

2019

Strategic deferment: A study of the rogue state, status quo state relationship with a focus on the United States and North Korea

Nathan Hoffman
Iowa State University

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**Strategic deferment: A study of the rogue state, status quo state relationship with a
focus on the United States and North Korea**

by

Nathan Hoffman

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

Major: Political Science

Program of Study Committee:
Mark Nieman, Major Professor
Richard Mansbach
Robert Urbatsch

The student author, whose presentation of the scholarship herein was approved by the program of study committee, is solely responsible for the content of this thesis. The Graduate College will ensure this thesis is globally accessible and will not permit alterations after a degree is conferred.

Iowa State University

Ames, Iowa

2019

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DEDICATION

I dedicate my thesis to my grandfather Charles Hoffman II, who fought in the Korean War. I hope to one day finish what you started and bring the Korean conflict to an end.

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NOMENCLATURE

SQP	Status Quo Power
RS	Rogue State
NR	Nuclear Response
CR	Conventional Response
CAP	Capitulation
CFS	Conventional Frist Strike
NFS	Nuclear First Strike
NMA	Non-military Action

ACKNOWLEDGMENTS

I would like to thank my committee chair, Professor Nieman, and my committee members, Professor Mansbach, and Professor Urbatsch, for their guidance and support throughout the course of this research.

In addition, I would like to thank my mother Lori for her love and reassurance, my father Kirk for his love and guidance, this thesis does not get written without you. I would like to thank my political science graduate TA friends for their willingness to put up with my jokes, and for making the last two years fun. I would like to thank Professor Deam for his guidance in forming my political mind, and his willingness to continually push me further academically. I would like to thank Professor Mansbach for his corny puns, and for his introduction to international relations class that helped me form my thoughts on international relations. I would like to thank my undergrad advisor Jason Crystal for his willingness to listen to anything that I had to say, and his guidance in selecting undergraduate classes. I would like to thank Professor Nieman for chairing my committee, and for piquing my interest in deterrence in his international security class. Finally, I would like to thank Pancheros for fueling this whole escapade.

ABSTRACT

The existing nuclear deterrence literature has, as a whole, overlooked rogue states, and especially North Korea. In the first half of this paper, I present a game-theoretic model that demonstrates the differences between how a rogue state acts with and without nuclear weapons. The second half of this paper is a case study focusing on North Korea, examining how North Korea fits into the model. My analysis of the model results in these conclusions: One, North Korea will respond with nuclear weapons if attacked; Two, a nuclear first strike by the U.S. on North Korea is possible if the nuclear taboo is overcome, and; Third, North Korea will not negotiate away its nuclear weapons. With these conclusions in mind, U.S. policy toward North Korea must accept these conclusions adjust accordingly. If the U.S. does not change its policy toward North Korea, the conflict will not continue without resolution.

CHAPTER 1. INTRODUCTION

In 1950, the United Nations, led by the United States, got involved in a conflict on the Korean Peninsula. Over the next three years, North Korea, supported by Communist China and the USSR, fought South Korea, supported by the UN and the United States. After the war stalemated, both sides agreed to an armistice, but there is no treaty in place officially ending the war. South Korea went on to become an economic powerhouse, and North Korea became the “hermit kingdom.” Sixty-six years later, the North and South are still separated, not only by a closed border but also culturally and economically.

The United States, with all of its military might and diplomatic prowess, has been unable to solve the North Korean conundrum. With that in mind, I set out to better understand North Korea and the current state of the frozen conflict on the Korean Peninsula. The best way to understand this is the status quo state-rogue state relationship between the United States and North Korea. This can be best exemplified using a game theoretic model.

Rogue States fundamentally “pose unacceptable risks to world order” (Rotberg, 2004). Each status quo power has its own order that it maintains. For example, the United States has led the liberal order since the beginning of World War Two. The United States considers Iran, Syria, and Venezuela to be rogue states in the western liberal order. These countries do not follow the rules and norms set up by the United States, and because of this, the United States considers them to be a threat to peace.

Another example of a status quo power is China, which has a significant amount of power in East Asia. China fulfills the status quo position, and Taiwan fits into the rogue state position. While Taiwan is recognized as a part of mainland China, in practice it is

independent of mainland China. Taiwan does not follow the Chinese framework, and China considers this to be a significant issue.

Complicating matters is that unlike the previously mentioned rogue states, North Korea is a nuclear state. To analyze the status quo-rogue state relationship where the rogue state has nuclear weapons, I build on the game-theoretic deterrence literature. I find that rogue states that have nuclear weapons will not hesitate to use them if attacked, that a status quo power could launch a nuclear first strike on a non-nuclear state if the circumstances are correct, and lastly that a rogue state that has a nuclear capability will not give its nuclear capability willingly.

CHAPTER 2. LITERATURE REVIEW

My model is fundamentally based on deterrence. The rogue state wishes to be able to deter the status quo power from interfering in its affairs. Any discussion of deterrence, specifically one that includes nuclear deterrence needs to include Thomas Schelling's book *Arms and Influence*. The rogue state in this situation wishes to prevent interference from the status quo state. In *Arms and Influence* Schelling introduces the idea that a rogue state cannot physically prevent an attack. Instead, it should look for a way to impose costs on the status quo state that is trying to interfere. The best way to do this is to create a crisis situation where pressure can be applied on the status quo state to cause them to hesitate to act. The offshoot of this is brinkmanship (Schelling, 1989). A rogue state will increase tensions and thus risk increasing the possibility that costs could be imposed on the status quo state, with the end goal of making them fail to act. A rogue state could, for example, develop a nuclear capability and tell the status quo power that if they chose to interfere in the affairs of the rogue state, they will use those nuclear weapons in retaliation.

Powell (1989) models a nuclear deterrence game. He sets a fine example for me to follow as his game can be applied to all the situations that fit his assumptions. Powell designed a game to help better understand the US-Soviet nuclear conflict. He concludes his paper with the idea that "The strategy of limited retaliation has been modeled as a simple game of sequential bargaining. The game's equilibrium suggests that states prefer to have relatively smaller, less-destructive limited options" (Powell, 1989). He then applies this idea to the United States "Underlying the perennial call in U.S. strategic nuclear doctrine for having smaller, less-destructive limited options" (Powell, 1989). I use a similar process in creating a simple game and apply it to a real-world example in the US-North Korean conflict.

Given the application I wish to focus on, I think it is important to reiterate the idea that all decision-makers are “expected-utility maximizers” (Mesquita, 1981). I am using a game theory model which requires the actors to be rational actors. The Kim regime of North Korea is seen by some to be an extreme risk-taker. However, to be a utility maximizer all an actor needs to do is make the decision that maximizes their potential payoff. It may seem crazy to challenge the United States to a war of words and potentially more, but as long as the payoff is higher for the challenger than if no challenge is made, then the challenge is a rational one. By this standard, North Korea is a rational actor.

These were the guiding principles of my thesis: Imposed costs can as a deterrent; A simple game can be applied to real-world situations, and; All decision-makers involved are rational despite what their actions show. On that basis, I look to forward the field of game theory and the study of North Korea.

CHAPTER 3. GAME DESCRIPTION

I model the interaction between a status quo power and a rogue state in a two-player sequential form game and solve it using subgame perfect equilibrium. The first actor is the status quo power (SQP), and the actor that moves second is the rogue state (RS). The status quo power is an established power either in a specific region or globally. To qualify as a status quo power the state must be able to pose a threat to the rogue state's ability to survive and rule over its territory. The SQP also must have a credible nuclear weapons capability. The rogue state can be defined as those who: Possess weapons of mass destruction; seek to attain weapons of mass destruction; threaten world or regional order; have overly aggressive foreign policies; and destabilize their region and even the world (Rotberg, 2004). For the purposes of my thesis, a rogue state will be defined as a state that the status quo power believes poses a global or regional threat and is potentially developing nuclear weapons. In my model, a rogue state is a position a state holds in relation to a status quo power.

The model I am using describes what could happen if diplomacy and other non-military actions fail. Non-military action is a possible outcome, but other options are considered. With this in mind, the status quo power makes the first move in the game followed by the rogue state. The status quo power can pick from three different options: nuclear first strike, conventional first strike, and non-military action. A nuclear strike would include attacks on nuclear or conventional capabilities, leadership locations, vital communication centers, and anything else that could assist in the downfall of the rogue state's ability to rule its territory. Conventional first strike is defined as a first strike by the status quo power using weapons of the conventional variety. I assume that the strike would

be targeted at the same types of targets as the nuclear strike would be, the only difference is the type of weapons used in the attack.

The options for the rogue state's response are a nuclear response, conventional response, or capitulation. The definition of nuclear response is the rogue state attacking military or non-military targets of the status quo power with nuclear weapons in order to impose a cost. The rogue state would be launching their weapons at any target that they think could be beneficial to preserving their ability to control their territory. The definition of conventional response is the rogue state attacking military or non-military targets of the status quo power with conventional weapons in order to impose a cost. This once again includes any target that the rogue state thinks could be beneficial to its ability to remain in control. This can include a protégé or proxy of the SQP. As long as the rogue-state retaliatory strike can impose a cost on the SQP, then that response fits my model. Lastly, the rogue state can pick capitulation, which is defined as the rogue state surrendering, and the territory that it previously controlled is then under control by the status quo power.

Game Tree

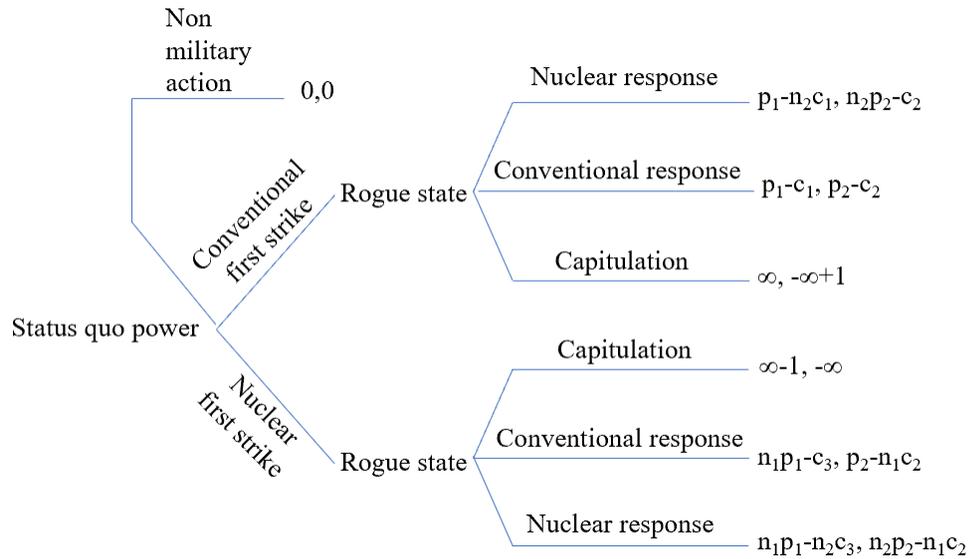


Figure 3.1 *Game in extensive form*

Variables

I use seven different variables in the process of analyzing my game. This includes nuclear capacity of SQP (n_1), nuclear capacity of RS (n_2), possibility of a successful attack on RS by SQP (p_1), possibility of RS successfully repelling an SQP attack (p_2), cost to SQP resulting from a SQP conventional attack (c_1), cost to RS resulting from trying to repel the SQP attack (c_2), and cost to SQP resulting from a SQP's nuclear attack (c_3). While not variables, the outcomes for capitulation are $-\infty$, $-\infty + 1$, $\infty - 1$, ∞ . Four of the variables represent something that relates to SQP and three of them represent something that relates to RS.

The n_1 variable represents the nuclear capacity of SQP on the scale of 1-2. The n_2 variable represents the same, but just for the nuclear capacity of RS with no other differences. A country that does not have a nuclear capacity will be assigned the value of one because not having a nuclear program cannot improve the military abilities of either SQP

or RS and does not increase costs on an enemy. For any value greater than one and less than or equal to two denotes a workable nuclear device that can be delivered in some reliability to an intended target. For reference, a one for this variable would be given to a state like Somalia or Japan that does not have nuclear weapons. It does not matter the technological might of the state, or how close they are to developing a nuclear capability. If they do not have a nuclear capability, then they are assigned a one. For any value greater than one the examples would have to be known nuclear states like the United Kingdom or North Korea. The United Kingdom has a well-developed nuclear program that has four nuclear submarines carrying 40 nuclear warheads with eight Trident Two missiles each. ("Written Statements Tuesday 20 January 2015", 2015) North Korea has up to 60 nuclear warheads with many different types of delivery systems that are not of consistent quality and have delivery systems that are not as reliable as a state with a stronger delivery system. This means that the value for North Korea's nuclear capacity would be closer to one as their program is not all that capable. The United Kingdom, on the other hand, would have a value closer to two as their program is reliable at launching a nuclear weapon and hitting their targets.

The possibility of a successful SQP attack variable (p_1), and the possibility of a successful defense of RS from SQP's attack variable (p_2) are similar but not the same. Both have the same range of one to two, but they do not measure the same things. For p_1 , 1 means no possibility of an attack succeeding, and 2 represents an absolute certainty that the attack will succeed. p_2 , on the other hand, measures the possibility of a successful defense by RS from an attack from SQP. This means that a value of one would mean no possibility of a successful defense, and two being completely certain of a successful defense. These should be seen as 1 plus probabilities. One would have a probability of zero percent chance of

success, and two would have a probability of one hundred percent chance of success. With the rest of the numbers in-between being a value being on the range from zero to one hundred. For example, 1.25 would be twenty-five percent, and 1.84 being eighty-four percent.

The cost to SQP resulting from a conventional strike can be broken down in two different categories: harm to hard power, and harm to soft power. As for harm to hard power, it would include casualties resulting from the initial strike, damage to equipment and other tangible assets. For example, when the United States invaded Iraq and Kuwait to push the Iraqi army out of Kuwait, the United States suffered human casualties and damage to military equipment in the process. c_1 also considers the cost that results if RS retaliates. A real-life example of this is once again during the First Gulf War. Iraq said that it would launch Scud missiles at Israel (“Geneva Meeting on Persian Gulf Crisis – C-SPAN Video Library” 1991). Iraq ended up launching 88 Scud missiles at various military targets, which caused civilian deaths and damage. It is not uncommon for rogue states to make threats of retaliation to try and dissuade would-be attackers.

The second component is the soft-power component. This is a negative impact on the status quo’s reputation, and influence in the international arena. For example, during the run-up to the Second Gulf War, the UN Security Council did not approve of the invasion. Numerous allies of the United States came out against the war. While the soft-power cost is not nearly as large as the human and equipment cost that happened during the Second Gulf War, it still had a negative impact on the U.S. c_2 or the cost to RS is similar, but not completely the same. It measures the cost that would result if and when the status quo power launches an attack against the rogue state. This again includes human and equipment

damages to the rogue state, but with less emphasis on damage to soft power due to the nature of rogue states. The fact that the rogue state is in a defensive status also lessens the cost to soft power. The rogue state is mostly concerned with making sure that they continue to exist, which is more important than what other states think of it. As the rogue state's main concern is to remain in control of its territory at all costs, the international community's opinions are not considered to be important by the RS in the game. The c_2 variable also takes into account the cost of a nuclear strike if the SQP decided to launch one. This cost variable has to do with the costs that would come with a nuclear first strike that would be unique to that type of strike. A nuclear first strike would result in a smaller initial cost in human life for the attackers and lower damage to the attacker's equipment due to the strikes being carried out with ballistic missiles and/or cruise missiles.

I assume that the status quo power will strike the rogue state's nuclear capability to degrade it in hopes of a reduction in the rogue state's nuclear capacity. If the rogue state had a workable nuclear force, then it would almost certainly be used in response. This response does not have to be directed at the status quo power, it could be directed at a regional ally of the status quo state or other important location that would still exert some cost on to the status quo power. For example, If the United States attacked Iran and Iran wanted to retaliate, their options are limited by their military capabilities. They could not reliably attack the United States due to the distance between the two, but they could attack an ally in the region like Israel or Saudi Arabia. It is possible that terrorists could be used to strike the US like in the past. I am explicitly not modeling that, as I am interested in direct actions between the SQP and the RS. Iran could also close the Strait of Hormuz and throw the world

economy into chaos. It could also attack a US military base in the area which would result in a high cost to the US, but not as high as a direct attack on the U.S. homeland.

The last cost variable c_3 is the cost that would be placed upon the status quo power if they launched a nuclear first strike. The cost incurred after a nuclear strike is different because of the “nuclear taboo” that has existed since 1945. Tannenwald defines the nuclear taboo as “a de facto prohibition against the use of nuclear weapons.” (Tannenwald, 1999). She gives examples of “anomalies” that the nuclear taboo explains. After 1945 and before the Soviets developed a nuclear deterrent of their own, the United States did not launch a nuclear strike against the Soviets. During the Vietnam and First Gulf War, the United States did not launch a nuclear strike on states that would have no way to retaliate. In each of these examples, nuclear weapons could have resulted in a high cost upon the intended target, and a low cost to the attacking state in materials and manpower.

An example of the nuclear taboo is during the Iraq war in 2003. The United States launched an attack on a location where Saddam Hussein was thought to be. “US military reports claimed one of Saddam Hussein’s houses was hit by the 40 cruise missiles and bombs that were dropped in the strike.”(Sydney Morning Herald, 2003). In the end, one bomb missed its target completely and three others did not strike their intended targets but did manage to hit other targets in an odd coincidence (Roberts, 2003). The main palace was missed completely and according to a US Army colonel, occupants could have survived (Roberts, 2003). In the process of this strike, one civilian was killed, and 14 others were hurt (Sydney Morning Herald, 2003). This attack did not achieve its intended goal of destroying the target and in the process killed civilians. A nuclear strike upon this target would have resulted in its complete destruction and the surrounding area. In this area, the goal would

have been met, but the toll of non-military targets would have been in the millions since this target was in a suburb of Baghdad, which has a population of 8 million people. The reason that a nuclear strike was not launched was that the United States believed that there would be a great normative cost that would accompany the nuclear strike. Even with the almost complete certainty that a successful nuclear strike would have destroyed the target, the normative cost of killing millions of civilians was too high for a nuclear strike to be considered. This is why nuclear strike needs a separate variable to a conventional strike. The nuclear taboo is so significant that a distinction needs to be made.

The reason that I use infinity and infinity minus one for SQP payoffs if RS capitulates, and negative infinity and negative infinity plus one for RS payoffs if it capitulates is that I am assuming that capitulating is the worst option. My model is not focused on the capitulation option as I am interested in studying the status quo rogue state's relationship where the rogue states will not give in. But at the same time, I believe it still needs to be modeled. In the eyes of SQP, RS capitulating after a conventional first strike is the preferred option out of the two as the radiation that results from a nuclear strike would cause issues for SQP if they decided to occupy RS' former territory. This action gets a minus one attached to the infinity to show that SQP has a preference. A conventional first strike is the best possible outcome as the objective of removing the threat from the rogue state is fulfilled without the before mentioned radiation. This action does not have something attached to the infinity payout as SQP prefers this option over all others. On the other hand, RS capitulating as the result of a conventional first strike is the better of the two possible payoffs. Being defeated is better than being defeated and having to deal with nuclear fallout.

That is why capitulating after a conventional strike has an attachment of plus one to the infinity to show the preference of RS.

Payoffs

Table 3.1 *Payoffs for each potential outcome*

Move	CFS to NR	CFS to CR	CFS to CAP	NFS to CAP	NFS to CR	NFS to NR
Outcome for SQP	$p_1 - n_2 * c_1$	$p_1 - c_1$	∞	$\infty - 1$	$n_1 * p_1 - c_3$	$n_1 * p_1 - n_2 * c_3$
Outcome for RS	$n_2 * p_2 - c_2$	$p_2 - c_2$	$-\infty + 1$	$-\infty$	$p_2 - n_1 * c_2$	$n_2 * p_2 - n_1 * c_2$

My game has six theoretical outcomes, but four potential ones as the payoffs for capitulation are designed so that they are never selected. They all include inputs from both players. The six different outcomes have varied payoffs depending on the numerical values assigned to each. If SQP strikes RS conventionally and RS responds with a nuclear response, then the payoff is $p_1 - n_2 c_1$ for SQP and $n_2 p_2 - c_2$ for RS. The SQP payoff is the probability of a successful conventional strike subtracted from the costs incurred from the RS strike with a nuclear modifier. The RS payoff is the probability of a successful strike with a nuclear modifier subtracted from the costs incurred from the SQP conventional strike. If SQP strikes RS conventionally and RS responds with a conventional response, then the payoffs will be $p_1 - c_1$ for SQP and $p_2 - c_2$ for RS. If neither strike uses nuclear weapons, no nuclear modifier is needed, and both payoffs reflect the possibility of a successful strike subtracted from the cost

incurred from the strike from the other player. The payoff for SQP using a conventional strike and RS surrendering in response is ∞ for SQP and $-\infty + 1$ for RS. This payoff for SQP is the best possible outcome, and this payoff for RS is the worst possible outcome in the game which is shared with all outcomes that involve RS capitulating. The payoff for SQP using a nuclear strike and RS surrendering in response is $\infty - 1$ and $-\infty$ respectively. The payoff for SQP launching a nuclear first strike is $n_1p_1 - c_3$, and the payoff for RS for responding with conventional forces is $p_2 - n_1c_2$. The payoff for SQP has a nuclear modifier on the probability of a successful strike which is then subtracted from the cost of striking RS with nuclear weapons. The RS payoff has the probability of a successful strike subtracted from the cost of the SQP nuclear strike. The last payoff for my game is $n_1p_1 - n_2c_3$ for SQP and $n_2p_2 - n_1c_2$ for RS. This payoff details SQP striking first with nuclear weapons and RS responding with nuclear weapons. This means that the payoff for both players have nuclear modifiers on the probability of a successful strike and a nuclear modifier on the cost that they incur from the other player's attack.

CHAPTER 4. SUMMARY OF RESULTS

Table 4.1 *Summary of Results*

SQP action	SQP	RS action	RS	Outcome
SQP picks CFS if	$p_1 \leq \frac{c_3 - c_1}{n_1 - 1}$ <p style="text-align: center;">&</p> $p_1 > c_1$	RS picks CR if	$n_2 = 1$	Conventional War
SQP picks NFS if	$p_1 > \frac{c_3 - c_1}{n_1 - 1}$ <p style="text-align: center;">&</p> $p_1 > \frac{c_3}{n_1}$	RS picks CR if	$n_2 = 1$	One-sided Nuclear War
SQP picks CFS if	$p_1 \leq \frac{c_3 * n_2 - c_1 * n_2}{n_1 - 1}$ <p style="text-align: center;">&</p> $p_1 > c_1 * n_2$	RS picks NR if	$1 < n_2 \leq 2$	One-sided Nuclear War
SQP picks NFS if	$p_1 > \frac{c_3 * n_2 - c_1 * n_2}{n_1 - 1}$ <p style="text-align: center;">&</p> $p_1 > \frac{c_3 * n_2}{n_1}$	RS picks NR if	$1 < n_2 \leq 2$	Total Nuclear War
SQP picks NMA if	If none of the above options are possible then SQP defaults to NMA	RS does not have a move		Status quo is continued

I use subgame perfect equilibrium to analyze my game. The game is played in a sequential method. All players have complete and perfect information. My game ignores knife edge cases as I don't feel that they are important to the game. The game has one subgame perfect equilibrium, with five different potential outcomes depending on the values used in the model. The table shows the optimal moves for each possible path that each player would pick. The table starts on the left with the actions that SQP can take. The second column includes the conditions for each of the SQP actions. The third column includes the actions that RS can take. Column four contains the conditions for each of RS's potential moves. Column five contains the five possible outcomes that my game predicts. The equilibrium that is shown in the above table describes how SQP and RS make their decisions. The decisions that SQP make are based on how the possibility of a successful strike relates to the other variables, and if the benefit is higher than the cost. SQP does know if RS has nuclear weapons or not and that allows SQP to compare two outcomes instead of all four. For example, if the United States decided that diplomacy has completely failed with Iran, the only way to deal with Iran would be to launch a military strike. As Iran does not have a nuclear weapons capability, Iran could not respond with a nuclear strike. This means that the United States compares a nuclear first strike followed by an RS conventional response, with a conventional first strike followed by an RS conventional response.

The other two options of a nuclear first strike followed by an RS nuclear response and a conventional first strike followed by an RS nuclear response are theoretically possible., However, a nuclear response by a state without a nuclear capacity would be no different from a conventional one. A rogue state that has nuclear weapons will respond with nuclear weapons, thus, SQP is comparing a conventional strike with a nuclear response, and a

nuclear strike with a nuclear response. Once again only three possible results exist for that situation. For example, if the SQP is considering a strike upon a rogue state without nuclear weapons, they are comparing a nuclear strike and a conventional strike with the knowledge that RS can only respond with a conventional response. The equation that SQP uses to decide what to do is $p_1 > \frac{c_3 - c_1}{n_1 - 1}$. This originates from $n_1 p_1 - c_3$, which is the payoff for SQP for a nuclear first strike followed by a conventional response, and $p_1 - c_1$, which is the payoff for SQP for a conventional first strike followed by a conventional response. The SQP compares these two payoffs ($n_1 p_1 - c_3 > p_1 - c_1$ is then simplified down to $p_1 > \frac{c_3 - c_1}{n_1 - 1}$) and makes a decision based on the outcome. If p_1 is greater than the difference in the cost of a nuclear strike and a conventional strike divided by the nuclear capacity minus one, then a nuclear strike is the preferred option. If p_1 is smaller than a conventional strike is the preferred option. The next step is to make sure that the selected strike is a good decision.

The possibility of success must be higher than the cost of the strike to the SQP to warrant taking that specific action. Applying the decision making from above, if SQP found that the preferred option is a conventional strike, then they would need to make sure that that strike would be beneficial. This is done by making sure that conventional strike payoff of $p_1 - c_1$ is greater than zero ($p_1 - c_1 > 0$ which is simplified down to $p_1 > c_1$). If p_1 is greater than c_1 then the possibility of a successful strike outweighs the cost and that is the action to be taken. If the possibility of success is greater than the cost of the strike that is preferred by the state, then that action is taken, and RS gets to respond.

In comparison to the status quo power, the rogue state has the same number of variables as SQP, but the only variable that matters is the nuclear capability of the RS. The two options that RS can pick from are a nuclear response and a conventional response.

Theoretically, RS has a third option of capitulating, but this option has the payoffs of $-\infty$, and $-\infty + 1$ and will never be selected. As for the other two possible options, both depend on where the nuclear capability of the rogue state lays on the spectrum that ranges from no nuclear program to a modern nuclear weapons program that can accurately hit any location in the world. For the conventional response to happen, nuclear capability has to be nonexistent. This occurs when $n_2 \leq 1$. The second option is a nuclear response. The nuclear response requires a nuclear capability to be on the range from a workable nuclear weapon with a rudimentary but effective delivery system to a modern nuclear weapons program that can be accurately delivered to any location in the world. This occurs when $1 < n_2 < n_2 \leq 2$.

CHAPTER 5. IMPLICATIONS

The moves that RS makes are dictated by its level of nuclear capability. RS will always respond with nuclear force if they have the capability to do so. In my game, the SQP will always have the goal to remove the RS from power if they decide to attack conventionally or with nuclear forces. This means that the rogue state will have to respond. Standing idly by and watching as the bombs fall and the tanks roll up is not a good strategy if its desire is to survive as a sovereign state. If the exact value is if $n_2 = 1$ then RS will respond with conventional forces, and, if it is $1 < n_2 \leq 2$, then RS will respond with nuclear weapons.

Implication 1: If a rogue state is attacked and has nuclear weapons, it will always use them in retaliation.

RS does not have the option to decide if they want to retaliate or not, because capitulation is always the worst option. This means that RS is forced to pick between a nuclear and conventional strike. If RS does not have nuclear weapons, then it is not possible for it to retaliate with such weapons and will always respond with conventional forces. If they do have nuclear weapons, then they will always respond with them owned to the threat the attack from the SQP poses. As I have defined earlier, the SQP attack strikes at the heart of RS' ability to continue to rule its territory. RS will want to prevent annihilation at all costs and will fight back using any means at its disposal. This follows the "use it or lose it" idea that if the RS government thinks that it is at risk of losing its nuclear weapons then, they will use them. The SQP will know this and will react accordingly.

Algebraically, I can prove this if SQP decides that it is going to launch a conventional strike on RS. RS can capitulate, respond with nuclear weapons, or respond with

conventional weapons. RS will not capitulate as that is always the worst option. In deciding between responding with nuclear weapons and responding with conventional weapons, the payoffs RS compares is $p_2 - c_2$ the RS payoff for a conventional response and $n_2 * p_2 - c_2$ the RS payoff for a nuclear response. For RS to pick a nuclear response, it has to be higher than conventional response or $n_2 * p_2 - c_2 > p_2 - c_2$. This inequality can be simplified to $n_2 > 1$. If the nuclear capacity of RS is higher than 1, then the payoff for a nuclear response is higher than the payoff for a conventional response. As the range for RS to be a nuclear state is from $1 < n_2 \leq 2$, a nuclear RS will always have a nuclear capacity of greater than 1. This means that any nuclear capable RS will use nuclear weapons in a response regardless of the type of weapons that are used in the SQP attack.

China released *China's National Defense in 2006*, declaring “China upholds the principles of counterattack in self-defense and limited development of nuclear weapons and aims at building a lean and effective nuclear force capable of meeting national security needs.” (“National Defense Policy”, 2006) This quote is vague, most likely intentional, but it does support the idea that a country with a nuclear force would use nuclear weapons in self-defense. The Chinese have made it very clear that they will not use nuclear weapons first “China remains firmly committed to the policy of no first use of nuclear weapons at any time and under any circumstances.” The problem is, China says in the same paragraph that it “upholds the principle of counterattack in self-defense”, and “China remains firmly committed to the policy of no first use of nuclear weapons under any circumstances.” I have an issue with this statement on how vague the text is. The document does not define what weapons or methods would be used in a counterattack, or what would trigger one. (see appendix for the entire paragraph) Given how vague the text is, it is not unreasonable that a

first strike at the heart of China's ability to remain sovereign would lead to a nuclear response. It would not matter if the first strike is conventional or nuclear; the objective is what matters. China will do whatever it needs to do to protect its ability to rule and an attack on that would undoubtedly result in nuclear retaliation. The only calculation that matters is if China has a nuclear capability. If they do, RS will respond with nuclear force. If they do not, then they cannot respond with nuclear force and will respond with conventional force.

Implication 2: A Status Quo Power will launch a nuclear strike on a non-nuclear rogue state if the nuclear taboo can be overcome. If

$(c_1 + (n_1 * p_1) - p_1) > c_3$ then the nuclear taboo will be overcome.

As I described earlier, a difference between the cost of a nuclear strike and a conventional one is the nuclear taboo. Remember that the RS will not change its response based on how it is attacked, because they will always attack with the weapons they have. If they have nuclear weapons, then they will use them in defense of the state. What really drives the difference between the two cost variables for SQP is the taboo that goes along with using them. If the difference is large, then some type of normative barrier exists either internally or externally. This will require a higher possibility of a successful strike to warrant violating the taboo. If a state is confronted with a nuclear strike that has a small possibility of a successful strike and has a large difference in cost between a nuclear strike and a conventional one, then they are risking violating the taboo for a strike that may not even succeed. On the other hand, if the difference between the nuclear strike and the conventional strike is small, then the state can be less cost adverse as the taboo is significantly smaller.

I can show this algebraically. If SQP is deciding between launching a conventional strike or a nuclear strike on RS with the knowledge that RS does not have nuclear

capabilities, they have two options, launch a nuclear strike, or launch a conventional strike. The two payoffs for SQP in this situation are $p_1 - c_1$ for a conventional strike, and $n_1 * p_1 - c_3$ for a nuclear strike. For a nuclear strike to happen the payoff for a nuclear strike must be larger than the payoff for a conventional strike to happen or $n_1 * p_1 - c_3 > p_1 - c_1$. This can be rearranged to show how the cost for a nuclear strike or c_3 relates to the rest of the inequality or $c_1 + n_1 * p_1 - p_1 > c_3$. If the value of the cost of a conventional strike (c_1) is added to the possibility of a successful nuclear strike ($n_1 * p_1$) which is then subtracted from (p_1) is larger than the cost of a nuclear strike (c_3). It is possible for a nuclear first strike to occur against a non-nuclear state.

To see the nuclear taboo in action you only need to see how the United States acted during the 2003 invasion of Iraq, and in comparison, to the potential invasion of Japan in 1945. If the United States had decided to launch a nuclear first strike on Iraq, it would have been terribly effective. Saddam Hussein's ability to remain in power would have been completely destroyed. In the process, citizens and soldiers would have been killed in the millions. As callous as it is to say, this does not exert a direct cost upon the United States. However, it does exert a normative cost so high that it cannot be fathomed. By direct cost upon the United States, I mean the loss of troops, equipment, or a physical loss felt directly upon the United States. The wholesale killing of those on the ground in the nuclear strike on Iraq could and should be judged as a large cost, just not a direct physical one upon the United States. Given the right leadership in the SQP, then the normative cost that goes along with a nuclear strike could be similar to the cost that comes from a conventional strike if little to no value is given to the lives of the Iraqi citizens around the strike locations. Hopefully, the difference in the cost of a nuclear strike and a conventional strike is large enough that a

possibility of success would not warrant that action. On the other hand, the dropping of the two nuclear bombs on Japan is an example of when the difference between the cost of a nuclear strike and a conventional strike was very small and even resulted in a conventional strike cost that was higher than the nuclear one.

On the evening of March 9th, 1945 325 B-29s dropped 1,600 tons of incendiary bombs on Tokyo (Crane, “Firebombing”). 100,000 Japanese were killed and another 1,000,000 were left homeless (Crane, “Firebombing”). Tokyo was burned to the ground. The cost to the United States was 14 B-29 aircraft and their crews which did not return. On August 6th, 1945, and August 9th, 1945, two atomic bombs were dropped on Hiroshima and Nagasaki. 129,000–226,000 estimated Japanese were killed, and Hiroshima and Nagasaki were left in ruin. The United States lost 12 POWs who were on the ground in the two cities. When Emperor Hirohito gave his Imperial Rescript Ending the War, he had this to say “the enemy has recently used a most cruel explosive. The frequent killing of innocents and the effect of destitution it entails are incalculable. Should we continue fighting in the war, it would cause not only the complete Annihilation of our nation, but also the destruction of the human civilization.”(Wetherall, 2008). The cost difference between the dropping of the nuclear bombs on Hiroshima and Nagasaki and the incendiary bombs on Tokyo shows that the firebombings (conventional weaponry) were costlier for the United States since aircraft and airmen were lost in the incendiary attacks.

The possibility of success of the nuclear bombs was lower because the previous test of the nuclear bomb was a stationary one and not air dropped. Hiroshima was the first use of a nuclear bomb in combat and its reliability was unknown. The bombs used in the Tokyo firebombing raid were battle-tested. Specifically, given the same circumstances, i.e. clear

cloudless day, well trained competent pilots, well-maintained working aircraft, the possibilities of success were higher for the method of attack that has been proven to work in the past which was conventional firebombing. On May 31, 1945, a committee made up of atomic scientists and military generals including Robert Oppenheimer, General Marshall, and General Groves agreed that there was still a possibility of a nuclear dud since the test of the first type was of a stationary device, not an air-dropped bomb (Newman, 1995). The United States had in the past utilized firebombing to attack strategic targets, while the nuclear bomb had never been utilized in a combat setting. The largest difference between the Japanese case and the Iraq case is that the nuclear taboo did not exist prior to Hiroshima and Nagasaki. The vast majority of the world did not know they existed until they were dropped. The difference between the costs of a nuclear strike and a conventional one was zero in this case. This allowed the lower possibility of a successful nuclear strike to be used.

The final result was the unconditional surrender of Japan. After the nuclear strikes on Japan, Field Marshal Shumroku who was stationed in Hiroshima in 1945 said this after the war, “We intended to stand and fight on the beaches...However, when the atom bomb was dropped on Hiroshima, I believed there is nothing more we can do, we might as well give up.” (Newman, 1995) Baron Hiranuma Kiichiro who was the president of the Privy Council which advised the Emperor said, “The biggest factor...there came the atomic bomb so that the country was faced with terrible destructive powers and Japan’s ability to wage war was really at an end.” (Newman, 1995) Lastly, the Japanese chief cabinet secretary at the end of the war Sakomizu Hisatsume said this “The chance had come to end the war. It was not necessary to blame the military side, the manufacturing people, or anyone else-just the atomic bomb.” (Newman, 1995) Not only does the nuclear bombing of Japan fit my model,

but it also proves that a nuclear first strike can be seen as a viable option in a world that mainly sees nuclear weapons as a deterrence only.

Implication 3: Once a Rogue State achieves a nuclear capacity, it will not give it up willingly.

To show this algebraically, I will start with the payoffs for an RS retaliation against a nuclear attack. They will never pick capitulation since that is always the worst option. The two remaining options are conventional retaliation and nuclear retaliation. I have already shown that the RS will always pick nuclear retaliation over conventional retaliation if they have the capability. The payoff of a conventional retaliation is $p_2 - n_1 * c_2$ and the payoff of a nuclear retaliation is $n_2 * p_2 - n_1 * c_2$, which can be simplified down to $n_2 * p_2 > p_2$. As the nuclear variable will always be greater than one for a nuclear capable RS, the left side of the above inequality will always be larger than the right side of the inequality. The nuclear retaliation option will always have the higher payoff for a nuclear capable state. A rational actor will never willingly or knowingly move from a higher payoff to a lower one. Thus, once a nuclear capacity is achieved, it will never be given up willingly by a rogue state.

CHAPTER 6. NORTH KOREAN COLLAPSE?

The United States has been planning for the collapse of North Korea since the first Bush administration and its collapse is still the dominant opinion today (Park, 2012). I have heard in discussions with members of US Stratcom: The North Korean regime will collapse for several reasons. This long-held idea that North Korea will come crashing down due to economic collapse, democratic uprising, or something else is at best a policy crutch, and at worst a result from an inability to understand North Korea.

In the early 1990s, former U.S. commander in Korea General Robert Riscassi was known to say North Korea would soon “implode or explode” (Park, 2012). General Gary Luck who was the commander of US forces in Korea expanded on this saying “North Korea will disintegrate, possibly in very short order” (Park, 2012). In 2003 Paul Wolfowitz said, “North Korea is teetering on the brink of collapse” (Park, 2012). In 1997 the CIA invited subject matter experts to meet with government officials to discuss North Korea. They came to the conclusion that North Korea would collapse in five years’ time or less (Park, 2012). It seems that North Korea has been on the verge of collapse for more than 20 years.

All of these individuals failed to take into account that North Korea is a unique case. North Korea was formed after the Japanese were forcibly removed from Korea and the North and South were partitioned to reflect Soviet and American spheres of influence. Kim Il Sung was chosen by the Soviets to lead the North because he was a young and well-liked guerrilla fighter, who also subscribed to socialistic ideals (Grezelczyk, 2018). Sung led North Korea with the help of the Soviet Union and China to invade the South to try and unify the Koreans.

It is during the struggle against the Japanese and the struggle against UN forces during the Korean War that the doctrine of Juche was born. Juche is a Kim Il Sung creation

that started out as a modification of Confucianism and morphed into something more (Park, 2012). It started with two fundamental ideas, one being that humanity is the center of the universe and that the state is part of every North Korean family and takes the place of the father (Park, 2012). North Korea made Juche a reality by continually pushing military self-defense, economic self-subsistence, and political sovereignty (Park, 2012). This does not sound all that unique on the international stage, but the history of North Korea reveals that it is unique.

In the beginning, Juche was an idea that was an outgrowth from the Japanese occupation of the Korean peninsula. Sung argued that Korea as a whole needed to band together and push out the Japanese invaders, but at the same time North Korea was weak and relied on the USSR, China, and other communist countries (Park, 2012). As soon as the Japanese were defeated, the USSR and The United States moved on to the peninsula and another conflict started. North Korea wanted to reunify the Korean peninsula and had the support of both China and the USSR in trying to do so. However, the Korean War ended in a stalemate and arguably North Korea ended up in a worse situation with US troops permanently stationed in South Korea and their two patrons nearly fighting a war in the Sino-Soviet split (Park, 2012). North Korea did not want to take a side during the Sino-Soviet split because siding with one would only anger the other. The policy result was the idea of self-reliance and strong political sovereignty which North Korea thought was necessary to make sure that they could continue to exist and has been a foundational idea ever since.

At this point in the 1960s, Juche was an idea that North Korea could not rely on other nations to preserve its existence. North Korea actually had a stronger economy than South Korea, and that brought a measure of stability (Park, 2012). During this time Kim Il Sung

wanted to further strengthen North Korea's ability to remain in control of its territory, and his ability to remain in control of North Korea (Park, 2012). This manifested into an extreme form of nationalism that was ultimately the reason that North Korea was not one of the "Asian Tigers" that rose to prominence during the 1970s (Park, 2012). North Korea saw an export-based economy as unbalanced and got in the way of Kim Il Sung's desire to develop North Korea's military strength to the detriment of everything else (Park, 2012). His reasoning was that if he could not guarantee North Korea's sovereignty, then everything else was pointless. His end goal was not the prosperity of his country, it was self-reliance in every area.

A direct outgrowth of this unrelenting push for self-reliance was the implementation of hereditary succession and the shielding of the North Korean populace off from the world (Park, 2012). The idea that the state was the paternal figure in North Korean society was then changed to mean that Kim Il Sung's whole family was meant to rule in a hereditary fashion (Park, 2012). The shielding of the North Korean populace from the world forced the Korean people to look inward to build up the North Korean economy to support itself (Park, 2012). The idea of self-reliance was forced upon North Korea not only by the ideas that the government of North Korea espoused but also by the loss of the support of the Soviet Union after it collapsed, China after it was reformed after Mao, and increasing sanctions by western powers (Park, 2012). Kim Il Sung thought that the best way forward was for North Korea to become completely self-reliant and forced the country into being blocked off from the world. This in turn inadvertently prepared them for the loss of their two closest allies in the Soviet Union, and Maoist China, and the increasing pressure from outside powers. No country in

the world is better prepared to be cut off from the world than the one that has isolated itself off since its birth.

The last and most recent modification to Juche was a push toward a military-first political system called Songun (Park, 2012). Under Songun, every other part of political and societal life comes second to the military. Park compares the military in North Korea to the brain of the nervous system. “All policy goals are articulated by the military, and they are disseminated to other organizations with specific strategic and tactical recommendations for implementation. Once policies are implemented, their effectiveness is evaluated by the military.” (Park, 2012) Not to be left out, the current Supreme Commander of the North Korean military is Kim Jong-un. The military has its hands in everything, the military is the head of the political system, provides goods and services to the people, solves all problems big and small, is the head of the revolutionary struggle, the creator of culture, and the example for all North Koreans. Park visited North Korea in 2009 and interviewed a farmer on the topic of Songun. “It is the military that makes farming possible, as the soldiers come into the village to work on a whole range of farming from toiling soil, seeding, irrigation, and harvesting...[the military] not only protects the people’s lives from foreign hostility, and also delivers food and services.” (Park, 2012) What farming North Korea does have depends on the military to function. The people are supposed to trust the military in every way, which creates a dependence on the military to solve all problems large or small.

Juche and Songun are to North Korea, what Life, Liberty, and the Pursuit of Happiness is to the United States. Without a firm understanding of Juche and Songun, you do not have a firm understanding of North Korea. The North Korean system is built to be self-reliant by all means, so the addition of outside restraints like sanctions are never going to

work as well as they do on other countries. What does it matter if an external source implements restrictions? North Korea will simply continue to muddle through, content to ignore the “impending collapse”.

If the populace of North Korea is perpetually poor and dependent on the government, why do not they rise up and try and topple the Kim family? Blaine Harden in 2010 wrote a piece for the Washington Post saying, “There is mounting evidence that Kim Jong Il is losing the propaganda war inside North Korea, with more than half the population now listening to foreign news, grass-roots cynicism undercutting state myths and discontent rising even among elites.” (Harden, 2010) In Bennett’s book *Preparing for the Possibility of a North Korea Collapse* he cites a “study” from Inquirer.net a Filipino newspaper that found that “roughly half of North Koreans have access to foreign news or entertainment” seemingly reaffirming this idea that North Korea’s citizens are no longer beholden to the Kim regime’s propaganda (Bennett, 2013). The problem with these two studies and most all information on North Korean resistance is that the information is based on interviews of people who have escaped from North Korea. This creates a selection bias in that only those who escape are used as data points, and it is impossible to verify the statements that come from the North due to the closed-off nature of the country. However, that does not alter the predictions of a North Korean regime overthrow as a policy. Here we are nearly ten years later, with North Korea having gone through almost continual famine, a change in leadership, and even more pressure from the outside world and North Korea continues to muddle forward.

The reliance on the North Korean government collapsing from economic pressures, or an uprising is no longer a viable policy for the United States government. North Korea has proven time and time again that it will continue to push forward in spite of everything. Their

overarching goal is to continue to exist. They want the bare minimum and have proven over their 71-year rule that they can meet that goal.

CHAPTER 7. HISTORY OF NORTH KOREA'S NUCLEAR PROGRAM

The reason for the North Korean nuclear program can be traced back to the US nuclear bombing of Japan during the second world war. Kim Il Sung saw how the US was able to defend Japan and decided that North Korea needed that power to defend itself (Park, 2012). The process toward a nuclear bomb was started when North Korea started the Atomic Energy Research Institute and the North Korean Academy of Science (NTI, 2018). Real work was started in the 1960s after the Soviet Union agreed to share nuclear technology and training with North Korea (NTI, 2018). North Korea then constructed the Yongbyon Nuclear Research Center and the Soviet Union helped install an IRT-2000 nuclear research reactor (NTI, 2012). In the 1970s North Korean nuclear technology had progressed to the point that they could successfully modify the research reactor given to them by the Soviet Union, and the Soviet Union gave further assistance by the transfer of nuclear technology related to the reprocessing of plutonium (NTI, 2018). In 1977 North Korea signed a trilateral agreement with the International Atomic Energy Agency (IAEA) and the Soviet Union that brought the Yongbyon complex under IAEA safeguards (NTI, 2018). At this point, the North Korean nuclear program was relatively basic and was under the safeguards of the IAEA.

The 1980s brought great progress to the North Korean nuclear program. In the early 1980s, North Korea built facilities designed to refine and fabricate fuel rods that would work with a uranium nuclear reactor, all of which was of North Korean design (NTI, 2018). Most worryingly, North Korea started testing explosives that would be needed to trigger a nuclear device. This was the first indicator that the North Korean program was looking to go from a civilian one with the intent to produce research and electricity, to one that was interested in a nuclear weapon. North Korea also started building a much larger reactor and additional

processing facilities that would enable more nuclear work to be done in a faster manner (NTI, 2018). During this time of advancing North Korean nuclear technology, North Korea also sought outside assistance to acquire light water reactors which would allow them to expand their research efforts (NTI, 2018). However, in 1985 when North Korea signed the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) in exchange for the Soviet Union assistance in building light water reactors (NTI, 2018). This was the first evidence that North Korea was interested in nuclear weapons and further steps to develop them and further advancement of research and reprocessing facilities. Nevertheless, North Korea declared that it would be a non-nuclear state by signing the NPT.

In 1991 the United States removed all of its nuclear weapons from South Korea, and later that year North and South Korea signed the Joint Declaration on the Denuclearization of the Korean Peninsula which said that neither would “test manufacture, produce, receive, possess, store, deploy or use nuclear weapons.”, and would not possess “nuclear reprocessing and uranium enrichment facilities.” (NTI, 2018). The last and most important part of the agreement provided for bilateral inspections, which both sides agreed to have, but did not agree on how they would be implemented (NTI, 2018). Owing to the failure of the two sides to agree on the implementation of the inspections, the agreement was in effect useless and nothing became of it.

In 1992 North Korea agreed to an IAEA inspection regime and declared sites for inspection (NTI, 2018). The IAEA inspected the declared sites but found issues during their investigation and requested access to more locations that were thought to be reprocessing plutonium (NTI, 2018). North Korea declared these sites to be military locations which, by the agreement, meant that they could not be inspected (NTI, 2018). The IAEA further

pushed for access to the suspected reprocessing sites, which caused North Korea to declare that they intended to withdraw from the NPT in 90 days (NTI, 2018). During this time the United States and North Korea discussed North Korea's official return to the NPT. On the day before the 90-day limit, North Korea agreed to stop their withdrawal from the NPT in exchange for bilateral talks with the US (NTI, 2018). During the 90 days that North Korea and the United States were discussing their return to the NPT, North Korea removed spent fuel rods from a reactor and "randomly" placed them in a storage pond which removed the possibility that the inspectors could gain any useful information from them (NTI, 2018). This was not a random action; North Korea was trying to hide evidence that they were not in compliance with the NPT. In reaction, the US announced that they would ask the UN Security Council to impose economic sanctions (NTI, 2018). North Korea responded with a statement that sanctions would be an act of war (NTI, 2018). This was the first crisis related to the North Korean nuclear program.

The crisis was resolved when former President Carter met with Kim Il Sung and negotiated the Agreed Framework in 1994 (NTI, 2018). The agreement said that North Korea would freeze work on a set number of reactors and other nuclear facilities, allow the IAEA to monitor this freeze, "consistently take steps to implement the North-South Joint Declaration on the Denuclearization of the Korean Peninsula," and remain in the NPT framework (NTI, 2018). The US would construct two light water reactors designed to generate electricity, provide 500,000 tons of oil a year, and make "formal assurances against the threat or use of nuclear weapons by the U.S." (NTI, 2018). In the end, the Agreed Framework did not go anywhere as North Korea continually delayed inspections, and the US dragged its feet on the construction of the two light water reactors that they promised to build

(NTI, 2018). This failure was identified in 2001 when the Bush administration declared that the US should look for an “Improved implementation of the Agreed Framework, verifiable constraints on North Korea’s missile program, a ban on missile exports, and a less threatening North Korean conventional military posture.” Most worrying was the transfer of technology used in the enrichment of uranium to weaponizable levels from Pakistan in exchange for missile technology (NTI, 2018). North Korea then built a uranium enrichment facility in secret to begin the work of enriching uranium to a high level (NTI, 2018). The Agreed Framework is no longer agreed upon, and after some black-market arms deals, North Korea was on the trail of a nuclear device.

After the Agreed Framework collapsed, the US and North Korea started bilateral talks in which the US confronted North Korea with evidence of the uranium enrichment, and North Korea admitted to the program then later changed their admission to only planning to produce nuclear weapons, which they claimed was part of its right to self-defense (NTI, 2018). This push to develop nuclear weapons culminated in 2003 when North Korea took the fuel rods that were placed in a temporary pond in 1992 and started to reprocess them which, according to a North Korean official, would allow them to end up with enough plutonium for four to six nuclear bombs (NTI, 2018). North Korea further frustrated the U.S. by inviting U.S. inspectors to confirm that the fuel rods had indeed been moved from the storage location (NTI, 2018). In response to tension, a multilateral discussion between North Korea, the US, and China started in April of 2003. In August of 2003, the talks were expanded to include South Korea, Japan, and Russia (NTI, 2018). Three rounds of talks were held and then talks broke down for a year due to tension between the US and North Korea (NTI, 2018). During this breakdown, there is evidence that North Korea further

reprocessed spent fuel rods that ended up processing enough material for up to three nuclear bombs, but this was never confirmed (NTI, 2018). A little over a year later the six-party talks broke down. They started back up and the end result was the Statement of Principles (NTI, 2018). North Korea stated that they would abandon its nuclear weapons programs, return to the NPT, and follow the IAEA safeguards at “an early date” (NTI, 2018). The United States stated that they had no intention of attacking North Korea with conventional or nuclear weapons and reaffirmed that no US nuclear weapons were in South Korea (NTI, 2018). All parties agreed that the 1992 Joint Declaration on the Denuclearization of the Korean Peninsula which prohibited uranium enrichment and plutonium reprocessing would be reinforced (NTI, 2018).

The Statement of Principles lasted a good couple of months before disagreements started to arise over when and what light water reactors meant for the creation of electricity were to be installed (NTI, 2018). The United States also sanctioned a bank that helped North Korea take part in illegal transactions, resulting in North Korea declaring that until these sanctions were lifted, they would not stop their nuclear program and all talks ceased (NTI, 2018). Then in 2006, North Korea shocked the world when they tested their first nuclear bomb, which was a small one-kiloton bomb that was intended to be four-kilotons (NTI, 2018). North Korea still had work to do in terms of getting the yield they wanted, but the test was successful and that forced everyone back to the table. The United Nations Security Council imposed international sanctions and the Six-Party talks resumed (NTI, 2018). Several months after this an agreement called the Initial Actions for the Implementation of the Joint Statement, where North Korea had 60 days to stop all nuclear weapons programs under the watch of the IAEA, and the US would resume sending oil to North Korea and

would release twenty-five million dollars that were held from the bank that was sanctioned earlier in the peace process (NTI, 2018). Everything seemed to be going well with North Korea following the Initial Actions for the Implementation of the Joint Statement and North Korea even agreeing to another deal called the Second Action Plan. The Second Action Plan called on North Korea to declare all remaining nuclear weapon sites (NTI, 2018). North Korea missed the deadline for the declaration by six months and once the declaration was made, they left out large enrichment programs, and a nuclear program that North Korea was taking part in with Syria (NTI, 2018). Despite these issues, the Bush administration lifted sanctions, and North Korea responded by destroying a cooling tower for one of their reactors (NTI, 2018). Then North Korea backtracked and started to rebuild what was destroyed up to that point because of delays in the US removing sanctions. The U.S. resumed the removal of sanctions and North Korea stopped the rebuilding process. (NTI, 2018). The Six-Party talks resumed with the idea of finding a way to verify the disabling of North Korea's nuclear program, but again the Six-Party talks stalled and broke down after no progress (NTI, 2018). The U.S. had made no progress on stopping and removing North Korea's nuclear program, and North Korea made huge progress toward a credible nuclear deterrent.

In 2009 North Korea tested several new rockets leading to increased tensions, which led North Korea to test a second nuclear weapon that they claimed and estimated to be 4 kilotons (NTI, 2018). The UN Security Council reacted with more sanctions, which in response North Korea declared that they would resume the enrichment of uranium, and they would not return to the Six-Party talks (NTI, 2018). During 2010 and 2011 no new nuclear weapons were tested, but North Korea sank a South Korean naval vessel killing 46, and shelled Yeonpyeong Island killing 4 (NTI, 2018). Also, a new reactor was confirmed to be

in the process of being built, along with a new enrichment facility (NTI, 2018). In March of 2011, North Korea announced a willingness to start the Six-Party talks up again, but this was put on hold as Kim Jong-Il died and Kim Jong-Un came to power (NTI, 2018). North Korea then held bilateral talks with the United States that resulted in a stoppage of nuclear testing, enrichment of uranium, and long-range missile tests (NTI, 2018). The United States agreed to provide food aid in exchange, but the aid never arrived as North Korea tried to launch a satellite in orbit which the U.S. saw as a violation of the long-range missile test ban (NTI, 2018). North Korea was now on its third leader and had made two nuclear tests, and the U.S. making no progress on the removal of North Korea's nuclear program.

North Korea started 2013 off with a bang with its third test of a nuclear device, which it claimed to be a miniaturized device (NTI, 2018). In April of 2013, North Korea restarted a reactor and a uranium enrichment plant, which was confirmed with satellite imagery (NTI, 2018). Over two years passed before another large event happened, but in January of 2016 North Korea tested what it claimed to be a thermonuclear weapon, but that was largely met with international skepticism (NTI, 2018). Later that year North Korea announced that they were reprocessing spent fuel rods as part of plans for more plutonium-based nuclear weapons (NTI, 2018). In an unusual deviation from the norm, North Korea tested a second nuclear weapon in the same year in September of 2016. North Korea claimed this to be a weapon small enough to fit on top of a missile, but that was not confirmed internationally (NTI, 2018). Condemnations were made, sanctions were enacted, but no other actions were taken against North Korea (NTI, 2018).

2017 tensions really heat up between the United States and North Korea due to the newly elected President Trump making wild threats and North Korea responding with wild

threats. In July of 2017 North Korea tested an ICBM, and in August 2017 DIA intelligence leaked information that North Korea had successfully produced a miniaturized nuclear warhead that would fit on an ICBM (NTI, 2018). Following the wild threats and ICBM test, North Korea tested a sixth nuclear weapon in September of 2017 which was estimated to be in the range of 140 kilotons to 250 kilotons (NTI, 2018). This is significant as all of the past tests were on the range of 1 kiloton to 20 kilotons. North Korean ended the year with another test of an ICBM, afterward declaring they had “finally realized the great historic cause of completing the state nuclear force.” (NTI, 2018) North Korea then reached out to South Korea and the United States, holding bilateral meetings with South Korea first (NTI, 2018). The bilateral meeting with South Korea concluded with a joint statement saying that they “confirmed the common goal of realizing, through complete denuclearization, a nuclear-free Korean peninsula.” (NTI, 2018). North Korean then declared a halt to all nuclear and ICBM tests and closed a nuclear testing site by destroying tunnels where the bombs were detonated (NTI, 2018). The bilateral meetings with the United States and North Korea happened first in Singapore and second in Hanoi. The first meeting ended with a joint declaration and not much else (NTI, 2018). Kim Jong-un said that he would “work towards complete denuclearization on the Korean peninsula” but no one bothered to define what denuclearization meant. President Trump claimed, “there is no longer a nuclear threat from North Korea,” which is not a correct statement (NTI, 2018). The Hanoi talks did not even get to a joint statement with talks being cut short when President Trump gave Kim Jong-un a piece of paper saying that the U.S. wanted all of North Korea’ nuclear weapons and bomb fuel to be handed over to the United States (Wroughton, 2019). As of April 14, 2019, this hasn’t happened, and it does not appear it will. This is where the state of North Korea’s

nuclear program is at the moment: Six confirmed tests ranging from a basic device all the way up to a large sophisticated nuclear weapon that could be placed on an ICBM.

CHAPTER 8. WHAT HISTORY TELL US

Starting with the 1991 Joint Declaration on the Denuclearization of the Korean Peninsula and ending with the most recent Joint Declaration from the Singapore meeting, a pattern starts to emerge. The 1991 Joint Declaration on the Denuclearization of the Korea Peninsula said that North and South Korea would not “test, manufacture, produce, receive, possess, store, deploy, or use nuclear weapons.”. This is a thorough list of things that should be avoided, and it was initially a commendable agreement. This issue is that the inspection regime was not ever agreed upon, so the agreement was unenforceable, and thus nothing more than a piece of paper. Then in 1992, North Korea signed the IAEA safeguards agreement and when the IAEA asked to inspect nuclear locations, the IAEA thought North Korea was reprocessing plutonium. North Korea refused the inspection request and declared the nuclear locations off limits. The IAEA complained to the UN Security Council, and North Korea reacted with a declaration to withdraw from the NPT. The United States was able to convince North Korea to stop the withdraw and eventually return to the NPT, but it took over a year to do so (NTI, 2018). During this time North Korea was able to continue nuclear weapons research at a quick pace as they had kicked out the IAEA inspectors and was able to remove spent plutonium fuel rods out of sight of the IAEA, and able to reprocess them into weapons-grade plutonium. This was the first big crisis on the Korean Peninsula related to nuclear weapons.

The way that the U.S. got North Korea to agree to come back to the NPT was the Agreed Framework of 1994 which in exchange for the United States providing 500,000 tons of heavy fuel, two light water reactors, and a formal assurance that the U.S. would not use force. North Korea had to freeze reactor development, implement the 1991 Joint

Declaration on the Denuclearization of the Korean Peninsula, and remain a party to the NPT. Prior to North Korea declaring that they were going to withdraw from the NPT, North Korea's declared reactors were being monitored, the 1991 Joint declaration was being ignored, and North Korea was a party to the NPT while not following it. After the Agreed Framework North Korea's declared reactors were being monitored, the 1991 Joint declaration was ignored, North Korea was a party to the NPT while not following it. The only difference was that the United States was giving North Korea oil and a security guarantee to do the things that they were already doing. The U.S. never fulfilled its part of the deal to build light water reactors, and North Korea continually postponed inspections. The U.S. gained nothing, and North Korea gained fuel oil and a security guarantee. The U.S. got shaken down.

In 2001 the Bush administration reviewed U.S. policy toward North Korea and concluded that The Agreed Framework needed to be improved. Specifically, the administration thought that North Korea needed to be subject to more inspections, which of course North Korea refused. In the summer of the next year, U.S. intelligence found out that North Korea had several sites secretly producing uranium. North Korea was informed that the United States knew about this during a bilateral meeting, and the North Koreans admitted that the program existed. The U.S. suspended heavy fuel deliveries, and North Korea again continued its nuclear program overtly making progress and kicking out any remaining inspectors. North Korea left the NPT, and the agreed framework was dead. The Agreed Framework was effective in slowing down the production of weapons-grade plutonium but was completely ineffective in stopping the production of weapons-grade uranium. Both uranium and plutonium can be used in the production of nuclear weapons and stopping the development of one while the other continues was not a victory. North Korea was able to

stop the production of plutonium and make a show of this for inspectors while still working on their uranium program. The U.S. found out about the secret uranium production in 2002, but nothing is publicly known about how long that facility was functioning before its discovery. The Agreed Framework was not effective in stopping or even slowing down North Korea's nuclear weapons program. North Korea was not unlike a skilled magician: It was able to make a show of delaying the plutonium while holding the uranium card up their sleeve.

The next failed attempt to prohibit North Korea's nuclear program was the Statement of Principles that resulted after the fourth round of the Six-Party Talks. In a new record, the State of Principles fell apart a one month after they were agreed to after the U.S. sanctioned a bank accused of illegal dealings with North Korea. North Korea saw that as an aggressive move causing them to not follow through on anything that the Statement of Principles required them to do. Little over a year later in October of 2006 North Korea realized Kim Il-sung's dream of testing a nuclear weapon. All of the work leading up to this by the U.S. was for not, a rogue state became a nuclear power. The Six-Party Talks were quickly restarted, but a fundamental problem existed. The United States was still acting like they were negotiating with a pre-nuclear-capable North Korea. The Initial Actions for the Implementation of the Joint Statement was proof of this. North Korea had to abandon all nuclear weapons and programs, return to the NPT, and resume allowing inspections. For the entire existence of North Korea, the leadership saw nuclear weapons as vital to its ability to defend itself. The goal wasn't to test a nuclear weapon just for the heck of it. North Korea was going to continue to develop nuclear weapons until they realized the goal of a nuclear capacity that would act as a deterrent.

The goal for North Korea now was to deflect, deny, and delay until a nuclear deterrent could be realized. This started just after the Second Action Plan was signed that called for inspections to start up again. North Korea made a show of shutting down facilities at the Yongbyon location, but as we now know, North Korea has secret nuclear facilities, which were never declared and never inspected. North Korea made a show destroying a cooling tower for a reactor. On the surface, this seems to be a step in the right direction, but when talks broke down again North Korea was able to resume using the reactor by cooling it with river water that is right next to the complex. The destruction of the cooling tower was another elaborate show to delay the United States. In 2008 The Six-Party Talks broke down once again over how the inspections and verification of denuclearization would take place. This is once again a tactic used by North Korea to allow for the continued development of its nuclear program. The North Korea diplomats drag out talks as long as possible, only to find a hang up at the end about how the deal would be implemented and checked.

In 2010 and 2011 Kim Jong Il visited China three times indicating each time that he wanted to resume denuclearization talks, but during this same time period, North Korea sank a South Korean Navy vessel, shelled South Korea, and started construction of a light-water reactor and additional nuclear facilities. This creates confusion with the Chinese saying that Kim Jong Il wants to start talks back up, while some of the most drastic actions since the Korean War were taken. In late 2011 Kim Jong Il died, and his son took over control. In February of the following year, North Korea and the United States signed the Leap Day Agreement which North Korea violated only two months later. Interestingly, no more talks were held between the United States and North Korea until President Trump came into office after President Obama. Unlike Obama's predecessors, he realized that North Korea wouldn't

ever follow through on a treaty or agreement. But all was not well with President Obama. In 2015, President Obama declared that he believed the old collapse theory (Foster-Carter, 2015). This means that the U.S. had temporarily learned its lesson on the talks and agreement front, but still clung to the idea that North Korea would collapse. The U.S. leadership has yet to recognize that the policy position of North Korea collapsing isn't an effective policy position any more than wagging your finger at criminals.

The first Trump-Kim meeting ended with an unenforceable agreement, continuing the long history of North Korea and unenforceable agreements. Trump claimed victory, and North Korea got a reduction of tensions. The second meeting ended before anything of value could happen when Trump gave Kim an ultimatum. The Trump administration failed to understand the implications of North Korea having a nuclear warhead with a minimum of 140 kilotons and several successful tests of an intercontinental ballistic missile. After these actions were taken North Korea declared that they had "state nuclear force" (NTI, 2018). North Korea claims to have a nuclear deterrent, they have yet to collapse and are not showing any evidence that they will, and they have yet to follow through on any international agreement. North Korea has outplayed the United States at every turn, we just refuse to admit it.

CHAPTER 9. NORTH KOREA AND THE MODEL

The three implications that I discussed earlier have interesting implications for the U.S., North Korea conflict. North Korea will use nuclear weapons if the United States attacks the regime. The United States could have considered launching a nuclear strike on North Korea prior to the successful completion of a nuclear capability. The last and most important implication is, North Korea will not give up its nuclear weapons willingly. U.S. policy toward North Korea has been based on some poor assumptions and wishful thinking, and the implications that I have laid out need to be considered when formulating new North Korean policy.

The assumptions that have been made over the years pertaining to the collapse of North Korea have played directly into North Korea's objectives. The premise that North Korea will collapse either by economic or internal issues results in a policy of waiting and hoping. If North Korea is going to collapse in two years, five years, or however many years, the best policy would be to wait for the collapse and then pick up the pieces. Military action is never the best plan, as that would cost lives, equipment, and money. The plan to wait would not result in the deaths of the special forces soldiers who would lead the attack or the loss of a strike aircraft and its pilot. The argument for waiting is a compelling one. Advisors might say, "Mr. President, we really think you should not follow through with this plan to strike North Korea as we have reliable intelligence and subject matter experts who say they will collapse in the coming years. We should wait." The problem is the subject matter experts who predicted collapse assumed that North Korea could be compared to the Soviet Union or the other communist countries around the world that have collapsed. But North Korea is not like those other countries and cannot be compared to them.

During all this waiting, North Korea happily skipped along making nuclear breakthrough after nuclear breakthrough. They made promises they never intended to keep, all in the name of progress. How many times does the U.S. have to be duped out of a North Korea promise before we realize that they don't have any interest in following through? It was always the goal of Kim Il-sung to gain a nuclear capability; this is not a new policy that began in the 1980s when the U.S started to notice that their nuclear program was not just for energy production and research purposes. The U.S. would acquire intelligence that North Korea was lying about something and confront them. North Korea would then increase tensions to a high enough point so that diplomatic meetings would be called for, drag those out for as long as possible, make agreements to lower tensions, never follow through and do it all over again.

I am going to coin the expression "strategic deferment". North Korea will raise tensions, lower tensions, take diplomatic meetings, not participate in a diplomatic meeting, and perhaps even launch military attacks on its adversaries. As long as it allows the nuclear weapons program to continue, they will do it. This cycle gives the scientists and engineers time to finish the next step of the plan to reach Kim Il-sung's goal of a nuclear North Korea. If you cannot afford to feed your people, fine. Citizens dying from not having anything to eat do not rebel. If the economy suffers due to economic sanctions, fine. As long as the leadership is well looked after or, North Korea will continue to function. If the leader of the United States makes wild threats fine, make wild threats back. Now North Korea has a miniaturized nuclear device and several different types of missiles that can carry it. They have reached Kim Il-sung's goal of a nuclear North Korea. Strategic deferment worked for North Korea.

Implication one was that if a rogue state was attacked and it had nuclear weapons then it will always respond with them in retaliation. This means that if the United States launches an attack on North Korea, North Korea will respond with nuclear weapons. Remember that this strike would have to be focused on attacking North Korea's ability to control its territory, as that is an assumption of my model. This needs to be understood, as there is evidence that the current leader of the United States, President Trump, does not understand this. The intelligence and military leadership of the United States does appear to understand this. According to Bob Woodward, President Trump asked the Defense Department to prepare a plan for a preemptive strike on North Korea, for which they came to the same conclusion as they did when President Obama asked (Maza, 2018). The Pentagon reported to President Obama that "85 percent of all known nuclear weapons and nuclear weapons facilities could be attacked and destroyed" (Maza, 2018). Despite this, Senator Lindsey Graham said after a North Korean nuclear weapon test that "an American military strike against North Korea was "inevitable" if something did not change." ("North Korea nuclear test: Lindsey Graham warns of US attack", 2017). North Korea has a credible nuclear deterrent and needs to be treated as having one. North Korea knows it, and the United States needs to accept that it does, or we risk full-scale nuclear war.

Further pursuing implication one, the North Korean case study and the model described above can be combined. North Korea will always respond with nuclear weapons over conventional ones, A nuclear response will always result in a higher payoff for North Korea. The payoff for North Korea responding to a conventional attack from the United States with conventional force is $p_2 - c_2$. The payoff for North Korea responding to a conventional attack from the United States with nuclear force is $n_2 * p_2 - c_2$. Given that the

possibility of a successful defense (p_2) and the cost of a retaliatory strike (c_2) stay the same, the addition of (n_2) will always result in a higher payoff. So, when North Korea developed its first nuclear weapon, its payoff for retaliating against a conventional or nuclear first strike went up. After the first nuclear test occurred in 2006 and North Korea knew that their nuclear weapons worked, the retaliation payoff would always be higher if it had the nuclear component. As North Korea further develops its nuclear capabilities (n_2), the payoff will only get larger in comparison to the conventional option. This further disincentives North Korea from selecting conventional over nuclear, since the gap between the two payoffs is larger still. North Korea will always respond with a nuclear attack and can increase their payoff further still by increasing its nuclear capability.

The second implication is that it is possible for a nuclear power to launch an attack on a conventional power if the conditions are right. The United States could have launched a nuclear strike on North Korea prior to North Korea developing a nuclear deterrent. The 2018 U.S. Nuclear Posture Review says, “The United States will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the NPT and in compliance with their nuclear non-proliferation obligations.” (NPR, 2018) The 2018 U.S. Nuclear Posture Review also says, “the United States reserves the right to make any adjustment in the assurance that may be warranted by the evolution and proliferation of non-nuclear strategic attack technologies” (NPR, 2018). To head off any remarks on the timing of the 2018 NPR and the North Korean nuclear program “the United States has never adopted a ‘no first use’ policy” (NPR, 2018). North Korea was found to be in violation of the NPT many times and has in the past proliferated nuclear weapons technology to Iran and Syria. During the early years of North Korea’s nuclear program, a nuclear strike on known nuclear sites would have

effectively stopped the nuclear program in the short term. The long-term consequences are unknowable. Do not confuse this with recommending a pre-emptive nuclear strike on a non-nuclear power. I am stating that my model and official U.S. policy supports that idea that it is an option available. The additional costs that would come with a nuclear first strike on a non-nuclear state could be overcome, it is not an impossibility, and presenting it as such is wrong.

To further the idea that the United States could launch a nuclear strike on a non-nuclear North Korea, I will compare two different payoffs for the United States. Specifically, the payoffs for the United States launching a conventional strike and for the United States launching a nuclear strike, both resulting with North Korea responding with a conventional strike. The U.S. payoff for a U.S. conventional strike and a North Korean conventional response is $p_1 - c_1$, and the U.S. payoff for a U.S. nuclear strike and a North Korean conventional response is $n_1 * p_1 - c_3$. The differences between the two payoffs is the nuclear variable, and the different cost variable. The cost from a nuclear strike (c_3) includes the nuclear taboo that could increase the cost of a nuclear strike by the United States, if the United States thought the de facto prohibition of nuclear weapons was strong enough to stop the strike. In the 2018 Nuclear Posture Review, there is a lack of a “no first use” policy. Therefore, threatening a non-nuclear state that is not in compliance with the NPT with a nuclear attack is an available option. The United States reserves the right to launch a nuclear first strike, and it is possible for the United States to threaten and launch a nuclear strike on a non-nuclear state. Back in 1992, North Korea was not in compliance with the NPT, and did not have a nuclear weapons capability at the time. If the United States decided that it wanted to launch a nuclear first strike then, the nuclear taboo could have been ignored

by the United States. The U.S. could have claimed that it was following publicly disclosed nuclear policy by launching this strike.

My final implication is the one that I think is the most important to current U.S.-North Korea relations. A rogue state will not give up a nuclear capacity once it has acquired it. North Korea now has a nuclear capacity and will not give it up. The reason that issue is the most important is that the U.S. seems to think that North Korea will give up its nuclear capabilities under the right circumstances. As I mentioned before in this paper during the U.S.-North Korea summit in Hanoi, the United States told North Korea that the U.S. wanted “the transfer of Pyongyang’s nuclear weapons and bomb fuel to the United States” (Wroughton, 2018). The current U.S. policy is to demand that North Korea give up a military advantage that has been something that North Korea has been working on for the last seventy years. Nuclear weapons allow North Korea to preserve the Juche idea of self-reliance. North Korea considers nuclear weapons to be fundamental to their continued existence. As long as North Korea continues to act as a rogue state, then they will not give up their nuclear weapons.

To conclude the final implication, I will compare the two payoffs for a North Korean retaliation if the United States launched a nuclear strike. They are $p_2 - n_1 * c_2$ for a conventional retaliation, and $n_2 * p_2 - n_1 * c_2$ for a nuclear response. As the nuclear capability of North Korea (n_2) can only ever make the payoff for North Korea higher, it would never make sense for North Korea to give up its nuclear capability willingly. A rational actor will never pick a lower payoff if a higher option is available. This means that the only way for the nuclear weapons in North Korea to be removed is for them to be

removed against North Korea's will, or that the North Korean regime changes such that it no longer can be considered a rogue state.

North Korea has used "strategic deferment" to deflect, deny, and delay, and many other policies to get nuclear weapons. The United States needs to realize that North Korea will respond with nuclear weapons if an attack is launched on the Kim regime. The United States could have launched a nuclear strike on North Korea prior to North Korea arriving at a nuclear capability, but now it is too late. Lastly, the days of negotiating away North Korea's nuclear weapons program are gone. The current policy positions of the United States on North Korea are outdated and need to be changed. This change needs to start with the understanding that North Korea is a unique nuclear state that needs to be treated as such. After this is done, the U.S. needs to confront the idea that North Korea will be around for the foreseeable future, and long-term policies need to be developed. I do not know what these policies should be, but I do know that with the current thinking, they will not be found.

CHAPTER 10. CONCLUSION

I created a game-theoretic model that accurately models the Status Quo Power-Rogue State relationship. From this, I generated three different implications. First, rogue states will respond with nuclear weapons if they have them. Second, a nuclear first strike on a non-nuclear is conceivable under the right circumstances. Third, a rogue state will not give up its nuclear capability once a nuclear capability is developed. I applied these three implications to the North Korea U.S. relationship and found support for my model. The United States needs to change future policies to recognize these implications. If we do not, then the next rogue state could be the next rogue nuclear state.

To prevent other rogue states from reaching a similar position to North Korea, the United States needs to take proactive steps to prevent other rogue states from going nuclear. All diplomatic options should be exhausted, and tough economic sanctions that are enforced need to be implemented. Finally, if neither of those two options work, military force needs to be used. Whatever it takes to prevent the rogue state from arriving at the goal of becoming a nuclear power needs to be taken, which includes a potential nuclear first strike. As for North Korea, it is too late to prevent them from achieving the goal of becoming a nuclear power. United States policy toward North Korea can no longer be focused on waiting for an internal collapse, action needs to be taken. The problem is North Korea cannot be pushed around anymore. It is very possible that North Korea will develop a missile that can deliver a nuclear warhead to the United State mainland. When this happens the leadership of the United States will be forced to realize that North Korea is not the desperately poor country that is run by a goofy guy that brags about buttons anymore. It will be a country that can credibly threaten a nuclear strike on the United States.

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**APPENDIX CHINA'S NATIONAL DEFENSE IN 2006 WHITE PAPER
RETRIEVED FROM THE FEDERATION OF AMERICAN SCIENTISTS**

Pursuing a self-defensive nuclear strategy. China's nuclear strategy is subject to the state's nuclear policy and military strategy. Its fundamental goal is to deter other countries from using or threatening to use nuclear weapons against China. China remains firmly committed to the policy of no first use of nuclear weapons at any time and under any circumstances. It unconditionally undertakes not to use or threaten to use nuclear weapons against non-nuclear-weapon states or nuclear-weapon-free zones and stands for the comprehensive prohibition and complete elimination of nuclear weapons. China upholds the principles of counterattack in self-defense and limited development of nuclear weapons and aims at building a lean and effective nuclear force capable of meeting national security needs. It endeavors to ensure the security and reliability of its nuclear weapons and maintains a credible nuclear deterrent force. China's nuclear force is under the direct command of the Central Military Commission (CMC). China exercises great restraint in developing its nuclear force. It has never entered into and will never enter into a nuclear arms race with any other country.