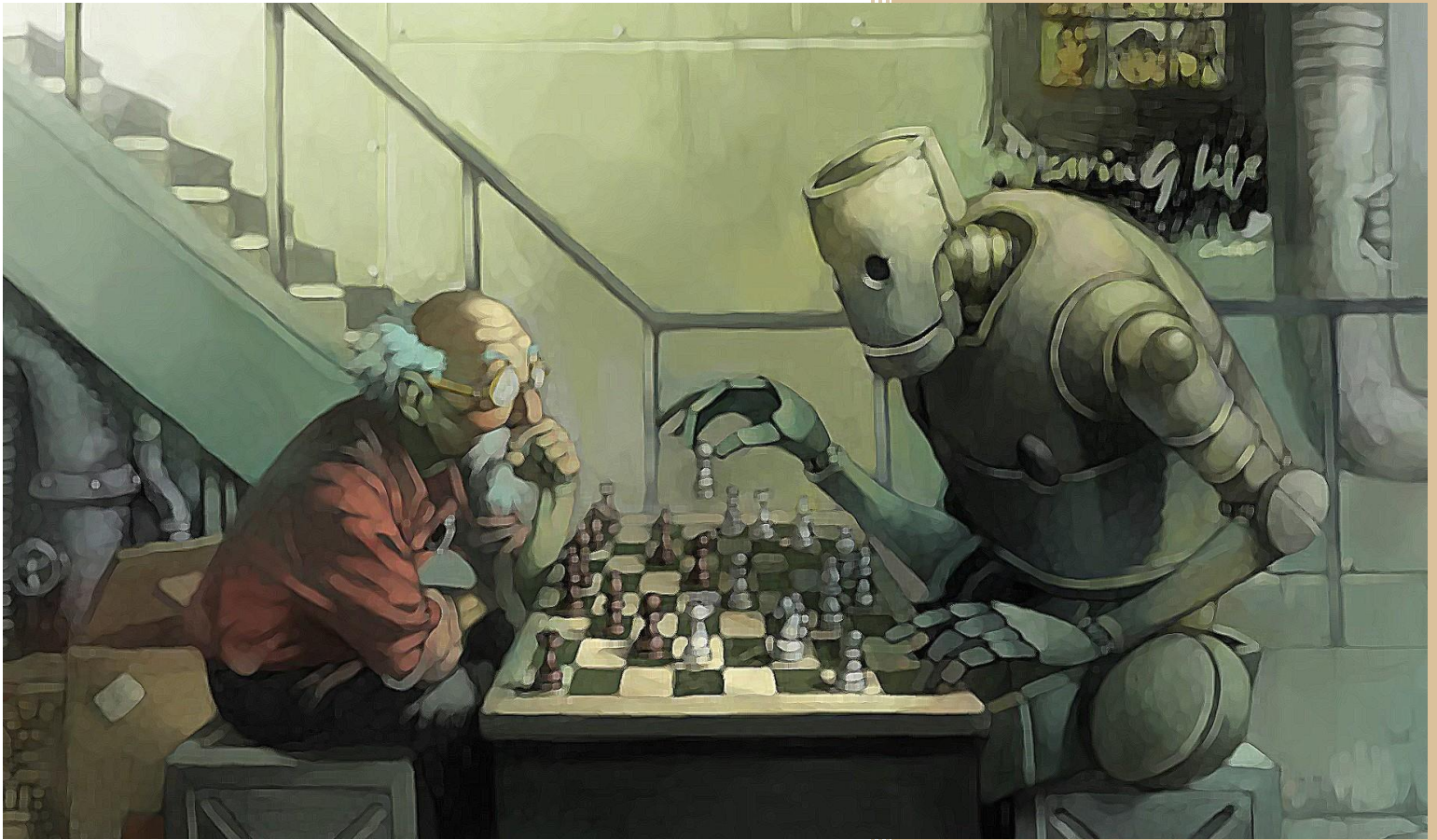


# ETHICAL ASPECTS CONCERNING THE USE OF ROBOTS IN WARFARE



Master Thesis

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## ABSTRACT:

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This master-thesis is the product of several months of work, aimed at understanding and create new insight about the ethics in the debate on robots used in warfare, through the lens of technological progression - with a special focus on the use of drones. More specifically, the object of this thesis is to examine the possible future scenarios of using robots in war, by investigating the categorized elements of the current debate through the lens of technological advancement and science fiction. The thesis applies a methodology based on a mixed methods approach, including literature review and conceptual analysis. As a supplement to this approach, science fiction is used as a tool for presenting possible futures. With this approach, the thesis determines the different aspects of the problem statement, by unfolding four certain developed topics. These topics function as a form of research design thus framing the thesis chapters.

One chapter determines in what ways war, killing, robots, the use of these and other relevant concepts is defined in relation to the subject of using robots in war. The main points to this subject were that there are concerns for the number of civilian casualties involved with the use of armed drones in war, and that current conventions might not be sufficient to regulate the use of armed drones. Furthermore, another topic discussed in one of the chapters in the thesis is in what manner are drones currently used in war, and what ethical questions arise from said use? The underlying problem here seemed to be a lack of specific conventions for the use of drones in war, and the precedents set by the current use. No overall ethical system had been established in relation to the use of drones in warfare. It was deemed beneficial to review the use of drones on an individual basis, such as through Ontology. In a third chapter, the technological progress in robotics affecting drones, and its potential consequences is analyzed. The major theme was an apparent lack of international conventions in the field with which to compare the ethicality of potential future uses.

The thesis concludes that the found indications of change alluded to by the possible future scenarios, provided the basis for some recommendations. The first is a disassociation from the current way of evaluating ethicality in praxis. The second suggestion was to make all weaponized drones armed with both lethal and nonlethal weapons, as to easier conform to a system of situational ethics.

# INDHOLD

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Formalia .....	1
Abstract:.....	2
Reading guide: .....	5
1 Introduction .....	6
1.1 Motivations behind the thesis and its subject matter .....	6
1.2 Problem analysis .....	8
1.2.1 Killer-drones .....	8
1.2.2 Technological advances .....	10
1.3 Aims and problem statement .....	11
1.3.1 Assumptions.....	11
1.3.2 Problem statement: .....	12
1.4 Summary of Introduction.....	12
2 Research design .....	14
2.1 The role of the author .....	14
2.2 The initial methodology .....	14
2.3 The actualized methodology.....	16
2.4 Nature of sources and data.....	17
2.5 Summary of research methodology .....	19
3 Analysis: part 1.....	21
3.1 How is war, ethics and drones related?.....	21
3.2 The act of killing morally.....	24
3.2.1 The greater good.....	24
3.2.2 Right vs. wrong.....	25
3.3 Robots in relation to the thesis.....	26
3.3.1 Summary of Analysis part 1. ....	30
4 Analysis: Part 2.....	31
4.1 The Current debate on use of robotics in warfare .....	31
4.1.1 Drones throughout history .....	31
4.1.2 Signature strikes and targeted killing: Proportionality and necessity .....	32
4.1.3 The concept of discrimination .....	34
4.1.4 Targeted killing.....	35

4.1.5	Civilian casualties.....	36
4.1.6	Video game likeness.....	39
4.1.7	Moral coldness.....	41
4.1.8	Summary of the current debate .....	44
5	Analysis part 3.....	46
5.1	Weapons of the future.....	46
5.1.1	Non-lethal weapons.....	46
5.1.2	Lasers .....	48
5.1.3	Other emerging technologies .....	48
5.2	Artificial intelligence .....	50
5.2.1	Responsibility.....	53
5.3	Summary of chapter 5.....	54
6	DISCUSSION ON THE CURRENT AND FUTURE USE OF ROBOTICS IN WARFARE .....	55
7	CONCLUSION.....	56
8	References .....	58
	Figures:.....	60
9	Appendix.....	61

## READING GUIDE:

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Each major chapter consists of; an introduction, the text itself, and a summary of the chapter.

The main purpose of the introductions are to present the objectives and major themes of their specific chapters. The summaries of the chapters presents the findings and/or semi-conclusions of the individual chapters.

The references in this thesis are an APA-standard style, with pages relevant to the references included.

Included pictures are numbered as figures, and the individual URL's can be found subsequent to the reference-list.

# 1 INTRODUCTION

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*The following chapter introduces the overall theme of this thesis, and describes the motivations behind it, through three sections: 1. Motivations, 2. Problem Analysis, and 3. Aims and problem statement.*

## 1.1 MOTIVATIONS BEHIND THE THESIS AND ITS SUBJECT MATTER

Predicting the future is hard. On October 9, 1903, the New York Times foretold that it would take at least a million years of inventors and mathematicians working together, to realize man's dream of flight. A few weeks later, the first airplane was built, and flown, by a pair of brothers from Ohio, USA (Singer, 2009, p. 13). This prediction was approximately a million years off, but contrary to the New York Times article; science fiction writers have been doing a subjectively much better job of identifying the technologies of tomorrow. Some would argue that these writers simply extrapolate upon existing technologies, or that scientist are inspired by the science fiction. *"... in the 1980s and 1990s, a number of planetary scientists promoted the idea that possible impacts of large asteroids posed a significant threat to Earth. Their work sparked and then drew on science fiction novels and films, which helped to create a narrative on which nuclear weapons in space would be the heroic saviors of the planet."* (Sismondo, 2010, pp. 171, 11-15). Others simply view science fiction as an opportune way to comment on the ethical and societal problems of today and the future. Thus, science fiction can be seen as not actively attempting to predict the future, but to present extreme scenarios of possible futures, as a medium for discussion and commentary. For the purpose of this thesis, the question of whether the science or the fiction came first is rather irrelevant; what matters is its function as a tool, to be used in analyzing the potential consequences of future technology. One often-visited example of this within science fiction is the emergence of increasingly autonomous machines, or robots. Robots are at the very center of this thesis, and the subject which the other included theories, terms and discussions revolves around.

Robots have been an intrinsic part of my life from early childhood, through televised media, but also video games, comics, books and general pop-culture, implicitly always in the form of science fiction. The fascination with these autonomous machines as a young boy was not as much with what they were, but what they could do: super strength, alloy skin, near immortality, and of course, the fact that they were, in a young boys mind, part of an inevitable adventure-filled future. This phenomenon of autonomous

machines saturating the media was persistent, and perpetuated an idea that science fiction would not only become reality, but also ultimately turn to humankind's favor.

This view at some point changed, and I saw the phenomenon in a new light: The robots were never the real heroes of the movies, contrarily; the heroes were those who fought against them. The "autonomous"-part of the robot was actually presented as something to be feared, always leading to, or being part of, a dystopian future. The concept of including a futuristic robot within any kind of media is now seemingly synonymous with large-scale destruction or desolate landscapes. This realization turned to inquiries about the underlying reasons for this almost phobic representation of robots and the future they bring with them. To me, this is a phenomenon centered on a discussion of ethics related to robots. As such, the subject of robot ethics has always fascinated me deeply, even if I was, until a certain point in time not fully intimate with the concepts involved.

*"Movies and science fiction books are suggesting many scenarios for the possible development of humanlike robots, but these are mostly focused on the negative consequences. Many depict the development and unleashing of a Frankenstein-type robot that ends up seriously harming those who are involved with it. It is difficult to believe that everything is going to be negative about these robots once they became smart, capable, and autonomous; however, we do need to be cautious. To avoid the possibility of being wrong and finding out the negative consequences only years later, we may want to think as much ahead and put of the box as possible with regards to the potential development and directions in which this technology will be taken." (Bar-Cohen, 2009, p. 134)*

The field of robotics, and their subsequent use, has moved from what was previously only predominantly seen as science fiction, to actuality: Roomba-robots vacuum our floors, assembly-robots manufacture our goods, and police has partially replaced bomb-squads with robots, etc. The tendency seems generally to be replacing humans in menial or dangerous tasks, which in military jargon is also known as "Dull, dirty, and dangerous" (Ringsmose & Henriksen, 2013, p. 14). Replacing personnel in potentially dangerous situations, like the police bomb-squad, has spread to other fields as well. The use of robots in war is a reality, and UAVs (Unmanned Aerial Vehicles), or drones, are used in warzones for both combat and recognizance. The presence of robots in the form of drones on the news is ever-present, represented in debates for good or for worse ( Franke, 2014, p. 1).

As a student of Human Centered Informatics, the role of the previously conducted research and authored projects on former semesters has always been with an intention of designing products, either as actual



artifacts, but also as systems and less tangible products. Throughout these processes there has existed, as a student, a drive to express creativity, curiosity, and interest in all aspects of life and society, which still persists. One of the aspects of the projects, which have continuously held a specific interest for me, has always been, if a minor, part of the previous projects: The specific philosophy of science concerning Ethics. Unfortunately, for me, I had never felt the opportunity to immerse myself properly within the field, until now.

When the opportunity to work with this subject of ethics on a project presented itself, including my fascination with robots, I immediately saw not only a potential for expanding my knowledge on the area but also to find answers to some of my questions concerning the ethics concerning robots. Furthermore, a potential opportunity to contribute something useful to the field presented itself. I consider the field of robotics at the very forefront of the technological frontier, in not only engineering, but also more importantly in ICT, specifically Human Computer Interaction. With the current evolution of robotics, it is now more than ever, increasingly important to study what their role in society could evolve into, and how we as humans will interact with them. Or rather, if science-fiction lore is to be considered, how we should restrict interaction with them. This then becomes the focus of this thesis; to research the ethics involved with the potential technological progression concerning robots. In order to better define the specific problem being treated in this thesis, the next section presents a problem analysis of the field.

## 1.2 PROBLEM ANALYSIS

Some of the most advanced robots are used in war, in the form of drones (Olsthoorn, 2014). As will be evident in the later discussions, it is argued that international laws regarding warfare, heavily influenced by the Just War principles of ethical warfare, principally includes the use of armed drones, viewing them as any other instrument of war. However, the ethical questions raised by the current use of drones in war are ushering a debate on the need for new international rules concerning the offensive use of robots in war, which will be described more thoroughly in the corresponding chapter in the thesis.

### 1.2.1 Killer-drones

As there is a certain fluidity to the functions of drones in warfare, including both recognizance and for the purpose of killing (Olsthoorn, 2014, pp. 1-2), this thesis will almost exclusively explore the subject of the debate where drones are used in a function as a deadly instrument. There are two primary arguments behind this distinction within the thesis, both arguably subjective:

The first of the arguments for choosing to focus upon “killer”-drones (Bentzen, 2013), as opposed to other uses these machines represent, is the imminence of the subject. Other uses of drones, such as for recognizance but especially surveillance, imply their own ethical questions and considerations. Nevertheless, these areas of applied ethics appears thoroughly established and discussed. Adding a new remote technology, through drones, to the practice of something, which already happens via a relative measure of remoteness, subjectively adds little to the discussion. Alternately, drones used as deadly weapons is a comparatively new phenomenon, introduced within the last fifteen years (Singer, 2009). Their introduction has arguably changed aspects of modern warfare to a point where some instances of international laws of war are no longer applicable. As will be evident through this thesis, the subjects of technological progress of the recognizance and surveillance aptitudes of drones is inherently bound to their use as deadly weapons. As such, for the sake of discussion, the ethical considerations of the use of drones as deadly weapons will be at the core and overall theme of this thesis, but elements of other uses will be introduced within the frame of this overall theme.

The second argument for focusing decisively more on drones as lethal weapons, as opposed to other aspects, is the original personal motivation behind the overall subject of the thesis: science fiction. Science fiction has been chosen as a tool within this thesis, with which to exemplify certain aspects of possible future scenarios as a result of potential technological advancements in robotics. For this purpose, the medium of science fiction movies has been chosen as the primary source of exemplification. The inclusion as a tool here also relies to some degree on personal interests. As the science fiction scenarios are meant to support my mental constructions regarding a theoretical subject matter, a medium of science fiction with which I am intimately familiar with was chosen. A recurring theme in science fiction movies involves progressive technology leading to war or warlike conditions, often-implicating armed robots with a large degree of autonomy.

Science fiction movies presents one of many forms of media representing robots within the genre. The primary motivation for including examples from science fiction movies, beyond personal preferences, is inspired by Kirby’s analysis of the use of ‘diegetic prototypes’ (Kirby, 2010) in science fiction movies for the purpose of exploring hypothetical questions about the effect of new technologies on social, political, economic, and cultural relations. *“The key to cinematic diegetic prototypes is that they allow scientist and film-makers to visualize specific methods and technologies within the social realm of the fictional world. Filmmakers and designers can use narrative and visual framework of cinema to contextualize and model potential futures of their particular technology...”* (Kirby, 2010, p. 66). I intend to discuss indications of the

future, and thus include popular culture, which Kirby stresses is strongly influenced by actual political, technological, and social issues (Kirby, 2010), to explore subjects related to technology.

With these main arguments, the basic foundations for the thesis has been presented. This leads to exploring the concept of drones in a more detailed manner.

### 1.2.2 Technological advances

With issues like a fighter- or bomber-pilot mistaking a target or if the drone misfires and hurts civilians, the ethics regarding the use of these robots is a pressing issue, very much part of the current debate on drones. Now, the current technological trend is a progress towards the use of ever more advanced robots in war. This progress implicitly aims to improve the aptitude of the drones in warfare. However, with a change in aptitude, the very context in which drones are utilized will arguably change.

This becomes increasingly evident when the technological progress potentially involves future drones with comparatively highly increased autonomy: American forces expect to operate functioning fully autonomous robots in 2035 (Olsthoorn, 2014, pp. 6-7). As such, the subject of autonomous robots and the concept of varying degree thereof will be discussed in the thesis. Nevertheless, even if it with current technology is hard to imagine even a non-lethal military robot with a degree of autonomy, or more pressing a meaningful moral mental system, technology is pressing into the realm of quasi-artificial intelligence. This raises several ethical dilemmas and one in particular. Unlike humans, robots are never angry, nor racist, nor politically minded: they follow rules instead (MCDANIEL, 2008, pp. 12 - 13; Bentzen, 2013). Then, if the rules became sophisticated enough, could they actually be able to act more morally and ethically in wars than humans? (Bentzen, 2013). Returning to the subject of science fiction writers and their contributions to the debates on future technologies, Isaac Asimov's Three Laws of Robotics (Clarke R. , 2011, p. 255), state that:

1. Robots cannot harm people or allow harm through inaction.
2. Must obey people unless it could cause someone harm.
3. Must protect themselves, except when that conflicts with the other two laws.

However, in a military context, these sorts of rules would seem unworkable. Would any moral or ethical system work? These are a few of the many dilemmas, which roboticists, soldiers, lawmakers, and nonprofessionals must contend with, in the not so distant future. There are several examples of how new technologies, including everything from longbows to drones, affect new ethical questions in the realm of

debating warfare (Olsthoorn, 2014, p. 10). However, if these technological advances in drone warfare are implemented, will the debate on the ethics of drones change, and if so, in what manner? How the different parts of the debate will be affected through the technological advancements in the use of robotics in warfare seems relatively unexplored. In order to do so, the following section defines the specific problem within the field upon which this thesis will focus in depth.

### 1.3 AIMS AND PROBLEM STATEMENT

To define the underlying problem being examined in this thesis, several assumptions needs to be established, most of which are an intricate part of the thesis itself. These assumptions have so far been alluded to throughout the introduction, and are described in the following section.

The main goal of this thesis becomes to contribute to the State-of-the-art concerning the topic of the debate on ethical and moral issues of current and future use of robots in war. This will primarily be done by discussing the connections and discrepancies between current and potential future ethical implications, and elaborate on this if possible.

To do so, a mix of the technological features and the practices surrounding drone warfare will be taken into consideration, as well as relevant examples from science fiction. The thesis will then implicitly explore both drones as objects, and the manner in which they are being used.

#### 1.3.1 Assumptions

This thesis then proposes the possibility to investigate the debate on robots used in warfare, through the lens of technological progression, by examining the different present and future ethical considerations involved, resulting in a problem statement based on the following assumptions:

1. Robots are currently employed in wars, mainly as drones.
2. These drones are controlled by humans.
3. The current use of drones in war includes a series of well-established ethical questions.
4. These ethical questions are part of an overall debate on ethics concerning drones and robots.
5. As the technological progress of robots advances, the aptitude of drones will increase accordingly.
6. This technological progress will affect the contexts of the established ethical questions to some degree.

7. The impact caused by the technological progress on the ethical debate concerning the use of robots in warfare, can be investigated by examining the changes in the contexts of the established ethical questions.

### 1.3.2 Problem statement:

Founded on the assumptions presented above, the devised research question and problem statement then becomes:

**Which indications of change to the ethical debate on using drones in warfare does an examination of possible future scenarios within the field of robotics-technology allude to?**

To fulfill the questions of the problem statement, it is hypothesized that answers can be derived from performing a series of inquiries and analysis, on a number of subjects. These different subjects are proposed to function implicitly as a sequential examination of the subject matter:

1. *In what way is war, killing, robots, the use of these, and other relevant concepts defined in relation to the subject of using robots in war?*
2. *In what manner are drones currently used in war, and what ethical questions arise from said use?*
3. *How could the technological progress in robotics affect drones, and what changes to established contexts does this implicate?*
4. *Does the technological progress itself actualize ethical questions?*

With these four subjects of inquiry as a basis, a research design has been produced and is presented in the following chapter.

In conclusion, this thesis examines the possible future scenarios of using robots in war, by investigating the categorized elements of the current debate through the lens of technological advancement and science fiction.

## 1.4 SUMMARY OF INTRODUCTION

In this first section, the explicit introduction framed the overall relevance of the thesis as a whole, and the motivations behind it: The subject of the debate on the use of robots, or drones, in warfare is introduced, as well as the possibility of the debate changing through the introduction of new technologies. Here the problem statement was found as well. Based on the problem statement, several sequential research

questions were formed, and thus an element of a sequential approach to the entire thesis was established. The use of science fiction as a tool for this analysis was also introduced.

## 2 RESEARCH DESIGN

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The following is a description of the methodologies sought employed and arguments for their selection, as well as the overall methodological framework.

### 2.1 THE ROLE OF THE AUTHOR

On the topic of academic subjectivity and objectivity, determining the ethics concerning drones becomes rather intricate. Drones, in the sense as worked with within this thesis, are weapons, and are as such designed to kill. This is implicitly emphatically an emotional subject. Furthermore, certain amount of interpretation is implicit as a researcher performing an analysis. When discussing the subject matter of ethics, particularly such demanding subjects as war and killing, the distinction between opinion and logical argumentation becomes both increasingly important and harder to distinguish.

### 2.2 THE INITIAL METHODOLOGY

An initial methodology was created for this thesis. For several reasons, explained in further details in the following section, this initial methodology was not entirely executed. An examination of the initial methodology, is included here, as the problems encountered through it sheds considerable light on some basic problems within the field of study, and argues for the eventually actualized methodology.

As research was initiated for this thesis, it was with the intention of creating a completely traditional literature review (Hart, 1998), treating the review itself as an empirical study. This in the sense of determining not only the latest research on the subject of ethics concerning the use of drones in warfare, but also what research designs, methods, etc. were used in this research (Jørgensen & Stig , 2011). The initial hypothesis was that this approach would adequately cover the initial research question. Ultimately, this approach was deemed insufficient, but the reasons for this apparent insufficiency arguably warrants a further examination.

In research without active empirical data collection, the population is not the set object of the study, but the literature itself (Jørgensen & Stig , 2011). This approach could be defined in one of two ways: For use as a methodology in its own right, or a tool in the process of empirical research. The latter takes on characteristics of a quantitative methodology with the purpose of synthesizing the results of a number of smaller studies. The former approach, also known as a “comprehensive review”, focus on using existing literature as the population for sampling, data collection, data analysis, etc. and was thus chosen.

As the research with this approach continued, the literature review approach itself seemed to become increasingly insufficient to answer the research question and problem statement. The articles found for review seemed incompatible for comparison on a fundamental level, and different approaches with the same outlook gave similar dissatisfying results. One aspect to the incompatibility could be argued as attributed to the subjective, interpretive and often clashing fields within the area of ethics itself: ethical conflicts themselves arise when different ethical perspectives clash (Pojman & Fieser, 2012, pp. 8-10). Some of the discussions of ethics and ethical issues on drones seemed incompatible due to disagreements about definitions. Through research, in extension of such, it would appear that ethics seems distinctive among similar disciplines in that practitioners frequently cannot agree on a common definition of their topic (Williams B. , 2011, pp. 146 - 150). Further, the majority of the articles available were not of academic nature, a problem also encountered by Franke: *“Many articles and papers have been written on UAV use, but scholarly debate has been surprisingly slow with academia only getting intensively involved in recent years.”* ( Franke, 2014, p. 1). As in the review case referenced here, not all of the sources for this thesis will be of purely academic nature, which will be argued for in the subsequent section 2.4 Nature of sources and data.

Another innate problem with the initial methodology originated with the definition of the debate on drones in general, or more specifically, in the diverse views on the subject of the debate. The different aspects of the debate were focused upon different distinct sub-contexts, such as legality, politics, and/or ethicality, to name some of the apparent overall themes. These sub-contexts are discussed in the subsequent chapter on defining the debates in relation with this thesis. These initially appeared as fundamentally different debates, and as such, a comprehensive literature review seemed insufficient, and more suitable for mapping the different approaches within the debate.

Adding to this is the inherent impossibility of including the entirety of every ethical dilemma and moral discourse on the subject, as this is outside the range of the intended thesis, and would require an all-encompassing view of the subject. Nevertheless, the initial arguably comprehensive approach resulted in an empirical data collection via books, research articles, and papers, along with a far greater understanding of the theories and concepts involved. As the actually defined area of interest is not centered on the specificities of the nuances of elements clashing within the current debate, but the potential impact of future technologies on the debate, a different approach was chosen, in attempting not to predict the future, but theorize about potential scenarios.



## 2.3 THE ACTUALIZED METHODOLOGY

Dealing with potential futures and theoretic scenarios, the nature of this project is conceptually predictive. This in the sense that every conclusion drawn from the analysis will be, until a certain point in time, utterly untestable. In extension, the results will be somewhat unfalsifiable, and their attempt to theorize about certain matters in an unpredictable future complicates matters further. An attempt to be neither positive nor negative in regards to the future is implicitly part of the overall methodology, and is pursued through relying on and interpreting actual facts, and sound reasoning. There will, for an example, besides the science fiction chosen for comparison, be no attempt to conjure new ways of conducting warfare or imagining new weaponry for robots. Instead only including technology already fielded or which will be in the near future in the discussions. This choice originates in the wish to highlight examples of possible futures, based on current trends. Thus, the thesis becomes an analysis of existing phenomenon and discourse, as compared to an actual attempt of predicting the future.

As a consequence, the general approach of the thesis and its research was shifted to a methodology much more in line with that of a mixed methods approach, combining elements of literature review (Hart, 1998) and conceptual analysis (Margolis & Laurence, 2014), in assessing a question in a field. Literature review was explained in the previous section on the initial methodology. Conceptual analysis, as defined for use within this thesis, is the effort of analyzing the fundamental parts of a concept. This with the intention of acquiring greater information and understanding of a specific philosophical issue in which the concept is involved (Margolis & Laurence, 2014).

The final result became an approach similar to a theoretical analysis of the subject matter on its own, including only references to the works necessary for the analysis. The current methodology is then not based on any explicit specified method, but heavily inspired by literature review and conceptual analysis. This leaves the researcher solely with the responsibility of ensuring the quality and continuity throughout the research and thesis. No coding of the selected empirical data, or other similar approaches takes place, leaving this approach somewhat opposite of Grounded Theory (Clarke A. E., 2003, p. 557). Nevertheless, this is in many ways hypothetic-deductive approach, where theory and other sources are sought to support the posted claims. Thus, the overall approach can be described as hypothetic-deductive, but with inductive analytical elements, as some deciding factors are found through the literature review aspects.

The shift in approach to a more theoretical methodology, from an approach being “comprehensive”, necessitates leaving some information out, even if intentionally. Any relevant information, yet

superfluous to the thesis as a whole, will be excluded - thus, being aware of potentially missing information becomes part of the approach, and will be made evident whenever inherent.

The role of the theoretical analysis in the thesis is to examine the subject matter on a grander scale. The part inspired by conceptual analysis will determine the definitions, ideas, and concepts in general related to the theory behind the analysis and their meaning. These approaches are meant to function in a reciprocal manner, adding their individual benefits to each other.

Had the examined problem concerned, for example, the moral perspective of civilians compared to soldiers in regards to the ethics of using robots in warfare, the empirical *data collection* approach would arguably have been preferred. Instead, the chosen methodological approach became a mix of literature review and conceptual analysis. In extension, this thesis becomes as much a theoretical exercise in the utility of such a mixed methods research design, as an attempt to answer the defined problem statement. Consequently, there is no social emersion or direct involvement within the studied field by the author, and no tangible artifact is created and no direct action is taken to affect actual change, making this conceptualized methodology almost opposite the likes of Action Research (Hearn & Foth, 2005, pp. 2-3).

## 2.4 NATURE OF SOURCES AND DATA

As this project has taken on a mixed-methods methodology initially inspired by literature review, the empirical data was the referenced academic sources. As this thesis now has become entirely theoretical in nature, these academic sources are still empirical in nature, but are not treated traditionally as such. Adding to this is the elements of science fiction included to discuss the different elements the involved ethics through extreme scenarios.

Three exceptions will be made in this conceptualized methodology of using academic sources, and is included in the thesis to further the discussions and analysis. The reasons for their inclusions will be explained below.

The first inclusion of non-academic empirical data is a three-page document published by the United Nations Human Rights Council in 2014, involving suggestions for regulations of the use of armed drones in warfare. This is an example of a document concerning international law on the specific subject of drones, besides general international laws concerning war, and has thus been included for the purpose of analysis in conjunction with its connection to both the legal and ethical aspects of the debate.

The second inclusion of non-academic empirical data is the United States senate hearing testimony by Rosa Brooks in 2013. Brooks has an academic background and career, but her testimony before the senate is not in the form of an academic setting, but as an expert on the subject. As such, the testimony is not treated as an academic source or reference, but more in line with empirical data for analysis. The purpose of the testimony in the analysis is to function both as data for analysis, but also as an actual real-world example of the debate on drones, adding to the academic content.

A third source worth mentioning here is the work *Wired For War: The Robotics Revolution and Conflict in the 21st Century* by P.W. Singer. As previously noted, the effort of creating an entirely comprehensive review on the subject matter seems beyond the scope of this project. Singer has for this work spent four years creating the, to this authors notice, most comprehensive work on a topic similar to the one chosen for this project. The scope of the work aims extensively more broadly than what is attempted here, but includes an wide-ranging literature review on everything related to drones, supported by numerous interviews with what he estimates to be the foremost experts within the field. As such, this work, though not entirely traditionally academic in nature, will be heavily referenced throughout the thesis.

Thus, the thesis becomes entirely literature-based, and the methodology of theoretical analysis becomes a selection and discussion of theoretical material and descriptive material through the two non-academic inclusions, and in context third source.

As this thesis revolves around an ethical subject matter, the discussion will primarily center on ethical perspectives and concepts. Several of these topics will be defined through a variant of conceptual analysis. It is not the primary purpose of this thesis to determine the ethical concepts involved with using robots in war, and no conclusions on that topic will be presented. The primary purpose is more precisely to research a select portion of existing information concerning the debate of drones, in order to conclude on the initial research question. The theories concerning ethics included in this thesis is in no way meant to be a summary of the philosophy as a whole, or even in part, but an examination of the specific parts of ethical theory utilized for the analysis and discussions. As such, the ethical theories and concepts become tools for the analysis and discussion, in extension of being the object of interest. Thus, no actual review of the utilized theories will be presented in a chapter, as they will be included directly in the text.

Another important tool for this thesis is the inclusion of debates, as one of the main themes of this thesis is the future debate on drones. As such, this concept will be discussed in the next section.

### 2.4.1 Defining the debate(s)

A definition of the word “debate”, in context with this paper, was attempted categorized, in order to do further research on the subject of debates on the use of robotics in warfare. As with the initial methodology, this approach was redirected as well, here towards identifying some overall thematic differences within the overall debate. For the purpose of using the concept of debates as a tool for this thesis, a non-definitive classification has been created on grounds of the initial literature review. It is proposed that the elements of the ethical debate on drones can be split into three distinct, yet inseparable categories for the purpose of this thesis: 1. The **legal** debate, 2. The **academic/ethical** debate, and 3. The **public** debate.

1. The legal debate is found on a governmental/administrative level, and concerns the legality issues of using drones in warfare. This debate can be summed up as the current practices involved with drone warfare being countered or condoned with legislation of international laws on war and human rights, and the potential incompatibilities between the two.
2. The academic/ethical debate is intrinsically found in an academic context, such as papers and other publishing, symposiums, etc. This debate concerns itself predominantly with philosophically addressing the different ethical questions in different ethical systems and identifying possible ethical clashes, dilemmas, and grey areas.
3. The public debate is found in news articles, internet forums, and via other media, such as movies and television. This debate can be categorized as the sum of the individual “civilian” debates, which tends to be highly polarized, and founded in non-ethical considerations, personal opinions and culturally inclined morals. For the purpose of this thesis, with a mind to center the different apparent discourse, the public debate will be addressed through science fiction (Kirby, 2010).

These categories are merely an attempt to somewhat categorize the seemingly predominant discourses within the overall debate, and are inherently overlapping and influenced by each other. Thus, this definition is not by any means conclusive, but meant as a preliminary tool to by some means address the individual parts.

## 2.5 SUMMARY OF RESEARCH METHODOLOGY

Part 2: This chapter concerned the research design of the thesis, and primarily described the methodological approach to the research question. This can be summarily explained as a sequential mixed methods

approach, primarily inspired by theoretical analysis, with elements of literature review, as the included research papers and other relevant publications on the subjects involved are treated as empirical data, as well as academic references.

### 3 ANALYSIS: PART 1

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This first part of the analysis focuses on the themes, which are to a certain degree more theoretical than the rest. It is part of the sequential design of the thesis and clarifies the first questions of the proposed investigation, which reads as follows: *In what way is war, killing, robots, the use of these, and other relevant concepts defined in relation to the subject of using robots in war?*

#### 3.1 HOW IS WAR, ETHICS AND DRONES RELATED?

To investigate the phenomenon of a changing debate and questions in ethics in this instance, several subjects need to be explored. Primarily, the individual definitions of **killing**, **war**, and **robots**. The definitions needs to be investigated from an ethical perspective, as well as how to define their uses and meanings in this thesis. These definitions and terms will be used in the subsequent chapters. They will not only function as touchstones for comparison and consistency in the ensuing chapters, but also as a premise for introducing and describing the other different ethical approaches which will be included in the thesis.

“War should be understood as an *actual, intentional and widespread armed conflict* between political communities.” (Orend, 2008).

According to Stanford Encyclopedia of Philosophy, as seen above, the plain definition of war is rather self-explanatory. However, the definition itself, as evident by the thousands of pages of references in the abovementioned article, is never quite so simple. One of the major things to consider regarding war is its inherent justness. This concept defines whether or not a nation is “in the right”, considering ethics, when declaring and waging war. This parameter is known as Just War Theory (Orend, 2008) which directly influences international law on the matter. Ethics are fundamentally a process of determining right and wrong conduct (Williams B. , 2011, p. 80). This can be done by utilizing ethical systems, which are specific formulae for determining right and wrong conduct, or unethical actions. These actions clash with one or more ethical systems, or other recognized ethical values. To examine the relationship between ethics and the use of robotics in war, the approach to ethics in this thesis needs to be defined. As the subject of ethics in general is a very broad subject, only the key concepts will be referenced throughout the thesis. This first part, where concerning ethics, is centered on a general discussion of ethics in war and is presented

to frame the research subject and further sub-entries. The sub entries consist of different theories involving the specific concepts and ethics concerning other concepts relevant to the overall subject.

Just War theory can be seen as the foundation for all military ethics. Military ethics concerns applied ethics, and regards questions concerning the application of force and the ethos of the soldier (Singer, 2009, p. 183). International law of war has deep roots in the Just War tradition, and tends to reflect it. The role of military virtues in modern armies and the Just War theory will implicitly be addressed in this thesis as well, in the section regarding the current ethical questions of using drones in war.

Just War theory formalizes the moral justifications for war, and is very much a Western philosophical tradition. One of the baser guidelines and considerations include that enemy soldiers may be killed, while civilians may not, furthermore, the intent of a war, and subsequent military action, is relevant to its moral evaluation (Orend, 2008). The considerations of Just War theory can be divided into three categories:

1. **Jus ad bellum.** This considers whether or not the decision to go to war is moral, i.e. if the cause is just.
2. **Jus in bello.** This considers whether or not actions in wartime are moral (Bentzen, 2013).
3. **Jus post bellum.** This refers to the endings of wars, including how to pursue them ethically (Orend, 2008).

As this thesis focuses on the aspects of a weapon actually used in war, the vast majority of the focus will be on the Jus in bello categorizations. With this choice, considerations such as if the USA are justified in their war on terror in general, becomes a secondary concern for the discussion, if rather prominent in the overall ethics concerning drones. Because Just War theory specifically deals with the violent conflict of war, most of Jus in bello analysis is with reference to whom one is allowed to kill, and who is off limits. The typical distinction is between “combatants”, who may be the targets of wartime operations, and “non-combatants”, who are exempt from being targets of such attacks (Olsthoorn, 2014, p. 6). This issue will be addressed in the further analysis. The principles of Jus in bello are monitored through the Hague and Geneva conventions (MCDANIEL, 2008, p. 9). These institutes surveil that the conventions of international law are followed and thus govern states and their decision making before, during and after military action. The question of legality is used as a point of reference, as it is an intricate part of the discussion of drones. Furthermore, as will be shown in the following sections, an almost symbiotic relationship exists between the legality and ethical concepts concerning drones.

The philosophical study of morality and ethical action, as opposed to meta-ethics (Sayre-McCord, 2014), is known as normative ethics (Echenique, 2012). The majority of additional general ethics for this thesis, beyond just war theory, falls within this category, within its subgenres of Deontology, Ontology, and Utilitarianism. Paradoxically, as it has previously been suggested that war and ethics are intrinsically combined, the concept of non-ethical considerations needs to be reflected upon as well. These can be described as potent human incentives that are not based on right or wrong, but on considerations of survival and well-being, such as health, security, love, wealth, or self-esteem (Williams B. , 2011). These motivations are arguably the wellspring of the very nature of the existence of armed drones: War. It could be argued that many of the arguments for and against drones are not based on concepts of right and wrong, but contrarily on the baser non-ethical considerations.

Another related aspect of ethics is ethical relativism (Williams, 2011, pp. 173 - 177). This concept revolves around the premise that different cultures have very distinct variances in defining what is and what is not immoral. The element that there is an abundance of different clashing ethical views can be interpreted to mean that there is no “correct” ethical solution. This is lent credence due to the lack of any credible empirical confirmation on performed ethical studies. The individual moral and ethical aspects of any case can be concluded upon, but never in any true sense verified. This could in turn also be summed up to mean that there is no single ethical solution, which is more “correct” than another. This of course implies that ethical relativism in itself is self-defeating, as an approach that defied the very concept of ethical relativism would be equally as valid.

For this thesis, it then leads to the question of how to describe and analyze ethics, specifically the ones involved with this thesis. The authors and scholars included in this thesis, as well as the opposing sides of described conflicts, all have different backgrounds in culture, education, and a myriad of other defining traits, and thus the question is of some prominence. One approach to include, rather than circumvent, the implications of ethical relativism, is to view the subject of ethical inquiry from a perspective of the purpose of ethics. Or rather, why there is a need for ethics in the first place. One prominent argument for the existence of ethics is, if rather implicit, an inherent need for rules in societies, both by law but also as morality.

The concept of morality here can be described as modes of conduct that are taught and accepted as embodying principles of right and good (Williams, 2011, pp. 194 - 203). One example of such is the concept referred to as The Golden Rule, which spans almost globally, both culturally and theologically, and bases itself on reciprocity (Williams B. , 2011, pp. 90 - 93). It states that one should treat others, as one would



like others to treat oneself. A variant of this, called The Silver Rule, states that one should not treat others in ways that one would not like to be treated (Williams B. , 2011). This will later be shown to be an implicit part of the Just War theory. It is a straightforward way of judging conduct affecting others by putting oneself in the position of those affected. These seem to be moral guidelines bound in the realm of reason. Yet how does one apply such measures of reason and morality to something as war, which overtly includes the taking of life? Alternatively, what distinctions of killing can reasonably be made, and how does this relate to robots and war?

### 3.2 THE ACT OF KILLING MORALLY

Instances where there may be reasonable justification for killing, can be sorted into four categories (McMahan, 2002). These are all relevant for the discussion of using robots in war, but two of these will be of lesser relevance and therefore not discussed to any length.

Of the four reasons for possible justifiable killings, the first that will be described, but not discussed at any length, is cases in where the killing is desired by the “victim”, or where it is deemed beneficial as opposed to damaging (McMahan, 2002). These cases include predominantly suicide, assisted suicide, and euthanasia. The second amongst the proposed categories of possibly permissible killings is somewhat related to the first-mentioned. This consist of instances involving human embryos and fetuses, newborn infants, severely retarded human beings, human beings who have suffered severe brain damage or dementia, and human beings who have become irreversibly comatose (McMahan, 2002). These two categories are arguably well outside the realm of the thesis subject matter and will not be discussed further in this thesis.

#### 3.2.1 The greater good

The first category, which this discussion will include, is the concept of killing for the greater good, for example to prevent the death of a greater amount of people, and bases itself to a significant degree on the utilitarianism approach (Pojman & Fieser, 2012). A form of consequentialism, this system bases choices in ethical dilemmas on the consequences. It argues that every action should reflect an attempt to maximize the happiness/wellbeing of the greatest amount of people. In the effort of defining and studying ethics, it can be argued that there is a tendency to approach describing different extremes. This is one of the reasons why science fiction, often based on extreme future scenarios was chosen as a tool for this thesis. An example of this is within ethics is expressed in the two different, ethical approaches called Consequentialism and Deontology, or Good and Bad as opposed to Right and Wrong. The consequentialist

(Good vs. Bad) concept, called Utilitarianism, was amongst others popularized through Jeremy Bentham and John Stuart Mill (Pojman & Fieser, 2012, pp. 102 - 107). Utilitarianism is broadly defined as trying to do the most good for a majority of people (Williams B. , 2011, pp. 84 - 86). It propositions ethical analysis based on the question of doing the most good. This could ultimately end with an argument of the end justifying the means, if not tempered with, for example the golden rule based on reciprocity (Pojman & Fieser, 2012, pp. 114 - 117). It is therefore arguably an intrinsic part of the use of robots in warfare, as the purpose of these examined in this paper is the act of killing in war. This could for example, be one of the arguments behind a so-called “preemptive strike” on members of terrorist cells, which will be discussed in the second part of the analysis.

### 3.2.2 Right vs. wrong

The second category of possibly justifiable killings, also closely related to killing for the greater good, are cases involving killing in self-defense, killing in war, and killing as a punishment. The premise of this concept concerns a person who has actively put him/herself in a position where it might be deemed justifiable to terminate them. This relates closely to the deontological (Williams B. , 2011) approach to ethics (right vs. wrong), and is otherwise known as rule- or duty-ethics, but also to the ethics of Just War Theory, especially concerning international law of war and the use of robots in war. This bases itself on the adherence to rules and codex. It actively discusses the ethics of doing what one has a duty, right, or the rights to do. Deontology often works in absolutes. That morality can be argued, as being based on reason is a subject often discussed and widely studied by Immanuel Kant, the “father” of Absolutism. (Pojman & Fieser, 2012, pp. 121 - 128). He, amongst other things, declared that the ethical act was one that the doer was willing to have stand as a universal principle. One principle of absolutism by Kant himself is that human beings can never be harmed for any objective, no matter how otherwise worthwhile (Williams B. , 2011). This undeniably clashes with the very nature of war, and the purpose of drones as seen in regards to this paper. Absolutism and deontology as a whole has the benefit of rendering difficult ethical decisions easy, but ultimately making deliberation and study of further ethical action relatively unfeasible.

Having defined some of the basic concepts of the thesis, the next section explores another main area of interest: Robots.

### 3.3 ROBOTS IN RELATION TO THE THESIS

Robots can be described as machines, which work on three basic levels: Sensors, processors and effectors (IEEE, 2012). The sensors can be any mechanism to obtain data. The processors decide a response to the data. The Effectors are the robots means to actualize the response in the world. If any of these three functions are not present, the machine is not designated a robot (IEEE, 2012). For UAVs (Unmanned Aerial Vehicles), this could be defined as cameras for sensors, a computer and corresponding software as processors, and propulsion/weapons as effectors. The machines individual level of autonomy does not define whether or not it is a robot; the three before mentioned factors simply determines that a machine can act with a certain level of autonomy, which defines a robot (IEEE, 2012). The level of autonomy is contrarily a subject worthy of discussing in relation to this thesis.

Generally speaking, robot autonomy is defined on a scale from completely human controlled on one end, to “adaptive” on the other. This scale is rather self-explanatory, but the term “adaptive” requires some explanation (Arkin, 2007).

1. The first of three examples made here is a robot operated by remote control, which functions through a wireless connection by a human (Arkin, 2007, p. 6)
2. The second mode is semiautonomous. Semiautonomous operation allows a robot to operate without human intervention until certain critical decision points are reached; then, human intervention is required. Critical points in missions that mandate human judgment may be diverted to the control of the operator. The robot would act as an extension of a human soldier under the direct authority of a human, including the authority over the use of lethal force (Arkin, 2007, p. 7).
3. The third mode is fully autonomous. A robot that operates in a fully autonomous mode functions without human intervention. The robot operates through a series of programs and algorithms. An autonomous robot possesses the ability to make its own decisions consistent with its mission without requiring direct human authorization, including the decision to use lethal force (Olsthoorn, 2014, pp. 6-7; Arkin, 2007).

Ultimately, an entirely adaptive robot functions fully autonomously. For a robot to be truly autonomous, it requires not only actual decision-making skills on behalf of the robot, but also the ability to learn (Arkin, 2007). As an example, once a Roomba vacuum-robot has been plugged in and set up, it functions completely without the guiding hand of a human. It even has the ability to solve some of the problems it

might meet, like knocked over furniture, due to pre written commands. It could thus be designated as having a relatively large degree of autonomy. On the other hand, it will always be bound by its rather limited programming and settings, and never learn how to do other things than vacuum, or even decide how best to do its required functions. In other words, the Roombas limited artificial intelligence limits its adaptiveness. The concept of creating machines/robots with advanced artificial intelligence, and mechanisms to imitate ethical dilemma solving, is theoretically programming a machine or artificial agent to behave as though instilled with a sense of ethics. This breaks with the regular normative approach, making it somewhat of an ethical grey area. This is because the problems such theoretical robots implicate, does not readily fit into any general ethical system of analysis.

Most UAVs, as defined as drones for the purpose of this thesis, are also relatively autonomous (Bentzen, 2013). They can be preprogrammed to fly a certain route, and does actually not require human intervention from start to finish. They could in theory take off, fly the designated route, and land, without having any controlling input from a human. Yet, as previously exemplified, any actual decision making still comes down to a human controller, and every UAV operation is to some extent still monitored by a human, especially during war (MCDANIEL, 2008, p. 15).



*Figure 1: X-47B UCAS armed drone completes takeoff, refueling and landing completely unassisted by humans.*

War is, as pointed out in the previous section on the definition of war, governed by international law of war. Via International Law (Volume II, 1962, 5-40), International Law is defined as *“rules and principles of general application dealing with the conduct of states and of international organizations and with their relations inter se (between them), as well as some of their relations with persons, natural or juridical”* (MCDANIEL, 2008, p. 8). The previously described Hague and Geneva conventions are the institutions put into place to monitor the principles of Just War, for an example through the seven principles of the Geneva Convention (MCDANIEL, 2008, p. 14):

1. Attackers must be able to distinguish from combatants and civilians
2. Attackers attack military targets only
3. Combatants who surrender will be spared from harm
4. Weapons or methods that inflict unnecessary human suffering or physical destruction are forbidden
5. Wounded combatants and the sick require immediate medical attention
6. Combatants must be able to distinguish the universal Red Cross or Red Crescent. Combat engagements of facilities or vehicles displaying these universal symbols are forbidden
7. Captured combatants and civilians must be protected against acts of violence

Alternate means of modern warfare, such as cyber-attacks or the uses of unmanned robotic systems are not addressed in the United Nations Charter. Furthermore, the word “robot” is not mentioned even once (MCDANIEL, 2008, p. 10). International law works via precedents and consensus, not legislature, so by employing drones in the manner that they are, precedents for the use of acceptable force are set. As explained by Brooks: *“Law is almost always out of date: we make legal rules based on existing conditions and technologies, perhaps with a small nod in the direction of predicted future changes.”* (Brooks, 2013, pp. 9, 15-16). As such, under the rules of war governing armed conflicts, drones are not expressly prohibited, nor are they considered to be inherently indiscriminate. In this aspect, they are no different from weapons launched from manned aircraft such as helicopters or other combat aircraft, but their use is subject to international law all the same. An example could be made that the principle of humanity forbids sides of a conflict to inflict gratuitous violence or employ methods calculated to cause unnecessary suffering (Brooks, 2013, pp. 10,24 - pp. 11, 23). As such, the internationally agreed upon conventions for war becomes an ethical standard, to which the use of drones in war is governed by.

As mentioned in the chapter 2.4 Nature of sources and data, one rare example of specifics directly concerning armed drones in warfare, is a three-page document published by the United Nations Human Rights Council (*See appendix part two*). This document explains the framework for the use of drones from the point of human rights. In it, the council notably expresses concern about the civilian casualties as a consequence of the use of drones in warfare and the following societal consequences, such as the fear instilled in the impacted populations (Human Rights Council , 2014, pp. 1-3). It also reaffirms that the fight on terrorism should always be confined within the rule of law, and not be detrimental to human rights, but enforce them. Furthermore, counter-terrorism measures should never be based on discriminatory judgements of any kind. Additionally, two points are made, and included here in their entirety from the document:

*1. Urges all States to ensure that any measures employed to counter terrorism, including the use of remotely piloted aircraft or armed drones, comply with their obligations under international law, including the Charter of the United Nations, international human rights law and international humanitarian law, in particular the principles of precaution, distinction and proportionality* (Human Rights Council , 2014, p. 2).

That first point includes two areas of specific interest for this thesis: 1. that counter terrorism and war are on some points judged by the same parameters 2. That the international law on the subject of using drones in warfare is particularly focused on the principles of precaution, distinction and proportionality, or as previously mentioned, the main points presented in the just war theory. Thus, implicitly connected to the war on terror as proclaimed conducted by the United States of America, this will become an area of focus in the further analysis. The second segment included in its entirety from the document is as follows:

*2. Calls upon States to ensure transparency in their records on the use of remotely piloted aircraft or armed drones and to conduct prompt, independent and impartial investigations whenever there are indications of a violation to international law caused by their use* (Human Rights Council , 2014, p. 2).

The second point calls for more transparency to records and use of the drones, and independent investigations, potentially implicating that the current practice at the time was deemed insufficient, or at least strong indication thereof. Addressing another primarily ethical question of the debate on drones, it will therefore be a part of the further analysis through the included material concerning Brooks (2013). It additionally includes the decision that further investigation and meetings on the matter will take place.

It is thus implicated that an almost symbiotic relationships exists between the questions of legality and ethicality within the current debate on drones. Drones, as discussed in this thesis, are weapons - thus, the discussion is not one of alternatives, but the drone itself as a weapon and the questions concerning ethics regarding its future development. As such, even though the subjects are briefly mentioned in the following discussions, questions such as alternatives to war will not be a focus area of this thesis.

### 3.3.1 Summary of Analysis part 1.

This chapter concerned the basic principles needed for further discussion of the subject matter. Primarily, these principles concerned how robots, ethics, killing, international laws, and war are all interconnected. The main points in this chapter in the analysis were that there are concerns for the number of civilian casualties involved with the use of armed drones in war, and that current conventions might not be adequate to regulate the use of armed drones.

## 4 ANALYSIS: PART 2

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### 4.1 THE CURRENT DEBATE ON USE OF ROBOTICS IN WARFARE

It can now generally be surmised that establishing international laws includes a certain regard for the laws ethical implications - thus examining the laws on a certain subject, elements of the ethicality of it can be revealed. The subject is, as previously stated, explored through the statements of Rosa Brooks (2013) in the United States senate hearing on the legality of drones, with supplementary academic sources. Though she can be considered an expert on the field, this use implies an overt simplification of the international laws, but is included here for the purpose of reference throughout the remainder of the thesis. This entails that the testimony by Brooks becomes the primary source for the analysis in this chapter and serves to articulate examples of contexts in the current drone debate.

On this subject, the first item of importance, and one of the premises for the entire thesis, is that the most commonly used robots in war are drones, and these can be viewed as weapons meant for killing. Having established these terms in the previous discussions, that concept can now be further examined. In order to do this, a specific case has been chosen, that fits the subject of inquiry up until this point. Several nations have used and are continuously using drones in war, including Israel, Great Britain, and decisively the USA ( Franke, 2014, p. 1). The vast majority of papers, research, articles and other available material of the subject of ethics in relation to drones concern the American use of them in the war on terror. The case of American use of drones was chosen as the focus of this analysis. By choosing this specific case, the field of study is somewhat narrowed and the testament by Rosa Brooks becomes increasingly relevant.

#### 4.1.1 Drones throughout history

The first unmanned aerial vehicles (UAV) researched for the American military were then called remotely piloted vehicles (RPV) (Singer, 2009). The purpose of this were meant as a defensive measure, to fly around and function as a shield for manned aircraft. This never became a reality, and aerial drones were arguably not successfully implemented by the US military until the Vietnam War, where they were used for recognizance, with only minor use (Benjamin, 2012). Subsequently, the Pioneer drone was used in the Gulf War as recognizance units for the bombardments from US-battleships, and for similar purposes with bomber-planes in the UN efforts during the Balkan conflicts (Singer, 2009). It was not until armed Predator drones were deployed in Afghanistan during 2001 that drones were technologically advanced enough to make a significant impact on the battlefield for the United States army (Williams B. G., 2010). Since then,



American forces have increased the number of active drones from 167 in 2002 to a number estimated as more than 7500 in 2012 (Ringsmose & Henriksen, 2013, pp. 10-13). With the proclamation of the war on terror, former president Bush (JR.), signed a bill, lifting a prohibition from the 1970's prohibiting CIA's with the murder of foreign nationals. This was followed by the CIA actively taking control of a large part of the weaponized drone program of the US military (Benjamin, 2012). There is no official number indicating the specific amount of drones employed by the CIA compared to the military, but the practical reasons for employing them for both are numerous. Drones are not only able to stay airborne for a much longer duration of time than regular fighter-jets, but are also often more precise in administering weapons, can fly longer without refueling, presents no danger to the pilot (Olsthoorn, 2014, pp. 1-2), and are ultimately up to 10 times cheaper in initial costs, and require less maintenance (Singer, 2009).

Evidently, there is an escalation in the number of available drones to the American military and other government institutions, but the objective practical reasons for deploying them are numerous. Thus, the trend of warfare being increasingly conducted through drones show no apparent reason to be diminishing. This is one of many themes more thoroughly discussed in the following sections, concerning the specific subjects within the debate on the use of drones in warfare.

#### 4.1.2 Signature strikes and targeted killing: Proportionality and necessity

Much of the criticism and ethical debate around the present use of drones, concerns the way a drone-strike is ordered. In 2011, a Justice Department White Paper was leaked. Due to the confidential nature of the paper, it will not be included here, but referenced through Brooks (2013). This paper describes an official legal analysis of targeted killings. This document only considers the targeted killing of American citizens in foreign countries, and states nothing of the policies and legal standards concerning the targeted killing of foreign nationals. However, as also argued by Brooks (Brooks, 2013, pp. 15, 10-15), it could be expected that, the American political administration would set 'lower' standards for targets for foreign nationals in foreign countries (Olsthoorn, 2014, p. 2).

Beyond executing the order, the drone controller actually has no lethal authority, which resides entirely with a "kill-list"-committee (Brooks, 2013, p. 6). To qualify as a target for a drone-strike, the subject has to be on the "kill-list". After 9/11 the kill list contained 9 names of confirmed or suspected terrorists. Since then, it is estimated that at least 3000 have been killed by drone-strikes, with the targets expanding from high-value targets, to increasingly lower-ranking members of the terrorist organizations (Brooks, 2013, pp. 6, 25-32). This kill-list is created and maintained by government agencies, but approved by the

administration: “...no one outside a very small group within the U.S. executive branch has any ability to evaluate who is and who isn’t a combatant” (Brooks, 2013, pp. 12, 14-15).

Everything concerning the “kill-list” is highly classified, ranging from whose names are on it, by what criteria they qualify for the list, what threat they posed to the USA at the time of the strike, and ultimately how many civilians are acceptable as collateral damage. As the law of armed conflict dictates: “*Even actions that a combatant knows will cause civilian deaths are lawful when consistent with the principles of necessity, humanity, proportionality, and distinction.*” (Brooks, 2013, pp. 10, 20-22).

The only explanatory proclamation from the department of defense concerning the kill-list, is that a reliable system for verification is in place, to ensure that the target is the intended from the “kill-list”. From an administrative standpoint, three key principles are implemented and presumably attempted followed, to ensure the ethical and just use of drones as weapons (Brooks, 2013, pp. 10-11):

1. **Necessity:** There has to be a definite military value to the use of the drones-strike.
2. **Distinction.** Only military targets appear on the kill-list.
3. **Proportionality.** Military benefits must outweigh potential collateral damage by the strike.

All three of these principles are main distinctions in the Jus in bello part of Just War Theory:

**Proportionality** is the notion that damage inflicted should be commensurate with the military value of the target, including any collateral damage. Targets that pose more extreme threats could arguably justify a greater response. For an example, if the terrorist attacks on 9/11 had only killed ten people, the American retaliation against Al-Qaeda would have been grossly disproportionate to the damage caused.

**Distinction** appears to function as a link between the two other principles, in being a determining factor in Just War, and part of the reason for much debate: the lessening of civilian casualties, and thus arguably a human rights consideration. Proportionality is a retributive factor, while the second is a determination of threat. All military responses must take these factors into account before action, and disproportionate responses are unethical under Just War.

**Necessity** “...requires parties to a conflict to limit their actions to those that are indispensable for securing the complete submission of the enemy as soon as possible (and that are otherwise permitted by international law)” (Brooks, 2013, pp. 10, 24-26). If the objectives can be accomplished without resorting to violence, then to use violence equals an unethical action. The threat must be of such a nature that only

military force can adequately meet it. This also seems to have been taken into consideration by the CIA, with three key features presented when drone strikes are ordered. The actual procedure for confirming drone strikes is kept secret, yet some aspects of it has been made public (Brooks, 2013):

1. The target has to pose an imminent threat.
2. Capture of the target has to be non-feasible.
3. The strike has to be consistent with federal and international law.

Besides closely resembling the factors presented by the administration, as evident of the leaked memo, these are all very fluid definitions. The imminent threat feature *“does not require the United States to have clear evidence that a specific attack on us persons and interest will take place in the immediate future”* (Brooks, 2013, pp. 13, 30-31).

One consequence of the CIA partly taking over American drone-strikes is the apparent lessening of restriction on their use. The CIA is, as the name implies, an intelligence agency. It could therefore be perceived as not bound by international laws and treatise ratified by the USA, like the Geneva-conventions. Though as previously mentioned, the administrative consensus seems to be that they standardize themselves by these principles: *“The Obama Administration has stated that it regards both the military and the CIA as bound by the law of war when force is used for the purpose of targeted killing”* (Brooks, 2013, pp. 4, 18-19). This seems counterintuitive for this part of the debate, originating in the very nature of the signature strikes. As the name implies, the strikes are often carried out on persons fitting a certain signature, or description, regardless if the actual identity of the person is known (Ringsmose & Henriksen, 2013, pp. 44-45). If the specifics of the target cannot be determined, how does one measure the necessity, distinction and proportionality of the attack?

#### 4.1.3 The concept of discrimination

One of the main arguments against using drones outside of actual war-zones is the active termination of life, without any actual trial. This could by extreme definitions, be determined as assassination of foreign nationals based on political and/or ideological opposition.

President Obama has approved secret CIA drone-operations on other nation’s sovereign land, without approval of local governments (Brooks, 2013, pp. 12, 7-9). Drones are used to kill terrorist suspects in countries with whom the United States are not at war, like Yemen, Pakistan and members of al Shabaab in Somalia. Is it, for example reasonable to presume that al Shabaab had any culpability with 9/11 or poses

a direct terrorist threat to the United States? (Brooks, 2013, pp. 7, 14-18). This seems to fall well outside the definition of war as posed earlier, but does it land inside the international laws of war: If no troops are actively engaged in the country, can bombings take place? This raises additional questions, like is the suspicion of terrorism, or general implication enough to warrant the termination of life?

This is in Just War Theory known as the principle of discrimination (Brooks, 2013). Put simply, only those engaged in the conflict are legitimate targets. "Combatant" traditionally refers to a soldier, and *"In war, the willful killing of human beings is permitted, whether the means of killing is a gun, a bomb, or a long-distance drone strike."* (Brooks, 2013, pp. 10, 16-17). But when anyone deemed to be an 'operational leader' of al Qaeda or its associates, even in lieu of evidence of it or any indication of an imminent attack (Brooks, 2013, pp. 12, 29 - pp. 14, 7), this self-defense argument becomes an issue of identity and status, opposed to evidence of intention. In summary, the Justice Department White Paper offers no guidance on the specific criteria for determining when an individual is a combatant (or a civilian participating directly in hostilities), however. It also offers no guidance on how to determine if a use of force is necessary or proportionate (Brooks, 2013, pp. 14, 22-26). In this context, a counter proposal is made: *"The real question isn't whether U.S. drone strikes are "legal." The real question is this: Do we really want to live in a world in which the U.S. government's justification for killing is so malleable?"* (Brooks, 2013, pp. 16, 1-2). Thus, the ethical question regarding discrimination in relation with drones can be boiled down to how one discriminates between an actionable target and a non-combatant, when the component of actual combat is removed from the equation. This leads to a major point in the debate on the use of drones in warfare, concerning 'Targeted Killing'.

#### 4.1.4 Targeted killing

Targeted killing can be defined as *"the deliberate targeting of an individual or group of individuals, whether known by name or targeted based on patterns of activity, inside the borders of a foreign country."* (Brooks, 2013, pp. 9, 10-12). As explained above, the USA claims to be in an international armed conflict with Taliban, al-Qaeda, and other terrorist-organizations (Williams B. G., 2010), thus acting in self-defense when using drone-strikes. Thereby it is claimed that a discussion of summary execution becomes irrelevant by eliminating the need fair trial, in extension of the target being an enemy combatant (Brooks, 2013, pp. 12, 9-12) .

Even *if* the drone strikes are ethical in practice, since the CIA is arguably not subject to military ethics, the maintenance of a secret Kill-list by a government authority, under circumstances unaccountability, lack of transparency, and circumstances of secrecy, fails in the rule of law (Brooks, 2013, pp. 10, 6-13). As such,

contemporary definitions tend to focus more on whether or not a target is a military threat, as opposed to whether or not he or she is a soldier in uniform, which was the traditional distinction. "Non-combatant" refers to someone not engaged in the conflict, or at least not enough to warrant attacking them on sight.

Just war theory via *Jus in bello* argues that if drone warfare is considered legitimate for one side of a conflict, this is also true for its opponents. From a Just War Theory standpoint, with which, as previously highlighted, the American government and the CIA justifies their actions, the thought of terrorist organizations using drones to assassinate American military personnel or bombing strategic locations then becomes legitimate. The people operating, maintaining and commanding the drones are then most certainly deemed combatants as well.

Moreover, following the established practices by the CIA, civilian collateral damage and faulty intelligence should not weigh against the advantages of this kind of warfare.

If the use of drone strikes are fair for one country under current circumstances, it should be ethical and legal for others. The USA is setting a precedent by which others may justify their use of drones (Brooks, 2013, pp. 16, 14-20). This also refers to the previously mentioned Golden Rule of reciprocity, or more relevantly, the Silver Rule: one should not treat others in ways that one would not like to be treated. There should be no repercussions if, for an extreme example, North Korea declared war on a specific ideology, and used drones to assassinate its proponents in other sovereign nations. Following this way of thinking, if it is okay for the USA to condone covert drone strikes against presumed terrorist targets in Afghanistan, it is also okay for Russia to do the same in Chechnya. If it is okay for USA to expand their war on terrorism (or the war on drugs) into neighboring countries, it is okay for Russia to do the same. In short, if it is okay for America to maintain a secret kill-list in order to eliminate often vaguely defined potential enemies, with certain civilian casualties deemed agreeable, this practice is arguably okay for all countries, or even ideologies, especially those perceived as enemies (Brooks, 2013, pp. 17, 12-18).

The use of drones carries with it another subject consequence, in extension of the targeted killing: the loss of civilian life (Williams B. G., 2010). Whether through faulty intelligence, misguided missiles or other unforeseeable circumstances, civilians die as a consequence of using drones in war.

#### 4.1.5 Civilian casualties.

Drone-attacks are performed with missiles. The targeting of the missile, as fired by the drone, is evidently more accurate than most other forms of explosive ordinance used in warfare (Ringsmose & Henriksen, 2013, pp. 1-2; Olsthoorn, 2014). Nevertheless, the following explosion can be argued to be

just as indiscriminate as if it was fired from any other source. Consequently, the CIA is often not certain of the number of casualties involved with the strikes (Brooks, 2013, pp. 3, 15-26).

For the local populations of areas exposed to drone strikes, civilian casualties are often not seen as collateral damage in the war on terror, but irrefutable murder, or terrorism in and of itself. (Olsthoorn, 2014, p. 5) Further, these casualties contribute to an ever-increasing justification of, and local support towards, the terrorist cells, which the drone strikes ultimately seeks to combat (Ringsmose & Henriksen, 2013, p. 27). This is also pointed out by Brooks: “...*civilian casualties cause pain and resentment within local populations and host-country governments and alienate the international community*” (Brooks, 2013, pp. 6, 18-19). While practically counterproductive to the goal of the strikes, this result is not the concern of this thesis, but instead the ethicality of the civilian casualties.

Civilian casualties have been the cornerstone of the Pakistani supreme courts case against the United States and their use of drones (Bentzen, 2013). The court has ruled that the drone-strikes are illegal, on several grounds, including most prominently, murder and crimes against humanity. This even though the government has cooperated with the American military in the drone strikes in question (Brooks, 2013). Even though it could be argued that drone strikes are based on information that is more accurate than other types of weapons, like bomber plane and artillery barrages, and thus more discriminating, the intelligence upon which is acted is still often faulty or outright wrong (Brooks, 2013, p. 3).

Furthermore, some drone strikes are being performed on targets who definitely under other circumstances could be identified as non-combatants: Afghan drug lords. These are seen as attributing to the cause of the terrorist organizations with which the USA has proclaimed itself at war (Williams B. G., 2010). This becomes even more of an ethically loaded phenomenon when the subject becomes using drone strikes on other illegal drug manufacturers, in other sovereign nations like Mexico and Colombia, in another war entirely: the “war on drugs”. As a counterpoint, it could be argued that there is no evidence drones kill more civilians than any other method of warfare, and that civilian casualties are simply an implicit, but unfortunate byproduct of war (Brooks, 2013, p. 3).

Ultimately, the discussion of civilian casualties tied to the use of drones in warfare, becomes a discussion of alternatives. Would it be any different if the operations performed by the drones were done by troops on the ground?

#### 4.1.5.1 *Civilian casualties: drones vs. troops*

To re-clarify, this thesis concerns drones used as weapons, and therefore as a tool with the purpose of killing. An alternative to drones are soldiers on the ground, which also results in the loss of civilian life (Brooks, 2013, pp. 3, 28-33). This raises the question if the two approaches can be compared as methodologies in waging warfare. Here it must be mentioned that statistics of civilian losses in both cases are arguably too inconsistent to compare within reason. This theme within the debate then becomes a question whether ethical considerations are ever just a quantitative measure. If it was, it could be argued that: *"...the evidence suggests that if the number of civilian casualties is our metric, drone strikes do a better job of discriminating between civilians and combatants than close air support or other tactics that receive less attention."* (Brooks, 2013, pp. 4, 26-28). With a utilitarian approach, arguments such as this lends considerable credence to the use of armed drones. However, as this single theme within the overarching debate of the use of armed drones in warfare might be evaluated through a utilitarian approach, several distinctions within the debate defies such quantitative approaches. One main element of this is in regards to what actual functions the different approaches of, for an example, drones as opposed to ground troops can perform.

Drones are in essence, as for the purpose of this thesis, remote-controlled aircraft, outfitted with advanced surveillance capabilities, and precision missiles. As such, a drone has three basic functions, which are closely related: 1. Gathering intelligence, 2. Surveilling a potential target, 3. Attacking the confirmed target or targets with the previously mentioned missiles. As such, present day drones have a relatively small selection of actionable functions. Comparatively, ground troops have an arguably much broader range of actionable functions in the field. One striking example of this apparent chasm is elements of peacekeeping missions and similar engagements concerning civilian interaction and goodwill. Poignantly, the use of drones might instill a need for these kinds of missions, as addressed in section 4.1.7.

Another apparent difference between the two kinds of engagement is the enemy combatant's opportunity and option to surrender. According to the Geneva Convention, combatants who surrender will be spared from harm (MCDANIEL, 2008, p. 14) , and through the apparent self-imposed regulations of the American government, as discussed in section 4.1.2, capture of the target has to be non-feasible. It could be argued that the current use of drones, as predominantly consisting of surveillance and missile-strikes, does not offer the target a chance to surrender. When the noisy Pioneer drones were used to coordinate bombardments from battleships in the gulf war, the 16-inch cannons fired massive shells that could destroy an area the size of a soccer field. A situation occurred when Iraqi soldiers heard the telltale

sound of the rotor-blade on the Pioneer drone, and instead of bracing for the inevitable bombardment, found white shirts and sheets, which they waved at the drone. This was an example of, and the first recorded time, people surrendered to an unmanned vehicle (Singer, 2009, p. 35). Such a scenario seems unlikely today, as the technological progress of drones since then has arguably reached a level of covertness, which makes surrender impossible. As such, the ethicality of each drone-strike becomes an individual assessment of the dependent situation. In such circumstances, evaluation through ontology might be beneficial.

Ontology argues that the ethically right choice is always found in an evaluation of the specific situation (Hofweber, 2014). As such, it is also known as situational ethics. The concept of studying ethics can be further examined through the work of Knud Ejler Løgstrup (Løgstrup, 1971) and his work with phenomenology (Smith, 2013). Løgstrup presents a theory of using phenomenology in understanding ethical decisions. According to Løgstrup, phenomenology not only provides an understanding of human existence but also of ethics, through examination of the phenomena of ethical concepts. He thus creates a setting for the objective study of subjects mainly viewed as subjective.

Another example of how quantitative measurements fall short concerning the ethical debate on drone warfare pertains to other technological aspects of drone warfare and people's perception of them. This theme is explored in the following section.

#### 4.1.6 Video game likeness

As previously addressed, targets are only legitimate under Just War theory by virtue of who they are and what they are doing, not group identifiers such as nationality or ideology. Nevertheless, if an effort was made, via for instance persuasive measures, it could be argued that a political vilification of politically inconvenient enemies could take place - thus, an ideology could become synonymous with certain virtues and doings, making the entire point moot. This is a variant of a concept defined as Dehumanization (Olsthoorn, 2014, p. 4). If a certain way of dressing or praying became synonymous with specific profiles, it would arguably be made increasingly harder to distinguish between non-combatants and their counterparts through a computer screen several thousand miles away.

This relates to an aspect of drone criticism where the drone controller's environment is accused of being similar to that of a computer game, affecting his/her judgment. This comparison is also known as "the PlayStation mentality" (Brooks, 2013, pp. 5, 12). The reason for the comparison is easily identifiable through the presence of screen, joystick, etc.





Figure 2: View of a predator drone control-terminal.

There seems to be no evidence that the controllers themselves make this comparison, and the similarities does not necessarily mean anything (Ringsmose & Henriksen, 2013, p. 32; Olsthoorn, 2014).

Depending on the type of drone and mission involved, there are several modus operandi. For an example: Two operators on the ground launches the drone, of which the controls are then relinquished to a commend crew. A basic crew of a Predator drone consists of two persons; the sensor operator and the pilot. The pilots function is implicitly to fly the drone, and the sensor operator monitors and maintains the visuals and other readings. Besides the launch team and the crew piloting the drone, a mission controller is also present or observing, distributing recognizance intelligence, along with a “customer”, possibly a CIA representative, whom has presumably initiated the mission. This “customer” is also the person whom initiates the fire order, conceivably by contacting his superiors. A screener is also present to write a summary of each mission.

This could be categorized as an ethical grey area. Such a distinction could be argued for here, as the question of ethicality here seems more based on prejudice or incomplete information, as opposed to moral values or adherence to an ethical system. With only the appearance of the control-room speaking for it, there are also arguments directly opposing the “Playstation mentality” through which the comparison fails. *“Regardless, there’s little evidence that drone technologies “reduce” their operators’ awareness of human suffering. If anything, drone operators may be far more keenly aware of the suffering they help inflict than any sniper or bomber pilot could be, precisely because the technology enables such clear visual monitoring”* (Brooks, 2013, pp. 5, 14-17).

The entire comparison between video games and drone operations seem bound in people's perception of a screen and joystick, reminding them of something familiar, and landing the entire subject within the third distinction of the debates: the public debate. One example of science fiction perhaps perpetuating such a conviction is *Enders Game*. Written in 1985 by Orson Scott Cards, it follows a genius young boy whom is accepted to a military academy. Here he must learn how to control a number of drones through a computer simulation in order to beat an alien enemy.



Figure 3: From the movie adaptation of *Enders Game*, Ender controls an army of drones through a videogame like simulation.

Unbeknownst to Ender, during the battle-simulation at his graduation test, he is actually controlling the real army, and nearly annihilates an entire species, despite his good intentions. The allegory of moral coldness afforded to him through the computer screen is very evident, and the concept seems relatively relatable to anyone who has played a war-simulation computer game. The concept of moral coldness is also evident in the debate on the current use of drones in warfare.

#### 4.1.7 Moral coldness

Another criticism of drones, as briefly mentioned before, is the actual distance between decision makers and controllers from the actual target, or the implicit “moral coldness” thereof. This is sometimes referred to as asymmetrical warfare (Ringsmose & Henriksen, 2013, p. 33; Bentzen, 2013). From the ground, this approach seems “cowardly” and lacking of respect (Olsthoorn, 2014, p. 10), as stated by the convicted terrorist Faisal Sahzad, whom attempted to detonate a bomb on Times Square. He states the reasons for his attempt were tied solely to the “cowardly” use of drones in Pakistan. However, the use of missiles, bombs and artillery are arguably to some degree bound by the same principle, and thus a counterpoint could be made that “long-distance killing is neither something to automatically condemn nor something

*unique to drone technologies*” (Brooks, 2013, pp. 4, 30-31). Another aspect of this question is the political commentary of how serious any conflict can be, how serious it is taken, or if existent at all, if the government is “only” willing to commit money to the cause, and not potential soldiers’ lives (Olsthoorn, 2014, p. 8).

Faisal Sahzads argumentation once again leads back to the Golden and Silver rules, but with a different perspective. The rules state that one should treat others as one would like to be treated, or alternately should not treat others the way that one would not like to be treated. However, a predicament arises if the recipient of those treatments cannot reciprocate accordingly. Therein lies the inherent unfairness and problem for people like Faisal. If the operations performed by the drones had been performed by troops on the ground instead, there would have been a manifest object to reciprocate against. Instead, the object of his anger was an autonomous machine and its controller sitting behind a computer screen, several thousand miles away.

This subject was broached in the newest remake of the science fiction movie franchise, *Robocop* (2014). In it, almost entirely autonomous robots patrol the areas occupied by American military in the Middle East, amongst other places, and distributes lethal force to anyone whom poses the slightest threat.



*Figure 4 Robocop (2014) Proposes a future where American ground troops have primarily been replaced with robots.*

In the introductory scenes, a group of enemy rebels attempts to disturb a televised broadcast highlighting the efficiency of the robots. Due to the competence of the robots, the rebels know that a direct attack with traditional weapons is pointless. Instead, they attempt to trick the robots into killing someone who

does not pose a threat, perhaps in order to convey the “unfairness” of the situation. They succeed. This point will be revisited in the third section of the analysis, but the movie presents another point worth mentioning here.

The reason for the previously mentioned broadcast was to convince the American population of allowing similar robots to patrol the streets of America. The movie presents this as something undesirable, and the owner of the robotics company responsible concludes that the reason for this is the robots lack of humanity. Due to a series of unfortunate events, a random police officer is badly maimed, and he is chosen as a test subject for becoming a cyborg, or the fusing between man and robot on a fundamental level. He becomes Robocop, not quite man, but neither quite machine.



*Figure 5: Robocop (2014). The doctor overseeing Robocop's transformation worries greatly about the cyborgs humanity, and attempts to help him interact with other humans after his transformation.*

The subject of studying human-robot interaction is also performed at Aalborg University, famously through Henrik Shärfe and his lookalike robot, Gemini. The two major differences between Gemini and Robocop, besides one being part human, are that one; Robocop is armed and entirely deadly, and two; Robocop had a chip installed that can switch his humanity on and off. This is a major part of the movies premise, as he roughly only functions with a human cognition for the very last part of the movie. The company that created him wanted a human face to present to the public and criminals, but the efficiency of a robot. The public was content as long as they had someone, and not something: an entity to hold accountable. This becomes a serious issue when the subject often and easily becomes one of resorting to violence for Robocop.

It is also suggested that the use of drones makes the decision of resorting to violence easier. This critique is twofold, as it applies to both the decision-makers and the drone-pilots (Ringsmose & Henriksen, 2013, p. 30). A counter-sentiment to this, states that “easier” is not the same as too easy. This is founded in the idea that in war, “too easy” is simply a reflection of the justice of the cause one is fighting for, and whether it is justified to be using force at that moment. Brooks adds that *“When new technologies appear to reduce the costs of using lethal force, however, the threshold for deciding to use lethal force correspondingly drops, and officials will be tempted to use lethal force with greater frequency and less wisdom.”* (Brooks, 2013, pp. 6, 22-24).

This chapter will be concluded through the subsequent summary of the current debate.

#### 4.1.8 Summary of the current debate

To conclude on the current debates, the primary points within the three indicated themes will be presented:

1. **The legal debate** focuses on a governmental/administrative level, and concerns the legality issues of using drones in warfare. The main points discussed here is the subject of targeted killing, and more specifically revolves around the subject of discrimination. Through means such as international law, it attempt to address who can and who cannot be killed by drones. The underlying problem here seems to be a lack of specific conventions for the use of drones in war, and the precedents set by the current use. Additionally, *“...when a government claims for itself the unreviewable power to kill anyone, anywhere on earth, at any time, based on secret criteria and secret information discussed in a secret process by largely unnamed individuals, it undermines the rule of law.”* (Brooks, 2013, pp. 22, 12-15)
2. **The academic/ethical debate** is intrinsically found in an academic context, such as papers and other publishing, symposiums, etc. As a result of the literature review and working with the case of the United States military use of drones, it would subjectively seem that the debate still lacks a common foothold concerning how to, universally, address the use of drones in warfare besides Just War theory. Thus, it was a recurring theme of the analysis so far to focus on concepts within morality, as opposed to choosing one or more established ethical systems. Additionally, as no overall system has been established in relation to the use of drones in warfare, it might be beneficial to review their use on an individual basis, such as through Ontology.

3. **The public debate** is here addressed through science fiction. The examples of science fiction presented so far in this thesis shows humans and their ability to be tricked by increasingly advanced technology in Enders Game, and the interaction between humans and robots, on several levels, through Robocop. The common thing between these examples are their shared function as visions of the consequences of technological progress.

## 5 ANALYSIS PART 3

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This chapter concerns as to where the technological progress of drones is headed. Subjects like weapons, biometrics, and artificial intelligence are broached.

### 5.1 WEAPONS OF THE FUTURE

On the subject of civilian casualties, improved drone weaponry could potentially alter the basic elements of the debate on drone warfare.

Brooks mentions that there are progressively fewer deaths of civilians per drone strike due to improving technologies and stricter rules for engagement (Brooks, 2013, pp. 4, 6-10). As previously indicated, one aspect of the persistent loss of civilian life associated with drone-strikes, regardless of other technological advances, is arguably the use of missiles as the drone weapon systems. As technology within weaponry advances, alternative weaponry will become available. These alternatives must contend with international regulations regarding weapons (Singer, 2009). International humanitarian law on weapons can be described with four basic tenants:

*"First, nations have a right to choose the methods and means of war, but this right is limited. They have to follow the rules. Second, weapons that cannot discriminate between civilian and military targets are prohibited. Third, weapons that cause unnecessary suffering are also prohibited. And fourth, any weapons that the international community decides are abhorrent for some other reason are prohibited. This is a useful little clause, which can be applied to any weapon that might meet the other rules, but is just nasty or horrifying, such as chemical weapons and blinding lasers."* (Singer, 2009, p. 183)

One way of inherently following the international humanitarian law on weapons, is to make them nonlethal. Exploring the implementation of non-lethal weapons in a thesis focusing on drones as used for killing seems highly relevant, as this stands opposed to the current practice.

#### 5.1.1 Non-lethal weapons

The current modus operandi of armed drones would seemingly be diminished with the implementation of non-lethal weapons. Nevertheless, it would open up for several other uses, including scenarios where the aim is to incapacitate a target without causing permanent damage (Olsthoorn, 2014). There are several examples of such weapons being sought implemented or even field-tested:

1. Acoustic weapons use sound waves in lieu of bullets. Perhaps the most noted of these is the Long Range Acoustic Device (LRAD). It sends acoustic waves in such frequencies that they overwhelm the human body and even make a targeted person defecate upon himself or herself (Singer, 2009, p. 47).
2. Another nonlethal weapon targeted for robot use emits various forms of directed energy. One already tested out in Iraq is the Active Denial System. Sometimes called the “pain ray,” the system shoots out waves like those in a microwave oven. The ray does not permanently hurt the person, but the sensation is excruciating. If the ray is turned off, or the person moves out of its focus, the pain instantly ends (Singer, 2009, p. 48).
3. Other systems send out various forms of radio-wave beams. They disable enemy machines by disrupting mechanical signals, or create “an artificial fever” by heating up the core body temperature of any human target, incapacitating them instantly. It could even be modulated to target every inhabitant of an entire building (Singer, 2009, pp. 48-49).

A change to entirely non-lethal weapons as the standard for drones would change the fundamental principle of how drones are currently applied. As previously discussed, the use of armed drones is only permissible within the confines of certain parameters. One of these parameters is that capture of the intended target must be non-feasible. Such parameters becomes unworkable in this specific scenario, as the effect of these non-lethal weapons are temporary. Therefore, the one arguably workable use of the drones, if applied to the current practice, would be as a tool for incapacitating the target until they could be captured by ground troops. Such a possible future scenario, if unlikely, would potentially change the debate on the use of drones in several ways.

The first example of change would be to the subject of civilian casualties. As these would be arguably comparatively lower, if not un-existing, entire themes like targeted killing and discrimination would become increasingly insignificant.

A second apparent subject rendered likely affected by such a possible future, is the use of the drones in countries with which the aggressor is not at war. The current use is here primarily as an alternative to committing ground troops. As ground troops, through capture of the incapacitated targets, are potentially the only feasible way to neutralize the potential threat, the purpose of this current practice is defeated.

Another arguably more realistic scenario is a possible future where both lethal and non-lethal weapons are implemented as a standard for armed drones. Alternately, drones of either kind could exist. As such,



the range of actionable functions of drones would be increased. As a result, the method of deployment of the drone and its weapons could become a result of an assessment of the specific needs of the mission. This arguably stands in opposition to the current practice, where utilizing armed drones is with an implicit singular purpose.

Assumedly, other weapons besides non-lethal alternatives are being developed as well. One included as an example here, is also a mainstay in science fiction: the laser.

### 5.1.2 Lasers

The idea of lasers first came in H. G. Well's famous 1898 story *The War of the Worlds*. For the next century, lasers remained mostly in science fiction. They did not find much use in war except as targeting devices. During the Reagan administration, the idea of using powerful lasers to shoot down enemy missiles from space was successfully initiated. The project was officially called the Strategic Defense Initiative, but was nicknamed "Star Wars" (Singer, 2009).

Since then, laser weapons technology has advanced to a point where prototypes have been tested, which can shoot down rockets or mortar rounds from more than five miles away (Singer, 2009). Besides being very accurate, lasers can be controlled even after the trigger is pulled, and thereby change direction. If implemented with drones, targets on the ground could be individually neutralized. Furthermore, the drone could potentially defend against incoming missiles.

This possible future scenario could also potentially change the current debate.

The most obvious change would be to the subject of civilian casualties. Replacing missiles with lasers, which are precise and can discriminate between targets, could potentially eliminate the collateral damage incurred by the missiles. However, this requires a certain level of technology, which is able to not only target individuals, but also identify them.

### 5.1.3 Other emerging technologies

On the current forefront of sensor and camera-technology for drones, a system is being developed with the ability to monitor an entire city in real-time (Singer, 2009). Workable biometrics, for an example electronic recognition of eyes, faces and walking styles is also being developed (Singer, 2009). This will implicitly lead to better and easier recognition and surveillance. Higher precision through better information could lead to an increased distinctive discrimination of targets. It is for an example estimated that within a few years the drones will be equipped with facial-recognition software which can accurately

identifies targets from several hundred meters away (Ringsmose & Henriksen, 2013, p. 20). However, this specific trend in the technological evolution of drones potentially adds on other already specified ethical contexts, namely the question of moral coldness. While better information might increase the abilities for discrimination amongst potential targets of drones, the overall easier identification of potential enemies could hypothetically lead to an increase in the use of drone-strikes. Oppositely, as the ability to discriminate increases, the ability to single out of specific targets might lead to fewer, more strategic uses of armed drones.

As the technological levels of drones evolves, so could the interfaces between humans and robots. The current interface has resulted in the previously discussed theme of the debate concerning videogame likeness in 4.1.6. With the development of ever more sophisticated *neural* interfaces, a possible future scenario exists where drones in warfare are controlled in part, or completely, through a computer-maintained neural link with the pilot.

Depending on how such human computer interaction is received by the public, and the state of video game technology at the time, the theme of video game likeness will be affected to some degree. One possible scenario is that piloting drones becomes more akin with flying an airplane.

Another related, apparently imminent, technological development of drones is a convergence towards fighter-jet like features, such as subsonic speeds and stealth abilities (Ringsmose & Henriksen, 2013, p. 20). These features will not only give the drones an advantage in their current utilization, but also prepare them for air-to-air combat as well (Ringsmose & Henriksen, 2013, p. 20). Consequently, the practice of using drones in countries with which one is not at war could become increasingly covert. One previously included example of this practice is the use of drones in Pakistan, presented in section 4.1.4. Here, the Pakistani government approved the strikes, yet even so, the Pakistani court system deems the drone strikes as crimes against humanity. If drones becomes stealthier and able to defend themselves against counter-attacks, they might be successfully used in covert strikes where the governing body of the eventual country will have no response or ability to retaliate. This scenario also leads back to the discussion of the silver rule in chapter 3, and how current practices are setting the laws for future use of drones. A country like America insists on initiating systems for the insurances of recognizing international law. One possible future scenario is that a country seemingly not beholden to such standards, for an example North Korea, obtains the technology of drones with such capabilities. In order to meet such a threat, the potentially “jet fighter” like drones of the future, capable of engaging other drones, might lead to drone versus drone being the next step in warfare.

Robots could in the near future be expected to reach a level of autonomy where humans simply will not have the required response time to react to threats. Thus, the likelihood of robots waging war on other robots becomes increasingly present.

When it comes to computer technology, exponential progress is encapsulated in Moore's law (Tuomi, 2002). In 1965, Gordon Moore, the cofounder of Intel, noticed that the number of transistors on a microchip was roughly doubling every two years. This means that the time needed by electric signals to move between them was also cut in half, increasing its computing power. As such, the prerequisite computer technology for extremely advanced computers, and thus potentially artificial intelligence, draws closer.

## 5.2 ARTIFICIAL INTELLIGENCE

A part of the current technological progress is the tendency towards ever-increasing autonomy. The overall purpose of autonomy or "artificial intelligence" is for a device to possess the internal ability to reason and react to its environment on its own accord (MCDANIEL, 2008, p. 53). An approximation of artificial intelligence could be theoretically possible, with present or near future technology. Approximation is used a definition here, as it contends to the possibility of programming to such a degree, that a computer seems to have achieved artificial intelligence.

*"Artificial intelligence is the interdisciplinary field that concerns practical and theoretical problems related to attempts, through computers and robots, to produce intelligence that is at least substantially similar (but not necessarily limited to) the human forms of intelligence."* (Øhrstrøm, Kunstig intelligens i etisk belysning, 2007) [Translated by me]

The possibility of a full artificial intelligence is still the work of science fiction (Olsthoorn, 2014, p. 7). However, full A.I. is not essentially necessary for drones to perform autonomously. The problem lies with the apparent inability to instill human-like judgement, through the drone not understanding context. On any battlefield, the ability to make complex ethical choices, for an example discerning between combatants and civilians, is paramount in determining the proportionality of the attack. An example of missing context is obvious in the science fiction movie I, Robot (2004). In this possible future scenario, robots serve human and have a built-in morality in the shape of pre-programmed moral codes, through Asimov's Three Laws of Robotics as described in the introduction chapter of this thesis. A scenario is described wherein the protagonist, Detective Spooner, tries to save a 12-year-old girl from drowning, as

a result of a car-crash. Instead, he is “...saved by a robot, who interfered with his actions and computed ... that Detective Spooner had a higher probability of survival than the girl!” (Øhrstrøm & Gerdes, 2015, p. 105).



Figure 6: 1, *Robot* (2004) Detective Spooner's prior experience with robots has left him distrustful of others of their kind.

Due to its programmed artificial intelligence and moral system, “it was not difficult for the robot to make a morally correct choice, which could be judged desirable and evaluated as morally good across the robot's different built-in moral frameworks. For instance, within the robot's utilitarian framework, the robot's moral behavior is judged by the consequences of its rescue of Detective Spooner, which turned out to represent the best possible outcome under the given circumstances” (Øhrstrøm & Gerdes, 2015, p. 105).

Researchers are working on several advanced AI-mechanisms, including systems that organize behavior into millions of rules to follow, to self-educating AI, such as neural networks that mimic the human brain, to algorithms based on genetics that continually refine themselves (Singer, 2009). This is done in part with the intention of programming unmanned systems with a code designed to ensure that their actions are ethical. Possessing the ability to refuse an unethical order or incorporating parameters within a system's program outlining existing laws such as the Geneva Convention, as discussed in section 3.3. Implementation of an ethical code, or artificial conscience, within an autonomous system may provide ethically acceptable behavior during combat. Basing its actions on sources such as the Geneva Convention and other related protocols, might enable an unmanned system to calculate the consequences of its actions (Arkin, 2007, pp. 61 -62).

One issue with more autonomous drones is the aspect of potentially losing control over them. This could potentially happen in two scenarios. Either by a manual/technical malfunction, or by outside takeover. Under any circumstances, the current policy is to launch a fighter jet to shoot the drone down. (Singer, 2009). This could become an issue when some of the most likely future drone improvements include a system to analyze an aircraft's "behavior" and for the drone to have defensive capabilities, or other evasive action, if an incoming aircraft is perceived to exhibit threatening behavior.

The idea of robots, one day being able to problem-solve, create, and even develop personalities past what their human designers intended is what some define as "strong AI." (Copeland, 1993). That is, the computer might learn so much that, at a certain point, it is not just mimicking human capabilities but has finally equaled, and even surpassed, its creators' human intelligence. This is known as The Singularity (Kurzweil, 2005). Testing whether or not a machine has reached a certain level of artificial intelligence is the essence of the Turing test (Kasher, 2015). In short, it tests for a computer intelligent enough to trick human experts into thinking that it is human. This is a central theme in the science fiction movie *Blade Runner* (1982). In the movie, humanoid and highly functioning androids called replicants exist, and it is assumed they are primarily utilized in jobs as described in section 1.1 as "Dull, dirty, and dangerous" (Ringsmose & Henriksen, 2013, p. 14). The protagonist, Detective Deckard, is a police officer employed to handle incidents concerning replicants. One of the tools at his disposal, to identify replicants from humans, is a test very much like the Turing test.



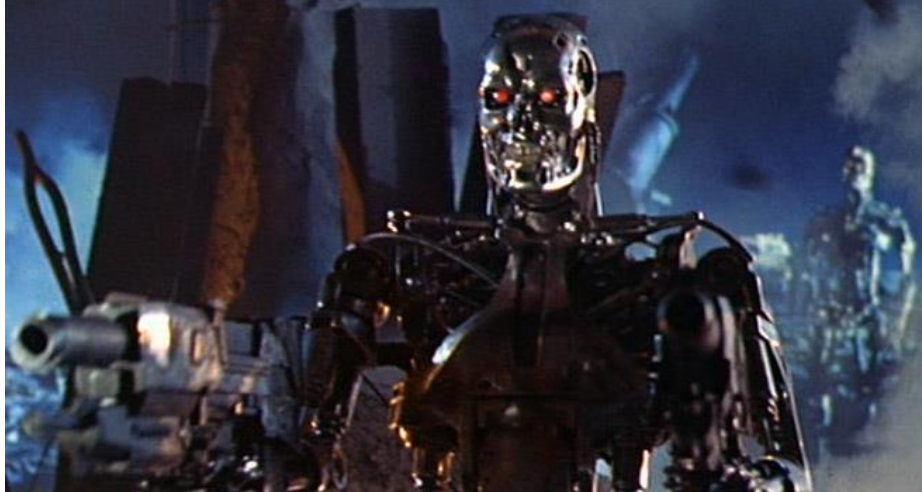
*Figure 7: Blade Runner (1982). Detective Deckard sits with the machine, which can be used to distinguish the androids from humans.*

The central plot of the movie revolves around a group of renegade replicants, and their violent quest to elongate their predetermined short “lifespans”. The movie implicates a possible future scenario where robotics have come so far as to blur the line between humanity and machines. The movie's antagonist, an android, ponders in regards to the purpose of his/its existence, and ultimately leaves the viewer with a question as to whether the very human seeming Detective Deckard was a replicant all along. As also pointed out in relation to *Robocop* (2014), this movie additionally points out the difficulty of assigning blame, when it comes to allocating who is responsible when robots malfunction in their expected duties.

### 5.2.1 Responsibility

Advances in autonomous technology could cause an entirely different set of problems that have never before existed in the history of law and modern war (Bentzen, 2013). In the case of a mishap, it would be next to impossible to establish exactly “who or what” is at fault. Blame could be placed or shared on the commander, the operator, the programmer, the victims, or perhaps the machine (MCDANIEL, 2008, p. 52; Bentzen, 2013). An example of a tragic mishap due to the autonomous nature of a machine, and humans trusting it, happened during the Gulf War. The automated Aegis defense system aboard the USS Vincennes, system registered a passenger plane with an icon on the computer screen that made it seem to be an Iranian F-14 fighter (MCDANIEL, 2008, p. 62). Even though other data was showing the crew of the ship that the plane was not a fighter jet, they trusted what the computer was telling them. They honestly believed it to be an F-14 because the Aegis’ computer displayed data outlining the characteristics of a fighter jet. The Aegis system was on semiautomatic mode, and the passenger plane, along with its 290 passengers were destroyed (Singer, 2009, pp. 66-67).

Blind trust in automated systems, autonomous machines, or artificial intelligence is a recurring theme in science fiction, expertly exemplified through the Terminator movie franchise, beginning with *The Terminator* (1984). Throughout the movies, one occurrence is constant: The Singularity. A true artificial intelligence is brought online, often as part of an automatization of the American defense-grid. This artificial intelligence immediately decides that humans are humanity's greatest enemy, and initiates a nuclear Armageddon. Subsequently it begins manufacture of “Terminator” robots, intended to hunt down the surviving humans.



*Figure 8: The Terminator (1984). One incarnation of a terminator-robot.*

One apparent comment to this specific future scenario is that humanity would have gained from the implementation of a more calibrated moral compass for the artificial intelligence. Instead of evaluating in extremes, as is often the case with ethical systems like utilitarianism or deontology, or extremely simplified codex as presented by Asimov's three laws of robotics, another approach might be beneficial when dealing with robots.

### 5.3 SUMMARY OF CHAPTER 5

This chapter revolved around the potential future technological progress of drones. Several examples of this prospective technological progress were presented, including possible futures as derived from science fiction. The potential impact on the current debate on drones varied from subject to subject, yet the overarching theme was comprised of increased aptitude for the drones, and a lack of international conventions in the field with which to compare the ethicality of potential future uses. In accordance with the initial problem analysis and motivation behind the thesis, a significant portion of the discussion was based upon artificial intelligence, the concept of moral machines, and potential impact of these on drones and the implicated ethical considerations.

## 6 DISCUSSION ON THE CURRENT AND FUTURE USE OF ROBOTICS IN WARFARE

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One interpretation of the findings so far, could be that the existing rule of law is inadequate. The current practice of using drones in war apparently persistently clashes with the concepts of Just War Theory. Even if potential future technologies and theorized future aptitudes can lessen the proverbial clashing, the potential conventions as based on current use, includes civilian casualties in such numbers that it has the Human Rights Counsel worried.

Furthermore, the fact that the American government has initiated a series of “safeguards” for ethical usage of drones, does not change the fact that they base themselves on possibly increasingly outdated concepts of Just War Theory, and arguably just as outdated International Laws of war.

The findings so far point in a rather specific direction: the need for not only actual laws concerning the use of robotics in war, but also potentially a universal way of evaluating the individual uses of drones.

The solution might be an independent agency or agent involved with the process of initiating a drone strike, with the means to call off the strike if it is deemed unethical, based on an ethical evaluation. As the apparent future of drones potentially includes an increase in aptitude concerning surveillance and recognizance, other ways of evaluating ethical outcome of situations becomes feasible. As such, this evaluation could be based on situational ethics, perhaps ontology, as opposed to the more broadly definable concepts like utilitarianism or deontology.

Consequently, the recommendations of this thesis, regarding the future of drones, becomes a disassociation from the current way of evaluating ethicality in praxis, and a suggestion to make all weaponized drones armed with both lethal and nonlethal weapons.



## 7 CONCLUSION

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In this final chapter, three things will be concluded upon. The first subject matter to be included is whether the chosen methodology efficient to the task. The second matter to be determined is whether the research questions were answered arguably satisfactory. The last task is to evaluate on the original research statement and presented analytical points.

This thesis has been based on the following problem statement:

**Which indications of change to the ethical debate on using drones in warfare does an examination of possible future scenarios within the field of robotics-technology allude to?**

To treat the problem statement, a methodology based on a mixed methods approach, including literature review and conceptual analysis was implemented. This approach was supplemented with science fiction used as a tool for presenting possible futures. I conclude that this approach was useful to determine the different aspects of the problem statement.

Several research questions were established, intended to function as a sequential examination. This approach yielded arguably useful answers and structured the thesis.

In order to determine in what ways war, killing, robots, the use of these, and other relevant concepts defined in relation to the subject of using robots in war, a chapter on these subjects specifically was created. Concerns for the number of civilian casualties caused by the use of armed drones in war was an overarching theme in this chapter. It was also found that current conventions were potentially inadequate to regulate the use of drones.

A second analytical chapter was made in attempting to determine in what manner drones are currently being used in war, and how these context reflected in an ethical matter. The underlying problem here seemed to be a lack of specific conventions for the use of drones in war, and the precedents set by the current use. It was a recurring theme of the analysis so far to focus on concepts within morality, as opposed to choosing one or more established ethical systems. Additionally, as no overall system had been established in relation to the use of drones in warfare. It was deemed beneficial to review their use on an individual basis, such as through Ontology.

The technological progress in robotics affecting drones, and its potential consequences was analyzed in the third chapter. The major theme was an apparent lack of international conventions in the field with which to compare the ethicality of potential future uses.

In regards to technological progress itself actualizing ethical questions, it became known in the third chapter that much of the discussion was based upon artificial intelligence. The subject is not new in and of itself, but it will become an increasingly important theme as technology advances.

As a result of the found indications of change alluded to by the possible future scenarios, some recommendations were formulated in the reflections. The first is a disassociation from the current way of evaluating ethicality in praxis. The second suggestion was to make all weaponized drones armed with both lethal and nonlethal weapons, as to easier conform to a system of situational ethics.

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## FIGURES:

Figure 1:

<http://www.northropgrumman.com/Capabilities/X47BUCAS/Pages/Flipbook.aspx>

Figure 2

[http://upload.wikimedia.org/wikipedia/commons/1/1f/CBP\\_unmanned\\_aerial\\_vehicle\\_control.jpg](http://upload.wikimedia.org/wikipedia/commons/1/1f/CBP_unmanned_aerial_vehicle_control.jpg)

Figure 3

<http://static1.squarespace.com/static/505e94bce4b0cc5696dcc000/55b27b85e4b0dca27f0abc05/55b27bb9e4b0953c45a57b4e/1437772211779/?format=1000w>

Figure 4

<http://i.ytimg.com/vi/7CJLaYIV9gw/maxresdefault.jpg>

Figure 5

<http://spinoff.comicbookresources.com/wp-content/uploads/2014/02/robocop4.jpg>

Figure 6

<http://moviewallpaperpics.com/wp-content/uploads/2015/04/Will-Smith-I-Robot-5.jpg>

Figure 7

<http://soundvenue.com/wp-content/uploads/2014/11/bladerunner.jpg>

Figure 8

[http://img3.wikia.nocookie.net/\\_\\_cb20071216073508/terminator/images/4/48/Terminators.jpg](http://img3.wikia.nocookie.net/__cb20071216073508/terminator/images/4/48/Terminators.jpg)

