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Accountability for the Use of War Algorithmic Systems- an Undeniable Loss of all Regulatory Options?

A comparative content analysis of accountability for the use of AI technologies in warfare.

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Abstract

In light of the growing international competition for new technologies and their implementation in warfare, this thesis examines existing accountability relationships for the use of war algorithmic systems. By combining established theories on accountability and algorithms this thesis generates the first understanding of war algorithmic accountability to analyze and compare three incidents in which an armed unmanned aviation vehicle was used to assassinate targets. The focus here is laid on the behavior of the French, British, and US governments after the critical drone strike to assess the extent to which accountability for the measures taken was met. Using content analysis, the collected data, consisting of official government documents, speeches, guidelines, and news articles, was analyzed to extract the existing accountability relationship for each case. The analysis revealed unsatisfactory government behavior that hindered the establishment of a full accountability relationship in all three cases. This contrasts with accountability as a democratic value for good governance. Based on these findings a strategy is developed to ensure greater accountability for the actions of warfare.

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1. Introduction

The concept of accountability is a fundamental component of democracies and is used to legitimize policies and government actions. It further establishes a trust base between governments and citizens, which increases their compliance to cooperate with government policies (Greiling and Halachmi, 2013). Lack of accountability leads to issues such as higher costs of daily government operations and "sets the stage for subsequent government failures, inefficiencies and ineffectiveness which feed and foster even greater mistrust in government and alienation" (Greiling and Halachmi, 2013). Accountability is therefore inevitable for good governance. While we are in the stage of a societal transition from the information age to one dominated by Big Data, Artificial Intelligence (AI), and cyber-physical space, governments face the challenge of ensuring appropriate use and application of such technologies.

In July 2017 China introduced its new strategy paper with the core objective: to lead in AI technologies by 2030. Less than two months later Russia´s President, Mr. Putin predicted in a public speech that the leader in AI technologies will rule the world. In January 2018 the National Defense Strategy paper published by the US prioritized AI as the key technology winning future wars. These recent examples demonstrate the growing importance, competition, and application of AI technologies, especially in military operations. AI as a feature in military operations can be used in technologies that ease military decisions, reduce human casualties, and improve the combat potential of forces for example through combat drones. It is therefore evaluated as an efficient and cost-reducing trend. Nonetheless, AI is responsible for the dramatic change in military systems and therefore, a change in the way wars are fought. Furthermore, the increasing competition of AI technologies in warfare and the resulting lack of government regulation creates "a vacuum of accountability, a potential abuse of power and erosion of trust between governments and those whom they govern" (Donnellan and Kersley, 2014, p. 6). Furthermore, the effort to gain a competitive advantage over other governments in science and technology leads to greater weaponization of AI and hence increases the risk for uncontrolled algorithmic warfare with other nations and against humans. Another risk for governance effectiveness bear AI decision-making processes since it is not understood how such machines could be held accountable for unwanted outcomes (Walsh, 2015). Hence, national governments must act accordingly to the competition by adapting to the potential risks it creates to ensure the trustworthiness of their socio-political system. The described risks and the international context of warfare, in which AI technologies are used, demand an accountability regime that holds actors equally accountable and sets standards for accountability itself (Keohane and Buchanan, 2015).

This topic is not just of societal relevance but also scientifically important. The meaning of accountability is discussed extensively in the scientific literature. Since the term covers several other concepts it is rather elusive and more difficult to define. Moreover, the scientific literature lacks an understanding of what accountability means when a war algorithm is incorporated in government measures or decision-making processes (Bovens, 2007; Walsh, 2015). Questions arise as to who is responsible for the outcome when a war algorithm performs military operations. This creates an "accountability gap", as no answers

to these questions have yet been developed. Further, it results in different interpretations of accountability and provokes various strategies on how governments operate war algorithms. No uniform understanding of how to account for the use of war algorithmic systems can lead to unregulated usage, which can result in an escalation of the conflict situation. Therefore, research on this topic is essential and of high scientific and societal importance. However, it is understood that in the context of algorithmic warfare, accountability is in general about recognition of responsibility and answerability for decisions, policies, and actions that are being taken (Millar et al., 2018).

By examining and interpreting the accountability system of different governments, this interpretive research intends to contribute to the ongoing scientific discussion about the "accountability gap" of the use of war algorithms. A thorough study of government behavior after a critical incident that included a war algorithm provides insights into how war algorithmic accountability is implemented and reveals similarities and differences between governments. These findings are of great importance because they show the current status of the actual importance of accountability for the actors and, therefore, the importance as a value of good governance. Combining these gained insights with the pressing issue of how to regulate AI in warfare, contributions can be made to develop an international accountability regime that holds actors equally accountable and provides transparent guidelines to increase the security of civilians. Moreover, a better understanding of what accountability in this context means can reduce the potential accountability risks described above and hence ensure greater institutional stability and trustworthiness. Given these pressing issues, this paper aims to answer the following research question and sub-questions:

How do national governments account for the use of war algorithmic systems in their military operations?

(1) How do national governments define war algorithmic accountability?
(2) What are the similarities and differences between the existing accountability relationships?
(3) How can these differences be explained in terms of accountability perspectives?

The three sub-questions are installed to systematically answer the main research question. To analyze how governments account for the use of war algorithms it is essential to first detect the different understandings of accountability. Based on this, similarities and differences amongst accountability relationships can be assessed. By interpreting these results in terms of perspective one can provide explanations on how national governments account for the use of AI technologies in their military operations. Answering this question, one can contribute to the knowledge gap on accountability for the use of war algorithms and gain an in-depth understanding of the current positioning of the examined governments. This can be the starting point to take appropriate measurements capable of installing an accountability regime that regulates the use of AI technologies in warfare and holds actors accountable.

The suitable method for examining the research question is the comparative case study method. By focusing on three cases where an armed drone was used as a government measure in combat situations,

the behavior of the French, British, and US governments is being analyzed, and existing accountability relationships compared. The research design for this study will be further introduced in chapter three.

2. Theoretical Approach

This chapter has two incentives it seeks to fulfill. As there is no scientific literature on what can be defined as war algorithmic accountability, this section applies Bovens´ (2007) widely accepted theoretical concept of accountability to the use of war algorithmic systems. Using a systematic application of Bovens´ five points this can be made possible and strengths and weaknesses of such an approach can be highlighted. Furthermore, based on the outline of a historic development of accountability and the strategic culture approach, this chapter also seeks to explain differences in accountability systems. This procedure is considered essential for answering the research question. Therefore, this chapter is divided into five sub-chapters. First, definitions of accountability and war algorithmic systems will be introduced. Second, Bovens' theory of accountability will be discussed in relation to war algorithmic systems. This is followed by an evaluation of the discussion to provide a first theoretical understanding of war algorithmic accountability. Subsequently follows a discussion to explain differences in accountability systems and finally, gained insights will be summarized. By drawing up relevant literature, this chapter outlines the current state of research in the areas mentioned and thus creates a theoretical framework for the analysis of the research question.

2.1 Definitions

2.1.1 A Definition of Accountability

"Accountability often serves as a conceptual umbrella that covers various other distinct concepts, such as transparency, equity, democracy, efficiency, responsiveness, responsibility and integrity" (Boven, 2007, p. 449). Researchers have identified the "chameleon-like nature" of accountability which makes it a rather elusive concept and therefore, harder to define and operationalize for empirical purposes (Sinclair, 1995, p.219). However, there seems to be no disagreement that accountability is important, needed, and desirable (Sinclair, 1995; Bovens, 2007). This thesis focuses on the widely confirmed concept of Bovens (2007) who defines accountability generally as:

"a specific social relationship between an actor and a forum, in which the actor has an obligation to explain and to justify his or her conduct, the forum can pose questions and pass judgment, and the actor may face consequences" (p.450).

Bovens' (2007) definition identifies five points that are important to consider when analyzing accountability: 1. the actor, 2. the forum, 3. the relationship between actor and forum, 4. the account, and 5. the consequences which might result from the conduct. The accountability relationship between the actor and the forum serves as a mechanism for democratic control as well as to improve integrity and performance (Bovens, 2007). Accountability is therefore evaluated as inevitable for good governance (Bovens, 2007). Wieringa (2020) defines algorithmic accountability as the type of accountability relationship in

which "the topic of explanation and/ or justification is an algorithmic system" (p.2). So, what is an algorithmic system and further, one that is applied in warfare?

2.1.2 A Definition of War Algorithmic Systems

Simplified, algorithms consist of a set of instructions and rules, programmed by humans, that enable machines to solve problems and generate desired outcomes (Goffey, 2008; Layton, 2018; Rosenblat et al., 2014). Lewis et al. (2016) define war algorithmic systems as "any algorithm that is expressed in computer code, that is effectuated through a constructed system, and that is capable of operating in relation to armed conflict" (p.1). According to this definition, the only difference between an algorithm and a war algorithm is the environment in which it is applied, and therefore no technical distinction can be made between the two. Therefore, the literature concerning algorithmic accountability can also be applied in the context of warfare. War algorithms can be embedded in systems such as surveillance, intelligence, defense, or targeting (Jensen et al., 2019). A missile defense system, for example, equipped with AI autonomously detects, tracks, and destructs attacking missiles (Lewis et al., 2016). Another example is the Global Hawk remotely piloted drone, which is used for surveillance and troop support. War algorithms can therefore not only be used in weapons but also other war-related functions. The most controversial point of these war algorithmic systems though, are the algorithmically-derived choices and decisions that determine military operations and hence replace human judgment (Jensen et al., 2019). This leads to the question of how to account for the use of war algorithmic systems when the actual decision-making process is influenced by a machine? In the following Bovens´ five points of accountability will be described and related to war algorithmic systems.

2.2 Bovens´ Theory of Accountability

2.2.1 The Actor

To define an actor, one asks the question of who is responsible for an action taken and has the obligation to inform a forum (Bovens, 2007). An actor, for example, can be a bureaucrat, ministry, or government whereas a forum can be a parliament or the overall public. In the case of war algorithmic systems as the topic of explanation, an important distinction must be made between two circumstances. The first question to be asked is who must give an account for the damage that the algorithmic system may cause when it works as expected. And further, who must provide an account for the damage when that system works incorrectly (Wieringa, 2020). If these questions are not accurately addressed in warfare it can trigger counter strikes and cause lives.

Bovens (2007) distinguishes three different types of accountability based on the level of the actor: individual, hierarchical, and collective accountability. However, identifying the level of the actor can be challenging. At higher levels of the military for example the unit, the division, or even the responsible ministry can be held accountable. This demonstrates that depending on the given situation one may distinguish different actors on different levels in the military or executive branch.

We can speak of individual accountability when an official is held accountable for her actual contribution and not for her formal position (Bovens, 2007). Hierarchical accountability means the case in which the head of the executive branch or organization is called to account (Bovens, 2007). An example of hierarchical accountability is the justification of the head of state or the military to the International Criminal Court in case of committed war crimes. The type of accountability where one member of a group can be held accountable for everyone else in that group regardless of the formal function can be called collective accountability (Bovens, 2007). Wieringa (2020) adds three features related to the role of an actor that play an important role when accounting for war algorithmic systems. The author differentiates between the decision-maker, the developer, and the user of algorithmic systems (Wieringa, 2020). I argue that states that use algorithmic systems in warfare are aware of what is at stake and have already tested and checked the algorithmic system to minimize misconduct. That is why a focus will be laid on the user of war algorithmic systems. Applying algorithmic systems in warfare comes with a reduction of human involvement. Further, one can distinguish three stages of human involvement: humans-in-the-loop, humans-on-the-loop, and humans-out-of-the-loop (Wieringa, 2020; Jensen et al., 2019). Each stage varies from its intensity of human involvement, from the algorithm as a support system to fully autonomous decision making by the algorithm. These different stages of involvement have consequences for the account that the user, as an actor, provides to the forum (Wieringa, 2020). Therefore, the aspect of the degree of human involvement as well as the role of the actor should be considered when accounting for the use of war algorithmic systems.

2.2.2 The Forum

In order to identify the forum, it is important to ask who the account is addressed to (Bovens, 2007). Kemper and Kolkman (2018) and Bovens (2007) presuppose that a forum needs to understand the content of the subject to pose questions and pass adequate judgment. This defines the forum as a ´critical audience´ (Kemper &Kolkman, 2018). Bovens (2007) describes three types of accountability relations based on the kind of forum; political, legal, and social accountability.

Political accountability can be defined as the outcome of a delegated task by a political representative to a civil servant (Bovens, 2007; Mulgan, 2000; Lindberg, 2009). Although the military does not fit into the official category of civil servants and is considered as an organization in its own right, it still works for the government and is subject to the instructions of the Ministry of Defense. Legal accountability is "based on specific responsibilities, formally or legally conferred upon authorities" (Bovens, 2007, p. 456). Several legal norms set accountability standards and therefore allow to review the way people or institutions work and behave (Mulgan, 2000; Lindberg, 2009). However, this is not necessarily the case for processes involving algorithms or the outcomes of such. Either suitable laws are not yet made, or judges, lawyers, and legal works are lacking suitable expertise of algorithmic systems (Wieringa, 2020). Social accountability can be determined through a 'more direct accountability relationship between the government and citizens (Bovens, 2007). (Wieringa, 2020) stresses the point to “safeguard public values

in algorithms" (p. 6) to ensure this kind of accountability. Therefore, identifying to whom the account is addressed to can provide information about the environment the account is placed in.

2.2.3 The Relationship between the Actor and the Forum

As demonstrated above the accountability relationship between the actor and the forum can occur in many different levels, variants, and combinations. Nevertheless, in whatever combination these relationships occur, they all undergo the same three phases (Wieringa, 2020). The first one is the information phase in which the actor is obliged to provide information to a forum. The second is the consideration phase in which the ´critical audience´ can pose questions and make judgments. The last phase is characterized by the sanctions imposed on the actor by the forum. These three phases can be mapped and hence, accountability relationships compared. It allows to evaluate the relationship in terms of quantity and intensity and to empirically identify accountability shortages. Because giving a detailed account does not necessarily imply a big discussion by the forum. Nevertheless, this mapping of the phases does not give any information about the shared understanding of accountability of the actor and the forum. Bovens (2007) distinguishes three normative perspectives on accountability. The democratic perspective depends on accountability as a mechanism to legitimize government actions and hence, weaves it into the democratic delegation of power to lower-ranked officials. The constitutional perspective views accountability as a tool to combat abuse of power by the executive. A learning perspective on accountability is concerned with providing feedback to increase the overall efficiency of an agency or public official. These three perspectives help to identify different understandings of accountability so that the accountability relationship between the actor and the forum can be assessed more precisely. However, I argue that there are more explanations for differences in accountability systems, which I will allude to in 2.4.

2.2.4 The Account

The important characteristic which is connected to giving the account is the possibility by the forum to ask questions (Bovens, 2007). This phase enables the forum to become familiar with the account and to form judgments, which is essential to impose consequences. It is also an important part of the analysis of the accountability relationship between actor and forum and is referred to as the consideration phase (also in 2.2.3). Wieringa (2020) argues that if the topic of explanation is an algorithm that is involved in giving the account then "we need to weigh the role of an algorithmic decision in the decision-making process, and the impact of the final decision on individuals and the wider society" (p.6). However, what has not yet been taken into account in the scientific literature is how this "weighting of the influence" can be carried out if the decision made is a fully automated process.

2.2.5 The Consequences

Finally, for an adequate accountability relationship, the forum must be able to impose consequences. These can differ a lot from each other and depend on various factors. Bovens (2007) distinguishes two

types of accountability based on the power relation that exists between the forum and actor: vertical and horizontal accountability. If the power relation is a vertical one, like it is the case in political and legal accountability, the consequences are often formally defined. Horizontal accountability is not based on a formal power relation but a moral one (Bovens, 2007). Here, the actor wants to comply with the values of civil society or citizens and is hence, performing some sort of self-regulation. Therefore, the forum has only a little power to impose consequences. This means the characteristics of the power relation between an actor and a forum influence the intensity of the consequences.

By applying all five points to war algorithmic systems, it can be assumed that the characteristics of the actor, forum, account, and consequences influence the existing accountability relationship which leads to different government behavior. Furthermore, with the involvement of war algorithmic systems as a topic of explanation, these characteristics must be partly newly defined. The following subchapter describes and summarizes the gained insights on war algorithmic accountability.

2.3 The Concept of War Algorithmic Accountability

When accounting for war algorithms one can look at various aspects of it, the decision-maker, the programmer, and the user. Each of these roles can be held accountable and hence, are a part of determining war algorithmic accountability. Moreover, the level of involvement of a war algorithm in a decision can vary, which can affect the resulting consequences. This demonstrates that algorithms are embedded within a broader socio-technical system (Millar et al., 2018). Different aspects of this socio-technical system can be examined and, depending on the scope of the analysis, the right variables must be identified. However, the objective of this paper lies on the user of such systems as it seeks to determine how national governments account for the use of war algorithmic systems. As demonstrated above Bovens´ five points can be applied to this content and stand therefore at the core of defining war algorithmic accountability. Nevertheless, it must be taken into account that with the inclusion of war algorithmic systems into the accountability relationship, Bovens´ five points need to be adjusted and expanded at times. So is for example not just the level of the actor important but also its role and the stage of human involvement (Wieringa, 2020). Furthermore, attention needs to be paid to the weighting of the influence of the algorithm in the decision-making process itself. Depending on the scope of analysis it is important to correctly identify the actor, the forum, the account, and the consequences (Wieringa, 2020). In addition, it is crucial to consider the perspective on the accountability arrangement to enable comparisons. However, I argue that when comparing how different governments account for the use of war algorithmic systems in their military operations, one aspect needs to be added, namely the general conception of accountability as a value for good governance. Therefore, I argue that the conceived importance of accountability, in general, affects state behavior when accounting for the use of war algorithmic systems and hence, the accountability relationship.

2.4 Explaining Differences in Accountability Systems

This subchapter seeks to provide explanations for differences in accountability systems. It investigates the roots of accountability, why it was installed as a value, and why it matters more to some than it does to others. This subchapter first describes the historical development of accountability and relates it to the strategic culture approach, which is embedded in the theory of international relations and includes the importance of cultural values to explain state behavior.

The current importance of accountability as a value of good governance emerged from the political Enlightenment movement in the 18th century, where the need for individual rights was expressed. This development of civil society with individual rights has contributed a lot to the installation of checks and balances, which are conceptually and operationally essential to accountability. Brinkerhoff (2001) distinguishes on the one hand among civil law countries, in which accountability structures are installed for institutional oversight, and on the other hand, common law countries, in which accountability mechanisms serve as behavior oversight. It is therefore important to regard a country´s "socio-cultural and political relations since they shape how constitutions and laws are interpreted and applied, and how public administration functions are exercised" (p.8). This, in turn, influences how important accountability is as a value for good governance (Brinkerhoff, 2001). It can, therefore, be assumed that if accountability is of high importance, as is the case in democracies, government behavior should reflect this importance by duly accounting for the use of war algorithmic systems in military operations. Countries with an authoritarian history or ruling elite often tend to overlook accountability structures because the primary goal of leaders is to stay in power. Having described historical explanations for differences in accountability systems, this subchapter will further discuss the strategic culture approach, which understands cultural values as an important variable to explain state behavior.

The constructivist understanding of a strategic culture integrates cultural beliefs, values, and norms into the analysis of state behavior regarding their security policies and international relations (Lantis, 2002). From a constructivist point of view, realism is all about "functional imperatives, meaning states following incentives arising from international power structures, while constructivism is all about societal imperatives, meaning states acting based on ideas generated either in domestic or international society" (Rynning, 2003, p.481). In addition, constructivists argue that their focus on values expressed in a strategic culture explains many government behaviors that a functional framework neglect. I argue that by evaluating the importance of accountability as a value of good governance, differences in state behavior for the use of war algorithmic systems can be discovered and explained.

2.5 Concluding Remarks

By applying Bovens´ five points of accountability to war algorithms this chapter provided the first understanding of war algorithmic accountability. At its core stands indeed Bovens´ theory of accountability. However, when accounting for the use of war algorithmic systems special attention needs to be paid to the role of the actor and the stage of human involvement. Furthermore, is it important to understand which aspect of this socio-technical system, is going to be analyzed. Depending on that, the actor, forum,

account, and consequences need to be identified to gain an in-depth understanding of the existing accountability relationships and to enable comparisons. When explaining differences between accountability systems, it is important to add the general conception of accountability as a value of good governance, which can be explained based on a nation's historical development and the nature of the political system.

3. Methods

This chapter provides the methodological framework and research design for linking the theoretical concept of war algorithmic accountability, introduced in chapter two, to the collected data. The suitable research design identified for this study is an interpretive one with a comparative case study methodology. A case study enables an intensive examination of a phenomenon and further allows a structured and focused comparison between cases that only differ in the crucial variable that is being researched (Lipson, 2005). As this paper seeks to explain how national governments account for the use of war algorithmic systems a clearer focus is required because war algorithmic systems can be used in several areas and features of warfare. To enable a comparison a focus has been laid on unmanned aviation vehicles, also referred to as drones. On the one hand, drones are clearly identified as war algorithmic systems because they are remotely controlled, and on the other hand, their regulation, use, and application are highly controversial. This undermines the importance to assess the accountability of their usage. It goes without saying that no one sets priorities to give an account on a regular and voluntary basis for the actions of warfare. As it is a matter of states and decisions in military operations are usually classified it is understood that a special incident needs to be investigated in which an actor felt obliged or was obliged to provide justification. Therefore, this paper focuses on fairly radical incidents where drones have been used to assassinate targets.

3.1 Case Selection

3.1.1 The targeted Killing of Reyaad Khan in 2015

Reyaad Khan was killed by a British Royal Air Force (RAF) MQ-9A Reaper drone in Syria on August 21, 2015 (UK, 6). This was the first time that the RAF targeted a British citizen. Khan was considered a dangerous terrorist who had joined the Islamic State in Syria and was identified as a direct and imminent threat to national security. Based on this threat Prime Minister (PM) David Cameron justified the killing in the sovereign territory of another country. In the aftermath of this event, an investigation by the parliament's Intelligence and Security Committee (ISC) was initiated to evaluate the actions taken on August 21, 2015. Several instances make this case relevant to analyze. The drone strike also killed Briton Ruhul Amin and one other Isis fighter, but like Reyaad Khan they were not explicitly targeted. However, their death was justified with the imposing threat of Khan, but during the questioning and evaluation of the attack, no further reference was made to the two men. This fact is so important because Cameron explicitly stated that the drone strike was “not part of the coalition´s general fight against Isis in Syria but a matter of the UK´s national security” (UK, 6). The RAF, therefore, acted outside a formal

conflict zone and thus outside the military operation Shader, which describes the contribution of British troops in Syria to fight the Islamic state (UK, 6). Amnesty International heavily criticized the killing describing it as unlawful and the actions by the RAF as alarming and line-crossing (UK, 12). The chairman of the ISC, Dominic Grieve, described the government as "non-cooperative and untransparent in gathering necessary information" (UK, 13). The mention of several issues related to the targeted assassination of Reyaad Khan makes this event an extremely relevant case to analyze in terms of accountability.

3.1.2 The targeted Killing of Anwar al-Awlaki in 2011

The targeted assassination of Anwar al-Awlaki by a U.S. drone in Yemen in 2011 sparked a major debate over the legality of such killings. Al-Awlaki, a dual US-Yemeni citizen, was well-known for his propaganda speeches and considered by the US as a dangerous Al-Qaida leader (US, 8). President Barack Obama authorized his assassination in 2010, making him the first U.S. citizen ever to be placed on a White House-approved list for targeted killing. This sparked a great deal of debate over the legality of such measures, given that US citizens have the constitutional right to be prosecuted and to defend themselves against the allegations made against them in an official trial. Furthermore, as in the case of Khan, four other men were killed in the critical drone attack, and no further explanations or justifications were given by the US government (US, 9). Dissatisfied with the explanation for the killing, the New York Times and the American Civil Liberties Union (ACLU) in a lawsuit challenged the government to publish a classified memo that provided the legal basis for the attack. The request was granted by a federal court and the memo partly declassified. President Obama's lack of information-giving and subsequent widespread public discontent and pressure makes this case relevant to an accountability analysis.

3.1.3 The Combat of Wagadou in 2019

In a helicopter crash in the Sahel in November 2019, the French military suffered the highest single loss in one day in four decades. This incident prompted the French military to test remote-controlled drones for future combat situations and to eventually arm them. On December 23, 2019, just two days after the successful completion of the drone tests, the French military deployed its first armed Reaper drone in a combat situation in Mali in which seven jihadists were killed (France, 8). The drone strike was part of the ongoing anti-insurgent Operation Barkhane which is led by the French military against Islamist groups in Africa´s Sahel region. The French Ministry of Defense issued a statement on its official website after the drone attack, justifying the mission to support ground forces (France, 4). The fact that this was France's first armed drone strike and that, apart from the statement on the website, no other government statement was issued, and no debate or questions were asked, this case is particularly relevant to be subjected to an accountability analysis.

3.2 Research Design

The research design applied in this paper will be an interpretive one with a comparative case study methodology. Interpretive research follows "the ontological believe that reality is socially constructed

[…] and asserts that the language humans use to describe social practice represents those practices" (Orlikowski and Baroudi, 1991, p. 14-15). An ontological belief in that regard refers to the inquiry of what exists and how such establishments can be categorized in similarities and differences (Orlikowski and Baroudi, 1991). This requires the understanding of meanings and practices, actualized using language, to fabricate interpretations and explanations that explicate how subjective meanings are created and maintained in a specific environment (Orlikowski and Baroudi, 1991). Interpretive research aims to gain an in-depth understanding of a certain phenomenon and to relate it to the nature of social action (Orlikowski and Baroudi, 1991). Simplified in explaining why people act the way they do. Given the objective of this research paper to uncover existing accountability relationships for the use of war algorithms a interpretive research design yields the most promising insights. Since the theoretical concept of accountability with its various dimensions is a social construct, it is necessary to examine the social reality of each actor. By extracting this social reality from the textual data, an understanding of accountability of different governments can be gained and differences can be revealed.

3.3 Data Collection

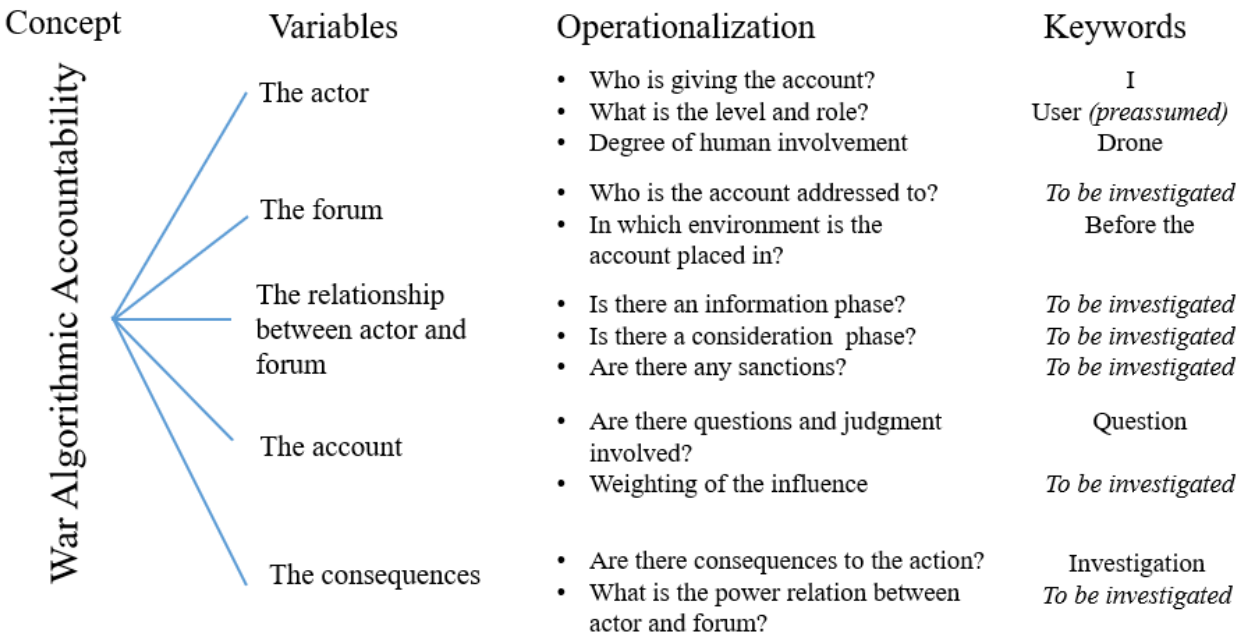
This section describes the data that is used in this study, why the selected data is appropriate, and how it was collected. Different data collection methods can be used in qualitative research, common are for example interviews, group discussions, observations, and document analysis (Polkinghorne, 2005). Given that three cases are to be analyzed, the data for each case was collected independently. Each case was a precedent, and since government behavior is at the heart of the analysis, official government documents, speeches, and policies related to the critical drone attack were used as the primary data sources. To further increase the robustness of the data, newspaper articles were collected from various publishers. On the one hand, to check the statements of the three governments and, on the other hand, to correctly reflect the events after the critical drone attack. Several times, the first research of the events gave further indications as to which other documents were essential for the analysis. For example, research showed that the US government had to publish a classified memo that could then be searched for explicitly. To ensure a high level of validity, depending on the case, relevant data were initially collected in the corresponding national language. This led to 48 data sources consisting of government policies, official speeches and statements, investigation reports and released memos, newspaper articles from 18 different publishers, and information from non-governmental organizations on the critical drone strikes. The collected data for each case can be found in Appendix A, B, and C.

3.4 Data Analysis

The chosen method to analyze the collected data is qualitative content analysis. A content analysis aims at identifying the form and nature of what exists on a textual base (Forman and Damschroder, 2007). That can be implemented through a deductive concept of the content analysis. Such is based on the interpretation of texts through paraphrasing categories and the establishment of a coding scheme which identifies keywords that are derived from theory (see also Illustration 1) (Forman and Damschroder, 2007). Since the data of the events is collected in text form and the existing accountability relationships

must be derived from it, the content analysis is the appropriate method for analyzing the three cases. First, the collected data is analyzed manually by scanning for the keywords. Secondly, the paragraph including the keywords will be examined in terms of Bovens criteria of accountability. In this way, the actor, forum, the relationship between the two, the account, and consequences can be identified. This procedure enables a detailed analysis of the collected data and sheds light on existing accountability relationships. By evaluating the three phases each relationship goes through, the three cases can be compared, and bottlenecks and overdoses of accountability identified. By further explaining the differences between them in terms of accountability perspectives, the main objective of this paper can be answered. The coding scheme, necessary to enable this analysis, is derived from Bovens´ accountability theory, with special attention to war algorithmic features. This process of converting abstract theoretical concepts into substantial, observable elements can be called operationalization. The keywords were established through first identifying important variables that are in close relation to the concept of war algorithmic accountability. As mentioned above, the variables to analyze war algorithmic accountability are the actor, the forum, the relationship between them, the account, and the consequences. By determining how they can be identified, the operationalization was made possible. *Illustration 1* demonstrates the coding scheme.

Illustration 1



4. Data Analysis

This chapter analyses the accountability relationship of the three cases presented. The cases are to be evaluated, compared, and the differences between them explained. The chapter is therefore divided into three subchapters based on the three sub-research questions and aims at identifying how national governments account for the use of war algorithmic systems in combat situations. The collected data of each

case is first analyzed to clarify how national governments define accountability. Based on these insights the accountability relationship between the actor and the forum can be assessed and compared. This comparison makes it possible to show differences and similarities between existing accountability relationships, which are essential to generate for the third subsection, in which these differences are to be explained. Based on these subchapters and the gradual generation of knowledge the main objective of this paper, namely how national governments account for the use of war algorithmic systems in their military operations, can be answered.

4.1 Defining Accountability

War algorithmic accountability can be identified in different ways. Only if all five criteria of accountability are respected a full accountability relationship can be guaranteed. However, attempts can be made to distort certain criteria to avoid consequences, which can affect the establishment of a full accountability relationship. If accountability mechanisms are not formally considered, they can also be enforced informally. However, this implies a less intense impact on the possible consequences. This subsection aims to find out how the British government identifies war algorithmic accountability in the case of Reyaad Khan. The same applies to the cases of the US government and the targeted killing of Anwar al-Awlaki and the French government and their first deployment of an armed drone. Therefore, each case is assessed independently to identify the actor, the forum, the relationship between them, the account, and the consequences. Based on these five points, a clear overview of how national governments behaved after the critical drone strike can be obtained, and thus their understanding of war algorithmic accountability can be preserved and interpreted.

4.1.1 The UK and the targeted Killing of Reyaad Khan in 2015

On September 7, 2015, 17 days after Reyaad Khan's assassination, former Prime Minister (PM) David Cameron informed the House of Commons in this regard. By first outlining Isil's general threat to Britain and the means of the UK's counter-terrorism strategy, the PM confirmed the targeted killing of Khan by a remote-controlled MQ-9A Reaper drone (UK, 6). He called it "necessary and proportionate to the UK's right to self-defense" (UK, 6). The PM, therefore, as a representative for the executive branch and further, the highest-ranking official provided the account. Furthermore, the algorithmic systems worked as expected, since the target was successfully eliminated. The stage of human involvement can be defined as human-in-the-loop since the drone was remotely piloted. Leader of the opposition, Harriet Harman, who was briefed by the PM beforehand questioned the PM´s actions and the decision-making process and called upon an independent investigation by the Intelligence and Security Committee (ISC) (UK, 6). According to Harman, the sufficiency of the evidence against Khan was “crucial in justifying the drone strike” (UK, 6). The House of Commons to whom the account was addressed, and in particular the opposition leader who had previously been briefed, was therefore a critical audience as time was given to familiarize itself with the subject. The forum was able to ask questions, and the judgment process was embodied by the ISC, which examined the legality of the targeted killing of Reyaad Khan. In

2017 the Committee published a report based on over 20 intelligence documents and deemed the drone attack to be lawful (UK, 2). This means that no consequences followed.
While all aspects of accountability appear to have been respected and followed, the ISC report, which could have had consequences, shows significant complications in assessing government action. First, the government delayed access to important documents as much as possible and denied access to others completely. This means that the ISC was not able to assess important decision-making processes, such as the ministerial decision to kill Khan. In addition, the Committee was hindered to review the intelligence base and was therefore unable to fully confirm the legal basis of the strike (UK, 2). Although the PM and the ISC report acknowledged the death of the Briton Ruhul Amin and another Isil associate who were also killed in the drone attack on August 21, 2015, there were no further references to the legality of their killing throughout the entire evaluation process. There also seems to be no special reference to the fact that Reyaad Khan was a British citizen with prosecution rights. Instead, his imminent threat to the British people was regarded as the main reason for the targeted killing. Another ambiguity is the publication of the ISC report. Because the PM Theresa May announced early General Elections in 2017, the Committee had to agree to the redaction requests by the PM and not to challenge them as usual. This was the only way the report could have been published before the dissolution of the Parliament. Hence, the report itself misses important information and did not fully undergo its formal procedures.
Therefore, regarding the level of the actor and the stage of human involvement, it can be said that a hierarchical accountability type exists in the UK in which the PM is being held accountable for decisions taken regarding war algorithmic systems. Moreover, as the legislative body of the system, the House of Commons created a political framework in which the account was given. However, despite the ISC's view that the UK government´s action was lawful, access to key documents that would have provided decisive evidence for the evaluation of the targeted kill was refused. Therefore, the report is based on general assumptions rather than on irrefutable facts. On the one hand, all five points of accountability can be identified, which indicates a formal consideration of the accountability relationship. On the other hand, the analysis of these points leads to the discovery of significant ambiguities regarding the independent evaluation of the ISC. Based on these ambiguities, it can be said that the UK identifies war algorithmic accountability as a matter that is formally respected. Nevertheless, possible consequences are avoided through government interference.

4.1.2 The US and the targeted Killing of Anwar al-Awlaki in 2011

The same day that the drone strike against the US-Yemeni citizen al-Awlaki was carried out, President Obama made an official announcement at the "Ceremony of Changing Office for the Chairman of the Joint Chiefs of Staff" (US, 16). By first outlining al-Awlaki's security threat to the American people, the President described his assassination as “a major blow to the al-Qaeda network” (US, 16). Obama justified the measures taken by prioritizing “peace, prosperity, and security” (US, 16). In other words, the President as the highest official of the executive, gave the account of the drone attack immediately after

it was carried out. Although the account giving was rather a brief statement than a detailed description of the events, measures, and motives. The drone strike itself, hence the war algorithmic system worked as expected since al-Awlaki was successfully killed. However, the stage of human involvement is not identifiable as there was no reference made to what kind of drone executed the attack. The guests of the ceremony to which the report was addressed were not a formal organ of the political system, but a mixture of several and the public (US, 16). Therefore, the account was addressed to society as this ceremony was a public event. Although the ceremony did not allow for questions to be asked, the debate, judgment, and action followed by society. The drone strike in Yemen sparked a major debate about US citizens' fundamental rights and the government's legal motives for targeted killing.

As a result, the New York Times and the American Civil Liberties Union (ACLU) sued the Obama administration under the Freedom of Information Act to publish the memo, which provided the legal basis for al-Awlaki's killing. A federal court ruled in June 2014 that the memo should be made public. The memo revealed that there was no precedent for it nor an explicit authorization for killing a US citizen in federal statutes or the constitution (US, 1). Moreover, the factual basis for the government's claim that al-Awlaki represented an imminent threat was redacted. David Barron, who wrote the memo, interpreted the existing law and concluded that al-Awlaki's citizenship would not protect him from the AUMF Act (Authorization to Use Force) (US, 1). Besides, neither the president nor the press secretary referred to the other four victims of the drone attack, which the Iraqi government confirmed (US, 9). Even though no formal consequences were imposed, President Obama received a lot of public pressure after the event which led to the adoption of more restrictive measures for approving targets and drone strikes.

In other words, it can be said that there is a hierarchical accountability type in the US in which the President provides the account on the use of war algorithmic systems. Furthermore, as the account was addressed to society a more direct relationship was established between the President and the forum, which can be identified as social accountability. Nevertheless, a forum should understand the content of the account to ask questions, make a judgment, and impose consequences. This makes it a critical audience. This possibility was not directly guaranteed since no questions could be asked after the President's speech and questions were also rejected at a subsequent press briefing in the White House. This leads to the conclusion that the US government does not voluntarily disclose information about the use of its war algorithm systems. By addressing a forum without formal authority, the government avoided possible consequences. However, this case also demonstrates the influence of the public, which was able to partly reveal the government's drone program with the help of legal measures. One can, therefore, say that war algorithmic accountability for the US government means only providing the necessary information and ignoring formal accountability points to avoid possible consequences.

4.1.3 France and the Combat of Wagadou in 2019

The deployed French MQ-9 Reaper drone was part of the Barkhane operation that killed seven Jihadists on December 22, 2019, in Mali. The Ministry of Defense issued a statement one day after confirming the use of the first armed drone in a French military operation (France, 1). According to the statement the drone was deployed to support ground troops in the region of Mopti. This indicates a hierarchical type of accountability, as the Ministry of Defense is responsible for military operations. The stage of human involvement can be defined as humans-in-the-loop as the Reaper drone was controlled by an operator based in the Sahel-Sahara strip within the Barkhane armed forces (France, 1). The statement on the website of the French Ministry of Defense can be defined as a press release rather than a detailed report. Hence, no critical audience was addressed which ultimately precluded any opportunity for questions, judgment, and consequences. No further justification for the strike was given, and no further action has been taken since then.

France prioritizes that the decision to fire an armed drone must be a human decision (France, 4). The ambiguity is that the operating rules for using armed drones are the same as for combat aircraft with which they are equated (France, 4). This is problematic because it enables the unimpeded use of these war algorithmic systems without any form of transparency or justification.

It can be said that no accountability relationship has been established since neither a critical forum nor any other form of investigation could be identified. An actor provided information, but the characteristics of how that information was presented prevented the subsequent process of accountability. In addition, no informal steps were taken to hold the actor accountable. The French government could therefore not be held accountable for the use of a war algorithm, which is extremely critical as this creates a power vacuum for the use of such systems.

4.1.4 Concluding Remarks

This analysis of defining accountability has shown various behaviors from national governments. However, some of the five points of accountability, such as questions and consequences could not be identified, and often the analysis revealed unsatisfactory and reluctant behavior by governments. In all three cases, this leads to the conclusion that national governments define war algorithmic accountability as something that requires sharing, questioning and possibly examining information, but is overall a government issue. Therefore, in all three cases, accountability for the use of war algorithmic systems is less important than the successful implementation of war strategies.

4.2 Identifying Similarities and Differences in Accountability Relationships

Accountability relationships can occur in different constellations. As shown in 4.1, they can be hierarchical and installed in a social environment like in the US or hierarchical and in a political environment like in Great Britain. However, by assessing the three phases every accountability relationship undergoes a comparison of the different cases can be made possible. These three phases are the information phase, the consideration phase, and the consequences. In the following, every phase of each case will be

compared and hence, similarities and differences of the accountability relationships can be identified. This section aims to point out accountability bottlenecks and overdoses.

The information phase marks the beginning of providing the account. Through providing extensive details of the account an actor can ensure transparency and clarity. This has the advantage that a forum fully understands the content and can make appropriate judgment. Furthermore, providing an accurate and comprehensive account ensures greater trust in the actor as decision-making processes can be traced. This phase is not only characterized by precise information, but also by the justification of one´s action and by a step-by-step explanation of the processes that led to the critical drone strike in this case.
While the French and US government provided an account immediately after the drone strike took place, the PM of the British government addressed the House only three weeks after the incident. The reason for this was the parliament´s summer recess (UK, 3). All three reports share the underpinning of the general security threat posed by the al-Qaida and Isil terror networks. However, when it comes to the use of the drone that attacked, only the French and the British government described what kind of drone was applied. This is important to know for the stage of human involvement in the actual execution of the strike (Wieringa, 2020). The two governments also explained the reason for applying an armed drone. In the Combat of Wagadou, the drone was used to support ground forces in forest areas, and in the case of Reyaad Khan, PM Cameron provided detailed reasons for no alternative measure. A stressed point by the British government is the invocation of national law for self-defense, which further provides a legal explanation (UK, 7). However, exclusive reasons for the direct threat from the two targets, Reyaad Khan, and al-Awlaki, are not listed. Worth mentioning is that the British PM, as the only actor, illustrates how the decision was determined to kill Reyaad Khan. By outlining the processes that took place the PM provided detailed information.
It can, therefore, be said that PM Cameron laid out an exhaustive line of argumentation to support the actions taken. This included a legal defense for the targeted killing, an explanation for no other possible alternatives, and a description of the sequence of decisions taken that led to the killing of Reyaad Khan. Therefore, the UK government information phase can be defined as a detailed and transparent report on the measures taken. This contrasts with the information phases of the US and the French government. As decision-making processes were not described and basic information about the drone strike was missing, the account giving was rather trivial. Therefore, the information phase of the US government and the French government can be defined as a general notification of events rather than a detailed statement.

Three criteria determine the consideration phase. A critical audience must be installed, questions can be asked as well as a judgment made (Bovens, 2007). These three criteria build on each other and are thus interconnected. They are also an extremely important part of the accountability relationship since the consideration phase forms the actual connection between the actor and the forum. This phase is

characterized by evaluation and embodies the power control of the execution, which is particularly important for democracies.
To pass judgment a critical audience needs to be addressed by the actor (Bovens, 2007). While this was the case with the U.S. and UK governments, the French government only made a statement on its official website after the drone strike (France, 1). PM Cameron addressed the House and the leader of the opposition was briefed beforehand (UK, 7). Hence, a critical formal audience was ensured. On the one hand, former President Obama directed his report to guests at an honor ceremony, which did not represent a formal forum. On the other hand, the event was a public engagement, and therefore a social accountability type installed. This means the audience was a critical informal forum. Problematic is, because of the public engagement no question could be posed afterward. Nevertheless, judgment followed by the US public, which resulted in a lawsuit to disclose information about the reasons for the targeted killing of al-Awlaki. This contrasts with the consideration phase in the UK. The PM´s actions were criticized by the opposition and members of the House could pose questions (UK, 7). This led to the request for a counter-terrorist review by the ISC to investigate the rightfulness of the UK government´s action.
Therefore, it can be said that only in the case of the British government all three criteria were met and fulfilled. A critical audience was ensured, questions were respected, and judgment was made. The criteria were met formally, and the consideration phase was therefore successful. Less so the consideration phase involving the actions of the US government. Only an informal critical audience existed that was not able to pose questions. Nevertheless, the debate was extensive, and judgment followed by the US public. In the case of the French government, it can be said that there was no consideration phase at all, since the publication on the website did not allow questions to be asked, and no further debate was initiated that would have allowed judgment.

The last phase to look at is the consequences following the judgment. Consequences can have a positive influence on the actor such as rewards, but also negative implications in the form of punishments (Bovens, 2007). Obtaining consequences for one´s actions is extremely important because it communicates which behavior is acceptable and which is not. It is also a means of reviewing the powers delegated to a representative and to eventually withdraw them.
The ISC, which examined the government's reasons for the targeted killing of Reyaad Khan and as a political institution had a vertical power relation to the government, judged the decision to be legal. Therefore, no consequences followed. However, the investigation was hampered and delayed by the UK government, which withheld information. Ultimately this shows how limited the ISC´s oversight function is in respect of the UK government´s targeted killing policy and how easy possible consequences can be suppressed. The limited scope of the ISC, combined with a high level of executive control over its activities, raises serious questions as to whether it is an institution capable of effectively and independently monitoring the use of governmental lethal force to combat terrorism. In the case of the first drone attack by the French military, it becomes clear that no forum has formed a judgment, and hence,

no consequences followed. The drone strike did not spark a public debate demanding more information, but the impression was given that the facts are simply being accepted. The social accountability type in the United States shows very well the influence and power that civil society can have over their chosen representatives. This demonstrates a horizontal power relation. Although no formal consequences were imposed after the publication of the secret memo, ACLU lawyers described it as a win for democracy and to have shed light on the secret US targeted-killing program (US, 6). Due to public pressure, President Obama raised the standards on drone use already in 2013, making drone strikes more transparent and fewer.

It can, therefore, be said that only in the case of the US and the targeted drone strike of al-Awlaki consequences followed. Although a democratic system should guarantee formal ways to hold actors accountable, this example shows the impact that society can informally have on their government. No consequences followed in the case of the UK and the targeted killing of Khan, even though a formal institution to check upon the measures taken was installed. This shows that institutions set up to hold actors accountable can be ineffective and are still being overridden by governments. For this reason, their independence must be strengthened. Also, in the case of France and its first drone strike no consequences followed. To be demonstrated here is the need for the fundamental attention of accountability processes in general, the absence of which did not allow any consequences.

4.2.1 Concluding Remarks

After analyzing the different accountability relationships, it can be concluded that in the case of the French government, substantial elements of the accountability relationship were missing. As in the information phase of the French government, the US´ lacked important facts about the drone strike. Both can be identified as a simple statement rather than a detailed report as in the case of the British government. The consideration phases of the US and the French government were also similar. In both cases, the nature of the account giving did not allow questions to be asked. In the United States, however, the judgment and actions followed from the great public debate about the rightfulness of the drone strike. In this phase too, the British government was behaving differently from the other two. Questions were asked and a formal institution was consulted to assess the measures taken. At this point, however, the British government disregarded the accountability relationship and exercised its power so that no independent consequences could arise. The pressure of the public in the US, however, was able to influence the administration to raise its standards about its drone use and be more transparent about its operations. Based on these problematic ambiguities in all three cases, it can be said that all governments did not guarantee a full accountability relationship.

4.3 Explaining Differences in Accountability Relationships

It is undisputed that accountability is a fundamental component of democracies and an important value for good governance (Bovens, 2007). Installed to monitor the actions of those to whom power has been delegated in the political system. The so-called checks and balances are conceptual and operational important to accountability. However, the actor and forum must not always share the same perspective on

accountability, which is why different behaviors can occur. Analyzing these perspectives can provide a first reference point to explain why accountability relationships exist in the way they do. This section is intended to demonstrate that the perspective of actors and forums on accountability vary depending on the legal system of a country.

On September 7th, 2015, the British PM gave a detailed report about the government's actions and laid out various points that supported the legitimacy of the drone strike on Khan. "No government in this area to work with, [and] no military on the ground to prevent Khan´s plan plotting attacks against the UK" were listed as justification arguments to deem "the action [as] completely lawful and in line with international law"(UK, 6). All points of accountability were formally regarded, the briefing of the opposition leader, the questioning by the House, and the request by the opposition installing the ISC. For this reason, it can be said that the actor and the forum share a democratic perspective on accountability, in which formal procedures and established institutions like the ISC hold actors accountable. Given Brinkmann´s classification of common law countries that have institutions that focus on formal monitoring of government behavior, it can be argued that accountability is seen as a mechanism that legitimizes government actions. Here accountability is already weaved into the democratic delegation of power. Because procedures and decision-making processes are designed in this way, it is more difficult to avoid or circumvent being held accountable. However, problematic is the interfering in the independent workings of the ISC by the government which delayed important documents and denied access to others. This has had a negative impact on the independent functioning of the ISC and therefore cannot be combined with the characteristic of a democratic accountability perspective.

The US public, which challenged the Obama administration in a legal battle to publish information on the killing of al-Awlaki in 2011 tried to hold the administration accountable for their actions. Given Brinkmann´s classification of civil law countries in which accountability structures are installed as a constitutional oversight, it can be argued that the US public took a constitutional perspective on accountability. Here, accountability is viewed as a tool to combat the abuse of power by the executive. Even though the lawsuit against the administration was an informal action by the public and not one that was installed formally, the lawsuit defended al-Awlaki´s constitutional rights as a US citizen. The ACLU defined its actions as "an overdue but crucial step towards more transparency" (US, 7). The problematic aspect of this accountability relationship is that the perspective of former President Obama cannot be categorized, because Obama´s account giving was a superficial statement that lacked important information. Furthermore, due to the type of account giving, attempts were made to circumvent formal accountability guidelines. It is therefore an accountability relationship in which President Obama tried to not be held accountable for the targeted killing of al-Awlaki, but the US public took informal action and therefore took the position of an institution monitoring the potential abuse of power by the executive. The ambiguity of this case is that constitutional oversight only exists informally and this, in turn, was triggered by President Obama's insufficient account giving.

The accountability relationship in France, which is classified as a civil law country, does not show the characteristics of a constitutional perspective. Not in an informal way either, like in the US. Because an accountability relationship could not be identified in 4.2, no perspectives of accountability need to be defined for actor and forum. However, some clues explain why the French government has not ensured accountability for its first drone strike. First, the French government does not pursue a drone policy because it equates drones and air force vehicles and classifies drones only as support for the air force and not as an independent entity (France, 4). Second, the drone attack itself was considered an indirect attack because it supported ground forces and was therefore not the focus of the operation (France, 7). These are implications, why the French government did not consider it necessary to provide an account over the first drone strike in Mali.

Furthermore, the drone policy on targeted killing in the US was highly classified until the year 2013 (Nelson, 2017). This had an impact on how much and which information was made public and explains the limited account giving of former President Barack Obama on the targeted killing of al-Awlaki. However, the problem with this is that no accountability can be guaranteed because important information for evaluating the legality cannot be regarded. The drone policy in the case of the United Kingdom is ambiguous. On the one hand, there is a drone policy that provides formal guidelines and a legal framework for government action, on the other hand, the targeted killing of Khan is a precedent since measures were taken outside of a formal conflict zone and this was not listed in the UK's drone policy at the time (UK, 3). However, this explains why the UK government followed all formal guidelines when providing the account as they are required by law. And further, why the opposition requested an investigation by the ISC, since Khan's assassination was a precedent.

4.3.1 Concluding Remarks

The analysis explains the scarce information giving by President Obama that led to an informal judgment by the US public and the subsequent consequences due to public pressure. However, it also shows the missing institutional basis for a formal evaluation of government measures. The results of this section also provide possible explanations for France´s lack of accountability regarding the use of war algorithmic systems. The paradox here is that France, as a civil law country, lacks features that are associated with a constitutional accountability perspective. Also, the UK government has a problematic accountability relationship concerning the use of war algorithmic systems. On the one hand, Britain's democratic perspective on accountability can be identified and is supported by the characteristics of a country with a common law system, which explains the formal recognition of accountability procedures. On the other hand, the government interfered in the independence of an institution set up to investigate the legality of the targeted killing of Khan, which cannot be combined with such a perspective.

5. Conclusion

The analysis of the three cases presented offered important insights into existing accountability relationships for the use of war algorithmic systems. The key insight generated from the accountability analysis is that none of the three governments has guaranteed a full accountability relationship. By first

examining the five points of accountability for each case individually, three different government understandings of it were extracted. This provided an insight into the general environment in which the accountability relationship was placed. Next to the fact that a hierarchical and a political or social accountability type was guaranteed by all three governments, the analysis also revealed that questions and consequences were intentionally avoided. This implies that national governments define war algorithmic accountability as something that is regarded and ensured to some extent, but that the successful implementation of war strategies has priority. By further analyzing the three phases that each accountability relationship goes through, a comparison was made possible and deficiencies and exaggerations of accountability could be identified. This revealed that in the case of the French government substantial elements of the accountability relationship were missing. And while a formal accountability relationship could be characterized in the case of the UK government, accountability procedures in the US were only informal.

War algorithmic accountability can be seen as a mosaic that is completed by the five points. Only when all five points are taken into account and their standards met a full accountability relationship can be ensured. During the analysis, it became evident that certain events and government behaviors were not transparent and that sometimes attempts were made to circumvent the points of accountability. This became clear when the British government intervened in the independent working of the ISC to avoid consequences. Another example is the French and US governments, where the account was presented in such a way that no questions could be asked, and an informal judgment had to be developed. Furthermore, the fact that the respective government, neither in the case of Reyaad Khan nor in that of Anwar al-Awlaki, has made references to the other victims of the drone attack is very relevant. Here, no account was provided for the people who were not targeted. These events contradict the understanding of accountability as an important democratic value. Because of these ambiguities in government behavior, no full accountability relationship was guaranteed in any of the three cases analyzed. For this reason, I conclude that national governments do not account for the use of war algorithmic systems in their military operations. This signifies that a lack of accountability undermines the actor's sense of responsibility. When governments do not own the consequences of their actions, they are less motivated to be conscientious. Amplified in warfare, the unregulated use of algorithmic systems can endanger lives and undermine basic human rights.

This thesis also secured important new scientific insights. By combining established theoretical concepts such as Bovens' (2007) concept of accountability and Wieringa (2020) features of algorithms, the first understanding of war algorithmic accountability was manifested. This made it possible to take a close look at the events, taking into account identified features of algorithms, such as the stage of human involvement in the decision-making process. However, the analysis also revealed that the general debate focused on the actual government action, namely the killing of people and not on the instrument used to carry out the action. The legality of this government measure has been the subject of intense discussion, and references to the use of drones were only ever shortly discussed. The rare hints and information

about the use of drones in these cases indicate a lack of regulation on which governments could orient themselves. This is made visible by the lack of established drone policies and international guidelines for its usage. This and the fact that national governments do not guarantee full accountability relationships require an international accountability regime that governs the use of war algorithm systems and ensures transparency (Keohane and Buchanan, 2015).

The accountability regime would not make an exception to the laws of war; rather, if implemented, it would help ensure better compliance with the laws of war for the use of war algorithmic systems. It would furthermore eliminate the identified accountability gap regarding the use of war algorithmic systems. In an ideally legitimate world, an international accountability regime for the use of war algorithmic systems would be contracted, with enforcement provisions and a permanent secretariat. However, it is difficult to imagine that this kind of regime will be negotiated by the great powers and implemented any time in the foreseeable future. Another possible scenario would be a purely transnational organization created by networks of civil society organizations that want to promote voluntary standards for transparent use. Such a transnational body would certainly encounter operational difficulties, as it is difficult to imagine that this would have a significant impact on the policies of authoritarian states in which civil society actors cannot work freely. I, therefore, agree with Buchanan and Keohane's proposal to establish an informal interstate regime such as the Missile Technology Control Regime (MTCR) (Keohane and Buchanan, 2015). Such a regime would have, as the United Nations, an assembly of states, represented by permanent representatives, which meet regularly to discuss the problems brought before it. Moreover, a transnational council of NGO´s that gives such organizations a voice to investigate ailments and act as representatives of accountability. It would have no legally binding enforcement powers, but rather its findings could impose reputational costs on states if conditions are violated (Keohane and Buchanan, 2015). I, therefore, distance myself from authors with scientific approaches that focus on the national level, because I am convinced that war algorithmic accountability must be installed on a supranational level to standardize a wide range of different accountability relationships.

The limitations of this work lie in the small number of cases analyzed, which only allow generalization with caution. Nevertheless, the results of the three democracies analyzed already allow an understanding of the international status quo, since accountability should be prioritized especially in democracies. Even though the analysis of drone strikes ensured greater comparability between the cases, drones are only one technical possibility of implementing war algorithms. Therefore, future research should take into account a bigger variety of cases regarding the political system and different kinds of war algorithmic systems to ensure greater robustness and validity. Another suggestion concerns the closer investigation of war algorithmic accountability. While this work has combined existing theoretical concepts to gain a better understanding of war algorithmic accountability, future research should examine its features and characteristics in more detail to create a more comprehensive definition.

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7. Appendix

Appendix A: UK

Nr.	Title	Author	Publisher	Date	Source type	Link
1	UK Lethal Drone Strikes in Syria	-	Intelligence and Security Committee of Parliament	26.04.2017	Government Report	file:///C:/Users/user/Documents/Twente%20UNI/Bachelor%20Thesis/UK/20170426_UK_Lethal_Drone_Strikes_in_Syria_Report.pdf
2	-	-	Intelligence and Security Committee of Parliament	2017	Press Release	file:///C:/Users/user/Documents/Twente%20UNI/Bachelor%20Thesis/UK/20170426_press_release_on_UK_Lethal_Drone_Strikes_in_Syria.pdf
3	The Government's policy on the use of drones for targeted killing	Joint Committee on Human Rights	The House of Lords/ House of Commons	10.05.2016	Government Document	file:///C:/Users/user/Documents/Twente%20UNI/Bachelor%20Thesis/Bachelor%20Proposal/Data/UK/574.pdf
4	LITIGATING DRONE STRIKES Challenging the Global Network of Remote Killing	Fiona Nelson et. al	ECCHR	01.05.2017	Document	https://www.ecchr.eu/fileadmin/Publikationen/Litigating_Drone_Strikes_PDF.pdf
5	UK forces kill British Isis fighters in targeted drone strike on Syrian city	Patrick Wintour& Nicolas Watt	The Guardian	07.09.2015	News article	https://www.theguardian.com/uk-news/2015/sep/07/uk-forces-airstrike-killed-isis-briton-reyaad-khan-syria
6	Islamic State conflict: Two Britons killed in RAF Syria strike	-	BBC News	07.09.2015	News article	https://www.bbc.com/news/uk-34178998
7	David Cameron statement on terrorism and extra judicial drone killings	I am Incorrigible	Youtube	07.09.2015	Video	https://www.youtube.com/watch?v=WiUI0seIXXM
8	May defends use of drones to kill British terrorists overseas	Ewen MacAskill	The Guardian	20.12.2017	News article	https://www.theguardian.com/world/2017/dec/20/theresa-may-drone-strikes-british-terrorists-reyaad-khan

9	Briton killed in drone strike on Isis 'posed serious threat to UK'	Ewen MacAskill	The Guardian	26.04.2017	News article	https://www.theguardian.com/uk-news/2017/apr/26/briton-killed-in-drone-strike-on-isis-posed-serious-threat-to-uk-reyaad-khan
10	How UK government decided to kill Reyaad Khan	Ewen MacAskill& Richard Norton-Taylor	The Guardian	18.09.2015	News article	https://www.theguard-ian.com/world/2015/sep/08/how-did-britain-de-cide-to-assassinate-uk-isis-fighter-reyaad-khan-drone-strike
11	The Prime Minister's statement on the ISC Report into Reyaad Khan Strike	-	All Party Parliamentary Group on Drones	21.12.2017	Press Re-lease	http://appgdrones.org.uk/response-to-the-pms-statement-on-the-isc-report-into-reyaad-khan-strike/
12	Intelligence Committee Report on UK Drone Killing: Little In-formation. Few Answers. No Accountability.	Chris Cole	Drone Wars	27.04.2017	Webpage	https://dronewars.net/2017/04/27/intelligence-committee-report-on-uk-drone-killing-little-in-formation-few-answers-no-accountabil-ity/#more-8343
13	'Lack of transparency' over drone strike, committee finds	-	BBC News	26.04.2017	News article	https://www.bbc.com/news/uk-39718044
14	British jihadi killed by RAF posed ´very serious´ threat		Financial Times		News article	https://www.ft.com/content/366c5c0a-2a75-11e7-bc4b-5528796fe35c
15	UK jihadi killed in RAF drone strike was attack planner for Is-lamic State	-	Express& Star News	26.04.2017	News article	https://www.expressandstar.com/news/uk-news/2017/04/26/uk-jihadi-killed-in-raf-drone-strike-was-attack-planner-for-islamic-state/
16	Intelligence Report: Written Statement- HCWS378	Mrs. Theresa May	UK Parliament	20.12.2017	Webpage	https://www.parliament.uk/business/publica-tions/written-questions-answers-state-ments/written-statement/Commons/2017-12-20/HCWS378/
17	Parliamentary Questions	-	All Party Parliamentary Group on Drones		Webpage	http://appgdrones.org.uk/parliamentary-ques-tions/

18	Limited Accountability: Targeted Killing, The ISC And The UK´s International Legal Obligations	Rosalind Comyn	Rights Watch UK	09.05.2017	Webpage	https://www.rwuk.org/limited-accountability-targeted-killing-the-isc-and-the-uks-international-legal-obligations/

Appendix B: US

Nr.	Title	Author	Publisher	Date	Source type	Link
1	Memorandum for the Attorney General	-	US Department of Justice	16.07.2010 (Released: 23.06.2014)	Memorandum	https://www.washingtonpost.com/r/2010-2019/WashingtonPost/2014/06/23/National-Security/Graphics/memodrones.pdf?tid=a_inl_manual
2	Report on Process for Determining Targets of Lethal or Capture Operations	-	ACLU	05.08.2016	Declassified Government Document	https://www.aclu.org/sites/default/files/field_document/8.5.16_report_on_process_of_determining_targets_of_lethal_or_capture_operations.pdf
3	Muslim cleric Awlaki is 1st U.S. citizen on list of those CIA is allowed to kill	Greg Miller	The Washington Post	07.04.2010	News article	https://www.washingtonpost.com/wp-dyn/content/article/2010/04/06/AR2010040604121.html
4	U.S. Approves Targeted Killing of American Cleric	Scott Shane	The New York Times	06.04.2010	News article	https://www.nytimes.com/2010/04/07/world/middleeast/07yemen.html
5	Barack Obama orders killing of US cleric Anwar al-Awlaki	Tom Leonard	The Telegraph	07.04.2010	News article	https://www.telegraph.co.uk/news/worldnews/barackobama/7564581/Barack-Obama-orders-killing-of-US-cleric-Anwar-al-Awlaki.html
6	US cited controversial law in decision to kill American citizen by drone	Spencer Ackerman	The Guardian	13.06.2014	News article	https://www.theguardian.com/world/2014/jun/23/us-justification-drone-killing-american-citizen-awlaki
7	**Appeals Court Ordered Memo's Disclosure**	-	ACLU	23.06.2014	Website	https://www.aclu.org/press-releases/us-releases-targeted-killing-memo-response-long-running-aclu-lawsuit

8	Secret U.S. Memo Made Legal Case to Kill a Citizen	Charlie Savage	The New York Times	08.10.2011	News article	https://www.nytimes.com/2011/10/09/world/middleeast/secret-us-memo-made-legal-case-to-kill-a-citizen.html?pagewanted=all
9	Anwar al-Awlaki's extrajudicial murder	Michael Ratner	The Guardian	30.09.2011	News article	https://www.theguardian.com/commentisfree/cifamerica/2011/sep/30/anwar-awlaki-extrajudicial-murder
10	Military sued over al-Awlaki Yemen drone death	-	BBC News	18.07.2012	News article	https://www.bbc.com/news/world-us-canada-18896232
11	Drone Strikes Memo Debates Legality of Targeted Killing	Andrea Stone	Huffington Post	14.09.2012	News article	https://www.huffpost.com/entry/drone-strikes-legality_n_1883951?guccounter=1&guce_referrer=aHR0cDovL3d3dy5pbnRlcm5hdGlvbmFsY3JpbWVzZGF0YWJhc2Uub3JnL0Nhc2UvOTM1L0FsLUF1bGFxaS12LU9iYW1hLWV0LWFsLw&guce_referrer_sig=AQAAAKK75hKjryXqxl0Y21C9hHo9TRPWgPoBkCr4ULQ4oHTG4ReRa31XQ9wbcQft-MUxD4sPSdpX4SuvVb9dY7qmAwaCCrkb-GUb_NGWqBnykrXUgDB3zFbldy-bcBvDb6GHVOUCpQeYXVa0uqks2cFhvmsp3dq2cwXD_clTqZ-g7GjGCCc
12	Anwar al-Awlaki, al-Qaida cleric and top US target, killed in Yemen	Martin Chulov& Paul Harris	The Guardian	30.09.2011	News article	https://www.theguardian.com/world/2011/sep/30/anwar-al-awlaki-killed-yemen
13	U.S. drone killing of American al-Awlaki prompts legal, moral debate	Michael Martinez	CNN	1.10.2011	News Article	https://edition.cnn.com/2011/09/30/politics/targeting-us-citizens/index.html

14	Witness to the Drone Strike That Killed an American Terrorist	Lee Feran	abc News	16.10.2015	News article	https://abcnews.go.com/International/witness-drone-strike-killed-american-terrorist/story?id=34501302
15	Here's the Secret Memo That Justified Anwar al-Awlaki Killing	Zeke Miller	TIME	23.06.2014	News article	https://time.com/2912137/memo-anwar-al-awlaki-doj-drone/
16	Remarks by the President at the "Change of Office" Chairman of the Joint Chiefs of Staff Ceremony	Barack Obama	The White House	30.09.2011	Written Speech	https://obamawhitehouse.archives.gov/the-press-office/2011/09/30/remarks-president-change-office-chairman-joint-chiefs-staff-ceremony
17	Al Qaeda's Anwar al-Awlaki Killed in CIA Drone Strike	Martha Raddatz, Nasser Atta& Brian Ross	abc News	30.09.2011	News article	https://abcnews.go.com/Blotter/anwar-al-awlaki-killed-officials-yemen-confirm-al/story?id=14638303
18	Two-Year Manhunt Led to Killing of Awlaki in Yemen	Mark Mazzetti, Eric Schmitt& Robert Forth	The New York Times	30.09.2011	News article	https://www.nytimes.com/2011/10/01/world/middleeast/anwar-al-awlaki-is-killed-in-yemen.html
19	Court Releases Large Parts of Memo Approving Killing of American in Yemen	Charlie Savage	The New York Times	23.06.2014	News article	https://www.nytimes.com/2014/06/24/us/justice-department-found-it-lawful-to-target-anwar-al-awlaki.html
20	Justice Department memo reveals legal case for drone strikes on Americans	-	NBC News	04.02.2013	News article	http://investigations.nbcnews.com/_news/2013/02/04/16843014-justice-department-memo-reveals-legal-case-for-drone-strikes-on-americans?lite
21	Memo justifying drone killing of American Al Qaeda leader is released	David Lauter& Timothy Phelps	Los Angeles Times	23.06.2014	News article	https://www.latimes.com/nation/nationnow/la-na-nn-drone-memo-awlaki-20140623-story.html%20
22	How the Obama administration's drone program normalized targeted killing	Jep Sharp	The World	30.11.2016	News article	https://www.pri.org/stories/2016-11-30/how-obama-administrations-drone-program-normalized-targeted-killing

Appendix C: France

Nr.	Title	Author	Publisher	Date	Source type	Link
1	Mali: première frappe d'un drone français en opération	-	Le Point	23.12.2019	News article	https://www.lepoint.fr/societe/mali-premiere-frappe-d-un-drone-francais-en-operation-23-12-2019-2354551_23.php#xtmc=premiere-frappe-d-un-drone&xtnp=1&xtcr=1
2	-	-	The French Ministry of Defense	-	Official website	https://www.defense.gouv.fr/air/actus-air/reussite-des-tirs-d-experimentation-des-drones-armes
3	LOI n° 2018-607 du 13 juillet 2018	-	Légifrance	-	Official website	https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000037192797&categorieLien=id#JORFARTI000037192815
4	PROJET DE LOI DE PROGRAMMATION MILITAIRE 2019 / 2025	-	The French Ministry of Defense	2019	Document	file:///C:/Users/user/Downloads/LPM%202019-2025%20-%20Rapport%20annex%C3%A9.pdf
5	Loi de programmation militaire 2019-2025: textes officiels	-	The French Ministry of Defense	-	Official website	https://www.defense.gouv.fr/portail/enjeux2/la-lpm-2019-2025/les-actualites2/loi-de-programmation-militaire-2019-2025-textes-officiels
6	Sahel: Emmanuel Macron annonce que 33 djihadistes ont été tués au Mali samedi	-	Le Monde	21.12.2019	News article	https://www.lemonde.fr/afrique/article/2019/12/21/sahel-emmanuel-macron-annonce-que-33-djihadistes-ont-ete-tues-au-mali-samedi_6023737_3212.html
7	French army deploys drone strike for first time in Mali operation	Agence France	The Guardian	23.12.2019	News article	https://www.theguardian.com/world/2019/dec/23/french-forces-kill-40-jihadists-during-operation-in-mali
8	France says it carries out first armed drone strike in Mali	Angela Charlton& Krista Larson	AP News	23.12.2019	News article	https://apnews.com/91857c92f04187ce48ad5bf26ea3d4af