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The Impact of Technology, Science, and Knowledge

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JEWISH LAW, TECHNO-ETHICS, AND
AUTONOMOUS WEAPON SYSTEMS:
ETHICAL-HALAKHIC PERSPECTIVES

by

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> Human technique was created in service of the world [….] It ought
> not to destroy or corrupt the world, but to become secondary to its
> sustainment.
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> (R. Avraham Yiẓḥak ha-Kohen Kook[1])

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[1] "Hashofar vehaḥaẓoẓrot" in Rabbi A.I.H. Kook, *Ma'amarei Ha-ReAaIaH: Koveẓ Ma'amarim* [Hebrew], vol. 1, E. Aviner and D. Landau (eds.) (Jerusalem, 1988), 147 (trans. n.b. and hereafter, unless otherwise mentioned).

1. Introduction

Jewish law and its research are hardly keeping pace with the acceleration of technological advancement and with emerging ethical technological dilemmas (or *techno-ethics*, as distinguished from bioethics). The so-called 'fourth industrial revolution' of digital, artificial intelligence (AI) and robotic technologies raises many ethical and societal challenges, which manifest in the civilian arena, and in military ethics, including weapons of mass destruction (WMD). In Christian, Islamic, and Eastern religions, there are discussions of these challenges,[2] and in halakhic[3] and scholarly-relevant literature too,[4] even if it still requires further attention. This discourse-gap is especially significant in the case of Autonomous Weapon Systems (AWS, to be explained in what follows). The objective of the present article is to help to fill in that lacuna, and to examine the halakhic-moral status of AWS, by clarifying the humane foundations of the philosophy of technology (that can, in its turn, be enriched by Judaism,[5] or by Jewish law and values). This article is based on the presupposition that ethical judgements framed in Jewish legal terms are premised on a humane[6] view of the embodied, reasoning and caring person – of a person who can engage in meaningful decision-making about moral issues in general, and more specifically about matters of life and death (*dinei nefashot*).[7]

To be clear at the outset, the basic orientation of this study is not pacifist. Harming or killing in self-defense is permitted and even commanded in Jewish tradition, as in most human civilizations.[8] At the same time, Israelis consider the IDF a moral army because it submits itself to ethical laws and to the principle of *tohar haneshek* (purity of arms).[9] As Rabbi Shai Held has observed,[10] there are two main lessons for Jews to draw from the

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[2] See the various articles included in the volume by S.H. Hashmi and S.P. Lee (eds.), *Ethics and Weapons of Mass Destruction: Religious and Secular Perspectives* (Cambridge, 2004).

[3] A Responsa Project database search finds only one appearance of the phrase "פצצת אטום" (nuclear bomb), in Yiẓhak Zilberstein's *Ḥishukei Ḥemed* responsa. Yosef (Yoskeh) Aḥituv has pointed out that Alter (Ḥayyim) David Regensburg's *Mishpat haẒava beYisrael* (Jerusalem, 1949) §15 (30-31) is also an exception. Regensburg considered whether the use of chemical and nuclear weapons should be halakhically prohibited, and his response was negative. See Aḥituv, "From the Book to the Sword: On the Prospected Image of the Israeli Army according to the Torah in the First Years of the Founding of the State" [Hebrew], in: Ẓ. Ẓameret and M. Bar-On (eds.), *The Two Sides of the Bridge: Religion and State in the First Years of the State* (Jerusalem, 2002), 414-434.

[4] See especially P.H. Peli, "Torah and Mass Destruction: A View from Israel", in D. Landes (ed.), *Confronting Omnicide: Jewish Reflections on Weapons of Mass Destruction* (Northvale, New Jersey, 1991), 69-81; J.D. Bleich, "Nuclear War through the Prism of Jewish Law", (*ibid.*, 209-231); D. Novak, "Nuclear War and the Prohibition of Wanton Destruction", (*ibid.*, 100-122); R. Kimelman, "Jewish Understanding of War and its Limits" (*ibid.*, 82-99); J. David, "Between the Bible and the Holocaust: Three Sources for Jewish Perspectives on Mass Destruction", *Ethics and Weapons of Mass Destruction*, 385-401. Stuart Cohen comments that the ethics of nuclear warfare is found mostly in English-written Jewish *halakhah*, and much less in Hebrew-Israeli works. See S. Cohen, *Divine Service? Judaism and Israel's Armed Forces* (Burlington VT, 2013), 87.

[5] Using the term "Judaism" in this article, I do not presuppose any a-priori and monolithic character of the signified phenomenon behind the signifier "Judaism". However, I do believe that any religion and culture include voices that are more essential to its common characterization. Compare D. Boyarin, *Carnal Israel: Reading Sex in Talmudic Culture* (Berkeley, 1993), 22.

[6] Using the word "human" in this article, I refer to the more descriptive meaning of the word. "Humane" rather denotes a prescriptive ethical sense.

[7] I thank the anonymous reviewer for this observation.

[8] As in the talmudic case of *rodef* (see below n.50). This idea runs counter to a *Whitney Museum* exhibition in NYC by D.J. Martinez, entitled "Divine Violence" (2007), which initially argues that "killing is killing is killing". Martinez considers that Hezbollah, the Israeli "Mosad" and the German Gestapo are all the same. Is there is no authentic difference between organized violent acts, of the IDF and the Gestapo? As an Israeli citizen and as a former tank commander, I fiercely reject this equivalence, as the IDF is subject to ethical values and critique which guide its action.

[9] See A. Kasher, *Military Ethics* [Hebrew] (Tel Aviv, 1996), 231-238.

[10] See his talk on A.J. Heschel at the *Tikvah Center* (NYU, Feb. 21, 2014), at:

Holocaust: (1) Jews *should* have power, and (2) there must be a constant moral critique regarding the *practice* of this power.[11] That means that the Israeli public must assess the actions taken by the IDF, as body subject to a democratically elected Israeli government,[12] including the possible use of AWS.

In this introductory section, I will do three things. I will briefly explain what AWS are. Then, I will describe the main global public concerns about them and objections to them. Finally, I will identify the main biblical and halakhic principles that accord with these concerns.[13] We begin by explaining what AWS are.

1.1. What are AWS?

AWS are robots of various forms that have the technical capacity, by means of advanced technologies, such as AI,[14] GPS, and facial recognition, to approach targets, identify them, and then harm or destroy them without human involvement.[15] This article does not relate to static-based, defensive AWS (such as land mines or defensive surface-to-air AWS, such as missiles), which seems morally permissible and even obligatory according to the principle of self-defense (see below). In offensive AWS, humans are neither "in the loop", nor "on the loop", but "*out* of the loop".[16] At first glance, this may not seem qualitatively different than the ancient development of the bow and arrow.[17] Both allowed the distancing of the weapon from the combatant and opened the door for non-discriminate shooting. To consider modern weapons, armies already use land and naval mines, hand grenades, canons, and bombs. All of these are automatic and thus autonomous in a simple sense. The difference is that AWS, as AI-based inventions, possess a pro-active capacity to "decide" whom to kill anytime and anywhere.

1.2. Global Responses

The main reference for military ethics in terms of International Laws of War is the *Fourth Geneva Convention* (1949),[18] as well as other treaties which prohibit and limit the production, proliferation, and use of WMD – be they nuclear, chemical, biological, or

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www.youtube.com/watch?v=aLmhM92BztY (1:01:00 onwards).

[11] The dialectics between Jewish vulnerability and sovereignty is at the core of Ehud Luz, *Wrestling with an Angel: Power, Morality, and Jewish Identity*, trans. M. Swirsky (New Haven: 2003).

[12] For an argument that preventing the possibility of moral critique is, in itself, harmful to the IDF's morality, see M. Kremnitzer and N.S. Berman, "Criticizing the Israeli Army is a Jewish Obligation", *Haaretz* (Oct. 3, 2018). The original title, "Is Preventing Moral Critique of the IDF Compatible with Jewish Tradition?", was altered by the newspaper's editors.

[13] In holding that for the discussion about AWS to be fruitful it must be interdisciplinary, I follow P.W. Singer, "The Ethics of Killer Applications: Why is it so Hard to Talk about Morality When it Comes to New Military Technology?", *Journal of Military Ethics* 9 (2010), 299-312.

[14] This article does not discuss the technical aspects of current non-linear programming software, namely neural networks, nor the promise of 'strong AI', namely quantic computing and the development of quantum bites ('qubits'). Compare section 4.3. below.

[15] *Uninhabited Aerial Vehicles* (UAV), like drones, are often perceived as autonomous weapons, but they are not truly autonomous insofar as they are human operated, however distantly. See B.J. Strawser, "Moral Predators: The Duty to Employ Uninhabited Aerial Vehicles", *Journal of Military Ethics* 9 (2010), 342-368, who rejects AWS while endorsing UAV as the most ethical military means to deploy. This kind of distinction is reflected in the IDF's changing of the term כטב"מ (Uninhabited AV) into כטמ"מ (AV operated from a distance). See A. Lapidot, "From now on, say: '*katmam*'" [Hebrew], *Israel Hayom* (April 26, 2016).

[16] As the "Losing Humanity" report (below n.22 below) explains (2): "*In-the*-Loop Weapons: Robots that can select targets and deliver force only with a human command; Human *on*-the-Loop Weapons: Robots that can select targets and deliver force under the oversight of a human operator who can override the robots' actions; and Human *out-of*-the-Loop Weapons: Robots that are capable of selecting targets and delivering force without any human input or interaction."

[17] For skepticism regarding how "new" AWS truly are, see Strawser, "Moral Predators", 349.

[18] Basic information about International Humanitarian Law (IHL) is found at the website of the *International Committee of the Red Cross* (*www.icrc.org/en/war-and-law/treaties-customary-law/geneva-conventions*).

other. A major concern regarding AWS, as enabling the profiled targeting of a virtually endless amount of people, is whether it should indeed be considered a non-conventional weapon. This presumed non-conventionality may in fact be a double-edged sword. As Peter Asaro has pointed out, through hacking or even through its own autonomy AWS may (1) start an accidental war and (2) turn *against* the nation it should have been defending.[19]

    If the construction of an "Artificial (or autonomous) Moral Agent" (AMA)[20] were feasible and did prove ethical, AWS might raise no greater a challenge than that of a technologically enhanced human soldier. However, many scholars and intellectuals (the leading group includes Stuart Russell, Toby Walsh, and Mary Wareham) are worried that AWS are a moral red line, and have launched international campaigns against the development and use of AWS.[21] A landmark in the field of AWS is the 2012 report by the *International Human Rights Clinic* at Harvard Law School, entitled "Losing Humanity: The Case Against Killer Robots".[22] Its main argument is that robots are by definition unable to be adequately subject to ethical considerations nor capable of emotional care.[23] To state this from a pragmatic philosophical perspective, fallibility is an essential property of human deliberation and so humane juridical discretion is an important component of law, as has been recognized in the philosophy of Jewish law.[24] Facing present-day attempts to represent humane reasoning in algorithm form,[25] there is a need to inquire whether the non-humane computerized forms of decision-making are a worthy substitute to humane moral discretion.[26] AWS should be also examined against international normative standards. In Israel, however, the difficulties of AWS are hardly discussed.[27]

1.3. Tentative Contextualization of AWS in Halakhic Ethics

    The above considerations will be relevant in this article, which assumes that the way in which non-Jews conceive ethical normativity is important in Judaism.[28] Hence the

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[19] P.M. Asaro, "How Just could a Robot War Be?", in P. Brey et al. (eds.), *Current Issues in Computing and Philosophy* (Amsterdam, 2008), 50-64, esp. 54-58.

[20] The term was proposed by W. Wallach and C. Allen, *Moral Machines: Teaching Robots Right from Wrong* (Oxford, 2010).

[21] "Campaign to Stop Killer Robots" (*www.stopkillerrobots.org*); The *Future of Life Institute* issued the 2015 "Autonomous Weapons: An Open Letter from AI & Robotics Researchers" (*futureoflife.org/open-letter-autonomous-weapons*). It is signed by nearly 4,000 AI/Robotics researchers and more than 20,000 other scholars.

[22] In collaboration with *Human Rights Watch*, written by B. Docherty et al (hereafter: "Losing Humanity"). Another example is an open letter by leading AI scientists, supporting a boycott of the *Korea Advanced Institute of Science and Technology* (KAIST), in order to prevent an arms race (*The Guardian*, April 5, 2018).

[23] The inherent problem of formalizing ethics, and the resulting indispensability of human discretion, is reflected in the "Martens Clause" of the Hague II (1899) conference, which came to be vital for modern war ethics.

[24] For instance, see H. Ben-Menahem, *Judicial Deviation in Talmudic Law: Governed by Men, Not by Rules* (Boston: 1991); N.S. Berman, "Pragmatism and Jewish Thought: Eliezer Berkovits's Philosophy of Halakhic Fallibility", *Journal of Jewish Thought and Philosophy* 27:1 (2019), 86-135.

[25] Algorithm is, ultimately, a computational series of linear commands of the following pattern: "when/if x happens, then perform action y".

[26] Compare J. Danaher, "The Rise of the Robots and the Crisis of Moral Patiency", *AI & Society* 34:1 (2019), 129-136.

[27] Exceptions include Eliav Lieblich and Eyal Benvenisti, "The Obligation to Exercise Discretion in Warfare: Why Autonomous Weapon Systems are Unlawful", in: N. Bhuta et al. (eds.), *Autonomous Weapons Systems: Law, Ethics, Policy* (Cambridge, 2016), 245-284; Liran Antebi of the INSS (see the interview with her in *Makor Rishon*, March 28, 2018); Idan Landau, in his detailed blog entry "No Price for War, No Incentive for Peace" [Hebrew] (June 14, 2018, available at *https://idanlandau.com*). See also L. Antebi's "The International Process of Limiting AWS: Implications for Israel" [Hebrew], *Idkun Estrategi* 21 (2018), 75-86. Antebi is recommending that Israel will respect the IHL, but she does not address the inner-political risks that AWS poses to the sustainment of democratic civic life.

[28] See A. HaCohen, "'Wherefore Should the Nations Say?' Israel's Image in the Eyes of the Nations as a

halakhic principle of *dina de-malkhuta dina* (DDD),[29] which acknowledges the authoritative value of those non-Jewish political norms as long as they do not violate the Noahide law. In a similar vein, halakhic authorities have recognized that prima facie military ethics is not something Halakhah[30] should dismiss.[31] Universal prima facie ethics became a significant point of reference for Zionist rabbis of the 20th century[32] who acknowledged the halakhic legitimacy of the UN and of international law.[33] As R. Shlomo Goren stated, when dealing with military matters of life and death of non-Jews, not only stringency (*din*) but also mercy (*mishnat ḥasidim*) should be practiced.[34] It follows that humane ethics, or a plain human sense of morality, which is significant in Jewish law,[35] is relevant to AWS too, and what the nations of the world and international law state about AWS should thus be taken into account.

Addressing techno-ethical dilemmas, in their broader contexts, is a demanding task. Hans Jonas already argued that the tremendous technological extension of human capacities requires a parallel elaboration of ethical duties.[36] As we shall see below, the halakhic discussion of techno-ethics requires a similar hermeneutic extension. A main challenge in contemporary human- and social-sciences is the gulf between secularists, who assume that "humanism" is necessarily atheistic, and religionists who often come to the table with anti-humanistic metaphysical baggage (e.g., the doctrine of the "fallenness" of mankind), or non-humanistic bias. In this way, main-stream military-robot ethicists barely refer to biblical sources[37] (out of indifference, or even hostility toward traditionalist

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Consideration in Halakhic Ruling in Jewish Law" [Hebrew], in B. Lau (ed.), *Am lebadad, Moledet Upzurah* (Tel Aviv, 2006), 88-123. This halakhic attentiveness is based on the humane universalistic currents in Judaism, as well as on acknowledging that normativity exists beyond Israel too. See correspondingly M. Hirshman, "Rabbinic Universalism in the Second and Third Centuries", *Harvard Theological Review* 93 (2000), 101-115; M. Halbertal, "'Ones Possessed of Religion': Religious Tolerance in the Teachings of the Me'iri", *The Edah Journal* 1 (2000), 1-24.

[29] See *B.K.* 113b; *B.B.* 54b, and more. For a comprehensive review of talmudic and the later halakhic material, see S. Shiloh, *The Law of the Kingdom is Law* [Hebrew] (Jerusalem, 1974).

[30] Despite some nuances between "Jewish Law" and "Halakhah" that were suggested by Shmuel Shiloh ("The Contrast Between Mishpat 'Ivri and Halakhah", *Tradition* 20 [1982], 91-100), I will use those terms here interchangeably.

[31] In regard to Rabbi Shaul Yisraeli's 1954 article on the "Kibiyeh operation" (reprinted in his *Ammud Hayemini* [Tel Aviv: 1966], §16d, 168-199), Robert Eisen observes that "R. Yisraeli did not endorse indiscriminate violence against Arab civilians as retaliation for violence of this sort perpetrated against Jews. Only those complicit in the violence against Jews could be attacked." R. Eisen, *Religious Zionism, Jewish Law, and the Morality of War: How Five Rabbis Confronted One of Modern Judaism's Greatest Challenges* [Oxford, 2017], 161.

[32] This article does not address the topics of militarism, or militant ethos, within various branches of the Jewish Israeli society, or the broader question of Jews and power, as addressed by Anita Shapira, Ehud Luz, Ruth Wisse, Derek Penslar and other scholars. For a consideration of the relevant literature, see recently Ḥ. Ben-Pazi, "R. Abraham Isaac Kook and the Opening Passage of 'The War'", *Journal of Jewish Thought & Philosophy* 25 (2017), 256-278, especially 256-261.

[33] There are, of course, many controversies between those (like Rabbis Ḥ. Hirschensohn and S. Yisraeli) who endorse the more binding interpretation of DDD regarding the UN and the International Law, and those (like Rabbis S. Aviner and E. Melamed) who insist that national security interests need not be subject to universalist ethical constraints. See A. Israel-Vleeschhouwer, "The Attitudes of Jewish Law towards International Law: An Analysis of Jewish Legal Materials and Processes", (PhD dissertation, Tel Aviv Univerrsity, 2012).

[34] *Meshiv Milḥamah*, 3 vols. (Jerusalem: 1981-1994), vol. 1, 28-29.

[35] See A. Sagi and D. Statman, "Divine Command Morality and Jewish Tradition", *The Journal of Religious Ethics* 23 (1995), 39-67.

[36] See his *The Imperative of Responsibility: In Search of an Ethics for the Technological Age*, trans. H. Jonas and D. Herr (Chicago: 1984), esp. chapters 1-2 (1-50).

[37] See, for example, "Autonomous Military Robotics: Risk, Ethics, and Design", prepared for the US Department of Navy by P. Lin, G. Bekey, and K. Abney (Unpublished paper, California State University, San Luis Obispo, 2008). The report mentions "Kant" 28 times, while the word "Bible" is absent. A similar critique about ignoring tradition was made by A.I. Sharir, "Military Ethics according to the Halakhah"

approaches[38] and toward religion as merely increasing political violence[39]).

It may thus come as a surprise, in the modern intellectual atmosphere, to propose that the above universal concerns about AWS may have some roots in biblical sources. Nonetheless, early Jewish texts do provide a grounding for these concerns, and ethical principles[40] that may instruct us concerning new conditions.[41] The first of these ethical principles is createdness in the image of God (or imago-Dei).[42] Its main ramification in the present case is the prohibition of unjustified killing.[43] Based on the biblical narrative of createdness in the image of God (*Gen.* 1:27), M. *Sanh.* 4:5 aptly states that the unnecessary killing of one human being[44] is equal to the destruction of the entirety of humanity.[45] An additional relevant biblical principle is responsibility, which has tremendous ramifications for the present study: "Neither shalt thou stand idly by the blood of thy neighbor, I am the Lord" (*Lev.* 19:16);[46] "Do what is right and good" (*Deut.* 6:18); and "Justice, justice shalt thou pursue, that thou mayest live" (*Deut.* 16:20). In addition, biblical narrative expresses legal teachings.[47] In other words, although the Bible lacks a *systematic* treatise of war ethics (and of many other topics), it contains a relevant ethical orientation. There are, indeed, implicit sensibilities in early Jewish tradition regarding WMD,[48] which locate AWS as a serious halakhic dilemma.

Human agency as the basis of self-defense and of the concurrent right to kill warring enemies was enacted throughout history.[49] This principle was formulated

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[Hebrew], *Teḥumin* 25 (2005), 426-438, at 434, note 29. Sharir argues that Asa Kasher is basing the ethics of the IDF on democracy, at the exclusion of Jewish tradition.

[38] For a definition of a middle-way approach to tradition, which is sympathetic and critical, See Y. Yadgar, "Traditionism", *Cogent Social Sciences* 1 (2015), 1-17.

[39] See W.T. Cavanagh, *The Myth of Religious Violence: Secular Ideology and the Roots of Modern Conflict* (Oxford, 2009). A basic condition for this biased attitude towards religious traditions is what Peter L. Berger has termed as 'methodological atheism', in his *The Sacred Canopy: Elements of a Sociological Theory of Religion* (New York: 1990), 105-126, 179-186. A fertile soil for the anti-traditional stance is the empiricist dogma of Logical-Positivism (as in Rudolf Carnap and others), which orders that immediate observable data is *all* there is. On the refutation of this dogma, compare Quine's critique mentioned below (note 163).

[40] In Max Kadushin's phrasing, "value concepts". See his *The Rabbinic Mind* (New York, 1972), 1-58.

[41] See below the discussion of R. Shenwald's attitude.

[42] Y. Lorberbaum, *In God's Image: Myth, Theology, and Law in Classical Judaism* (New York, 2015). On the humane value of *ẕelem elohim* see below, section 3.3.

[43] Aviezer Ravitzky argues that "The prohibition is the starting point for any specific discussion; it is the given norm, and only against this general background was it possible to develop two particular concepts of commanded and permitted war" (Ravitzky, "Prohibited Wars", in: M. Walzer [ed.] *Law, Politics, and Morality in Judaism* [Princeton, 2006], 169-181, at 174). For a similar line of reasoning see J.D. Bleich, "Nuclear War".

[44] For the argument that the word "unnecessary" needs not be taken for granted, see B. Sangero, "Using Force Without a Purpose to Defend Oneself or Others Is Not Justified Self-Defense—a Reply to Ḥaled Ghanayim" [Hebrew], 17 *Mishpat Umimshal*, 551, 564 (2016).

[45] On some relevant variations of this formative Mishnah, compare E.E. Urbach, "'Kol ha-Meqayyem Nefesh Aḥat..': Development of the Version, Vicissitudes of Censorship, and Business Manipulations of Printers" [Hebrew], *Tarbiẕ* 40 (1970), 268-284, and *idem*, *The Sages: Their Concepts and Beliefs*, trans. I. Abrahams (Jerusalem, 1975), 214-254.

[46] Translations of biblical verses throughout this article are cited from the NJPS edition with some modifications.

[47] On the persistence of this inter-connectivity in rabbinic tradition, see B.S. Wimpfheimer, *Narrating the Law: A Poetics of Talmudic Legal Stories* (Philadelphia, 2011).

[48] David, "Mass Destruction", states that "Jewish tradition offers no single or conclusive answer to the question: Is there any conflict that justifies the [...] use of weapons of mass destruction. Yet I would suggest that the religious background reinforces the basic, intuitive obligation to prevent or remove hazards to the continuation of human existence" (396).

[49] See M. Walzer, *Just and Unjust Wars: A Moral Argument with Historical Illustrations* (New York, 1977), 151.

halakhically as "*im ba le-horgekha hashkem le-horgo*" (*Ber*. 58a).[50] When we look to Biblical sources attentively, we find that even such a justified killing involved self-risking: "Zebulun […] risked their lives onto death" (*Judg*. 5:18). This raises substantial questions when the act of killing is detached from human agents and becomes autonomous.[51] To state an even lower bar than risking one's life, the Bible expects that even murderers will be executed by concrete human beings: "Whoever sheds human blood, *by humans* his blood shall be shed, for in the image of God, He made humans" (*Gen*. 9:6). Based on a similar principle of responsibility, Jewish tradition has been strict about the requirement of direct human involvement in animal slaughter.[52] As some European states ban Jewish ritual slaughter in favor of moving toward a fully automated slaughter-house, Jewish law continues to require a human slaughterer for the act of taking the life of animals. By the logic of *miqal vaḥomer* (or *a fortiori*), we may infer that Jewish law is presumably no less considerate regarding the life of humans.[53]

  With this introduction in place, we turn to examine the status of AWS in Jewish law. This article does not presume to determine a halakhic ruling, but to contribute to the research and development of halakhic discourse regarding AWS, and to the scholarship of *halakhah* and techno-ethics more broadly. The article runs as follows: Section **2** ("What do AWS have to do with Jewish Law?") locates AWS within the context of Jewish law, techno-ethics and halakhic war ethics. Section **3** ("Ethical Principles of Humane Techno-Ethics") suggests several relational-pragmatist ethical premises of a humane and halakhic techno-ethics. Section **4** ("The Ethical Dispute over AWS") presents the scholarly controversy over the morality of AWS, arguing that a careful approach should be adopted. To flesh out the high stakes of moral agency, section **5** ("'The *Sword* Devours'? The Problem of Moral Agency") considers AWS from the halakhic-ethical standpoint, in the context of two formative biblical stories on political violence. On the basis of these halakhic-political observations, section **6** ("AWS: Implications and Concerns") explores potential technological disruptions to Israeli democracy from AWS.[54] The final section (**7**, "Afterword") reflects on the possible contribution of Jewish law to techno-ethics more broadly in the twenty first century.

2. What do AWS have to do with Jewish Law?
In this section I explain why and in which ways AWS, a topic which is almost absent from existing halakhic discourse, is of essential halakhic value. The first sub-section locates AWS, as technology, within halakhic discourse. The second sub-section contextualizes AWS within *hilkhot tsava* (Jewish laws of war).

2.1. Halakhah and Techno-Ethics: Sketching the Challenge
Many Jewish scholars, including rabbis and public intellectuals, have addressed pressing techno-ethical issues from the perspectives of *halakhah* and *aggadah*. These scholars

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[50] Or, regarding a third party, in the rule of "*din rodef*" (*Sanh*. 72b). For a consideration of the application of this halakhic topic to the sovereign State of Israel, see for example Rabbi Ḥ.D. Halevi, "The Law of *haba lehorgekha hashkem lehorgo* in our Public Life" [Hebrew], *Teḥumin* 1 (1980), 343-348.
[51] See P.W. Kahn, "The Paradox of Riskless War", Yale Law School Faculty Scholarship Series (2002), 2-8, and the below discussion (sections 4-5).
[52] See chapters 1-2 of *M. Ḥull*.
[53] Compare my essay "Parashat Re'eh: Food Ethics and the Ritual Slaughter Controversy" [Hebrew], *Shabbat Shalom* 1116 (5779/2019).
[54] The attention given throughout this article to the IDF, rather than to other armies, is a product of my Jewish Israeli affiliation. The IDF provides security to Israel's citizens, and at the same time obligates them to reflect on its morality.

include Hans Jonas,[55] J. David Bleich,[56] Eliezer Schweid,[57] Israel Rosen,[58] Avraham Steinberg,[59] Elliot N. Dorff,[60] Norbert Samuelson and Ḥava Tirosh-Samuelson,[61] Naḥum Eliezer Rabinovitch,[62] Yuval Cherlow,[63] Daniel Nevins,[64] Tehillah Schwartz-Altshuler,[65] Israel (Roly) Belfer,[66] and others. Yoav Sorek has made an observation regarding the need to address the new techno-ethical challenges properly:

> The developments in medical research, in human genetics and computer science are leading, as we see, to many dilemmas […] it is possible that already now there is a serious battle over the centrality and value of humans […] it would be a shame if the message […] we [Judaism] carry for thousands of years, will be lost in this wonderous age due to the stagnation or weakness of the ones who presume to represent [Judaism]".[67]

In a parallel argument by Yedidiah Ẓ. Stern, contemporary halakhic authorities are criticized for not addressing the challenge of public halakhic affairs (*hilkhot-ẓibbur*) properly.[68] It seems that the rise of a halakhic formalistic (or legalistic) tendency in

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[55] See Jonas, "Contemporary Problems in Ethics from a Jewish Perspective", in *idem*, *Philosophical Essays: From Ancient Creed to Technological Man* (Englewood, New Jersey, 1974), 168-182. Jonas's contribution to Jewish thought is profound, and I will refer to some of it below. See C. Wiese, *The Life and Thought of Hans Jonas: Jewish Dimensions* (Waltham, MA, 2007), 87-149; and the articles by Ron Margolin, Lawrence Vogel, and various others, in H. Tirosh-Samuelson and C. Wiese (ed.), *The Legacy of Hans Jonas: Judaism and the Phenomenon of Life* (Leiden, 2008).

[56] "Survey of Recent Halakhic Periodical Literature: Video Surveillance", *Tradition* 45 (2012), 81-95.

[57] "A Critique of Secular Culture", trans. L. Levin, in H. Tirosh-Samuelson and A.W. Hughes (eds.), *Eliezer Schweid: The Responsibility of Jewish Philosophy* (Leiden, 2013), 159-223.

[58] See for instance his "Electric Sensors in Shabbat" [Hebrew], *Teḥumin* 36 (2016), 153-161.

[59] See his seven volume *Encyclopedia of Medicine and Jewish Law* [Hebrew] (Jerusalem, 2006).

[60] See his "Judaism – The Body Belongs to God: Judaism and Transhumanism", in: C. Mercer and D.F. Maher (eds.), *Transhumanism and the Body: The World Religions Speak* (New York, 2014), 101-120.

[61] "Jewish Perspectives on Transhumanism", in: H. Tirosh-Samuelson and K.L. Mossman (eds.), *Building Better Humans? Refocusing the Debate on Transhumanism* (Frankfurt, 2011), 105-132.

[62] See his "Electric Operating in Shabbat by Sensors, Speech, or Thought" [Hebrew], *Teḥumin* 36 (2016), 146-152.

[63] See his "Fixed Elements, Present Applications: Ethics in the Virtual Sphere" [Hebrew], *De'ot* 81 (2017), 29-32.

[64] See his "Halakhic Responses to Artificial Intelligence and Autonomous Machines", *CJLS* ḤM (Approved: June 19, 2019). I thank Rabbi Nevins for sharing with me this pioneering responsum. Its title indicates that it relates to *Ḥoshen Mishpat*, but in fact it has tremendous halakhic-humane value for deliberating many techno-ethical dilemmas in the areas of *Oraḥ Ḥayim*, *Yoreh De'ah*, and *Even Ha'ezer*.

[65] Schwartz-Altshuler is not a halakhic author, but a scholar of tech-regulation. However, her reasoned public voice in techno-ethical questions in the Jewish-Israeli sphere is profound. For example, her argument in an article in *Makor Rishon* (22 February 2018) about some social-democratic concerns posed by police uses of AI. A similar remark concerning a Jewish-ethical significance applies, to my mind, to additional scholars such has Yuval Dror (and his 2019 book *Hidden Code*), who examine new technologies ethically.

[66] See his "Shabbat and Body-Computer/Brain-Computer Interface" [Hebrew], *Assia Book* 15 (2015), 15-38.

[67] *The Israeli Covenant* [Hebrew] (Tel Aviv, 2015), 261.

[68] Y.Z. Stern, "The Accessibility of Halakhah to Political Issues" [Hebrew], *Mishpat uMimshal* 4 (1997), 215-242; See recently *Jewish Law and Zionism: Halakhic Ramifications of National Sovereignty*, Y.Z. Stern and Y. Sheleg (eds.) (Jerusalem, 2017) and the many precious articles included there. Stern's above concern pertains to the process of individualistic religion*izing* of Judaism and brings to mind Leora Batnitzky's "Protestantization" thesis, in her *How Judaism Became a Religion: An Introduction to Modern Jewish Thought* (Princeton, 2011).

modernity,[69] and more intensively in recent decades,[70] makes it harder to apply Jewish law properly in new situations generating techno-ethical questions. It is true that we often find rabbinic capacity to permit the use of military force in controversial cases.[71] However, the rabbinic silence on the topic of AWS may not be an indication of its ethical-halakhic permissibility. It may be the case that stringent formalism in some areas comes at the expense of over-permissiveness on others.

One way to move forward is by acknowledging, in line with some leading scholars of Jewish law, that it is not a mere set of formal commands.[72] As Eliezer Berkovits contended, following R. Yosef Albo,[73] the codes of the past do not cover all the renewing realities and circumstances.[74] Rather, Jewish law is a rich instruction comprised of both *halakhah* and *aggadah* (or 'nomos and narrative'). The latter, namely 'meta-halakhah',[75] has a significant role in minding the gaps between law and renewing life circumstances. Given the place that humane morality has in halakhah,[76] Jewish law denies a sharp formalistic separation of law and morality.[77] Consequentially, our interest here is the *legality* of AWS,[78] which not foreign to Jewish law.[79]

In other words, this article recognizes the wider phenomenon described by Stuart Cohen, of contemporary rabbis who are aware of "the paucity of war-related texts in the traditional Jewish *halakhic* corpus… [and] have invested considerable intellectual energies and talents in quasi-archeological search for such teachings in other classes of texts… many

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[69] On the robust influence of rigid, European systems of law on *halakhah*, see L. Batnitzky, "From Politics to Law: Modern Jewish Thought and the Invention of Jewish Law", *Diné Israel* 26-27 (2009-10), 7-44. Batnitzky calls attention to the influence of the German *Rechtsstaat* on Rabbi Samsun Raphael Hirsch's thought, and more widely, on modern halakhah. On the implicit influence of the Cartesian, non-pragmatic side of modernity on the process of halakhic stringency, see my "Berkovits's Philosophy", 126-130. See also J.J. Ross, "Divine Command Theory in Jewish Thought: A Modern Phenomenon", in: S. Biderman and B.A. Scharfstein (eds.), *Interpretation in Religion* (Leiden, 1992), 181-206.

[70] See Ḥ. Soloveitchik, "Rupture and Reconstruction: The Transformation of Contemporary Orthodoxy", *Tradition* 28 (1994), 64-130. For different reasons than Soloveitchik's, Shiloh ("Mishpat 'Ivri and Halakhah") is pointing out the legalistic reverberation of the term 'Jewish law'. Compare B.S. Jackson et al., "Halakha and Law", in M.D. Goodman (ed.), *Oxford Handbook of Jewish Studies* (Oxford, 2002), 643-679.

[71] Blidstein, "Hostile Civilian Populations". This is predicated on the conception of war as *sui generis* and thus demands greater amount of self-risk as well. See Cohen, *Divine Service*, 151.

[72] As Yeshayahu Leibowitz has conceived it, see his "Religious Praxis: The Meaning of Halakhah", in idem, *Judaism, Human Values, and the Jewish State*, E. Goldman (ed. and trans.) (Cambridge, 1992), 3-30. For a relevant critique see Y.Y. Brafman, "Yeshayahu Leibowitz's Axiology: A 'Polytheism of Values' and the 'Most Valuable Value'", *Journal of Religious Ethics* 43:1 (2015), 146-168.

[73] *Sefer Ha'ikarim,* book 3, trans. I. Husik (Philadelphia, 1930), chapter 23, 201-207.

[74] Hence the special role of the oral law in interpreting Mosaic, written law. See E. Berkovits, *Not in Heaven: The Nature and Function of Jewish Law* (Jerusalem, 2010), 69. Compare N. Gutel, *Changes of Nature in Halakhah* [Hebrew] (Jerusalem, 1995); M. Lorberbaum, *Politics and the Limits of Law: Secularizing the Political in Medieval Jewish Thought* (Palo Alto, 2001), 35-52.

[75] In Robert M. Cover's formulation, see his "The Supreme Court, 1982 Term—Foreword: Nomos and Narrative", *Harvard Law Review* 97 (1983), 4, 68.

[76] See Sagi and Statman, "Divine Command Morality"; D. Novak, *Natural Law in Judaism* (Cambridge, 1998). Halakhic purposiveness is illuminated by the comparison to less pragmatic traditions. Ross, "Divine Command Theory", for example, has argued that the radical theological voluntarism found in medieval Islamic and Christian traditions is not typical in halakhic discourse.

[77] See N. Zohar, "A Development of Halakhic Theory as an Essential Basis for Philosophy of Halakhah" [Hebrew], in: A. Ravitzky and A. Rosenak (eds.), *New Streams in the Philosophy of Halakhah* (Jerusalem, 2008), 43-63. For an argument that such a clear-cut separation of 'values' and 'norms' is neither legally nor halakhically sustainable, see B. Brown, "Formalism and Values: Three Models" [Hebrew], in: *New Streams in the Philosophy of Halakhah*, 233-257.

[78] On this aspect, see R. Crootof, "The Killer Robots are Here: Legal and Policy Implications", *Cardozo Law Review* 36 (2015) 1837, 1915. Despite the attempt to regulate AWS, it is hard to impossible to do so, and hence the concerns discussed in the present article (see below, section 4.2).

[79] See, in the very case of WMD, Peli, "Torah and Mass Destruction", at 70-71.

of which had been hidden from view by centuries of scholarly neglect."[80] This observation regarding the insufficiency of halakhic war ethics turns us to examine the proper status of AWS.

2.2. Jewish Law and War Ethics: Narrowing down the case
As just noted, modernity raised a full set of ethical questions regarding technology that halakhic authorities at times overlooked. The challenge of AWS, nonetheless, is an extreme example.[81] In this subsection I will aim to contextualize the topic of AWS within Jewish law, and also to suggest why the topic was halakhically overlooked.

There are in biblical law some treatments of military procedures, such as the authority to conscript civil population (*Deut*. 20:1-8; 1 *Sam*. 8:11-12), to initiate wars (*Deut*. 17), to call for surrender (*Deut*. 20:10), to lay siege (*Deut*. 20, 22), to take captives (*Deut*. 21:10-14), and so on.[82] However, one finds no systematic or rule-based treatment of war ethics in the Bible and in early oral law[83] – as in the modern principles of non-combatant civilian immunity (or distinction between combatants and civilians) or the standards for necessity and proportionality in using military force.[84] This phenomenon might account for the difficulty of renewing, and in fact developing, halakhic war ethics in modern times.

The existence of cyber war has been noticed by Israeli rabbis in the context of halakhic duties and of the social status of rear line soldiers, as compared to combatants.[85] In recent years, senior IDF commanders have publicly advocated for the use of robots and AWS.[86] Some advocate not only a *single* autonomous weapon, but a *full* army unit, 'free' of constant human direction.[87] However, following Rav Kook who taught that the question

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[80] Cohen, *Divine Service*, 153. Compare Rabbi Y. Cherlow, "Questions regarding War Ethics" [Hebrew], *Ẓohar* 11 (2002), 97-104, who similarly states (97) that there is no tradition of halakhic ruling on the topic. This, however, does not mean that such tradition cannot be halakhically reconstructed. See, for example, Cherlow's own lecture at the Van-Leer Jerusalem Institute (Dec. 18, 2018) on the acute need to establish governmental 'Helsinki Committees' in Israel to regulate weapon export to governments who violate human rights severely.

[81] Rabbi Yehuda Brandes, for example, appreciates the merits of the virtual battlefield ("Beḥazit ha'orref", in: S. Weinberger and A. Beitner [eds.], *Haḥazit she-ba'orref* [Beit El, 2007], 155-179, esp. 161), but seems indifferent to the tremendous risks of techno-disruptions. On the other hand, Brandes considers non-Jewish ethical norms seriously (see his "Psikah mamlakhtit modernit", *Jewish Law and Zionism*, 17-44, at 31).

[82] See U. Simon, "Biblical and Rabbinic Passages on the Jewish Ethics of Warfare", in Y. Landau (ed.), *Violence and the Value of Life in Jewish Tradition* (Jerusalem, 1984), 18-25. On the primitive war techniques utilized in the ancient near East, see I. Yadin, *War Doctrine in Biblical Lands* [Hebrew] (Ramat Gan, 1963).

[83] The legal lacunas found in biblical war narratives (for instance, 1 Sam. 30:22-25) may testify to this lack of systematic legal treatment. Compare M. Fishbane, *Biblical Interpretation in Ancient Israel* (Oxford, 1989), 91-280, esp. 240.

[84] See M. Walzer, *Just and Unjust Wars*, 127ff. War ethics in general and Jewish war ethics are wide topics, and there is no intention to exhaust them here. The main purpose of the above is to pave the methodological way towards the narrower discussion of AWS.

[85] Rabbi Eliezer H. Shenwald noted that the technological developments create "a weird warfare in which combat is carried out by rear soldiers (*tomkhei leḥimah*) whose weapon is keyboard and mouse rather than a rifle and a tank" ("Sherout ẓva'i orpi ketomekh leḥimah minequdat mabat toranit", in *Ha-ḥazit sheba'orref*, 221-238, at 237).

[86] Brigadier General Ziv Avtalion contended that "If the military task is dangerous, the use of robots is necessary" (*Israel Hayom*, July 26, 2017).

[87] Prime Minister Binyamin Netanyahu declared that creating "Intelligent Army Systems" is a national Israeli goal (*Makor Rishon*, June 28, 2018). Brigadier General Barukh Maẓliaḥ thinks that developing the "Future Joint Combat Group" [קל"ע] is a strategic goal of the IDF. He predicts that by 2020, the 'Combat Computer' [המחשב המערכה] will command the tank crew and determine what to do and who to shoot (*Yediot Aḥaronot*, Nov 16, 2017). This trajectory is promoted in the Israeli media by journalists who propagate the use of robots. See e.g. R. Poni, "Army of robots, foray!" [Hebrew], *Israel Hayom* (April 10, 2017), 8-10, and compare below n.295.

of military ethics is not a legal wasteland exempt from any halakhic-ethical reasoning,[88] rabbinic authorities could have approached the question of AWS with less fascination. And, in accordance with his sentence cited in the opening of this article, Kook claimed that "human technique was created in service of the world […] it ought not to destroy or to corrupt the world, but to become secondary to its sustainment".

Such an approach recognizes, as Rabbi Eliezer Shenwald (a prominent contemporary authority in halakhic laws of war) does, that when it is not clear how a new case is covered by halakhah, one must discover the principal status (or *geder*) of the new phenomenon.[89] At the very least, that should have resulted in conceptualizing AWS as an extension of the human individuals who operate it – by utilizing the categories pertaining to a secondary or indirect operation, such as *grama*,[90] *ko'aḥ-koḥo*, and *ko'aḥ-sheni*.[91] These categories, generally, refer to causing damage to fellow human beings and to their property, by means of natural objects or animals, for example by lighting a fire which is unintentionally extended by sudden wind.[92] This is the least that should have occurred even if these categories are too limited to encompass the far-reaching technological possibilities of the AWS, or civil torts–as R. Aharon Lichtenstein argued two decades ago:

> In the [present-day] developing technological reality, the ability to inflict damages, physical and virtual, without being considering criminal by Naḥmanides' definitions […] is increasing. The [virtual] torts may be more abstract and the process of harm more indirect than the minimal threshold of *din garmei*. The consequence is nevertheless severe […] Does the trajectory of detaching a person from his actions, based on the time gap between the action and reaction, and by assuming the independence of developed systems […] at all applicable for tort exemption?[93]

Lichtenstein's concerns prompted him to call upon rabbinic authorities to rise to the challenge of addressing halakhically the new autonomous technological tools. However, despite (or perhaps, due to) the deep ethical-halakhic problem, the halakhic challenge of AWS has not been noticed. One possible explanation for ignoring the substantial ethical challenges of the new warfare is the fact that the halakhic attention given to military issues in Israel focuses predominantly on the perspective of the *individual* religious soldier. With the exception of Rabbi Shlomo Goren's attempt to articulate a public-oriented *hilkhot tsava*,[94] halakhic attention centers on how such a soldier can avoid transgressing

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[88] Rabbi A.I.H Kook contended in responsa published in *Mishpat Cohen* ([Jerusalem, 1966] §§142-144, 148) that the condition of war forms a totally different halakhic condition from daily life, subject to '*horaat sha'ah*' or '*dinei malkhut*'. However, Kook stated that it does *not* justify every possible military means or strategy, at the cost of an arbitrary bloodshed. He referred to the biblical 'binding of Isaac' to argue against an ideology of human-sacrifice (compare Cohen, *Divine Service*, 151). On the role of purposiveness and ethicality in Rabbi Kook's halakhic writing, see A. Rosenak, *A Prophetic Halakhah: Rabbi A.I.H. Kook's Philosophy of Halakhah* [Hebrew] (Jerusalem, 2007), 326-364.

[89] "Until it is Subdued" [Hebrew], in: E. Shenwald (ed.), *Sefer Harel: Israeli Military in Torah Perspective* (Ḥispin, 2002), 119-184, esp. 122-133.

[90] As distinct from *garmei* (see *B.K.* 100a), which is a direct infliction of a tort. See Naḥmanides, *Dina deGarmei* [Hebrew], in A. Gordin and D. Feldman (eds.), *Rav Aharon Lichtenstein's Lessons: Dina deGarmei* (Alon Shvut, 2000), 13-45.

[91] Compare Maimonides, *Mishneh Torah*, Laws of Assault and Damage 6:10-16. On the application of the *ko'aḥ koḥo* and *ko'aḥ sheni* in the context of delegation in *halakhah*, and concerning their possible applications for halakhic-ethics relating to autonomous cars, see Y. Sprung and I.M. Malkah, "Autonomous Car Driver's Responsibility for Damages" [Hebrew], *Teḥumin* 38 (2018), 373-386, at 380-382. See the concise discussion by Nevins, "Halakhic Responses to AI", 17-22, and below n.107.

[92] See *B.K.* 60a.

[93] *Lichtenstein's Lessons: Dina deGarmei*, 200.

[94] Another example is Rabbi Isaac Halevi Herẓog. See, correspondingly, their Hebrew responsa books–

prohibitions relating to Shabbat and Holy days, dietary laws, ritual purity (and so on), and can perform obligatory ritual duties pertaining to prayer, Shabbat and holy days when they conflict with military service tasks.[95] In the *hilkhot tsava* compiled by the former IDF Chief Rabbi, the late Aviḥai Ronẓki, and by the present IDF Chief Rabbi, Eyal Karim, the treatment of ethical-collective concerns in conducting military affairs is minor.[96]

Moreover, the limited attention given to the national and institutional dimension of *hilkhot tsava*[97] focuses on more formal ritualistic issues like the establishment of monarchy as it relates to the biblical command to abolish *'amalek* (*Deut.* 25:19);[98] the appointment of *kohen meshuaḥ milḥamah* (*Deut.* 20:1-9[99]), and so on. At most, there have been in normative-laden[100] Jewish tradition (NLJT) discussions of the theory of war in regard to mandatory/commanded (*miẓvah*) war versus discretionary (*reshut*) war.[101] A relevant milestone for connecting those discussions to AWS, is the debate between Michael Walzer and Aviezer Ravitzky on the appearance of the "Just War" theory in Judaism.[102] However, they do not discuss the unique questions raised by AWS, of how a specific military act is *produced*,[103] rather than the question of the moral justification of war in the first place.

The ethical-halakhic questions raised by offensive AWS can hardly be framed within the contextual framework of Michael Walzer's magnum opus on just/unjust wars,[104] because AWS are not captured within the *Jus ad Bellum* moral theory, or the legitimacy of waging war; nor do AWS fall simply under the moral category of *Jus in Bello*.[105] It is less

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Meshiv Milḥamah, and *Heikhal Yiẓḥak*, OḤ [Jerusalem, 1972]–and see A. Edrei, "Divine Spirit and Physical Power: Rabbi Shlomo Goren and the Military Ethic of the Israeli Defense Forces", *Theoretical Inquiries in Law* 7 (2006), 255-297, esp. 272-277.

[95] See the issues discussed by A. Ronẓki, *Keḥiẓim beyad gibor*, 4 vols. (Jerusalem: 1995-2006); Z. Ben-Shlomo, *Be'emek Hahalakhah* (Sha'al'abim: 1999); Y.Ẓ. Rimon, *Halakhah mimeqorah: Tsava*, vol. 1 (Tel Aviv, 2010); R. Eyal Karim, *Kishrei Milḥama: She'elot utshuvot be'inyanei milḥamah*, 4 vols. (Jerusalem: 1999-2003). The content of Karim's volumes is available here: *www.daat.ac.il/daat/tsava/key*. See Cohen, *Divine Service*, 118-124. This alleged ritualistic 'religionization' of army-halakhah is worthy of thorough examination, considering Batnitzky, *How Judaism Became a Religion*, and the remark supra n.68.

[96] Since there is no halakhic work by them after 2006 (that I am aware of), it is perhaps exaggerated to look for an engagement with autonomous weapons, let alone AWS. Still, one could expect leading authorities of military *halakhah* to engage with the topic, as we indeed find in the articles included in *Haḥazit sheba'orref*.

[97] On war ethics in religious Zionist halakhic discourse, see E. Holzer, *A Double-Edged Sword: Military Activism in the Thought of Religious Zionism* [Hebrew] (Ramat Gan: 2009).

[98] Compare A. Sagi, "The Punishment of 'Amalek in Jewish Tradition, Coping with the Moral Problem", *Harvard Theological Review* 87 (1994), 323-346.

[99] See *M. Sot.*, chapter 8.

[100] As distinct from what can be termed as "radical spirituality laden" branches of Jewish tradition. Such attitudes – whether Sabbatian, pantheistic, or mystical, are still "normative-laden" insofar as they acknowledge the ethical role of normativity and lawfulness (or halakhah). Compare B. Brown, "Theoretical Antinomianism and the Conservative Function of Utopia: Rabbi Mordekhai Yosef of Izbica as a Case Study", *The Journal of Religion* 99:3 (2019), 312-340.

[101] See *M. Sotah* 8:6; *M. Sanh.* 1:5, 2:4, and their talmudic commentaries. Regarding the categories of mandatory/discretionary war, see Maimonides' classical treatment of the topic in *Mishneh Torah*, *Hilkhot melakhim u-milḥamotehem* [Laws of Kings and Wars], in *The Book of Judges*, A. Hershman (trans.) (New Haven, 1949), chapters 4-8 (13-27).

[102] Walzer is skeptical whether Jewish tradition may teach us moderns anything substantial about Just War theory. He contends that "There is no ban on fighting" in Jewish tradition, and in that "Since commanded/permitted does not translate into just/unjust, there is nothing in the Jewish tradition that requires, or even that provides a vocabulary for, a moral investigation of particular Jewish wars" ("Commanded and Permitted Wars", in *Law, Politics, and Morality in Judaism*, 149-168, at 151 and 158 respectively). Ravitzky, "Prohibited Wars", rather insists that the prohibition against bloodshed *is* the foundation of Jewish law.

[103] Compare Asaro, "Robot War", esp. 53, 58-60.

[104] Walzer, *Just and Unjust Wars*. In his more recent "Just & Unjust Targeted Killing & Drone Warfare", *Daedalus* 145 (2016), 12-24, Walzer is indeed concerned that the new technological tools are creating the troubling temptation to 'relax ethical constraints' by acting practically invisibly.

[105] Compare E. Benvenisti, "The Law on Asymmetric Warfare", in: M. Arsanjani et al. (eds.), *Looking to The Future: Essays on International Law in Honor of W. Michael Reisman* (Leiden, 2010), 931-950.

the morally legitimized military *act*, than the ethical legitimacy of its technological *production*. Put differently, it is not what makes someone a justified *target* for military attack, or the question of the proportionality of military force, but the moral agency of the combatant (which is robotic in the case of AWS). What we are interested in here is thus *whether an artificial agent, a sophisticated AI-operated lethal machine, ought to be considered a worthy moral agent*, and in what can be said about that from a Jewish ethical perspective.

To my best knowledge, the only exception to the halakhic silence regarding AWS[106] is Rabbi Daniel Nevins's pioneering article on AI and Halakhah (which deals also with autonomous cars[107] and other relevant topics). Nevins contends that regarding autonomous weapons systems,

> Human approval must be required for the use of force that will be lethal to other humans. This may require structures such as 24/7 human operators to authorize lethal defensive attacks, and humans must always be in control of preemptive uses of force. Jewish law is exceptionally cautious about the evidentiary standards required to justify killing a human. Autonomous weapon systems must not use lethal force without human direction.[108]

Nevins' humane-halakhic orientation is proximal to that of this article: Machines should not be granted the authority to kill absent of human supervision. Following the biblical principles and halakhic values presented above, we will now ask whether this is supported or even required by techno-ethics.

3. Ethical Principles of Humane Techno-Ethics
To reconstruct a halakhic approach to AWS, there is a need to clarify its ethical status, as technology. To do so, it is necessary to make explicit what I take to be three ethical premises of a humane techno-ethics, or a humane philosophy of technology: *the relational character of ethics*; *technology is not completely neutral*; *the fallaciousness of transhumanism*. These premises are, in my opinion, the basis for a consideration of new technologies in many other contexts in the civilian realm (digital media, smartphones, autonomous cars, etc.). In the present case, I define these premises as the ground for examining AWS halakhically.

3.1. The Relational Character of Ethics

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[106] Rabbi Michael Avraham goes as far as to endorse AWS without special concern. See his blog entry "And ye Shall be as God, Knowing Good and Evil: On Technological Phobias" [Hebrew] (column 186, Nov 14, 2018, accessed at *mikyab.net*). Perhaps the above silence is because Israeli halakhic authorities tend to stretch the validity of halakhic concepts when it comes to the justification of Jewish self-defense (influenced by the bitter lesson of the Holocaust aside other reasons). As Ya'akov Blidstein argued, "These results are obtained by giving a broader (and at times problematic) interpretation to some halakhic sources, and by relying upon aggadic sources" ("The Treatment of Hostile Civilian Populations: The Contemporary Halakhic Discussion in Israel", *Israel Studies* 1 [1996], 27-44, at 28).

[107] Compare Sprung and Malkah, "Autonomous Car Driver's Responsibility for Damages". The authors are justifiably exempting the ACD from possible damages. However, calling the vehicle-leader (VL) "driver" implies that we expect from this person some degree of responsibility. Otherwise, such a halakhic question is like asking about the liability of a bus *passenger* in an accident caused by the bus driver. One could think that a VL will be expected, e.g. to be highly cautious when the AC rides in populated areas and to be attentive for emergency stop or slowing down the AC if it seems to go faster than reasonable in such populated areas. If Jewish law is not demanding this kind of *middat ḥassidut* (or moral perfectionating) from the VL, or civil involvement, it loses one of its main virtues over secular civil law. See S. Last Stone, "In Pursuit of the Counter-Text: The Turn to the Jewish Legal Model in Contemporary American Legal Theory", *Harvard Law Review* 106 (1993), 813, 894.

[108] Nevins, "Halakhic Responses to AI", 43.

As opposed to 'algorithm-ethics' theoreticians who believe that ethics is algorithmizable,[109] I follow Hilary Putnam, who argued that "There is no *algorithm* or mechanical procedure, no set of fixed ahistorical 'canons of scientific method', which will lead us to the truth in every field, or in any, but there is the imperfect but necessary 'path', of struggling for and testing one's ideas in practice."[110] Fallibilistic ethical orientation thus rejects the very attempt of algorithmizing ethics. This is crucial for clarifying why ascribing ethical agency to AI-operated robots is problematic. Hard ethical questions involve the use of human imaginative faculties[111] (as we shall see below in section 5, when exploring the ethical-political consequences of removing humans 'off the loop'), and these faculties are not rationally exhaustible.

The dominant Cartesian conceptualization of the human ignores both material and emotional aspects of subjectivity,[112] and portrays the human as *cogito* deprived of corporeality, and thus gives rise to an algorithmic account of ethics.[113] This, to my mind, is a main reason why many people do not consider AWS an ethical problem at all. Instead of this Cartesian (and to some extent Kantian) conception of the human as cogito, which provide a one-sided account of what is the humane, I assume that ethics is understood as:

(i) *Relational*[114] or dialogical: In accordance with the attitudes of Martin Buber,[115] Emmanuel Levinas,[116] Carol Gilligan,[117] Steven Darwall,[118] and others, and in opposition to the dominant legacy of hyper individualistic Western attitudes, namely that of Descartes, Kierkegaard, and the French Existentialists (chiefly Camus and Sartre).[119] In the Jewish-halakhic context, Leora Batnitzky and Suzanne Last Stone have critically acknowledged the special place of the feminine relationality in Jewish tradition,[120] and its role in halakhic

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[109] See e.g. T.M. Powers, "Prospects for a Kantian Machine", *IEEE Intelligent Systems* 21 (2004), 46-51. That paper attempts to provide a "final vocabulary" for AI ethics. A proximate paradigm is found at times even when AI-ethics aims to be based on a "bottom-up" programming of morality, rather than deductive top-down rule-based morality. See e.g. Wallach and Allen, *Moral Machines*, especially chapters 2-4 (25-72).

[110] J. Conant (ed.), *Words and Life* (Cambridge, MA, 1995), 195 (italics Putnam's).

[111] See M. Johnson, *Moral Imagination: Implications of Cognitive Science for Ethics* (Chicago, 1993), and the references he provides. In an age when technological capabilities often exceed our imagination, political and moral imagination should be taken even more seriously.

[112] See René Descartes, *Meditations on First Philosophy*, trans. J. Cottingham (Cambridge, 1996), mainly the first two meditations (1-23). For a critique of Cartesian anthropology, see H. Jonas, *The Phenomenon of Life: Towards a Philosophical Biology* (Evanston, Illinois: 2001), 58-63; D. Leder, *The Absent Body* (Chicago, 1990); G. Lloyd, *The Man of Reason: "Male" and "Female" in Western Philosophy* (London, 1984).

[113] Compare Powers, "Kantian Machine". This rule-based account of morality is arguably wedded to a masculine account of the human. See C. Gilligan, *In a Different Voice* (Cambridge, 1983).

[114] See, for example, C. Mackenzie and N. Stoljar, "Introduction: Autonomy Refigured", in *idem* (eds.), *Relational Autonomy: Feminist Perspectives on Autonomy, Agency, and the Social Self* (Oxford, 2000), 3-31.

[115] *I and Thou*, trans. W. Kaufmann (New York, 1970); idem, *Between Man and Man*, trans. R. Gregor Smith (London, 1947).

[116] See for example his *Ethics and Infinity*, R. Cohen (trans.) (Pittsburgh, 1985).

[117] Gilligan's humanistic path (in her *In a Different Voice* and elsewhere) is distinctively different from Donna Haraway's post-humanistic "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the late Twentieth Century", *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: 1991), 149-181. For a critique of post-humanism, see section 3.3. below.

[118] See his *The Second-Person Standpoint: Morality, Respect, and Accountability* (Cambridge, 2006).

[119] For a pragmatist critique of Descartes' individualism, see the reference to Peirce and Dewey in notes 124-125 below. For a critique of Kierkegaard's argument that the road to God excludes fellow human, see M. Buber, "The Question to the Single One", *Between Man and Man*, 46-97. For a critique of the European existentialist approach, promoting estrangement from one's human and non-human environment, see H. Jonas, *The Gnostic Religion: The Message of the Alien God and the Beginnings of Christianity* (Boston, 2001), 320-340.

[120] L. Batnitzky, "Dependency and Vulnerability: Jewish and Feminist Existential Constructions of the Human", in H. Tirosh Samuelson (ed.), *Women and Gender in Jewish Philosophy* (Bloomington, 2004), 127-

tradition[121] (without excluding the dialectic significance of the masculine).[122] It is also vital to note that relationality does not embrace only the positive type of transactions. It includes the possibility of human engagement in punishing an individual or a collective for their aggression, or simply, a responsive self-defense.[123]

(ii) *Pragmatic*: Instead of the dualistic Cartesian model on its prototypical linear reasoning,[124] humane techno-ethics endorses a holistic body-mind dependence,[125] and correspondingly to that, acknowledges the holistic mutual-dependence of different explanatory factors (as distinguished from Cartesian linear foundationalism). This pragmatism overlaps the above relationality in important ways.[126]

(iii) Involving *metaphysical* commitments and pragmatically drawing on traditional wisdom.[127] Contrary to the idea of "metaphysics-free" ethics (or philosophy), metaphysicality implies that some added value is morally required; the "is" does not exhaust the "ought". In the halakhic context, it is consensual that metaphysicality is an indispensable factor: Halakhah and aggadah are entangled, mutually supportive, and inexhaustible.[128]

Those three ethical traits (relationality, pragmatism, and metaphysicality), to my best judgment, are in accordance with the ethical sensitivities found in NLJT.[129]

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152. On relational care in modern Jewish thought, compare M.H. Benjamin, *The Obligated Self: Maternal Subjectivity and Jewish Thought* (Bloomington: 2018). While rejecting a straightforward identification between Judaism (or ethics) and feminism, these authors claim that care ethics is indispensable for any sustainable moral philosophy.

[121] See the material and discussions by S.F. Friedell, "The 'Different Voice' in Jewish Law: Some Parallels to a Feminist Jurisprudence", *Indiana Law Journal* 67 (1992) 915, 949; S. Last Stone, "Feminism and the Rabbinic Conception of Justice", *Women in Jewish Philosophy*, 263-288. It is noteworthy to mention that such intuition about the role of care ethics as feminine-laden, is mutually exclusive with Judith Butler's argument that there are *no* differences *at all* (both descriptive and prescriptive), at the large numbers, between males and females. Compare Gilligan, *Different Voice*.

[122] Human beings, and their mentalities, are not homogenous entities: men may have various sorts of femininity, and the opposite. The problem with erasing every difference between the sexes, by the radical nominalist conceptualization of gender, is that the ground for acknowledging the above richness is removed, in favor of a duplicative concept of the human beings. Striving for equality and criticizing some damages of the patriarchal family structures are in place, but it does not require a supersessionist methodology. Compare D. Nirenberg, "The Politics of Love and Its Enemies", in H. de Vries (ed.), *Religion: Beyond a Concept* (New York, 2008), 491-512. On erasing the differences between men and women as dehumanizing, see E. Fromm, *The Art of Loving* (New York, 1956), 14-16.

[123] Jonas's words are telling: "But called as person by person–fellow human beings or God–my response will not be primarily thinking but action (though this involves thinking), and the action may be one of love, responsibility; also of wrath, indignation, hate, even fight to the death; it is him or me. […] in this sense, indeed, also Hitler was a call." (Jonas, *Phenomenon of Life*, 285).

[124] See the critique by C.S. Peirce, "Some Consequences of Four Incapacities", in C. Hartshorne and P. Weiss (eds.), *Collected Papers of Charles Sanders Peirce*, vol. 5 (Cambridge, 1935), paragraphs 264-317.

[125] See for instance, J. Dewey, *Democracy and Education* (New York, 1925). For a formulation of such a pragmatic and integrative body-mind approach in the context of Jewish law, see E. Berkovits, *God, Man and History: A Jewish Interpretation* (New York, 1959); N. Rakover, "Man as a Synthesis of Body and Spirit: A Jewish Perspective", *Jewish Law Annual* 19 (2011), 83-88.

[126] Compare A.S. Lothstein, "To Be Is to Be Relational: Martin Buber and John Dewey", in M. Friedman (ed.), *Martin Buber and the Human Sciences* (Albany, 1996), 33-50.

[127] As in A. MacIntyre, *After Virtue: A Study in Moral Theory* (Bloomington, 1984). Compare with my article (under review) "The Application of the 'Pragmatic Maxim' in Normative-laden Jewish Tradition".

[128] See supra n.75. Excellent demonstrations for this entanglement of law and narrative are made by M. Halbertal, *Interpretative Revolutions in the Making: Values as Interpretative Considerations in Midrashei Halakhah* [Hebrew] (Jerusalem, 1997).

[129] On the dialogical and interpersonal emphasis in the Hebrew Bible, see M. Buber, *Two Types of Faith*, N.P. Goldhawk (trans.) (New York, 1951). On the role of pragmatism (and metaphysics) in Jewish tradition, compare N.S. Berman, "20th Century Jewish Thought and Classical American Pragmatism: New Perspectives on Hayyim Hirschensohn, Mordecai M. Kaplan and Eliezer Berkovits" (PhD dissertation, Hebrew University of Jerusalem, 2018).

3.2. Technology is not completely Neutral

In a clear sense, technology is neutral, as people often argue in the knife example: the decision of its usage is in human hands (or minds). However, technology is not *completely* neutral. Many who champion the idea of this world as "disenchanted", hold that technology is a neutral means that lacks any internal directivity or character.[130] Call it the "Tech Neutrality Thesis" (TNT). However, I am not the first to challenge this convention. The humane techno-ethical theorists Hans Jonas, Erich Fromm, Jacques Ellul, Langdon Wiener, Sherry Turkle,[131] and others have argued in various contexts that there are, indeed, some inherent premises and trajectories in technological culture in general, and in specific technologies. Nowadays, the critique of algorithmic discrimination is everywhere in the legal studies of techno-culture.[132]

In fact, the very term "technology" supposes that "technique" incorporates a "logos".[133] By the end of the 1970s, the term "technique" has been used to denote what we currently call "technology". Such a foundational supposition about the redundancy of objects is surprisingly championed in a world that is otherwise often perceived in modern eyes as totally *dis*enchanted of any logos or teleology (including ethical) that it formerly conceived to have had.[134] Against this background, one may question the popular term "moral machines" itself:[135] if humans are fallible, and by no means *inherently* good,[136] it is surprising that the works of humans are considered "moral" per se. Further questions apply to the enthusiasm surrounding AI, which often seems to be over-estimated and even deified.[137] The admiration of data and metrics[138] as such is not a new phenomenon, but the advancements of AI have managed to attract expectations, up to a kind of machine-worship.[139] Yuval Noah Harari has (ironically but soberly) named this cultural inclination

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[130] On the idea of "disenchantment", see M. Weber, "Science as Vocation", in *From Max Weber*, H.H. Gerth and C.W. Mills (trans. and ed.) (New York, 1946), 129-156. For a critical engagement with the concept of "disenchantment" for the philosophy of halakhah, see S. Lavi, "Enchanting a Disenchanted Law: On Jewish Ritual and Secular History in Nineteenth-Century Germany", *UC Irvine Law Review* 1 (2011) 813, 842.

[131] See correspondingly in their works: Jonas, *Philosophical Essays*, Part One (3-182); Fromm, *The Revolution of Hope: Toward a Humanized Technology* (New York, 1968); Ellul, *The Technological Society*, J. Wilkinson (trans.) (New York, 1964); Wiener, *The Whale and the Reactor: A Search for Limits in an Age of High Technology* (Chicago, 1986); Turkle, *Reclaiming Conversation: The Power of Talk in a Digital Age* (New York, 2015).

[132] One of the leading voices is C. O'Neil, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy* (New York, 2016), which examines algorithmic judgments in various life-aspects: applying to college, to work, landing credit, getting insurance, and so on.

[133] On the distinctions and the entanglements of these terms, see comprehensively in E. Schatzberg, *Technology: Critical History of a Concept* (Chicago, 2018).

[134] Weber, "Science as Vocation". For a critical view of the inescapability of metaphysics (and enchantment, in this sense), even within the boundaries of 'methodological atheism', see Berger, *Sacred Canopy* (and supra n.39). On present-day scientism and reduction, see R. Tallis, *Aping Mankind: Neuromania, Darwinitis, and the Misrepresentation of Humanity* (Durham, UK, 2011), esp. 15-50.

[135] Wallach and Allen, *Moral Machines*; Verbeek, *Moralizing Technology*; and many others. These verbal formulas are seemingly creating what Balkin (below n.177) describes as the "Homunculus Fallacy".

[136] In *Gen.* 1, God is not describing humans as "very good", whereas all the other creatures are explicitly praised. However, human fallibility and meliorism are not identical to "fallenness", a rather pessimistic worldview.

[137] See, e.g., Y. Katz, "Manufacturing an Artificial Intelligence Revolution", *Social Science Research Network* (Nov 27, 2017). Sober doubts about the viability of AI technologies in the foreseen future were offered by M. Mitchell, "How Do You Teach a Car that a Snowman Won't Walk Across the Road?", *Aeon* (May 31, 2019, available online); see her *Artificial Intelligence: A Guide for Thinking Humans* (New York, 2019).

[138] Compare J.Z. Muller, *The Tyranny of Metrics* (Princeton, 2018).

[139] This process is nourished by the frustration of human fallibility. See Turkle's stunning observation: "I hear adults and adolescents talk about infallible 'advice machines' that will work with masses of data and well-tested algorithm. When we treat people's lives as ready to be worked on by algorithm, when machine

"Data Religion", or "Dataism".[140] Well, even if some*thing* is well programmed, [141] this does not make it into a person, or into a moral agent or independent moral entity.

In line with the above humanistic scholars (Jonas, Turkle, et al.), and in contrast to Martin Heidegger,[142] I argue that the question of technology is primarily *ethical*. The sensitivity to normative contexts and commitments is what distinguishes humanistic scholars like Jonas and Levinas.[143] The problem with the TNT is that it ignores the vast potential for ethical degradation in modern technology. That was Zygmunt Bauman's critique of the fertile ground that modern nihilism and viciousness found in the blind worship of technique.[144] Our present discussion, therefore, emphasizes the role of ethics in the halakhic examination of technology. This is important to emphasize, because halakhic authors often underestimate the fundamental nihilism which prevails in transhumanism, a technological worldview I will shortly present and criticize.

3.3. The Fallaciousness of Transhumanism

The debate about AWS does not occur in an intellectual vacuum. In recent decades, various post-modernist ideologies reject the traditional ideas and ideals of humanism. Two main branches are Post-humanism and Transhumanism. The former argues that human supremacy should be replaced by a more fluid and horizontal-egalitarian relations of humans and their surroundings.[145] Whereas post-humanistic authors are less decisive about the unworth of humans, and concentrate more on countering the Cartesian image of humanity, transhumanists have a strictly negative appreciation of the human creature.[146] Transhumanists, such as the technology-leader Ray Kurzweil, academic scholars like Nick Bostrom,[147] and others (e.g. Max More) claim, based on evolutional argumentation, that

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advice becomes the gold standard, we learn not to feel safe with fallible people." (*Reclaiming Conversation*, 355). For a positive account of fallibilism, see my "Berkovits's Philosophy".

[140] *Homo Deus: A Brief History of Tomorrow* (New York, 2017), 372-402. In Hebrew we may term this process as הדטה (paraphrasing the coin הדתה). In the Bible, however, the noun *dat* in the book of Esther is used to ridicule the idea of immutable dictate, which is as the same time contingent upon the drunkenness of the ruler.

[141] As Hans Jonas has warned: "The most foolish, the most deluded, the most shortsighted enterprises–let alone the most wicked–have been carefully planned. The most "farsighted" plans – farsighted as to the distance of the intended goal–are children of the concepts of the day, of what at the moment is taken for knowledge and approved as desirable: approved so, we must add, by those who happen to be in control" (*Philosophical Essays*, 175).

[142] See his *The Question Concerning Technology and Other Essays*, trans. W. Lovitt (New York, 1977), 3-35. On Heidegger's stance as inherently nihilistic, compare H. Jonas, *Gnostic Religion*, 320-340. On Emmanuel Levinas as inherently different from Heidegger in prioritizing ethics, see P. Franks, "Ontology and Ethics: Questioning First Philosophy in Levinas, Heidegger, and Fichte", in: S. Fleischacker (ed.), *Heidegger's Jewish Followers* (Pittsburgh, 2008), 178-186.

[143] Undermining this profound difference, e.g. by D. Gunkel, *The Machine Question: Critical Perspectives on AI, Robots, and Ethics* (Cambridge, 2012), chapter 3, is problematic, to say the least. For a proper reading of Levinas in this context, see R.A. Cohen, "Ethics and Cybernetics: Levinasian Reflections", in P. Atterton and M. Calarco (eds.), *Radicalizing Levinas* (Albany, 2010), 153-167.

[144] See Z. Bauman, *Modernity and the Holocaust* (Ithaca, 2001), 1-30.

[145] See, for instance, Haraway, "A Cyborg Manifesto".

[146] For an introductory taxonomy of these viewpoints, see e.g. F. Ferrando, "Posthumanism, Transhumanism, Antihumanism, Metahumanism, and New Materialisms: Differences and Relations", *Existenz* 8:2 (2013), 26-32. I thank Carmel Weisman for the reference to this article.

[147] See his "A History of Transhumanist Thought", *Journal of Evolution and Technology* 14 (2005), 1-25; *idem*, *Superintelligence: Paths, Dangers, Strategies* (Oxford, 2014).

humanity is about to end its evolutional role on earth.[148] Some authors, like Eric Dietrich,[149] even contend that the extinction of humanity is something we should positively promote.[150] A significant tail-wind to the transhumanist trend comes from the 'anti-natalism' of David Benatar,[151] who argues that human life is mainly misery and thus it would be best to avoid the human burden of coming into existence.[152] In addition, the futuristic promises transhumanism makes about the feasible and ethical prospects of technologies (AWS in this case), are arguably undermining the pragmatic ethical discussion that can guide the public discourse.[153]

The crucial question about the anti-human biases of Transhumanism, or its "mythology,"[154] is, ultimately: Is there any value in the human, or the humane, that makes living worthwhile? As Rabbi Elliot N. Dorff has written in a parallel ethical context: "The more we deal with contemporary and macro issues in bioethics, the more we realize that deciding how to resolve them is… critically a matter of our ultimate hopes and fears, of what we value in life, and of how we conceive of life in the first place."[155] A negative response to the question about the merit of life, or whether humans are of any essential worth, thus influences the Transhumanist approach toward AWS.

Halakhic commitments may accord incidentally with post-humanism[156] (and much less with transhumanism). True, both normative Judaism and post-humanism reject Cartesian anthropology, but they do so in favor of different purposes. The anthropology of the main voices of talmudic writings differs from Cartesian anthropology[157] in opposing the Cartesian dualistic definition of humans as a disembodied 'ghosts in the machine'. So, rather than accepting the controversial Cartesian anthropology of the human and lamenting

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[148] See R. Kurzweil, *Singularity is Near: When Humans Transcend Biology* (New York, 2006), who predicts (1-34) that the "Singularity", or the epoch of "super-intelligent machines" that will program themselves and take over the world, will put an end to biological evolution, that humanity is its last stage. Kurzweil's phraseology seems apocalyptic, as he divides history into distinct and determinate eras, after which the redemptive 'singularity' will rise. For a critique of Singularitarianism as dogmatic, see P. Ochs, "Underdetermined Singularity: The Way the Creator Speaks" (lecture delivered at Claremont University, California, on Feb. 23, 2018). I thank Ochs for sharing with me this profound paper.

[149] "Homo Sapiens 2.0: Building the Better Robots of Our Nature", in M. Anderson and S. Leigh Anderson (eds.), *Machine Ethics* (New York, 2011), 531-538. Dietrich is presenting humans as charged with immoralities such as racism, rape, murder, and child abuse. He infers that we had better build robotic creatures of "higher morality"– "Homo Sapiens 2.0".

[150] A diametrically opposed opinion was made, e.g., by Karl Jaspers: "Man is born to become human, not to perish as an unsuccessful experiment" (*The Future of Mankind*, E.B. Ashton (trans.) [Chicago, 1961], 230).

[151] *Better Never to Have Been: The Harm of Coming into Existence* (Oxford, 2006). Benatar's book evoked wide controversy, see for example the critique by S. Smilansky, "Life is Good", *South African Journal of Philosophy* 31 (2012), 69-78.

[152] Benatar (*Better Never*, 222-223) points to Beit Shammai's relevant doctrine in the *baraita* in *Erub.* 13b (*no'aḥ lo la'adam shelo nivra*). However, Benatar does not seem to share with the halakhic school of Shammai a normative life-oriented commitment.

[153] See R.L.A. Jones, *Against Transhumanism: The Delusion of Technological Transcendence* (2016, available at his website, *softmachines.org*), 36.

[154] For a critique of the blatant religious sources of Kurzweil's (as well as others') transhumanism, see M. Hauskeller, *Mythologies of Transhumanism* (Cham, Switzerland, 2016), esp.11-34.

[155] *Matters of Life and Death: A Jewish Approach to Medical Ethics* (Philadelphia, 1998), 395.

[156] See e.g. M.B. Wasserman, *Jews, Gentiles and Other Animals: The Talmud After the Humanities* (Philadelphia, 2017), 166-212. Wasserman is analyzing *A.Zar.* in the Bavli against the post-humanist worldview. However, the difficulty with post-humanism (and also with Don Idhe's "Post-phenomenology") is its insufficient distinction *between the animal other, and between the inorganic "other"* (namely, objects). If the compassion toward a suffering animal is not clearly distinguished from sympathy to physical items, it is questionable if ethics could at all be sustained. A warning against the attempt to universalize or 'maximize' the practice of empathy (toward the physical and the artificial world, in the present case), regardless of its costs, is offered in Nirenberg, "Politics of Love".

[157] Compare I. Rosen-Zvi, "The Mishnaic Mental Revolution: A Reassessment", *Journal of Jewish Studies* 66:1 (2015), 36-58, at 54.

the 'humanities' in favor of post-humanism,[158] talmudic and halakhic writings may be a vital source for amending the dominant dualist Cartesian paradigm, into a more environment-friendly one.[159]

Another contemporary transhumanist challenge is the narrow-naturalistic and reductionist perspective of the 'New Atheists', such as Yuval Noah Harari's *Sapiens: A Brief History of Humankind*.[160] This approach is problematic, since any ethical account of moral dilemmas must be evaluated by some ethical principles. Absent of pragmatic-metaphysical grounds, strict naturalism can hardly climb from the naturalistic descriptive to the ethically prescriptive.[161] By that I do not intend to reject naturalism altogether. I rather follow Hans Jonas and Leon R. Kass' richer naturalistic account[162] and reject the presupposition that empirical data is *all* there is.[163]

3.3.1. Idolatry Prohibition as a Humanistic Critique

One of the powerful humanistic mechanisms that Jewish tradition (including Jewish law) has provided to humanity is the prohibition and critique of idolatry (*Exod*. 20:3-5).[164] Conceptually, this theological-religious transgression is the fallacy of making of *means* into *ends*.[165] As Martin Buber famously stated, the devastating effects of industrial "technique" on humans and on humanity are rooted in the making of the means into an end:

> Man is no longer able to master the world which he himself brought about: it is becoming stronger than he is, it is winning free of him […] and he no longer knows the word which could subdue and render harmless the golem he has created. […] Machines, which were invented in order to serve men in their work, impressed him into their service. They were no longer, like tools, an extension of man's arm, but man became their extension, an adjunct on their periphery, doing their bidding.[166]

Admittedly, from a pragmatic point of view, means and ends are to some extent entangled.[167] That is not to say, however, that there are *no* distinctions between means and ends, or that human beings may be treated as mere objects.[168]

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[158] As apparent in Wasserman's book, *Talmud after the Humanities*.

[159] As in Jonas, *Responsibility*.

[160] New York, 2015.

[161] True, Harari (and other naturalist atheists) is raising ethical concerns about technological disruptions. One could expect to find a reference in his books to Hans Jonas, an important (if not *the* most important) contributor to the philosophical articulation of techno-ethical concerns. However, I did not find any reference to Jonas in Harari's books. Jonas' analysis of Gnosticism (in his *Gnostic Religion*) may nevertheless shed light on the polar gap between Harari's materialism in his book *Sapiens* and his spiritualized singularitarianism in his later book *Homo-Deus*.

[162] See Jonas, *Phenomenon of Life*; L. Kass, *Toward a More Natural Science: Biology and Human Affairs* (New York, 1985).

[163] See W.V.O. Quine, "Two Dogmas of Empiricism", *Philosophical Review* 60 (1951), 20-43. Quine objected to reductionist empiricism, in favor of a holistic pragmatism.

[164] For a comprehensive philosophical exploration of the topic, see M. Halbertal and A. Margalit, *Idolatry*, trans. N. Goldblum (Cambridge, 1992).

[165] We do find in halakhah a use of the principle 'the end justifies the means' (see N. Rakover, *Ends that Justify the Means* [Hebrew] (Jerusalem, 2000). However, a crucial question is whether the means are promoting a *worthy* end. See more below n.188.

[166] Buber, *Between Man and Man*, 187.

[167] See H. Putnam, *The Collapse of the Fact/Value Dichotomy and other Essays* (Cambridge, 2002).

[168] A radical example for that in the context of war ethics, was provided by Paul Ramsey in his thought-experiment on the installment of babies on cars to prevent accidents: "Suppose that one Labor Day weekend no one was killed or maimed on the highways; and that the reason for the remarkable restraint placed on the recklessness of automobile drivers was that suddenly every one of them discovered he was driving with a baby tied to his front bumper!" (*The Just War: Force and Political Responsibility* [New York, 1968], 171,

Transhumanism often seems to succumb into an idolatrous urge. A bold example is the English title of Y.N. Harari's book "Homo Deus".[169] While in his former book, *Sapiens*,[170] human beings are mere incidental organisms (not inherently different from a tomato or a dog), the next book suggests that plugging this 'organism' to the electricity and to the internet will make it into a 'god'. This modern channeling of the religious inclination to divinize objects, into a kind of idolatrous urge, is intellectually enabled by what Peter Berger has termed 'methodological atheism', or the materialistic assumption that matter is *all* there is.[171] It turns out that idolatry is still present in the modern world, but the socio-intellectual discourse of it,[172] and thus the normative imperative to criticize it (namely, idolatry *prohibition*), is seldom acknowledged.[173]

Idolatry-prohibition, or iconoclasm of a moderate type, is vital for a moral critique because one of the most powerful AWS artifacts is the *human*-like killer-robot. While many people feel that there is a sense of dehumanization reflected in this specific kind of AWS (namely, a humanoid killer), it is hard if not impossible to criticize it on narrow naturalistic grounds (on AWS and idolatry, see more in section 6.3 below). Normative-laden Jewish tradition, to its branches, rather endorses the profound humanistic value-concept of createdness in the image of God,[174] which stands in contrast to the post-human (let alone transhuman) attempt to deny any metaphysical redundancy of humans as compared to objects. Halakhic orientations rather posit, based on awareness of the prohibition of idolatry, that the kind of continuum that exists between humans and animals as living creatures is *not* found between humans and physical non-living objects.[175]

To sum up section 3, the ethical premises of humane techno-ethics are relational-pragmatic, reject the TNT paradigm, and keep an open eye on the fetishism of deifying things. To my best understanding, these are also dominant ethical strands found in NLJT. Equipped with these intellectual sensitivities, we turn now to the question regarding the ethicality of AWS. This exploration will lead us, in its turn, to Jewish law and ethics in section 5 onward.

4. The Ethics of AWS

Up until two decades ago, the public consensus was that the very possibility of AWS is inherently problematic. This is exemplified by the rules penned by the renowned writer on robotics, Isaac Asimov. His famous basic laws of robotics are: (1) "A robot may not injure a human being or, through inaction, allow a human being to come to harm." (2) "A robot must obey the orders given it by human beings, except where such orders would

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cited in Walzer, *Just and Unjust Wars*, 270). This observation is affirmed by Leo Strauss, who contended that "Goodness is the habit of choosing good means for the good end" (*Thoughts on Machiavelli* [Chicago, 1958], 234).

[169] The Hebrew original reveal no sign for such "divinization" in its title.

[170] *Sapiens*. Here the English title is rather vulgarizing the original Hebrew title (*kitsur toldot ha'enoshut*).

[171] See supra n.39.

[172] A telling example is that surprisingly, the online *Stanford Encyclopedia of Philosophy* does not have an entry on idolatry.

[173] Following Jonas, Jonathan Cahana has aptly argued that since the modern world has become by large secularized, it seems to have "lost each and every defense mechanism it may have had as a religion". See Cahana's "A Gnostic Critic of Modernity: Hans Jonas from Existentialism to Science", *Journal of the American Academy of Religion* 86 (2018), 158-180, at 169. It seems improbable, for several reasons, to accept Cahana's contention that Jonas *endorsed* Gnosticism, mainly since he dedicated his entire mature academic career to defend the natural world (which is a mere cosmic accident, from a gnostic perspective). Compare Wiese, *Jonas*, 87-149, and my article "Anti-Gnosticism: Pragmatic Aspects in the Thought of Hans Jonas" (forthcoming).

[174] See supra n.42.

[175] Hans Jonas has argued that Descartes' claim that subjectivity can be identified with rationality and therefor exist only in human beings "does not bind the reasonable observer and every owner of a dog can laugh it off" (Jonas, *Responsibility*, 62).

conflict with the First Law." (3) "A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws."[176] From the perspective of the present era, it seems that Asimov was naïve, or unaware of many relevant tech-disruptions and ethical dilemmas.[177] Robots are technological tools. As such, they would be used, and in fact are already being used, in warfare, even if not yet fully autonomous. As AWS exemplify, some robots can exist for the sole function of killing. Thus, we have to consider the topic critically and without transhumanist (or other) techno-enthusiasm.

The main practical demands on the creators of AI-operated (ro)bots are *safety*, both in terms of their beneficial functioning and their non-*hackability*, making them secure from malicious hostile takeover. In terms of values, the main requirements are *accountability* (who is responsible for this robot and in which ways?[178]), *transparency*, and consequentially *explainability*:[179] Does the technological system reflect and accord with ethical standards? Can we trace the rationale of this robots' behavior? We must be able to comprehend in which way this artificial object acts in accordance with coherent and distinguishable ethical judgment. Let us examine these parameters in the case of AWS.

4.1. AWS Proponents: efficiency and higher precision

The discussion about AWS is part of a wider controversy regarding the morality of robots. Luciano Floridi and Jeff W. Sanders[180] and Michael Anderson and Susan Leigh Anderson,[181] initially consider robots as having an independent moral status and certain moral agency. In this group, some advocate the use of UAV but not AWS.[182] However, a positive attitude towards UAV provides fertile ground for developing and using AWS. For example, Ronald C. Arkin,[183] and Charles J. Dunlap,[184] are two of the most explicit supporters of AWS. According to them, creating and using AWS is not only legitimate but, in fact mandatory, to reduce unnecessary casualties of soldiers and to diminish collateral damage to uninvolved civilians. The main consideration here is utilitarian efficiency, encapsulated in the *Principle of Unnecessary Risk* (PUR).[185] By significantly reducing friendly-fire casualties and making the use of deadly force more precise, they intend to make warfare more ethical. The removal of humans from the battlefield is seemingly good news, especially for those who (happen to) win.

The optimism of the AWS supporters seems unfounded. Even scholars who are positive about creating an AMA, concede that "even if we can rely on the care of our own

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[176] Asimov, *I, Robot* [1950] (Greenwich, CT, 1970), 40. On the contradictions between the three laws, see *ibid.*, 41.

[177] And not of the rise of post-humanist and transhumanist ideologies. For a recent account of Asimov's laws in the context of AI, see J.M. Balkin, "Big Data Law and Policy: The Three Laws of Robotics in the Age of Big Data", *Ohio State Law Journal* 16 (2017), 1217, 1241.

[178] H. Nissenbaum, "Accountability in a Computerized Society", *Science and Engineering Ethics* 2 (1996), 25-42.

[179] This problem was addressed by the European Union's "General Data Protection Regulation" (*GDPR*) of 2016.

[180] "On the Morality of Artificial Agents", *Minds and Machines* 14 (2004), 349-379. Their conclusion is established by lowering the threshold of moral requirement for non-human entities.

[181] "Machine Ethics: Creating an Ethical Intelligent Agent", *AI Magazine* 28 (2007), 15-26.

[182] See Strawser, "Moral Predators", 349-351. Strawser rejects AWS (or 'Independent Autonomous Weapons', IAW) but endorses UAVs. Compare D. Statman, "Drones and Robots: On the Changing Practice of Warfare", in S. Lazar and H. Frowe (eds.), *The Oxford Handbook of Ethics of War* (Oxford, 2018), 472-487. Rather than a straightforward defense of AWS, Statman aims to falsify the common arguments concerning its immorality.

[183] *Governing Lethal Behavior in Autonomous Robots* (Boca Raton, FL, 2009).

[184] "Accountability and Autonomous Weapons: Much Ado About Nothing?", *Temple International & Comparative Law Journal* 30 (2016), 63, 76. Dunlap criticizes the "Losing Humanity" report and proposes instead to create productive legal tools to regulate AWS on the international level.

[185] Strawser, "Moral Predators".

military in the deployment of robotic weapons, we have no basis for assuming other parties will demonstrate similar care."[186] It is not clear what will maintain basic moral borderlines in warfare inhabited by AWS or prevent them from violating basic humanitarian standards, *after the AWS will move from the battlefield to conquer the civilian homeland.* In this sense, the common term "the future battlefield" is utterly misleading. It is not clear how large-scale civilian catastrophes will be avoided in a situation where no person is held responsible and accountable.[187]

Furthermore, the *PUR* does not provide a clear answer to the problem of ethical limits. If reducing soldiers' risk is the chief criterion, then "the end justifies all means".[188] Although war ethics indeed require 'dirty hands', humanity has thus far accepted that some moral restrictions still apply. As Paul W. Kahn has noted,[189] the very license to kill in a war–let alone the ethical guidelines of warfare–is premised on the mutuality of being a target for the enemy's fire. Thus, as war is increasingly automated, non-combatant home-front (*orref*) civilians are becoming a de-facto-legitimized target of the enemy's troops (human and other). Given that the primary role of the army is to protect its citizens, such a constellation is inherently problematic, and even antinomian.

4.2. Against AWS: moral entities, not moral agents

Beyond the acute practical-ethical issues of safety from hostile attack,[190] there are fundamental ethical problems with AWS. In lines that broadly parallel or complement a range of other scholars who have written on AWS–including Noel Sharkey,[191] Armin Krishnan,[192] Jürgen Altmann,[193] Peter M. Asaro,[194] Robert Sparrow,[195] Jason Borenstein,[196] Eliav Lieblich and Eyal Benvenisti,[197] Amitai Etzioni and Oren Etzioni,[198]

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[186] W. Wallach and C. Allen, "Framing Robot Arms Control", *Ethics Information Technology* 15 (2013), 125-135. They acknowledge that "If the international community cannot agree to forego the development of autonomous lethal weaponry, autonomy will need to become a consideration in all future arms control negotiations" (*ibid.*, 135).

[187] R. Sparrow, "Killer Robots", *Journal of Applied Philosophy* 24 (2007), 62-77.

[188] This principle is not used straightforwardly in Jewish war ethics. See, e.g., A. Sherman, "Halakhic Principles in War Ethics" [Hebrew], *Teḥumin* 9 (1988), 231-240. In a non-military context, Rakover, *Ends that Justify the Means*, concentrates on legitimizing halakhic means that advance the goals of peace and reconciliation. Against that, Jacob Neusner's following contention seems exaggerated: "when the war is obligatory, all other considerations of Halakhah are null" (*War and Peace in Rabbinic Judaism* [Lanham, Maryland, 2011], 217). This argument seems like an application to halakhah of the Hobbesian "original position" (see the thirteenth chapter of Thomas Hobbes' 1651 book *Leviathan*), or of Carl von Clausewitz's war doctrine.

[189] Kahn, "Riskless War".

[190] Given the advanced military cyber and nano-technologies, many components and procedures are likely to go out of control during war (at least for the losing party). Jürgen Altmann warns that "Because a co-ordinated first attack could destroy many opponent UVs, shooting could start on any indication of attack, including erroneous signals" (J. Altmann, "Arms Control for Armed Uninhabited Vehicles: An Ethical Issue", *Ethics Information Technology* 15 [2013], 137-152, at 141).

[191] "Saying 'No!' to Lethal Autonomous Targeting", *Journal of Military Ethics* 9 (2010), 369-383.

[192] *Killer Robots: Legality and Ethicality of Autonomous Weapons* (Farnham, UK, 2009).

[193] "Arms Control". Altmann proposes that International Humanitarian Law (IHL) should explicitly prohibit offensive AWS.

[194] "Robot War".

[195] Sparrow, "Killer Robots".

[196] "The Ethics of Autonomous Military Robots", *Studies in Ethics, Law, and Technology* 2 (2008), 1-17. Borenstein warns that "taking into account historical lessons, our optimism about the infallibility of the newest and latest technology has proven to be wrong" (13).

[197] "The Obligation to Exercise Discretion in Warfare".

[198] "Pros and Cons of Autonomous Weapons Systems", in *Happiness is the Wrong Metric: A Liberal Communitarian Response to Populism* (Cham, Switzerland, 2018), 253-263.

Deborah G. Johnson,[199] Keith W. Miller,[200] and Ryan Tonkens[201]–I argue that the most fundamental question is whether ethics is exhaustively formalizable, and hence algorithmizable, and computable. As argued above (section 3.1), I do not think the answer is affirmative.[202] Ethics is by its nature fallible, dialogical, and inter-human.[203] Thus removing human discretion from the battlefield seems morally unjustified.[204] I will now elaborate.

4.3. Does the Functional exhaust the Human?

The question concerning the computability of ethics depends to some extent upon whether the human *mind* is computable. This is because a 'moral' robot is expected to duplicate or reflect human ethical mental deliberations. However, scholars such as John Searle,[205] David Chalmers,[206] Hubert C. Dreyfus,[207] Drew McDermott,[208] Raymond Tallis,[209] Uri Maoz et al,[210] and Yochai Ataria,[211] have provided solid arguments against the idea of the computability of human consciousness, or the mind (we should also recall that if Heisenberg's 'Uncertainty Principle' governs the physical world, and we have good reasons to believe that the animal kingdom's complexity level is not any inferior). These and other computational manipulations may *influence* the human mind – from brain-computer interfaces to digital media – but to state that the 'mind *is* a computer' is a totally different issue.

Thus, as McDermott pointed out explicitly in discussing robotics, an AI operated robot cannot be a moral agent insofar it has no personal subjectivity–will, interests, desires, and the ability to sense oneself reflectively as having a body.[212] The fact that we *attribute*

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[199] "Computer Systems: Moral Entities but not Moral Agents", *Ethics Information Technology* 8 (2006), 195-205.

[200] D.G. Johnson and K.W. Miller, "Un-making Artificial Moral Agents", *Ethics Information Technology* 10 (2008), 123-133.

[201] "The Case Against Robotic Warfare: A Response to Arkin", *Journal of Military Ethics* 11 (2012), 149-168.

[202] In a similar way, Guy Kahane contends in his article "Sidetracked by Trolleys: Why Sacrificial Moral Dilemmas Tell Us Little (or Nothing) about Utilitarian Judgment", *Social Neuroscience* 10:5 (2015), 551-560, that "Commonsense morality offers no precise formula for deciding when a given moral rule is outweighed by another, and this can often be a matter of considerable disagreement" (556). True, many *routine* matters of inter-human interactions (such as in a commercial context) are more easily formalizable in binary schemes, and hence do not violate ethical norms. However, matters of life and death are qualitatively different, even when it comes to hostile civilian populations.

[203] Compare my "Berkovits's Philosophy" and supra n.139.

[204] Lieblich and Benvenisti, "Discretion in Warfare".

[205] Searle's famous 'Chinese Room' thought experiment, which demonstrates why programs are only syntactic and not semantical, and thus inferior to rational human beings, appeared in his "Minds, Machines and Programs", *The Behavioral and Brain Sciences* 3 (1980), 417-457. Searle holds it as valid up to this very day.

[206] "Facing Up to the Problem of Consciousness", *Journal of Consciousness Studies* 2 (1995), 200-219.

[207] *What Computers Still Can't Do* (Cambridge, 1993).

[208] "What Matters to a Machine?", in: *Machine Ethics*, 88-114. McDermott writes: "We care about many things, some very urgently, and our desires often overwhelm our principles, or threaten to. For a robot to make a real ethical decision would require it to have similar 'self-interests'." (98).

[209] *Aping Mankind*, chapter 3, "Neuromania: A Castle Built on Sand" (73-146).

[210] U. Maoz, L. Mudrik, R. Rivlin, I. Ross, and A. Mamelak, "On Reporting the Onset of the Intention to Move", in A.R. Mele (ed.), *Surrounding Free Will: Philosophy, Psychology, Neuroscience* (New York, 2015), 184-202, esp. 193. Questioning the scientific validity of Benjamin Libet's experiments (of the early 1980s), the authors cast doubts on the deterministic conclusions that some scholars derived from these experiments.

[211] *Not in Our Brain: Consciousness, Body, World* (Jerusalem, 2019).

[212] McDermott, "What Matters to a Machine?", 96-112. Sherry Turkle compellingly explained why this specific character is so appealing to beings who *have* emotions (namely, humans): "The kind of reliability they [robots] will provide is emotional reliability, which comes from their having no emotions at all" (Turkle, *Conversation*, 352).

personality to software and robots makes many people believe that they *are* independent agents.[213] In a legal context, Jack M. Balkin terms it "The Homunculus Fallacy", or the (rather childish) belief that "there is a little person inside the program who is making it work–who has good intentions or bad intentions, and who makes the program do good or bad things."[214]

To state the uniqueness of humans through a different lens, foundational to Jewish law: Createdness in God's image is *the* entrance gate to the Bible (*Gen*. 1:27). This is in contrast to the Cartesian (and to some extent, Maimonidean) definition of humans as characterized by *ratio*, or the cognitive faculty.[215] According to the definition of the humane as constituted by abstract 'software' (computable or not), electronic devices and AI-operated silicon artifacts may perhaps eventually acquire some sort of *humane*ity.[216] The biblical understanding of the human, however, seems richer. It is holistic about body-mind relations, and includes the *corporeal*.[217] This attitude is manifested in the rabbinic interpretations of imago-Dei, as Yair Lorberbaum has demonstrated in detail.[218] In contrast to Gnostic thinkers such as Marcion, in the second century CE, and contemporary transhumanist thinkers such as Ray Kurzweil,[219] the human body in classical Judaism is neither a mere shell, nor a cosmological accident.[220] This observation bears tremendous consequences for the discussion of machine ethics. If humans are grounded in a body and cognitively influenced by it, as many pragmatic philosophers have demonstrated,[221] then it is unclear what is significantly human (or humane) in a piece of plastic, sophisticated and AI operated as it may be.

To spell this out further, the glorification of AI and of software as a kind of spiritualized hypostasis[222] is mistakenly based on Immanuel Kant's conception of freedom

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[213] On the fallacy of personifying a thing as if it was human, see Jonas, *Responsibility*, 67, 229.

[214] Balkin, "Big Data Law and Policy", at 1223. Imaginative and projective as this fallacy is, it makes some scholars assume that a speaking device ('Siri', 'Alexa', and so on) should be protected under the First Amendment of the American Constitution. See the critique by J.M. Balkin, "Free Speech in the Algorithmic Society: Big Data, Private Governance, and New School Speech Regulation", *U.C. Davis Law Review* 51 (2018), 1149-1210, at 1159. I thank my student Coby Simler for making me fully aware of the moral severity of the topic of robotic speech.

[215] Maimonides, *The Guide of the Perplexed*, trans. S. Pines, vol.1 (Chicago, 1963), ch.1 (21-23). Maimonides was not utterly wrong, but too narrow about defining the humane. However, the picture shifts significantly if we examine Maimonides' approach in a more halakhic context, e.g. in *Shmonah Praqim*. See D.H. Frank, "'With all your Heart and with all your Soul": The Moral Psychology of the Shemonah Peraqim", in: R.S. Cohen and H. Levine (eds.), *Maimonides and the Sciences* (Dordrecht, Netherlands, 2000), 25-33.

[216] See e.g. R. Kurzweil, *The Age of Spiritual Machines: When Computers Exceed Human Intelligence* (New York, 2000).

[217] Contra Maimonides' dualism in the *Guide*. Cf. Berkovits, *God, Man, and History*; Rakover, "Man as a Synthesis". Both authors seem to accord the biblical anthropology, which is not rational-idealist but integrative.

[218] Lorberbaum, *In God's Image*. Compare Dorff, "Judaism and Transhumanism", and supra section 2.

[219] On the profound connections between late antiquity Gnosis and modern Existentialism, see Jonas, *Gnostic Religion*, 31-47, 320-340. On transhumanism as recapitulating gnostic themes, see L.A. Johnson, "Return of the Corporeal Battle: How Second-Century Christology Struggles Inform the Transhumanism Debate", in C. Mercer and T.J. Trothen (eds.), *Religion and Transhumanism: The Unknown Future of Human Enhancement* (Santa Barbara, 2015), 273-290. On Gnosticism as a distinctive challenge to Christianity, and on Judaism's task in being a safeguard for Christianity against this destructive temptation, see B. Pollock, *Franz Rosenzweig's Conversions: World Denial and World Redemption* (Bloomington, 2014).

[220] This is common to both creation narratives in Gen. 1-2. See J.B. Soloveitchik, *The Lonely Man of Faith* [1965] (New Milford, 2012).

[221] See, e.g., G. Lakoff and M. Johnson, *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought* (New York, 1999). This direction continues the philosophical route of the classical American pragmatists (see my "Jewish Thought and Pragmatism", ch.2), which in turn, corresponds to the embeddedness found in normative-laden Jewish tradition, see Boyarin, *Carnal Israel*.

[222] Compare supra n.133, regarding the 20th century terminological shift from "technique" to "technology".

and autonomy as the conditions for moral agency.[223] While these conditions are ethically important, they disregard the material dimension in human life. Here arises an interesting paradox. It seems that an important obstacle for robots to have and display consciousness and ethical agency is that, in contrast to humans, robots have no *body*.[224] To be considered a moral agent, having a body is no less important than intentionality.[225] It is by the body that we come to understand what "good" and "evil" are.[226] It is the body that makes us vulnerable and at the same time punishable. Disembodiment is thus an (or *the*) obstacle for robots to have consciousness and ethical agency. Even if the digital media-platforms increase the ability of, or "robotize", human minds, robots–in contrast to humans–will never have a sense of body, of embeddedness, and of experiencing finitude and loneliness.[227]

This dependence of morality on *materiality* and *mortality* is critical even though it is neglected in the discussion about robot ethics.[228] Instead of walking pragmatically on the narrow bridge of sustaining human-fallible ethical decision-making,[229] the 'absolutist' approach in techno-ethics seeks to bypass (or "transcend") the human condition and relationality, through what we term here as "algorithm ethics". The recognition of the dependence of morality upon materiality and mortality is nevertheless prevalent in NLJT,[230] and led many to criticize it as being fallible (or somehow feminine).[231]

5. "The *Sword* Devours"? Ethical-Halakhic Perspectives on Moral Agency

The theoretical disputes about the morality of AWS, as revisited above, are not enough to conceive the high socio-ethical stakes of AWS. We take it for granted nowadays that we constantly see human beings, talk to them, and often care about them. But that might change radically if human agency and interpersonal trust are fully replaced with mediating machines, and if we will ignore the inherent quest of many political rulers to bypass human agency, or to be "liberated" from their democratic dependency upon it.[232] To appreciate these stakes properly, there is a need to reclaim the scope of halakhic reasoning–to include the faculty of moral imagination,[233] which is a profound aggadic implement.[234] Put differently, narratives may help figure out profound ethical implications

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[223] See I. Kant, *Groundwork for the Metaphysics of Morals*, M. Gregor (trans. and ed.) (Cambridge, 2002).

[224] Compare with section 3.1 above.

[225] Embodiment, and its loss, charge mental prices. See Ataria, *Not in Our Brain*, chapters 3-5.

[226] See H. Jonas, "The Burden and Blessing of Mortality", in: idem, *Morality and Mortality: A Search for the Good After Auschwitz*, L. Vogel (ed.) (Evanston, Illinois, 1996), 87-98. The above intuition is held by F.M. Kamm, in her *Morality, Mortality*, *Vol. I: Death and Whom to Save From It* (Oxford, 1998).

[227] Compare T. Persico, "I Think, Therefore I Have a Body" [Hebrew], *Alaxon* (July 8, 2014, available online). In most cases, though, he manifests minimal ethical criticality about these opportunities.

[228] Probably due to the dominance of an absolutist Cartesian approach in Western philosophy (see supra n.112).

[229] This kind of corrigibilism is what M.J. Sandel (among others) is advocating in his *The Case Against Perfection: Ethics in the Age of Genetic Engineering* (Cambridge, 2007). For a halakhic perspective on the attempt to reduce the moral gap between the actual and the ideal, see Berkovits, *Not in Heaven*.

[230] But, of course, not exclusive to it.

[231] On Judaism and femininity, compare Batnitzky, "Dependency"; Last Stone, "Feminism". The narratological fact that biblical prophets like Abraham and Moses performed sins, brought Islamic scholars (e.g. the medieval Ibn Ḥazm) to conclude that the Hebrew Bible was faked or distorted by Ezra and ancient Jewry. See Ḥ. Lazarus-Yafeh, *Intertwined Worlds: Medieval Islam and Bible Criticism* (Princeton, 1992), 19-49. Another example is the Christian denigration of Jewish liturgical melodies as messy and uncultivated. See R. HaCohen, *The Music Libel against the Jews* (New Haven, 2011), especially 1-16, 126-178.

[232] See the concerns made by J. Susskind about the "supercharged state", in his *Future Politics: Living Together in a World Transformed by Tech* (Oxford, 2018), 163-210.

[233] See Johnson, *Moral Imagination*. In accordance with the premises of the present article (see above section 3.1), Johnson is a pragmatist thinker.

[234] See e.g. M. Sternberg, *The Poetics of Biblical Narrative: Ideological Literature and the Drama of Reading* (Bloomington, 1985), 41-57.

that would otherwise be latent. This can be illustrated regarding AWS through two stories in the biblical book of Samuel, (1) the killing of the priests of Nob by King Saul, and (2) the killing of Uriah the Hittite by King David. These cases shed light on the dangers of dehumanization in the public-political sphere, a risk that AWS might intensify.

5.1. Bypassing Agency and the Moral Significance of Conscientious Objection

In the first case, of the killing of the priests of Nob (1 *Sam*. 22), King Saul is presented as a paranoid ruler who suspects everyone. He orders his immediate guardians to kill Aḥimelekh and the priests, but they refuse.[235] This is in fact a "conscientious objection",[236] a concept acknowledged by *halakhah*.[237] Saul, however, finds an alternative– Do'eg the Edomite. The latter is an ethnically liminal figure (his name testifies for his foreignness), who demonstrably lacks the necessary sensibilities to perceive the priests' holiness as binding him religiously, and to prevent this massacre. Do'eg's willingness to kill the priests of Nob manifests the complex nature of delegation in Jewish law (that is not to argue that the talmudic conceptualization of delegation has existed in such a legal form in biblical times).[238] It manifests the critical role played by the messenger/executor himself (in talmudic words, *ein shali'aḥ lidvar averah*[239]). The messenger carries a direct responsibility, not only the sender.[240] The problem in the case of AWS, however, is that *there is no* distinct or identifiable sender (this, in other words, is the "problem of the many hands"[241]). The autonomous messenger seemingly "devours" by itself, and responsibility cannot be clearly assigned to any specific person or moral entity.[242] Using a term taken from *M. Taan.* (3:5, *makah mehalakhet*), referring explicitly to the threat of the sword, AWS may be described as a "spreading harm". As noted above, it also makes no sense to punish a robot[243] (in any foreseen future), since it has no personality and no embodied subjectivity.[244]

A primary lesson from Saul's story is that one of the most important features of a *moral* soldier is his (or her) moral ability to say "no–that is an illegal command and I will

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[235] 1 *Sam*. 22:17.

[236] See J. Raz, *The Authority of Law: Essays on Law and Morality* (Oxford, 1979), chapters 14-15 (262-289).

[237] See for instance Rabbi A. Lichtenstein, "Halakhah ve-Halakhim as Moral Foundations: Philosophical and Educational Reflections" [Hebrew], in A. Bloom et al. (eds.), *Values as Tested in War* (Jerusalem, 1985), 13-24; I. Rekhniẓ and E. Goldstein, *Jewish Military Ethics: A Jewish Perspective on the IDF's Values* [Hebrew] (Tel Aviv, 2013), 89-111. More generally, the idea of consent is basic to Jewish law. Forcing a person to sign a contract, for example, is exempting them from legal and even religious liability (compare the famous example of the Sinaic event as *mod'a rabba,* in *Shab*. 86a).

[238] See N. Rakover, *Delegation and Authorization in Jewish Law* [Hebrew] (Jerusalem, 1972). On some consequences of the halakhic concept of delegation for a contemporary account of AI, see Nevins, "Halakhic Responses to AI", 9-17. On halakhic discretion as an intentional opposition to the strong temptation to escape from responsibility, see P. Shifman, "The Halakhic Decisor is Sentenced to Freedom", *One Language, Different Tongues: Studies in Law, Judaism, and Society* [Hebrew] (Jerusalem, 2012), 67-82.

[239] *Kidd*. 43a. Even without entering here into the debate in this *sugiyah* between *tana kama* and Shammai (on behalf of prophet Ḥaggai) about the distribution of liability, the messenger cannot presume innocence. In fact, Shammai is citing Nathan's conviction of David in 2 *Sam*. 12:9 as a prooftext for the responsibility of the sender. As we shall see below, this story too evokes the problem of moral agency.

[240] See Goren, *Meshiv Milḥamah*, vol.1, 17-18.

[241] See Nissenbaum, "Accountability".

[242] See Sparrow, "Killer Robots".

[243] See Wallach and Allen, *Moral Machines*, 206, 208, who note this, but for some reason keep their principal line of argument (the possibility of AMA) immune. Denying the punishability of robots implies that Johnson, "Computer Systems" (198ff.), is not distinguishing sufficiently between machines as moving physical objects, and between *having* an organic body. The latter, it seems, is constitutive for being identified as having moral agency.

[244] On why both properties are deeply entangled (body and subjectivity), see above, sections 3-4.

not, I cannot, obey it".[245] Military commands may or may not be immoral,[246] but being *able* to refuse–as in Saul's guardians–is necessary in order to consider a soldier an ethical agent. As Hans Jonas has stated, a central contribution of halakhic Judaism to modernity is the very category of "prohibitional laws" (*lo ta'aseh*):

> The Ten Commandments are mostly don't's and not do's. Moreover, the negative emphasis fits the modern situation, whose problem, as we have seen, is an excess of power to "do" and thus an excess of offers for doing. Overwhelmed by our own [unprecedented] possibilities […] we need first of all criteria for rejection. There is reasonable consensus on what decency, honesty, justice, charity *bid* us to do in given circumstances, but great confusion on what we are *permitted* to do of the many things that have become feasible to us, and some of which we must *not* do on any account.[247]

Jonas' concern is highly relevant to halakhic war ethics. The ethical concern could be termed, in the context of AI military ethics, as the *Conscientious Objection Versus Commandability* (COVC) problem: The inherent concern about AWS is that the possibility for conscientious objection – which is of profound halakhic significance[248]–is in deep tension with the *commandability* attempted by the programmers of the AWS.[249] It is hard to imagine that such an algorithmic component–an option of a "conscientious objection"– would, and in fact even *could*, be programmed.[250] The main reason for that is the human experience of freedom, and the inability of exhausting the direction of ethical human behavior through a set of algorithmic commands (see section 4.3 above). Human ethical behavior cannot, in any foreseen future, be duplicated in non-living creatures, "smart" as those might be (on human corporeality as an ethical requirement see above section 3.1). As long as this specific problem (COVC) is not adequately settled by programmers and ethicists, it would be hard to assign halakhic legitimacy to AWS, or to killer robots.

To conclude this sub-section, the story of the killing the priests of Nob is instructive about the ethical role of human agency, which at the same time is telling about the importance of conscientious objection. Both moral requirements–moral agency and refutability–cast shadow over the ethicality of AWS.

5.2. Manipulating Agency and the Virtue of Personal Responsibility

A second biblical case which is instructive for examining AWS (and techno-ethics more broadly), is the murder of Uriah the Hittite by King David, for the latter to acquire Bathsheba as his own wife (2 Sam. 11). In this case, there is a similar abuse of political

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[245] This possibility of refusal is an internal and integral part of the IDF ethics. On the 1994 "Ethical Code", see Kasher, *Military Ethics*. On the later 2000 *Ru'aḥ Tsahal* document, see the IDF website (*www.idf.il*). It is questionable if AWS are permissible by this important ethical code. See below, section 6.2.

[246] See the critique by Yeshayahu Leibowitz, "After Kibiyeh", in his *Judaism*, 185-190.

[247] Jonas, "Ethics from a Jewish Perspective", *Philosophical Essays*, 181.

[248] Due to the awareness of halakhic authorities of the possible conflict between secular authorities and religious ones, e.g. in the case of Gush Katif's evacuation. See the discussion by Holzer, *Double-Edged Sword*, 277-296, of Rabbi Z.B. Melamed, "Principled Disobedience [*seruv pekudah*] strengthens the IDF" [Hebrew], *Arutz 7* (Feb. 23, 2005, available at *yeshivah.org.il*).

[249] Even Daniel Statman, who defends the overall ethicality of robots and drones, admits that "Calculating proportionality is even more problematic and is inevitably left to the subjective evaluation of the military commander or the soldier on the ground. But the ability to make such subjective evaluations is precisely what robots lack." ("Drones and Robots", 479). It is not clear, though, how this argument is compatible with another argument by Statman – that if there are any lucid guiding norms for the proportionality of war ethics, they should be programable.

[250] On the productive role of emotional intuitions in ethics and consequentially in AWS, see "Losing Humanity", 37-39.

power.[251] However, the abuse of power is here camouflaged, rather than made explicit as in Saul's murder of Nob's priests.[252] This complex and thoroughly organized causal chain is in fact a pre-condition for the success of this murderous operation, as Moshe Halbertal and Stephen Holmes contend in their book *The Beginning of Politics: Power in the Biblical Book of Samuel*.[253] King David's agency-manipulation is instructive for reflecting on the ethical problems of AWS. It leads to David's final letter to Joab, comforting him by asserting that *ki khazoh vekhazeh tokhal haḥerev*: "The sword devours sometimes one way and sometimes another" (2 *Sam* 11:25). Halbertal and Holmes explain the meaning of this seemingly "autonomous" sword:

> David deployed a striking metaphor that inadvertently illuminates how rulers routinely strive to manipulate the public mind in an effort to dissociate themselves from the political violence they instigate and direct […] The distribution of violence along a chain of agents culminates in the perception that the instruments of violence have an autonomous agency of their own: "the sword devours."[254]

The singularity of biblical narrative, here as elsewhere, is in the moral critique of its human figures.[255] In the 'poor man's lamb' parable (2 *Sam*. 12:7), Nathan the prophet and the biblical narrator make it clear that David is *personally* responsible for Uriah's death. The hiddenness of the production of the power chain does not eliminate David's culpability for the crime that he performed.[256] This carries a lesson in regard to the targeting of *enemy* combatants by AWS too. On the one hand, war *is* the place where you defeat your enemy by sophistication and deception.[257] On the other hand, the reader of 2 *Sam*. 11 is reminded that remoteness from the battlefield does not excuse one from responsibility for the chain of events that one has set in motion.[258]

Which halakhic-ethical conclusion could be made about AWS, based on this second biblical episode? As mentioned earlier, a complete outsourcing of military activity to robots will practically put humans (and human agency) 'out of the loop'. It is noteworthy in this regard that both Saul and David are indeed taking human agency seriously, even if they try to bypass and manipulate it. What happens when this threshold is surpassed is a speculation that should be examined carefully, on the social-political level. For in an age of "asymmetrical wars",[259] and facing the shrinking gap between the *civilian* realm and the *military* battlefield (in Israel this is especially felt[260]), AWS might bear devastating consequences. To examine these questions ethically-halakhically, in their immediate

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[251] Compare D. Friedman, *To Kill and Take Possession: Law, Morality, and Society in Biblical Stories* (Peabody, MA, 2002), 75-106.

[252] See M. Halbertal and S. Holmes, *Beginning of Politics: Power in the Biblical Book of Samuel* (Princeton, 2017), 92.

[253] Chapter 2, "Two Faces of Political Violence" (67-99), at 87.

[254] Halbertal and Holmes, *Beginning of Politics*, 94.

[255] Consider for example Robert Alter's observation: "Indeed, an essential aim of the innovative technique of fiction worked out by ancient Hebrew writers was to produce a certain indeterminacy of meaning, especially with regard to motive, moral character and psychology" (*The Art of Biblical Narrative* [New York, 2011], 12). On human fallibility and moral critique in early Judaism, see my "Berkovits's Philosophy", 97-109.

[256] Bauman, *Modernity* (25-26), warns that as military killing is increasingly being manufactured technologically using long range sophisticated weapons, our moral attention to political violence will most probably diminish.

[257] As in *Prov*. 24:6, "For with wise advice thou shalt make thy war".

[258] As we saw above (by the end of section 4.1), the very distinction between the battlefield and the home-front [*orref*] is presently blurred, very much by the increased use of military robotics itself.

[259] See Benvenisti, "Asymmetric Warfare".

[260] Compare Weinberger and Beitner, *Haḥazit she-ba'orref*.

context, we need to ask the basic halakhic and pragmatic question: what difference does it make (or, *lemai nafqa mina*)?

6. AWS: Some Particular Implications and Concerns

In the previous section we considered the significance of moral agency in the public-political sphere. In this section we will point out several concrete ethical challenges evoked by AWS in the Israeli context. These will be discussed under the headings of (1) Procedure and civil responsibility; (2) Statism and governmental accountability; and (3) Idolatry as a humanistic problem.

6.1. Procedure and Civil Responsibility

As discussed above from multiple angles, the main challenge of AWS is the evasion of moral agency. This has practical implications for military and civil ethics. As Asaro argues, once the principle of military reciprocity is violated, and there are no "legitimate [human] targets to be killed", the civilians of the nation owning the AWS are more and more likely to become targeted, as civilians, by their enemy.[261] By implicitly increasing terror pushback, AWS pushes against the biblical commands of *Gen.* 9:6, to refrain from murder, on the one hand, and to execute a convicted murderer by his (or her) fellow humans, on the other hand.[262] These are intertwined, as human agency is a necessary step to carry out the execution of a criminalized person. Furthermore, the commentaries on *Gen.* 9:6 assume that the killing of one convicted murderer should be carried out by his (or her) fellow human beings subsequent to a public juridical decision, rather than through the executor's own judgment (contra *kol dealim gvar*).[263] *Deut.* 17:6-7 makes clear that the criminal must be sentenced to death by judges before being executed by the persons who witnessed the crime.[264] True, this juridical procedure was probably emotionally difficult for the persons who witnessed the crime, later testified in court, and had to perform the execution.[265] However, this burden entailed a serious degree of responsibility. Killing a human being (not to say, a full nation) must not be just a click away.[266] Such concerns are valid in warfare too, as Leiblich and Benvenisti have rightly contended,[267] and even more so in the civil-encroaching asymmetric warfare.

Due to the role of embodied[268] and verbalized sociality in processes of justice, the IDF (and any other advanced army) should consider adopting a general procedure instructing that the deployment of offensive UAV requires the presence of *at least two soldiers* (or commanders). In this way, a UAV operator will have the certainty that the necessary harming or killing of a "ticking bomb" is not a video game played in solitude,[269]

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[261] Asaro, "Robot War", 63.

[262] This command is considered a Noahide law that is incumbent on all humanity (*Sanh.* 56a-59b).

[263] See J. David, "The One Who Is More Violent Prevails: Law and Violence from a Talmudic Legal Perspective", *Canadian Journal of Law and Jurisprudence* 19 (2006), 385, 406.

[264] "At the mouth of two witnesses or three witnesses, shall he that is to die be put to death; at the mouth of one witness he shall not be put to death. The hand of the witnesses shall be first upon him to put him to death, and afterward the hand of all the people" (*Deut.* 17:6-7). On various ramifications of the Mosaic demand for witnesses' involvement in the juridical procedure and punishment, see I. Brand, "'Lex Populi' in Jewish Law", *Diné Israel* 29 (2013), 25-52.

[265] See *M. Sanh.* 4:5.

[266] Onkelos translated the second half of *Gen.* 9:6 in the following way: "דְּיֵישׁוֹד דְּמָא דַּאֲנָשָׁא בְּסָהֲדִין, עַל מֵימַר דַּיָּנַיָּא דְּמֵיהּ יִתְאֲשַׁד" (whoever murders a person and being witnessed, should be executed according to judicial decision).

[267] Lieblich and Benvenisti, "Discretion in Warfare".

[268] See Lorberbaum, *In God's Image*; Dorff, "Judaism and Transhumanism", and supra section 3.3.

[269] A concern about the "video gaming" of warfare is made by Statman, "Drones and Robots", 482. Many discussions of violent video games warn that it establishes violent habits, heightens the stimulation threshold, and lowers moral sensitivity and empathy. See C. Benn, "A New Ethics for Virtual Worlds", *These Times* [Hebrew], Van Leer Jerusalem Institute (Feb. 2019), available online.

but a matter of life and death that requires a basic quorum.[270] This would demonstrate how Jewish law is decisive to the morality of the IDF.

6.2. Statism and Governmental Accountability

Another relevant context for the possible incorporation of AWS specifically in the IDF involves the underlying Israeli concept of "statism" (*mamlakhti'yut*),[271] which prioritizes the national collective democratic decision making over possible sectorial considerations. Following the implications of the biblical stories that Halbertal and Holmes discussed and according to early rabbinic law, a king is not allowed to wage war without consulting the Sanhedrin (supreme rabbinic council) and consulting the priestly mantic tool (*urim vetummim*).[272] This procedural mechanism makes it harder for the king to carry out potential capricious military enterprises.[273] These checks and balances make the use of AWS seem problematic, as it replaces key political agents (such as soldiers) with AI-operated killer robots. It blurs human combatant accountability, and de-facto erases the requirement of soldiers for ethical reason-*giving* to the democratic civil society which sends them.[274]

Disconnecting this knot may bring about troubling consequences. From a utilitarian moral approach, recall the three "bad scenarios" that Asaro raised about the misuses of AWS (see section 1 above). These are not merely hypothetical concerns. Even if one does not imagine an army of AWS turning against the population it is intended to defend, the replacement of human soldiers will plausibly lead to the replacement of police persons with police-AWS. If AWS would be considered ethically adequate for military operations, it is hard to conceive why internal political affairs would not be dominated by the same logic of algorithmic efficiency. Giving up the representative humane agency of soldiers might thus lead to similar processes regarding policemen.[275]

The economic-political situation in Israel makes AWS even more challenging. In the last decades many national 'defense industries' were privatized, a process that has intensified in recent years. This process challenges the singular Israeli model of "People's Army" (*tsva ha'am*),[276] which encapsulates several entangled meanings: (1) The army's purpose is to protect a specific nation (*am*); (2) the army is owned by a specific nation; (3) the army is *operated by* (human beings?) of this nation; and (4) it is held accountable to this nation.[277] All those features will be at serious risk[278] if a fully-privatized army ("professional" or "all volunteer") would replace its human combatants with various forms

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[270] It is argued that such a procedure (namely, that the soldier is not operating in solitary) diminishes the effects of post-traumatic stress disorder (PTSD). See D. Gettinger, "Burdens of War: PTSD and Drone Crews", *Center for the Study of the Drone at Bard College* website (April 21, 2014).

[271] On this peculiar concept, which encompasses both "Statism" and "Nationalism", see N. Kedar, "Ben-Gurion's *Mamlakhtiyut*: Etymological and Theoretical Roots", *Israel Studies* 7 (2002), 117-133.

[272] Identified with the *ḥoshen* and its elements, worn by the major priest (*Num.* 27:21 and other biblical instances).

[273] Compare Goren, *Meshiv Milḥamah*, vol.1 (127-138), who argues in the same manner about the representative authority of the Sanhedrin. On Goren's ethical-nationalist stance, see Edrei, "Goren and Military Ethic".

[274] See S. Lazar, "Authorisation and the Morality of War", *Australasian Journal of Philosophy* 94:2 (2016), 211-226.

[275] Considering the need for police accountability, I disagree with Paul W. Kahn's observation ("Riskless War", 4) that "policing is better to the degree that the police can accomplish their ends without risk to themselves". I also doubt that replacing the category of "war" by "policing", as Kahn proposes, will solve the inherent ethical deficiencies of AWS (some of which could hardly imagined in 2002, when Kahn's article was published).

[276] See Cohen, *Divine Service*, 23-39, and the references provided there.

[277] See S. Boumendill, "'In a Place Where There Are No Humans': On the Prospective Challenges to the IDF due to the Increasing Use of Non-Manned Weapons" [Hebrew], *Be'in haqtavim* 9 (2016), 99-126.

[278] A. Fishman, "Piqqud ha'oddef" [Hebrew], *Yediot Aḥaronot* (Dec. 28, 2017).

of killer robots, for reasons of economic efficiency. If most of the combat units in the IDF will be robotic, the conflict between ethical integrity and financial interests will erupt increasingly.[279] Even if such a robotic army is governed by authorized representatives, the combination between military omnipotence and lack of human agency might cause technological abuses and disruptions.[280]

The problem goes deeper. The human political social-contract is built on a trade-off in which humans are expected to contribute their share by serving in the army and risking themselves, and at the same time they will be secured by this army. In the formative story of 1 *Sam*. 8:11-18, kingship was therefore criticized for over-taxing and drafting the subjects, as a defective condition of the human political setting.[281] Is the human role (and at times, sacrifice) required for sustaining this political equilibrium the worst trade-off? Would a robotic-based sovereignty, with no requirement for humans to be drafted, be altogether more beneficial? And for whom, exactly? Could rulers and their milieu *not* succumb to the temptation of abusing their powerful human-free robotic armed-forces (namely, AWS) against some of their own people, in cases of severe ideological-societal dispute?[282] As we identify a strong inclination in technological culture towards dictatorship,[283] and a decline in the power of investigative journalism,[284] and democracy more broadly, the basic problem of moral agency in the public-political sphere becomes acute.[285] As the book by Halbertal and Holmes on the *beginning* of politics warns, disregarding the vitality of moral agency might bring the polity to its *end*.[286] The question of moral agency, therefore, must be examined–especially against the present-day rise of the "governmentability" (*meshillut*) discourse, which emphasizes governmental power and often undermines the importance of moral checks and balances. The Book of Samuel implies that human agency can be an effective safeguard against brutal impulsive governmentability.[287]

6.3. Idolatry as a Humanistic Problem

The relevance of the concept of idolatry, and its religious normative prohibition, to technology and military ethics was presented above (subsection 3.3.1). In normative-laden Jewish tradition, as mentioned above, idolatry prohibition is a powerful tool for ethical

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[279] How would a private robotic militia preserve an ethical code, if such an ethical code is not at all computable? Is a privatization of a distinctively public affair (homeland security), into a "private security contractors" (PSCs) harmful to the initial aim of protecting the citizens? David M. Barnes ("Should Private Security Companies be Employed for Counterinsurgency Operations?", *Journal of Military Ethics* 12 [2013], 201-224), for example, argues that by a consequentialist criterion (which is typically the ethical measure utilized by supporters of AWS, see supra section 4.1), such a privatization is severely problematic.

[280] It might also "deprive Israel of the institution that has done more than any other to shape her character as a post-Exilic nation" (Cohen, *Divine Service*, 39). On the other hand, a total ban on AWS might put Israel in existential risk; see the (anonymous authored) article "The Danger of Limiting the Development of AI-Based Systems for Military Purposes" [Hebrew], *Bein Hama'arakhot* (2020).

[281] See the twentieth chapter of Thomas Hobbes' *Leviathan*, which refers explicitly to 1 *Sam.* 8.

[282] In Israel's 2019 election campaign there were suspicions about the use (or abuse) of Israel's Prime Minister's Cyber Division against a rival political candidate (Benny Ganz). See the remarks by Adv. Dan Efrony (et al.) on the Knesset "Cyber Law" (2018) draft (accessed at the *Cyber Security Research Center*, March 19, 2019).

[283] See Y.N. Harari, "Why Technology Favors Tyranny", *Atlantic* (Oct. 2018).

[284] See the *Seventh Eye* website (*www.the7eye.org.il*) on harms inflicted to reporters by governments across the world.

[285] On the *mamlakhti'yut* principle as vital from the perspective of *hilkhot tsava* (and not only for secular Israel), see S. Aviner, *Meḥa'il el ḥa'il: 'Inyanei Ẓava*, M. Cohen (ed.) (Jerusalem, 1999), 199-200.

[286] Halbertal and Holmes conclude: "The Book of Samuel is a kind of manual for all who are touched and defined by political life, be they kings, officers or subjects. It will serve them as a luminous lens through which to read their own reality and […] what can potentially go so wrong in politics. […] Beware of what I saw and have told you now'." (*Beginning of Politics*, 173).

[287] See supra section 5.

critique. Differently from a prevalent notion of locating the vice of idolatry merely in the theological realm (as transgression against God), NLJT takes seriously the *dehumanizing* ramifications of idolatry.[288] An excellent example for this direction is Jonathan Cohen's discussion of idolatry-critique as means for ethical social discourse.[289] Cohen considers Erich Fromm's humanistic critique of idolatry,[290] and Moshe Halbertal and Avishai Margalit's philosophical book on idolatry.[291] The supposition they all share, and see as rooted in Jewish tradition, is of idolatry as entangled with ethical transgression in profound ways. Erich Fromm, for instance, considered the making of humans into "things" (and vice versa) as idolatrous. Fromm conceived such instrumentalization as a violation of the humanistic values of biblical ethical monotheism.[292] To demonstrate this approach, a contemporary example of idolatry might be considered: the festive "reception" (*qabbalat panim*) given in Israel (Dec. 12, 2016) for the F-35 fighter aircrafts, and their naming as *Adir*, which is one of God's names in Jewish tradition. This event was indeed criticized by some Israelis as idolatrous.[293] If airplanes, expensive as they may be, have no face (*panim*) and personality, such reception is indeed problematic.

All the more so, the ascription of human properties and virtues such as names, rights,[294] sympathy, and intrinsic value[295] to robots (even if not yet AWS) requires a careful ethical consideration.[296] This problem is exacerbated for the building of human-like AI forms.[297] If human beings indeed have no privileged ethical status in this world (as 'species egalitarians' believe), no 'monopoly' over the representation of God (a status entailed by the concept of creation in the image of God[298]), then there is no distinct problem with crediting human status to non-humans.[299] From a purely naturalistic point of view,[300] it is hard to indicate the specific harm inflicted by such a duplication, when a robot is designed

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[288] On the "ethics of belief" see Halbertal and Margalit, *Idolatry*, 137-162. On idolatry as a degradation of humanity, see H. Hirschensohn, *False and True Concepts* [Hebrew] (Jerusalem, 1932), 86.

[289] J. Cohen, "Deliberation, Tradition, and the Problem of Incommensurability, Philosophical Reflections on Curriculum Decision Making", *Educational Theory* 49:1 (1999), 71-89.

[290] See Fromm, *Psychoanalysis and Religion* (New Haven, 1950), 93-5, 113-119.

[291] Halbertal and Margalit, *Idolatry*.

[292] E. Fromm, *Beyond the Chains of Illusion: My Encounter with Marx and Freud* (New York, 1990), 57-58. In a different context, Hans Jonas (*Phenomenon of Life*, 285) has criticized Heidegger for *thing*ifying humans semantically in his concept of "Dasein".

[293] See Y. Shetbon, "The Golden Calf" [Hebrew] *Arutz* 7 (Dec. 13, 2012).

[294] A contemporary example for that is Saudi Arabia, which granted citizenship (!) to the humanoid-robot "Sophia" in October 2017.

[295] See Poni, "Robots, foray!", who describes the military-robot רונ"י (רובוט ייעודי נישא) as "resembling a face of a cartoon, and it is hard not to feel empathy towards [it]" (8). Recalling the rabbinic commentaries on the tower of Babel, it is conceivable how an idolatrous attitude towards robots might come at the cost of care for humans: "if one person was falling [from the tower] they would not pay any attention, however if a building block was fallen—they would mourn" (*Pirqei deRabbi Eli'ezer* [Jerusalem, 1972], ch.24, p.82). Compare Fromm, *Beyond Illusion*, 57-58, and Nirenberg, "Politics of Love".

[296] On personifying objects in transhumanism, see section 3.3 above. A topic which is relevant for the attempt to 'humanize' robots is human-like sex-robots, which merits a separate ethical-halakhic discussion elsewhere.

[297] The Japanese artist Hiroshi Ishiguro is most famous for his attempts to create a "Jeminoid", or a human-like robot that will be a perfect duplication of a specific human-being (see www.wired.com/2017/10/hiroshi-ishiguro-when-robots-act-just-like-humans). In the military arena this is surely not the main form of AWS, but it no doubt plays a major role in the public imaginary (e.g., in movies such as *RoboCop*) regarding robotics and killer-robots.

[298] See section 3.3. above, and Rabbi J. Sacks, *Radical Then, Radical Now: On Being Jewish* (London, 2000), 59-74, esp. 66-73.

[299] Gunkel, *Machine Question*, e.g., holds that in order to prevent a cultivation of a "master-slave" dynamic (85-86) we better ascribe some functional "personality" to robots (159-216). For a bolder erasure of distinctions between the human and the non-human, see P.P. Verbeek, *Moralizing Technology: Understanding and Designing the Morality of Things* (Chicago, 2011), 21-65. Cf. n.156 above, on the fallacies of post-humanism in equating the human to the animal and the inorganic.

[300] Compare supra subsections 3.2-3.3.

as a specific individual human being, for the sake of manipulation (or killing, on the case of AWS).[301] However, from the perspective of normative-laden Jewish tradition, such an act may count as idolatry.

As Henri Atlan argued in his introduction to Moshe Idel's *The Golem*: "We should not give up anything in the pursuit of knowledge, including our attempts for perfection, that will allow us to create a human being, but once we figure out that we have indeed completed those efforts, we then ought to refrain from doing so."[302] We may be drawn to *ascribe* an anthropomorphic reality to AWS, but from the perspective of NLJT, it only deepens the concern that idolatry prohibition did not lose its rationale and ethical necessity. Summing up section 6, it seems that from a halakhic perspective which is attentive to ethical and societal concerns as well as to the moral resonance of idolatry prohibition, serious doubts exist surrounding the possibility of deploying offensive AWS.

7. Afterword

Technology plays a central role in Israeli (and global) economy, culture, and self-esteem.[303] Many Israelis have ethical sensitivities regarding various techno-ethical issues, and care about their traditional ethical commitments, but there still is a relative rabbinic silence regarding AWS, even though AI scholars and ethicists worldwide have deep concerns about it.[304] The aim of this article was to point out the relevance of Jewish tradition for the debate over AWS by recalling some established ethical halakhic values and norms, and by invoking and provoking the reader's ethical-political imagination.

Addressing AWS requires an inter-disciplinary discussion of the kind that I tried to provide here. For AWS are a product of technology, but cannot be treated properly on a purely naturalistic basis if Jewish law and ethics were to be our métier. By arguing that it is inherently problematic to grant machines the legitimacy to make decisions on matters of life and death, contemporary ethicists echo the imperative of human agency required by *Gen*. 9:6.[305] As mentioned earlier, from a halakhic perspective the ethical-legal convictions and conventions of non-Jews (including AI scholars such as Sharkey, Asaro, and Sparrow) should be taken seriously.[306] This article has argued that their substantial concerns about AWS cohere with the ethical-political core-values of Jewish tradition. It also demonstrated in which ways Jewish law could benefit from engaging with Jonas' legacy, for example with *The Imperative of Responsibility*, which argues that the technological extension of the moral act requires a parallel extension of our ethical responsibility.[307]

This article suggests that AWS should be discussed seriously, and this requires us to understand what it means to consider technology in a humane manner. By contrast with 'algorithm ethics' and its underlying Cartesian philosophical model, which domesticates AWS discursively, the present article delineates a humane halakhic ethics. In this context, it was argued that normative Jewish tradition shares much with humanist philosophies of technology, and hence there is a potential for halakhic value-concepts to contribute to the

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[301] In civil and Jewish law, the proximal type of crime is misrepresentation or impersonating (or *hit'ḥazut*). Compare Friedman, *To Kill and Take Possession*, 62-68.

[302] H. Atlan, Introduction to the Hebrew edition of Moshe Idel's *The Golem: Magical and Mystical Traditions in Judaism regarding the Creation of Artificial Human Being* [Hebrew], A. Meir-Levi (trans.) (Jerusalem, 2006), 28. For a critical engagement with the possible applications of a *golem* to halakhah, see Nevins, "Halakhic Responses to AI", 31-38.

[303] See N. Efron, "Zionism and the Eros of Science and Technology", *Zygon* 46 (2011), 413-428. On the military-technological aspect, see 415.

[304] See supra sections 1 and 4.2.

[305] This, basically, is the main rationale that Mary Wareham provides against AWS. See her interview on *Ynet* (Sept. 3, 2018, available at *www.youtube.com/watch?v=jtvM3m89A8Y*).

[306] Compare HaCohen, "The Nations Say".

[307] Jonas, *Responsibility*, and compare Wiese, *Jonas*, 87-149; E. Lawee, "Hans Jonas and Classical Jewish Sources: New Dimensions", *Journal of Jewish Thought & Philosophy* 23 (2015), 75-125.

wider techno-ethical discourse. To do so, however, not only non-Jewish opinions should be taken seriously,[308] but also *Jewish tradition* and its pragmatic-humane voices should, including those found in alleged "ritualistic" areas such as idolatry prohibition laws.[309] As Micah Goodman has argued,[310] while in the twentieth century Jews adopted non-Jewish *universal* ideas to solve particular Jewish problems, in the twenty-first century Judaism may inspire humanity to address human (technological and other) problems in a *Jewish* humane way.[311] The concept of humane moral agency, which was the focus here in the case of AWS, is one such ethical challenge to address. I hope that this study will promote a thoughtful ethical-halakhic examination of areas related to Jewish law and the challenge of techno-ethics.

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[308] *Refraining* from doing so does not grant an immunity from 'external' influence, and probably even the opposite. See, e.g., the problematic Darwinist influences on Jewish war halakhists. For such an accusation against the controversial book *Torat Hamelekh*, see A. Finkelstein, *Derekh Hamelekh* [Hebrew] (Netivot, 2010), 143-144.

[309] For an argument regarding the pragmatic mutual dependency of 'ritual' and 'ethical' laws in Judaism, see Berkovits, *God, Man, and History*, 69-108.

[310] Personal conversation (2016). See the third chapter of Goodman's 2019 book *Philosophic Roots of the Secular-Religious Divide*, and his forthcoming book on Judaism and technology.

[311] Shabbat observance, in the broad sense, is a good example for the significance of Jewish custom in the digital age: it serves as a model for non-Jewish communities wishing to unplug electronically and reconnect interpersonally (see e.g. *sabbathmanifesto.org*).