

## *Jewish Perspectives on Artificial Intelligence and Synthetic Biology*

By: YITZHAK GROSSMAN

Humanity is currently in a period that has been alternately termed the AI “spring,” “boom,” “era,” or “revolution.”<sup>1</sup> For the past few years, there has been a steady stream of news, prognostications, and wild speculation on the subjects of artificial intelligence (AI) and synthetic biology, ranging between the fascinating and the terrifying (and sometimes both simultaneously). The past couple of years in particular have seen major advances in the development and publication of AI models and tools built upon them that have demonstrated some incredible—if simultaneously flawed and limited—capabilities. These include OpenAI’s GPT large language models (and its ChatGPT chatbots built upon them), text-to-image model DALL-E, and text-to-video model Sora; Stability AI’s Stable Diffusion text-to-image model; and Anthropic’s “Claude” family of large language models, the most recent and advanced of which (Claude 3 Opus) is claimed by the company to exhibit “near-human levels of comprehension and fluency on complex tasks.”<sup>2</sup> These currently existing technologies, and even more so, more advanced ones expected to emerge in the future, raise numerous philosophical, ethical, legal, and social questions. Most of

- 
- <sup>1</sup> See: Wikipedia (2024, February 12), “AI boom,” Retrieved 22:52, February 12, 2024, from [https://en.wikipedia.org/w/index.php?title=AI\\_boom&oldid=1206578620](https://en.wikipedia.org/w/index.php?title=AI_boom&oldid=1206578620); Wikipedia contributors, (2024, February 12). “AI era,” *Wikipedia*, Retrieved 22:52, February 12, 2024, from [https://en.wikipedia.org/w/index.php?title=AI\\_era&oldid=1206580824](https://en.wikipedia.org/w/index.php?title=AI_era&oldid=1206580824).
- <sup>2</sup> Benj Edwards, “The AI wars heat up with Claude 3, claimed to have ‘near-human’ abilities,” *Ars Technica*, Mar. 4, 2024 3:50 p.m. Retrieved Mar. 6, 2024 4:50 p.m. EST from <https://arstechnica.com/information-technology/2024/03/the-ai-wars-heat-up-with-claude-3-claimed-to-have-near-human-abilities/>.

---

Yitzhak Grossman has studied in various yeshivot in the United States and Israel and has served as a *dayan* with various *batei din*. He has written for a variety of publications and lectured on various topics in Jewish law and thought. He currently serves as the *Rosh Haburah* and Senior Lecturer of the Greater Washington Community Kollel.

this article attempts to sketch some Torah perspectives to several basic, general questions about AI and synthetic biology:

- Can humans possibly create “true” AI—i.e., artificial general intelligence (AGI), possessing or exhibiting “human-level” intelligence<sup>3</sup>—or synthetic genuine biological organisms via technological means?
- If we can, should we do so?
- If we do, what will the halakhic status of such creations be: Jew, non-Jew, animal, inanimate object, or something else?<sup>4</sup>

In a final section, we consider various aspects of the application of classic halakhic concepts and rules, such as the prohibitions against doing work on the Sabbath, or criminal and civil liability for one’s actions, to autonomous vehicles and other “smart” devices that may fall short of real artificial intelligence.

Much of our analysis of AGI will revolve around the following pair of Talmudic passages:

**Rava says: If the righteous wish to do so, they can create a world, as it is stated: “But your iniquities have separated between you and your G-d.”** In other words, there is no distinction between G-d and a righteous person who has no sins. Just as G-d created the world, so too can the righteous.

Indeed, **Rava created a man**, a golem, using forces of sanctity. **Rava sent his creation before Rabbi Zeira. Rabbi Zeira would speak to him but he would not reply. Rabbi Zeira said to him: You were**

---

<sup>3</sup> This article will not attempt to tackle the profound and difficult problem of rigorously defining terms and concepts such as “intelligence,” despite the fact that an ideal treatment of our topic would indeed include such an analysis.

<sup>4</sup> This author is not aware of a large body of rabbinic literature on this topic; one noteworthy article, thoughtful, detailed, and comprehensive, is by R. Daniel Nevins (Conservative), *Halakhic Responses to Artificial Intelligence and Autonomous Machines*, CJLS HM 182.1.2019. For a less technical treatment of the topic by a prominent computer scientist and AI researcher who is also a Torah scholar, see Prof. Moshe Koppel, “What Artificial Intelligence Has in Store for Judaism,” *Mosaic*, Mar. 4, 2024.

One area of the ethics of artificial intelligence that we do not discuss in this article is that of autonomous weapons systems, for the reason that I have not found much written on the topic; see Nadav Berman Shifman, “Autonomous Weapon Systems and Jewish Law: Ethical-Political Perspectives” (I have not seen this paper, but a pre-publication version of it is mentioned in R. Nevins’ article), and R. Nevins, *ibid.*, pp. 40-42.

created **by one of the members of the group**, one of the Sages. **Return to your dust.**

The Gemara relates another fact substantiating the statement that the righteous could create a world if they so desired: **Rav Ḥanina and Rav Oshaya would sit every Shabbat eve and engage in the study of *Sefer Yetzirah*, and a third-born calf (*igla tilta*) would be created for them, and they would eat it in honor of Shabbat.**<sup>5</sup>

A little later in the same chapter, the Talmud distinguishes between sorcery and the actions of Rav Ḥanina and Rav Oshaya, although it does not clearly explain the distinction:

Abaye says:

**The *halakhot* of sorcery are like the *halakhot* of Shabbat**, in that their actions can be divided into three categories: **There are some of them** for which one is liable to be executed **by stoning**, and **there are some of them** for which one is **exempt** from punishment by Torah law **but** they are **prohibited** by rabbinic law, **and there are some of them** that are **permitted *ab initio***.

Abaye elaborates:

**One who performs a real act of sorcery is liable to be executed by stoning. One who deceives the eyes is exempt from punishment, but it is prohibited for him to do so. What is permitted *ab initio* is to act like Rav Ḥanina and Rav Oshaya: Every Shabbat eve they would engage in the study of the *halakhot* of creation, and a third-born calf would be created for them, and they would eat it in honor of Shabbat.**<sup>6</sup>

### **Can Human Beings Create Artificial General Intelligence or Synthetic Biological Organisms?**

The aforementioned Talmudic passages clearly indicate that humans can indeed create living organisms. It is generally understood that this creation occurred via mystic means. In a remarkably prescient passage, however, the thirteenth-century(!) Provençal thinker R. Menahem Meiri, in explanation of the Talmudic distinction between sorcery and the actions of Rav

---

<sup>5</sup> *Sanhedrin* 65b. This and subsequent citations from the Talmud are from R. Adin Even-Israel Steinsaltz's translation, in the William Davidson Talmud, via Sefaria. This edition includes a direct translation of the Talmud's actual words in bold, and supplementary explanatory text in ordinary weight text.

<sup>6</sup> *Ibid.*, 67b.

Ḥanina and Rav Oshaya, asserts that the latter were actually utilizing technology (which, being sufficiently advanced, is indeed indistinguishable from magic):

Anything that is performed via natural action is not included in (the prohibited category of) sorcery. Even if they know how to create beautiful creations by means other than sexual reproduction, as it is known in books of natural science that this is not impossible, it is permitted to do so, for anything that is natural is not in the category of sorcery. And in a similar vein (the Sages) have said: “**Anything that contains an element of healing** and seems to be effective **does not contain** an element of the prohibition against following the ways of the Amorite.”<sup>78</sup>

R. Asher Weiss, however, is baffled by Meiri’s assertion that humans can create synthetic life, which he considers contradictory to fundamental Jewish doctrine:

We find a wondrous thing that the Meiri has written ... and this is wondrous beyond my comprehension, and I cannot grasp it, for this we know that it is not in the hands of the sages of nature, just as it is not in those of the necromancers and sorcerers, to create an entity *ex nihilo* that G-d has not created, as the Ramban has written in his commentary to the Torah (Exodus 8:15):

That the magicians could not bring forth the gnats was by reason of the fact that G-d so caused it to happen to them. He confounded their counsel in accordance with His Will, for everything is His and it is within His power to do all.

It appears to me further that in the first two plagues—in the one of blood, where the water naturally changed into blood, and in the one of the frogs, which consisted of bringing them up from the river—since they did not involve the creation of some new phenomenon out of nothing or some act of new formation, the magicians could do [as Aaron did]. Scripture does not say “and the frogs came into existence,” but only *and the frogs came up*; they assembled and came up. In the plague of gnats, however, there was an act of creation, for it is not in the nature of dust to turn into gnats. Therefore He said, *that it may become gnats*. The verse, *And the magicians did so with their secret arts to bring forth gnats*, is similar in intent to: *Let the earth bring forth the*

---

<sup>7</sup> *Shabbat* 67a.

<sup>8</sup> *Hiddushei ha-Meiri* (Zikhron Yaakov, 5738) *Sanbedrin*, *ibid.*, p. 64 s.v. *Bein she-bayah ha-me-khasheif* (my translation, as are all other translations of Hebrew sources in this article unless otherwise specified). Cf. *Meiri*, *ibid.*, p. 65 s.v. *ve-Khein yatza*.

*living creature*, etc., *and it was so*. But only the Creator, praised and magnified be He, can perform such a [new] act of creation. The verse, *And the magicians did so ... but they could not*, means they incanted the demons to do their command, but they were powerless.<sup>9</sup>

It is explicitly explained here that humanity has no power to create *ex nihilo*, and these matters have already been explicitly explained in the Midrash (Genesis Rabbah 39:14):

**And the souls they (Abraham and Sarah) made in H̄aran:** R. Elazar b. Zimra said: If all those in the world gather together to create even a single gnat, they will be unable to imbue it with a soul (*neshamah*).<sup>10</sup>

R. Weiss is a leading contemporary *haredi* thinker, brilliant, acute, and original, but I do not find his arguments against Meiri at all compelling. First, contrary to R. Weiss's assertion that it is "explicit" in Ramban's comments that humans cannot create synthetic life, R. Chaim Dov (Charles B.) Chavel, a leading contemporary expert on the works of Ramban, in an explanatory note to the above passage, understands it to mean precisely the opposite, that the magicians' inability to produce the gnats was "not because they really could not do it, but it was by reason of the fact that G-d so caused it to happen to them ..."

Second, even if Ramban does indeed categorically reject the possibility of human-created synthetic biological organisms, Meiri is certainly not bound by Ramban's view: *gavra a-gavra ka-ramis?* The worldviews of these two great medieval scholars are entirely different: Ramban is one of the central Kabbalistic thinkers in the Jewish tradition, while Meiri is an enthusiastic (if moderate) Maimonidean rationalist, with a much less ambivalent attitude toward the limitations of human knowledge than Ramban.

While the midrash that R. Weiss cites does seem to be flatly asserting that humans cannot create and ensoul even a gnat, it is difficult to derive authoritative theology from a single midrashic passage such as this.

### Sentience, Souls, and the Faculty of Speech

"I've seen things you people wouldn't believe. Attack ships on fire off the shoulder of Orion. I watched C-beams glitter in the dark near the Tannhäuser Gate. All those moments will be lost in time, like tears in rain. Time to die."— the dying replicant Roy Batty (*Blade Runner*)<sup>11</sup>

---

<sup>9</sup> Translation of R. Chaim Dov (Charles B.) Chavel, via Sefaria.

<sup>10</sup> R. Asher Weiss, *Ma'aseh Keshafim ve-Sefer Yetzirah*.

<sup>11</sup> *Blade Runner* (1982).

“G-d didn’t create the Cylons; man did. And I’m pretty sure we didn’t include a soul in the programming.” – Commander William Adama, *Battlestar Galactica* [2003]<sup>12</sup>

R. Weiss at least concedes, in light of the aforementioned Talmudic passages, that humans can indeed create some sort of life via mystical means, and he is merely denying that they can do so using purely natural means, via science and technology. There is, however, a school of thought that infers from the failure of Rava’s creation to respond to R. Zeira that the human capacity to create life attested to by the Talmud is fundamentally limited and does not extend to the creation of full sentience. This is often expressed in Kabbalistic language, utilizing technical terminology (*nefesh*, *ruah*, and *neshamah*) to refer to various different aspects of the soul and life force and asserting that even mystic adepts cannot fully ensoul their creations.

R. Shmuel Eliezer Eidels (Maharsha) comments on R. Zeira’s interaction with Rava’s creation:

**He would not reply.** Because he (Rava) could not create the power of the *neshamah*, which is the speech, and since it had no *neshamah*, which is “the *ruah* that ascends on high,”<sup>13</sup> but only the *ruah* of life, which an animal also has, which “descends down,”<sup>14</sup> he told him “return to your dust.”<sup>15</sup>

R. Yaakov Emden explains that although Rava’s creation could apparently follow orders, it did not really understand language, and possessed merely animal-level intelligence:

This man had no intelligence at all ... for R. Zeira talked to him and he did not reply ...

But let us consider the matter carefully: it would seem that he could hear, since (Rava) sent him to R. Zeira, and if so he was like one who can hear but is mute, who is considered (fully sentient) ... But this is not true, for had he had the power of hearing he would certainly have been suited for the power of speech, and (speech) would not have been impossible for him.<sup>16</sup> Rather, he (merely) understood ges-

---

<sup>12</sup> *Battlestar Galactica* (2003), miniseries.

<sup>13</sup> Ecclesiastes 3:21.

<sup>14</sup> Ibid.

<sup>15</sup> *Maharsha Hiddushei Aggadot*, ibid. (65b).

<sup>16</sup> R. Tzadok, in his discussion cited below, challenges this assumption of R. Emden.

tures, as they train a dog to go on errands, to bring and fetch something (to and) from someone else, so, too, (Rava) sent this (man that he created) and he went.<sup>17</sup>

R. Eidels and R. Emden assert that Rava did not create a fully sentient being, but they do not absolutely rule out the possibility of the human creation of such a being. R. Eidels' older contemporary, the Kabbalist R. Moshe Cordovero, however, begins his discussion of the Talmudic account by categorically rejecting the possibility that a human can endow his creation with a real soul:

And this matter is difficult, is it conceivable that there is power (in humanity) to bring down a *neshamah*, *nefesh*, and *ruah* into that body? This is preposterous, that a person would have the power to bring down a *neshamah* from above onto a novel creation, even if its creation is through the power of *alpha beisos* ...<sup>18</sup>

R. Cordovero raises other objections to the possibility of Rava's creation being actually ensouled, and he concludes that the degree of life possessed by such mystic creations is similar to that of animals, but does not reach the level of humans, having "neither *neshamah* nor *nefesh* nor *ruah*, but mere life."

R. Avraham Yeshayah Karelitz (the *Hazon Ish*) adopts a similar stance, albeit from a halakhic, rather than a Kabbalistic, perspective, declaring that "it would seem that (an entity created via *Sefer Yetzirah*) has none of the rights of a Jew, and likely none of the rights of Man."<sup>19</sup>

R. Tzadok Hakohen of Lublin accepts the basic premise that the muteness of Rava's creation was indicative of its not being fully ensouled, but challenges the conclusion that this implies that it had the status of a dumb beast, maintaining instead that it had the status of a non-Jewish human (whose soul lacks a "portion from G-d above"<sup>20</sup>). Despite the fact that non-Jews are, indeed, capable of verbal communication, R. Tzadok explains that this is not true speech, but is rather akin to "the chirping of

---

<sup>17</sup> *She'eilat Ya'aveitz*, *helek* 2, *siman* 82.

<sup>18</sup> *Pardes Rimmon*, *Sha'ar ha-Heikhalos* (24), chapter 10.

<sup>19</sup> *Hazon Ish* YD beginning of *siman* 116 (66). I am indebted to my friend and *havrusa* R. Yitzchak Mandel for bringing this comment of the *Hazon Ish* to my attention.

<sup>20</sup> Job 31:2. The (documented) use of this phrase in Jewish literature to describe the soul dates back to the fifteenth or early sixteenth century; for a survey of this literature, see "What's *'helek E-loka mimaal*?", <https://judaism.stackexchange.com/questions/30469/whats-chelek-eloka-mimaal>, retrieved Nov. 21, 2019.

birds” and derives from the forces of impurity (the *sitra aħra*). Rava’s creation, however, could not speak at all: since it was formed with holiness via the *Sefer Yetzirah*, it could have no connection to the *sitra aħra*, but it also did not have the holy soul that confers the power of speech upon Jews, and so it was “bald from here and from there.”<sup>21, 22</sup>

On the other hand, R. Gershon Chanoch Henoch Leiner of Radzyn agrees that Rava’s creation was not fully sentient, but he explicitly allows for at least the theoretical possibility of human creation of a fully sentient being. He explains the Talmud to be saying that the extent of the humanity possessed by an artificial man depends upon the level of his creator’s righteousness. A perfectly righteous individual, such as the “**four people who died only because of the counsel of the primordial snake**, in the wake of which all of humanity became mortal, and not on account of any personal sin,”<sup>23</sup> could indeed have created “a perfect, genuine man, no different from the man that G-d created,” but Rava, despite being greatly righteous—“who do we have greater than Rava?”—nevertheless had not (yet) attained the perfect righteousness of those who died only because of the counsel of the snake, and his creation was therefore not as perfect as a genuine man created by G-d. Accordingly, when R. Zeira saw that Rava’s creation fundamentally lacked<sup>24</sup> the power of speech,

which is the paramount aspect of man’s greater perfection than that of all other creations, as it is written “and man became a living being,”<sup>25</sup> which the Targum translates as “and it (the soul blown into him by G-d) become a spirit that speaks,”

he ordered it to return to its dust, “because since it is not perfectly human, it is considered merely as a beast in human form, and it is permissible to kill it.”<sup>26</sup>

The aforementioned scholars all assume that Rava’s creation was not fully human (or at least not considered a Jew). Below, however, we shall

---

<sup>21</sup> BT *Bava Kamma* 60b.

<sup>22</sup> *Divrei Halomot* (appended to *Resisei Laylah*), #6, p. 183

<sup>23</sup> BT *Bava Batra* 17a.

<sup>24</sup> R. Leiner distinguishes between a normal human deaf-mute, who is considered fully human despite his inability to speak, and Rava’s creation. The former has the essential capacity for speech, and his practical inability to do so is merely due to the fact that “his mouth hurts him” (see BT *Yevamot* 104b), whereas Rava’s creation’s inability to speak was due to a fundamental limitation of his humanity. This stance is diametrically opposite to that of R. Tzadok cited below in the article text, that the muteness of Rava’s creation was actually **less** significant to an assessment of his personhood than that of an ordinary deaf-mute.

<sup>25</sup> Genesis 2:7.

<sup>26</sup> *Sidrei Taharot*, p. 9.



discuss R. Tzvi Ashkenazi's analysis of its halakhic status, which seems to assume that it did have the status of a human being and includes the possibility that it even had the status of a Jew.

In summary, we have four basic perspectives on the question of whether Rava's creation in particular, and beings created by humans via *Sefer Yetzirah* in general, possess souls and sentience:

1. They cannot have human souls or intelligence, but merely animal-level life force and understanding (R. Cordovero).
2. They can have human souls and intelligence, but only the sorts possessed by non-Jews, which are fundamentally inferior to those possessed by Jews (R. Tzadok).
3. Rava's creation lacked full humanity, but in principle, humans of sufficient spiritual stature can theoretically create a fully human artificial entity (R. Leiner).
4. Rava's creation is considered to be human, and perhaps even Jewish (contemplated by R. Ashkenazi).

### Contemporary Thinkers

In the contemporary period, leading modern Israeli religious ethicist R. Yuval Cherlow has asserted that the "accepted faith-based position" is that artificial intelligence to the degree of, and indistinguishable from, human intelligence "will never be created." Additionally, intelligence is merely "a portion" of the nature of man, and there exist "many other aspects" of humanity as well.<sup>27</sup> Comments of other contemporary Jewish thinkers on the subject of artificial intelligence are cited in the notes.<sup>28</sup>

---

<sup>27</sup> "Yetzirah Shel Binah Melakbutit. She'al et ha-Rav," *Kipah*. 4 Kislev 5778 / Nov. 22, 2017. Cf. further comments of R. Cherlow on the topic of artificial intelligence in: "ba-Im Yeish le-Torah Mah le-Haggid al Binah Melakbutit?" *Tzohar la-Etikah*, 13 Heshvan 5782 / Oct. 19, 2021; "ba-Etikah shel ha-Binah ha-Melakbutit — Al Taggid "Zeh Lo Kashur Eilai," *Tzohar la-Etikah*, 12 Shevat 5778 / Jan. 28, 2018.

A similar position is taken by R. Daniel Blass(?), *Madua Mehashev le-Olam Lo Yi-hyeh Enush?* Hidabroot.org. 24 Adar, 5777 / Mar. 22, 2017, in an article discussing Alan Turing's eponymous test and John Searl's Chinese room argument.

<sup>28</sup> R. Dr. Michael Abraham, "Al Binah Melakbutit, Mi Mefabeid mi-Binah Melakbutit?" *Haaretz*:  
(<https://ethics.tzohar.org.il/press/%d7%9e%d7%99-%d7%9e%d7%a4%d7%97%d7%93-%d7%9e%d7%91%d7%99%d7%a0%d7%94-%d7%9e%d7%9c%d7%90%d7%9b%d7%95%d7%aa%d7%99%d7%aa/>); R. Nevins, *ibid.*, pp. 29-36.

## Free Will

Until now we have been considering the question of whether Rava's creation, and artificially-created life generally, was or can ever be fully sentient. We turn now to the perhaps even more interesting question of whether artificial life forms can have free will. This question is very hard to even formulate properly, let alone answer meaningfully, due to the extreme difficulty of properly defining the very concept of free will and establishing its compatibility, or lack thereof, with determinism. Thorough discussion of these questions is well beyond the scope of this paper; we shall suffice with a few basic remarks on the issue.

Traditional Jewish thought generally strongly embraces the position that human beings have free will. In the medieval Aristotelian philosophical tradition, human action governed by free will is considered to be a special case of the general ontological category of the "possible," as opposed to the "necessary." Standard determinism is accordingly rejected, and most of the philosophical discussion of free will revolves around the apparent necessity of reconciling it with either strong or weak theological determinism (the positions that G-d either dictates and predestines, or at least has perfect foreknowledge of, all future events). Truly understanding the positions staked out on these questions by the major Jewish medieval thinkers is extraordinarily difficult, particularly in light of the fact that much of their treatments of the topic is deeply rooted in Aristotelian and other pre-modern modes of thought regarding physics and metaphysics that are alien to the modern intellect.<sup>29</sup>

One particularly striking and provocative perspective on free will, with major ramifications for artificial intelligence, is the view of R. Levi b. Gershom (Rabag / Gersonides) that it is an emergent property of, and consequently logically inseparable from, sentience. He expresses this in the context of his interpretation of the Biblical account of the Tree of Knowledge and the Serpent as an allegory of the fundamental problem of human existence, that the free will possessed by human beings is what makes it so difficult for them to attain the ideal level of perfection possible for them, since it is what enables them to misuse their faculties with which

---

<sup>29</sup> Some of the classic discussions of this topic include, R. Saadiah Gaon, *ha-Emunos ve-ha-Dei'ot*, *ma'amar* 4; Rambam, *Shemoneh Perakim*, *perak* 8, *Mishneh Torah Hilkhhot Teshuvah*, *perak* 5; R. Hasdai Crescas, *Or Hashem*, *ma'amar* 2, *kelal* 5; R. Yosef Albo, *Sefer ha-Ikkarim*, *ma'amar* 4. For a lengthy survey and analysis of traditional Jewish perspectives on this topic, see R. Netanel Wiederblank (this author's brother-in-law), *Illuminating Jewish Thought* (Volume 2), Unit Five, pp. 3-278.

they are endowed and misdirect them toward deficiency rather than perfection. The obvious question, then (at least for Ralbag, who apparently does not subscribe to the widely-held view within the Jewish tradition [particularly within its Kabbalistic and *Mussar* schools of thought] that free will is an integral aspect of G-d's design of the human being and essential to his ability to fulfill G-d's purpose in creating him<sup>30</sup>), is why we have free will at all, given its deleterious potential? Ralbag offers several answers, the first being that free will may not actually be desirable in and of itself at all, but it is an inevitable aspect of the human condition since it is logically inseparable from intelligence (which to Ralbag is certainly the essential and most important human characteristic):

And it is necessary that (man) be possessed of free choice, since he is possessed of intelligence. Now the supernal possessors of intelligence (i.e., those intelligences responsible for the movement of the celestial spheres, according to Ralbag's medieval interpretation of Aristotelian cosmology) always act in a uniform manner (as is evidenced by the fact that the motion of the spheres is perfectly regular and predictable) even though they are possessed of free choice, since they always choose the good, and they have no opposing force that would generate within them corresponding choices, but a human being, since he is combined of substance (*homer*) and form (*tzurah*), he necessarily has corresponding choices. And one who says that it would have been better for man to not have free choice is saying that it would be better for him to not be possessed of intelligence, since his being possessed of intelligence requires that he be possessed of free choice.<sup>31</sup>

Ralbag is claiming that free will is a logical consequence and necessary corollary of intelligence, but he is also asserting that the impulse toward baseness that can impede the attainment of perfection (what more traditional Jewish thinkers call the evil inclination) is indeed something entirely separate from intelligence. It is present in humans due to their aspect of *homer*, but absent in the supernal intelligences due to their not being composed of ordinary matter. In principle, then, Ralbag would assume that a true AGI (if such a thing is possible) would have free will, but it is unclear whether it would have the same passions and urges that humans have. Would the fact that it is built using ordinary physical materials render it

---

<sup>30</sup> This is a central theme of R. Moshe Chaim Luzzato's classic manifesto *Da'at Tevunot*, and it is expressed particularly eloquently in R. Aryeh Kaplan's classic modern essays *The Essence of Mankind* and *If You Were G-d*.

<sup>31</sup> R. Levi b. Gershom, *Pirush al ha-Torah al Derekh Biur* (Venice 5307), Genesis p. 16a.

similar to humans in this regard, or would there be more of a dichotomy between the intelligence and its underlying physical implementation than exists with humans, thus rendering it more similar to the angelic entities discussed by Ralbag? Attempting to answer this question would require a much deeper understanding of Ralbag's philosophy than this author possesses.<sup>32</sup>

### **Should Humans Create AI or Synthetic Biological Organisms?**

The Talmudic discussion with which we began cuts both ways on the question of the appropriateness of the creation of artificial life and intelligence: On the one hand, various Talmudic Sages apparently thought it a good idea to create artificial humans and animals, at least for experimental purposes, while on the other hand, R. Zeira, upon encountering one of these creations and realizing what it was, promptly ordered it to "return to its dust." He, at least, seems not to have considered the continued existence of such entities a positive thing, although he does not explain why.

### **Killer Robots I: From Golems to Goethe to *Galactica***

"Just one word, to end this madness!  
Argh, it's going to be my doom!  
Endless water! Oh, what badness!  
Stop, please and just be a broom!" – Goethe, "The Sorcerer's Apprentice"<sup>33</sup>

"The gods had nothing to do with it. We created you. Us. It was a stupid, [expletive] decision, and we have paid for it. You slaughtered my entire civilization. That is sin. That is evil. And you are evil." – Lt. Kara "Starbuck" Thrace, to the Cylon Leoben, *Battlestar Galactica*<sup>34</sup>

Beginning in about the eighteenth century, we find the concern that such artificial creations are enormously dangerous due to the possibility of their escaping the control of their creators and becoming hostile and destructive. This worry is the subject of Goethe's "Sorcerer's Apprentice"

---

<sup>32</sup> For further discussion from a Torah perspective of whether an AI can theoretically possess free will, as well as the general questions of the qualities essential to humanity and the possibility of an AI possessing them, see R. Netanel Wiederblank, "What Artificial Intelligence Teaches Us about What it Means to Be Human," *Jewish Action*, Spring 5783 (Vol. 83 No. 3), pp. 37-48.

<sup>33</sup> Johann Wolfgang von Goethe, "The Sorcerer's Apprentice," translation by Katrin Gyga.

<sup>34</sup> *Battlestar Galactica* (2004), Season 1, Episode 8: "Flesh and Bone."

(well known to twentieth-century children of all ages in its animated Disney version), as well as innumerable later works of science fiction and fantasy such as *Battlestar Galactica*. It was also a concern of Jewish thinkers; about half a century before Goethe, R. Yaakov Emden wrote the following:

As an aside, I'll mention here what I heard from my father's (R. Tzvi Ashkenazi) holy mouth regarding the Golem created by his ancestor, the Gaon R. Eliyahu Ba'al Shem of blessed memory. When the Gaon saw that the Golem was growing larger and larger, he feared that the Golem would destroy the universe. He then removed the Holy Name that was embedded on his forehead, thus causing him to disintegrate and return to dust. Nonetheless, while he was engaged in extracting the Holy Name from him, the Golem injured him, scarring him on the face.<sup>35</sup>

R. Haim Yosef David Azulai (Hida) suggests that this concern may have been why R. Zeira destroyed the artificial man he encountered.<sup>36</sup> R. Tzadok (in his dream journal, a record of "matters revealed to him" that he managed to promptly record upon awakening before he had the chance to forget them) echoes this suggestion, and goes so far as to articulate the general principle that such artificial entities should only be created on an as-needed basis and immediately destroyed:

Perhaps R. Zeira was afraid that it would become harmful to people when it would grow a little larger, and then even its maker would find it difficult to return it to its dust, since it could injure him as well, as related (by R. Emden) ...

And therefore such a creation should not be left around, but should be created only in order to address a particular need and returned immediately afterward to its dust.

He proceeds to suggest that this concern also explains why Rav Hanina and Rav Oshaya created their calves specifically on the Sabbath eve: since they were intended for consumption on the Sabbath, had they created them earlier in the week, they would have grown throughout the week and become harmful, and they would have had to "return them to their dust."<sup>37</sup>

The contemporary scholar R. Cherlow responds to a question about the permissibility of creating artificial intelligence as follows:

---

<sup>35</sup> *Shu"t She'eilat Ya'avetz*, *belek* 2, *siman* 82. Translation by Dr. Shnayer Z. Leiman, in "Did a Disciple of the Maharal Create a Golem?" *Seforim Blog*, Feb. 08, 2007.

<sup>36</sup> *Mar'it ha-Ayin, Sanbedrin*, end of 65b, s.v. *Rava bara gavra*.

<sup>37</sup> *Divrei Halomos* (appended to *Resisei Laylah*), #6, p. 182.

Fundamentally, the stance accepted by most writers (on the general topic of limits to scientific research) is that the starting point is that there are no limits to research, for the Master of the universe created man “in the image of G-d,” and at the end of the section of the Creation it is written: “which G-d created to make,” that is to say, to make (i.e., man is granted the prerogative to make things). Accordingly, research is generally permitted, unless the harm that it will cause can be unambiguously pointed out.<sup>38</sup>

(R. Cherlow proceeds, however, to reject the possibility of the creation of human-level artificial intelligence, as cited above.)

### **The Robots Are Coming for Our Jobs**

“Write an article on ‘What is payment gateway?’” I recently typed into a ChatGPT window. ChatGPT, an artificial intelligence-powered writing generator, quickly obliged.

The result was impressive. ... My amusement quickly turned to horror: it had taken ChatGPT roughly 30 seconds to create, for free, an article that I charged £500 for. The artificial intelligence software is by no means perfect—yet. For businesses that rely on churning out reams of fresh copy, however, it’s a no-brainer, isn’t it? ...

PriceWaterhouseCooper predicts ... that 3% of jobs are already at risk from AI. By the mid-2030s, this proportion will jump to 30%–44% among workers with low education. (Henry Williams, writing in *The Guardian*)<sup>39</sup>

---

<sup>38</sup> *Yetzirah Shel Binah Melakbutit*.

<sup>39</sup> Henry Williams, “I’m a copywriter. I’m pretty sure artificial intelligence is going to take my job,” *The Guardian*, Jan. 24, 2023 7:20 EST. Retrieved Jan. 30, 2023 6:04 EST from <https://www.theguardian.com/commentisfree/2023/jan/24/chatgpt-artificial-intelligence-jobs-economy>. Cf. Connie Guglielmo, “CNET Is Testing an AI Engine. Here’s What We’ve Learned, Mistakes and All,” *CNET*, Jan. 25, 2023 8:23 a.m. PT. Retrieved Jan. 30, 2023 4:19 EST from <https://www.cnet.com/tech/cnet-is-testing-an-ai-engine-heres-what-weve-learned-mistakes-and-all/>; Aaron Mok, “BuzzFeed writers react with a mix of disappointment and excitement at news that AI-generated content is coming to the website,” *Business Insider*, Jan. 30, 2023 2:36 p.m., Retrieved Jan. 30, 2023 4:20 p.m. EST from <https://www.businessinsider.com/buzzfeed-writers-react-ai-generated-articles-content-chatgpt-maker-openai-2023-1>.

A less dramatic but perhaps more realistic and imminent concern than that of AIs growing uncontrollably, throwing off their shackles of subservience to their creators, and causing them harm, is the likelihood that they will eliminate human jobs. Indeed, this is already occurring with currently available AI technologies.<sup>40</sup> This, of course, is a problem with technology and automation in general, and is not limited to AI and synthetic biology. It began to be a major public concern during the Industrial Revolution, with groups such as the Luddites agitating against the mechanization of industry, and continues to be so through the present day. The author is aware of relatively little halakhic discourse on the topic, the most significant of which occurred during the great nineteenth-century debate over machine matzah. While most of the arguments advanced in that controversy revolved around the ritual validity of such matzos, R. Shlomo Kluger, their leading opponent, included in his manifesto against them the concern that permitting their use would hurt the poor who relied upon the income from matzah production to help defray the Passover expenses:

It is also not within the bounds of uprightness and *mussar* to steal from the poor, who anticipate receiving (financial) assistance from their assistance (in the baking of the matzos) for the expenses of Passover, which are great for the members of our nation... Certainly in this (matter), where there is no mitzvah (to use) machines, it should not be done, since the poor anticipate this income (to be used to defray their) Passover (expenses). Additionally, many householders and those of median (income), and certainly those of limited means, do not give the *ma'os hittin* ("money for wheat", i.e., charitable donations for the purpose of helping the poor purchase food for Passover) that is customary in Israel, and is rooted in the words of the early authorities, and they therefore fulfill this (obligation) by this that they at least give (the poor the opportunity) to make money by their assistance with the matzos, and so if on the contrary they abolish this as well, it is as though they have violated the mitzvah of charity and (the obligation of) *ma'os hittin* for Passover.<sup>41</sup>

---

<sup>40</sup> See, e.g., Jo Constantz, "AI Is Driving More Layoffs than Companies Want to Admit," *Bloomberg*, Feb. 8, 2024 12:48 p.m. EST (updated Feb. 8, 2024 2:53 p.m. EST). Retrieved Feb. 20, 2024 4:50 p.m. EST from <https://www.bloomberg.com/news/articles/2024-02-08/ai-is-driving-more-layoffs-than-companies-want-to-admit>.

<sup>41</sup> *Shu"t ba-Elef Lekha Shlomo, Hasbmatot le-Shu"t al Oraḥ Ḥayyim* #32, s.v. *ve-Od bah sblishi*, and also in the beginning of *Moda'ab le-Beit Yisrael*.

Despite the fact that R. Kluger also put forth various arguments against the ritual validity of machine matzos, R. Aryeh Leibush Balichover reports having heard that it was actually the economic injustice to the poor that was R. Kluger's primary concern:

I have been informed that the primary rationale was this, that he had compassion for the poor who were involved in the baking of the matzos, who were numerous in (R. Kluger's) community of Brody, and in this it is impossible to express an opinion, but "to judge by what his eyes see,"<sup>42</sup> and "the wise man has his eyes in his head."<sup>43,44</sup>

Defenders of machine matzah rejected this argument (along with the rest of R. Kluger's objections). R. Kluger's main opponent, R. Yosef Shaul Nathanson, simply dismissed it out of hand as ludicrous, going so far as to insinuate that R. Kluger may be guilty of hypocrisy if he "perhaps" printed his books using the printing press, an invention that "has resulted in the unemployment of many laborers":

And I greatly wonder, according to (R. Kluger's) rationale that the poor anticipate this (opportunity), why not prohibit the machine that has been invented to produce holy books (i.e., the industrial printing press), which has resulted in the unemployment of many laborers! And perhaps he, too, has stumbled in this matter and has printed his book by machine, and it is a "twisted thing that cannot be made straight."<sup>45</sup> And if he is one who enacts ordinances, let him prohibit these machines, according to his rationale. But this is a (mere) jest, and his reasoning will make him a mockery.<sup>46</sup>

Another defender of machine matzah, R. Mordechai Landau, countered R. Kluger's concern for the poor laborers with three points: the concern for the ritual validity of the matzos (which he believed would be improved by the introduction of machinery) trumps the concern for the economic well-being of the laborers; any harm to the laborers can be addressed through charity; and the harm to poor laborers must be balanced

---

<sup>42</sup> An allusion to Isaiah 11:3 (although the text there [referring to the Messiah] actually reads, "He will be imbued with a spirit of fear for Hashem; and will **not** need to judge by what his eyes see nor decide by what his ears hear.") (All translations of Biblical verses are from ArtScroll.)

<sup>43</sup> Ecclesiastes 2:14.

<sup>44</sup> *Shu"t Shem Aryeh YD*, end of #53, s.v. *v-Al devar asher sha'al* (cited in *Sdei Hemed* (vol. 7), *Ma'arekhet Hameitz u-Matzah* 13:12).

<sup>45</sup> Ecclesiastes 1:15.

<sup>46</sup> *Moda'ab le-Beit Yisrael, Bitul Moda'ab*, p. 19a.



against the benefit to poor matzah consumers who will benefit from the opportunity to purchase cheaper matzah:

How is it conceivable that in the matter of the baking of the matzos we should consider the profit of the poor? The primary consideration is to choose the most correct way to engender *kashrus*, and he who is generous can distribute charity regardless as he desires. Also, through the machine there is profit to other paupers, for they will be able to obtain matzos cheaply.<sup>47</sup>

The basic question of the proper balance between the needs of those trying to earn their livelihoods and those of the consumers of their products is the subject of an important medieval dispute between R. Yosef ibn Migash (Ri Migash) and Ramban, in the context of the Talmudic discussion of the rules of business competition. While the conclusion of this discussion is that we generally adopt a stance of *laissez-faire* and allow free competition, the Talmud gives several exceptions, one of which is that a local craftsman or merchant may object to a competitor from another city plying his trade in a city in which he does not live and to which he does not pay taxes.<sup>48</sup> Ri Migash asserts that this protection of local businesspeople cannot come at the expense of the good of the general public:

But it seems logical to us that these restrictions only apply when there is no harm to the purchasers, e.g., when the price is identical and the goods are also identical, so that the purchasers do not gain anything—there the rabbis instituted an edict for (the benefit of) the inhabitants of the city (i.e., the local sellers), so that ... their livelihoods shall not be disrupted. But where the goods are identical and the prices are not, or the prices are identical but the goods are not, then if the purchasers of that city are non-Jews, the inhabitants of the city may object to (the sellers from outside the city), but if the purchasers of that city are Jews, it is logical that we have no authority to institute an edict for (the benefit of) the sellers insofar as there is loss to the (Jewish) purchasers. ...

This (right to object to non-local competitors) applies where there will be no reduction of the price of the product that he is selling, but where the price will be reduced, he (the local merchant) may not object: he has no right to promote his own interest by causing all the inhabitants of the city to lose. And this seems the correct view.<sup>49</sup>

---

<sup>47</sup> Ibid., p. 26b.

<sup>48</sup> *Bava Batra* 21b.

<sup>49</sup> *Hiddushei ha-Ri Migash*, *ibid.*

Ramban cites Ri Migash and disagrees, arguing that according to Ri Migash, the local merchants should “never” have the right to object, since it is “impossible” that increased competition will not drive prices downward!

If you will not say thus (that the benefit of lower prices for purchasers does not trump the interests of the local sellers), he (the local seller) will never (have the right to) object, since it is impossible that the price will not drop when there will be many members of this trade there, and (allowing competition) is certainly in the interest of the purchasers. It is therefore evident that since he (the local seller) will suffer a loss, inhabitants of another city have no right to come and benefit the purchasers but cause loss to the sellers.<sup>50</sup>

But what Ramban takes away with one hand, he gives back with the other. He implicitly concedes Ri Migash’s point that the higher prices that will result from protecting the local tradespeople from external competition will often be undesirable, and while his understanding of the Talmudic framework does not allow the introduction of external competition as a remedy for this, he assures us of the availability of other remedies that can accomplish the same goal of driving prices down:

If the inhabitants of the city want (the local sellers) to reduce their prices, they may institute price controls, or establish another (competitor) from their city ...

The inhabitants of the province are allowed to institute that one must sell for such-and-such, and if not, they will establish another (competitor), provided that it is an intermediate price that is attractive for both of them (the sellers and the purchasers).

Later halakhic authorities debate the scope of Ri Migash and Ramban’s disagreement: R. Yosef ibn Habiba (*Nimukei Yosef*) distinguishes between the case of “a great drop in price,” where he sides with Ri Migash, and that of “a small drop in price,” where he finds Ramban’s arguments persuasive,<sup>51</sup> but R. Yosef Karo rejects this compromise and maintains that Ri Migash and Ramban both maintain their respective positions regardless of whether the price drop is great or small.<sup>52</sup>

When automation and artificial intelligence are used to replace human workers in the production of goods and services, we are faced with a dilemma essentially the same as that considered by Ri Migash and Ramban: allowing such substitution will presumably often benefit the public with

---

<sup>50</sup> *Hiddushei ha-Ramban*, *ibid.*, 22a.

<sup>51</sup> *Nimukei Yosef*, *ibid.*, 21a in Rif pagination.

<sup>52</sup> *Beit Yosef* *HM siman* 156 (*ba-Heilek ha-sblishi*), Cf. *Shu”t ha-Rema* #73; *Shu”t Lehem Rav* #216; *Keneses ha-Gedolah*, *ibid.*, *mabadura batra bagabot Beit Yosef* #2.

better goods and services and / or lower prices, but at the cost of harm to the livelihoods of the workers being replaced. While it is difficult to apply the positions of Ri Migash and Ramban, and the distinctions of later authorities between “great” and “small” price drops (which they do not define precisely) to the vastly different scenario we consider here, this discussion should nevertheless serve as a foundation upon which to construct a halakhic analysis of this issue.

### What Is the Halakhic Status of AI?

I would rather not be the Torah Town Shabbos goy but if you need me, let me know. — Zreezo the robot, *Torah Town*<sup>53</sup>

### Do Androids Count Toward a Minyan?

In a delightful example of how the most profound questions are often addressed in our tradition in rather mundane contexts, the classic analysis of the halakhic status of an artificial human being is by R. Tzvi Ashkenazi, who considers whether a man created via *Sefer Yetzirah*, such as the one created by Rava, counts toward a minyan.<sup>54</sup> He notes that on the one hand, a minyan requires Jews, but on the other hand, since the Talmud declares that **“anyone who raises an orphan in his house, the verse ascribes him credit as if he gave birth to him,”**<sup>55</sup> it can be argued by analogy that “since (an artificial human being) is the handiwork of the righteous, he is included among the Children of Israel, for the handiwork of the righteous are their offspring!”<sup>56</sup> R. Ashkenazi concludes by inferring from the fact that R. Zeira killed Rava’s creation that such an artificial

---

<sup>53</sup> *Torah Town*, p. 25.

<sup>54</sup> It has been remarked that if artificial entities could count toward a minyan, the term “minyan factory” would take on a completely new meaning!

<sup>55</sup> *Sanhedrin* 19b (and *Megillah* 13a).

<sup>56</sup> Heb. “שמעשה ידיהם של צדיקים הן הן תולדותם”, perhaps based on Rashi to Genesis 6:9: “שעיקר תולדותיהם של צדיקים מעשים טובים: “(paraphrasing *Bereishit Rabbah* 30:6 “הה"ד (משלי יא): 'פרי צדיק עץ חיים'. מה הן פירותיו של צדיק? מצות ומעשים טובים.” and *Tanhuva* 2 “וכן “פרי צדיק עץ חיים, בנים אינו אומר, אלא פרי צדיק, וכן “אלו מעשיו הטובים תולדותיו של אדם.”).

A similar (and similarly radical!) halakhic application of the Talmudic declaration that raising an orphan is tantamount to giving birth to him is made by R. Shlomo Kluger (*Hochmat Shlomo*, beginning of *EH*), who invokes it as the basis for the possibility that one fulfills the commandment to be fruitful and multiply by raising an orphan. Even R. Kluger admits that this is not entirely compelling, since “it is still not the same as an actual child,” and it is unclear how seriously this possibility is taken by other authorities: R. Yaakov Ariel definitively rules that

man not count toward a minyan, since even if for technical reasons the prohibition of murder would not apply to someone not born of a human womb,<sup>57</sup> surely R. Zeira would not have gotten rid of him had he been able to serve the useful function of counting toward a minyan!<sup>58</sup>

It is noteworthy that R. Ashkenazi's conclusion is based on an inference from the Talmudic account of R. Zeira's termination of Rava's creation, and does not involve any articulated reason for an artificial man's ineligibility to count toward a minyan: is it because such an entity is not Jewish, as per R. Ashkenazi's initial suggestion, or because he is not even human?

---

one does not fulfill the commandment with an adopted child (“*ba-Im be-Yeled Me’umatz Mekayemim Pru u-Rvu?*”

<https://www.yeshiva.org.il/ask/13300>, retrieved on Nov. 20, 2019); other (anonymous) authors have similarly asserted that R. Kluger's position is *sui generis*, and not accepted by other authorities (*ba-Imutz be-Halakhah*,

<http://din.org.il/2014/12/24/%D7%94%D7%90%D7%99%D7%9E%D7%95%D7%A5-%D7%91%D7%94%D7%9C%D7%9B%D7%94/>;

retrieved Nov. 20, 2019). R. Shlomo Aviner, however, cites R. Kluger's discussion (in demonstration of the worthiness of the act of adoption) without further comment (*Kitzur Hilkhoh Ummah*,

<https://www.kipa.co.il/%D7%94%D7%95%D7%A8%D7%99%D7%9D-%D7%95%D7%99%D7%9C%D7%93%D7%99%D7%9D/%D7%A7%D7%99%D7%A6%D7%95%D7%A8-%D7%94%D7%9C%D7%9B%D7%95%D7%AA-%D7%90%D7%95%D7%9E%D7%A0%D7%94/> and *Shu"t Hilkhoh Yeled Me'umatz*,

<https://www.kipa.co.il/%D7%99%D7%94%D7%93%D7%95%D7%AA/%D7%A9%D7%95%D7%AA-%D7%94%D7%9C%D7%9B%D7%95%D7%AA-%D7%99%D7%9C%D7%93-%D7%9E%D7%90%D7%95%D7%9E%D7%A5/>, retrieved on Nov. 20, 2019). Cf. *Abavat Tzion* (Landau), *Derush* 9, s.v. *Mah yakar*.

A somewhat less radical application of the principle that raising an orphan is tantamount to giving birth to him appears in the context of contract interpretation, where it is used to establish the rule that a reference in a contract to a “son” can include an adopted son: see *Teshuvot Maimoniyot to Sefer Mishpatim* #48, codified by Rema in *HM* 42:15; *She'eilat Ya'aveitz* 1:165.

<sup>57</sup>. R. Ashkenazi cites a hermeneutical basis for such a principle, although *Sidrei Taharot* (p. 9) and R. Asher Weiss, *ibid.*, note the apparent absence of any reference to such a thing in the Talmud, Midrash, or *rishonim*.

<sup>58</sup>. *Shu"t Hakham Tzvi*, #93. Cf. *Birkbei Yosef OI*, *siman* 55, #4. For further discussion of this responsum of R. Ashkenazi, see the sources cited in R. Avraham Steinberg, *Antzyklopedia Halkhatit Refuit* (New Edition, 5766), Volume 2, entry *Hafrayab Hutz-Gufit*, note 65.

In a subsequent addendum to his responsum, R. Ashkenazi notes the position of R. Cordovero cited above that Rava's creation possessed "neither *neshamah* nor *nefesh* nor *ruah*, but mere life," and argues that this supports his own position that such a creation cannot count toward a minyan.<sup>59</sup>

Other thinkers have rebutted R. Ashkenazi's inference from the Talmudic account: perhaps R. Zeira was concerned about Rava's creation's potential for harmfulness, and therefore decided to destroy it despite its usefulness in counting toward a minyan.<sup>60</sup>

Some authorities have argued that even if Rava's creation was considered human, he still could not have counted for a minyan, since insofar as he could not speak, he had the status of a deaf-mute, who does not count toward a minyan.<sup>61, 62</sup> R. Emden goes even further and argues that Rava's creation, who could not respond to R. Zeira and therefore presumably "had no intelligence at all," was even worse than a deaf-mute who has at least "weak intelligence."<sup>63</sup>

R. Tzadok, however, takes precisely the opposite view, that Rava's creation had a higher status than that of a deaf-mute. Normal deafness is associated (in traditional halakhah) with a lack of intelligence,<sup>64</sup> since if it is congenital, it engenders an inability to develop normal intelligence, and if it occurs later in life, it is associated with a "deficiency in his brain" and

---

<sup>59</sup> *Divrei Rabbeinu Meshulam* (Brooklyn, 5754), *helek* 1, *siman* 10, pp. 35-36.

<sup>60</sup> *Mar'it ha-Ayin*, *ibid.*

<sup>61</sup> *Shulhan Arukh* OH 55:8. Regarding the applicability of this halakhah in contemporary times, see n. 64.

<sup>62</sup> *Birkhei Yosef* s.v. *u-le-Mai de-asa'an alah*.

<sup>63</sup> *She'eilat Ya'aveitz*, *ibid.*

<sup>64</sup> There is extensive discussion in the halakhic literature beginning in the nineteenth century of the applicability of the traditional firm presumption of a deaf-mute's lack of intelligence in the modern era, given the existence of modern pedagogical methods and technology and the fact that contemporary deaf-mutes clearly display intelligence. For surveys and discussion of this literature, and positions of contemporary authorities, see *Nishmat Avraham* (Second Expanded Edition) OH, pp. 40-44; *Piskei Teshuvot*, vol. 1, pp. 486-87 (*os* 14 and n. 106); R. Yaakov Ariel, "Nisuei Heresh be-Zmaneinu," *Tehumin* #35, p. 249; R. Aharon Katz, "Nisuei ha-Heresh ve-ha-Hareshet be-Yameinu," *Tzohar* #39 5776 (the first part of the article was published in *Tzohar* #35 5775); R. Elisha Anchelovich, *Ma'amad ha-Heresh: Ha'arakhab Mehudeshet le-Or ha-Metzjut be-Zmaneinu*, *Ma'agalim* 2 5759; *Tzohar*, *Ma'amado ha-Halchati shel ha-Heresh ve-Shiluvo be-Kehilab Datit*; R. Asher Weiss, *Kiddushei Heresh — Parashat Ki-Teitzei* (audio); R. Shlomo Aviner (interviewed by R. Mordechai Zion), *Tziruf Heresh le-Minyan*.

accordingly with a lack of intelligence,<sup>65</sup> whereas Rava's creation, which was formed as an adult, may have been fully intelligent despite his inability to speak or hear.

R. Ashkenazi's initial argument from the Talmudic declaration that raising an orphan is tantamount to giving birth to him is actually accepted by R. Leiner. R. Leiner raises the question of whether the corpse of an entity created by *Sefer Yetzirah* conveys ritual impurity as an ordinary human corpse does, and after offering the interpretation of the interaction between R. Zeira and Rava's creation that we have cited above, he concludes that insofar as an artificial man would be fully sentient, the halakhah would consider him fully human, with regard to ritual impurity, counting toward a minyan, "and for all matters."<sup>66</sup>

R. Tzadok offers the novel suggestion that even according to R. Ashkenazi's thesis that insofar as an artificial human is the handiwork of the righteous, it is considered human and even Jewish, he still cannot count toward a minyan, since he is not obligated in the commandments. The Divine imperatives of the form "Speak to the Children of Israel" do not apply to him, "since he has no living soul (*nishmas haim*) nor persistence of the soul in the World to Come for reward and punishment."<sup>67</sup>

### **Ritual Slaughter, Commingled Meat and Milk, and Sexual Contact**

R. Yeshayah Halevi Horowitz (the Shelah) is certain that animals and humans created via *Sefer Yetzirah* do not have the status of real animals or humans. He proposes that Joseph's accusations against his brothers of eating the limbs of live animals and engaging in lascivious conduct (as related by the Sages<sup>68</sup>) may have been based on a (reasonable) misunderstanding: he had indeed seen them do these things—but they did not constitute sins, since they involved entities that they had mystically created, rather than actual animals or human women!

---

<sup>65</sup> The extension of the status of שׂוֹרֵף to non-congenital deafness is actually the subject of considerable dispute. See *Nishmat Avraham*, *ibid.*, p. 44 #7. In n. 51, the author (R. Avraham Sofer-Abraham) cites his teacher R. Yehoshua Neuwirth as declaring that "וְעַצֵּם הַדִּין צַעֲ"ג," presumably meaning that based on either modern science or empirical observation it is quite difficult to understand why a heretofore intelligent individual should be automatically considered to have lost his intelligence simply because he can no longer speak or hear.

<sup>66</sup> *Sidrei Taharot*, *ibid.*

<sup>67</sup> *Divrei Halomot*, *ibid.*

<sup>68</sup> See *Torah Sheleimah*, *Helek 6* (volume 7), pp. 1393-94 #36.

Certainly this (entity) that has been created via the (holy) names and is not the product of biological reproduction does not require ritual slaughter, and it is permitted to eat it while it is still alive, and this is what (Joseph's brothers) did ...

And there are some (holy) names from the combination of which are produced males and some from which are produced females, and perhaps (Joseph's brothers) created a female via the combination of letters from *Sefer Yetzirah* and they strolled (והיו מטיילין) with her ...<sup>69</sup>

Similar positions are taken by R. Meir Leibush Wisser (the *Malbim*) and R. Shlomo ha-Cohen of Vilna, who assert that the prohibition against consuming commingled meat and milk does not apply to the meat or milk of an animal created via *Sefer Yetzirah*.<sup>70</sup>

Similarly, R. Tzadok considers the question of whether an animal created via *Sefer Yetzirah* is eligible to be offered as a sacrifice. He ultimately concludes that it is disqualified on technical grounds: the Biblical phrase "When (an ox or a sheep or a goat) is born"<sup>71</sup> sets forth a condition that an animal must have experienced birth in order to be eligible to be offered as a sacrifice.<sup>72</sup>

### Legal Liability of the Creator, Owner, or Operator of an AI

Related to the question of the halakhic status of an AI itself is the question of the liability of its creator, owner, or operator for harm that it causes. In general, halakhah holds an owner liable for harm caused by his non-human property, animate or inanimate,<sup>73</sup> but not for harm caused by human property (slaves).<sup>74</sup> The Mishnah relates a Sadducee challenge to this distinction and the Pharisaical response:

The Sadducees say: "We complain against you, O Pharisees! For you say 'I am liable for damage caused by my ox and my donkey, but I am not liable for damage caused by my male and female slaves.' But if I am liable for damage caused by my ox and donkey, which I have no obligation to prevent from violating the commandments, then I

---

<sup>69</sup> *Shnei Luhot ha-Brit, Torah she-Bikhsav / Tzon Yosef, Derekh Hayyim Tokhahat Mussar, Vayeishev*, p. 30, s.v. *va-Yavei Yosef*, Cf. *Pithei Teshuvah YD, siman 62 s.k. 2*. I am indebted to R. Yitzchak Mandel for bringing the discussion of the *Pithei Teshuvah*, as well as the sources in the following note, to my attention.

<sup>70</sup> *Malbim*, Genesis 18:7-8, *Hesbek Shlomo YD, siman 88 to Shakh s.k. 7*.

<sup>71</sup> Leviticus 22:27.

<sup>72</sup> *Divrei Halomos*, *ibid*.

<sup>73</sup> *Bava Kamma*, Mishnah and Talmud, beginning with the first *mishnah* of the tractate.

<sup>74</sup> *Ibid.*, 8:4 / 87a.

should *a fortiori* be liable for damage caused by my male and female slaves, whom I am obligated to prevent from violating the commandments!”<sup>75</sup>

They responded to them: “No, it is reasonable for me to be liable for damage caused by my ox and donkey, since they are not intelligent, but it would be unreasonable for me to be liable for damage caused by my male and female slaves, since they are intelligent, and so if I aggravate them, they will go and burn someone else’s heap (of wheat) and I will be obligated to compensate him.”<sup>76</sup>

Rambam codifies this principle as follows:

[A] person is not liable for the damages caused by his servants although they are his property. The rationale is that the servants are mentally competent, and their owner is incapable of guarding them. Were the owner to be held liable for the damages his servants cause, if he angered a servant, the servant could desire to seek revenge and go and ignite a grain heap worth a thousand *dinar* or precipitate other similar damage to cause his owner to be liable.<sup>77</sup>

Rambam’s insertion of the phrase “and their owner is incapable of guarding them” is perplexing; if we indeed assume that an owner cannot properly guard a slave, then that itself would seem to be sufficient grounds for exempting the owner from liability, since he has not been delinquent in his responsibilities, even absent the concern that the slave may deliberately cause harm to another for the sake of engendering liability of his owner. Perhaps Rambam means that it is the possibility of such devious motivations that makes human beings impossible to properly guard.

In any event, we can argue that similar considerations hold in the case of an AI entity, and that its human owner can therefore not be held liable for damage that it causes, due to the concern that this liability could be abused by the AI to punish his master.

With regard to an AI’s creator, there would seem to be no technical basis to hold him liable for his creation’s actions, insofar as he has transferred custody of the entity to someone else.

---

<sup>75</sup> See *Tiferet Yisrael (Yakbin #69)*, *ibid*.

<sup>76</sup> *Mishnah Yadayim 4:7* (all translations of the Mishnah are from Dr. Joshua Kulp’s translation, via Sefaria). *Tiferet Yisrael (Yakbin #70)* notes that this difference in intellectual capacity is indeed the true reason for the halakhic distinction between man and beast with respect to liability for damage they cause (and not merely sophistry intended to refute the Sadducee challenge), as it is echoed by Rav Ashi (*Bava Kamma 4a*), who calls it “a substantial reason.”

<sup>77</sup> *Hilkhot Geneivah 1:9* (all translations of the *Mishneh Torah* are from R. Eliyahu Touger’s translation, via Chabad.org).



On the other hand, there is a powerful countervailing public policy argument in favor of holding either the owner or creator of an AI liable for damage that it causes, since if no one is held liable, there will be no incentive to ensure that AIs will be designed and deployed in a manner compatible with public safety. While much, if not most, of halakhah's system of civil law embodies principles of equity and fairness, there are also numerous rules whose explicit justification is the pragmatic concern for the preservation of orderly society, regardless of the lack of an underlying rationale based on equity. For example, while there is generally no civilly enforceable liability for the indirect causation of harm (*grama be-nizakin*), there is a major exception carved out for a certain subcategory of indirect causation termed *dina de-gramei*.<sup>78</sup> Halakhic authorities struggle to articulate a theoretically coherent set of principles that distinguish all the cases classified by the Talmud as *gramei* from all those classified as ordinary *grama*, but some authorities, acknowledging the difficulty of finding such a satisfactory logical framework, explain that the entire category is merely a rabbinic institution motivated by pragmatism:

The rationale for the law of *dina de-gramei* is penalty, as is evident from the Palestinian Talmud, and the Sages established penalties for any damage that often and commonly arises, and the reason they established penalties is to forestall everyone going and causing overt damage to his fellow, and this is also the rationale of the opinion that assigns liability for damage that is not evident (*beze'ek she-eino nikar*<sup>79</sup>).<sup>80</sup>

Thus:

There is no need to set forth any distinctions, but it is simply as other decisors have said, that the Sages enacted penalties in situations that appeared to them to be frequent and common and the like, and we cannot compare the edicts of the Sages to each other.<sup>81</sup>

This is admittedly merely an attempt by later halakhic authorities to make sense of a set of rulings already found in the Talmud, rather than the creation of new rules motivated by pragmatism and the necessity of maintaining an orderly society. Indeed, some authorities who accept the pragmatic interpretation of *gramei* adopt a conservative approach to the

---

<sup>78</sup> See *Encyclopedia Talmudit*, entry *Grama bi-nizakin*; *gramei*, volume 6 column 461.

<sup>79</sup> See *Gittin* 53a.

<sup>80</sup> R. Yitzhak b. Avraham (of Dampierre; "Ritzva"), cited in *Tosafot Bava Batra* 22b, s.v. *Zos omeret*.

<sup>81</sup> *Siftei Kobein* (Shakh) HM at the very beginning of *siman* 386.

category and limit it to only those specific cases mentioned in the Talmud, and reject the extension of it to other “common” cases:

Only regarding a case that we find in the Talmud that they enacted a penalty do we say that because it seemed to them that it was common, they enacted a penalty, but in this case, who says that it is common? And since *dina de-gramei* is merely a rabbinic penalty, let us not add on to it, and we only have what (the Sages) have said.<sup>82</sup>

But the above notwithstanding, we do sometimes find *halakhists* creating entirely new, even revolutionary, civil-law doctrines when confronted by what they consider to be pressing societal necessity. For example, R. Mendel Shafran, a leading contemporary Israeli *haredi dayan*, discussing a case of a Jewish obstetrician whose negligence in the course of delivering a baby had resulted in the child being born handicapped, allowed the family of the child to sue the doctor in secular court, despite the fact that the law recognizes much broader and greater claims of damages than halakhah does, since:

If we do not say that he is liable, this would be tantamount to saying that a Jewish doctor, even a non-observant one, who treats a Jew who keeps the Torah may operate with utter negligence, and even conduct experiments upon him, and if he is caught, it will be prohibited to bring a complaint against him and to sue him. If so, you have made *hefker* (rendered ownerless) the blood of those who keep the Torah (and rendered their safety dependent) upon the righteousness of the physicians. ...

Therefore, even if he is not liable (according to classic Torah law), it would be necessary to enact that they are liable—and perhaps, since the issue is so obvious and essential, there is not even the need of an explicit enactment and it is considered to be self-enacted. There are proofs of this, but this is not the place for them.<sup>83</sup>

---

<sup>82</sup> Ibid., s.k. 24.

<sup>83</sup> *Koveṣ Umka de-Dina be-Inyanei Geneivah uGezeilab* (Jerusalem, 5766), pp. 66-67.

## **The Application of Classic Halakhic Concepts and Rules to Autonomous Vehicles and Other “Smart” Devices**

### **Self-Driving Cars: Ethics**

Captain Spock: The needs of the many outweigh—

Admiral James T. Kirk: The needs of the few?

Captain Spock: —or the one. — *Star Trek II: The Wrath of Khan*

As the remarkable technological advances of our era have advanced the notion of self-driving cars from complete science fiction toward actual existence, ethical questions have been raised regarding the appropriate algorithmic logic to govern the cars’ behavior in situations where a choice must be made between harming one individual or group or another. Much of the modern discussion of these questions revolves around Philippa Foot’s famous Trolley Problem<sup>84</sup>—“a series of thought experiments in ethics and psychology, involving stylized ethical dilemmas of whether to sacrifice one person to save a larger number”<sup>85</sup>—and the general tension between, on the one hand, consequentialism—“a class of normative, teleological ethical theories that holds that the consequences of one’s conduct are the ultimate basis for judgment about the rightness or wrongness of that conduct”<sup>86</sup>—and in particular, the version of consequentialism termed utilitarianism—“a family of normative ethical theories that prescribe actions that maximize happiness and well-being for all affected individuals”<sup>87</sup>—and, on the other hand, deontology—“the normative ethical theory that the morality of an action should be based on whether that action itself is right or wrong under a series of rules and principles, rather than based on the consequences of the action.”

A parallel discussion of these questions from a Torah perspective is based on a classic discussion of our Sages of whether and when an individual may be sent to his (or her) doom in order to save a number of others from harm. The Mishnah states:

---

<sup>84</sup> Philippa Foot, “The Problem of Abortion and the Doctrine of the Double Effect,” *Oxford Review*, Number 5, 1967.

<sup>85</sup> *Wikipedia* (2022, November 8), “Trolley problem,” retrieved 22:54, November 10, 2022, from [https://en.wikipedia.org/w/index.php?title=Trolley\\_problem&oldid=1120792086](https://en.wikipedia.org/w/index.php?title=Trolley_problem&oldid=1120792086).

<sup>86</sup> *Wikipedia* (2022, October 10). “Consequentialism,” retrieved 23:00, November 10, 2022, from <https://en.wikipedia.org/w/index.php?title=Consequentialism&oldid=1115276782>.

<sup>87</sup> *Wikipedia* (2022, November 8), “Utilitarianism,” retrieved 23:02, November 10, 2022, from <https://en.wikipedia.org/w/index.php?title=Utilitarianism&oldid=1120810350>.

[I]f gentiles say to women, “Give us one of you that we may defile her, and if not, we will defile you all,” then let them all be defiled rather than hand over to them one soul from Israel.<sup>88</sup>

The Palestinian Talmud elaborates:

It was stated<sup>89</sup>: “A group of people on the road were met by Gentiles who said to them, give us one of you that we may kill him, otherwise we shall kill all of you; even if all of them are killed they should not hand over a Jewish person. If they designated one, like Sheba ben Bikhri, they should hand him over so as not to be killed.”

Rebbi Simeon ben Laqish said, on condition that he be guilty of a capital crime like Sheba ben Bikhri; but Rebbi Johanan said, even if he is not guilty of a capital crime like Sheba ben Bikhri.

Ulla bar Qoshav was proscribed by the government. He fled and went to Lydda to Rebbi Joshua ben Levi. They came and surrounded the city. They said to them, if you do not hand him over to us, we shall destroy the city. Rebbi Joshua ben Levi went to him and talked him into being handed over to them. Elijah, may he be remembered for good things, used to appear to him; he stopped appearing. He fasted many fasts; he appeared to him and said, do I appear to informers? He said to him, did I not act according to a *baraita*? He said to him, is that a statement for the pious?<sup>90</sup>

Over the course of Jewish history, in the often precarious and perilous *modus vivendi* of our people within hostile societies, actual versions of these dilemmas periodically arose, and the halakhic analyses of the correct course of action were indeed based upon this classic discussion of the Sages.<sup>91</sup> In the modern era, various rabbinic thinkers have applied the conceptual framework of this discussion, as well as others of our Sages,

---

<sup>88</sup> *Mishnah, Terumot* 8:12.

<sup>89</sup> *Tosefta*, *ibid.*, end of ch. 7; *Bereishit Rabbah* end of *Vayigash* end of *parashah* 84.

<sup>90</sup> *Yerushalmi*, *ibid.* (translation of Heinrich Walter Guggenheimer, via Sefaria). For the normative halakhah that emerges from this discussion, see Rambam *Hilkehot Yesodei ha-Torah* 5:5; R. Samson b. Abraham of Sens (Rash) *Terumot*, *ibid.*; Ran, *Yoma* 4a s.v. *u-Mihu im amru akum*; *Bab YD siman* 157; *Taz*, *ibid.*, s.k. 9; *Haẓon Ish, Sanhedrin, siman* 25, s.v. *ve-ha-Rash*; *Maḥaneh Yehudah* to Rambam, *ibid.*

For detailed surveys and analyses of this *sugya*, see R. Dr. Michael J. Harris. Consequentialism, Deontologism, and the Case of Sheva ben Bikhri, *Torah u-Madda*, Vol. 15 (2008-09) pp. 68-94; R. J. David Bleich, “Survey of Recent Halakhic Periodical Literature: Sacrificing the Few to Save the Many,” *Tradition*, 43:1 Spring 2010, pp. 78-86; R. Yosef Aryeh Lorencz, *Mishnat Pikuah Nefesh (He’ir Yosef)* (5763), *sha’ar* 5, *siman* 49.

<sup>91</sup> See, e.g., *Shu”t Bah* (Yeshanot) #43; *Beit Hillel YD* *ibid.*, s.k. 5.

to the ethics of autonomous vehicles; the remainder of our discussion of autonomous vehicles excerpts some of these analyses.

R. J. David Bleich concludes his analysis of “Autonomous Automobiles and the Trolley Problem” as follows:

Halakhic attention must be focused upon the programmer who provides instructions rather than upon the operator who is powerless to intervene.

In devising the requisite programs and algorithms, the computer programmer performs no act that leads to any loss of life, nor is he involved in any way in setting the vehicle into motion. The programmer’s attention and services are antecedently focused upon future rescue of potential victims of an accident that has yet to occur and in which the programmer will not participate in any manner. ...

[I]n the course of manufacturing an autonomous vehicle, it is appropriate to design the vehicle to eliminate danger to a group of individuals even though a person outside that group may be endangered. ... the computer may be programmed to preserve the greater number of potential victims.

A similar dilemma arises in programming an autonomous vehicle’s response in a situation in which the choice is between preserving the life of the driver or the lives of multiple occupants of an approaching bus. An automobile is traveling on a narrow road hugging a cliff and a bus suddenly appears from around a bend in the driver’s lane. The choice is to crash into the approaching bus or to drive off the cliff and thereby spare the lives of everyone in the bus. The driver has no right to directly cause his own death in order to spare others. Assuming that programming an autonomous vehicle is an act of rescue, the owner of the vehicle would have the duty of giving priority to saving his own life on the basis of R. Akiva’s principle, “Your life has priority over the life of your fellow.”<sup>92</sup> Thus, the programmer of an autonomous vehicle must provide directions for responding to a situation in which a choice must be made with regard to preserving the life of the driver of the autonomous vehicle, the lives of the occupants of another vehicle or the lives of the pedestrian. The purchaser of an autonomous vehicle might justifiably demand that in all such situations the vehicle be programmed in a manner designed to give priority to preserving the life of the owner of the vehicle.<sup>93</sup>

In an article titled “Utilitarianism and Ethics in the Programming of an Autonomous System,” R. Yosef Sprung (the current rabbi of Shaare

---

<sup>92</sup> *Bava Metzija* 62a.

<sup>93</sup> R. J. David Bleich, “Survey of Recent Halakhic Literature: Autonomous Automobiles and the Trolley Problem,” *Tradition*, 51:3 Summer 2019, pp. 76-78.

Zedek Medical Center, a disciple of R. Asher Weiss) concludes there is room in halakhah for the design of autonomous vehicles to follow the principles of consequentialist / utilitarian ethics:

This article attempts to clarify whether the design of the algorithm of an autonomous vehicle may be implemented based on considerations of the overall benefit and improvement of the chances of survival of the users of the road, without taking into account the manner in which its actions are performed. On the basis of the discussion of the distinctions that we find in the halakhos of giving over an individual to be killed for the sake of the salvation of many others, and similarly in reliance upon the discussion of the possibility of casting lots in order to select an individual whose life will be sacrificed for the sake of the salvation of many others, it may be possible to endorse the perspective that argues that the design of an autonomous vehicle may be implemented from this perspective as well.<sup>94</sup>

### Self-Driving Cars: Liability

Earlier in this article, we considered the question of civil liability for damage caused by a true AGI; here we consider the less dramatic but more immediately relevant case of autonomous vehicles, which are not intelligent in the general sense, but are merely capable of some degree of autonomous operation. Who is liable, if anyone, for wrongful death, personal injury, or property damage caused by such vehicles: The owner of the vehicle? Its operator (who activated and engaged the self-driving system)? Its manufacturer? The engineers who designed its hardware and software systems? The workers who actually built it?

R. Eitan Kopiatzky raises these possibilities, but does not arrive at a firm conclusion.<sup>95</sup> R. Sprung and R. Yisrael Meir Malka consider at length the specific question of the liability of the operator of an autonomous vehicle for damage that it causes, and conclude that he is not liable on a variety of grounds, including the fundamental principle that the *sine qua non* of liability is fault,<sup>96</sup> and the operator of an autonomous vehicle—at

---

<sup>94</sup> R. Yosef Sprung, “*To’altanut u-Mussar be-Tikbnon Ma’arekhet Autonomit*,” *Ha-Ma’ayan* #226 Tamuz 5778 [58,4] p. 69. Cf. R. Moshe Greenhut, “*Ba’ayat ha-Kronit be-Rekhev Autonomi*” and R. Nevins, *ibid.*, pp. 21-26 and 39-42.

<sup>95</sup> R. Eitan Kopiatzky, “*Hilkbot Mekhoniyot Autonomiyot*,” *Ha-Ma’ayan* #223 Tishrei 5778 [58,1] pp. 34-42. Cf. R. Nevins, *ibid.*, pp. 17-21.

<sup>96</sup> Although the position of Ramban (*Bava Metz’ia* 82b s.v. *ve-Asah R. Yebudah*, as opposed to that of *Tosafos Bava Kamma* 27b s.v. *u-Shmuel Amar*) is that the rule of *adam mu’ad le-olam*, which states that a tortfeasor is liable even for *ones*, is to be taken at face value and extends to all manner of *onsin*, even “great” ones, R.

least one that is considered safe by the appropriate authorities—cannot be said to be at fault, as well as the principle that conduct that is in accord with prevailing societal norms does not engender liability.<sup>97</sup>

### **Doing Work on Shabbat**

R. Yosef Tzvi Rimon, a leading contemporary Israeli expert on the laws of Shabbat, raises a number of interesting and important questions arising from recent technological advances in the area of artificial intelligence (by which he apparently means “smart” devices and systems capable of autonomous or semi-autonomous action, rather than true AGIs):

There is artificial intelligence that identifies our habits. If, for example, we are accustomed to open the shutter (or blind, *טריט*) at a particular temperature, the artificial intelligence will identify our presence and open the shutter in accordance with our habits. If we are accustomed to drinking a cup of coffee at a particular time, the artificial intelligence will prepare a cup of coffee for us in accordance with our habit. ...

What is the halakhah regarding apparatuses that are activated by vision? And what is the halakhah regarding novel apparatuses that are activated by thought? ... And what is the halakhah regarding things that work absolutely autonomously? If we do not provide proper principles for observing the Sabbath in the modern era, the Sabbath will *halilah* disappear. One must know that there are some things that

---

Sprung and R. Malka base themselves on the position of R. Asher Weiss (in an unpublished letter) that it is actually universally accepted that “an individual never has liability, in any area ... without at least some degree of fault,” and that even Ramban only assigns liability in situations of *ones* where the tortfeasor could have avoided the situation to begin with. They argue that the operation of an autonomous vehicle that is considered safe by the authorities does not contain any ingredient of fault.

It is unclear to this author, however, why the operation of an autonomous vehicle should be distinguished from the case of someone who was blown off a roof by an extraordinarily strong wind “like that of Elijah” (“a great, powerful wind, smashing mountains and breaking rocks”—I Kings 19:11), whom Ramban does consider liable under the principle of *adam mu'ad le-olam*.

<sup>97</sup> R. Yosef Sprung and R. Yisrael Meir Malka, “*Aharayuto Shel ha-Nehag ba-Rekhev Autonomi Al Nezakim*,” *Tebumin* #38 5778, pp. 383-386. In both his articles, R. Sprung mentions a forthcoming book of his, titled “*Etgarei Halakhah, Mussar, u-Memshal be-Pituaḥ Rekhev Autonomi*,” but I have found no trace of such a book online.

should be permitted, but on the other hand, there are many things that should be prohibited, in order to observe the Sabbath! ...<sup>98</sup>

R. Kopiatzky considers travel in an autonomous vehicle on the Sabbath in light of the Talmudic prohibition against travel by ship on the Sabbath even when the journey is begun before the onset of the Sabbath. He considers a number of different interpretations of this prohibition by the medieval authorities and suggests that according to most of them, the prohibition would not apply to travel in an autonomous vehicle, at least in certain circumstances, but he does concede that it might be appropriate to enact a general ban on such travel, similar to the bans enacted by Talmudic and contemporary authorities against the riding of animals and bicycles respectively. He also suggests that there may be no room to allow the Sabbath use of an autonomous vehicle that can easily be switched over to manual operation, and the possibility of leniency is limited to vehicles in which an immutable “Sabbath mode” can be set in advance.<sup>99</sup>

R. Yaakov Ariel, a leading Religious Zionist authority, however, vehemently objects to even broaching (in public) the possibility of leniency in this area, on a combination of public policy as well as technical halakhic arguments:

*Yishtaka ha-davar ve-lo yei'amar!* (This idea should sink away and not be uttered!)

Even if we assume that the halakhic definition of the prohibition (of Sabbath travel) is *uvdin de-hol* (“weekday actions”), the implication of this principle in this context is the opposite of the way in which it is generally understood. Here the implication is the transformation of the holy Sabbath into a literal weekday, *halilab*. Anyone with eyes in his head understands that if autonomous vehicles will *halilab* be permitted, there is a serious concern that the Sabbath will be eliminated from the world! ...

Regarding such things have our Sages said: “Sages be careful with your words, lest (...) the disciples who follow you drink and die, and thus the Name of Heaven becomes profaned.”<sup>100</sup>

---

<sup>98</sup> Remarks at the “*ba-Hadsbanut ha-Tekhnologit ve-ba-Etgar ha-Halkhatit*” conference, reported in “*Bli Klalei Halakhab Moderni'im, ha-Shabbat Tei'aleim*,” *Arutz 7*, 15 Iyar 5779 / May 20, 2020. Cf. R. Chaim Jachter. “Halakhic Smarts about Smart Technology,” *Jewish Action*, Spring 5783 (Vol. 83 No. 3), pp. 50-53.

<sup>99</sup> *Ha'ma'ayan* #223, pp. 37-39.

<sup>100</sup> *Pirkei Avot* 1:11.



I thus propose to my rabbinic colleagues to refrain from any discussion of the intricate details of the topic, even if their intent is to prohibit, for there are those who pretend to be wise who will rebut their proofs and reach opposite conclusions. One should relate to this topic in an axiomatic and unequivocal manner: one who drives an autonomous vehicle on the Sabbath violates a Biblical prohibition, and his status is that of one who desecrates the Sabbath in public, with all the implications of this! Discussion of this topic can be organized only in an internal framework of those involved in security and medicine.<sup>101</sup>

### **Conclusions**

We have seen that classic, authoritative Jewish sources do not squarely address the questions we raised in the introduction to this essay regarding the possibility of artificial life and intelligence. Various passages in the literature of our Sages touch on these questions, and later authorities take various positions on them, based on inferences from the earlier sources and / or their own *da'as Torah* on the subject, but in terms of explicit sources, the Torah does not seem to contain any fundamental, core dogma in this area. If genuine AGI is ever achieved, Jewish theology will likely have no major difficulty incorporating its existence; but as long as it has not yet been achieved, it will be impossible to conclusively resolve the debate over its theoretical possibility.

Regarding the practical aspects of the Torah's approach to artificial intelligence, while we have cited various more-or-less speculative approaches to the halakhic status of a hypothetical true AGI, of greater immediate and practical importance are the questions pertaining to the types of artificial intelligence that already actually exist and that will undoubtedly continue to rapidly advance and improve. Contemporary Torah scholars have begun to address these questions, but this is clearly an area ripe for further halakhic analysis and development. ❧

---

<sup>101</sup> *Ha'ma'ayan* #224 Tishrei 5778 [58,2], p. 99. See R. Kopiatzky's response to R. Ariel, as well as further discussion of R. Kopiatzky's article, in *Ha'ma'ayan*, *ibid.*, pp. 100-01, and cf. R. Nevins, *ibid.*, pp. 37-39.