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Posthuman Feminism and Disarmament

di

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> From one perspective, a cyborg world is about the final imposition of a grid of control on the planet, about the final abstraction embodied in a Star Wars apocalypse waged in the name of defence, about the final appropriation of women's bodies in a masculinist orgy of war. From another perspective, a cyborg world might be about lived social and bodily realities in which people are not afraid of their joint kinship with animals and machines, not afraid of permanently partial identities and contradictory standpoints. The political struggle is to see from both perspectives at once… Cyborg unities are monstrous and illegitimate; in our present political circumstances, we could hardly hope for more potent myths of resistance[1].

> Posthuman wars breed new forms of inhumanity[2].

This intervention provides a brief posthuman feminist analysis of new and emerging military technologies and disarmament debates, focusing on the regulation of Lethal Autonomous Weapons Systems (LAWS)[3]. The way military technologies are viewed, defined and regulated is deeply humanist, situating the machine and the human as separate from one another. These humanist underpinnings are challenged in this article through the use of posthuman feminism. Posthuman feminism is a body of thought that seeks to dismantle hierarchies between humans, such as gender, race and class, while simultaneously seeking to challenge the hierarchy of the human over the nonhuman, thinking about, for example, the environment or the machine[4]. Posthuman feminism has long worked to challenge the exclusionary and anthropocentric humanism that permeates dominant understandings of technology. Applying posthuman feminism to ongoing debates on the regulation of LAWS, this article seeks to understand what these theories can add to the debate. Overall, the article concludes that a broader ethical questioning around LAWS and all military technologies are needed. If, after all, we are concerned with machines making or helping to

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[1] Donna Haraway, *A Cyborg Manifesto*, in David Bell and Barbara M. Kennedy (eds.), *The Cybercultures Reader*, Abingdon, Routledge 2001, p. 295.
[2] Rosi Braidotti, *The Posthuman*, Cambridge, Polity Press 2013, p. 122.
[3] This intervention draws on my monograph. See: Emily Jones, *Feminist Theory and International Law: Posthuman Perspectives*, Abingdon, Routledge 2023, especially chapters two and three.
[4] See Ibid., Introduction.

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make life/death decisions, then we need to pay attention to the ways this is already happening.

Posthuman feminism and the Cyborg

Posthuman feminism is, perhaps surprisingly, given the context of this article, broadly positive about the feminist potentials of new technologies[5]. Donna Haraway, for example, in her *Cyborg Manifesto*, highlights the possibilities technology poses for women. Focusing on the figure of the cyborg, that is, the idea that the human and machine are already one, Haraway argues that technology calls the human subject into question, challenging the exclusionary and anthropocentric humanism that has long dominated western thought[6]. For Haraway, the 'cyborg myth is about transgressed boundaries, potent fusions and dangerous possibilities'[7]. Therefore, while, for Haraway, 'cyborg unities are monstrous and illegitimate', she sees this as a positive thing from the perspective of feminism, concluding, as shown in the quote above, that 'in our present political circumstances, we could hardly hope for more potent myths for resistance and recoupling'[8]. The cyborg inherently challenges exclusionary and anthropocentric humanism, including the gendered and racialised assumptions that underly it and therefore, for Haraway, the cyborg holds promise.

Feminist science and technology studies more broadly has likewise shown an optimism around the feminist potentials of technology, with Cecilia Åsberg and Nina Lykke describing this field as sharing a basic assumption that science and technology are entangled with societal interests and thus 'can be held as politically and ethically accountable'[9]. Similarly, xenofeminism finds promise in technological advancement, viewing science and technology 'as an activist tool'[10]; a site where feminist intervention is required in the aim of shaping scientific and technological developments through feminist ethics[11]. A central idea in much of the literature is the need and technology's ability to disrupt long held gendered dualisms between nature/culture[12].

However, while posthuman feminism has found hope in technological change, there are those who remain more cautious. Haraway, for example, is all too aware of

[5] Contemporary posthuman feminism is also intimately connected to cyberfeminism which sprung out of the 1980s, as well as feminist technoscience studies. For a more on these different feminisms and how they link in to posthuman feminism, see: Rosi Braidotti, *Posthuman Feminism*, Cambridge, Polity Press 2023, pp. 149-176; Maureen McNeil, *Feminist Cultural Studies of Science and Technology,* Abingdon, Routledge 2007.

[6] Haraway, above note 1.

[7] Ibid., p. 295.

[8] Ibid., p. 295.

[9] Cecilia Åsberg and Nina Lykke, Feminist Technoscience Studies, in "European Journal of Women's Studies", 17(4), 2010, pp. 299-305, p. 299.

[10] Helen Hester, *Xenofeminism*, Cambridge, Polity Press 2018, p. 7.

[11] See: Ibid.; Laboria Cuboniks, *The Xenofeminist Manifesto,* Londra and New York, Verso 2018.

[12] See: Haraway, above note 1; Ibid.; Rosi Braidotti, *Posthuman Feminism,* Cambridge, Polity Press 2021.

the dangers and risks technology poses[13]. Haraway states that technology is already embedded within capitalism, noting that the people usually making these machines are often exploited, poor women from the global south[14]. While there are many potentials that technology holds for feminists, therefore, the dark sides of technological development cannot be forgotten, with technologies designed to kill perhaps best representing the possible dystopias that technology may help to construct[15]. Rosi Braidotti, for example, focusing on drones, calls these technologies of war 'necro-technologies'[16], that ius, technologies which are used to decide who may live and who may die[17]. Furthermore, feminist security studies has long highlighted the gendered underpinnings of the military technology world[18]. For example, political scientist Mary Manjikian concludes that technology is more likely to create a more militarised, hyper-masculine world[19], this conclusion contrasting starkly with some of the techno-utopic ideals of some strands of posthuman feminism[20].

While posthuman feminism may see potential in technology, reading this literature alongside feminist security studies reminds us that technology is deeply entwined with militarism and, thereby, exclusionary humanism. Furthermore, technology is largely created by a capitalist elite that is, for the most part, white, male and situated in the global north[21]. It is clear that the techno-utopianism of posthuman feminism must be held in tension alongside the militarised nature of technology. In the following sections, I will outline some of the legal and ethical debates on LAWS before applying posthuman feminism to analyse these debates. I exemplify how both the human and the machine and autonomy and automation are being treated as falsely distinct in the debates on LAWS, this operating to centre anthropocentric and

[13] Haraway, above note 1, p. 295.

[14] Ibid., p. 295.

[15] Emily Jones, *Feminist Technologies and Post-Capitalism: Defining and Reflecting Upon Xenofeminism*, *in* "Feminist Review"*,* 123, 2019, pp. 126-134.

[16] Braidotti, above note 12, p. 9.

[17] Achille Mbembe, *Necropolitics*, trans. Libby Meintjes, in "Public Culture", 15(1), 2003, pp. 11-40. See also: Achille Mbembe, *Necropolitics,* Durham, Duke University Press, 2019.

[18] See, for example, Cohn's 1987 study of defence intellectuals: Carol Cohn, *Sex and Death in the Rational World of Defence Intellectuals*, in *Signs*, 12(4), 1987, pp. 687-718.

[19] Mary Manjikian, *Becoming Unmanned: The Gendering of Lethal Autonomous Warfare Technology*, In "International Feminist Journal of Politics", 16(1), 2014, pp. 48-65. See also: Heather M. Roff, *Gendering a Warbot*, in "International Feminist Journal of Politics", 18(1), 2016, pp. 1–18.

[20] This is a point Heyns and Borden also raise in relation to unmanned weapons more generally. See: Christof Heyns and Tess Borden, *Unmanned Weapons: Looking for the Gender Dimensions*, in Fionnuala Ní Aoláin et al. (eds.) *The Oxford Handbook of Gender and Conflict*, Oxford, Oxford University Press, 2018, pp. 376-389.

[21] This can be exemplified by the way that facial recognition technology has a problem with recognising black faces. Made by the white elite, the technology itself has been built based on whiteness, forcing some, such as coder Joy Buolamwini, to wear a white mask when using the software. See: The Algorithmic Justice League, https://www.ajlunited.org/ (last accessed 1 October 2024). In addition, Sandvik has discussed how the use of technology and data collection to manage refugees works to render invisible black male refuges. See; Kristin Bergtora Sandvik, *Technology, Dead Male Bodies, and Feminist Recognition: Gendering ICT Harm Theory*, in "Australian Feminist Law Journal*,* 44(1), 2018, pp. 49-69.

humanist perspectives, impacting the effectiveness of debates on disarmament in relation to new and emerging military technologies.

The Legal and Ethical Debates on Lethal Autonomous Weapons Systems

The US and UK governments, the UN Special Rapporteur on Summary or Arbitrary Executions and Human Rights Watch have all previously defined LAWS as: 'robotic weapon systems that, once activated, can select and engage targets without further intervention by a human operator'[22]. Since this early definition, other definitions have been put forward, with, for example, the UK using the language of systems that are 'capable of understanding higher level intent and direction'[23]. The definition of LAWS is still being debated at the Convention on Certain Conventional Weapons (CCW) meetings – this being the place where the legality of weapons is debated. The terms of this definition will, however, be extremely important in relation to any future regulation. While it is broadly agreed that autonomy has yet to be achieved, research is on-going in this area[24]. While most agree that LAWS do not yet exist, this is somewhat debatable depending on the way autonomy is defined, as I will come on to discuss in the following sections.

LAWS play a central role in the race for military AI supremacy and are rightly controversial. Many groups have called for a pre-emptive ban or a moratorium of LAWS. These groups include multiple NGOs, the UN Special Rapporteur on Summary or Arbitrary Executions[25], and now over 30 states (notably all from the global south apart from the Holy See, Austria and New Zealand)[26], with over 70 states having called for urgent regulation in the UN General Assembly in 2022[27]. There are various legal and ethical debates around LAWS[28]. Arguments include that the removal of humans from the field could drastically increase states' willingness to go

[22] UN General Assembly, Report of the Special Rapporteur on extrajudicial, summary of arbitrary executions, 9 April 2013, A/HRC/23/47, para. 38. See also U.S. Department of Defence, Autonomy in Weapons Systems, Directive 3000.09 (21 November 2012); UK Ministry of Defence, The UK Approach to Unmanned Aircraft Systems Joint Doctrine Note 2/11 (30 March 2011); Human Rights Watch, *Losing Humanity: The Case Against Killer Robots*, 2012, p. 2.

[23] Ministry of Defence, 'Human-Machine Teaming,' Joint Concept Note 1/18, 2018, p. 60.

[24] Convention on Certain Conventional Weapons, CCW/MSP/2014, Para 21.

[25] UN General Assembly, Report of the Special Rapporteur on extrajudicial, summary of arbitrary executions, 9 April 2013, A/HRC/23/47, para. 38. See also U.S. Department of Defence, Autonomy in Weapons Systems, Directive 3000.09 (21 November 2012).

[26] Human Rights Watch, *Stopping Killer Robots: Country Positions on Banning Full Autonomous Weapons and Retaining Human Control,* 10 August 2020, https://www.hrw.org/report/2020/08/10/stopping-killer-robots/country-positions-banning-fully-autonomous-weapons-and#_ftn12 (last accessed 1 October 2024).

[27] Stop Killer Robots, *70 State Deliver Joint Statement on Autonomopus Wepaons Systems at UN General Assembly,* 21 October 2022, https://www.stopkillerrobots.org/news/70-states-deliver-joint-statement-on-autonomous-weapons-systems-at-un-general-assembly/ (last accessed 1 October 2024).

[28] See for example: Jack M. Beard, *Autonomous Weapons and Human Responsibilities*, in "Georgetown Journal of International Law" 45(3), 2014, pp. 617-681.

to war due to the heavily reduced risk of military casualties[29]. Others argue that LAWS could lead to a reduction in casualties as they do not have emotions and will therefore never feel the need to uphold a 'shoot first ask questions later' policy[30]. The larger legal concern about these systems is, however, whether LAWS are compatible with and/or able to uphold international humanitarian law (IHL), the law that governs what parties can and cannot do in conflict. Article 36 of Additional Protocol I of the Geneva Conventions states that all weapons systems must be verified as compatible with IHL before being used[31]. making the question of compatibility essential. While there are many lawyers who argue that IHL is adequate to regulate LAWS[32], as I have argued elsewhere, this is very much debatable[33]. Given the complexity of these rules, it seems very unlikely that a machine would have the ability to make such decisions, for example, between whether someone is a soldier or a civilian, or how much "collateral damage" is legally justifiable, effectively. Of course, humans also struggle with these decisions, rendering this question, in the end, as much ethical as legal – do we want machines to be making these decisions when humans already struggle to do so?[34]

IHL is as much a system of ethics as it is of law. After all, the basic premise of IHL is an acceptance that warfare does and will exist, with IHL seeking to make warfare more ethical and humane. Given this context, the Martens Clause is also of relevance here. The Martens Clause states that 'civilians and combatants remain under the protection and authority of the principles of international law derived from

[29] 'Report of the Special Rapporteur on extrajudicial,' above note 22.

[30] Ron Arkin, *Lethal Autonomous Systems and the Plight of the non-combatant*, in "*AISB Quarterly",* 2013, pp. 137-236.

[31] Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts, 8 June 1977, 1125 U.N.T.S. 3, 8 June 1977, Article 36.

[32] Human-Machine Interaction in the Development, Deployment and Use of Emerging Technologies in the Area of Lethal Autonomous Weapons Systems, Submitted by the United States, CCW/GGE.2/2018/P.4, p. 6-7.

Tim McFarlnd, while providing a fairly neutral analysis of LARS and IHL, broadly likewise argues that these systems could be compatible with IHL. See, generally: Tim McFarland, *Autonomous Weapons Systems and the Law of Armed Conflict,* Cambridge, Cambridge University Press, 2020.

Peter Margulies makes a related argument, albeit focusing more specifically on AI-based situation awareness technology (SAT), arguing that this technology should be used as it will make target selection more accurate. See: Peter Margulies, *The Other Side of Autonomous Weapons: Using Artificial Intelligence to Enhance IHL Compliance*, in Eric Talbot and Ronald T.O. Alcala (eds.), *The Impact of Emerging Technologies on the Law of Armed Conflict,* Oxford, Oxford University Press 2019, pp. 147-174.

In addition, Pablo Kalmanovitz argues that LARS can be conceivably developed and deployed in a way that is compatible with IHL. See: Palo Kalmanovitz, *Judgement, liability and the risks of riskless warfare*, in Nehal Bhuta et al. (eds.), *Autonomous Weapons Systems: Law, Ethics, Policy*, Cambridge, Cambridge University Press 2016, pp. 147-176.

[33] See: Jones, above note 3.

[34] For more on LAWS and the principle of distinction, see: Roff, above note 19; Michael W. Meir, *Emerging Technologies and the Principle of Distinction: A further blurring of the lines between Combatants and Civilians*, in Eric Talbot and Ronald T.O. Alcala (eds.), *The Impact of Emerging Technologies on the Law of Armed Conflict,* Oxford, Oxford University Press 2019, pp. 211-234.

established custom, from the principles of humanity and from the dictates of public conscience'[35]. There is, however, no single legal interpretation, the Clause representing the recognition of the fact that what is acceptable and what is not may change over time[36]. While there may be debate as to what the Martens Clause means and how it exactly applies, it is questionable whether a machine being allowed to make life/death decisions can ever been deemed to be in line with the principles of humanity and public conscience, with scholars taking positions on both sides of the debate[37].

Others have warned of the discriminatory potentials of LAWS. Machines are programmed by humans and human biases can be transposed into technologies. Researchers have, for example, raised issues with AI, data collection and racial[38] and gender bias[39], including issues with the use of data collection in refugee situations which ends up discriminating against Black male refugees in particular[40]. In addition, the discriminatory use of algorithms and data that adversely impact the poor, and particularly racialised poor communities, has been highlighted[41]. Researchers such as Safiya Umoja Noble have also revealed the ways that algorithms perpetuate stereotypes about Black women[42]. As Ray Acheson of the Women's International League for Peace and Freedom (WILPF) highlights, it is very likely, given this wider context, that LAWS, if deployed, will also make decisions in ways that are discriminatory. LAWS, to select targets, will have to categorise different people and distinguish between different groups, rendering it highly likely that existing societal bases for oppression, including patriarchy, racism and ableism, will be further entrenched through the use of these systems[43].

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[35] The Martens Clause is found in several treaties relating to international humanitarian law but was incorporated into the body of the main 1949 Geneva Conventions as well as in the First Additional Protocol.

It is generally acknowledged that the principle now applies throughout the whole scope of international humanitarian law.

[36] See: *Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion*, I.C.J. Reports 1996, 226, in particular, Judge Shahabuddeen; McFarland, above note 32, p. 102-103.

[37] For various submissions as to what the Martens Clause means, see for example *Legality of the Threat of Use of Nuclear Weapons*, Ibid. See also Peter Asaro, *Jus nascendi, robotic weapons and the Martens Clause,* in Ryan Calo et al (eds), *Robot Law*, Chentenham, Edward Elgar Publishing 2016, pp. 367-386.

[38] See: Ramon Amaro, *The Black Technical Object: On Machine Learning and the Aspiration of Black Being*, Cambridge, MIT Press 2022; Ruha Benjamin, *Race After Technology*, Cambridge, Polity Press 2019.

[39] Ilinca Barson Reseach Reveals Inherent AI Gender Bias: Quantifying the Accuracy of vision/facial recognition on identifying PPE masks, Wunderman Thompson 2021, https://www.wundermanthompson.com/insight/ai-and-gender-bias (last accessed 1 October 2024).

[40] Sandvik, above note 21.

[41] Virgina Eubanks, *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor,* New York, St Martin's Press 2018.

[42] Safiya Umoja Noble, *Algorithms of Oppression: How Search engines Reinforce Racism,* New York, Press 2018).

[43] Acheson, above note 31.

Given the many legal and ethical debates, it will come as no surprise that there are many proposals on the table when it comes to the regulation of LAWS. However, pressure is increasing for Group of Governmental Experts (GGE) at the CCW, who have been mandated to produce a final outcome. So far, no agreement has been made, through the GGE did, in 2019, produce eleven non-binding Guiding Principles[44]. As noted above, while some have argued that IHL alone will be enough to regulate LAWS, others have called for a pre-emptive ban through binding legal agreements. Over the past few years, and in the process of seeking to articulate a ban, it has become clear that defining autonomy and meaningful human control will be at the crux of any agreement. This is epitomised by the International Committee of the Red Cross (ICRC)'s current position on the issue – recommending that states adopt legally binding rules to regulate LAWS based on three core pillars: that humans are not targeted, that systems with a high degree of unpredictability are not deployed, and that human control is retained[45]. Given the centrality of autonomy and meaningful human control to ongoing debates, the following unpicks definitions of autonomy by focusing on the difference between autonomy and automation, concluding that the distinction between the two is essentially meaningless.

Meaningful Human Control and the Autonomous Machine

Robotic systems of varying levels of autonomy/automation and lethality have already been deployed in numerous states. To understand how autonomy can be defined for the purpose of regulating LAWS, it is necessary to analyse these existing systems, allowing for an unpacking of the difference between existing systems and LAWS. As I will argue, the distinction between autonomy and automation, however, is unclear, rendering the debate on LAWS far more complex than often portrayed. The distinctions being made between autonomy and automation, I will argue, underly a false humanist presumption that the machine and the human are distinct[46].

One weapon system already in use, and has been for many years now, is the Patriot Advanced Capability (PAC) system. The Patriot system can select, target and hit incoming missiles, small aircraft and drones, without human intervention. The system does not operate entirely independently: up to three officers watch over it from what is called an Engagement Control Centre (ECS). The operators can let the system run in automatic mode, but they are able to intervene to deselect or choose targets. Both the operator and computer can make decisions on whether an incoming entity is a friend or an enemy. However, the 'nuts and bolts of the ballistic missile engagements process are too complex and time-limited for direct… human

[44] Meeting of the High Contracting Parties to the Convention on Prohibitions or Restrictions on the Use of Certain Conventions Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects, 13-15 November 2019, CCW MSP/2019/9, Annex III.

[45] ICRC, Position on Autonomous Weapons Systems, 12 May 2021, https://www.icrc.org/en/document/icrc-position-autonomous-weapon-systems (last accessed 1 October 2024).

[46] See also: Jones, above note 3 – chapters two and three.

participation'[47]. Human involvement is therefore present, but largely as a backup, with operators being trained to supervise as opposed to being trained to understand precisely how the technology works[48]. Human operators are subsequently being asked to undertake 'increasingly minimal but at the same time inherently complex roles'[49] when operating this system. This has led to errors in the past, with various air defence systems having made targeting mistakes, including firing on allies or even civilian targets, as exemplified by a Buk air defence system firing on Malaysian airlines flight MH17 in 2014[50]. While the previous PAC-2 system relied on the ECS for guidance once launched, the latest PAC-3 and PAAC-4 systems include their own radar transmitter and guidance computer, allowing the missile to guide itself once launched, meaning it can itself change course if necessary[51]. This system operates similarly to other systems, such as Phalanx, a system used on ships which automatically detects, evaluates and engages anti-ship missiles.

Another system that calls into question the line between autonomy and automation is the SGR-A1, an immobile sentry gun deployed on the border between North and South Korea[52]. The system can detect potential enemies using infra-red up to 4km away. It uses a low light camera and pattern recognition software to determine whether a target is human, animal or matter. The SGR-A1 also uses voice recognition software to identify approaching persons. It can command someone to surrender and to not move closer. It can then, accordingly, when the person gets within 10m of the system, choose to sound an alarm or fire either rubber or real bullets. While this decision is usually to be made by a human who watches over the system, the system does have a fully automatic mode where it can be set to decide itself[53].

While some automatic or semi-autonomous weapons systems are clearly already in use, full autonomy is a long way off. Autonomy is often distinguished from automation – with automated systems being pre-programmed machines used to perform specific tasks and autonomous machines being defined as able to make decisions themselves in changing and diverse conditions, thus being able to select from multiple options as opposed to being predictable in their processes[54]. Therefore, while

[47] John K. Hawley, *Patriot Wars: Automation and the Patriot Air and Missile Defense System, Voices from the Field*, Center for New American Security 2017, p. 4.

[48] Dan Saxon, *A human touch: autonomous weapons, DoD Directive 3000.09 and the interpretation of 'appropriate levels of human judgment over force'*, in Nehal Bhuta et al. (eds.), *Autonomous Weapons Systems: Law, Ethics, Policy*. Cambridge, Cambridge University Press 2016, pp. 191-192.

[49] Ingvild Bode and Tom Watts, *Meaning-less Human Control: Lessons from air defence systems on meaningful human control for the debate on AWS*, Centre for War Studies 2021, https://drone-wars.net/wp-content/uploads/2021/02/DW-Control-WEB.pdf (last accessed 1 October 2024), p. 39

[50] See: Bode and Watts, Ibid., p. 42-59.

[51] Global Security, *Patriot Advanced Capability-3*, http://www.globalsecurity.org/space/systems/patriot-ac-3.htm (last accessed 1 October 2024).

[52] Jean Kamagai, *A Robotic Sentry for Korea's Demilitarized Zone IEEE*, Spectrum, 2007, http://spectrum.ieee.org/robotics/military-robots/a-robotic-sentry-for-koreas-demilitarized-zone (last accessed 1 October 2024).

[53] Global Security, *Samsung Techwin SGR-A1 Sentry Guard Robot*, http://www.globalsecurity.org/military/world/rok/sgr-a1.htm (last accessed 1 October 2024).

[54] M. L. Cummings, *Artificial Intelligence and the Future of Warfare,* Chatham House 2017, p. 3.

automated machines may be 'making decisions' whether to fire or not, they do not make thought out decisions as they ultimately work through binary algorithms in a specific, set environment, never learning themselves from their behaviour. Automated systems supposedly do what they are told to do: they are predictable in as much as they will act as told to within the set of conditions predicted when they were made. This has led some experts to argue that the sorts of systems discussed above are automated, not autonomous[55]. Despite this, the debate as to whether these machines are automated or autonomous is contentious. Ambassador Michael Biontino of Germany has highlighted the difficulties of definition here, noting that 'there are a number of different proposals as to where to draw the line between "autonomous" and "automated" … and probably, our understanding as to where to draw this line will even evolve over time as technological advances are made'[56].

At the international level, levels of autonomy are discussed in terms of whether the system includes the human in, on or out-of-the-loop[57]. Human-out-of-the-loop machines are machines that independently select targets without supervision. Scholars argue that these machines currently only exist as used against solely material targets, with electronic jamming systems being an example[58]. These types of systems are then distinguished from human-in-the-loop systems and human-on-the-loop systems. Human-in-the-loop are deemed to be systems where the decision to fire is made by a human, whereas human-on-the-loop is defined as those which independently designate and process tasks while fully under the supervision of a human who can interrupt its actions. All these categories sit somewhere between the lines of autonomy and automation. The debate around LAWS at the international level, therefore, is mostly about whether human-out-of-the-loop systems should be allowed and to what extent. Human-out-of-the-loop systems are thereby considered to be the dangerous types of machines, with the assumption being that these systems do not yet exist.

However, whether LAWS exist or not depends on perspective. Vilmer, for example, defines the Patriot system as a human-on-the-loop system. This is because, he argues, it is fully automated yet always supervised by a human[59]. The Patriot system, however, can independently select targets, decide whether a target is an enemy target or not, fire and accurately target once released. Such a system could be defined as

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[55] Jean-Baptiste Jeangène Vilmer, *Terminator Ethics: Should We Ban "Killer Robots"?,* in "Ethics and International Affairs", 2015, https://www.ethicsandinternationalaffairs.org/2015/terminator-ethics-ban-killer-robots/ (last accessed 1 October 2024).

[56] General Statement made by Ambassador Michael Biontino, Representing Germany, Swiss Ambassador's Conference, Security in Uncertainty: New Approaches to Disarmament, Arms Control and Non-Proliferation, 26 January 2016.
See also: Gregor Noll, *War by Algorithm: The end of war?*, in Max Liljefors et al. (eds.), *War and the Algorithm,* Lanham, Rowman and Little field, 2019, pp. 75-104.

[57] For a detailed discussion of what autonomy can mean in terms of LAWS, see; Giovanni Sartor and Andrea Omicini, *The autonomy of technological systems and responsibilities for their use,* in Nehal Bhuta et al. (eds.), *Autonomous Weapons Systems: Law, Ethics, Policy,* Cambridge, Cambridge University Press 2016, pp. 39-74.

[58] Vilmer above note 55.

[59] Ibid.

autonomous depending on how autonomy is defined. While the human does remain on-the-loop, the system does not require this to work and, as noted above, the role of the human supervisor is increasingly diminishing as the technology develops, with the time periods in which decisions must be made decreasing. On the other hand, Patriot could arguably not be deemed autonomous because it works in specific conditions based on a set of algorithms. However, it is unclear at what point algorithmic programming may become so advanced that it becomes, in effect, a complex decision-making process. In addition, noting that a machine works on algorithms does not make that machine predictable[60], as exemplified by the AI black box dilemma whereby AI systems now often give an input and output without showing how a decision was made. As Louise Amoore notes, algorithms often give an incomplete account of themselves. Machines learn through human relationships and therefore exist in a very different way to that predicted by their source code[61]. Machines and algorithms do not always work as they are supposed to, begging the question of at which point unexpected algorithmic behaviour may amount to autonomy. It becomes clear that the three descriptions of human in/on/out of the loop 'simplif[y] matters and do… not take into account the fact that autonomy does not consist of three levels, but rather it is a continuum of many degrees'[62]. The same can be said of definitions of autonomy and automation. Autonomy and automation are not mutually exclusive but operate as part of a continuum[63]. Patriot and SGR-A1 systems, for example, are already bridging this automated/autonomous distinction in that their programming is so complex that it can be seen as a very low-level decision-making process. In short, given these difficulties, it is questionable whether making distinctions between autonomy and automation is helpful at all when thinking about how to regulate contemporary military technologies.

The autonomy/automation distinction plays out in one of the central concepts under discussion in the regulatory debate on LAWS, that is, meaningful human control. A term initially proposed by NGO Article 36[64], this term has since been embraced by groups including the ICRC[65]. What meaningful human control means, however, remains debatable. While, for example, the UK government has expressed that 'human control'[66] will always be present in any future systems they develop, with the US focusing more on 'human judgment'[67], the actual degree of human involvement

[60] See, for example: Frank Pasquale, *The Black Box Society: The Secret Algorithms That Control Money and Information,* Boston, Harvard University Press 2015.

[61] Louise Amoore, *Cloud Ethics: Algorithms and the Attributes of Ourselves and Others*, Durham, Duke University Press 2020.

[62] Vilmer, above note 55.

[63] Ibid.

[64] Richard Moyes, *Key Elements of Meaningful Human Control, Article 36*, April 2016, www.article36.org/wp-content/uploads/2016/04/MHC-2016-FINAL.pdf (last accessed 1 October 2024).

[65] ICRC, *Autonomous Weapon Systems: Implications of Increasing Autonomy in the Critical Functions of Weapons*, Geneva, 2016.

[66] See: Ministry of Defence, Letter to Maiara Folly, 4 January 2021, https://article36.org/wp-content/uploads/2021/01/UK-govt-reply-2020-LAWS.pdf (last accessed 1 October 2024).

[67] U.S. Department of Defence, Autonomy in Weapons Systems, Directive 3000.09 (21 November 2012).

has not been clarified[68]. There have been attempts by others to define meaningful human control, with philosopher Peter Asaro, for example, arguing that meaningful human control must include sufficient opportunity for human supervisors to morally reason before the deployment of force[69]. It is clear, however, that meaningful human control is being posed either as the opposite to autonomy or as a controller of and over autonomy.

One concern with the increasing focus on meaningful human control is that the human continues to be situated at the centre of the paradigm[70]. This human is not only the white male subject of European liberalism[71] but, furthermore, the machine is very much the 'other' to the human in this paradigm, an entity to be controlled by humans. This can be seen in the way autonomy is discussed in relation to the human who is imagined as either in/on/out of the loop. This paradigm does not account for how humans and machines work in connection[72]. In contrast, posthuman feminism challenges the centrality of the human within western thought, working to re-think the human/machine binary. Posthuman feminism argues that a new way of defining subjectivity is needed, one that sees the complexities and interconnections between the human and the nonhuman. Rejecting the human as the central paradigm, posthuman feminism notes that human is located 'in the flow of relations with multiple others'[73]. As Bruno Latour puts it: 'You are different with a gun in your hand; the gun is different with you holding it'[74]. The gun and the person are neither a subject nor an object but rather, as Karen Barad argues, agency switches from being something someone has to being relational, part of the 'ongoing reconfigurings of the world'[75]. The humanist discourse around LAWS ignores the posthuman reality that humans and machines are already working in connection with one another[76] and that life/death decisions are already being made by human-machine combinations.

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[68] See: Saxon, above note 48; Noel Sharkey, *Staying in the loop: human supervisory control of weapons*, in Nehal Bhuta et al. (eds.), *Autonomous Weapons Systems: Law, Ethics, Policy*, Cambridge, Cambridge University Press 2016, p. 26.

[69] Peter Asaro as quoted in Saxon, Ibid., p. 202.

[70] See: Connal Parsley, *Automating Authority: The human and automation in legal discourse on the Meaningful Human Control of Lethal Autonomous Weapons Systems*, in Shane Chalmers and Sundhya Pahuja, *Routledge Handbook of International Law and the Humanities,* Abingdon, Routledge 2021, pp. 432-445.

[71] As John William argues. See: John Williams, *Locating LAWS: Lethal Autonomous Weapons, Epistemic Space, and "Meaningful Human Control",* in "Journal of Global Security Studies", 6(4), 2021, pp. 1-18, p. 2.

[72] Haraway, above note 1.

[73] Braidotti, above note 5, p. 50; see also; Lucy Suchman and Jutta Weber, *Human-Machine Autonomies*, in Nehal Bhuta et al. (eds.), *Autonomous Weapons Systems: Law, Ethics, Policy,* Cambridge, Cambridge University Press 2016, pp. 75-101.

[74] Bruno Latour, *Pandora's Hope: Essays on the Reality of Science Studies,* Boston, Harvard University Press 1999, p. 179.

[75] Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning,* Durham, Duke University Press 2007, p. 141.

[76] See also: Suchmand and Weber, above note 73.

A further example of the way humans and machines already work together to make life/death decisions can be seen when examining drone warfare. While drones are defined as distinct from LAWS, because they require a human operator, the distinction becomes less clear when evaluating the realities of how targeting decisions are made in drone warfare. While many drone strikes are conducted as 'personality strikes' – i.e. strikes on a particular, key, well-known person – these occur only a few times a year, with 'signature strikes' happening regularly[77]. These attacks are conducted on the basis of a 'pattern of life' analysis. 'Pattern of life' analyses develop a profile of an individual or a network of individuals by drawing on all the intelligence available, including drone and other aerial surveillance intelligence, communications interceptions, phone tapping and GPS tracking information[78]. The drone itself is only one part of a broader system which includes big data, algorithms, intelligence collection, chains of command, and bureaucratic formations, among other technologies and practices[79]. The gathering of this information builds up to create a file of information collected by humans and machines which, as Grégoire Chamayou has noted 'once it becomes thick enough, will constitute a death warrant'[80].

Drone warfare is not the only place where machine gathered data is clearly impacting human-machine decision-making. For example, Israel has recently deployed the Lavender system in the ongoing conflict in Gaza. This is an AI system which is being used to identify Hamas suspects. Israeli military personnel have reported to the media that they feel uncomfortable with the use of this system, as the system has been used, not only to identify so-called likely to be junior Hamas members but has, in turn, been used to then further justify the killing of more and more civilians[81]. This is yet another example of how machines are compiling data on targets which in the end can be and is being used to justify military action, this being yet another example of how the human and the machine are making life/death decisions together, already.

In a similar vein, Ingvild Bode and Tom Watts have argued that, upon an analysis of 'how automated and autonomous features have already been integrated into the critical functions of air defence systems… in some situations, human control has become effectively meaningless'[82]. Despite this, states continue to align with calling for the need for meaningful human control without actually defining that control, begging the question of whether states really care about meaningful human control at all or whether, rather, they prefer to position themselves in a way that makes them

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[77] Lauren Wilcox, *Drone warfare and the making of bodies out of place*, in "Critical Studies on Security", 3(1), 2015, p. 128-129.

[78] Ian Shaw, *Predator Empire: The Geopolitics of US Drone Warfare*, in "Geopolitics", 2013,p. 550.

[79] Lauren Wilcox, *Embodying Algorithmic War: Gender, Race and the Posthuman in Warfare,* in *"Security Dialogue",* 48(1), 2016, p. 5.

[80] Grégoire Chamayou, *A Theory of the Drone*, trans. Janet Lloyd, New York, The New Press 2015, p. 49.

[81] Bethan McKernan and Harry Davies, '*The machine did it coldly': Israel used AI to identify 37,000 Hamas Targets,* 3 April 2024, https://www.theguardian.com/world/2024/apr/03/israel-gaza-ai-database-hamas-airstrikes (last accesses 1 October 2024).

[82] Bode and Watts, above note 49, p. 3.

look ethical, while manipulating definitional ambiguities to continue to develop increasingly advanced technologies. After all, while even lower end technologies such as drones do indeed challenge the distinction between human and machine decision-making, these technologies are certainly not the technologies being discussed when debating autonomy and meaningful human control for the purpose of regulating LAWS. By trying to define autonomy and meaningful human control instead of working to understand automation and autonomy, the human and the machine, as in continuum, debates on LAWS operate in a void, denying the fact that machines are already making life/death decisions alongside humans. This has led Dan Saxon to argue that calls for maintaining appropriate levels of judgment will ultimately be rendered useless as 'decision-making cycles… shrink to micro-seconds', this being justified as 'common sense… in situations where lives depend on the fastest possible actions and reactions'[83]. In short, the humanist framing of the debate on LAWS detracts attention from the central ethical question that is, do we want machines making life/death decisions and, if some level of involvement is justifiable, how much?

Conclusion

Many of the technologies that are already being used on the battlefield or that are under development, such as the Patriot system, the SGR-A1, Israel's Lavender system and the technologies used in drone warfare, already call into question the boundaries between the human and the machine and autonomy and automation when it comes to life/death decision-making. Discussions on LAWS, however, continue to assert autonomous systems as the machinic 'other', seeking to define the limits of meaningful human control over the machine. This means that, while a vast amount of time and energy is going into regulating LAWS, in the meantime, technologies that already call into question whether and how much a machine should be making life/death decisions are already in use, these systems flying under the radar of the LAWS debate. A posthuman feminist approach that pays attention the relationship between the human and the machine is needed to ensure that the full range of technologies that kill may be captured through legal regulation.

What would such a posthuman feminist approach therefore be? As I discuss in my book, *Feminist Theory and International law: Posthuman Perspectives*[84], the issue is two-fold. For one, it seems clear that there is a need to examine the use of *all* military technologies, examining how the human and the machine are already making life/death decisions together in multiple contexts and asking whether this is something we, collectively as humanity, really want. However, as I discuss in Chapter Three of the book[85], there are tensions presented here for feminists working in disarmament. After all, disarmament law operates on a ban or allow system. This means that while feminists can work towards banning some systems, in doing so they also inherently justify the use of other technologies and systems, giving those

[83] Saxon, above note 48, p. 209.

[84] Jones, above note 3.

[85] Ibid.

weapons and ethical backing because of their so-called legality. This sits in contrast with a wider feminist politics of disarmament. Overall, it seems that the only possibly posthuman feminist solution to the regulation of LAWS and other military technologies is a return to the feminist politics of disarmament and peace[86], calling, not for more ethical weapons, but rather for the end of all wars.

[86] Feminist engagements with international law have, after all, long centred an anti-militarist perspective, from the Women's Peace Conference held in the Hague in 1915, to the feminist activism of Greenham Common. This anti-militarism has also long included a strong focus on disarmament, the work of the Women's International Legal for Peace and Freedom being central here.