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ESKILSTUNA VÄSTERÅS**

THE CONTEMPORARY CHALLENGES OF DRONE WARFARE

A descriptive and critical analysis on the contemporary challenge of integrating just war theory with artificial intelligence in warfare.

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ABSTRACT

Due to the rapid technological advancements of the 21st century the fundamental nature of warfare has changed. Drones along with autonomous weapon systems has presented new challenges to the traditional concept and internal interpretations of just war theory. The purpose of this thesis is to present an analytical summary of the academic debate surrounding the emergence of AI technology, and how it has challenged the core principles embodied within jus in bello and jus ad bellum. Furthermore, the thesis explores the ethical issues external to just war theory principles, with a focus on how AI technology has established unique challenges for drone operators as a consequence of this contemporary phenomenon of war. This is done through a descriptive idea analysis and a critical analysis based on existing empirical material on the current academic debate on this issue.

While the advantages of drones and LAWS are evidently presented throughout this thesis, the repercussions are equally as important to contemplate. Thus, the findings in this thesis concludes that it is difficult to argue in favour or against the emergence of AI technology in war, as relevant arguments exist on both sides of the spectrum. However, the challenges for future just war theorists will be to adjust and reinterpret the moral foundations embodied within the principles of jus in bello and jus ad bellum to adhere to this contemporary phenomenon of war.

Keywords: Just war theory, Jus in bello, Jus ad bellum, Artificial intelligence, Drones

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LIST OF ABBREVIATIONS

Abbreviation	Description
AI	Artificial Intelligence
CIA	Central Intelligence Agency
IHL	International Humanitarian Law
LAWS	Lethal Autonomous Weapon Systems
U.S.	United States
UAV	Unmanned Aerial Vehicle
UCAV	Unmanned Combat Aerial Vehicle
UN	United Nations
VNSA	Violent Non-State Actors

1 INTRODUCTION

Warfare has endured tremendous reforms throughout history. Yet the aim to conduct asymmetrical warfare for the purpose to minimize military casualties, removing the human factor from the loop while inflicting unrivalled force remains the cornerstone for every military doctrine. Modern advancements in technology and more efficient weapons systems have paved the way for such achievements to be attainable. Drone warfare and Autonomous AI algorithms represent a new era in modern warfare which has revolutionized the traditional phenomenon of war.

On the 3rd of January 2020, the United States president Donald Trump authorized the killing with the use of an unmanned combat aerial vehicle drone Predator, of the leader of the Iranian Revolutionary Guard Corps Qassam Suleimani, resulting in no civilian casualties (Lushenko, 2021). The attack demonstrated the effectiveness of drones in their ability to conduct military operations that involve monitoring and the capability to perform precision strikes without risking the lives of U.S. soldiers.

While the advantages of drones and autonomous weapons are evident, the repercussions are equally crucial to contemplate. The aggressor-defender paradigm of traditional just war which emphasise war being conducted in an aggressive manner, has fundamentally been considered as unjust, while defensive wars have been considered just (Gentry, 2014). However, such paradigms with regards to the capabilities of modern warfare are arguably no longer applicable, as offensive military initiations have become more acceptable, and sometimes obligatory for defensive purposes (Gentry, 2014). Although the paradigm of just war has shifted, the use of autonomous weapons is currently facing tremendous criticism as this new phenomenon challenges the traditional perspectives of jus ad bellum and jus in bello.

In Geneva 2014, The United Nations initiated discussions for the ban of such weapon systems as they controversially violate and complicate the traditional understandings of the rules and laws of war (Sloan, 2015). Two sides of the spectrum have become widely debated. Although, robotics in warfare has proven successful in combating terrorism, limiting civilian and military casualties, significant moral concerns regarding the principles of distinction and proportionality

have emerged as a consequence regarding the use of such weapon systems (Brunstetter & Braun, 2011).

Since the introduction of robotics and autonomous AI algorithms into warfare only emerged during the past few decades, information and research regarding the topic is limited and is still actively discussed as an ongoing issue at an international level. The challenge for future just war theorists will be to will be to adjust the moral foundations of just war theory to match this contemporary phenomenon of war.

Thus, the purpose of this thesis is to explore and analyse how the emergence of AI technology as a military doctrine has challenged the fundamental concept of just war theory with regards to the traditional just war principles of distinction, proportionality, necessity, just cause, last resort, probability of success and proper authority, and also to explore ethical issues external to just war theory which have come to light due to the use emergence of AI technology in warfare. The phenomenon of warfare is changing rapidly. So, what does this entail, and which global challenges await?

1.1 Background

The combatants who participate in war have changed drastically (Brunstetter & Braun, 2011). According to the U.S. Department of Defence, autonomous AI lethal weapon systems refers to a combat system that has the capabilities to conduct military operations autonomously and independently without the need of human involvement (Department of Defence, 2012). First introduced in the Bosnia and Kosovo war during the 1990s, drones were primarily used as an instrument of surveillance. During this period, the U.S. viewed targeted killings as direct violations of International Humanitarian Law. However, as a result of the incidents that occurred during 9/11, U.S. perception on targeted killings reversed, and their policy on using drones was modified to permit certain extrajudicial killings (Brunstetter & Braun, 2011).

Lethal autonomous robots are revolutionizing the traditional concept of war. Evidently, the evolution in technology is slowly shifting the location of the battlefield from on ground operations to operating facilities located miles away. Lethal robots allow soldiers to conduct military missions from a computer screen, thousands of miles away from reality. Instead of being trapped in trenches for months, a soldier in contemporary warfare can arrive to work in

the morning, conduct military operations overseas, and in the evening return home to their family (Sparrow, 2009).

The transformation of modern warfare has threatened the moral standards codified in the Just War tradition (Lushenko, 2021). According to Walzer, justification for killing is based on the moral equality and the mutual understanding of exposure to risk (Johansson, 2015). However, the introduction of robots into the battlefield complicates such moral equalities. A robot, unlike humans, does not share the risk of death. Robots that vanquish on the battlefield are either retrieved and re-entered into service or destroyed and replaced. Human life on the other hand does not share the same luxury. Counterarguments emphasize that robots have the ability to wage war better (Royakkers & van Est, 2015). Unlike humans, robots can be programmed to perform better ethical and rational decisions, follow rules of engagement, and avoid conducting war crimes as robots do not possess the ability to feel cognitive or emotional repercussions, self-interests, or stress, thus allowing robots to follow orders exceptionally well (Royakkers & van Est, 2015). Furthermore, lethal autonomous robots acquire state of the art surveillance. A drone can carry out missions and maintain its position in the sky during days on end, refuelling when necessary (Brunstetter & Braun, 2011).

A lethal autonomous weapon system delivers unprecedented asymmetrical violence on the battlefield (Kaempf, 2014). Drones possess the ability to carry out multiple roles: target terrorists across international borders, protect domestic soldiers on the ground, and minimize civilian casualties (Schulzke, 2011). The introduction of such unprecedented systems has questioned the necessity of the human factor in the loop of warfare, illustrating humans as the weakest link in the military cycle (Sloan, 2015). By 2009, the U.S. Air Force trained more drone operators than fighter pilots (Helmore, 2009). In 2013, the Pentagon established a research programme for the purpose to construct autonomous weapon systems (Sloan, 2015). By 2050 the U.S. Air Force is predicting that fully autonomous UCAV fleets will be deployed (Royakkers & van Est, 2015).

The U.S. has challenged the general understanding of IHL in light of autonomous weapon systems and has established its own interpretations surrounding the traditional concept of just war theory (Kaempf, 2014). In Geneva 2014, an informal meeting was established to discuss the possibility of banning lethal unmanned weapons systems in response to the growing discontent surrounding the use of drones and their violations against IHL (Royakkers & van Est, 2015). Robots as intelligent weapons systems are considered as one of the most promising

inventions in modern era warfare. However, weapons without any ethical qualities risk contrary intentions (Crnkovic & Çürüklü, 2012). Evidently, in Yemen, violent non-state actors acquiring lethal unmanned weapons has proven to be a difficult challenge for Saudi authorities to address these growing contemporary issues (Lushenko, 2021). However, due to limited public awareness regarding the use of lethal unmanned weapons, and fierce resistance from major superpowers, little resolution has been achieved for the ban of such weapon systems.

1.2 Aim & Research Questions

The introduction of AI technology as a military doctrine is a contemporary phenomenon which has immensely challenged the traditional concept of just war theory. Robotics and AI weaponry has solely revolutionized the traditional notion of warfare and is the next step in the growing evolution of war. As the existence of robotics and lethal autonomous weapons systems only emerged during the past few decades, they represent a contemporary notion which brings substantial challenges and are thus widely discussed at an international level.

The purpose of this study is to illustrate how the emergence of AI technology has challenged the fundamental principles of traditional just war theory. This is done through a thorough, critical, analysis of the current academic debate on this issue. Furthermore, the study will also explore ethical issues external to just war theory principles, with a focus on how AI technology has established unique challenges for drone operators as a consequence of this contemporary phenomenon of warfare.

Thus, two research questions are presented for this study.

1. How has the emergence of AI technology challenged the fundamental principles of traditional just war theory?
2. Which ethical challenges are drone operators facing as a consequence of the emergence of AI technology?

2 METHODOLOGY & MATERIAL

This thesis is composed based on a Qualitative Text Analysis. The purpose of the thesis is to present an analytical summary of the academic debate surrounding how the emergence of AI technology as a military doctrine challenges the fundamental concept of just war theory, with regards to the principles of jus in bello and jus ad bellum. Moreover, throughout the course of the thesis, central core perspectives of each principle will be thoroughly critiqued and discussed. Thus, two methodological approaches i.e., a descriptive idea analysis and a critical analysis of ideas will complement each other and form the basis of the thesis.

Basic ideas, assumptions and arguments generate traces of empirical literature and research. The purpose of an idea analysis is to evaluate, present and argue over the underlying understanding of such empirical material (Bergström & Svärd, 2018). In the process, the researcher's hypothetical assumptions are tested with regards to the content's underlying structure of ideas, in order to formulate a convincing interpretation. As the purpose of my thesis is to illustrate, describe and argue with regards to the debate surrounding the emergence of AI technology, and the challenges towards the fundamental perception of just war theory, an idea analysis is the obvious and most appropriate methodological approach.

In addition to these common features, an idea analysis can consist of various purposes (Bergström & Svärd, 2018). An idea analysis can be descriptive, explanatory, or critical. A descriptive idea analysis aims to describe the fundamental ideas surrounding a topic. According to Bergström & Svärd: "*Such descriptions are a necessary step when conducting an idea analysis, because it forms the basis of all other ambitions the researcher may have with their study*" (Bergström & Svärd, 2018, p.140). As mentioned earlier, the purpose of the thesis is to illustrate and describe the ongoing academic debate with regards to the emergence of AI technology and how it challenges just war theory, thus, the main body of the thesis will be composed of a descriptive method.

Narrowly summarizing an ongoing debate with already existing literature and studies surrounding the issue, is not considered sufficient enough to conduct a thesis (Bergström & Svärd, 2018). Thus, a critical analysis of ideas will occasionally complement the describing method of the idea analysis. According to Bergström & Svärd: "*In some idea studies, the stated purpose is to critically evaluate and adopt a stance towards the examined content*" (Bergström & Svärd, 2018, p.143). Furthermore Bergström & Svärd (2018), emphasise that the purpose of a critical analysis of ideas is to evaluate the validity of the materials. Any academic text

published by an author is open to interpretation as the individuals' personal assumptions and ideas are ingrained in the texts underlying structural ideas. Thus, testing validity is an essential element when conducting a critical analysis of ideas. Therefore, inner consistency of the empirical material will be tested with regards to the just war theory and will be thoroughly discussed and critiqued throughout the analysis. Lastly, an in-depth critique of my own personal ideas surrounding the present and future challenges of the emergence of AI technology will be presented in the conclusion and discussion section.

The analysis has been divided into four different sections. The first section sheds light on the individual acts within just war perspectives i.e., the *jus in bello* principles of war and how the implication of AI technology has both challenged and benefited the principles of distinction, proportionality, and necessity (Lazar, 2016). The second section focuses on the moral evaluation of just war in general i.e., *jus ad bellum* with focus on just cause, last resort, proportionality, probability of success, and proper authority (Lazar, 2016). The third section explores a perspective external to just war theory and focus on how AI technology has established unique challenges for drone operators and the various ethical issues which has emerged in light of this contemporary phenomenon of warfare. The thesis concludes with a discussion and conclusion where the findings of the thesis will be presented together with my personal ideas concerning future scepticism surrounding the topic.

Conducting a well-structured idea analysis entails assessing and arguing over the appropriate empirical material with regards to the topic (Bergström & Svärd, 2018). Thus, the empirical material surrounding the integration of AI technology in modern warfare have been selected and limited based on its contemporary relevance to just war theory, *jus in bello* and *jus ad bellum*. Throughout the process, personal interpretations are constructed by analysing and evaluating the underlying nuances of the texts. Since my purpose is to summarize the academic debate surrounding the emergence of AI technology and the challenges towards just war theory, the primary source of material will be discussions of the topic found in articles and journals, books, news articles, U.S. official governmental documents and websites, IHL databases, United Nations documents, Presidential transcripts and theories shedding light on just war theory.

3 THEORY

The following section sheds light on just war theory which is the focus of this thesis. Furthermore, the two criteria which embodies the doctrine of just war theory i.e., jus in bello and jus ad bellum will be presented along with their respective internal principles.

3.1 Just War Theory

Michael Walzer, considered as one of the most important philosophers of just war theory has been immensely influential among philosophers, political scientists, international lawyers, and military practitioners (Lazar, 2016). One of his more successful works, *Just and Unjust Wars*, published in 1977 illustrates the justifications as to how and why wars are fought (Moseley, n.d.). War entails a chain of events which has to be contemplated prior, during and following its course. The doctrine of just war theory refers to a set of criteria to ensure that states conduct war in a fair and just nature (Moseley, n.d.). The theory applies to the relationships among states and not to individuals (although individual application, especially within the principles of jus in bello is comprised within the theory) (Lazar, 2016). The emergence of terrorism and VNSA has presented serious challenges for the application of the traditional concept of just war theory with regards to its ability to adhere to these contemporary phenomena.

The principle, jus in bello, concerns the individual acts within a war and whether the actions conducted are considered to be just (Moseley, n.d.). The second principle, jus ad bellum concerns the general moral evaluations of war which refers to certain prerequisites which states ought to consult before resorting to war or whether military force in general is permissible (Moseley, n.d.). According to various scholars the two principles should be interpreted separately which entails that an armed conflict can be both permissible and unjustifiable (Lazar, 2016). For example, the resort to war can be permissible while the individual actions within the conduct of war can violate basic international laws and regulations. Similarly, a contradictory circumstance is possible (Lazar, 2016). In the following sections I will summarize the various principles embodied within both jus in bello and jus ad bellum.

3.2 Jus in bello

3.2.1 *Distinction*

Civilians enjoy fundamental rights of life and liberty which provides them immunity from the essence of war (Lazar, 2016). Force is only permissible under international law to be directed towards combatants and should not discriminate towards civilians. The term liability is a central core aspect within the principle of distinction. When combatants participate in war, they consequently forfeit their rights of immunity and thus, turn into legitimate and liable targets (Lazar, 2016). Combatants cease to become liable targets in a conflict when they decide to surrender, get captured or are injured enough to the extent that the individual is no longer considered a lethal threat. In the case of a surrender, POWs should be treated according to the Geneva Convention and eventually return as a civilian (Moseley, n.d.).

3.2.2 *Proportionality*

Proportionality under jus in bello specifies that military force towards civilians or civilian infrastructure should not be disproportionate with relation to the strike towards a legitimate military target or the desired outcome of a military objective (Lazar, 2016). The doctrine accepts the correlation of civilian deaths as a consequence of war unlike the principle of distinction, which directly prohibits killing of illegitimate targets (Lazar, 2016). Under the principle of proportionality, unintentional killing can be considered permissible if the outcome generates overall good (Lazar, 2016). However, civilian casualties should not be targeted indiscriminately based on achieving strategic objectives. Thus, proportionality is about assessing the anticipated harms against the possibilities of preventing further evil (Lazar, 2016). Similarly, to the principle of distinction, the doctrine of proportionality has faced heavy criticism surrounding the limited disregard for indiscriminate and disproportionate strikes against civilians and civilian properties with regards to the wars in the Middle East.

3.2.3 *Necessity*

The doctrine of necessity stipulates that feasible precautions are necessary when conducting a strike to avoid unnecessary suffering while effectively applying enough force to pressure the enemy into submission and conclude the conflict (Lazar, 2016). The principle, similarly, to the doctrine of proportionality is aimed to minimize the number of civilian casualties and

destruction towards civilian properties with regards to achieving the military objective. According to Lazar, a common concept regarding the doctrine of necessity involves: “*How much risk to our own troops are we required to bear in order to minimize harms to the innocent*” (Lazar, 2016, Necessity, para. 3). Although, understanding exactly how much force is necessary to neutralize a threat while not inflicting serious casualties towards a nation’s own combatant, can sometimes be impossible to determine. Thus, various loopholes embody the doctrine which leaves vast interpretations as to what constitutes enough force while avoiding personal casualties.

3.3 Jus ad bellum

3.3.1 Just Cause

Wars are justifiable under the notion to prevent excessive death and destruction (Lazar, 2016). The traditional concept of just war theory recognizes two criteria which uphold the principle of just cause in war i.e., humanitarian interventions and conduct of war for the purpose of national defence. The doctrine of self-defence is permissible under law when acts of aggression have been initiated towards a country’s sovereignty or national borders (Moseley, n.d.). The principle hold ground against retaliatory purposes, and pre-emptive precautions against anticipated attacks (Moseley, n.d.). Furthermore, humanitarian interventions are another core perspective which provides justifications for interventions. According to a contemporary view of just cause expressed in 1993 at the US Catholic Conference: “*Force may be used only to correct a grave, public evil, i.e., aggression or massive violation of the basic human rights of whole populations*” (USCCB 1993, Just War: New Questions, para. 4). Such perspectives arguably illustrate why engaging in war for the purpose of just cause is permissible (Lazar, 2016). However, they also raise substantial issues with regards to the extent that humanitarian interventions and the notion of self-defence should be interpreted and legitimized (Lazar, 2016). Similarly, to the doctrine of last resort, issues surrounding such criteria are evident when conducted with intolerant intentions or in an overly abusive manner. Furthermore, causes of humanitarian interventions frequently adopted within the contemporary stance on foreign policy have faced heavy criticism towards their ability to establish peace and avoid further spread of violence and uncertainty intercontinentally. Further criticism alleged towards self-defence and the notion of preventive

wars has also faced fierce condemnation with regards to proportionate measures towards anticipated threats.

3.3.2 *Last Resort*

The doctrine of last resort stipulates that all forms of negotiations, alternatives and solutions has to be thoroughly contemplated and evaluated before resorting to war (Moseley, n.d.). The consequence of war entails immense casualties in terms of human life and infrastructure while also inflicting serious economic and political repercussions. Thus, resorting to war should not be underestimated, as ceasing an ongoing conflict can be difficult when war initiates (Moseley, n.d.). Therefore, if an ongoing conflict can be defused with diplomatic measures or other forms of negotiations, such alternatives should in that case be prioritized before resorting to military force (Lazar, 2016). The anticipation of pre-emptive strikes is a serious contemporary issue with regards to the principle of last resort (Lazar, 2016). According to various scholars, the criteria of last resort can be satisfied before an attack has transpired (Lazar, 2016). Since, the evolution of modern warfare entails a dynamic and rigorous environment, the anticipation of a strike is therefore frequently impossible to determine. To prevent suffering and undesired consequences at a domestic domain, the notion of last resort, arguably allows states to take necessary precautionary measures. However, to prevent countries from taking advantage of conducting preventive wars with intolerant intentions, necessary rules, laws, and regulations are necessary (Lazar, 2016).

3.3.3 *Proportionality*

Proportionality in jus ad bellum stipulates that the implication of force has to be proportionate towards the anticipated scale, evils, or harms and should not inflict disproportionate measures with regards to destruction or encourage acts of revenge and retribution. (Moseley, n.d.). Furthermore, the doctrine of proportionality rejects the notion of invading for an invasion's sake. For instance, proportionality entails that if a country A invades a country B, then country A's initial invasion has to be proportionate to the scale of the threat and should not impose any excessive suffering to country B. Any retaliatory strikes from country B, should only be proportionate enough to retake any loss inflicted, and should not use overwhelming force or invade the intruders' lands, except in the case of being the only viable option to deter further reprisals (Moseley, n.d.). Contrarily from the proportionality principle under jus in bello which

explicitly focuses on the individual conduct of equivalent strikes during a conflict, jus ad bellum doctrine of proportionality is emphasised on the military operation as a whole.

3.3.4 *Probability of Success*

The doctrine of probability of success, requires that a reasonable chance of success be necessary in order to conduct war (Moseley, n.d.). Before resorting to war, a nation has to contemplate the potential costs and benefits of conducting an invasion (Moseley, n.d.). If the expected costs or the possibility of success is unachievable then resorting to war is not justifiable under the conditions of probability of success. However, several issues regarding the principle are evident. Conducting war for the purpose of national self-defence or defending people who are under siege from a bullying force with little chance of success should still imply a reason for participating in conflicts (Moseley, n.d.). Wars are always fought with imperfect knowledge and upsets transpire occasionally, thus it is impossible to anticipate an outcome of a war before it has been concluded. The doctrine also suggests that unsymmetrical violence or invading for the sake of invading must not be undertaken in order to achieve a reasonable chance of success.

3.3.5 *Proper Authority*

International law implies that exclusively sovereign states possess the rights to conduct war which non-state actors lack (Lazar, 2016). National defence and soldier representation and rights are only permissible under statist identity (Lazar, 2016). A soldier fighting in a war grounded under the legitimacy of the state has proper authority to participate under the appropriate rules and laws governed by international law. Proper authority entails that when a governing body attends in warfare it incorporates certain responsibilities as it includes vast resources of the population while also representing the state's name (Lazar, 2016). Consequently, iniquity conducted unauthorized by states generates a vast range of both moral and legal issues at a domestic and international level. Without transparency within a political system, it becomes difficult to fathom any event which would include legal consequences or distinct justice (Dorbolo, 2001).

4 JUS IN BELLO

The following section sheds light on the laws that governs the legitimate acts in which warfare is conducted once it has commenced. Furthermore, the segment presents the challenges of integrating the jus in bello principles of distinction, proportionality, and necessity with regards to the contemporary phenomenon of AI technology in warfare.

4.1.1 *The Principle of Distinction*

Discriminating between civilians and combatants is arguably the most essential aspect of just war theory. The issue of distinction with regards to AI technology and lethal autonomous weapons is considered as one of the most controversial areas within just war theory with relevant arguments on both sides of the spectrum. War usually implies loss of life, and to consider that an autonomous weapons system to hold power over life and death on the basis of a coded algorithm triggers various ethical, legal, and moral interpretations surrounding jus in bello principles. The challenges of autonomous weapon systems targeting individuals, requires numerous prerequisites, to assure that legitimate targeting is conducted within measures that satisfy IHL (Lushenko, 2021). However, such programming can be difficult to achieve as autonomous machines lack understanding of moral reasoning, which is an essential element in dynamic warfare (Schulzke, 2011). As Singer explains “*Of course, while a machine may be guided by ethical rules, this does not make it an ethical being. Software codes are not a moral code; zeros and ones have no underlying moral meaning*” (Singer quoted in Schulzke, 2011, p.300).

Since distinction in warfare is heavily context-dependent and dynamic, requirements of exceptional moral reasoning would therefore be essential for a robot to conduct a legitimate strike (Sparrow, 2009). However, such a system capable of executing moral reasoning with regards to all aspects of warfare does not yet exist. Furthermore, the issue regarding combatants surrendering, is another area that faces issues surrounding the topic of lethal autonomous weapon systems. According to article 23 of both Hague Conventions II (1899) and IV (1907) it is especially forbidden “*To kill or wound an enemy who, having laid down his arms, or having no longer means of defence, has surrendered at discretion*” (ICRC, n.d., (c), para. 1). As robots lack moral reasoning, distinguishing an enemy combatant who has surrendered can therefore be difficult for a robot to understand. Unlike LAWS, human soldiers can discriminate based on moral reasoning, understand empathy, and use judgement when applying force towards enemy combatants who have surrendered (Horowitz, 2016).

Furthermore, terrorists commonly reside within civilian areas, thus, the issue regarding how to distinguish between combatants while ensuring civilian immunity can be difficult to determine. (Brunstetter & Braun, 2011). Similarly, various tribes in Afghanistan and Pakistan carry firearms as a local cultural practice when defending their territory from external threats (Sparrow, 2009). As the battlefield between combatant's distances due to the use of lethal AI weapons, combatants may alter their behaviour in terms of applying force as killing becomes significantly easier. Enemy soldiers may be viewed as pixels on a screen instead of real human beings, thus, the risk for drone operators to target and engage indiscriminately violates jus in bello principles (Sparrow, 2009).

Although there are numerous challenges connected with the use of autonomous and semi-autonomous weapon systems being deployed on the battlefield, there also exists plenty of advantages. During the Balkan war in the 1990s, an incident involving a NATO airstrike on a civilian bus convoy mistaken for being tanks was reported resulting in civilian casualties (Lushenko, 2021). Pilots in wars are always subject to the exposure of risk. Acting impulsively for the fear of life will in many cases prompt immediate reactions to conduct a strike in the heat of a battle. Since drones cannot experience basic human cognitive feelings like stress, emotions, and fear of life, drones can be programmed to be reluctant to use force in order to avoid civilian casualties (Brunstetter & Braun, 2011). Although not moral entities in nature, this would still allow robots without adequate background knowledge to uphold moral requirements in jus in bello (Schulzke, 2011). Furthermore, as drones provide video footage, they can be used to monitor human operators and hold them accountable in the case of strikes towards illegitimate targets which most certainly violates jus in bello principles (Schulzke, 2011). Surveillance allows semi-autonomous and autonomous weapons to obtain crucial information in its decision whether to attack. Such information can better distinguish combatants from civilians, especially in conventional wars between states where armies carry insignia and uniforms (Brunstetter & Braun, 2011).

Controversy surrounding various scholarly opinions on the capabilities of drones and autonomous weapon systems to distinguish between civilians and soldiers is a widely debated topic with no clear moral answer as there exists evidence and arguments in favour and against the use of drones pointing in both directions. However, as technology continues to transform modern warfare, and with an increase in robots substituting humans, countries might find themselves forced to target civilians in order to force capitulation and win wars (Johansson, 2015).

4.1.2 *The Principle of Proportionality*

Similarly, to the principle of distinction, proportionality is a widely debated and controversial area regarding the use of AI weapons systems in warfare. What constitutes the level of force proportionate towards an attack? With regards to the use of drones and autonomous robots, such a question would differentiate between various scholars and militaries. The justification of any strike with regards to its scale and threats are heavily context-based with numerous ethical, moral, and situational considerations (Sparrow, 2009). A military authority is obligated to determine the appropriate amount of force with respect to the target. Too much force could imply collateral damage towards civilians and structural properties whereas too little force could endanger the safety of military personnel and risk compromising the objectives of a mission.

Proponents of the use of drones argue that due to their technological capabilities, a drone compared to an aircraft can conduct more accurate targeting, without the risk of disproportionate collateral damage (Brunstetter & Braun, 2011). Furthermore, the precision striking of drones would neglect the need for large scale bombing campaigns or ground invasions, thus reducing the proportionate amount of force necessary (Brunstetter & Braun, 2011). As mentioned in the earlier section of distinction, soldiers sometimes have a fraction of a second to make the choice which may result in life or death. Since drone operators are located in safe environments with a support team in proximity, it arguably enhances their ability to make better decisions regarding proportionality as they are not exposed to the direct risk of combat (Brunstetter & Braun, 2011).

Furthermore, a drone operator is not as likely to conduct war crimes on the same level as a soldier on the ground in the midst of combat as they do not experience similar emotions of anger, stress, or anxiety (Sparrow, 2009). According to a report conducted on soldiers who took part of the Operation Iraqi Freedom, about half of the soldiers who responded in the survey, disagreed that all non-combatants should be treated with dignity and respect, and similar numbers considered torture as an option to gather information regarding whereabouts of insurgents (Office of the Surgeon General, 2006). Future scenarios of drones being constructed into ethical governors, providing information regarding the recommended use of weapons, to avoid an indiscriminate attack or alert operators when a strike risks violating ethical, moral, or legitimate targets is imaginable for the foreseeable future (Royakkers & van Est, 2015). However, as militaries transition from aerial bombing to drone strikes, their use may cause an

increase of civilian casualties as a result of more frequent deployment of such weapon systems (Royakkers & van Est, 2015).

Another area of concern is that the use of lethal autonomous drones makes killing easier, and that the disregard for human life and structural properties in order to achieve certain objectives or protecting soldiers in favour of national interests can neglect moral and ethical consideration when justifying a strike (Sloan, 2015). According to the Geneva Conventions, the loss of civilian life during an operation is allowed as long as it is not reckless or disproportionate towards the military objectives (Vogel, 2011). However, such interpretations with regards to national security or strategic objectives is an immensely complex area that involves a wide array of various legal formalities and aspects debated by lawyers. According to data from New America, civilian casualties in Pakistan during the period 2004-2018 as a result of drone strikes are estimated around 245-303 with 211-328 unverified losses (New America, 2018). Semi-autonomous robots under the command of a human operator can consider various ethical, moral, and legal issues before conducting the proportionality of a strike. However, the issue regarding fully autonomous robots having full authority over proportionality is a controversial area which remains to be observed in the foreseeable future.

4.1.3 *The Principle of Necessity*

The utilitarian approach, which entails: the greatest good for the greatest number of people while preventing harm and suffering, with regards to war is rarely and, in many cases, impossible to achieve, as states act for the benefit of their own national interests (Johansson, 2015). According to Smith, during the past decade's warfare has experienced a significant shift from the notion of constraining violence towards legitimizing force (Smith, 2002). In other words, a shift in the focus from morality to legality. U.S. has demonstrated their will to prioritize national security and achieving strategic objectives over the loss of civilian life (Vogel, 2011). Thus, as drones become more technologically advanced, it is not impossible to speculate that the use of such weapons systems will be for the purpose of strengthening and achieving military objectives rather than humanitarian aspirations.

The U.S. war on terror has sparked tremendous consequences in terms of security issues worldwide. Thus, if countries who are subjects to radical terrorism cannot adequately deal with their internal security issues, states like the U.S. would argue that it is their responsibility to ensure security and stability in the region to prevent the infliction of further harm towards the

nation's own sovereignty (Brunstetter & Braun, 2011). The issue of necessity with regards to drones challenges the fundamental principle of the legality of war itself and has instead developed into a utopia of maximized military utility towards each operation and the strategic gains which can be acquired. As it is impossible to predict future strikes towards a nation's own sovereignty the question surrounding necessity becomes difficult to determine. As Brooks explains, "*How can one decide if lethal force is necessary to prevent a possible future attack about which one knows nothing?*" (Brooks, 2014, p.95). Although, the contemporary notion surrounding necessity in traditional just war theory is questionable with regards to the current state of the international domain, drones still provide the possibilities to ensure enough force to pressure an enemy into capitulation while enduring limited self-casualties towards a nation's own combatants.

5 JUS AD BELLUM

This section summarizes the academic debate surrounding the general conditions under which states may resort to war with regards to the contemporary challenges of AI technology. This segment consists of a thorough analysis of the various jus ad bellum principles of just cause, last resort, proportionality, probability of success and proper authority.

5.1.1 *The Principle of Just Cause*

National defence and humanitarian interventions for the purpose of strengthening sovereignty are the two cornerstones which establish the doctrine of just cause. However, contrasting opinions as to how drones and AI technology support such principles is a controversial area with immense political meaning. Sovereignty enhances collective harmony and encourages cooperation between states to achieve common goals of security, stability, prosperity and the establishment of shared norms and values to strengthen social bonds (Lushenko, 2021). Evidently, the U.S. with the virtue of drones has directly supported various countries with issues of political turmoil to balance and reinforce countries sovereignty. For example, the U.S. deploys drones over Somalia to support the Federal Government of Somalia to maintain control over Mogadishu (Lushenko, 2021). Therefore, it is arguably obligated for the international community to use force across borders in order to ensure the prosperity of states to function with sovereignty and legitimacy and contribute to the collective benefits of the world order (Gentry, 2014).

The current state of the international domain is a rigorous and dynamic environment with threats stretching across borders. The doctrine of self-defence and preventive force has emerged as a response to the growing threats towards national security and challenges the principle of just cause in war. In a speech addressing the U.S. policy on drones, Barack Obama quotes the following, “*We are at war with an organization that right now would kill as many Americans as they could if we did not stop them first. So, this is a just war — a war waged proportionally, in last resort, and in self-defence.*” (Mills, 2013, para. 32). U.S. policy defends the use of drones in combat as they serve the purpose of self-defence while denying terrorism the ability to plan and execute strikes intercontinentally (Brunstetter & Braun, 2011). However, the risk that states neglect general moral principles for the purpose to achieve strategic objectives and national interests may equally be used in an abusive manner, counteracting the general understanding of what the principle of just cause entails (Buchanan, 2004). Furthermore, other states might mimic U.S. policy on the use of drones, argue that they are used for self-defence purposes, and

implement similar strategies to achieve their own national interests (Hajjar, 2019). If there does not exist enough rules and regulations surrounding the use of drones and lethal autonomous weapon systems, countries will likely abuse their advantages for national benefits.

War in general can be immensely costly from any side, regardless of combat superiority on the ground. The loss of life of a nation's own servicemen is a discouraging factor which contributes to public outrage and protests. Reducing the human factor from the loop, can result in less disincentives to engage in war. (Sharkey, 2012). The use of drones creates an illusion of diminishing loss of life and the exclusion of humans. Such factors can greatly influence the general public's perception towards war (Johansson, 2015). For example, the Iraqi intervention in 2003 resulted in the loss of thousands of American soldiers and civilians. Since then, the deployment of drones has gained wide-spread support as a more desirable alternative (Lushenko, 2021). For military commanders, the deployment of drones represents a solution to diminish the loss of life and avoid the need for large scale invasions which most certainly will result in severe casualties (Sharkey, 2012). The possibility to kill from a distance without risking soldiers has greatly tempted the U.S. to push the agenda of drones and the development of lethal unmanned weapons (Hajjar, 2019). According to Horowitz, the attraction of the advantages related to drones and autonomous weapons, raises large concerns as the incentives to conduct war becomes exceedingly effortless and affordable, which most certainly challenges the principles of jus ad bellum, as artificial intelligence has no moral reasoning and can therefore, not satisfy the requirements for just cause (Horowitz, 2016).

5.1.2 *The Principle of Last Resort*

The doctrine of last resort stipulates that all forms of negotiations, alternatives and solutions have to be thoroughly contemplated and evaluated before an attack can be justified. Such methods include diplomatic negotiations, arbitration, or various countermeasures in terms of political pressure and economic sanctions (Brunstetter & Braun, 2011). Unfortunately, due to the dynamic environment of the international domain, and with the absence of a higher juridical governor, mutual dependency between states is an unrealistic utopia. Thus, a realist world which emphasises on prioritizing national security and interests is presumable when analysing foreign affairs and thus, complicates the principle of last resort with regards to LAWS. Advantages of drones and LAWS is their ability to deter perceived threats while avoiding the necessity of a full-scale attack, therefore raising the threshold of last resort (Brunstetter & Braun, 2011). As mentioned in the earlier section of The Principle of Proportionality, the ease

at which insurgents can be targeted and eliminated through the use of drones may encourage nations to apply more violence. Consequently, the lack of restraint for states to resort to violence risks disregarding the jus ad bellum principle of last resort. However, in situations which require appropriate precautions towards national security or towards violations against IHL, the use of drones is viewed as a necessity for defensive purposes, justifying their use as a response of last resort (Gentry, 2014). Further issues surrounding the use of drones and LAWS is their complication towards justice. In war unintentional killings of civilians and wrongful targeting is common. The issue however when states deploy drones for the purpose to deter perceived threats is that individuals who are being targeted are never allowed to formally defend themselves in court (Royakkers & van Est, 2015).

5.1.3 *The Principle of Proportionality*

The level of proportionality with regards to its scale is difficult to determine and arguably impossible. According to Brooks, “*Both necessity and proportionality come to be evaluated in the context of purely hypothetical worst-case scenarios (in theory, any terror suspect might be about to unleash another catastrophic attack on the scale of 9/11)*” (Brooks, 2014, p.95). As mentioned in the previous section of proportionality under jus in bello; the Geneva Convention allows the loss of life in military operations as long as it is not reckless or disproportionate towards the military objective (Vogel, 2011). However, such interpretations are complicated to determine with regards to deterring perceived threats and require legal formalities debated between lawyers. Some scholars would argue that the U.S. invasion of Iraq and Afghanistan was vastly disproportionate compared to the initial U.S. suffering of 9/11 (Brunstetter & Braun, 2011). The number of civilian casualties, destruction of properties and the post-invasion repercussions, has resulted in tremendous setbacks for both government’s ability to recover.

According to Brown, “*Exceptional justifications is required to cross the threshold of war*” (Brown, 2011). Since drones lack moral judgment, their ability to determine ‘exceptional justifications’ is questionable. For a drone to officially declare war and make independent decisions regarding proportionality would raise substantial legal, ethical, and moral concerns. Moreover, no current metrics which can calculate or measure disproportionate suffering exist (Schulzke, 2011). Although some independent LAWS do exist which can determine and deter threats, they are limited to self-defence. For example, the autonomous sentry gun SGR-A1, located at the South Korean side of the demilitarized zone, was constructed to identify intruders and attack in case of a violation or an escalation around the border (Velez-Green, 2015). The

weapon was also programmed to identify intruders who had surrendered by visually confirming combatants throwing their weapons down or putting their hands up (Velez-Green, 2015). The use of such weapon systems arguably raises the threshold against violence between states. Instant retaliation upon invasion might discourage nations to wage war against each other, thus reducing the likelihood for war to occur (Velez-Green, 2015). Lastly, as discussed in the earlier section of proportionality under jus in bello, drones and LAWS possess the ability for precision-based strikes. This allows for more proportionate measures towards the scale of the threat while avoiding the need for a wider war (Brunstetter & Braun, 2011).

5.1.4 *The Principle of Probability of Success*

War entails a chain of events which demands considerable contemplation prior, during and following its course. The probability of success and victory is a fundamental requirement for nations who decide to partake in hostility. Without necessary precautions, the risk of not achieving success depends on a series of actions throughout the course of a conflict which determines the outcome of a war.

Technological advancements have allowed for better proportionate measures in conducting strikes which has greatly diminished collateral damage towards civilians and properties. Furthermore, drones and autonomous weapons, due to their intelligence, can more easily acquire information regarding hostile insurgents, denying them safe haven and limiting their possibilities to retaliate (Brunstetter & Braun, 2011). By eliminating top officials and terrorist leaders using drones, arguably enhances the possibilities to achieve a just war, as the need for large-scale invasions can be avoided. Furthermore, emotions like stress, fear and fatigue are common characteristics which humans possess, and during the heat of battle humans are very likely to conduct unproportionate strikes due to cognitive impulses. By removing the human factor from the loop, drones arguably perform better in stressful situations as they cannot experience emotions which may affect their ability to perform unproportionately in combat (Royackers & van Est, 2015). Thus, the probability to achieve a successful war which is proportionate towards its destruction is likely with the use of drones.

However, drones are also associated with various serious complications. According to the English philosopher Henry Sidgwick, war must be conducted in a way that will not generate bitterness or vengeful desires (Johansson, 2015). Feelings of brutality and unjust treatments are essential elements which a country has to contemplate and avoid during the course of a war in

order to achieve the basis for future tranquillity of order and peace (Johansson, 2015). However, according to Norris, “*Drones do not serve the just war purpose of limiting war but propel a vicious cycle of terror and violence.*” (Norris 2020, Not a way to peace, para. 2). Norris argues that, drones due to their unethical and lack of moral judgments, create feelings of hate, and fear within the local population, which cultivates desires of terrorism and vengeance (Norris, 2020). Therefore, it is likely to assume that the consequence of drone strikes towards the local population and loss of relatives generate a significant number of recruits. According to a Pashtun commander to the Pakistan Taliban, Baitullah Mehsud, “*each drone attack brings him three or four suicide bombers*”, who mainly derive from families who suffered casualties as a result from drone airstrikes (Ghosh & Thompson, 2009, p. 2).

Coherence between harmony and productive relationships allying the coalition and the local public sector is an essential aspect which vastly determines whether an operation during its course can be considered successful or not (Gentry, 2014). For this to be possible cross-cultural competences, empathy and understanding of local cultural values, religious beliefs and expectations are fundamental requirements in order to establish a stable relationship with any local population (Gentry, 2014). Since drones and autonomous systems lack moral reasoning, they are arguably not capable of transmitting any of these crucial aspects. Thus, any support or cooperation together with the local population to establish any form of reciprocal arrangements are arguably impossible. Imagine yourself as a local resident in your occupied country who has experienced death and destruction from autonomous weapons, and later a drone is sent to negotiate terms with you, how would you feel? According to Sharkey it is impossible to captivate any feelings of justice from a device which holds no emotions (Sharkey, 2012). Proponents of drone strikes argue that drone strikes pose a necessity when combating terrorism. Such an argument is fair in the current state of the international environment with emphasis on the war on terror. However, it is equally fair to indicate that the use of drones incites and increase the threat of terrorism worldwide (Hajjar, 2019). As Hajjar illustrates, “*if drone strikes are the cure, they are also part of the disease*” (Hajjar, 2019, p. 947).

5.1.5 *The Principle of Proper Authority*

In war, proper authority between states is a mandatory doctrine which distinguishes legitimate force and accountability, from unlawful actions that act outside the jurisdiction of international law. The use of drones, challenges the fundamental principles of legitimacy and authority in warfare, and risks threatening the nuance of what constitutes legitimate warfare. As drones lack

moral and ethical reasoning in their judgements, it vastly complicates the issue surrounding accountability (Horowitz, 2016). To further complicate, organisations like the CIA are not legally required to reveal classified information, nor are they required a formal presidential approval before operating an attack (Brunstetter & Braun, 2011). This allows the CIA to conduct operations in secrecy which are often concealed from outside observers. Without transparency, it becomes impossible to fathom any scenario which would include legal consequences or the requirement of proper authority. Furthermore, attempts from any external source to question the secrecy of drones has been neglected by the U.S State Department (Brunstetter & Braun, 2011). Criticism surrounding the use of drones argues that they violate international law as they have been associated with extrajudicial killings and even terrorism, as countries can conduct strikes without disclosing essential information regarding an attack which could involve legal consequences.

Another complication with drones surrounding proper authority is that the U.S. is militarily engaged in countries like Pakistan and Yemen without officially being in war. Thus, the U.S. war on terror which stretches beyond borders without official declaration of war, nor the legal consent from the states subject to terrorism, blurs the traditional understanding of what war entails and challenges the principle of proper authority within jus ad bellum theory (Brunstetter & Braun, 2011). According to Article 51 in the Charter of the United Nations, “*Nothing in the present Charter shall impair the inherent right of individual or collective self-defence if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security*” (United Nations, n.d., art. 51). With regards to international terrorism, the interpretation of the rule of law, arguably finds adequate legal reasoning for states to use drones and lethal autonomous weapon systems in their pursuit for self-defence (Brooks, 2014). On the contrary, non-state actors manufacture and purchase commercial drones which are turned into lethal weapons. According to Chávez, based on various sources from policy reports, military literature, open-source media, and an original data collection effort on VNSA, an estimate of 57 VNSA have acquired UAVs (Chávez, 2021). Moreover, technological advancements have allowed Houthi rebels to manufacture lethal drones by virtue of 3D printing (Lushenko, 2021). The possession of such formidable weapons systems has challenged states on a revolutionary scale and has caused great concerns towards the threat of national security. Thus, LAWS and the secrecy surrounding these phenomena, represent a new era in warfare which has challenged the concept of proper authority and risks altering the traditional notion of what constitutes legitimate authority in war.

6 ETHICAL ISSUES EXTERNAL TO JUST WAR THEORY PRINCIPLES WITH FOCUS ON DRONE OPERATORS

This section sheds light on how autonomous AI algorithms and drones have distanced the soldier from the battlefield and explores the ethical consequences of such fundamental altercations from a drone operator's perspective.

The evolution in warfare has fundamentally changed the soldier's perspective of war. As technology advances, the distance between the soldiers and the battlefield has substantially increased. Consequently, numerous alterations within the reasoning of combatants have transformed the soldier's understanding of accountability, responsibility, and duty. Moreover, various psychological and ethical factors have inaugurated new challenges with the introduction of drones and LAWS.

The presence of drones and autonomous robots are likely to establish a moral buffer between soldiers and their perception towards accountability and responsibility (Sparrow, 2009). According to Detert et al., individuals who occupy limited personal control over certain actions, are more likely to accept the final outcome, even if it includes harmful ethical or moral consequences (Detert et al., 2008). Thus, at an operational level where an AI algorithm plans and executes a strike, human operators might distance themselves from accountability and refrain from feeling responsible over the consequences of the actions committed by the drones (Horowitz, 2016). The prospect of such action's risks undermining fundamental principles over justification for killing, which is the notion of mutual exposure to risk between combatants (Johansson, 2015). Moreover, the issue surrounding accountability with regards to drones is complicated, especially in the case of a robot acting autonomously, which arguably makes it impossible to trace liability (Sloan, 2015). In the case of a violation against IHL, who should be held accountable for the actions committed? The manufacturer, commander, operator, or the drone itself? (Lokhorst & van den Hoven, 2012). Similarly, as any device invented by humans, drones are subject to the risk of malfunctions, miscalculations, and technical errors. Therefore, good design of drones is crucial in order to ensure that operators are aware of their actions and act within the requirements of accountability and responsibility (Sparrow, 2009).

In war soldiers suffer from common symptoms such as stress, anger, and fear. Consequently, the imminent risk of being exposed to physical threat is a common factor for soldiers to conduct acts of violence and war crimes. Another factor that can influence moral decision making is the bond humans experience towards each other (Schulzke, 2011). Unity within a platoon can

establish feelings of concern and responsibilities towards the group's safety. In many cases, soldiers take extreme measures of selflessly endangering their own life to protect their close friends (Schulzke, 2011). Although solid unity has a positive correlation with the soldier's ability to function exceptionally well in combat, the risks of soldiers to neglect moral reasoning is common (Schulzke, 2011). Arguably, as drone operators are not exposed to any physical threat, their ability to control negative emotions which may impact their capability to act immoral, substantially diminishes, which would certainly imply less risk for war crimes to occur (Sparrow, 2009). However, some reports show that drone operators are, similarly to pilots, inclined to experience post-traumatic stress symptoms as their actions to act swiftly can have tremendous influence over the outcome and safety towards friendly soldiers on the ground (Brunstetter & Braun, 2011).

The constant change in the atmosphere for a drone operator is another significant concern on their ability to process war related stress (Sparrow, 2009). According to a U.S. Air Force Major Shannon Rogers: "*Physically, we may be in Vegas, but mentally, we're flying over Iraq. It feels real*" (Donnelly, 2005, p.1). It is common for soldiers who have participated physically in war to partake in post-war therapy, including communication and interactions with soldiers who have experienced similar experiences (Sparrow, 2009). This new phenomenon of war, which is remote, presents new, unique challenges for soldiers. The constant change in environment and the geographic and psychological distance between workplace and home may have obstructive effects on soldier's ability to cope and process traumatic and stressful experiences in war (Sparrow, 2009). As Singer illustrates: "*You are going to war for 12 h, shooting weapons at targets, directing kills on enemy combatants, and then you get in the car, drive home, and within 20 min you are sitting at the dinner table talking to your kids about their homework*" (Singer quoted in Schulzke, 2011, p.296).

Another ethical issue is the devaluing of human life. Future combat scenarios are likely to represent a videogame than actual combat. Combatants will be illustrated as pixels on a screen rather than human souls. The ease of killing and the priority of accomplishing missions are likely to overrule human dignity. Since robots are not moral entities in nature, the process of an AI algorithm to hold power over life and death brings about immense ethical issues (Horowitz, 2016). As the philosopher Peter Asaro says: "*justice itself cannot be delegated to automated processes.*" (Asaro, 2013, p. 701).

7 CONCLUSION AND DISCUSSION

Due to the rapid technological advancement of the 21st century, the fundamental nature of warfare has changed. Drones along with autonomous unmanned weapon systems have challenged the fundamental concept of just war theory, as these new developments present new interpretations with regards to the various principles embodied within the theory (Lazar, 2016). Therefore, in light of what has been presented throughout this thesis, it could be argued that future challenges for just war theorists will be to evaluate how these unique challenges will affect the traditional concept of just war theory. An issue which just war theorists will have to contemplate as a consequence of the emergence of AI technology in contemporary warfare is how to adjust the moral foundations embodied within the principles of jus ad bellum and jus in bello to adhere towards this new phenomenon.

The summarizing debates explored within this thesis illustrate the various challenges that the emergence of AI technology has presented in light of just war theory. As has been highlighted, the aggressor-defender paradigm of traditional just war theory has dynamically changed due to the nature and capabilities of contemporary warfare. Therefore, it could be argued that the principle of just cause under jus ad bellum with respect to the notion of self-defence will be one of the fundamental arguments for nations who decide to deploy LAWS. It has also been underlined that since conducting war will be immensely easier and more cost effective, incentives to start war might be encouraged, thus violating the fundamental core requirements which uphold the doctrine of just cause.

Throughout the thesis, it has been emphasized that it will be significantly more difficult to respect the principle of last resort, as external threats towards national security and interests with the emergence of terrorism and VNSA has made it considerably more difficult to identify threats. Thus, resorting to pre-emptive strikes instead of diplomatic negotiations or other alternatives could become more attractive and perhaps, the only viable option with regards to the current threats on the international domain. Such a claim also neglects the current international debate circulating the ban of drones and LAWS. In addition, foreign policy is often with regards to conflicts and wars, viewed as strategic long-term opportunities to achieve national interests. Since using drones entails a wide spectrum of advantages, it can be argued that superpowers who are currently possessing such weapon systems are not likely to forfeit their asymmetrical edge as long as the advantages outweigh the repercussions.

The core values within the principles of necessity and proportionality arguably strengthens their implication towards just war theory as the use of drones decreases civilian casualties, avoids large scale invasion, and inflicts considerable force to pressure an enemy into surrender, while enduring limited self-casualties towards a nation's own combatants. However, since trends in current foreign policy are shifting from the notion of constraining violence towards legitimizing force, one can speculate that the use of such weapon systems will be used to strengthen and achieve military objectives rather than satisfying humanitarian aspirations. In light of this view, another significant debate which just war theorists will have to contemplate as a consequence of the emergence of AI technology is what constitutes war? As highlighted, drones nurture many advantages to conduct and monitor conflicts without the need for the unpredictable and often catastrophic consequences as a result of large-scale invasions (Brunstetter & Braun, 2011). The U.S. for example, are involved in conflicts in countries such as Yemen and Pakistan without an official declaration of war. The increasing implementations of no-fly zones, extrajudicial killings and sanctions are examples of such common methods which countries resort to in order to avoid a wider war. This contemporary phenomenon often referred to as *jus ad vim*, blurs the line of what constitutes war, and is suggested as a grey zone with respect to the requirements of *jus ad bellum*.

Since distinguishing between civilians and combatants is becoming significantly more difficult in contemporary warfare, it could be argued that the requirement of good design of robotics are crucial in order to satisfy the principle of distinction. Arguably, drones show high levels of validity in their ability to satisfy the principles of distinction and proportionality as drones unlike humans can be programmed to show high level of restraint. AI algorithms, unlike humans, are not clouded with emotions, and are thus less likely to conduct war crimes or disproportionate strikes. Moreover, there are still immense technological developments to be made before robots can adhere and understand moral judgments when applying force. Such technologies do not yet exist, but it would not be wrong to speculate that somewhere in the distant future such applications will become available considering the rapid growth of technology.

The principle of probability of success will struggle to adhere to the traditional values of just war theory as a consequence of the emergence of AI technology. As has been emphasized, drones vastly complicate the possibilities to establish any sort of relationship between the local population and the occupying force which is an essential factor in order to achieve the basis for future tranquillity of order and peace. In addition, countries who are subject to conflict against

a technologically superior country, are more likely to develop retaliatory aspirations and flare emotions of vengeance as a consequence of unfair asymmetrical violence. Thus, it will be interesting to observe how future conflicts which most certainly will involve drones and LAWS will confront these growing issues.

Arguably one of the more affected principles affiliated with just war theory due to the emergence of drones and LAWS is proper authority. As has been highlighted, just war theory applies towards the relationships among states and not towards individuals. Since wars are more frequently conducted between non-state actors and nations, it greatly challenges the validity of the underlying notion of proper authority. Moreover, as wars move away from the battlefield and towards operating facilities, issues like accountability and responsibility become less transparent, while distinguishing justice becomes more difficult. To prevent this, one could argue that essential regulations and laws should be implemented, in order to prevent military operations to be conducted in secrecy. It is likely to assume that as technology transitions from semi-automated to fully automated systems, it will become significantly more difficult to distinguish accountability. It is sincerely difficult to consider holding robots accountable for unlawful strikes. The purpose of distinguishing justice is to deal out suffering in the form of punishment in the case of a wrongful act. Since robots are not capable of understanding cognitive emotions or feel suffering, it therefore becomes difficult to punish and hold a robot accountable.

It is also likely as we transition into the new evolution of robotics in warfare that human life will become devalued and that the removal ofUCAV operators from the battlefield due to the emergence of LAWS will establish ethical and mental distances from the victims. Another concern of the emergence of AI technology which would greatly challenge the validity of jus in bello requirements is that, if future scenarios of war are conducted between robots, how does one achieve victory or force the enemy to capitulate? Arguably, the only way to achieve victory and force the enemy into surrender would be to target civilians and cities. With respect to such scenario, the emergence of drones and LAWS would reject various principles like distinction and proportionality within the traditional concept of just war theory.

While the advantages of drones are evidently illustrated throughout the thesis, the repercussions are equally as important to contemplate. Therefore, it is difficult to argue in support of, or against the use of drones, as relevant arguments exist on both sides of the spectrum. Evidently, the traditional concept of just war theory faces substantial challenges as a result of the

emergence of AI technology. Thus, internal interpretations of the theory include many ethical, moral, and legal loopholes which do not adhere to the contemporary issues of robotics in war. Therefore, necessary adjustments and reconfigurations of the theory are necessary to prevent wars to be conducted unjustly and interpreted wrongfully outside the norms and laws of IHL.

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