Peace in Space for Our Time?

United States Strategical Considerations in Outer Space Policy
Abstract

The politics of outer space has in recent years been given attention from political elites and scientist due to increasing usage and reliance on space based assets, and due to increasing numbers of actors trying to utilize the benefits of space. Concerns have been raised if the increasing military usage of space will lead to a future weaponization of space, making some political leaders and scholars claiming the inevitability of space weaponization.

In this thesis I investigate why the United States of America this far has chosen not to weaponize space based on the strategical setting of outer space politics. The research question guiding this thesis reads: What strategic considerations explain the US decision not to weaponize outer space?

In order to evaluate the strategic setting and US strategical considerations I apply Game Theory and Non-Formal Rational Choice Theory to highlight what is causing the greatest space faring nation not to weaponize space. I empirically base this study on official space policy documents and one report written by an official commission to asses US national security space management.

Based on the strategic setting of outer space politics and US strategical considerations it is found that the US has not commenced a process leading to the weaponization of space since such development would not increase its national security, but rather in several ways decrease it. I conclude that a process of space weaponization is not likely to be initiated by the US in the current strategical setting.

Keywords: outer space politics, space security, weaponization, strategical setting, rational choice theory.

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1. Introduction

Politics of outer space and outer space security has in recent years been of growing interest for state actors and political scientists. Space technology has and still is improving our everyday lives by providing services to ordinary people that a few years ago was only accessible to nation states armed forces. Even though space technology has advanced the lives of ordinary citizens, it has also advanced the military capability of nation states.

During the cold war US President Ronald Reagan launched the Strategic Defence Initiative (SDI), a project humorously named “Star Wars” in mainstream media (Westwick, 2010, pp. 338-339). However President Regan’s intention with the project was neither science fiction nor comedy, the aim with SDI was to claim the ultimate military high ground, space. Even though SDI was never completed and put in operation (Maogoto, 2005, pp. 466-468), space technology today is important for nation states military capabilities around the world. Drones, ballistic missiles, highly accurate “smart” bombs, military surveillance, early warning systems and communication are some of the military applications available due to outer space technology (O'Hanlon, 2004, pp. 3-4). Space security is today however a major concern for most states; Russia, China, EU and the United States have all raised their separate concerns on the possible threat space assets may pose on national security (Peoples, 2010, The Military Doctrine of the Russian Federation, 2010, National Space Policy of the United States of America, 2010, Zhang, 2005), these concerns indicate the importance of outer space politics and space security.

During recent years there has been an ongoing discussion, both in academia and within nation state political elites, on when the militarization of outer space (the use of space for military purposes) will become a weaponization of outer space; an arms race where nations compete in equipping its space assets with weaponry (Deblois, 2003, pp. 29-30), and who is to take the initiative to this unknown new world. It does not take long to realize that weaponization of space drastically could change the circumstances down on earth; affecting the balance of power and the usage of nation states military capabilities.

Even though an eventual weaponization of space could have serious ramifications for the security of people around the world, relatively little is understood of this phenomenon. Overall there is little theoretical understanding and knowledge of the current situation in outer space politics. Many law and political science academics have warned of the reality of an
impending weaponization of space, and some of whom are calling for international agreements and treaties to restrict space activities: Cervino et al (2003), Deblois (2003), Nyamuya Maogoto (2005), Clay Moltz (2007), Gleeson (2007), Hitchens (2007), Lewis (2007), Quinn (2008), Burzykowska (2009), Peoples (2010), Su (2010), Robinsson (2011), Tronchetti (2011), Stephenson Kuplic (2014). However little interest has been shown from nation state actors to actually restrict the uses of outer space legally, resulting in that most of the legal framework constraining outer space activity stems from the 1960:s (UNOOSA, 2016), when space technology and possibilities were largely different from that of today. The overall legal framework controlling outer space activities today is the “Outer Space treaty”, which prohibits states from putting weapons of mass destruction (WMD) in orbit or on celestial bodies (UNOOSA, 2016). However the treaty does not prohibit states from placing conventional weapons in orbit.

When examining the academic work and theoretical approaches to space weaponization, one concept that keeps reoccurring is the “inevitability thesis” which has been and still is present in the outer space political debate. The inevitability thesis claims that the weaponization of space is inevitable due to several factors, the main being; since humans have previously fought wars in new arenas when technological development has allowed them to do so, at land, sea and air, space is predicted to be no different (Deblois, 2003, pp. 39-40).

Bearing all of the above in mind the concept of space weaponization is moved from the realm of science fiction to actual power politics, and seems to be a real possibility for the future development in space politics.

However given the uncertainties of outer space politics and the possibility for nation state actors to weaponize space it is still unclear how close the world is to have nation state controlled weapons in orbit around earth. After all in the year of 2016 there does not seem to be indications that space is any closer to being weaponized than in the beginning of the millennia. On the contrary, it seems that during the 80: s and the period of President Reagans “Star Wars” was the closest the world has been of having offensive or defensive weapons systems in space (Moltz, 2007, p. 199), at least as an outspoken policy goal. Despite that technology nowadays has made it far easier and less economically difficult to succeed in such project; the pursuit to develop space weapons does not at a first glance seem a top priority for the leading spacefaring nations.
This thesis takes its starting point in the conundrum of space weaponization, and will investigate why outer space has not yet been weaponized. In doing so, this author will carry out a single case study on the strategical considerations affecting the largest spacefaring nation, the United States, not to put one or the other form of weapons system in orbit around earth. The theoretical attention will turn to rational choice theory, more specifically game theory and non-formal theory, to shed light on the phenomenon of non-weaponization in space. Game theory and non-formal rational choice theory are thought to provide a theoretical understanding of the strategical setting in which outer space politics takes place, as perceived by the US political elites, and in this sense provide a theoretical explanation as to why space has not yet been weaponized.

1.2 Research Problem

The problem investigated in this thesis is the conundrum of non-weaponization and the absence of an arms race in outer space. Furthermore it seems that theoretical explanations as to why the current state of space politics is are missing in the academic debates, leaving a gap in our understanding of important properties of the world we live in. What can be concluded from the general academic debate on space politics and space weaponization is that there seems to be little interest in understanding the current situation, in favour of debating the impending weaponization and how to handle it when it comes about. This thesis on the other hand does not make any predictive assumption, and does not view the weaponization of space as inevitable. On the contrary, this thesis will investigate into why space has not yet been weaponized and how that situation can be understood theoretically.

Another problem with the current state of space research in political science is that there are few arguments on which to contest the inevitability thesis, except for the fact that weaponization has not yet happened. This however does not provide any understanding as to why it has not happened and is therefore contributing very little to the debate. Providing more comprehensive analytical and theoretical ways of understanding space politics of today is according to this author of scientific value, and might further a more balanced academic debate on the subject which might generate better understandings of the world we live in. Furthermore there is also value in being able to contests and question the inevitability debate, which might when adopted or perceived as truthful by enough political elites serve as a self-fulfilling prophecy. In this sense when enough political leaders view the weaponization of space as inevitable, the only legitimate and intelligent policy will be to weaponize space.
I do not intend to provide any predictions of when weaponization of space is going to take place, however I intend to provide more analytical understandings as to why space has not yet been weaponized, and based on that premises be able to elucidate the properties of weaponization. Contrary to what the inevitability theory provides then it is my intention to provide some actual explanations on the properties of outer space politics, rather than a contrafactual statement.

I will in this thesis argue that the current situation in space politics of no arms race or weaponization is not only due to practical technological difficulties or economical restraints of such an endeavour, but there must also logically be some alternative explanation. The technology exists, and if political will was to be found the economic difficulties of such a project would surely be overcome. Hence the focus and problem area of this thesis is to find why there has not, as of yet, been a military arms race in space.

1.3 Research Aim

The aim of this thesis is to find what strategic considerations has made the largest spacefaring nation, the United States of America, not weaponizing space. In uncovering why the United States has chosen not to weaponize space, it might also be possible to understand the current state in space politics in a broader or more general sense, due to the significance of the US case on international space politics.

Furthermore in providing an explanation to the current state in space politics based on game theory and non-formal rational choice theory, I put forward a more problematized outlook than those provided by the inevitability thesis, even though I do not try to predict the future development. This aim rather consists of providing actual understandings of the current situation in space politics, claiming that such understandings have more merit in discussions concerning the future development of space politics than discussing predictive scenarios that are loosely based in reality.

1.4 Research Question

The research question guiding this thesis is as follows:

*What strategic considerations explain the US decision not to weaponize outer space?*
As the research question implies I intend to mainly focus this thesis on the strategic considerations that has affected the United States policy decision this far not to put weapons in orbit around earth, and therefore direct the focus of this study towards explanations of what is causing, or affecting the US behaviour in outer space politics in relation to the strategic setting. With strategic setting this author entails to study how US space policy deliberations are affected by strategical motivations and perceived consequences of actions within the framework of the international political system, especially how actors might perceive that their current role or power within the international political setting can be affected by certain behaviour or specific actions. What makes the term strategic interesting and possibly fruitful in this study is that it takes into account that a specific action is likely to be followed by reaction from other actors, in this case within the international political system consisting of nation states. The nation state decision making or strategical considerations hence must take into account possible reactions of other actors, which shapes and alters the perceived possibility of specific scenarios.

Strategical considerations are hence what a specific actor view as possible actions and reactions or consequences within a specific setting, in this case the actor is the United States and the setting is outer space politics. In this sense strategic consideration is the process in which the actor decides on what are the best actions in order to fulfil or reach the outcomes perceived as most preferable.

1.5 Research Outline

Following this introductory section will be the a presentation of some of the previous research made on weaponization of outer space, special attention will be put on the inevitability thesis that has been central to this academic debate. Then follows the theoretical framework where I present the theories that will later be used in analysing US strategical considerations in its outer space policy. The thesis then continues with the methodology section where I present the methodological grounds for this thesis, the limitations that have been made and the reasoning for those limitations. Further will the methodology section include a discussion of the problems with conducting a single case study, motivations to the theories chosen and why the case of US strategic considerations has been chosen as main focus of the thesis as well as the basis for the formulated research question. This is followed by the empirical section, where I introduce the data on which this work is built upon. I then get on with making my analysis of the data provided based on the theories described in the
theoretical section, and then present the results of the analysis and conclusions that can be made. I will end this thesis with a short glance ahead and make some suggestions for future research.
2. Previous Research

As mentioned in the introduction much of the previous research on the weaponization of space has either treated the legality and possibilities of preventing it, or debated the prospects of the inevitability of such development. In relation to the inevitability debate it is considered strange by this author that a predictive thesis that provides virtually no additional knowledge of the world we live in has occupied such room in the debate. However since the inevitability thesis is often cited and referred to within outer space policy making elites it might be that this attention from actual policy makers has made the academic community resorting to debating its content and possible merits (Peoples, 2008, p. 503). However the inevitability thesis has also attracted followers within the academic community. Since it is one of the aims in this work to question the merits of the inevitability thesis by showing that one can theoretically understand the current setting in outer space politics, and that such understanding is more valid than predictive assumptions of the future, the author feels that a brief summary of the inevitability debate is needed.

The inevitability thesis rests on mainly a few arguments. The first argument that is the foundation and overarching the others is based on history of human nature and can be summarized as:

"Where goes man, goes the clash of opposing wills, goes the instruments to affect that clash: weapons. It was true of the territorial frontiers throughout history, true of the high seas in the Middle Ages, and true of the air realm in the twentieth century. The same is destined to be true in space" (Deblois, 2003, pp. 38-39)

According to proponents it is in the US interest to be first to develop and place weapons in space since this development is inevitable, and that the US should not let other actors get a head start (Mueller, 2003, pp. 13-14). Furthermore argues proponents of the inevitability thesis that the strategical advantages of space weapons are too great to abstain, that weaponization is an irresistible urge to great to set aside for nation state political elites and that the military leadership is not likely to overlook the possible advantages that space weapons may offer (Peoples, 2008, p. 504). Other arguments appearing in the debate is that since the civil uses of space are increasing, there will be need for military protection of these largely economic interests, and that such protection is best done by asserting military power through weapons in space (Deblois, 2003, p. 32). Lastly goes the argument that technological
advances is predestined to make space another arena for nation state competition and conflict, moving these clashes from land sea and air into space (Deblois, 2003, pp. 33-34).

There have been several scholarly attempts to challenge the inevitability thesis, arguing that the weaponization of space is not inevitable. However this is a difficult argument to make since it is impossible to foresee the future. However it is this author’s intent to by uncovering the properties of space politics today, in some sense challenge the inevitability thesis on empirical grounds, showing that at least for now the weaponization of space is questionable.
3. Theoretical Framework

In order to explain and understand the US decision not to weaponize space this thesis will use two different approaches belonging to the rational choice way of theorizing and understanding world events, namely game theory and non-formal rational choice theory. It is the belief of the author that these rational theories will be able to explain the US strategical considerations, and to a satisfying degree explain why space has not yet, contradictory to the inevitability thesis predictions, been weaponized and subject to an arms race.

By using the case of US strategical considerations in space security policy it should be plausible to reach some conclusions about the underlying understandings that has effected the decision not to weaponize space, and subsequently the factors underlying the current state in space politics.

The choice in this thesis to apply more than one theoretical framework, game theory and non-formal rational choice theory, is an attempt from this author to broaden the horizon and analytical framework for understanding outer space politics, and outer space security in particular. The two theories are also thought to complement each other in order to arrive at a more comprehensive explanation to the current state in space politics, since one theory is formal and one is non-formal. This usage both allows the author to extensively analyse the case in the non-formal instance, and is thought to give clear indication in a more straightforward way in the formal instance.

In this section I will start with going through the overall concept of rational choice theory in order to give the reader an overview on what this broad concept entails, and then continue with narrowing down the theoretical framework into the two approaches selected for use in this study. The two rational choice approaches that I will later use in analysing the US strategical considerations are: game theory and non-formal rational choice theory.

3.1 Overall Rational Choice Theory

Rational choice theory has been heavily debated within political science during the last decades. Some scholars claim the theories value in explaining political events through its theoretical assumption of human behaviour, while others claim those same assumptions to be problematic (Quackenbush, 2004). Rational choice theory, contradictory to what some scholars historically have criticized it for, is not a single universalistic theory on how to
understand the world and events that take place in it but rather an overall concept under which several different theories are found. The term or concept rational choice theory can be described as an umbrella under which several individual theories preside, rational choice theory in this sense merely constitutes an overall concept for theories that has one thing in common, namely the rationality assumption. Under the umbrella of rational choice theory two, amongst several other different approaches, can be observed: game theory and non-formal theory (Quackenbush, 2004, p. 92). Even though both theories have the rationality assumption at its core, the methodology and the way in which they reach results and arrive at conclusions are diverse. Game theory has rather straightforward models and clear methodologies for reaching understandings when applied, while rational choice theory also can be applied as less formal theoretical modelling using the rationality assumption in a less rigid and more loosely fitted way as in non-formal theory.

One of the difficulties with rational choice theory is to determine what should and can be seen as rational, hence how to define rationality. While some economists view rational choice theory and rationality in pure economic terms, such as economic gain, the political science use of rational choice recognizes that rationality does not always have to be about economics but rather as Graham Allison (1971) puts it “consistent, value maximizing choice within specified constraints” (Mintz, DeRouen, 2010, p. 57). Hence rationality seen from the perspective of political scientists defending rational choice, rationality is instrumental, where the actor is simply acting in accordance with its preferences at that particular point in time. Instrumental rationality does not, as some critic’s state, disregard misperceptions or assume a total and constant flow of information that the actor can assimilate without any cognitive or psychological restraints, but rather that actors make decisions based on their preferences at the relevant time with the information they have at their disposal (Quackenbush, 2004, p. 95). However the critics have some merit in criticizing rational choice since it is difficult to know what information some decisions are based upon, and how cognitive and psychological restraints effects the individual decision maker at a certain point in time. This critique is valid, but it does not mean that a researcher cannot use rational choice in such manner as to minimize these problems which seem more apparent in specific decision making situations where time restraints and fast moving and changing streams of information are considerable distorting factors.
Many examples of such difficulties are presented in research on political psychology were it is shown that individual biases, cognitive shortcuts, misperceptions, illnesses and psychological distortions in many cases distorts the notion of what can be perceived as rational in a given situation (Renshon, Renshon, 2008, p. 511). This problem is inherent in all studies trying to understand foreign policy decision making and has quite simply to do with the human incapacity to review and process all information available to her, and the individuals’ way of dealing with this problem (McDermott, 2008, pp. 4-5).

More critique against the rational choice perspective is given from scholars claiming that the theory fails to take into account factors that are not necessarily categorized as rational. Such factors for example could be norms and ideas which logically would affect an individual decision maker’s choice in making tough decisions. This problem has been recognized by users of rational choice theory by adopting “thick rationality” rather than the previous “thin rationality” which takes such considerations into account to the extent possible (Yee, 1997, p. 1001). However it might still be argued that all possible factors affecting decision makers is difficult to incorporate within a single theoretical framework, and that at some point the theory must generate some sort of result rather than taking all possible considerations into account.

Critique has also been raised about the epistemological utility of rational choice and the rationality assumption. This critique is derived from the diverse usage and application of rational choice by theorist themselves within political science. The critique is also partly due to the sometimes simplistic and rather arbitrary use of rational choice that has provided trivial results in political science research. Rational choice theorist themselves has not yet come to a consensus on the exact usage of the theory and the inference that can be drawn using its methodology (MacDonald, 2003, pp. 551-552). Although the discussion is still ongoing about the utility of rational choice theory, it is my intention to use game theory and non-formal theory in a setting that should fit the theories well.

Some rational choice theories, such as game theory and non-formal theory, do not only make assumptions about rationality but also of which actors are relevant, preference ordering, and possible choices available to the actor (Quackenbush, 2004, p. 97). In this sense the rationality assumption of actors is what makes the theory, and the preferences that the user of the theory prescribes to actors are what make it applicable and useful in different settings and to different actors.
What differs the rational choice based approaches that is used in this thesis from other similar approaches such as realism that tries to explain nation state behaviour, is that game theory and non-formal theory allows the analysis to move from only systemic explanations of nation state behaviour, to an actor based analysis while at the same time being able to maintain some of the theoretical advantages from other theories, for example viewing security as one of the main interests for states.

In this thesis game theory and non-formal theory are thought to provide an understanding of how the actors (states, and in this particular case the US) is perceiving the strategic setting in which it makes decisions about space policy, the two approaches adopted will in this way better than other theories take into account what actions the different actors perceive as viable and what possible consequence that might be caused by those actions within the setting of space politics.

I will now continue with going through the two theories of rational choice that will later be applied in order to understand and analyse the strategic considerations taken by US decision makers in its outer space policy. I have in this study chosen to apply one formal theory of rational choice, and one non-formal. As touched upon earlier this decision is made since it is the author’s expectation that these two ways of theorizing will complement each other and result in both more comprehensive and clear answer than otherwise.

3.2 Game Theory

Game theory is used in order to make formal analysis of social interactions and was first applied in economics by the mathematician Von Neumann and the economist Morgenstern (Kuhn, 2007, p. vii). In international relations game theory has a history of analysing nation state security and evaluating the strategic options and decisions that are available to states, especially applicable and proven value has game theory demonstrated in head on conflicts between two actors but has also the ability to analyse situations where more than two actors take part (Correa, 2001, p. 4). Game theory can be described in political science and international relations as more of a method than an actual theory, in the way that it helps the analysts to see choices that actors have in dealing with each other. To different extents all game models must identify the important factors determining the game, such factors are the players (actors), their strategies, and the payoffs linked with any combination of strategies which the players can apply (Gates, Humes, 1997, pp. 23-24). Put more generally the user of
game theory must identify a set of axioms that specifies the considerations that affects the players’ behaviour (Mintz, DeRouen, 2010, p. 62). The reason users of game theory must identify these axioms is that actions is considered interdependent, and since actions are interdependent the player applies strategic reasoning that guides their behaviour dependent on the calculated reaction from other players (Tema, 2014, p. 1). Such considerations can be difficult to overview in an analytical fruitful way and this is where game theory provides a method that makes these interactions and actions understood in a theoretical setting.

The games themselves can be slightly different from one another; prisoner’s dilemma, chicken game and tit-for-tat are all different game theoretical settings where interactions between players take place, but they all have in common the rationality assumption, that each actor tries to maximize gains and minimize its losses in a setting of incomplete information and uncertainty (Tema, 2014, p. 2). The structure of the games forces the user of game theoretical settings to rank and identify the player’s preferences, estimate chances of success or loss and predict the other player’s actions. This formal way of theorizing is part of the difficulties with game theoretic models, since often abstract assumption must be made explicit within the game in order to categorize and quantify the different factors, but as a consequence the results provided by game theoretical modelling gives clear and explicit answers to the situation analysed (Gates, Humes 1997, p. 6).

Game theory can be fruitful in analysis of international politics, but it can also sometimes be difficult to adapt real world situations to a game theoretical setting. Game theory can become quite complicated mathematical exercises when analysing several consecutive decision making situations, in this thesis however a simpler version of game theory will be applied and the decision making concerning weaponizing outer space will be viewed in a one shot decision setting, but since it has not yet happened the time horizon for this decision making will be long. Therefor the game theoretical setting used in this thesis will be the prisoner’s dilemma.

### 3.2.1 The Prisoner’s Dilemma

The prisoner’s dilemma is a non-cooperative simple two player non-zero sum game, often portrayed within a single one shot decision making setting (Gates, Humes, 1997, p. 4). The non-cooperative branch of game theory is concerned with individual decisions where problems of strategic moves and incentives has a significant impact on the decision making
process. The non-cooperative versions are focused on analysing conflict and competition but can also be useful when analysing cooperation within groups or a player’s commitment to certain policy or decision (Calvert, 2011, pp. 947-948). The basis for the prisoner’s dilemma is usually portrayed as follows:

“Two men are arrested after committing a crime. Only a confession by one or both of them can lead to a conviction for the crime. If both of them remain silent, each will be charged with a lesser offense and serve a light sentence. If one confesses while the other remains silent, the one who confess will be set free in exchange for his testimony against the other, and the one who remains silent will be convicted of the crime and receive a full sentence. If both confess, both of them will be convicted of the crime but will receive a reduced sentence. The dilemma here is that regardless of what the other chooses to do, it will be better for each of them to confess. However if they both confess, they will be worse off than they would have been if both of them had remained silent” (Bang, 2011, p. 2130)

This rather intricate mind game is the basis for the prisoner’s dilemma; it shows that the actions of each player have consequences not only for one self but also for the other player. The outcome of the game or the main strategy of each player is also determined by if it is played only once as a one shot decision making, where both players are expected to defect or “rat out” the other player since they will try to minimize their individual losses. If however the game was set to continue for an infinitive number of times the players are expected to act differently since cooperation, or not “rating out” the other player now provides more incentives since both players have more to gain by cooperating. If the game was to continue for a known number of times the players is expected to cooperate in the rounds leading up to the end and then subsequently defect to maximize gains (Bang, 2011, pp. 2130-2131).

The prisoner dilemma is less complicated to grasp if set in a two by two matrix which visualizes the gains and possible equilibriums that may take place.
Prisoner 2

Cooperate Defect

Cooperate 2,2 -5,5

Prisoner 1 5,-5 -2,-2

Defect

Figure 1. The typical prisoner’s dilemma. (Mintz, DeRouen, 2010, p. 65)

In this setting cooperate means not to tell or “rat on” the other prisoner, while defecting means the opposite and entails cooperating with the police, which can make the distinction somewhat confusing, however both defecting and cooperating is understood in relation to the other prisoner, and not to the police. The numbers used in a prisoner’s dilemma matrix is arbitrary and is merely a depiction of the thought utility of the outcome possible for each player (prisoner/actor). In this case the number 5 represents the best possible outcome, and -5 the worst possible outcome. Put more explicitly each payoff can be described as follows:

-5: The worst payoff or “sucker” payoff since this means a full prison sentence after that the other prisoner has testified to the police and the player in question has refused to do so.

-2: A slightly better outcome than previous example but is still considered a loss for the player since it results in a reduced sentence after both players have testified against each other.

2: This outcome is slightly positive since both players do not testify against each other meaning they will be charged with a lesser offense to serve a light sentence.

5: The best possible outcome for a player is had when agreeing to testify against the other prisoner while the other refuses to, meaning that the player choosing to testify receives no sentence and is set free (Mintz, DeRouen, 2010, pp. 64-65).

This setting of a one shot decision making scenario is taking place in an environment of incomplete information, where both players would be better of cooperating with each other, meaning not taking the deal with the police. However since there is no guarantee that the other player will not cooperate with the police, the players are expected to take the best outcome available to them regardless of what the other player does since they cannot
communicate. The result is that each player will choose to take the deal offered by the police to avoid the worst possible outcome; this is called minimax behaviour (Mintz, DeRouen, 2010, p. 64).

3.3 Non-Formal Rational Choice Theory

Non formal rational choice theory can be described as more qualitative or a less formal way of theorizing the rationality assumption. Unlike game theory, non-formal theory enables a more inclusive and broadened application of rational choice theory, and does not limit the analysis to fit a two by two matrix. However even if this makes the non-formal way of theorizing usable when different game theoretical settings are not, there exists some inherent problems with conducting this form of analysis. These problems are the opposite of game theory previously presented, namely the lack of a clear structure or limitations. However a non-formal application of rational choice theory can be fruitful, and is chosen in this thesis to complement the formal game theoretical analysis also applied in this work.

Non-formal rational choice theory, like game theory, assumes actors rationality and ability to rank preferences in accordance with the degree of satisfaction when achieving the ranked goals and objectives (Mintz, DeRouen, 2010, p. 57). The actor according to this theory is also assumed to take purposive action motivated by the goal and objectives that they have, these goals and objectives must be possible to identify beforehand and the actor is supposed to work intentionally towards that goal. In a favourable situation for example it should be possible to rank actors preferences according to logic of most preferred outcome, several possible outcomes may exist but it should be possible to rank these in, for example, the most desirable outcome as number one, the second most desirable as number two and so on. This also means that the actor is assumed to have consistent preferences over time. Preference ordering is a vital part when using the non-formal perspective in analysing a specified situation or action. These concepts are similar to utility maximization, which assumes that actors make decisions that are thought to provide the greatest net benefits (Mintz, DeRouen, 2010, p. 58).

Another important concept that non-formal theory contains is its understanding of opportunity costs (costs and benefits). Opportunity costs contribute an economical aspect to rationality. Opportunity costs entails that when a decision has to be made, there might be economical implications of that decision. For example if a nation chooses to impose sanctions on another state, this might lead to an economic loss also for the sanctioning state, since sanctions might
prohibit the sanctioning nation from trading with the sanctioned nation and business opportunities are lost. The famous international relations liberalist mantra that trade leads to peace is also based on opportunity costs, since according to liberalists trading nations will think twice before engaging each other in war due to economic losses (Alex Mintz, 2010, pp. 61-62).

Although the non-formal way of applying rational choice theory is less rigid and methodologically straightforward, there are some measures that can be taken in order to apply the model purposefully. Scholar Greg Cashman has provided eight useful steps in order to make an analysis from the non-formal perspective:

1. Identify problem
2. Identify and rank goals
3. Gather information
4. Identify alternatives for reaching goals
5. Analyse alternatives by considering consequences and effectiveness (costs and benefits) of each alternative and probabilities associated with success
6. Select alternative that maximizes chances of selecting best alternative as determined in step five
7. Implement decision
8. Monitor and evaluate (Cashman, 1993, pp. 77-78)

These steps can be used as a tool in order to provide more clarity in the non-formal version of rational choice theory. In my analysis of the US decision makers strategical considerations I will both use these steps provided by Cashman and analyse the situation more loosely as permitted by the non-formal theory.
4. Methodology

This study can methodically be described as a qualitative single case study with a theory using, empirically explanatory onset. In order to clarify the methodological grounds and the courses of action taken, I will now break down the methodological considerations, limitations and routing taken in order to make this thesis possible.

4.1 General Methodological Discussion

A case study generally entails the study of a single specific case of something in order to make inference. Logically, a single case study is learning how to build a house by observing the construction of a specific building, rather than by observing multiple constructions of buildings (Gerring, 2007, pp. 1-2), and the method has during recent decades become popular within social sciences.

In this thesis a case study is conducted since the author believes that by investigating the US case and establish what strategical considerations that has made it not weaponizing space, it will be possible to come up with some general or broader understanding of nation state behaviour in outer space, and hence an understanding of the current state of affairs in space politics (Gerring, 2007, p. 37). However even though internal validity rather than external validity is obvious in a single case study, it is believed that in outer space politics US is such a significant case as by understanding that particular case, one could also understand the overall contemporary situation.

A case study in this particular investigation is also a good methodology since it allows for generating hypothesises, gives deepened understanding and gives causal insights to the mechanisms involved in the specific case (Gerring, 2007, p. 38). In this sense a single case study provides conditions for the author to elaborate and develop possible explanations as to why a particular observation is. In this thesis it is thought that by uncovering the strategical considerations of the US in outer space politics, one might be able to derive an explanation as to why space has not yet been weaponized in perhaps a broader sense, but at the very least in the particular case chosen.

The US case is suitable one, since it for reasons I will later elaborate on can be perceived as a most likely setting of weaponization if such was to be initiated. Furthermore seems the case study to fit this thesis methodologically since it has a rather exploratory onset, meaning that
the author has little a priori suggestions on what the data will provide and hence what results that might come about. Therefore by conducting a single case study in this thesis, it is hoped that it will provide some new answers.

Since this study is trying to find out why the current state of affairs in space politics is, and due to the inherent properties of a single case study it is qualitative. Implementing a qualitative study rather than a quantitative in this instance is rather self-explanatory, however it seems important to stress the fact that the intention with this study is by uncover the strategical considerations of the US in its space policy, one can in aggregation to some extent reach understandings and conclusions as to why the current state in outer space politics is.

The theories used is central for the results of this study, I will later develop the arguments for using the particular theories chosen, and in short here more generally address how the theories will be used. In this study the two forms of rational choice theories selected will function as a filter in which the data will be sifted through. The purpose of this study is not to test these theories, but rather to use them in order to understand the gathered data. In this sense the study can be described as theory using rather than theory testing dependent on the overall aim previously addressed. In this way it is hoped that the theories will highlight the important aspects within the data, making it possible to answer the research question.

The level of analysis of this thesis will be on the state level. Consequences of action and strategical considerations will be analysed as seen in relation to, predominantly other states in the international arena but from a US point of view. Hence the most important actors will in this thesis be viewed as nation states. The reason for mainly analysing US considerations in relation to other states is that states are still the main actors in space exploration and in development of space technology, and states are still the main military actors of the world. Even though there are other actors with military capabilities and global reach, none of these actors can compete with the capabilities or resources held by nation states. The author of this thesis has also chosen to disregard domestic politics that might cause the US not to weaponize space, although such factors might exist. The reason for this limitation is that the choice of theories are better suited to analyse decision making in a strategic setting, where other states are more easily perceived as strategic actors with the same set of interests as the US, rather than domestic interest are, where preference formation might be more diverse. If one was to investigate into the domestic politics of non-weaponization additional theories and empirics
would need to be added. The time and scope restraints of this thesis do not allow such extension, and the focus of the thesis would not have been as clear if such factors were added.

As touched upon previously, the two theories chosen as theoretical framework in this thesis will be applied in such manner as to understand the gathered empirics. The theories will in this sense help the author to highlight important aspect, and which aspects to disregard and in this sense help in “moving” important empirical observation on to the analysis, giving the author possibilities to interpret the data and make conclusions. As now stressed several times this methodology is thought to provide an answer to why the current state in space politics is, as in not being weaponized or subject to an arms race, furthermore it is thought that when reaching some conclusions on why the current state is, one might on empirical grounds contest the inevitability thesis. In this sense this thesis has a rather exploratory and explanatory onset, hoping to provide some new information by uncovering the strategical consideration affecting the US space policy elite.

4.2 Limitations

Several limitations had to be made in order to make this thesis possible, I will now present some of the most important ones.

4.2.1 The US Case

The reasons for only analysing US strategic considerations in relation to space politics are several. First of all the United States is the biggest spacefaring nation in the world, since it has more space assets than any other nation (Bergesen, 2014, pp. 19-21), and is spending more financial resources on its space programs than any other state. Hence the US can be viewed as the main actor pushing the development within space technology. Also since the US has a superior space commitment then other nations, and the fact that it has the highest military spending in the world (SIPRI, 2015), the economical factor of weaponizing space is less a confounding variable in the US case than in any other.

Another argument for focusing a study on the US is, as mentioned above, that it has more space assets than any other state, but this also entails a heavy reliance on space based assets to assert global military power. It is often pointed out that the US heavy reliance on space based assets is making it vulnerable (Coletta, 2009, pp. 171-172), and therefore has incentives to effectively protect these assets, which would entail equipping such assets with weapon
systems, hence weaponization of space is more likely to happen by the hands of the US than by any other state.

Another argument for choosing the US case which is frequently used by proponents to US space weaponization and adherents to the inevitability thesis, is the argument that US would gain from consolidating its position as global military hegemon, which entails equipping its outer space assets in orbit with weapons and claiming the ultimate military high ground, possibly denying other states to follow (Pavelec, 2012, pp. 46-47). In this sense from the inevitability thesis point of view, the US should strive for weaponization in order to get a head start and control the future development in outer space, this argument further makes the US a suitable case to study in this instance, since as perceived by some analyst it is in the US interest to weaponize space which makes the US a likely candidate to initiate such development.

4.2.2 The Theories Used

Since the aim of this study is to investigate the strategical consideration that has guided the US position on space weaponization, rational choice theory seems to be a viable theoretical choice.

First of all several rational choice theories and especially game theory has a history of analysing strategical considerations and decisions made in strategical settings. Even though rational choice has received some critique due to its result being trivial, and more importantly to bring up in this section of the thesis, due to its diverse epistemological usages.

It seems that there have been two different epistemological approaches that authors have applied in the usage of rational choice theory. The two epistemological onsets being used by rational choice theorists has mainly been instrumentalist empiricism and scientific realism. I do not intend to engage in a long philosophy of science discussion on the contrasting views on how to acquire knowledge, that might be the topic of another study, I merely intend to point out to the reader that rational choice theories are not perfect, but still has advantages.

The main difference between the two epistemological views is that instrumentalist empiricism does not consider the rationality assumption to be a universal social theory, but rather a useful tool in order to create hypotheses about the observable world that is a clear, parsimonious, coherent and generalizable (MacDonald, 2003, p. 551). The scientific realists on the other
hand have the view that the rationality assumption is not just an abstract assumption, but has the ability to develop understandings of unobservable cognitive decision making processes of human beings (MacDonald, 2003, p. 552), and hence could be a universal theory of human behaviour.

In this thesis the author leans towards the softer positivistic alternative of the two and considers the rationality assumption to be an important tool in order to understand the world and especially strategical considerations and decision making, however I do not consider it to be a universalistic theory of human behaviour.

In this thesis two kinds of rational choice theories are applied, game theory and non-formal rational choice theory. The two theories will be used in order to complement each other and hopefully provide an elaborate answer to the central question posed in this study. The two different theories are selected mainly on the premises that one is formal and the other is non-formal, it is believed that this set up will provide more in depth answers than if only formal theories were applied, and at the same time give the author some interpretive freedom in analysing the case in question. This set up is thought at the same time not to give the author completely free rein in the analysis, since one formal theory might prevent this from happening. In this way the author in some sense tries to find a middle ground, utilizing the best respects from both formal and non-formal theory. Hence both theories are needed in order to achieve and provide a comprehensive theoretical and analytical understanding of the current situation in space politics, if only one was used, one runs the risk of making the understanding of the current state in space politics to narrow and simple.

4.2.3 The Data Used

The data studied in this thesis will be official US documents on space policy such as reports, policy papers and policy evaluations carried out by public officials or reports ordered by the same but conducted by a third party. The time period in question for those documents and reports will be from the year of 2001 until 2011. The reason for this limitation is that the technological advances made in the last decade have made putting weapons in orbit economically and technologically possible (Hitchens, 2007, pp. 178-179), much different in relation to the 1980: s and the period of SDI. The ten years between 2001 and 2011 is also chosen on the premises that ten years is a sufficient time for the US to evaluate its positions and change its policies if needed, and might illustrate changes or trends within its strategical
considerations. Since the data needed to fulfil this study oftentimes is surrounded with some level of secrecy, four unclassified versions of official documents treating the US position in outer space policy and strategical considerations will be analysed. It would be preferable to obtain more material to analyse, but since these types of documents often are classified it is difficult to obtain as much material as one would like in order to have strong empirics to support the analysis. However four official documents written under a period of ten years are, I believe, enough in order to create a relatively comprehensive understanding of the strategical considerations made in the US decision not to weaponize space.

4.3 Operationalization

Part of the difficulties with using rational choice theories and in a broader sense with conducting this type of study is what interests, objectives, preferences and goals a researcher can attribute to the relevant actors. In this thesis, since it is set out to analyse matters of high politics and power politics the ultimate objective for states will be security. It will be assumed that at all times states pursue increased security or maintained security, and does not in any way intend to intentionally decrease its own security. This might sound trivial but will later on be important since the prescribed interests, preferences, goals and objectives will always assume security as the pivotal interest of states. This is also important since the author is intending to prove the inevitability thesis wrong in their assumption of weaponization of space as inevitable. Security is also prescribed as the pivotal interest of states since much of the actions and policy prescriptions demonstrated within the official documents analysed in this thesis views national security as the main objective for its actions, and national security underpins most of the arguments made for prescribing certain policies.

Security or national security will in this thesis be identified as military threats posed to a nation state by another state or international actor (Atwood, 1995, pp. 136-137). This definition is relatively broad but does to a satisfactory degree encapsulate threats towards security of interest in this study.

The official documents that are part of the empirical material of this thesis will be studied as to determine what the relevant actors deem as possible actions in their outer space policy. Is weaponization an explicit alternative to peaceful use of outer space, and if such an alternative is deemed as viable in order to reach the states pivotal objective, which here will be seen as security. Furthermore are the documents expected to also give some answers to what
objectives, preferences, consequences and alternatives that are perceived as possible by the
US political elite occupied with space policy, hence giving away some of the strategic
consideration making the US not weaponizing space. It is not the intention in this study to
investigate into individual leader’s perception of space security or how they themselves
construct decisions, the intention is more generally to analyse the view of the political elites
or the common perception within those elites as seen in official documents, and what those
documents exhibit in relation to peaceful use or weaponization of space. This process is
conducted by reading the documents and highlighting those sections that deal with strategy,
policy prescription, consequence analysis, principles and the objectives that the documents
reveal. In this way the author intends to exhibit the awareness of the strategic setting in which
these processes takes place. What policies that are prescribed in these documents will
hopefully then show which course of action that the relevant actors perceive as increasing
state security, but they may not necessarily explicitly express the underlying assumptions or
the perceived consequences of certain actions, those I intend to direct my attention to when I
later on in the analysis apply the two theories to this strategic setting. The reason for not
investigating individual leaders in this thesis is due to the inaccessibility of data on individual
decision makers’ considerations and reasoning, and possible distorting factors affecting
individuals in making rational decisions.

4.4 Methodological Difficulties and How to Manage Them

There exists some essential, not only methodological but scientific, difficulties with
conducting a study of this kind. First of all, scientific research must be based in reality, in
other words to be based on empirics or data and this study has relatively little data to construct
its arguments upon. Even if this is considered a weakness with the study, I argue that the data
is enough in order to make the inferences made in this thesis. However it is an inherent
problem with this type of study to build upon much lesser data than would be preferred, since
the information needed is virtually impossible to obtain. This difficulty makes this study
theoretically heavy, and relatively empirically light. Since the author is aware of these
problems, the generalizability and inferences made will be modest, but well anchored in the
existing empirics.

As mentioned in the theoretical section there exists some difficulties with analysing decision
making as rational since several distorting factors might exist such as fast moving streams of
information, cognitive shortcuts, individual biases, illnesses, misperception and psychological
distortion. In this study however it is the authors’ intention to minimize such distorting factors by observing slow moving decision patterns where the actors have long periods of time to evaluate and re-evaluate its position and decisions, and where the flow of information is in some sense viewed as constant and continuous. Although this author will try to minimize the impact of time restraints, fast moving flows of information and individual cognitive restraints it is near impossible to cancel out all distorting factors or confounding variables that can influence nation state decision makers, variables that in their eyes make their decisions rational. Eventual problems stemmed from this are in this thesis restricted since I do not observe individual decision making, but rather the overall perception and views of the political elite managing space policy.
5. Empirics

In this section the material of this study is presented, it will put forward official US documents, trying to show the considerations made in US outer space policy and the alternatives considered.

The section consists of four main document published from the early 2001 until 2011 under the Bush and Obama administrations, and is hoped to provide ample data on what strategical considerations US officials and policy makers has made in their outer space policy, and what goals and consequences that has been considered.

5.1 US Strategical Considerations in Official Documents

In order to understand US decision makers stand on outer space policy, and to lay a foundation for my analysis, the empirical work of this thesis has been to gather official policy documents, reports and inputs into the political discussion on outer space policy. This type of material is in my view an ample description of what the interested parties deems as possible policies and plausible consequences that follows actions taken and behaviour in outer space politics. The main focus when sifting through these documents will be to establish goals, principles and possible consequences taken into consideration. This will provide a clue to the overall strategical considerations guiding US space policy, and hence the decision not to weaponize space.


The report of the commission to asses United States national security space management and organization (hereafter called the report or the commission) written in 2001 by a commission consisting of high ranking militaries, government officials and politicians, gives a clear overview of US strategical considerations in space policy and puts forward some recommendations that might be perceived as more radical than seen in the national space policies later presented. The report also reveals the contradictions that the current situation places the US in; promoting the peaceful use of space while preparing for a possible future weaponization without enticing its adversaries.
The report states the main objective of US space policy to further the use of outer space for peaceful purposes, but is somewhat contradictory in its ambition to accommodate this goal, since it also recommends the US to develop space weapons systems that can be used from earth to space, space to earth and from space to space:

“The Commission unanimously concluded that the security and well being of the United States, its allies and friends depend on the nation’s ability to operate in space.

Therefore, it is in the U.S. national interest to:

• Promote the peaceful use of space.

• Use the nation’s potential in space to support its domestic, economic, diplomatic and national security objectives.

• Develop and deploy the means to deter and defend against hostile acts directed at U.S. space assets and against the uses of space hostile to U.S. interests.” (Andrews, et al, 2001, p. vii)

“In order to extend its deterrence concepts and defense capabilities to space, the U.S. will require development of new military capabilities for operation to, from, in and through space.” (Andrews, et al, 2001, pp. xii-xiii)

This recommendation is according to the commission justified since the perceived threat to US space assets is grave, and that a potential “space Pearl Harbor” should be viewed as a real possible threat to US national security:

“An attack on elements of U.S. space systems during a crisis or conflict should not be considered an improbable act. If the U.S. is to avoid a “Space Pearl Harbor” it needs to take seriously the possibility of an attack on U.S. space systems. The nation’s leaders must assure that the vulnerability of the United States is reduced and that the consequences of a surprise attack on U.S. space assets are limited in their effects”. (Andrews, et al, 2001, p. viii)

Whilst the peaceful use of outer space is the main strategy to sustain US national security, the commission continues to suggest that the US must prepare for the eventuality that peaceful uses of outer space will soon be in decline, the commission bases this assumption on arguments similar to the inevitability theory:
“Fourth, we know from history that every medium—air, land and sea—has seen conflict. Reality indicates that space will be no different. Given this virtual certainty, the U.S. must develop the means both to deter and to defend against hostile acts in and from space. This will require superior space capabilities. Thus far, the broad outline of U.S. national space policy is sound, but the U.S. has not yet taken the steps necessary to develop the needed capabilities and to maintain and ensure continuing superiority.” (Andrews, et al, 2001, p. x)

The commission is aware of the precarious situation, in which the US finds itself, that they cannot defend their space assets properly without equipping them with defence systems, which entails one or the other form of weapons, while they seem determined to promote further peaceful uses of space. However the commission seems to deem the space threat so grave as to not completely abstain from the security that space weapons might provide:

“The Commissioners appreciate the sensitivity that surrounds the notion of weapons in space for offensive or defensive purposes. They also believe, however, that to ignore the issue would be a disservice to the nation. The Commissioners believe the U.S. Government should vigorously pursue the capabilities called for in the National Space Policy to ensure that the President will have the option to deploy weapons in space to deter threats to and, if necessary, defend against attacks on U.S. interests.” (Andrews, et al, 2001, p. xii)

The commission elaborates further into what possibilities there are for weaponizing space and how this can be done, and stresses the importance of not making international commitments that could possibly limit the options available to the US:

“There is no blanket prohibition in international law on placing or using weapons in space, applying force from space to earth or conducting military operations in and through space. The U.S. must be cautious of agreements intended for one purpose that, when added to a larger web of treaties or regulations, may have the unintended consequences of restricting future activities in space.” (Andrews, et al, 2001, pp. xvii-xviii)

The commission continues with forwarding some recommendations as how to handle the expected situation:

“Create conditions that encourage the Department of Defense to develop and deploy systems in space to deter attack on and, if deterrence should fail, to defend U.S. interests on earth and in space.” (Andrews, et al, 2001, p. xxx)
The report further stresses the severity of the situation by adding that also other actors, with significant less capability is considering and evaluating the possibilities of space weaponization:

“In July 2000, the Xinhua news agency reported that China’s military is developing methods and strategies for defeating the U.S. military in a high-tech and space-based future war.” (Andrews, et al, 2001, p. xiv)

This last quote displays that the US is closely observed by other actors, who also is prepared to meet new threats if the strategical setting in space was to change, and that putting defence or weapons systems in space might trigger a chain reaction, where several states would deploy such assets.

5.1.2 U.S. National Space Policy, 2006

The 2006 National Space Policy document begins with stating the increasing importance of space assets and the access to outer space:

“In this new century, those who effectively utilize space will enjoy added prosperity and security and will hold a substantial advantage over those who do not. Freedom of action in space is as important to the United States as air power and sea power. In order to increase knowledge, discovery, economic prosperity, and to enhance the national security, the United States must have robust, effective, and efficient space capabilities.” (U.S. National Space Policy, 2006, p. 1)

The document then proceeds with stating some of the US guiding principles in its outer space policy:

“The United States is committed to the exploration and use of outer space by all nations for peaceful purposes, and for the benefit of all humanity. Consistent with this principle, “peaceful purposes” allow U.S. defense and intelligence-related activities in pursuit of national interests;”

“The United States will seek to cooperate with other nations in the peaceful use of outer space to extend the benefits of space, enhance space exploration, and to protect and promote freedom around the world;” (U.S. National Space Policy, 2006, p. 1)
Although cooperation and peaceful uses of outer space are important principles for the national space policy, some of the principles highlight the perceived dangers and obstacles in committing wholeheartedly to such development in relation to US national interest:

“The United States considers space capabilities -- including the ground and space segments and supporting links -- vital to its national interests. Consistent with this policy, the United States will: preserve its rights, capabilities, and freedom of action in space; dissuade or deter others from either impeding those rights or developing capabilities intended to do so; take those actions necessary to protect its space capabilities; respond to interference; and deny, if necessary, adversaries the use of space capabilities hostile to U.S. national interests;” (U.S. National Space Policy, 2006, pp. 1-2)

“The United States will oppose the development of new legal regimes or other restrictions that seek to prohibit or limit U.S. access to or use of space. Proposed arms control agreements or restrictions must not impair the rights of the United States to conduct research, development, testing, and operations or other activities in space for U.S. national interests[...]” (U.S. National Space Policy, 2006, p. 2)

The policy then continues with stating its main goals and objectives:

“• Strengthen the nation's space leadership and ensure that space capabilities are available in time to further U.S. national security, homeland security, and foreign policy objectives;

• Enable unhindered U.S. operations in and through space to defend our interests there;

• Implement and sustain an innovative human and robotic exploration program with the objective of extending human presence across the solar system;

• Increase the benefits of civil exploration, scientific discovery, and environmental activities;

• Enable a dynamic, globally competitive domestic commercial space sector in order to promote innovation, strengthen U.S. leadership, and protect national, homeland, and economic security;

• Enable a robust science and technology base supporting national security, homeland security, and civil space activities; and

• Encourage international cooperation with foreign nations and/or consortia on space activities that are of mutual benefit and that further the peaceful exploration and use of space,
as well as to advance national security, homeland security, and foreign policy objectives.”
(U.S. National Space Policy, 2006, p. 2)

The goals are mainly in this policy focused on maintaining a strong US leadership in space, as a way of achieving its national interests and national security. The goals are in this sense primarily aimed at promoting technological advances and a flourishing US space industry, in order to sustain US advantage in space research and technology in relation to other actors. In this policy a great deal of emphasis is put on the technological advantage the US has on the rest of the world, and how to maintain that advantage can help ensure US national security, rather than how development of space weapons will ensure security.

5.1.3 National Space Policy of the United States of America, 2010

The national space policy of the United States of America of 2010 seems to have two possible ways of ensuring US national security, dependent on how the strategical setting in outer space will develop. Firstly, the document starts with stating the general principles guiding US space policy:

“It is the shared interest of all nations to act responsibly in space to help prevent mishaps, misperceptions, and mistrust. The United States considers the sustainability, stability, and free access to, and use of, space vital to its national interests. Space operations should be conducted in ways that emphasize openness and transparency to improve public awareness of the activities of government, and enable others to share in the benefits provided by the use of space [...] All nations have the right to explore and use space for peaceful purposes, and for the benefit of all humanity, in accordance with international law. Consistent with this principle, “peaceful purposes” allows for space to be used for national and homeland security activities.”

It continues stating that:

“The United States will employ a variety of measures to help assure the use of space for all responsible parties, and, consistent with the inherent right of self-defense, deter others from interference and attack, defend our space systems and contribute to the defense of allied space systems, and, if deterrence fails, defeat efforts to attack them.” (National Space Policy of the United States of America, 2010, p. 3)
These highlighted parts of the guiding principles firstly state the intentions of the United States, namely peaceful use of outer space, and secondly the extent of US willingness to assure the current strategical setting of outer space. In the second paragraph above the document states quite clearly the intentions and measures taken if the peaceful use of outer space however is compromised, and the extent to which the US is willing to act.

The document continues with stating its goals, some of whom are:

“Expand international cooperation on mutually beneficial space activities to: broaden and extend the benefits of space; further the peaceful use of space; and enhance collection and partnership in sharing of space-derived information”.

“Strengthen stability in space through: domestic and international measures to promote safe and responsible operations in space; improved information collection and sharing for space object collision avoidance; protection of critical space systems and supporting infrastructures, with special attention to the critical interdependence of space and information systems; and strengthening measures to mitigate orbital debris.” (National Space Policy of the United States of America, 2010, p. 4)

The above statements stresses the importance of further peaceful uses of outer space, and touches upon the threat towards space assets due to space debris, and the possibilities for the worlds nation states to together manage such growing problems.

The overreaching goal however seems to be to further and promote the peaceful use of space, and to give clear signals to potential adversaries that any uses of space than peaceful will be perceived as a threat, on which the United States is obligated and willing to respond to in accordance with its right to self-defence. This statement is taken further in the documents sector guidelines on national security space guidelines:

“Develop, acquire, and operate space systems and supporting information systems and networks to support U.S. national security and enable defense and intelligence operations during times of peace, crisis, and conflict;” (National Space Policy of the United States of America, 2010, p. 13)

“[…] Reinvigorate U.S. leadership by promoting technology development, improving industrial capacity, and maintaining a robust supplier base necessary to support our most
critical national security interests;” (National Space Policy of the United States of America, 2010, p. 13)

“[...] develop capabilities, plans, and options to deter, defend against, and, if necessary, defeat efforts to interfere with or attack U.S. or allied space systems;” (National Space Policy of the United States of America, 2010, pp. 13-14)

It is made clear, especially in the last paragraph, that the US shall be ready, if a situation where an adversary is targeting their space assets, to in an effective way be able to defend these assets. How this should be done is not specified, arguably the US would not want to reveal such information in order to make such defence effective. However researchers and analysts have long claimed that defending space assets without equipping them with some sort of defence system (weapons system) is highly unlikely, especially since the development of ASAT weapons (Anti Satellite Weapons) in recent years has made it possible to destroy satellites in orbit more effectively than before (Kuplic, 2014, p. 1138).

It does not seem that a strategic setting where possible adversaries have the ability to develop threats to US space systems is perceived as favourable, hence the continued use of outer space relatively peacefully (keeping weapons out of space) is valued as imperative to US national security. This also shows as previously discussed the US dependency on space assets, naming them so vital for its national interest as to state its intentions clearly on how to handle possible adversaries and threats to them. This signalling from nation states is not uncommon in itself, but the important note for the future analysis in this study is that at several times in this document, it is the stated goal or objective to remain the use of outer space peaceful.

5.1.4 National Security Space Strategy, 2011

This document is the sequel to the National Space Policy of 2010 and echoes the sentiment of the 2010 policy. However the space strategy of 2011 focuses more on how to maintain US strategic advances in space by furthering the peaceful uses of space. The document starts of stating that:

“Maintaining the benefits afforded to the United States by space is central to our national security, but an evolving strategic environment increasingly challenges U.S. space advantages. Space, a domain that no nation owns but on which all rely, is becoming increasingly congested, contested, and competitive. These challenges, however, also present
the United States with opportunities for leadership and partnership. Just as the United States helped promote space security in the 20th century, we will build on this foundation to embrace the opportunities and address the challenges of this century.

The National Security Space Strategy charts a path for the next decade to respond to the current and projected space strategic environment. Leveraging emerging opportunities will strengthen the U.S. national security space posture while maintaining and enhancing the advantages the United States gains from space.” (National Security Space Strategy, 2011, p. i)

The Strategy document recognizes both the strategical importance of space and the increasing difficulties of relying heavily on space assets in a strategical environment that’s evolving rapidly with increasing amount of involved actors. The strategy document continues with commenting further on the strategic environment in space:

“Space is vital to U.S. national security and our ability to understand emerging threats, project power globally, conduct operations, support diplomatic efforts, and enable global economic viability. As more nations and non-state actors recognize these benefits and seek their own space or counterspace capabilities, we are faced with new opportunities and new challenges in the space domain.

The current and future strategic environment is driven by three trends – space is becoming increasingly congested, contested, and competitive.” (National Security Space Strategy, 2011, p. 1)

With congested, contested and competitive the strategy document recognizes trends of increasing population of assets in space, making risks for collisions and damages on space assets more likely and the demand for radio frequency spectrums will continue to increase (National Security Space Strategy, 2011, pp. 2-3). This development leads to decreased room for individual actors both physically in space but also in the radio frequency spectrum, which could make control and communication with assets in space increasingly difficult.

With space becoming increasingly contested the document refers to threats against space assets, these threats consist of mostly man made attempts to interfere or destroy space assets as a way to realize various military objectives, as to disrupt an adversaries capability to obtain
information or control and monitor its military assets (National Security Space Strategy, 2011, p. 3).

Increasing competitiveness in space refers to the current US standing as space hegemon and the strategical advantages this privilege entails, and mainly describes concerns due to the shrinking gap in technological sophistication between the US and other actors (National Security Space Strategy, 2011, p. 3).

The document then continues with stating its strategic objectives:

“In executing the National Space Policy, our National Security Space Strategy seeks to maintain and enhance the national security benefits we derive from our activities and capabilities in space while addressing and shaping the strategic environment and strengthening the foundations of our enterprise. The U.S. defense and intelligence communities will continue to rely on space systems for military operations, intelligence collection, and related activities; access to these capabilities must be assured. We must address the growing challenges of the congested, contested, and competitive space environment while continuing our leadership in the space domain.

Our strategy is derived from the principles and goals found in the National Space Policy and builds on the strategic approach laid out in the National Security Strategy. Specifically, our national security space objectives are to:

• Strengthen safety, stability, and security in space;

• Maintain and enhance the strategic national security advantages afforded to the United States by space; and

• Energize the space industrial base that supports U.S. national security.” (National Security Space Strategy, 2011, p. 4)

The document continues with stressing the pivotal objective for the US space initiative:

“We seek a safe space environment in which all can operate with minimal risk of accidents, breakups, and purposeful interference. We seek a stable space environment in which nations exercise shared responsibility to act as stewards of the space domain and follow norms of behavior. We seek a secure space environment in which responsible nations have access to
space and the benefits of space operations without need to exercise their inherent right of self-defense." (National Security Space Strategy, 2011, p. 4)

As seen in the above citations the main principle and objective for the US National Security Space Strategy is the continued peaceful use of outer space, and the importance of being able to continue carrying out space based activities without disturbance.

The strategic approach in order to protect US space assets can be viewed as a two level approach, firstly by promoting the peaceful use of space or to maintain the peaceful use of space with force, and secondly by preparing for the peaceful uses of outer space to collapse:

“The National Security Space Strategy draws upon all elements of national power and requires active U.S. leadership in space. The United States will pursue a set of interrelated strategic approaches to meet our national security space objectives:

• Promote responsible, peaceful, and safe use of space;

• Provide improved U.S. space capabilities;

• Partner with responsible nations, international organizations, and commercial firms;

• Prevent and deter aggression against space infrastructure that supports U.S. national security; and

• Prepare to defeat attacks and to operate in a degraded environment.” (National Security Space Strategy, 2011, p. 5)

As seen in the document the US main objective is to maintain peaceful uses of space, while still confronting possible threats posed by actors not obeying that principle:

“We believe it is in the interests of all space-faring nations to avoid hostilities in space. In spite of this, some actors may still believe counterspace actions could provide military advantage. Our military and intelligence capabilities must be prepared to “fight through” a degraded environment and defeat attacks targeted at our space systems and supporting infrastructure. We must deny and defeat an adversary’s ability to achieve its objectives.” (National Security Space Strategy, 2011, p. 11)

Once again the strategy recognizes the potential future threats that may arise in space or towards space assets, and states that the US must prepare to either uphold the peaceful uses of
outer space by force, or to abandon that notion altogether, even so, the further peaceful uses of outer space is seen as preferable.

5.1.5 Discussion

The first report was written nine respectively five years before the two national space policy documents, although the most vital parts of this report is also stated in the policies, the policies uses more moderate language and does not mention sensitive concepts such as space weapons. This is however expected since policy documents in general are actual instruments to steer the government bureaucracies and agencies, whilst the report merely where making recommendations and analysing the strategical environment and possible options within this environment. The policy document can be viewed as the government’s actual position, and will hence be taken seriously by other states and the interested parties within the nation. The report however is not actual policy, but it does indicate the line of thoughts within vital parts of the government and might provide a more accurate and sincere image of how the debate is playing out.

The two different policy documents presented in this section seems to differ, not substantially but at least to some extent. The policy of 2010 more than that of 2006 highlights potential risks, both with US reliance on space assets, and the possibilities of adversaries to take advantage of this situation, and assigns its different federal agencies to tackle this problem. The 2006 policy does not give as clear directives to its agencies to calculate risks and how to handle them, but rather emphasises, although also mentioned in the 2010 policy, that US technological and research advantages will provide adequate resources and that the technological advantage itself provides protection and security. In this sense the 2010 policy seems more aware of the potential risks to US space assets and to US security as a whole. This might be due to the technological and international developments during the four years between the policy documents publication. Furthermore seems the 2011 strategy to follow the 2010 policy in all extents, with some minor adjustments. The 2010 policy paper more than the 2011 strategy focuses on straight out military threats to US space assets and seems more interested in preparing for those threats than the 2011 strategy paper, however on a broader scale both documents as expected share the same linchpins.

Interesting to note however, although apparently not decisive, is that Donald Rumsfeld was acting chairman in the commission that wrote the 2001 report on US space policy in relation
to national security, but resigned in December of 2000 since he was nominated Secretary of Defense by President-elect George W. Bush, under which he served until 2006. The more direct and tougher analysis of the commission report does however not appear to have had significant impact on the formulation of the 2006 policy document, where the possibilities to space weaponization and threats to US space assets and national security received little attention.

Importantly for this study is that the 2001 report, more than the policy documents, shows that weaponization of space seems to be a real alternative in the US pursuit of security. The policy document also to some extent indicates that the US is willing, needed be, to decrease its vulnerability in space. All documents however states quite clearly the preference order of US interests, firstly to keep outer space for peaceful purposes, and secondly if it needs to, be ready to deploy measures in order to limit its vulnerability which would entail weaponizing its space assets.
6. Analysis

In this section I will analyse the strategical setting, available options and objectives of the United States in space politics based on the presented empirics and by using the previously explored theories.

6.1 Game Theory – Prisoners Dilemma

The decision not to weaponize space is in this thesis viewed as a one shot decision making instance. Even though the decision not to weaponize space might have been taken at several points in time, the theoretical construction of viewing the decision making as a one shot decision instance is viable since it is likely that the overall perception of consequences of such actions has not changed. The reason for this is that space is either weaponized or not, and if one actor was to take this decision, it would most likely trigger a domino effect, forcing other actors to follow in order to reach their goal, which is security. The situation can be described as a Pandora’s Box, as to when the decision has been made to weaponize space the consequences that will follow are difficult to undo.

The possibilities for the actors, in this game of prisoners dilemma that’s about to unfold, is either to weaponize space or not in order to increase or maintain their security. The dilemma for the actors in this game is to not diminish their relative security in relation to other actors, hence the players must consider either to weaponize or not to weaponize their space assets and the possible consequences (outcomes) this will have on their adversaries and hence on their own security.

In this game actor one can be seen as the US and player two as any other powerful state or even several of them.

<table>
<thead>
<tr>
<th>Actor 2</th>
<th>Not weaponize</th>
<th>Weaponize</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not weaponize</td>
<td>2,2</td>
<td>-5,5</td>
</tr>
<tr>
<td>Weaponize</td>
<td>5,-5</td>
<td>-2,-2</td>
</tr>
</tbody>
</table>

Figure 2. Prisoner’s dilemma-weaponization matrix
The numbers in this game represents the following outcomes:

-5: Worst possible outcome since this outcome represents the most relative loss of security for the actor. This outcome comes about when the player in question chooses not to weaponize outer space while the other player does.

-2: The second least desirable outcome since this situation still entails a loss of security. This situation decreases the security compared to the status quo outcome and puts the actors in a new unfamiliar setting which impact and consequences for the players are difficult to predict. This situation occurs when both actors chooses to weaponize space, relatively close in time. This situation further decreases the security of the US since the gap in military capability between the US and other actors has now decreased.

2: Maintaining status quo, for the players meaning to prolong a familiar setting in relative security, although not obtaining the highest possible degree of security, since they cannot protect their space assets to a satisfactory extent. This situation unfolds if both players choose to not weaponize space.

5: The most preferred outcome, since the player in question is increasing its security and is able to adequately protects its national security interests in space, and ultimately also on earth. This situation unfolds for the actor choosing to weaponize space while the other actor chooses not to, or is not able to do so.

As we can see in the matrix the dilemma facing the US in the current situation is that if they would chose to weaponize space in order to achieve the most preferred outcome 5, there is no guarantee that other states would not follow, it is on the opposite rather probable that other actors would follow, as they would not accept the decreased security as perceived when the US has the ability to protect its space assets and hence tilts the strategical setting. In order to reach outcome 5 the US then in some way has to deny other states to follow in weaponizing space, in order to avoid outcome -2, which would be the second most undesired outcome. Although it might be possible in some theoretical sense to deny all other actors to follow the weaponization development, it seems improbable that the US would and could deny other states this privilege, especially for an extended period of time. In this sense the most preferred outcome 5 entails credible consequences that would create, at least for some period of time, instability and possible decreased security since it causes a new unfamiliar situation where the strategical setting and the balance of power would be clouded. Hence the process and the
possible consequences of trying to achieve the most preferred outcome consists of uncertainty, which is not preferred, especially since the current situation is relatively advantageous for the US as it is the largest military power on earth and is the most powerful spacefaring nation. The characteristics of the current situation where the US is viewed as the global military hegemon and the largest spacefaring nation is hence more preferable than to change the relatively safe environment currently existing, which causes the US to have little incentive to change the current strategical setting. For the US to seek outcome 5 it is reasonable to assume that they need some strategy to avoid outcome -2, since other states are predicted to follow the weaponization development, however in not pursuing outcome 5 the US leaves itself vulnerable to the worst possible outcome -5.

The US behaviour to advocate the safe use of outer space can in this sense not be viewed as minimax behaviour, since the actor is not trying to make sure to avoid the worst possible outcome -5, but it does seem likely from a US point of view that other actors at this point in time does not possess means or possibilities to weaponize space, at the very least not able to do so without US knowledge about it. This behaviour even though not trying actively to avoid the worst possible outcome, especially by not advocating international space laws and regulations, can strike one as rather risky. The main argument to explain this behaviour does however appear to be to keep the current strategical setting and balance of power, in space and on earth, with a possibility to later on change the setting when the current setting is no longer viewed as advantageous. This reasoning is seen in the empirical documents where the peaceful uses of outer space is prescribed as the top priority, meanwhile not restricting US capability to develop space weapons if needed.

Taken the strategical consideration of possible consequences in weaponizing space, it seems that even though the US cannot, to the desired extent, protect its space assets and therefor its national interest in a credible way, the path towards more security entails uncertainty and possibly decreased security compared to the current setting. Hence a paradox arises, revealing that the most preferred outcome presumably leading to more security, might in fact decrease security. It seems logical that US political and military elites are aware of these circumstances, and rather than advocating the most preferred outcome invests in the second most preferred outcome, although not wholeheartedly since that might affect future endeavours. Committing wholeheartedly to the peaceful use of outer space would entail trying within the international community to strengthen international law and restrictions on the use
of outer space, and yet this is not observed. On the contrary the US has during recent years backed away from some of the treaties regulating its behaviour in outer space (Kuplic, 2014, pp. 1156-1157), and advocate several times in its space policy documents for conservative restrictions in space. It seems that the US wants to keep the weaponization option open for possible future use, a behaviour that could seriously threaten its own security, and the global status it currently holds.

However if the US was to commit wholeheartedly to the peaceful use of outer space, it is making itself vulnerable to the worst possible outcome, where other states are able and willing to weaponizing space while the US, in accordance with new hypothetical international treaties and regulations would probably not be allowed to do so.

On the one hand according to this logic, the US is making the most of the current strategical setting, not weaponizing hence maintaining its role as global military and space hegemon, and not committing wholeheartedly to the peaceful use of outer space, hence leaving the possibility for weaponization open. Even though the US cannot today protect its space assets to the extent most preferred, it is possible that its otherwise strong military power is thought a credible deterrence against attacks on its vital space assets, as referenced in the space policy documents.

On the other hand one can observe the US behaviour as undecided and not willing to commit wholeheartedly to either option presented, which could be interpreted as uncertainty and even perhaps as lack of resolution. This might be due to the current “unnatural” status quo (Burzykowska, 2009, pp. 190-191), where some actors are behaving in ways that have not been predicted nor is expected, especially if one considers the inevitability thesis where the nation states are expected to weaponize space, which some arguments in the policy documents note. In this void of inaction it might be difficult to find the proper policies for the future, and rather await future developments and prepare for every possible outcome that might present itself. Another possible reasoning could be that the threat towards US space assets are either overrated or not taken serious by some important leading policy groups. This last example is however more unlikely than the previously stated explanations, since the development of ASAT weapons and US reliance on space assets has increased during the last decades, which also is recognized within the presented documents which implies the ruling elites awareness of this situation.
The most likely explanation for the US behaviour in outer space politics as seen in the policy document and based on the prisoner dilemma completed in this section is hence that to the most extent possible, without endangering future possibilities of action, advocate the second most preferred outcome, which is the peaceful use of outer space or maintaining the status quo. The US has chosen to do so since the most preferred outcome is not likely to maintain its security over a long period of time, and the process of achieving the most preferred outcome is clouded by uncertainty and possible consequences that is not increasing the US objective of security. It is also possible that the new unfamiliar setting that weaponization would entail might decrease the current US military advantages, since offensive space weaponry is likely to enable those who possess it striking capabilities currently only held by the most militarily powerful states, hence decreasing the capability gap between the US and other actors.

From a prisoner’s dilemma point of view then, the US is acting in accordance with its supreme objective and behaves in accordance to what the game would prescribe in this strategical setting given the main objective being security.

6.2 Non-Formal Rational Choice Theory

When analysing the strategic setting from a non-formal point of view, it might be helpful to apply the eight steps provided by Cashman outlined in the theory section, in order to make the analysis clear.

As described earlier in this thesis the objective for states in general and also in space affairs is understood as security, this is further a useful overall objective since the official documents in most respects concerns itself with national security and holds it as the pivotal objective, and describes what difficulties space implies in that regard. Identifying and ranking US goals is hence taken in response to maintain or increase national security, where increased security is preferred over maintained security, especially in the case of space assets since it is proven difficult for the US to protect such assets to a satisfying degree. However as seen in the data on US goals and objectives in its space policies, the most preferred goal is the peaceful use of outer space, and weaponization is considered as less of a desirable goal or option. This preference ordering is further backed up by the fact that space has not yet been weaponized. The rational reasoning for this situation then could be that weaponizing space does not increase national security relative to the peaceful use option. Even though further peaceful use of outer space does not increase US capability to physically protect its space assets using
advanced defensive weapons systems, the domino effect that might come of the one decision to put weapons in space where other states are likely to follow is not preferred. The thought of inter-state military conflict involving space assets as likely targets or combatting objects would endanger assets not used for offensive purposes and lead to decreased capabilities of retrieving information, communication and uses of other military abilities on the ground, sea and air, this concern is also made clear in the official documents. Hence it is perceived that the weaponization option will not increase national security in the long run, whilst it is possible that it would during a short period of time when the one state has the capability to utilize space weaponry.

However as seen in the policy documents, the US investigates into the possibilities of weaponization of outer space, and is planning on having such capabilities ready if needed. Although it does not seem to be the most preferred goal for a present or even future US administration to upset the current peaceful status quo in space politics, since it is perceived as more preferable than the alternative, even though the US cannot protect its space assets to a degree that would be favourable and concerns to this affect is continuously stated within the official documents.

In trying to identify alternatives for reaching US goals in space politics, one could view the more overall deterrence that the US possess as a way of ensuring the safety of its space assets. As mentioned in earlier sections, US has the greatest military capabilities of all nation states, and is, also as stated in the policy documents, likely to retaliate on any actor interfering, disturbing or damaging its space assets. In the current strategical setting in outer space capabilities and overall military capabilities it is likely that the US can identify and subsequently oppose any such actor, either it may be a nation state or a non-state actor such as terrorist groups. This is discussed in the official documents as maintaining the general deterrence of US military capabilities. However the disadvantage with this type of protection rather than physically installing defensive measures on its space assets is that retaliation in response to an attack on US space assets is likely to take place after the fact. This situation implies that the US would still have lost a perhaps vital space asset, before being able to implement its deterrence and retaliate. However in order to reach the most preferred alternative for outer space development, which is the further peaceful use of space, the US needs to maintain a credible deterrence and capability to retaliate any tampering or undesired interaction with its space assets, and should if possible try to influence the international
community in a direction as to counteract a development where space assets are seen as fair
game in conflicts, in other words the US should try to maintain the current setting. Examples of such considerations are made clear within the documents when stating repeatedly that interference or tampering with US space assets will result in actions taken according to the right of self-defence.

As discussed previously, it is the possible negative consequences on national security that makes weaponization a less desirable outcome or goal than to further the peaceful use of space. Consequences of weaponization would likely be that other actors in time would follow and also weaponize their space assets, and could make space a new arena for inter-sate armed conflict and war. The two alternatives (peaceful use or weaponization) can also be analysed in a cost benefit approach, where a weaponization would entail considerable economical investments in order to develop and install effective weapons systems able to protect space assets. However the consequences of such instalment would not likely in a longer perspective increase security and would be more economically demanding then the alternative, hence the peaceful use of outer space is also in this regard preferable to the weaponization alternative. The probability for success (as in maintaining or increasing security) is hence higher if keeping the current status quo in space politics by furthering the peaceful use.

By applying Cashman’s steps the alternative that seems to maximize chances for reaching the US goal of security is to further the peaceful use of outer space, provided that the present strategical setting remains. Weaponizing space in the present strategical setting would hence not be a rational choice considering the possible consequences and the cost benefit analysis. However one contradiction that arises when analysing the US behaviour in space politics is that it does not take much purposively action in order to achieve its most preferred preference, which would be to actively within the international community ensure development towards peaceful uses of space. On the contrary, as previously shown and as stated in some of the documents the US in some sense does not wholeheartedly commit to such purposively action, but rather advices against it. From a non-formal point of view this behaviour is contradictory, and could demonstrate uncertainty in what actions that leads to the most desirable outcome.
7. Result and Conclusions

In order to present the results of this study I will start this section with repeating the research question:

*What strategic considerations explain the US decision not to weaponize outer space?*

As the analysis has shown there are several possible strategical considerations that have affected the US decision not to weaponize space. However the main consideration seems to be that, at least according to the analysis made in this work, weaponization of outer space would not increase US national security relative to other actors in a long term perspective.

As provided both by the game theoretical and the non-formal analysis, it is reasonable to believe that the current strategical setting, where outer space is not weaponized, maintains the US current role as military and space hegemon, a role that could be compromised if space was to be weaponized. If the US was to weaponize space its current role, at least for some time, could become not as strong due to the difficulty of denying other actors the privilege to weaponize space, if the US itself has started this development. Even though the further peaceful uses of outer space is limiting the US capability to adequately protects its space assets, and hence its national security interests, it is seen as the more preferable option, since the alternative, weaponization, has consequences that are difficult to predict and does in most scenarios decrease US national security as perceived by the policy elites.

After conducting the prisoner dilemma on the US possible options in space politics, one can understand why some would argue in favour of the US being the first state to weaponize space. However after conducting the non-formal analysis of the case and deepened the analysis of the prisoner dilemma one could claim that those same advocates would be seriously mistaken. As seen in the analysis, in order to increase US security and ability to protect its space assets, weaponization is preferable, however when taking that consideration one step further and anticipating possible reactions to such behaviour on can draw the conclusion that weaponization would not be preferable in the long term perspective due to the expected consequences; forcing other actors to also weaponize its space assets.

The inevitability thesis seems to have made an important point of viewing space as an arena same as land, sea and air, but as of yet space is not. If the US was to weaponize space, space would become an arena same as air, sea and land, however after considering the possible
consequences of making space yet another arena for nation state power struggle, the US waived that option, at least for the time being. Prescribing states with the main interest of security, one can understand the actions taken by the leading spacefaring nation not to weaponize space. Arguments made that weaponization will happen sooner or later due to security concerns is hence not necessarily valid in the US case, at least if the current strategical setting continues. However it does not seem valid to make broader inferences as to why space has not been weaponized beyond the US case, especially since with the results provided by this study on could argue that other states would gain from weaponizing space, closing or at least reducing the capability gap between them and the US, on the other hand does the policy documents state quite clearly that the US cannot accept such behaviour from other actors without interfering. However what strategical considerations and assumptions made in other states than the US is not subject of this thesis, but could prove an interesting topic for future research.

One broader inference that can be made by this study is that it seems, based on the US case, that one can relatively easy understand nation state behaviour in outer space, and that weaponization of space is not necessarily inevitable, at least based on the assumption of security as pivotal objective for nation states, and provided the current strategical setting.

Considering the current strategical setting in outer space politics, it does not seem likely that the US would commence a process that would lead to the weaponization of space, since such development is simply not likely to increase its national security, but rather has the potential to decrease it, at least from a rational point of view. It is difficult to contradict the inevitability thesis since it predicts something that has not yet happened, however after conducting this thesis one walks away with an understanding that the impending inevitable weaponization of space might lie further into the future than what some proponents might claim. Contradictory to the inevitability thesis this work has provided some actual knowledge about the current state of affairs in space politics, and has showed that weaponization is not likely to happen by the hands of the US in the current strategical setting.
8. Future Research

Possible future avenues of research that would be interesting to pursue could be to extend the framework developed in this thesis to also include other important actors in space politics such as Russia, China or the EU. Especially in the Russian and Chinese case it would be interesting to uncover the strategical considerations guiding their outer space policy, and what possibilities they perceive space to have on national security in relation to either future peaceful uses of space or weaponization options. Especially China has demonstrated resolve in the development of ASAT weaponry, and also used such weapons on one of its own satellites causing international friction (Easton, 2009, p. 2).

Another interesting future avenue to pursue would be to disregard the strategical considerations altogether and instead focus on the ideational or normative considerations that possibly can affect nation state behaviour and outer space policy. What ideas are given room in the domestic debate on outer space policy and how these are influential on nation state policy making. This avenue would also in some sense change the level of analysis from the national level to the domestic politics, possibly revealing new information.
9. Bibliography


