appeal to projections of humankind in its as-yet-unrealized perfections (Feuerbach 1893, pp. 32–86). According to the influential nineteenth century humanist Ludwig Feuerbach (1804–1872), for example, the practice of religion—he was concerned in particular with European Christianity—is predicated on a protective condition of self-alienation that is indicative of the relative immaturity of humankind in its current stage of development. As such, he believed, our practices of religion enable us to express our admiration for traits and qualities that we do not currently possess in their optimized forms. When we think or speak of the divine, we in fact think or speak of the selves (and the collective humanity) we have not yet become. It is this admiration, Feuerbach maintained, that provides humankind with the impetus needed to continue (and perhaps accelerate) its maturation as a species, such that we eventually might grow into those traits and qualities that we currently apportion to otherworldly others.[41]

As we continue to mature as a species, Feuerbach believed, we will awaken to the truth that we have been worshipping *ourselves*—in an ideal form, of course—all along. This expression of humanism becomes explicit in *Interstellar* when Cooper realizes that the mysterious benefactors who transported him to the tesseract are in fact the evolved, dimension-traversing humans of the future. Back on earth, Murph eventually reaches a corollary realization: the "ghost" who haunted her bedroom is in fact her father, who, we know, has evolved sufficiently to avail himself not only of gravity, but also of love.

A similar endorsement of a kind of humanism may be detected in the film *Arrival*. Mysterious benefactors in their own right, the visiting "Heptapods" have arrived on earth to "offer" Humankind 1.0 a "weapon" that is also an affordance. The affordance in question is their language, which, when taken fully to heart, enables Louise to "open time". What she accomplishes when she "opens time" reveals that the evolution of Humankind 1.0 has been stalled by its failure thus far to come together as a single, mutually cooperative, collectively integrated species. The humans' reflexive suspicion of the "Heptapods"—*Why are they here? What do they want?*—is in fact a displaced, other-directed expression of the suspicion that contemporary peoples and nations have for one another. Failing to recognize fully their shared humanity, the estranged peoples and nations of Earth are predictably spoiling for a war that is not likely to favor its human combatants.

Indeed, it is no coincidence that when Louise "opens time," she does not simply glimpse or view the relevant future, as if she were but a passive or distant spectator. Rather, she fully inhabits the particular moment she needs to visit. At a gala celebration of the publication of her book, she meets General Shang face-to-face and receives from him a private phone number and an intimation that she employs to productive effect upon returning to the present. In the post-arrival future visited by Louise, she bonds with General Shang over the wise deathbed words of his wife, "In war there are no winners, only widows".

Villeneuve's implication here is that Humankind 1.0 would not be so keen to threaten or wage war if the individuals responsible for such decisions would genuinely and sincerely consider the entirety of the consequences of elective warfare. To be sure, however, if Humankind 1.0 were able to "remember" the future(s) its plans are likely to produce, it would already be well on its way toward becoming Humankind 2.0. Owing to the timely arrival of the "Heptapods," Humankind 1.0 is revealed to be both self-destructively averse to cooperation *and* ripe for passage to the next stage in its ongoing evolution.

As presented by Villeneuve, the primary impediment to the evolution of Humankind 1.0 turns out to be its chronic failure to envision clearly the future(s) to be delivered by the course(s) of action or inaction it considers. The presence of the US military in Montana is relevant here, for the arrival of the "Heptapods" reveals just how poorly Humankind 1.0 envisions the futures its best options are likely to deliver. Although the US military prides itself on its capacity to simulate and predict the outcomes of the strategies available to it, it begins its "war game" simulations from what is revealed in the film to be an artificially cramped perspective and a simplistic, counter-productive calculation of costs and benefits. In the abstract terms of "war game" simulations, competition and war may appear to be tempting options, especially if the relevant approach points, plausibly, to the likelihood of a permanent, zero-sum victory.

In concrete terms, however, competition and war tend to deliver only temporary and/or Pyrrhic victories, i.e., those secured at the expense of those goods and values—e.g., family, intimacy, home, etc.—for which wars are supposedly fought. If Colonel Weber and his team were able to "open time" and *inhabit* the futures they are prepared to produce, they presumably would be more inclined to pursue cooperative solutions and eschew zero-sum outcomes. They would be obliged, for example, to consider the merit of the dying words uttered by General Shang's wife. As she indicated, the "winners" predicted by "war game" calculations may not be winners after all, especially if they share in the plight of the many widows they have produced. As it stands, however, Humankind 1.0 is stalled in a seemingly justified posture of reflexive aggression, which obliges Colonel Weber and his soldiers to remain on (or in immediate proximity to) a permanent war footing.

Critics may object that Villeneuve's diagnosis of Humankind 1.0 is unhelpfully simplistic. If an uninvited alien craft were to arrive in Montana, these critics might wonder, would it not be prudent to greet our uninvited visitors with a bristling, no-nonsense military presence? (Here we note that the US military successfully recruited scientists (e.g., Ian) and at least one linguist (Louise), but apparently refrained from reaching out to any religious or spiritual leaders.) Although these objections hold some merit, it certainly is worth pondering whether Humankind 1.0 has become unduly reliant on (and perhaps addicted to) an orientation to the future that is predicated on "war game" simulations, cost–benefit analyses, and the pursuit of zero-sum outcomes. Are we seeing the bigger picture and sensibly electing a narrower focus, or have we lost sight altogether of the bigger picture? Should the mass production of "widows" (and collateral damage more generally) mean more to us than it currently does?

Villeneuve's unique contribution to this line of questioning bids us to consider whether or not our failure to see the future clearly is symptomatic of a creeping (and perhaps deadly) misanthropy. If there are no "winners" in the wars—big and small—in which we expect to prevail, should we focus instead on minimizing the number of widows we produce? According to Villeneuve, doing so would require us to inhabit more fully the futures

we intend to produce. This desideratum would require in turn a spiritual upgrade that Humankind 1.0 has failed thus far to acquire by dint of its own volition.[42]

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Notes

1 Here I follow (Jameson 2005, pp. 113–17).

2 In tracking these expressions of eschatological technophobia, I do not mean to suggest that all reservations with respect to the singularity are either irrational or unduly inflated. According to Stephen Hawking, for example, "the development of full artificial intelligence could spell the end of the human race. . .Humans, who are limited by slow biological evolution, couldn't compete, and would be superseded" (cited in Cellan-Jones 2014). Vernor Vinge offers a similarly grim assessment of life in the "post-human era": "If the Singularity cannot be prevented or confined, just how bad could the Post-Human era be? Well. . . pretty bad. The physical extinction of the human race is one possibility" (Vinge 1993, p. 16).

3 A similar observation is recorded by (Ostwalt 2003, p. 172).

4 For an instructive typological profile of "ordinary heroes and heroines," see (Jewett and Lawrence 2009, pp. 392–95). See also (Reinhartz 2009, pp. 430–35).

5 As Ostwalt notes, although "the threat of the end is inevitable, hope that the destruction of humanity is avoidable runs through virtually all of the recent secular films with eschatological emphases or allusions" (Ostwalt 2003, p. 172).

6 For a persuasive account of the value of science fiction for post-human visionaries and speculators, see (Vint 2020, pp. 220–27). See also (Bartlett and Byers 2003, pp. 28–30).

7 Here we may sympathize with Jameson's poignant lament: "We have come laboriously to the conclusion that all ostensible Utopian content was ideological, and that the proper function of its themes lay in critical negativity, that is, in their function to demystify their opposite numbers. The examination of the anti-Utopia, then, of the fear of Utopia, has led us to identify a fundamental source in the form of Utopia itself, in the formal necessity of Utopian closure. In addition we have been plagued by the perpetual reversion of difference and otherness into the same, and the discovery that our most energetic imaginative leaps into radical alternatives were little more than the projections of our own social moment and historical or subjective situation: the post-human thereby seeming more distant and impossible than ever!" (Jameson 2005, p. 211).

8 See, for example, *Star Wars* (1977), *Armageddon* (1986), *Space Cowboys* (2000), *Blade Runner 2049* (2017), *The Matrix Resurrections* (2021).

9 I am indebted here (with respect to *The Matrix*) to Bartlett and Byers, who expose the "pomophobic" character of the film as well as its attempt, ultimately, "to reinscribe the nature/artifice binary" (Bartlett and Byers 2003, p. 30). to See also (Shaviro 2009, pp. 106–7).

10 (Nietzsche 2014, pp. 286, 348–49). For an excellent account of the role of myth in holding the "will to nothingness" at bay, see (Magerstädt 2015, pp. 4–18).

11 Kurzweil generally treats the arrival of the Singularity as inevitable. His own prediction places the arrival of this "event" in "the first half of the twenty-first century" (Kurzweil 2005, p. 7).

12 I am indebted here to the discussion of AI by (Clarke 2020, pp. 93–98).

13 Here I follow Jameson, who observes that "In SF, however, religion is a kind of mediatory space; it is the black box in which infrastructure and superstructure mysteriously intermingle and celebrate an enigmatic identity—at one with mode of production and culture alike (both of whose concepts it ambiguously anticipates)" (Jameson 2005, p. 95).

14 Responding to Vernor Vinge's distinctly bleaker preview of the singularity, in which "posthumans and humans" are sorted into the familiar binary categories of "master race and subservient race," Vint cautions that "we [also] need to discard our common assumptions about human nature and the relationship between identity and embodiment" (Vint 2007, pp. 171–72).

15 Here I follow (Falzon 2002, pp. 158–63).

16 With respect to the distinctly eschatological character of *The Matrix*, see (Bartlett and Byers 2003, pp. 39–43).

17 *The Holy Bible RSV* 1974, (Bible 1974, p. 594).

18 *The Holy Bible RSV* 1974, p. 603.

19 *The Holy Bible RSV* 1974, p. 610.

20 *The Holy Bible RSV* 1974, pp. 629–30.

[21] *The Holy Bible RSV* 1974, p. 746.

[22] *The Holy Bible RSV* 1974, p. 765.

[23] *The Holy Bible RSV* 1974, p. 530.

[24] In addition to the prophecies found in the Hebrew Bible, which many Christians believe to be fulfilled in the life, death, and resurrection of Jesus, Christian eschatology draws from the Gospels of Matthew and Mark, and from the Book of Revelation.

[25] *The Holy Bible RSV* 1974, p. 157 (in the New Testament).

[26] *The Holy Bible RSV* 1974, p. 170 (in the New Testament).

[27] *The Holy Bible RSV* 1974, p. 130 (in the New Testament).

[28] *The Holy Bible RSV* 1974, p. 241 (in the New Testament).

[29] ClearQuran, Surah 84 (ClearQuran n.d.). See (Donner 2017).

[30] For a productive distinction between "two types of apocalyptic" films, see (Ostwalt 2009b, pp. 375–80).

[31] On the topic of secularized versions of Abrahamic eschatology, see (Ostwalt 2003, pp. 94–97, 157–60).

[32] On the theme of redemption in contemporary films, see (Deacy 2009, pp. 357–65).

[33] With respect to films such as *2001* and *Terminator*, Jameson observes, the opportunity presented to the viewing audience for a mimetic encounter between humans and the judgmental machines they have created is obscured by the decision on the part of the films' directors to turn the narrative in the familiar, popcorn-friendly direction of a "conventional struggle between armies or matched forces of some kind" (Jameson 2005, p. 114).

[34] I am indebted here to Ostwalt, who explains that "the apocalyptic imagination. . .persists because it is a fundamentally religious category, a way of making sense out of our world. The apocalyptic imagination is essentially a way of overcoming our angst over the realization of our finitude. Apocalypticism is a Western concept that is basically egocentric in origin" (Ostwalt 2003, p. 159). See also (Ostwalt 2009a, pp. 292–95).

[35] In *The Matrix*, for example, human beings are enslaved by the machines in order to provide the machines with the power they cannot reap from the sun. Once the skies clear, it is not obvious that the machines will need to continue to enslave human beings. It is also not obvious that the majority of human beings wish to be liberated from their enslavement.

[36] Here, too, I follow (Ostwalt 2003, pp. 158–60, 172–77) and (Ostwalt 2009a, pp. 292–95).

[37] Here we are reminded of Dr. Elizabeth Shaw's insistence, in the film *Prometheus*, that the cave paintings she and Holloway have discovered in various locales across the globe amount to an *invitation* to visit the mysterious "Engineers" and reconnect with them.

[38] See the discussion by (Deacy 2012, pp. 10–14). See also (Ostwalt 2003, pp. 28–34).

[39] Here I follow Ostwalt, who both discerns and charts a "secularization of religion wherein the sacred and the secular exist in dialogical, reciprocal, and cooperative relationships" (Ostwalt 2003, p. 203).

[40] See the discussion by (Falzon 2002, pp. 166–72).

[41] On the contributions of Feuerbach, see also (Jameson 2005, pp. 64–67).

[42] A preliminary statement of my guiding thesis in this essay appeared in "Technology and Its Discontents: Cinematic Anticipations of the Singularity". *Perspectives on Visual Learning, Volume 5: Facing the Future, Facing the Screen*, ed. Kristóf Nyíri. Budapest: (Conway 2022, pp. 219–21). An earlier version of this essay was presented to the joint meeting of the Science Fiction Research Association and the Gesellschaft für Fantastikforschung. My thanks to those in attendance for their instructive suggestions. I am also indebted to the anonymous reviewers who commented on an earlier draft of this essay. Finally, I am grateful to Sylvie Magerstädt for her invitation to contribute to this special issue and for her helpful comments on the penultimate draft of this essay.

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