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EMSIAC Wars:

Re-inserting the Human in Bernard Wolfe’s *Limbo*

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Bernard Wolfe’s dystopian satire *Limbo* (1952) remains a critically under-discussed work, and despite its many controversies, offers important insight into the ethical dilemmas surrounding modern-day drone warfare and human-machine relations. While the EMSIAC war computers in *Limbo* may be blamed for World War III, they are only ever a scapegoat to shift blame away from the humans who follow orders blindly, and themselves behave much like machines. To this end, this paper will explore the ethical implications of Wolfe’s novel and what it means for the way we wage wars with robotic drones controlled by humans from afar.

All the people he knew and had cared about (including himself: see his life with Irene) seemed to him now, in retrospect, to be little EMSIACs, little war-makers, little robot brains; the big EMSIAC had just put them all together, pooled their little wars and made a hell of a big war out of them.

— Dr Martine in *Limbo* (Wolfe 82)

First published as a novel in 1952, Bernard Wolfe’s dystopian satire *Limbo* sits alongside Kurt Vonnegut’s *Player Piano* (1952) as one of the most interesting and culturally significant American science fiction novels to emerge in the early post-war period. While *Limbo* is often read for its depiction of posthuman embodiment and the cyborg, just like *Player Piano*, it can be more broadly read as a novel concerned with computer control and the chilling implications of human “subservience” to the machine.

In the novel, the horrors of World War III lead male citizens to cut off their limbs in order to try and curb the impulse to commit violent acts or wage war. They do this in order to regain some agency over their lives, to take back control from the two powerful EMSIAC war computers that they blame for their situation. However, as protagonist Dr Martine comes to realize, the whole situation is completely absurd. This is because the EMSIAC computers are only ever the product of human design, and the soldiers of World War III *choose* to obey the orders that the machines print off. Not only that, but the human “solution” to EMSIAC is even more absurd than the original problem. By cutting off their limbs, so the citizens of *Limbo* become even more robot-like than they were before, with new mechanical prostheses that make them faster, stronger and better able to wage war. Either that, or they lose all agency completely, as they resist technology and confine themselves to ambulatory baskets to be cared for by non-amputee women.

Up until now, those few scholars who have written on *Limbo* have focused mainly on the voluntary amputeeism within the novel, and the cybernetic relationship between the amputees and their new prosthetic limbs (Hayles 115–132; Bukatman 343–345). Meanwhile, David Seed has examined its depiction of the Cold War arms race (107–118), while Carolyn Geduld has focused on the role of ambivalence in the novel, and Wolfe’s use of the satirical “joke” (45). While these contributions are certainly valuable, there is also much to be said for the role of the two EMSIAC war computers featured in the novel, and the way they are used as scapegoats for human failings. This anticipates many modern-day debates surrounding drone warfare and the relationship between drone operators, and the machines they operate. Indeed, *Limbo* offers a compelling counter-narrative to the prevailing military discourse around the need to keep humans “in the loop” when it comes to autonomous weapons systems, for humans themselves can often be just as guilty of robot-like behavior as the machines they supposedly “control.”

To this end, this paper will investigate the role of the EMSIAC war computers in *Limbo* and the way in which human-machine relations are blurred in order to shift responsibility between the human and the machine. It will then look at the implications for modern warfare and our increasing reliance on machines to wage war on our behalf. If the EMSIAC war computers are built by humans for human ends, then this paper will ask: who is really responsible for the war at the heart of Bernard Wolfe’s novel?

## **The World of *Limbo***

*Limbo* is a highly complex novel, that has much to offer in terms of its philosophical approach to the question of human-machine relations. However, there are also several well-documented problems with the novel, which may well have led to it being ignored by critics. Chief among these is the rampant misogyny that runs right the way through the core of the text, including a rape scene that many readers may find uncomfortable. The novel also suffers from being overly-long and laden down with Neo-Freudian philosophy and the theories of Edmund Bergler (1899–1962). Whilst the academy has long since moved away from this approach, it is often hard to look beyond Neo-Freudianism, as Wolfe foregrounds the theory of psychic masochism so completely throughout the text.

However, despite these reservations, there does remain a core element to the text that is highly engaging, and certainly interesting to a modern-day audience. Given that this novel was first published in 1952, some years before Vietnam, and the first mass-deployment of surveillance drones in 1965 (Schuster 2013), the ethical issues that Wolfe exposes are ahead of their time, in many cases anticipating issues that we still grapple with to this day. The dehumanization and the “robotization” of the fighting forces depicted in the novel seems especially relevant to considering more recent conflicts. While Wolfe describes a world in which soldiers are not encouraged to think for themselves, so today, we have a world in which soldiers are equipped with GPS tracking and “kill cams,” which effectively robotize soldiers in much the same way. This has many ethical implications, not least in the realm of accountability, and what we understand about (human) responsibility and guilt. In this way, *Limbo* is far more philosophically complex than many commentators give it credit for, and it is certainly worthy of further scrutiny in light of our modern-day relationship with the technologies of war.

Set in the wake of World War III, *Limbo* follows the journey of protagonist Dr Martine, a neurosurgeon who flees the war only to return some eighteen years later to discover the world is much-changed in his absence.

During the war, Martine keeps a diary of events as he works as a surgeon “patching skulls and guts together” (Wolfe 191) in a robot-like fashion, much like the robotic soldiers he seeks to repair. Martine writes in a deeply satirical fashion, dripping with irony, while also poking fun at his colleague Helder, who is oblivious to sarcasm and does not share his concerns about the war. The diary also features the character “Babyface,” an injured bomber pilot whom Martine and Helder battle to save from life-threatening injuries. As the story unfolds, Martine records fictional conversations between himself and Babyface as he tries to understand the perverse logic of war that leads Babyface to become one of the greatest mass-murderers of all time.

Eventually, the horrors of war become too much for Martine, and he deserts his post on 19th October 1972, the day “my unrobotized side, said no” (85). In fleeing the war, Martine steals a plane and escapes the ticker-tape commands of the EMSIAC war computer. While the computer orders him to desist, Martine smashes the EMSIAC printer inside the plane and gets away just in time to avoid a bombing raid on the air base at which he is based.

Eventually, Martine arrives at a small, secluded island in the Indian Ocean. There, he makes a new home and starts a new life as part of a tribal community where he adopts a new partner, Ooda, with whom he has a son named Rambo. In order to cement his place in island society, Martine uses his skill as a surgeon to assist in the practice of Mandunga, a tribal version of lobotomy carried out on islanders who display aggressive tendencies. However, his assistance comes at a great price. By helping to save lives on the operating table, so he also becomes complicit in the dehumanization of the islanders who are desperate to avoid war and violence at any cost (385). Though he had meant to flee the horrors of war, his experience with Mandunga parallels his experience during wartime. In both cases, he becomes a part of the oppressive apparatus—either patching up the “robotic” human fighters to send them back out to war, or removing parts of the islanders’ brains in order to make them more docile and compliant.

After eighteen years on the island, Martine’s life takes a dramatic turn when a group of male Olympians visit the island on what they describe as a “training cruise” (28). Each of the athletes has a full set of prosthetic limbs in place of his natural arms and legs. Shortly after their arrival, Martine decides to leave the island to avoid exposing himself as a deserter from the war. His journey takes him to the Inland Strip, the new name for the much-changed United States. There, he finds society has adopted the concept of “Immob” (Immobilization) also known as “Vol-Amp” (Voluntary Amputeeism), where individuals are ranked according to how many limbs they have removed. In this new world order, amputees are the new “leisure class”, while “a man with his own legs had no footing” (114).

Over the course of his journey, Martine discovers that the Immob movement is based on his old war diary, which he left behind when he fled the war. His diary was taken up by his colleague Helder who used it to try and bring about world peace. While Martine was making a satirical joke, Helder takes Martine’s words literally, aligning military *de*mobilization with the *im*mobilization of losing one’s limbs. However, despite Helder’s best intentions, the Immob movement becomes just as much a joke as the diary itself. Indeed, one of the biggest “jokes” is the rift that emerges between those who adopt prostheses, and those who do not. While those men who forgo mechanical appendages become “basket cases” to be cared for by non-amputee women, those who adopt prostheses becomes even more capable of violence than they were before. This leads to a new arms race in which the Inland Strip, and their old Cold War adversaries the Eastern Union (formerly the USSR), compete to mine the precious materials needed to power their mechanical limbs.

While both sides claim to be working for peace, the realities of the arms race are played out in an Olympic-style competition where the winner is inevitably the team with the best prosthetic limbs. As such, the wealthy Inland Strippers win every tournament right up until Martine arrives to witness the Eastern Union beat them for the very first time. At this point, the Eastern Union team launch a surprise attack on the Inland Strip, using weapons built into their mechanical limbs. However, Helder is already prepared, and launches an immediate counter-attack, revealing that he too has been stockpiling weapons all along.

As the bombs start to fall, Martine finds Helder, who confesses to his crimes of hypocrisy and warmongering. At this point, the novel comes full circle as Martine observes that “Helder had become EMSIAC” (Wolfe, *Limbo* 366), and is just as bad, if not *worse*, than the machines they had blamed for starting World War III. Babyface (real name, Theo) kills Helder for his crimes, and he and Martine flee the bombs to return to Martine’s island home. The novel closes with Martine’s son Rambo calling for an end to lobotomies and suggesting that everyone needs to learn to understand “jokes.”

## **Rise of the Machines**

As a novel of the 1950s, *Limbo* was published at a time of rapid social and technological change in the US, where massive investment in research and development during World War II helped lay the foundation for a burgeoning post-war electronics industry (Rid 21). Such was the impact of the new computer technologies that a January 1950 edition of *Time* magazine featured a striking cover with an anthropomorphized computing machine in the guise of a naval officer reading off ticker tape and dealing out commands (Artzybasheff 1950). As with so many *Time* covers of the period, this dark and disturbing image depicted a growing tension in general public discourse around technology and progress, reflecting fears that machines might one day come to replace humans completely. This would play out in science fiction novels across the decade and beyond with Wolfe’s *Limbo* sitting alongside Kurt Vonnegut’s *Player Piano* and Mordechai Roshwald’s *Level 7* (1959) as exemplars of growing fears around dehumanization and the isolating effect of technology on human operators.

Meanwhile, the world was also entering the first, dangerous, phases of the Cold War, with the threat of nuclear holocaust juxtaposed against the many consumer goods—made possible with the technologies of war—that were fast finding their way into people’s homes. In 1947, the first point-contact transistor was invented and displayed at Bell Laboratories. This was a massive step forward in miniaturisation and would later win its inventors the Nobel Prize for Physics in 1956. It also helped pave the way for future technologies such as the first solid integrated circuit, or “microchip,” which was to emerge in 1959, continuing the process of miniaturization that paved the way for the first personal computers to enter people’s homes in the early-to-mid 1970s.

While in 1952, the personal computer was still some way off, the very concept of the computer was already having an effect on everyday life, and was already changing the way people thought. In July 1945, Vannevar Bush published his essay “As We May Think” in *The Atlantic* magazine. Bush, then the Director of the Office of Scientific Research and Development, was responsible for US efforts to apply science to warfare. In his article, he describes a vision for the future in which “memex” machines would be used to enhance the human, functioning as “an enlarged intimate supplement to his [man’s] memory” (Bush). Though the concept of memex was nothing new, it did strike a chord with the public, and Pascal Zachary notes how “His memex was no blueprint for a personal computer, but it offered something just as important: a careful description of the benefits to ordinary people of automating thought” (Zachary 263).

But while Bush’s vision may have read very much like a science fiction scenario, the trend towards automated thought was already long underway, and was taking place in factories right across the US. The advent of Fordism drove many factories to standardize processes and production methods to improve efficiency and reduce costs.1 This transformation gained momentum with the demands of total war that saw a major shift in the production mindset. Indeed, systems theorist Manuel De Landa notes how “the American system [of standardization] transformed manufacturing from an open process, based on flexible skills into a closed process based on fixed routines (enforceable through discipline and constant inspection)” (De Landa 84). So, not only were processes becoming standardized, but they were also being monitored to ensure consistency of output. In this way, standardized production emerged alongside an early form of surveillance culture, in which surveillance became normalized within the workplace through the various inspection processes that were required to keep production running smoothly.

It followed, then, that the computer was the next logical step in the spread of Fordist thinking, with thought itself standardized and reduced to a series of programmatic steps. As De Landa notes: “the advent of computers (which are basically automated formal systems) appeared to consolidate the victory of analytical over embodied knowledge” (De Landa 95). This can be seen in Fordism’s shift in emphasis away from the individual craftsmen towards standardized factory processes carried out by humans working to a set routine. These same workers were then in turn replaced by machines—a fear that was to be addressed in science fiction, most notably perhaps in Vonnegut’s cutting satire, *Player Piano*. However, even more significantly still, there was an emerging line of thought that humans were not just being replaced by machines, but rather were becoming more and more *like* machines in their everyday behavior. According to Bernard Wolfe and his contemporaries, in 1952, the ethical line between human and machine may have already become irrevocably blurred.

## **EMSIAC Wars**

In *Limbo*, EMSIAC is the name given to the two opposing war computers that govern the fighting forces during World War III. The name is a clear reference to the real-world American military computer ENIAC demonstrated to the public in 1946, which was then followed by its successor EDVAC in 1949.2 In Wolfe’s vision of the future, the two EMSIACs lead the world into war, which they then conduct like a giant game of chess, a satirical extrapolation of military wargames used as a means to standardize warfare and improve the effectiveness of military forces. And yet, as Dr Martine comes to realize, the problem is not so much the EMSIAC war computers, but rather all the other EMSIACs that reside in the hearts and minds of all the people he knows and loves, including himself (82). For Martine, the problem is not so much the machines themselves, but rather the blurring of the boundary between the human and the machine, and the gradual “robotization” of the human race.

To this end, in his diary entries, Martine cites EMSIAC as the next logical step after the “games specialists” transform ENIAC (that is, the real-world ENIAC) into a chess champ (188). It then follows that the next step is to move from chess strategy to military strategy. Thus, Martine recounts in his war diary:

The problem was licked by the mid-sixties. From which it follows, as the mare the night, that my crew is holed up at this moment somewhere in the stinking heart of Africa, with EMSIAC batting out instructions to us on the ticker tape. And on the other side of the world, Christ knows where, another EMSIAC is clattering away, sending out orders to all the units of the enemy’s forces (188).

The chess-player analogy is significant, and connects the waging of war with military war-games used to transform human military forces into well-oiled fighting “machines.” However, in the case of *Limbo*, the “logic” of the EMSIAC war computer leads to the quite illogical situation where one EMSIAC grinds to a halt when the other is disabled:

Each EMSIAC, of course, was a chess player and nothing but a chess player; and, as such, it was able to cope with any situation so long as it was confronted with an opponent with similar statistical preferences and revulsions. But neither EMSIAC had been designed to cope with a chess-playing situation in which the opponent was suddenly eliminated from the picture altogether: it was built to play a two-handed game, not solitaire. (209)

Though Wolfe’s claim about the two-handed game may satirize the absurdity of war, the logic of his argument breaks down under close scrutiny. In the first instance, no war can ever be compared to a game of chess. After all, no two sides can ever be completely equal, with equivalent forces, fighting on a perfectly even battlefield. To claim war is like a game of chess is to mistake the game, and to confuse the role of the machine within it. Given the objective is to win, the destruction of one EMSIAC would logically lead to the victory of the other, as one side would be crippled by its reliance on a computer overlord that no longer exists. In each case, the idea that the war would be carried out exactly as Wolfe describes is clearly flawed, creating a false premise for the post-World War III world he depicts.

But these flaws may well be intentional. While Wolfe gives relatively little attention to his concept of the computer-driven war, he is very clear in his criticism of those humans who obey without question and who behave in a robotic, machine-like way. It is only by breaking the mold and taking a step away from the robotic that Martine is able to able to “dodge the steamroller” if only temporarily, before the steamroller adapts to take a different form.

What is interesting in this case, is not just the fact that the citizens of *Limbo* behave much like machines, but also that the machines themselves behave much like human beings. For example, their robot “minds” exist in a single, isolated location, and as such behave much more like a singular human than a machine connected to a wider network. It is also telling that the flaws inherent in the EMSIAC design lead to the EMSIACs’ downfall, as neither supposedly “omniscient” machine is able to predict its own demise or takes steps to protect itself from attack. In this way it is almost as if the two war computers *want* to die, much like their masochistic human creators—that they are replicating human desires—again, making them the perfect alibi for human failure. It is only through Martine’s desertion that the downfall of EMSIAC begins and we are left to wonder how a single desertion can lead the computer-controlled war to come to an end. If it is so easy to topple the computer empire, then why did it not happen right from the start? Furthermore, if the two EMSIACs are so powerful, then why did they not foresee their own downfall and take steps to avoid it?

This irony is not lost on Martine, and is part of the “joke” at the heart of Wolfe’s novel. Here, the humans invent fallible machines that they then blame for their own failings. It is not enough that the EMSIACs lead the world into war, but also that they serve as a scapegoat for human failings—failings that are themselves rooted in robot-like subservience to rules handed down from on-high. However, this joke comes back to haunt the citizens of *Limbo* as the EMSIACs exhibit the same flaws as their creators, and are just as easily overcome.

## **The Perfect Alibi**

In *Limbo*, the boundary between the human and the machine becomes blurred as human beings slide between subjectivities and assign human traits to machines. For the citizens of *Limbo*, this blurring is an act of supreme complicity, as it means they are able to blame machines for their woes, rather than accept responsibility for their own machine-like behavior. Only Dr Martine is capable of seeing through the illusion of the EMSIACs’ “guilt,” exposing the Orwellian double-think citizens adopt in order to hold two conflicting views at the same time.3 On the one hand, the people of *Limbo* blame the EMSIAC war computers for World War III; yet at the same time they are also the product of human desire, reflecting their makers directly and bringing together the many “little EMSIACs, little war-makers, little robot brains” (82). So, while machines may not be wholly responsible for the war, Martine realizes that the EMSIACs must be framed “responsible,” in order that they serve as a scapegoat and relieve the general citizenry from guilt.

The theme of creating one’s own means of oppression is one that comes up time and time again throughout the novel, and is part of the reason why the citizens of *Limbo* are so quick to pass the blame. This process is summarized in Martine’s war diary:

Now, thanks to the marvels of technology, we’ve succeeded in converting the outside world into a very real steamroller—robotized industry, robotized culture, robotized war [...] The whole shebang ruled over, not by poor innocent beleaguered little man, of course, but by the epitome of menace, EMSIAC, the mechanical brain which has “robbed” man of his decision and “made” him not master but slave of his destiny. [...] EMSIAC had to be invented in order that man could go on feeling sorry for himself (194–195).

Of course, in this case, Helder takes Martine’s words literally, neglecting the important inverted commas around the words “robbed” and “made.” He also ignores Martine’s claim that man’s suffering is self-imposed, and that he needs to invent a scapegoat (EMSIAC) in order to feel sorry for himself.

But while Wolfe may use his satire to make a case for psychic masochism and the theories of Edmund Bergler, his commentary also engages with the paradox of human ethics.4 As philosopher Jacques Derrida observes in his seminal investigation, *The Gift of Death*:

As soon as I enter into a relation with the other [...] I know that I can respond only by sacrificing ethics, that is, by sacrificing whatever obliges me to also respond, in the same way, in the same instant, to all others. [...] Day and night, at every instant, on all the Mount Moriahs of this world, I am doing that, raising my knife over what I love and must love, over those to whom I owe absolute fidelity, incommensurably (68).

For Derrida, every action implies a sacrifice of every other action that could have been taken at that time. This sacrifice does not just encompass actions towards those others we may know, but also towards those that we do not (69). In this way, “ethics” as such cannot exist, for every human action is a sacrifice of all other actions at all other times and the very concept of ethics is exposed as a discursive construct bound up in the interplay of language and responsibility that is shifted away from the individual and towards the wider community group.

The sacrifice that Derrida describes here becomes even more pronounced in the context of human-machine relations. By their very nature, machines *codify* the pseudo-ethical decisions we humans make on a day-to-day basis. This is because all machines require that a (human) decision be programmed into them *ahead of time*, pre-empting events that may or may not happen at some point in the future—much like a human soldier given orders and military training. This is similar to what drone theorist Grégoire Chamayou describes in his much-cited work, *Drone Theory* (2013). Here, the problem of programming autonomous weapon systems is exposed as the “*decision about the decision*—the choice of a single value that fixes the parameters of all future automatic decisions in a particular sequence” (216).

However, the problem is not so much the “decision about the decision” as Chamayou puts it, but rather the *codification* of that same decision—the codification of an “ethical” (or rather, pseudo-ethical) decision that is *always already a sacrifice* much as Derrida describes. A choice must be made and must be *recognized as a choice* in the first place. In this context, machines serve not so much to undermine ethics, but rather expose the paradoxical and precarious nature of the ethics on which our world is built.

This problem has only intensified since the turn of the century, with the use of Reaper and Predator drones to kill terror suspects in distant lands. While computers deal with the majority of tasks, from operating and flying the drones, to selecting targets and guiding missiles to their objectives, military commanders are keen to keep the human “in the loop,” with human operators employed to oversee the process and assume responsibility for the drones’ actions. However, just as in the case of *Limbo*, there is a major, unspoken flaw in this process, as the drone operators themselves are also bound up within the programmatic framework of the military machine. In this way, they function just as much like robots as the drones that they are supposed to control.

Of course, there is also then a certain economy to targeted killing. In *We Kill Because We Can* (2015),Laurie Calhoun observes that “The business of UCAV [drone] operators is to kill. If they are not killing [...] then the various governmental agencies which support their work [...] become dispensable” (257). In this respect, the task of the drone pilot is not so much to make a decision, but rather to do the job that they are employed to do and to respond exactly as the machine tells them. Calhoun’s argument also raises the question of purpose and value for money. The very concept of “success” in drone operations suggests the need for pilots to demonstrate their value as employees. But when pre-emptive targeted killings are based on subjective criteria, there are very few ways to measure success other than hours logged and number of targets killed. Why then should a human ever say “no” to a machine that tells them to kill, when all other factors tell them to say “yes”?

This is a reverse of the logic described in *Limbo*, where the EMSIAC war computers take the blame for the humans; in this case, drone operators serve as human alibis for the machines. While they are themselves, little more than biological robots, following the military “code” supplied by their superiors, it is the core *humanity* of the drone operators that marks them as being capable of assuming the role of alibi, for there is always the possibility, however remote, that the human might say no. Whether or not this veneer of responsibility is morally acceptable is another question, and certainly, far beyond the scope of this paper. However, in *Limbo*, Wolfe draws attention to the paradox and the inherent absurdity of responsibility and guilt in a military setting where a soldier’s inherent “humanity” is used as a means to legitimize a cold, rational, computer-controlled act. This, despite the fact that the soldiers themselves are required to obey orders and so behave exactly like a machine. In this way, it is not so important that a human is able to intervene, but rather that a human operator exists to blame should something go wrong.

## **Taking the Blame**

Blame is a recurring theme in *Limbo*, as many characters seek to find some reason to explain their circumstances and justify their suffering. As already noted, the machine takes the blame for the human. In order for this transference take place, the machines in *Limbo* must be invested with human qualities that locate them within the realm of human guilt and responsibility. Thus, while the “sovereign” rule of the two EMSIACs may be flawed, it is this flawed, distinctly un-machine-like logic that enables the EMSIACs to assume the mantle of guilt for crimes they simply did not commit. This transference becomes such that even the name “EMSIAC” becomes synonymous with the scapegoat and the relocation of human guilt. Indeed, in one telling moment, Martine performs surgery on the injured pilot Babyface, and describes how “at such a time a man needs some living thing to blame, and I would be his personal EMSIAC for the moment” (196)—again suggesting the absolute complicity of all the actors involved.

This use of the machine as a scapegoat mirrors something of what René Girard describes in *Violence and the Sacred* (1972), in which he investigates ritual sacrifice as a means of social control. Girard argues:

As I see it, the relationship between the potential victim and the actual victim cannot be defined in terms of innocence or guilt. There is no question of “explanation.” Rather, society is seeking to deflect upon a relatively indifferent victim, a “sacrificeable” victim, the violence that would otherwise be vented on its own members, the people it most desires to protect (4).

In this case of *Limbo*, EMSIAC is the sacrificial victim; but it can only be sacrificed if it is first invested with human qualities that allow it to be cast as such. By making EMSIAC knowable, or rather *intelligible*, within the sphere of human understanding, so the paradox of ethics is once more exposed. After all, if EMSIAC is to be framed in human terms, then it is no more or less to blame than anyone else. To blame the machine then is to also blame every other member of the group, while at the same time protecting or immunizing them from the consequences of the act.

As we have seen, this process is a wholly complicit act, as it requires an implicit understanding of the transference that is taking place. This argument is expanded on by Girard who suggests that:

Once we have focused attention on the sacrificial victim, the object originally singled out for violence fades from view. Sacrificial substitution implies a degree of misunderstanding. Its vitality as an institution depends on its ability to conceal the displacement upon which the right is based. It must never lose sight entirely, however, of the original object, or cease to be aware of the act of transference from that object to the surrogate victim; without that awareness no substitution can take place and the sacrifice loses all efficacy (6).

This “misunderstanding” described by Girard is perhaps too euphemistic a term to fully encapsulate the implications of the process that is taking place. Clearly, there is an element of complicity in the process of sacrifice, but with this complicity, so there must also be an element of *performativity*, in which celebrants must acknowledge their similarity with the victim, while at the same time vilifying them on account of their outsider status. Here then rests the paradox: the surrogate is cast out on account of difference, but included through similarity; an inclusive-exclusion, much like philosopher Giorgio Agamben’s figure of the *homo sacer*.5 In the case of *Limbo*, it is only Dr Martine who realizes the paradox of the inclusive-exclusion, noting that his fellow humans all behave much like machines who are no more or less responsible than the human-like machine that must stand as ritual sacrifice.

This biopolitical inclusive-exclusion is very much reminiscent of Orwell’s double-think described in *Nineteen Eighty-Four* (37) and is absolutely critical to the operation of biopolitical power. This is because, as Girard observes, “The celebrants do not and must not comprehend the true role of the sacrificial act” (7). However, in the case of *Limbo*, one celebrant *does* comprehend the role of the sacrificial act, and in so doing must flee the war for fear of being exposed. Throughout the course of the novel, Martine remains alone in being the only character to recognize just how EMSIAC is blamed for an act in which every member of the community is complicit. After all, they are all “little EMSIACs” that the big EMSIAC merely brings together (Wolfe 82). It is only when Martine returns to the Inland Strip that the process of sacrifice—of blaming the *machine*—is exposed for the flawed construct that it is. In so doing Martine not only exposes the arbitrary nature of the surrogate “victim,” but also reveals the blurring of the boundary between human and machine.

## **Modern-Day Implications**

All of these issues point to a fundamental tension between the human and the machine—a tension that becomes even more pronounced in the military setting. Central to this debate is the question of “autonomy” and quite what we mean by the autonomous subject, and whether a human soldier is a *human* actor with clearly defined agency, or a *weapon system* programmed to act in a predictable, pre-determined way.

This debate goes back as least as far as World War II, and became relevant again during the later Vietnam War (1955–1975), with several high-profile war crimes that came to light in the national press. On one side of the debate, former Lt. Colonel, and now Professor, Geoffrey S. Corn argues, “[human operatives] have always been, “autonomous” weapons systems, because all soldiers must exercise cognitive reasoning in execution of their battlefield tasks” (212). Here, Corn links autonomy directly with training, which is designed such that soldiers’ “autonomous judgment will be exercised in a manner that contributes to the overall tactical, operational and strategic objectives of his or her command” (212). However, Corn notes, “it is impossible to have absolute “compliance confidence” for even this “weapon system” (212), meaning that despite training (or “programming”) a soldier can never be fully compliant with the wishes of command. From Corn’s perspective, the very definition of autonomy is tied to training or programming, in that soldiers are expected to adhere to a set of codes and behave in a certain way when faced with any given battlefield situation; their autonomy is not independent thought as such, but rather the autonomous application of the law. This differs from the definition used by the US Department of Defense (DoD), which in a 2012 report describes how “there exist no fully autonomous systems, just as there are no fully autonomous soldiers, sailors, airmen or Marines” (23). In these terms, the DoD defines autonomy as the complete individual freedom of decision making. It is significant then that the DoD uses the word *fully* in its conditional sense, leaving a grey area of indeterminate responsibility within its definition. While Corn says soldiers are autonomous, and the DoD says they are not, both sides are effectively arguing the same thing: that individual judgement is located within a complex framework of power relations that include military training and the law, as well as the many various power relationships between individuals.

The problem, however, arises when soldiers are required to make decisions in combat—when they are faced with an infinity of singular cases against which they must apply a general rule. In this case, autonomous judgement doesn’t just mean adhering to a set of codes or programs as laid down by the rule of law (or command), but also then *inferring*, or “self-programming,” codes at short notice based on what they might *expect* their command to be. This process exposes the logical impossibility of inference, and the need to make snap value-judgements based on situations which may not have yet been accounted for in law. Without complete telepathic understanding, or a *robotized* fighting force, human “error” (if it can even be called that) will always find its way into the heat of battle.

In one recent example, British Royal Marine Alexander Blackman, known as “Marine A,” was tried in 2013 based on footage supplied by a fellow Marine’s helmet camera.6 This case is highly problematic as it sets a precedent for soldiers being tried for “crimes” that they would never have been previously. This is particularly significant given that in one recent US Army survey found that “45 percent of soldiers wouldn’t report a fellow soldier they saw injuring or killing a civilian noncombatant,” revealing a fundamental disconnect between the law as written, and the law as applied on the ground (Singer 394). While no one would doubt the seriousness of the reported crime in a civilian context, one must consider the potential ramifications of what would have happened had the soldier not acted in the way that he did, and the consequences for allied lives further down the line. Whose life is worth more? On the field of battle, a soldier’s loyalty will always be to the other soldiers around them, in whose trust they place their lives. It is no wonder then that the question of Marine A is so controversial, as it asks serious questions of the relationship between the soldier, the citizen and the state, and the legal, ethical and *pragmatic* framework within which soldiers operate on the ground. In this case, it seems clear that the military powers would have preferred Marine A to act in a strictly robotic fashion. Yet in doing so they exclude the human factor in the decision-making process, and the myriad external factors that would have influenced his decision-making in the heat of battle.

Thus, the example of Marine A reveals also the same logical paradox described in *Limbo*. In this case, human soldiers are expected to adhere to orders without question and so behave in a robotic fashion, and yet as the Nuremberg war-crime trials suggest, these same “robotic” fighters are also expected to behave like “humans” (itself a loaded term), and so break from their military programming should they believe their orders contravene international law. This is, of course, despite the fact that to break orders can potentially lead to court martial and even death.

Again, this modern-day example goes to show the paradox at the heart of ethics and military law. We want soldiers to behave like robots, but can also find them guilty for behaving exactly as programmed. Just as Wolfe suggests in his treatment of EMSIAC—the human-like war computer—it is not so much that the machine, or that a human, is really at fault, but rather that we need someone to blame should something go wrong.

## **Re-Inserting the Human**

Clearly, *Limbo* remains a critically-neglected work, and despite its controversies, offers important insight into the ethical dilemmas surrounding modern-day drone warfare and human-machine relations. While the world has certainly changed a great deal since the novel was first published in 1952, many of its themes remain relevant, and are indeed arguably even more important than ever, with machines being used to wage wars in distant lands, and human soldiers expected to behave in an ever more robotic manner. As Derrida suggests, any ethical decision to act requires a sacrifice of all other actions at all other times. While these sacrifices often go unspoken, the machine serves to codify this process through its machinic code, thus revealing the paradox that resides at the heart of human ethics. In this way, the problem in *Limbo* is not so much EMSIAC, or any other machine or mechanical prosthesis, but rather the fact that a decision must be made at all, that it must be recognized as a decision, and formally codified in computer code.

In her study of Wolfe, Carolyn Geduld positions *Limbo* as a novel about ambivalence that explores “the polarities of human behavior” (47). While I agree that *Limbo* is certainly a novel concerned with “society’s neurotic denial of ambivalence” (50), the novel is also concerned with society’s denial of the machine in all its many forms. Throughout the novel, Wolfe makes this case in terms of the robotization of human citizens, at first under EMSIAC, and then under the pseudo-religion of the Vol-Amp movement. The irony here is that in Wolfe’s world, humans and machines are completely interchangeable—machines behave like humans, and humans behave like machines.

Yet if Wolfe is right, then how should we conceive the human? How do we re-insert the human in the machinic process? To shed light on this problem, drone theorist Grégoire Chamayou cites the example of the human soldier who may choose not to shoot an enemy caught in an exposed or compromised position (195). In this case, Chamayou describes the soldier’s wish to distinguish combat from murder, in which, “It is a matter of remaining a combatant and not becoming, in his own eyes, an assassin” (199). This contrasts markedly with the decision-making process of a robot. In such a situation it shouldn’t really matter if the enemy is smoking or caught unawares—if the exposed soldier is an enemy and operating within the field of battle, then the robot will automatically shoot on sight. However, for many soldiers, the decision to shoot marks a moment at which they are able to make a *human* decision that differentiates them from the robot assassin. For Chamayou then, the question is not “What should I do?” but rather “What will I become?” (199). While in practice, the human really *should* shoot the exposed enemy, the fact they may baulk marks a distinct point at which they choose to distinguish themselves from machine. While in *Limbo*, world-famous bomber pilot Babyface is as much a machine as the EMSIAC that guides him, it is only Martine, the man who baulks, who could be considered properly human.

And yet still this distinction remains problematic. Despite his best efforts, Martine repeatedly finds himself caught up in a world of robotic behavior. While he may flee the “steamroller” of war, he is very quickly embraced by another steamroller, subtler and more pervasive than the last. In this way, so he repeats the very same mistakes of his former life. While at first, he believes he is making a “human” decision to save lives and improve the success rate of Mandunga, so at the same time he becomes complicit in the dehumanization of the islanders, who believe robotic conformity is better than the alternative. In this way, his “human” decision to help isn’t really a human one at all—but then neither is *not* helping and letting the islanders die.

This same conundrum occurs with Chamayou’s concept of the enemy soldier caught smoking. At the most fundamental level, failure to shoot an enemy will leave them free to retaliate at an unspecified point in the future, with significant ramifications. If this is the case, then how can letting the soldier flee to cause further harm be described as a “human” choice? If anything, in this case the robot would be far better equipped to make an “ethical” decision, for it would not be unduly influenced by fear, stress and fatigue, and it would certainly not be ravaged by self-doubt.

What both of these examples suggest is that there is no such thing as the “human” decision at all. While Chamayou may try to distinguish the human soldier from the robot assassin, the reality is that human soldiers are trained to perform much like robot assassins. The moment they baulk is the moment when their training and indoctrination (or rather, “programming”) fails. It seems strange then, that in a world where the military seeks to robotize soldiers and military decision making, that we should still maintain a human alibi for the use of drones. While human operators may serve as a form of ethical cover, clearly, they are insufficient. The issue here is that the computer-controlled drones are essentially making the same decisions as a human soldier, for both are merely programmed to obey the same orders from on high. It would seem then, that we are just as deluded as the characters in *Limbo*, despite our best efforts to re-insert the human in what is essentially, a wholly robotic act. As Martine discovers, maybe we really are all just mini-EMSIACs after all.

**Notes**

1. Fordist thinking very quickly found its way into the public imagination. Charlie Chaplin’s satirical film *Modern Times* (1936), for example, depicts its protagonist caught in a world of industrial automation—demonstrating the effects of mass production on the lives of factory workers.

2. Paul N. Edwards describes ENIAC as “America’s first full-scale electronic computer” (46), while Bill Gates draws on the language of monsters to describe it as, “the moth-infested mastodon from the dawn of the computer age” (30).

3. In George Orwell’s seminal *Nineteen Eighty-Four* (1949), the narrator observes: “all that was needed was an unending series of victories over your own memory. ‘Reality control,’ they called it: in Newspeak, ‘double think’” (37).

4. Edmund Bergler was one of the most important psychoanalytic theorists of the 1950s. He is particularly noted for his theories on homosexuality, and his claim about the universality of unconscious masochism, which is a theme that features heavily throughout *Limbo*. According the Carolyn Geduld, “Wolfe is probably one of the first writers to incorporate the teachings of psychoanalysis, not only into character and plot, but into theme, style and setting—indeed into the very fabric and concept of his work” (16). However, Wolfe’s focus on Bergler was very much of its time, as Bergler’s theories have long since been discredited as Neo-Freudianism has fallen out of favor in the academy. As Geduld notes, Wolfe’s shift to Bergler coincides with a wider “collective leap” from Marx to Freud for many of the radical intellectuals of the period, who were disillusioned by Stalinism (16).

5. Agamben describes the *homo sacer* as “the originary figure of life taken into the sovereign ban and [who] preserves the memory of the originary exclusion” (83)—a figure simultaneously excluded from the system, and included within it through their exclusion.

6. Marine A was initially found guilty of murder for shooting a wounded Taliban fighter while on patrol in Helmand Province in 2011 (“Marine guilty” 2013). He was later released, having served three and a half years in prison, after his murder conviction was replaced with diminished responsibility manslaughter (Morris 2017).

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