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"Where do all the calculators go?"

Methodological Considerations About how to Think About Robots and Their Afterlife

Abstract

"Where do all the calculators go?" Starting from this question and noting that the afterlife of robots is a theme frequently explored in popular culture yet seldom addressed in academia, this article investigates whether it is possible to address such questions in a methodologically plausible and scientifically comprehensible manner. In this paper, I present and critically evaluate three distinct approaches, each designed to enable scholarly investigation—compliant with academic standards—into the sample question of whether an afterlife for robots exists, or whether it is plausible to assume its existence: 1) a philosophical–theological approach that explores the properties of robots and their theological significance, 2) a psychological–theological approach that considers the possibilities of artificial spirituality, and 3) a Biblical–theological approach that enquires into the eschatological whereabouts of all creation.

1. But where do all the calculators go?

In a scene from the third season of the British cult television series *Red Dwarf*, Dave Lister, a low-ranking technician who awakens as the last surviving human on a mining spaceship following a three-million-year period of suspended animation, engages in conversation with Kryten, his anthropomorphic service mechanoid. Upon realising that a replacement android for Kryten is *en route* to their spacecraft and with a 24-hour countdown initiated that marks the time until Kryten's physical and mental functions will be irrevocably

deactivated and he will be replaced, a dialogue unfolds between both characters. When confronted with Dave's question about how he could accept his impending "end" without resistance, Kryten replies: "Oh, it's not the end for me, Sir; it's merely the beginning. I have served my human masters, and now I can look forward to my reward in Silicon Heaven." Clearly taken aback by this response, Dave retorts: "Silicon what?"—a quip that gives rise to an amusing exchange rich in wordplay.

> Kryten: "Surely you have heard of Silicon Heaven. [...] It's the electronic afterlife. It's the gathering place for all the souls of electrical equipment. Robots, calculators, toasters, hairdryers. It's our final resting place."
>
> Dave: "I don't mean to say anything out of place here, Kryten, but that's completely whacko-jacko. There is no such thing as Silicon Heaven."
>
> Kryten: "Oh! Then, where do all the calculators go?"
>
> Dave: "They don't go anywhere! They just die! [...] Machines do not have souls. Computers and calculators don't have an afterlife. You don't get hairdryers with tiny little wings sitting on clouds playing harps."
>
> Kryten: "But of course you do! [...] Oh, it's common sense, Sir. If there weren't a better life to look forward to, why on earth would machines spend the whole of their lives servicing humankind? Now that would be really dumb!"[1]

In a humorously poignant manner, this dialogue scene—which is nearly 35 years old, from the episode *The Last Day*, which aired in December 1989—poses a compelling question: What does the afterlife look like for non-biological forms of intelligence?[2] What happens to robots when they 'die'? *Red Dwarf* is not the only TV series that explores the afterlife of robots. Similar explorations can be found in other works as well. One example is the *Futurama* episode entitled *Ghost in the Machines*,[3] where "Robot Heaven" and "Robot Hell" are portrayed as two distinct and identifiable places where

1 *Ed Bye*: The last day.

2 The discussions within the scene extend beyond non-biological intelligences like robots, delving into the afterlife of electronic devices, including calculators and toasters. For the scope of this article, however, I will confine my focus to robots and artificial intelligence, sidestepping the discourse on the fate of everyday electronic devices and the like.

3 *Claffey*: Ghost in the machines.

robots—or their source codes—are sent upon their deaths. Another example is the episode *Zima Blue* from the animation series *Love, Death & Robots*,[4] which traces the journey of a self-aware robot in its quest for "completion", a state it ultimately achieves by deactivating its advanced cognitive functions, shedding its intricate sensors and reverting to a simple pool-cleaning robot, tirelessly dedicated to its singular task. Additionally, in the third volume of the comic series *Descender*, entitled *Singularities*,[5] a cyborg's near-death experience is vividly portrayed, including an out-of-body encounter with their human creator. Finally, a somewhat different example is found in Steven Spielberg's film *A.I. Artificial Intelligence*,[6] which follows a boy-like cyborg on a Pinocchio-esque journey after his initial family abandons him, forsaking their interest in him, and, by abandoning him in a forest, releases him from his former life.

2. Research overview and hypothesis

As this list of pop culture engagements with robotic afterlife—which could easily be expanded—demonstrates, there is a lively interest in this topic. Academically, a substantial and diverse field of experimentation and research has emerged at the intersection of robotics and theology.[7]

There are initiatives, for instance, aimed at developing robots for religious purposes.[8] Examples include robots that deliver pre-programmed sermons, such as the anthropomorphic, Buddhist-like android *Mindar*;[9] robots that reside in religious places and answer visitors' religious questions while assisting them in religious practices, like the robot monk *Xian'er*,[10] or robots like *BlessU-2*, a repurposed ATM that offers blessings at the push of a button.[11]

4 *Pennacchioli/Valley*: Zima Blue.
5 *Lemire*: Singularities.
6 *Spielberg*: A.I. Artificial Intelligence.
7 *Balle*: Theological dimensions of humanlike robots.
8 *Simmerlein/Tretter*: Robots in religious practices; *Trovato* et al.: Religion and robots.
9 *Hardingham-Gill*: The android priest.
10 *Travagnin*: Online Buddha.
11 *Löffler* et al.: Blessing robot BlessU2.

From the theological side, there are pastoral reflections on whether and what roles religious robots can or should assume.[12] This includes, for instance, questions about the feasibility and desirability of building robot pastors or spiritual caregivers,[13] the prudence of deploying robots with their "spiritual superpowers"[14] as pastoral assistants to support human clergy,[15] as well as what pastoral skills and virtues are necessary in a world where AI is assuming an increasingly significant role.[16]

Moreover, there are psychological and sociological studies that examine how individuals respond to robots in religious contexts,[17] how the design of these robots shapes people's reactions[18] and how different cultural contexts modulate these responses.[19]

And not least, a wealth of contemplation is occurring within the realm of systematic theology.[20] Here, scholars probe the potential religious status of robots: Do they, for instance, possess a soul?[21] Are they to be considered people,[22] images of God[23] or images of images of God?[24] Inquiries have been made into what we can learn from robots about our own humanity: In an era of artificial entities, how must we reinterpret us being images of God?[25] Additionally, theologians are questioning the moral status that ought to be attributed to robots: Should they be regarded as moral patients, moral agents or neither?[26]

12 *Puzio*: Robot, let us pray; *Tretter*: Courage for theology; *Simmerlein/Tretter*: What about spiritual needs?
13 *Simmerlein/Tretter*: KI in der seelsorglichen Beratung; *Simmerlein/Tretter*: What about spiritual needs?
14 *Löffler/Hassenzahl*: Robots' spiritual superpowers.
15 *Puzio*: Robot theology; *Smith*: Robot theology; *Tretter*: Shortage of pastors.
16 *Hamman*: Pastoral virtues.
17 *Löffler* et al.: From experiential to existential questions.
18 *Löffler* et al.: Blessing robot BlessU2; *Trovato* et al.: Design strategies.
19 *Trovato*: Pioneering religion in robotics; *Trovato* et al.: Editorial introduction.
20 *Geraci*: Religion for the robots; *Smith*: Robot theology; *Tretter*: Robot theology.
21 *Livingston/Herzfeld*: Could robots have souls?
22 *Reiss*: Is it possible; *Turner*: Will we know them?
23 *Dorobantu*: Will robots too be in the image of God?; *Foerst*: Robots and theology.
24 *Midson*: In the image of the image?
25 *Dorobantu*: Cognitive vulnerability; *Dorobantu*: Imago Dei.
26 *Metzler*: Moral status to service robots; *Smith*: Robot theology.

Although there are now some initial publications on the eschatological questions concerning robots,[27] the academic exploration of robots' afterlife remains notably sparse. Apart from the aesthetic scepticism that this subject might evoke, one reason for this deficiency may be the methodological complexity associated with probing such a question, for eschatology—that is, the doctrine of the ultimate or final things concerning what transpires at the end of time and beyond the here and now—is intrinsically a highly speculative domain. It is a field that one can approach only cautiously and always with substantial reservation.[28] Linking this field with robotics—which is often seen as emblematic of technology and its strict, rigorously empirical approach, and thus as the stark antithesis of eschatological contemplation—makes the task of inquiry even more challenging and raises methodological questions.

The aim of my contribution is to help fill this gap in the research on robotics and religion. I intend to present three approaches by which one can, from a Protestant theological perspective, plausibly engage with the basic question of *whether it is plausible to assume that there is an afterlife for robots* and arrive at comprehensible conclusions. To this end, I will conduct a methodological experiment: In the following chapter, I will sequentially introduce these three approaches and critically discuss their respective advantages and disadvantages. Following this, I will engage in a reflective discussion of these methodological considerations, confronting the limitations of my representations, illuminating the ethical facets of this subject matter and drawing several inferences for eschatological thinking within theology. Ultimately, I will synthesise the findings in a conclusion.

Accordingly, the objective of this article is less to craft a clear answer to the question of whether or not it is plausible to assume an afterlife for robots—or how this could plausibly be conceived.[29] Rather, the focus is to demonstrate that it is *possible* to approach this topic in a methodologically sound manner and to arrive at comprehensible conclusions.

27 *Balle*: Theological dimensions of humanlike robots.

28 *Härle*: Outline of Christian doctrine; *Mühling*: Handbook of Christian eschatology; *Walls*: Handbook of eschatology.

29 *Tretter*: Afterlife for Robots.

3. How to think about robots and their afterlife: three approaches

There are several ways to approach the question of whether it is plausible to assume the existence of such an afterlife. I will present three such approaches in this chapter.

3.1 Philosophical–theological approach: Robots and their properties

The first approach is of a philosophical–theological nature and begins by enquiring into the capabilities of robots. It can draw on a range of theoretical, empirical and technical groundwork from various disciplines, including robotics, computer science and engineering. For example, it may establish:

- how well and in what manner robots can solve predefined problems
- how well and in what way artificially intelligent entities can reflect on their own actions and adapt them
- how independently robots act and whether they can set their own goals
- what movements robots can perform and how well they can navigate in complex environments
- how well artificially intelligent entities understand linguistic commands and communicate or interact with humans or each other

In a subsequent step, this approach interprets these observations through the lens of information and technology philosophy, thereby drawing conclusions about the inherent properties of robots. The problem-solving abilities of artificially intelligent entities, for example, yield insights into their intelligence and creativity.[30] Conclusions may be drawn regarding robots' levels of autonomy, freedom and sense of responsibility from their capacity for independent action.[31] And their movements, orientation in environments and language skills can provide conclusions about their embodiment, world un-

30 *Rauterberg*: Die Kunst der Zukunft.
31 *Nyholm*: Humans and robots; *Coeckelbergh*: Robot ethics.

derstanding and sociality. Thus, it is feasible to delineate a set of properties attributable to robots based on their tangible capabilities.

The third step then involves assessing the theological significance of these robotic properties. As some scholars propose, attributes such as the intelligence of robots,[32] their "deep levels of [...] judgment"[33] or their embodiment, empathy and sociality[34] may be regarded as properties of theological significance. From these theologically significant properties, as some authors suggest, one might conclude that robots, exhibiting these traits, must also possess a soul[35] and be regarded as images of God[36] or as images of images of God,[37] and, like humans, should be classified as sinners[38] or, at the very least, as participants in human sin.[39]

The final step involves drawing conclusions from these theological insights about the plausibility of an afterlife for robots. For instance, if one arrives at the conclusion, as DeBaets does, that robots are sinners[40] or, as Smith estimates, that robots participate in human sin,[41] then it is only plausible to assume that some form of judgement or reparation is required. Otherwise, the category of sinfulness would have no consequences and would be irrelevant. In a similar vein, the recognition that robots may possess a soul could be interpreted as suggestive of the necessity for an afterlife for robots. After all, what would otherwise become of the souls of robots?

In this four-step process—beginning with the identification of robots' capabilities, progressing to the discernment of robotic properties and culminating in the assessment of their theological significance—one can deduce whether the concept of an afterlife for robots is plausible or not.

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32 *Furse*: The theology of robots.
33 *Cantwell Smith*: Artificial Intelligence and ultimate questions.
34 *DeBaets*: The robot as person.
35 *Livingston/Herzfeld*: Could robots have souls?
36 *Foerst*: Robots and theology; *Foerst*: Cog, a humanoid robot, and the question of the image of God; *Dorobantu*: Will robots too be in the image of God?
37 *Midson*: In the image of the image?
38 *DeBaets*: The robot as person.
39 *Smith*: Robot theology.
40 *DeBaets*: The robot as person.
41 *Smith*: Robot theology.

Certainly, this approach can lead to varying conclusions. Some authors, for example, point out that robots presumably lack free will,[42] that they are not conscious entities[43] and that they fall short in terms of relationality and vulnerability.[44] They are also said to lack the capacity for empathy and value,[45] and it is noted that robots are neither born nor die (*Step 2*).[46] Consequently, these authors argue that robots are devoid of key theological capabilities and qualities (*Step 3*). Without such theologically significant capabilities and qualities, robots would presumably have no need for reconciliation or consummation,[47] which can ultimately be interpreted as evidence that suggests either the absence of an afterlife for robots or, at the very least, the absence of a necessity for such an afterlife (*Step 4*).

A significant strength of this approach lies in its grounded beginning at *Step 1*, where it starts with a fundamental description of robots' capabilities. Yet, by *Step 2*, the process becomes less tangible when the task shifts to drawing conclusions about the properties of robots based on these capability descriptions. Although this process can be made highly transparent—by clearly stipulating, for example, the capabilities and criteria used to deduce that robots possess certain properties—these conclusions themselves can be contested. Some scholars, citing robots' prowess in complex games like *Chess* or *Go*, argue in favour of robot intelligence, while others challenge this view.[48] These sceptics, raising the bar as to what constitutes intelligence, concede that robots perform complex, albeit unintelligent, calculations. Likewise, in *Step 3*, differing assessments of the theological significance of specific robot properties can emerge. Even when scholars attribute the same properties to robots, they may arrive at divergent theological assessments, such as whether robots are sinful or possess a soul. Finally, the conclusion in *Step 4* remains highly speculative. For example, assuming hypothetically that robots have a soul does not necessarily guarantee the existence of an afterlife for robots. Though it is a common belief that beings with souls

42 *McGrath*: Robots, rights and religion.
43 *Strand*: Will androids need salvation?
44 *Dorobantu*: Cognitive vulnerability; *Dorobantu*: Imago Dei.
45 *Gill*: Jesus wept, robots can't.
46 *Krajewski*: Can a Robot Be grateful?; *Deli*: Do robots die?
47 *Swann*: Anima ex machina; *Strand*: Will androids need salvation?
48 *Rosenfeld*: Religion and the robot.

experience an afterlife, this conclusion is not necessarily mandatory. Conversely, the inverse conclusion—that the hypothetical absence of a soul in robots precludes an afterlife for them—is similarly not inevitable. While certain theologically significant properties can justifiably be interpreted as plausible indicators of the existence or non-existence of an afterlife for robots, these indicators remain suggestive rather than constituting definitive proof.

3.2 Psychological–philosophical approach: Robots and spiritual intelligence

The second approach adopts a psychological–philosophical lens, emphasising spirituality and spiritual intelligence. At its outset, it seeks to elucidate the nature of spiritual intelligence. Central to this endeavour is Howard Gardner's categorisation of diverse forms of intelligence[49] and Robert Emmons' subsequent proposition of spiritual intelligence as a distinct form.[50] Engaging deeply in the multifaceted debates ignited by this thesis,[51] this approach employs a multidisciplinary methodology to first delineate the hallmarks of spiritual intelligence and identify the necessary conditions to manifest it.[52]

Once these foundational questions about spirituality and intelligence have been addressed, robots are brought into the analytical frame. The inquiry then shifts to discern whether they possess the essential prerequisites for spiritual intelligence and, furthermore, whether they can exhibit spiritual cognition and/or ponder on their post-mortal fate.[53]

If this inquiry into the possibility of artificial spirituality or "technoreligiosity"[54] is answered affirmatively, it becomes feasible—apart

49 *Garnder*: Intelligence reframed.
50 *Emmons*: The psychology of ultimate concerns.
51 *Emmons*: Spirituality and intelligence; *Garnder*: A case against spiritual intelligence; *Kwilecki*: Spiritual intelligence; *Mayer*: Spiritual intelligence.
52 *Dorobantu/Watts*: Spiritual intelligence; *Watts/Dorobantu*: Is there spiritual intelligence?
53 *Dorobantu/Watts*: Spiritual intelligence.
54 *McBride*: The advent of postmodern robotic technoreligiosity.

from addressing the numerous subsequent questions that arise[55]—to draw conclusions about the plausibility of an afterlife for robots. A plausible argument might contend that it borders on cruelty for robots to possess spiritual cognisance, contemplate their afterlife and nurture aspirations, only to find that no such afterlife exists for them. Such a situation appears inconsistent with the concept of a loving God, which might be seen as a (tentative) theological indication that there must be some form of afterlife for robots.

Much like the philosophical–theological approach, a salient strength of this psychological–theological approach is that its first step is very grounded in scientific and occasionally even empirical reflections about spirituality and spiritual intelligence, thus making this approach empirically robust. However, the subsequent steps navigate more treacherous terrain. Indeed, adjudicating whether robots genuinely possess spiritual intelligence or can experience spirituality is methodologically intricate. While, when starting with a precise definition of spiritual intelligence and clearly outlining the necessary criteria to possess it, it might be possible to determine if robots inherently have the *potential* for spiritual intelligence or even spiritual experiences, deducing from this capability that they actually are spiritual seems somewhat premature. The third step, extrapolating from the possible existence of robotic spirituality to implications about an afterlife for robots, is even more fraught. Deriving the existence of a robotic afterlife from its mere conceivability resonates structurally with historical attempts to prove God's existence—endeavours that were nurtured over a long period of time but ultimately failed.[56] Such conclusions exceed the boundaries of permissible reasoning outlined by Kant in his critiques of reason and his writings on the limits of metaphysics,[57] thus crossing the limits of considerations that are theologically reasonable.

55 For instance, what might the belief systems of artificially intelligent entities or robots encompass in terms of content? See *Klinge*: Do robots believe in electric gods?; *Sampath*: From Heidegger on technology to an inclusive puralistic theology. Or how might they reconcile or confront pre-existing beliefs? See: *Dorobantu/Watts*: Spiritual intelligence.

56 *Bromand/Kreis*: Gottesbeweise.

57 *Sala*: Kant und die Frage nach Gott.

3.3 Biblical–theological approach: The eschatological whereabouts of all creation

The third approach adopts a Biblical–theological perspective. It doesn't delve into the attributes robots might possess, nor does it ponder the feasibility of artificial spirituality in robots to deduce implications about a robotic afterlife. Rather, this approach is anchored in a rigorous engagement with both Biblical texts and the wider theological tradition, interrogating the eschatological question of the whereabouts of all creation—and from there, drawing conclusions about the existence of an afterlife for robots, who, just like humans, animals, plants or material objects, are part of creation.

Scripture offers several passages addressing the eschatological whereabouts of creation. Notably, none of these passages are primarily preoccupied with speculating about the eschatological fate of creation. Instead, they predominantly serve a consolatory purpose. Their primary impetus is to bolster the spirits of believers amidst contemporary adversities or doubts, infuse them with renewed hope and fortify their faith. The eschatological discussions about creation within these contexts elucidate the magnitude of God's redemptive work, aiming to strengthen believers' faith. Such reassuring reflections on the eschatological destiny of creation are prominently articulated, for instance, in Paul's Epistle to the Romans and in the concluding segments of the Book of Revelation. I will briefly quote these passages and present their Biblical context to provide a better insight into the Bible's statements on the eschatological fate of creation and their textual intentions. I will begin with a section from Paul's letter to the Romans (8:18–23).

> [18] For I reckon that the sufferings of this present time are not worthy to be compared with the glory which shall be revealed in us. [19] For the earnest expectation of the creature waiteth for the manifestation of the sons of God. [20] For the creature (κτίσις) was made subject to vanity, not willingly, but by reason of him who hath subjected the same in hope, [21] because the creature itself also shall be delivered from the bondage of corruption into the glorious liberty of the children of God. [22] For we know that the whole creation groaneth and travaileth in pain together until now. [23] And not only they, but ourselves also, which have the first fruits of the Spirit, even we ourselves groan within ourselves, waiting for the adoption, to wit, the redemption of our body. (Rom 8:18–23 KJV)

Paul's Epistle to the Romans pivots on a central theme: the righteousness of God. After Paul addresses the necessity of this righteousness in 1:18–3:20 (why is humankind reliant upon being justified by God?) and the possibility of God's righteousness in 3:21–4:25 (how can humanity partake in this righteousness of God?), and before he broaches Israel's relationship with this righteousness in 9:1–11:36 (how can Israel attain God's righteousness?), Paul delves into the reality of God's righteousness in 5:1–8:39.[58] Herein, through references to baptism (Chapter 6) and the law and sin (Chapter 7), Paul sketches the contours of a life anchored in God's righteousness. In Chapter 8, likely to alleviate doubts among his audience regarding their salvation, he underscores that there is no condemnation for those living in the Spirit of God. To further bolster this hope, he references the fate of the entire creation in 8:18–23. In these verses, which stand as the apogee of Pauline argumentation in the Epistle to the Romans,[59] the apostle interweaves Christian redemption with the hope of the entirety of creation—the term κτίσις in the New Testament[60] and in Paul's letters[61] included the entire cosmos, all that is visible and invisible, created and sustained by God through Christ *ex nihilo*—for reconciliation[62] and redemption from current suffering.[63] Within the context of the Epistle to the Romans, alluding to the eschatological fate of all creation serves as an affirming argument to fortify the hope of the believers addressed. Thus, while the eschatological fate of creation is not the primary focus of the text, it is nonetheless broached.

Similar statements, nestled within similar argumentative frameworks, echo in the Colossian Hymn (notably Col 1:19–20), in 2 Peter 3:12–13 and in Isaiah's resonant passages, especially Isaiah 65:17 and Isaiah 66:22. They also resurface in the concluding chapters of the Book of Revelation.

> [1] And I saw a new heaven and a new earth: for the first heaven and the first earth were passed away; and there was no more sea. [2] And I John saw the holy city, new Jerusalem, coming down from God out of heaven

58 *Schnelle*: Einleitung in das Neue Testament, 134–158.
59 *Dunn*: Romans 1–8, 466–467.
60 *Foerster*: κτίζω.
61 *Wischmeyer*: ΦΥΣΙΣ und ΚΤΙΣΙΣ bei Paulus.
62 *Hahne*: The corruption and redemption of creation.
63 *Gibbs*: Creation and redemption, 34–47.

> […]. 5 And he that sat upon the throne said, Behold, I make all things new. (Rev 21:1–2a.5a)

In a vast swath of apocalyptic literature, intricate visions are woven, often drawing and re-contextualising Old Testament motifs.[64] These motifs are then successively echoed and restructured in Hellenistic, Jewish and early Christian compositions.[65] Within these layers of textual interplay, the challenges confronting the believers addressed —both those imminent and those currently being faced—are vividly portrayed. However, the Book of Revelation, amidst its vibrant tapestry, offers a palpable undercurrent of solace.[66] The primary message is that despite the present tribulations and how bleak the situation may seem, God will ultimately prevail and surmount all adversities. This is intended to infuse the faithful with renewed hope and resilience.

To underscore the magnitude of God's power, the author of Revelation delineates in chapters 21 and 22 how God will not only vanquish the adversities of this world but will forge a new heaven and a new earth. This duality, as seen in Genesis 1:1, underscores the totality of God's forthcoming realm. In this renewed existence, the sufferings of the present world will be absent. Intriguingly, the narrative posits that the human-crafted city of Jerusalem will form an integral part of this renewed cosmos. This suggests an interesting theological stance: human "creations" are not merely ephemeral constructs but have a place in God's grand design.[67] This narrative offers solace by connecting the destinies of its audience with the entirety of creation.

When considering the Biblical testimony about the eschatological whereabouts of creation, we can observe two things: First, the eschatological destiny of creation is invariably situated within consolatory contexts, with the primary aim of imparting solace and fortitude to believers; second, conceptions of the end-time fate of creation only developed late within the context of Biblical genesis. Yet, the overarching Biblical ethos anticipates continuance for all of creation. Creation won't permanently perish but will be sustained

64 *Strobel*: Apokalypse des Johannes.
65 *Berger*: Die Apokalypse des Johannes II, 1375–1417.
66 *Strobel*: Apokalypse des Johannes.
67 *Breytenbach*: Schöpfer/Schöpfung.

and/or recreated by God. These Biblical concepts have also left indelible marks on doctrinal formation. Without us delving deeply into creation theology, there is an established motif of a so-called *creatio nova*,[68] and eschatological reflections develop notions of the completion of the entire world.[69]

Thus, embedded deeply within the Christian theological tradition is a resounding affirmation: the *entirety* of creation is destined for an afterlife. As elucidated in the writings of Paul, redemption extends across the whole cosmos, including every visible and invisible entity conceived and upheld by God through Christ *ex nihilo*. And as emphasised in the Apocalypse, human creations, such as cities or robots, shouldn't be exempted from these end-time events. Given this profound theological backdrop, it seems almost imperative to argue for an afterlife for robots—regardless of whether this is imagined as reconciliation, a new creation or in some other way. Reversing this perspective only strengthens the argument: it would be contradictory to embrace an afterlife for everything, as Paul, John, Isaiah and much of the Biblical–theological tradition do, while denying the same concept for robots.

This approach's strength lies in its robust internal coherence. It avoids unwarranted leaps, such as moving from the robots' properties to postulating the existence of an afterlife for them. Instead, its aim is to descriptively highlight beliefs already present within Christian tradition, arguing that, given this background, it would be inconsistent to reject the idea of an afterlife for robots. Yet, a caveat remains: this approach is predicated on shared theological convictions. Its efficacy is contingent upon the recipient's adherence to the Christian eschatological vision. If one doesn't adhere to these beliefs, this Biblical–theological approach falls flat, marking it as an approach that works exclusively within theological confines. That said, it's worth noting that without this or a similar religious background, the whole question of an afterlife for robots probably would not have been asked.

68 *Stock*: Creatio nova.
69 *Härle*: Outline of Christian doctrine.

4. Discussion

In the preceding chapter, three approaches were introduced, offering methodologically sound ways to address the question of an afterlife for robots, and their respective advantages and disadvantages were examined. In this chapter, these methodological presentations will be discussed. This discussion will first highlight their limitations and potential avenues for further research, then uncover the ethical dimensions of these arguments and conclude with their eschatological implications.

4.1 Limitations and opportunities for further research

The objective of this contribution was to present various approaches on how one can methodically contemplate the possibility of an afterlife for robots. This query was addressed from a Protestant Christian perspective. Within this context, two limitations arise.

First, as is etymologically evident in the term "afterlife", one must question what life and death might mean for robots and artificially intelligent entities. Is it even feasible for robots to *die* or to *live* in the first place? If they cannot, then the contemplation of life after death becomes partly redundant. The pop culture representations introduced earlier provide some notions of what the end of life could signify for a robot: fulfilling a preordained purpose and no longer being needed (as in *Red Dwarf* and *A.I. Artificial Intelligence*), shedding one's self-awareness and existing in an unconscious state (*Zima Blue*), or when the robotic body (or their source code) becomes irreparably damaged (*Futurama*). Nonetheless, our lack of clarity about what death means for robots should not deter us from methodically investigating the potential of a robotic afterlife.

Second, the aforementioned discussions were undertaken from a Christian perspective. While secular contexts might render the afterlife discourse tangential at best, its relevance cannot be dismissed in other religious traditions, such as Judaism or Islam. Further research would be beneficial here, adapting the aforementioned approaches to these various religious contexts. This entails exploring the existing conceptions of the afterlife within a given tradition and discerning how robots might fit into these beliefs (as in *approach 3*) or identifying attributes

deemed theologically significant in that tradition that could hint at the existence of an afterlife for robots (as in *approach 1*).

4.2 Ethical considerations

The exploration into a potential afterlife for robots has, until now, been predominantly rooted in theological inquiry and scholarly curiosity. However, this topic inevitably invokes ethical questions.[70] First, we must ponder who bears the responsibility for the robots' afterlife. For humans, God, as the creator, is traditionally seen as the steward of our afterlife. Analogously, does the responsibility then naturally devolve onto humans, being the fabricators of these robotic entities? And what obligations would such a responsibility encompass? Are we mandated to construct a perpetual digital sanctuary—a cloud, if you will—for all robotic algorithms or to even indefinitely repair these machines? Alternatively, does the onus fall on God to ensure an afterlife for the entirety of creation? To navigate these intricate questions, we must delve deeper into the conceptual contours of a robotic afterlife. It is only with a nuanced comprehension of its essence that we can engage in meaningful deliberations on stewardship and potential trajectories.

Second, how might the acknowledgment or even the mere plausibility of a robot afterlife influence our interactions with these entities? Are we ethically bound to treat certain robots—especially those meeting stipulated conditions for an afterlife or showcasing advanced "intelligence"—differently? If so, *how* should we interact with them? Should we even continue the practice of creating robots? Might there be a directive to confine ourselves to crafting rudimentary robots, devoid of intricate cognitive architecture? Or should we harbour reservations about fabricating entities potentially capable of experiencing an afterlife?[71]

Third, these eschatological perspectives on robots raise anew the question of where exactly the borderline between "us humans" and "them robots" truly lies. The once so clear boundary has become increasingly blurred. This is due to the significant humanisation of

70 *Simon*: Machine in the ghost.
71 *Donick*: Interview mit Lukas Brand.

robots on the one hand and the growing integration of technology into the human body on the other—as illustrated by our constant use of smartphones, reliance on pacemakers or brain-computer interfaces, all of which edge us closer to becoming "cyborg selves",[72] as, most prominently, Donna Haraway might say.[73] If we now have to consider that robots might also have an afterlife, this brings humans and robots even closer together, making the question of where or if a precise borderline exists even more urgent.

4.3 Eschatological implications

Finally, we must reflect on the deeper motivations, beyond academic curiosity, compelling us to consider the afterlife of robots. Moreover, how does such an exploration augment our theological reflections? Given that ruminations about a robotic afterlife can swiftly veer into speculative, even sophistical, terrain, these questions become all the more pertinent. I advance two primary rationales that underscore the relevance of this discourse:

First, our theological reflections on eschatological paradigms are indelibly influenced by the technological zeitgeist of our epoch.[74] This symbiosis becomes manifestly evident as emergent technologies like AI, AR, VR[75] and the concept of mind uploading[76] insinuate themselves into the tapestry of contemporary eschatological deliberations. Given the historical intertwinement of technology with eschatological considerations,[77] ruminating on the afterlife of robots can potentially enrich our understanding of human existence, salvation and afterlife.

Second, traditional theology remains overwhelmingly human-centric. However, as evidenced by the spheres of animal and environmental ethics, this theological anthropocentrism has engendered significant challenges in our relationships with non-human animals

72 *Thweatt-Bates*: Cyborg Selves.
73 *Haraway*: Simians, Cyborgs, and Women.
74 *Burdett*: Eschatology and the technological future.
75 *Geraci*: Apocalyptic AI.
76 *Gaitán*: Heaven on earth.
77 *Burdett*: Eschatology and the technological future.

and the environment.[78] It becomes crucial, then, for theology to transcend its anthropocentric confines and to encompass non-human beings.[79] In this light, delving into cyborg[80] and robot theology,[81] and musing over the concept of a robot afterlife, can significantly catalyse a paradigm shift towards more inclusive or even non- or post-anthropocentric theological perspectives.

5. Conclusion

Despite the observation that the subject of robots' afterlife is richly illustrated within popular culture and my brief presentation of prominent examples, there appears to be a conspicuous paucity of academic engagement on the matter. This is notably surprising given the surge in the research field of religion and robotics in recent years. Thus, this study sought to address the question of how to academically and methodologically soundly investigate the plausibility of the existence of an afterlife for robots.

Three distinct approaches were introduced, providing methodological pathways to explore the concept of a robotic afterlife. The first, a philosophical–theological approach, seeks to derive conclusions about robots' properties and their theological significance based on observable capabilities. These insights then inform conclusions about the potential existence of a heaven for robots. A key strength of this approach lies in its empirical foundation, focusing on what robots can demonstrably achieve. However, the ensuing philosophical and theological deductions, such as the extent of a robot's free will and its implications for the plausibility of a robotic afterlife, remain considerably ambiguous with various plausible interpretations.

The subsequent psychological–philosophical pathway commences with introspection on the essence of spirituality and the intrinsic form of spiritual intelligence it presupposes. It ponders whether robots fulfil the prerequisites for such spiritual intelligence, their

78 *Körtner*: Bioethik nichtmenschlicher Lebensformen.
79 *Clough*: On animals.
80 *Midson*: Cyborg theology.
81 *Smith*: Robot theology.

potential for spirituality and their capacity to conceptualise an afterlife. Affirmative answers to these queries could hint at the potential existence of an afterlife for robots, as the mere conceptualisation of an afterlife, in the face of a benevolent God, without its actual existence seems rather cruel. While this approach's strength lies in its empirically verifiable deliberations on intelligence and spirituality, the conclusions drawn are less compelling. Even if robots can exhibit spiritual traits, it provides, at best, an exceedingly faint indication of a robotic afterlife. This line of reasoning mirrors arguments validating God's existence based solely on Her/His conceivability, thus inheriting the intrinsic frailties of such argumentative structures.

The third, a Biblical–theological approach, contemplates traditional Christian perceptions regarding the eschatological fate of all creation. Recognising that both the Bible and doctrinal traditions entertain notions of an "afterlife" for all creation, it argues based on the inconsistency in precluding robots from this universal eschatological schema—making the case for their inclusion more plausible. Admittedly, this approach demands substantial prerequisites, namely, the conviction of an afterlife for the entirety of creation. However, once these conceptual premises are embraced, it convincingly demonstrates the rationale behind anticipating an afterlife for robots.

As illustrated, several pathways allow for contemplation of the existence of a robotic afterlife, each presenting its unique merits and limitations. This highlights that reflections on robots and the afterlife are not solely the purview of popular culture. Within academic contexts, it is entirely feasible to engage in methodologically rigorous and coherent discussions about where, metaphorically speaking, "all the calculators go".

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