ADDING NONLINEAR TOOLS TO THE STRATEGIST'S TOOLBOX

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ABSTRACT

ADDING NONLINEAR TOOLS TO THE STRATEGIST'S TOOLBOX., by LTC
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Since the seventeenth century, Sir Isaac Newton's laws of motion have had tremendous
impact on the Western world's mind-sets for understanding nature as predictable and
orderly. Consequently, Western strategic culture has been based on a linear paradigm. In
linear systems outputs are proportional to the input, and the ration between input and
output remains constant. Linear systems also comply with the rule of additivity and can
be regarded as deterministic. Most importantly, in linear systems variables are treated
independently. Today we know that Newton's laws do not explain how nature behaves.
Thus, applications on nonlinear are emerging in many scientific disciplines, but in
strategy, we keep committed to the paradigm outlined by Newton. The nonlinear
paradigm accepts complexity and uncertainty as natural elements, and the characteristics
of nonliner systems can be described as highly interconnected and the rule of additivity
does not apply. Lack of proportionality makes nonlinear systems sensitive to initial
conditions and studying the behavior of components in the system cannot derive the
collective behavior. Based on new input, nonlinear systems bifurcate into multiple states
and changes characteristics as new states are adopted.

This thesis seeks to determine if the use of cognitive tools from the nonlinear realm can
enhance national security strategies. A set of nonlinear tools is introduced and three
strategic dimensions are examined: context, process, and content. Within the three
dimensions six variables are studied; world order, political paradigms, decision-making,
organizational structure, adaptation, and complexity, and uncertainty. The nonlinear tools
are applied by relating to historical vignettes.

The thesis concludes that national security strategies can be better understood, planned
and executed by applying nonlinear tools. However, the greatest challenge lies in the
transition to a new underlying paradigm and adopting a new mindset. Finally, a nonlinear
perspective on national security strategies is outlined and recommendations for further
research provided.

ACKNOWLEDGMENTS

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ACRONYMS

CAS	Complex Adaptive Systems
DOD	Department of Defense
DOS	Department of State
IG	Interdepartmental Group
NATO	North Atlantic Treaty Organization
NSS	National Security Strategy
MAD	Mutual Assured Destruction
MMAS	Master of Military Art and Science
NATO	North Atlantic Treaty Organization
NSC	National Security Council
NSC/PC	National Security Council/Principals Committee
NSC/DC	National Security Council/Deputies Committee
NSC/IWG	National Security Council/Interagency Working Groups
RPD	Recognition Primed Decisions
SIC	Sensitivity to Initial Conditions
SOC	Self-organization criticality
UN	United Nations
UNHCR	United Nations High Commission for Refugees
UNIPTF	United Nations International Police Task Force
UNITAF	Multinational United Task Force in Somalia

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CHAPTER ONE

INTRODUCTION

> Although our intellect always longs for clarity and certainty, our
> nature often finds uncertainty fascinating. [1]

Carl von Clausewitz, *On War*

The use of national power is one of the most profound acts in modern society. Its

means spans low-level diplomacy to unlimited nuclear warfare. The linkage from

national interest to resource allocation and employment of national power is articulated in

a national security strategy (NSS), defined as:

> The art and science of developing, applying and coordinating the
> instruments of power (diplomatic, economic, military, and informational) to
> achieve objectives that contributes to national security. [2]

A viable NSS matched with sufficient resources is the ultimate guarantee for the

survival of sovereign states. NSSs consist of a multiplicity of interrelated activities and

thus are complex by nature. Their future orientation and the number of actors involved in

articulation and implementation make NSSs afflicted with a high degree of uncertainty.

Accordingly, management of uncertainty and complexity becomes crucial for NSSs.

This thesis seeks to determine the relevance of applying nonlinear theory to NSSs

for managing uncertainty and complexity by answering the research question: *Can*

national security strategies be improved by applying nonlinear theory? The first chapter

argues why nonlinear theory may be relevant to NSSs. The second chapter comprises

methodical considerations to focus the research. An overview of important research

activities is presented. The third chapter proceeds to delineate previous research related to

the thesis. The relevancy for the thesis will also be discussed. The fourth chapter provides

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a comprehensive discussion on U.S. NSS and the use of nonlinear theory tools. NSSs are

discussed from three perspectives: context, contents and process. In chapter five, the

findings are synthesized and generalized to be applicable for other nations.

<u>The Linear Paradigm</u>

The British physicist and mathematician Sir Isaac Newton (1642 -1727) is

probably best known for his laws of motion:

> (I) Every body continues in its state of rest of uniform rectilinear motion unless
> compelled to change its state by the action of forces.
> (II) The change of motion is proportional to the force acting, and takes place
> along the straight line along which the force acts.
> (III) There is always a reaction equal and opposite to action; or, the actions of two
> bodies on each other are always equal and opposite.

These uncomplicated laws became accepted throughout the Western society as

axioms not to be questioned. His famous *Philosophiae Naturalis Principia Mathematica*

(*Mathematical Principles of Natural Philosophy,* 1687) was a product of a long process

of discovery and synthesis embedding concepts of two thousand years of research in

Western civilization.[3] By defining absolute time and space and explaining the universe

with a *Majestic Clockwork* metaphor Newton made people understand an orderly and

predictable nature.[4] The Newtonian model became the origin to the Enlightenment and

the Scientific Revolution and thereby embedded in the Western philosophy as a

paradigm, the linear paradigm.[5] Virtually all scientists and theorists have walked under

Newton's banner; some aware of the paradigm, some not.[6] The linear paradigm became

an important tool to understand and control nature.[7] Newton's linear paradigm remained

unchallenged for more than 200 years.

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The basic characteristics of the linear paradigm can be derived from Newton's laws of motion above:[8]

1. The output of a linear system is directly proportional to the input. For instance, the nation's military power is directly proportional to the number of units (e.g., army divisions, naval flotillas, and air force wings) and their weapons. The term *Force Multiplier* is based on the linear paradigm since it indicates a capability improvement equivalent to more combatants. The 1999 North Atlantic Treaty Organization (NATO) air campaign in Kosovo was divided in escalating phases, adding more pressure with the intention to gradually adjust the level of airpower sufficient to impose the international community's will on Milosevic.

2. Linear activities comply with the rule of additivity. If a system is perturbed by two subsequent inputs, A and B, the joint output equals the output of the reversed order of input (i.e., B followed by A). The Japanese response to the nuclear bombings at Hiroshima and Nagasaki in 1945 is believed to be identical regardless of the order the cities were attacked.

3. The ratio of output in relation to input continues to be constant. Hence, future actions and behavior can be forecasted by extrapolation. If a strategic bomb campaign destroys 25 percent of the targets during the first month,a continuation for another month will yield in a 50 percent target destruction given unchanged conditions.

4. A linear system is deterministic. With a set of rules and algorithms, future outcome can be derived. Based on this underlying assumption Baron Antoine-Henri de Jomini (1779-1869), one of the founders of modern strategy, outlined a set of principles for successful warfare.

5. The system has independent variables and changing one variable does not impact on other variables. With this perspective, timing of the D-day for Operation Overlord had no impact on the Pacific theater during World War II.

The linear paradigm is powerful, it has produced tremendous technological advancements, such as the silicon chip.[9] As a reinforcing effect, the resulting industrial growth has made overwhelming military power possible for some nations. Overwhelming military power can significantly reduce the uncertainty and thereby the nonlinear characteristics. There are both successes and failures amongst the strategic products emanating from the linear paradigm. The German Schlieffen plan prior to World War I and the U.S. strategy during the Vietnam War are generally regarded as failures while the nuclear strategies employed during the Cold War were successful.

The theory of international relations emerged during the nineteenth century and consequently influenced by Newton's linear paradigm. The roots of national security policy stem from strategy and can be traced back to around 500 B.C. and Sun Tzu.[10] However, most of the strategic theories were formulated during a period from the eighteenth century until Sir Liddell Hart's (1895-1970) *Strategy of Indirect Approach* in the early twentieth century. Throughout the period, Newton's rules have dominated the scientific approach, consequently the mechanistic worldview is reflected in international relations theory and national security policy. Jomini emphasized that strategy is controlled by a set of rules to bring simplicity to the subject. Jomini and his contemporary Clausewitz frequently used metaphors from the physics realm, such as center of gravity and friction.

In the linear paradigm, complexity is attacked by linear reductionist analysis, whereas problems are broken down into manageable pieces. By dividing a system into manageable subsystems, the ability to deal with interaction will be reduced.[11] Many steps of reduction, reflecting a highly complex system, will result in an elimination of interactive aspects. Fredrick Taylor's (1856-1917) concept of *Scientific Management* was based on Max Weber's (1864-1920) bureaucracy theory and outlined a hierarchical organization as the essentially linearization technique to eliminate or reduce uncertainty and complexity in organizations.[12] Steven Mann argues that the linear paradigm is too arbitrary and simple for international affairs:

> On a grand scale, the increasing complexity of foreign affairs cuts against the comfortable assumptions of classical strategy. Can we indeed describe our exquisitely variable international environment in traditional terms of balance of power, polarity, or a shift of tectonic plates? The mechanistic worldview is good but not good enough. The daily headlines bring inconvenient reminders of how oversimplified these models are. Not only does classical strategic thought seek to explain conflict in linear, sequential terms, but it compels us to reduce highly complex situations down to a few major variables. . . . We need to change the way we think about strategy.[13]

In international relations, the interdependence concept is based on the individual state's sovereignty implying that the elements define the system. In the nonlinear perspective, the international system can only be understood by looking at the whole system and respecting the interactions amongst its actors.

<div align="center">The Nonlinear Paradigm</div>

Albert Einstein's (1879-1955) *Theory of Relativity* and Werner Heisenberg's (1901-1976) *Uncertainty Principle*[14] exposed flaws in the solid linear paradigm early in the twentieth century. Einstein's theory of general relativity views matters as the time-space curvature and explains a number of physical phenomenon that do not fit in

Newton's *Majestic Clockwork* paradigm, as the bending of rays of starlight by the sun's gravitational field.[15] Heisenberg is regarded as founder of quantum mechanics, the new physics of the atomic world contradicting the universal system outlined by Newton. Heisenberg viewed mass and energy as aspects of an entity making them indivisible.[16] In difference to Newton's deterministic laws, quantum theory provides probabilistic rules.[17] Today we know that Newton's laws do not explain how nature behaves, but in strategy and other fields, we keep committed to the *Majestic Clockwork.*

Nonlinear equations are extremely difficult to solve manually, which is one of the reason scientists have avoided them so long. With the introduction of computers nonlinearity gained more interest based on the increased speed in calculations.[18] In the 1970s scientists in various disciplines began to approach disorder and finding patterns.[19] A decade later, "chaos" becomes the collective term for the new movement.[20]

Attributes of Nonlinearity

Mitchell Waldrop begins his book *Complexity* by stating that complexity is:

> a subject that's still so new and so wide-ranging that nobody knows quite how to define it, or even where its boundaries lie. But then, that's the whole point. If the field seems poorly defined at the moment, it's because complexity research is trying to grapple with questions that defy all the conventional categories. [21]

Later in the book, Waldrop tries to brings clarity to the subject by describing complex systems as: (1) having a great number of interacting independent agents, (2) allowing the system to undergo spontaneous self-organization, (3) active adaptation to gain advantage, and (4) possessing a dynamism compared to static but complex systems like computer chips.[22] As described above, linear relationships are easy to understand and solvable by taking them apart to manageable pieces, and then putting them together again because the

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pieces add up.[23] As the term indicates, characteristics of nonlinear systems contradict those of linear systems. Alberts and Czerwinski describe nonlinear systems as:

> The arrangement of nature--life and its complications, such as warfare--in which inputs and outputs are not proportional; where the whole is not quantitatively equal to its parts, or even, qualitatively, recognizable in its constituent components; and here cause and effect are not evident. It is an environment where phenomena are unpredictable, but within bounds.[24]

There are six attributes of nonlinearity:[25]

1. Variables are interdependent and everything is interconnected. No problem can be totally separated from its environment and other issues. When a planned action is conducted it may have unintended second order effects.

2. Nonlinear systems are sensitive to initial conditions. Minor changes in input to a system may cause completely different output. The Sensitivity to Initial Conditions (SIC) concept will be discussed later in this chapter.

3. The output of the system is not proportional to the input. In 1914, a group of young Serbian nationalists assassinated the archduke of Austria, Franz Ferdinand, in Sarajevo. The action was significant to Austria, but it also moved the world order system to the chaotic region by triggering World War I. Clausewitz provides another description:

> The outcome of a major battle has a greater psychological effect on the loser than the winner. This, in turn, gives rise to additional loss of material strength . . . which is echoed in loss of morale; the other two become mutually interactive as each enhances and intensifies the other[26]

4. The sum of A and B, that is, the rule of additivity, does not apply. The added sum does not equal the sum of results when feeding A or B into the system. In 1965 President Johnson's air campaign Rolling Thunder, the objective was to persuade the North Vietnamese to cease aggressions and start negotiations for a peaceful settlement of

the conflict.[27] Against recommendations from the Joint Chiefs of Staff to launch a massive strike, the campaign was designed as a strategy of "graduated response."[28] The plan called for a soft start and a gradual adding of pressure to stop the war against South Vietnam.[29] As the pressure increased (i.e., "adding B"), the North Vietnamese became more determined to continue the fight and launched rocket attacks against American bases.

5. The collective behavior of a nonlinear system can be greater or lesser than the addition based on the interactions. Collective behavior is the result of interactions between agents whose behavior is other than the collective. The coalition's actions during operation Desert Storm were an outcome of superior military power provided primarily by the U.S., the world communities support expressed in the United Nations (UN) sanctions, key Arab nations support, and no Israeli response to Iraqi SCUD attacks. Without any of these components, the actions against Iraq would have been different.

6. Nonlinear system bifurcate into multiple states, as shown in the bifurcation diagram in figure 1. On the left of the diagram, the equilibrium zone, the system is stable without change, innovation, growth, or progress implying that the system will settle down in a steady state.[30] At the first bifurcation, the systems pass the edge of equilibrium and into the complexity zone. A perturbation will make the system settle down in one of two possible states. The Cold War can serve as an example. The avoidance of a third world war (i.e., stability) was achieved with Mutual Assured Destruction (MAD). There were only two responses to a nuclear attack, massive retaliation or compromise and retreat.[31]

At the next bifurcation, each branch splits and the possible states double to four. Moving further right, the number of states double at every bifurcation. Eventually the

system will have an infinite number of states and never settle down and therefore considered unstable; the system has become chaotic.

TYPE	Linear	Nonlinear		
REGIME	Equilibrium	Complexity		Chaos
CHARACTER	Stable · Disturbance dies out · Damage is local	Emergence · Poised to adapt & evolve · Damages are limited		Turbulence · Disturbances propagate · Destruction
BIFURCATION PATTERN		Edge of Equilibrium	Edge of Chaos	
BIFURCATION POINT	❶	❷	❸❹	
ATTRACTOR	Periodic Limit-Cycle		Torus Strange	
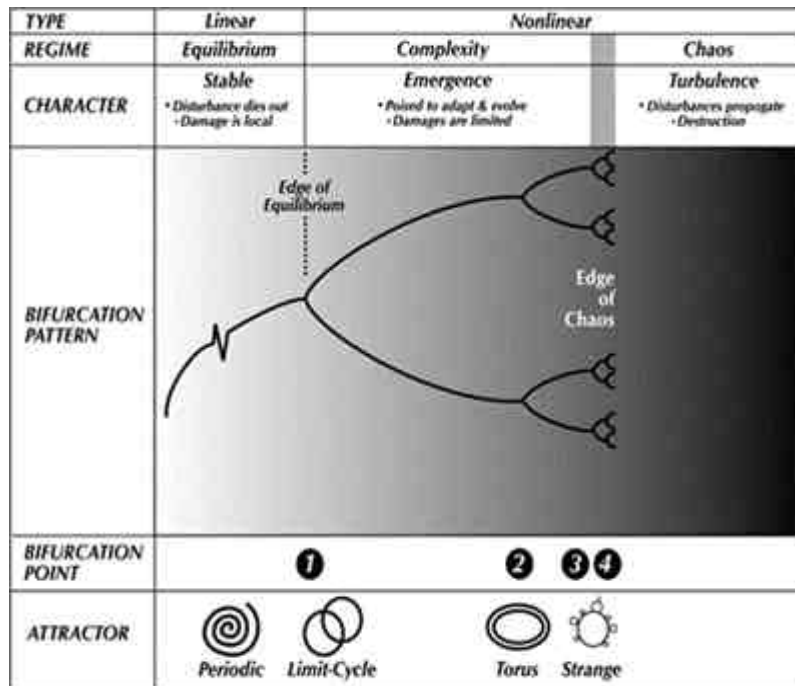
Figure 1. The Bifurcation Diagram. (*Source:* Tom Czerwinski, *Coping with the Bounds: Speculations on Nonlinearity in Military Affairs*, 1998)

With the increase of states, the sensitivity to perturbation increases. The system can only be stable in a limited number of states. Regardless of where the system starts, it will move towards a small number of steady states called the *Attractor*. A mono-stable system is so stable it will return to the initial state no matter the perturbation, leaving no opportunity for adaptation, for instance a nation that only uses economic sanctions regardless of the perturbation.[32] The system has a periodic attractor, see figure 1.

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The increased number of steady states makes the system more adaptive to perturbations and the most prosperous area is at the edge of chaos. On the edge of equilibrium (i.e., at the first bifurcation), the system has two plausible stable states (limit-cycle attractor). For instance, prior to World War I the cousins Kaiser Wilhelm II and Czar Nicholas II did not want to start a large-scale war because of the conflict between Serbia and Austria-Hungary, but diplomats and military advisors provided the German Kaiser and Russian Czar with distorted situational assessments and only two options, mobilization or compromise and retreat.

Definitions

Based on the figure 1, complexity theory is the collective name for theories explaining the emergent behavior in the region between equilibrium and chaos. Consequently, chaos theories describe the turbulent behavior in the rightmost portion of the diagram. Chaos theory is more strictly defined as:

> A name given to recent wide-ranging attempts to uncover the statistical regularity hidden in processes that otherwise appear random, such as turbulence in fluids, weather patterns, predator-prey cycles, the spread of disease, and even the onset of war. Systems described as "chaotic" are extremely susceptible to changes in initial conditions. As a result, small uncertainties in measurement are magnified over time, making chaotic systems predictable in principle but unpredictable in practice. An important development in chaos theory is the discovery of self-organizing properties in certain systems, leading to the spontaneous development of greater complexity.[33]

Complexity theory and chaos theory constitute the nonlinear concept and the equilibrium zone represents the linear concept. The regimes--equilibrium, complexity, and chaos--are illustrated in figure 1.

Sensitivity to Initial Conditions

By accident, Edward Lorentz discovered a chaotic system in 1963. He was

making a shortcut in inputting data to his weather forecast simulation program. A barely

noticeable rounding in the system changed the input and caused a completely different

forecast. The system showed extreme sensitivity to initial conditions. Within a sensitivity

to initial conditions (SIC) system, the two paths, with close to identical inputs, will

initially be similar.[34] However, after a certain time the two trajectories will diverge and

subsequently have no correlation. The classical example of SIC is a butterfly's flap of

wings in part of the world causing a hurricane in another part, days or weeks later.[35]

Clausewitz identified the sensitivity to initial conditions in international relations,

> Between two peoples and two states there can be . . . tensions, such a mass of
> inflammable material, that the slightest quarrel can produce a wholly
> disproportionate effect--a real explosion.[36]

Complex systems are sensitive to initial conditions, for instance the assassination

of archduke Franz Ferdinand transferred the system of world order into a chaotic phase

(World War I). Forty years of hegemony of Eastern Europe collapsed in a few months,

transferring the world order from the Edge of Equilibrium to the complex post-Cold War

phase.[37]

Nonlinear systems are deterministic, but not necessarily predictable. Knowing the

initial condition implies that a state can be determined later on, but a system on the edge

of chaos has an almost infinite sensitivity to initial conditions. In dynamic systems, like

international relations, the initial conditions will be subject to continuous change. Lack of

sufficient precision in the initial condition will be reflected in great lack of precision on

the outcome when projecting the system in the future.[38] The weather system can serve as

en example. The weather never settles down or repeats itself, hence it can be regarded as chaotic or on the edge of chaos. Local forecasts stretching longer than a week are usually of no value due to lack of precision. Yet, the agents in the system (e.g., fronts, jet streams, and pressure) are understood.[39]

Introducing Complexity Theory Tools

This section introduces eight nonlinear tools that will be utilized in chapter four. The tools are models that help strategists understand the applicability of the nonlinear paradigm.

The Fitness Landscape Model

The fitness landscape model[40] is an abstract model based on the theory of natural selection outlined by Charles Darwin (1809-1882). The model portrays an n-dimensional map with the topology representing all the possible states a system can adopt. To envision the model a three-dimensional map can be used. The hilly landscape represents the degree of fitness or success the organization (system) with a specific option (state). Consequently, hills represent a high degree of optimization whereas a ditch represents an unsuccessful option. Organizations continually strive to climb to the tops and push the enemies down to the lowlands.

Using the fitness landscape model, the strategy of Mutual Assured Destruction during the Cold War would be represented by the U.S. and Soviet Union sitting on their own hilltops and focusing on remaining on the top. The landscape itself is continually deformed by our actions and the actions of others.

Gell-Mann's Levels of Adaptation

Based on different time scales Nobel Laureate Murray Gell-Mann outlined three

levels of adaptation reflecting the ability to adapt to the changing environment.[41] We can

illustrate the levels by applying the model to extraction operations by Special Forces.

At the first level, direct adaptation, the organization reacts to changes in very

specified ways, on a very short time scale. In late 1979, weeks after President Jimmy

Carter had allowed the Shah Mohammed Reza Pahlavi of Iran to enter the U.S. for

medical care, 3,000 Iranian radicals invaded the U.S. Embassy in Tehran, taking 66

Americans hostage.[42] In April 1980 the U.S. responded by initiating Operation Desert

One and sending an extraction force to release the American citizens from captivity. The

operation failed and resulted in thirteen casualties. Air Force Colonel James Kyle called

it, "The most colossal episode of hope, despair, and tragedy I had experienced in nearly

three decades of military service."[43]

On the second level, there is time in responding to events for one adaptation

scheme to compete with and replace another. In our case study the second level involves

selection of new approaches for hostage extraction. After Operation Desert One, training

and doctrine changed to overcome identified shortfalls.

The third level involves the longest time scale, and a Darwinian process occurs to

implement the best solution. In our case study it occurred as these approaches are tried

out in real situations and institutionalized. In 1986, a new legislation mandated the

creation of U.S. Special Operations Command and Special Operations and Low-Intensity

Conflict to improve training and execution of special forces training and operations. As

Somalia disintegrated in internal fights in late 1990, civilians from U.S. and other

countries sought shelter at the U.S. Embassy. On 1 January 1991, the U.S. Ambassador to

Somalia requested military assistance to evacuate the Embassy and other civilians.[44]

Operation Eastern Exit was initiated and the 281 noncombatants were successfully

evacuated during ten days. Participating units in Operation Eastern Exit included USS

Guam, USS *Trenton,* 4th Marine Expeditionary Bde, Air Force AC-130s, a Navy SEAL

team, and other elements.[45] Operation Eastern Exit "was the result of the synergistic

employment of widely dispersed joint forces that rapidly planned and conducted a NEO

in the midst of the Gulf War."[46]

Waltz's Three-Level Model

The Kenneth Waltz's Three-Level Model tries to bring clarity to behavior of

states in the international system. The model does not originate in the nonlinear research

field, but it goes beyond traditional models and recognizes the nonlinear perspective by

criticizing parochial explanations based on strictly causal models and rational actors. To

understand a situation it must be viewed from an international systems perspective (level

I), a state level perspective (level II), and an individual level perspective (level III).

Level I: At the systemic level interaction between actors in the international

system is explored. Although the system of sovereign states is made of anarchy, actors

are believed to act in predictable ways based on political paradigms of interests. Theories

like Balance of Power, help us forecast how power is used; the distribution of power in

the system and the national interests are central to understand behavior from the

international systems perspective.

Level II: From a state-level perspective internal institutions and processes have significant impact on the behavior of the state. For instance, it can be argued that democracies behave differently from authoritarian political systems.[47] For instance, the "Theory of the Democratic Peace" tells us that democracies do not go to war with each other. By applying this perspective national interests, like promoting democratic developments in all regions in the world, becomes rational. It must also be recognized that nonstate actors play an important role in the international system.

Level III. At the third level focus is on influential individuals, often decision makers and advisors. Decision makers are not perfectly informed individuals with infinite computing capacity who maximize the outcome of a fixed and well-defined equation. Yet, individuals make the decisions that determine the pattern of the international system.[48]

Van Creveld's Rule

If decision makers under conditions of high uncertainty have less information than required, the organization may increase the information processing and utilize multiple communications channels. Martin Van Creveld argues that this approach will increase the size and complexity of the central directing organ and is therefore inadequate.[49] Instead, command performance may be increased by simplification of the organization, so that it will operate with less information. Confronted with insufficient information the organization may react by adjusting the organization or the mission to operate with less information, relying on the division of the mission in various parts separately on a semi-independent basis. To be successful, decision thresholds need to be fixed at the lowest possible organizational level. Consequently, the organization must be

as self-contained as possible minimizing requirements for coordination. In addition, significant information must flow formally and informally in both directions.

<u>Perrow's Rules</u>

Charles Perrow examined risk management and focused on organizational causes of accidents.[50] Linear interactions can be found in highly structured systems. Important characteristics are logic, sequentially, planned interactions and minimal feedback. The absence of feedback makes it easier to monitor and understand the system. Complex interactions are less predictable and breakdowns can occur due to unplanned or unforeseen interactions. Hence, linear designs are safer. The other variable examined is the coupling between systems or subsystems. Loosely coupled systems have decentralized authorities and flexible control mechanisms. Tightly systems on the other hand are highly centralized and the output is closely monitored. Perrow combines the quadrants with authority rules arguing that different command styles are suitable for each quadrant. Superimposing Perrow's rules on the bifurcation diagram yields the following diagram, see figure 2.

Complex but loosely system are best decentrlaized (quadrant 4) while linear and tightly coupled systems are best centralized (quadrant 1). Linear and loosely system can be either centralized or decentralized (quadrant 3) but complex and tightly system can be neither (quadrant 2).
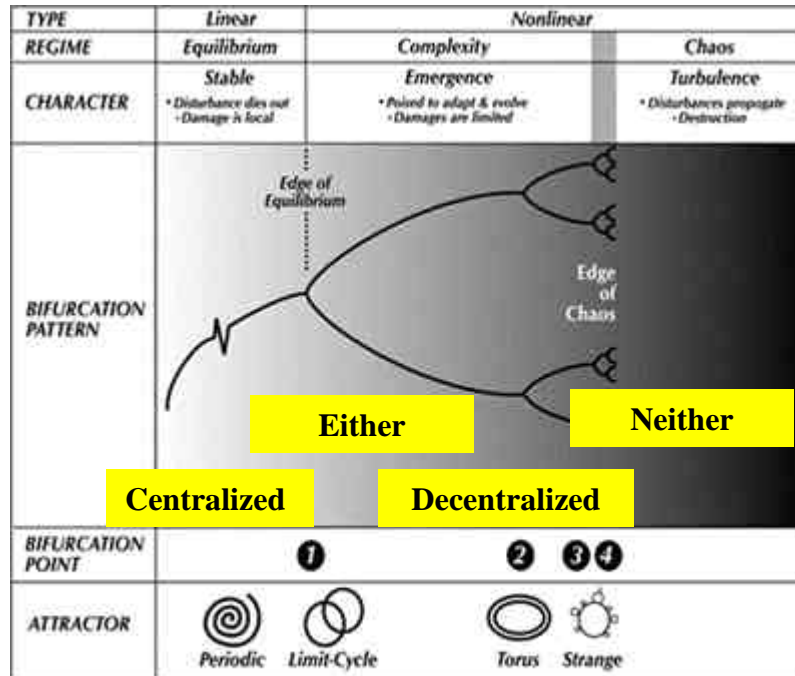
Figure 2. Perrow's Quadrants. (Based on © Tom Czerwinski, *Coping with the Bounds: Speculations on Nonlinearity in Military Affairs*, 1998.)

Complex Adaptive Systems

Many systems in nature, such as the immune system and the brain, are characterized by complex behaviors that arise as the result of nonlinear interactions among a large number of components or subsystems and lack of (strong) central direction. These systems are called complex adaptive systems (CAS). CAS are made up of large numbers of active and diverse components, all living organisms satisfy the requirements of CAS.[51]

The basic building blocks of the CAS are agents. Agents seek to maximize some measure of goodness or fitness, by evolving over time.[52] CAS are defined by seven attributes: four properties and three mechanisms:[53]

Aggregation (property). Agents with complex behavior can be formed by aggregation of less complex agents. For instance, the Department of Defense (DOD) can be regarded as an aggregation of DOD employees. The higher-level agent (meta-agent), DOD has a different set of characteristics than the agents (employees), implying that the sum of the parts is not equal to the whole (i.e., nonadditivity).

Nonlinearity (property). Nonlinearity occurs when the result of combining two variables does not follow the additivity rule, making the behavior of the aggregate more complex than it would be by predicting sums.

Flows (property). Flows of information and capital between agents (e.g., sovereign states and nonstate actors) are considered in international relations. The nodes may be banks and news agencies, and the connectors may be telecommunication channels. In CAS the flows may vary over time implying that nodes and connectors will vary over time as the agents adapt or fail to adapt. Tags help identify other agents capable of conducting transactions (interacting) with a given agent.

Diversity (property). The agents within a CAS strive for specialization creating a diversity of different agents. The specialization is neither accidental nor random. All agents fill a niche that is defined by the interactions centering on that agent. If one kind of agent is removed, creating a *hole*, the system responds by adapting and another agent will fill the whole. For instance, an office cannot exist with just managers. Secretaries, clerks, officers, security personnel, computer support personnel, and cleaning personnel are needed. If the secretaries are fired, other personnel have to coordinate appointments for managers and provide transcripts.

Tagging (mechanism). Tags allow separation amongst agents that otherwise would have been inseparable. The most familiar tags are national flags. Within the Department of State (DOS) employees are distinguished by titles and positions. Tags help agents to relate to other agents (e.g., cooperate, filter). To a large extent tags makes hierarchies possible.

Internal Models (mechanism). Agents can be viewed as semiautonomous units that seek to maximize some measure of goodness or fitness, by evolving over time. Agents scan their environment and develop internal models representing interpretive and action rules. These internal models are often evolved from smaller, more basic internal models. The internal models are rational bounded: they are potentially indeterminate because of either or both incomplete and biased information; they are observer dependent because it is often difficult to separate a phenomenon from its context; and they can be contradictory. Internal models exist in multitudes and compete for survival.[54]

Building Blocks (mechanism). Agents analyze the complex environment by searching for elements already tested. The already tested elements are reused in a great variety of combinations. Accordingly, learning is accomplished by repetitive use of elements. Based on Barry Buzan the state as a class of objects is represented by three interrelated components: (1) the physical base (population, territory, natural resources, and man-made wealth contained within its borders) of the state, (2) the institutional expression of the state (government and an assigned leader), and (3) the idea of state (citizen's shared values).[55] From a CAS perspective subcomponents in (1) and (2) can be regarded as building blocks.

Czerwinski compares the perturbation diagram (figure 1) with a playing field. Complex adaptive systems are the players moving along bifurcation paths. Successful players have to stay out of the end regions (i.e., equilibrium and chaos)[56] and (3) the system's future is often unpredictable.[57]

Self-Organization Criticality

In 1977, Ilya Prigogine received the Nobel Prize in chemistry for showing that physical and chemical systems far from thermodynamically equilibrium tend to self-organize. Self-organization is a process where the organization of the system changes without significant external influence. Self-organization originates from the same variation and natural selection processes as the environmentally driven processes of evolution.[58] Based on Prigogine, Saperstein describes Self-organization criticality (SOC):

> Elements and their interactions come into and go out of existence as part of the ongoing process; the field of endeavor may change in size, structure, and constituents with time. Thus states, armies, military and civilian units, may be born, grow, thrive, decay, die and disappear, as part of the process which also creates, distorts, and dissolves, the structures of which they are--if perhaps only temporarily--parts and foundations. States may be created out of, or dispersed back into, smaller groups of people as a result of war or other interactions between other states or people groupings. "Official" or "unofficial" military units form or dissolve as a result of anticipated or actual conflict between existing, nascent, or hopeful nations. Economic, political, or other classes, come and go through turmoil engendered by other groupings in the system of nation or nations. In sum, the system determines its apparent elements rather than conversely.[59]

Jervis Rules of Interaction

Robert Jervis argues that we can never do just one thing because of the three rules of interaction: (1) results cannot be predicted from separate actions, (2) strategies depend on the strategies of others, and (3) behavior changes the environment.[60]

1. Results cannot be predicted from separate actions. The "Reagan Victory School" claims that President Reagan's *Star Wars* project Strategic Defense Initiative forced the Soviet Union disintegration. However, Soviet responses did not occur before Gorbachev came into power, two years after Reagan's announcement of the project.[61]

2. Strategies depend on the strategies of others. When NATO in 1999 was enlarged by a including Hungary, Poland, and the Czech Republic, the European Union's plans of expansion had to be considered. During the Cold War the U.S. nuclear strategies were influenced by the Soviet capabilities and strategy.

3. Initial behavior and outcomes often change the environment and thereby affect later behavior and outcomes. It can be argued that the U.S. decision to back off only if USSR did during the Cuban Missile Crisis subsequently led to better relations between the U.S. and Soviet Union than before the crisis.[62]

Summary

For a long time linear theories represented the human knowledge of nature and the linear paradigm has become ingrained in Western society. It explains the deterministic and causal behavior of systems. Today science has provided us with more refined tools to understand how complex systems behave. The nonlinear paradigm encapsulates a cognitive approach to enhance understanding of complex systems in uncertain environments. This chapter has outlined key characteristics of linear systems and nonlinear systems and thereby opened up lucid lines to a new cognitive approach to NSSs, accepting complexity and uncertainty as natural elements. To make further studies constructive and focused, eight nonlinear theories or tools are introduced: The Fitness Landscape Model, Gell-Mann's Levels of Adaptation, Waltz's Three-Level Model, Van

Creveld's Rule, and Perrow's Rules. In addition, fundamental characteristics on nonlinear

theory, such as bifurcation, SOC, and SIC, will be applied to historical vignettes in

chapter four.

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[1]Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton, New Jersey: Princeton University Press, 1976), 86.

[2]U.S. Joint Chiefs of Staff, Joint Pub 2-01, *Department of Defense Dictionary of Military and Associated Terms* (Washington, DC: The Joint Staff, 1994), 312.

[3]Robert P. Pellegrini, *The Links Between Science and Philosophy and Military Theory: Understanding the Past; Implications for the Future* (Maxwell Air Force Base, Alabama: School of Advanced Airpower Studies, Air University, 1995), 12.

[4]Ibid.

[5]Ibid., 24.

[6]Ibid., 12.

[7]Tom Czerwinski, *Coping with the Bonds: Speculations on Non-Linearity in Military Affairs* (Washington, DC: National Defense University, 1998), 8.

[8]Characteristic 1-4 are based on Linda P. Beckerman, *The Non-Linear Dynamics of War* , 1999; [Science Applications International Corporation web page]; available from http://www. belisarius.com/modern_business_strategy/beckerman/non_linear.ht;, 1-2.

[9]Czerwinski, *Coping with the Bonds,* 30.

[10]Sun Tzu, *The Art of War,* tran. by Samuel B. Griffith (New York, New York: Oxford University Press, 1963), v-vii.

[11]Czerwinski, *Coping with the Bonds*, 2.

[12]Laurie J. Mullins, *Management and Organisational Behaviour*, 4th ed. (London, Great Britain: Pittman Publishing, 1996), 41-50.

[13]Steven R. Mann, "Chaos Theory and Strategic Thought," *Parameters* 22 (autumn 1992): 57-58

[14]"The more precisely the position is determined, the less precisely the momentum is known in this instant, and vice versa."

[15]Jack Cohen and Ian Stewart, *The Collapse of Chaos* (New York, NY: Penguin Group, 1994), 16.

[16]Ibid., 17.

[17]Ibid., 45.

[18]Mitchell M. Waldrop, *Complexity: The Emerging Science at the Edge of Order and Chaos* (New York, NY: Simon and Schuster, 1992), 65.

[19]James Gleick, *Chaos--Making of a New Science* (New York, NY: Viking Penguin, 1987), 3.

[20]Ibid.

[21]Waldrop, 9.

[22]Ibid., 11-12.

[23]Gleick, 23.

[24]David S. Alberts and Thomas J. Czerwinski, *Complexity, Global Politics, and National Security* (Washington, DC: National Defense University, 1996), 1.

[25]The last four characteristics are based on Beckerman, *The Non-Linear Dynamics of War,* 1-2.

[26]Clausewitz, 253.

[27]Dave R. Palmer, *Summons of the Trumpet* (Novato, CA: Presido Press, 1978), 73.

[28]Ibid., 76.

[29]Ibid., 75.

[30]Czerwinski, *Coping with the Bonds,* 42-43.

[31]Palmer, 57.

[32]Beckerman, 3-5.

[33]Meta Reference Library; available from http://www.counterbalance.net/physgloss/chaos-body.html; Internet.

[34]Beckerman, 9.

[35]Gleick, 20.

[36]Clausewitz, 81.

[37]Waldrop, 9.

[38]Beckerman, 8.

[39]Waldrop, 255.

[40]Beckerman, 7-10.

[41]Ibid., 10-12.

[42]Otto Kreisher, "Desert One: The Mission Was to Rescue the Hostages Held in Iran, But it Ended in Disaster," *Air Force Magazine* (Air Force Association, Arlington, VA) 82, no. 1 (January 1999): 61.

[43]Ibid.

[44]FAS Military Network [Federation of American Scientists webpage]; available from http://sun00781.dn.net/ man/dod-101/ops/eastern_exit.htm; Internet.

[45]Ibid.

[46]Ibid.

[47]Ted Davis et al., "A Brief Introduction to Concepts and Approaches in the Study of Strategy," in *C-500 Advance Book* (Fort Leavenworth, KS: U.S. Army Command and General Staff College, August 2000), L1-A-8.

[48]Ted Davis et. al, L1-A-9.

[49]Czerwinski, *Coping with the Bonds,* 79-105.

[50]Ibid., 97-108.

[51]John H. Holland, *Hidden Order: How Adaptation Builds Complexity* (Reading, MA: Addison-Wesley Publishing, 1995), 6.

[52]Ibid.

[53]Ibid., 10-37.

[54]Kevin Dooley, "Complex Adaptive Systems: A Nominal Definition" (Arizona State University, 1996); [home page] available from http://www.eas.asu.edu/~kdooley/ casopdef.html); Internet.

[55]Barry Buzan, *People, States, and Fear: The National Security Problem in International Relations* (Brighton, United Kingdom: The Harvesters Press, 1983), 39-40. Buzan does not highlight government and leader.

[56]Czerwinski, *Coping with the Bonds,* 42-49.

[57]Dooley, *Complex Adaptive Systems.*

[58]*Principia Cybernetica* [Worldwide Web]; available from http://pespmc1.vub. ac.be/SELFORG.html; Internet.

[59]Albert M Saperstein, *Complexity, Chaos, and National Security Policy: Metaphors or Tools?* in *Complexity, Global Politics, and National Security,* ed. David S. Alberts and Thomas J. Czerwinski *(*Washington, DC: National Defense University Press, 1997); available from http://www.ndu.edu/inss/books/complexity/; Internet.

[60]Robert Jervis, *System Effects: Complexity in Political and Social Life*, (Princeton, NJ: Princeton University Press, 1997), 39-53.

[61]Gordon R. Mitchell*, Strategic Deception: Rhetoric, Science, and Politics in Missile Defense Advocacy* (East Lansing, MI: Michigan State University Press, 2000), 87-88.

[62]Jervis, 52.

CHAPTER TWO

RESEARCH METHOD

To focus the research some crossroads had to be passed. In the following chapter, methodological considerations of importance and the resulting work-plan are presented to provide an understanding of the underlying efforts to achieve structure and meaning to the thesis.

Approach for Acquiring Scientific Knowledge

To answer the research question scientific knowledge must be acquired. There are two principal ways of acquiring scientific knowledge: deduction or induction. Deduction occurs when the observations are made based on prior expectations or theories.[1] The approach is often used to prove a hypothesis. Induction on the other hand, occurs when theory evolves from observations, requiring objective observations. The observer detects patterns in the observations to formulate a theory.[2] Since no existing theory supports the research question and the author has not formulated any hypothesis, the scientific knowledge will be gained by induction.

Qualitative Approach Versus Quantitative Approach

Two principal approaches for applying nonlinear theory to national security strategies have been identified, a qualitative approach or a quantitative approach. A quantitative approach based on the mathematics of nonlinear theory will aim to derive probable inferences. Very few reports based on the quantitative approach have been identified. The qualitative approach is based on nonmathematical characteristics of nonlinear theory. A qualitative approach will address complexity by discussing relevant

theories and historical examples based on characteristics identified in nonlinear theory. Since sufficient data for a quantitative approach are not available, the preferred method is qualitative.[3] Also, the traditions of quantitative research are strongly influenced by the positivist paradigm[4] reflecting the Western world mind-set based on Newton's *Majestic Clockwork* metaphor.[5]

Developing the Method

Since both behavioral methods and post-behavioral methods are based on quantifiable data and statistical tools, these methods are not applicable for this study.[6] The Command and General Staff Officer Course research method for a Master of Military Art and Science thesis implies a division of the primary research question into secondary and tertiary subquestions. This approach is a typical linear reductionist approach eliminating complexity by dividing a problem into subparts and solving these problems. Since the thesis is based on nonlinear theory, the limitations of the prescribed are too extensive and another method must be selected.

The range and complexity of factors chosen to be studied and their mutual dependence put a premium upon a method that allows a holistic study. In addition, rather than focusing on specific elements, the thesis aims to create an overall understanding of nonlinearity applications in national security strategy (NSS). Consequently, it is insufficient to study and measure isolated parts or elements of NSS.

A holistic research approach is an appropriate guide to the research. Applying a holistic research approach implies that the "research design is open to gathering data on any number of aspects of the setting under study in order to put together a complete picture."[7] Leading contemporary theoretical strategists[8] argue for a holistic approach to

strategy adopting process, content, and context as dimensions, instead of studying

elements of strategy. Bob De Wit and Ron Meyer capture the essence of their arguments:

> Elements can be taken apart and examined in isolation, but this is not the case
> with the strongly interrelated aspects of process content, or context. Strategic
> phenomena can be examined from a process, content, or context *perspective.*[9]

A nonlinear examination of NSSs does not lend itself to analysis (i.e., breaking

down a problem in parts) or distinct conclusions providing prescriptive solutions. Instead,

the contribution will be identifying the relevance of applying nonlinear theories for the

strategist dealing with NSSs.

Their view of strategy clearly reflects a nonlinear approach, hence the model in

figure 3 will serve as a base for the thesis. Based on the holistic research approach, only

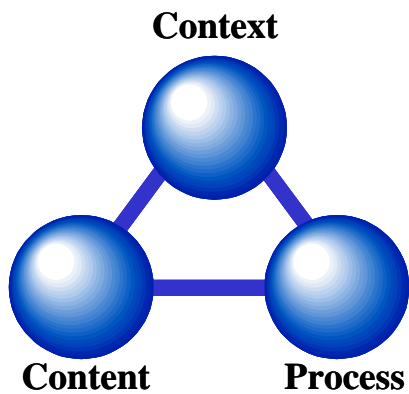selected variables in the dimensions can be studied.

Context

Content   **Process**

Figure 3. Dimensions of Strategy

Temporal Perspective

Two distinct principles of temporal perspectives are identified. The thesis can discuss the development of NSS focusing on the product, that is, the official NSS. The other perspective discusses how the NSSs are exercised. The different perspectives can be viewed as discussing *strategy* versus *strategizing*. The holistic approach indicates that both perspectives need to be considered. However, decision making is exposed to unparalleled uncertainty and complexity, and therefore the thesis will focus on how the NSSs are exercised. Consequently, historical vignettes are an integral part of the thesis.

National Perspective

Based on the author's background, arguments can be made that the study focus on the Swedish NSS. However, the U.S. perspective predominates in this area of research. In addition, the U.S. NSS is clearly articulated and the process is formalized and documented. The proactive U.S. posture in international relations also provides many historical examples to support the research. A comprehensive base of previous research and historical examples are regarded more important for the quality of the thesis than personal insights. The American perspective is also expected to attract a broader audience.

The Research Model

With support of relevant theories, data is structured to facilitate an understanding of the problem. In order to answer the research question, information will be gathered and grouped into four categories. These four categories are: (1) research and history pertaining to nonlinear theories and its applications; (2) research and historical vignettes

pertaining to strategic context, world order and political paradigms; (3) research and historical vignettes pertaining to strategic processes; decision making and organizational structure; and (4) research pertaining to strategic content, control and adaptation. Conclusions will be drawn on the empirical data by applying nonlinear tools. Empirical data are: (1) official U.S. NSSs, (2) historical vignettes, and (3) descriptions of the U.S. NSS processes.

The research model is depicted in figure 4. Strategies will be viewed through a nonlinear perspective (lens 1), separating the three dimensions of strategy for examination with nonlinear applications (tools). The discussion focuses on the application of nonlinear tools as a mean for understanding how strategies have been exercised. The discussions will be synthesized by viewing the findings holistic (lens 2).

In conjunction with the tenets of nonlinear theory, the research will be conducted with a holistic approach, going beyond the Newtonian paradigm. Hence, the research does not start at chapter one and progress toward the final chapter. Instead, one of the greatest philosophers of science Sir Karl Popper (1902-1994) provides a way forward. He did not believe in *grand design*[10] outlined by Newton and his followers, Popper's theory for problem solving was based on *piecemeal engineering*:[11]

$$P1 \rightarrow TS \rightarrow EE \rightarrow P2$$

Where P1 is the initial problem, TS the trial solution proposed, EE the process of error elimination applied to the trial solution and P2 the resulting situation.[12]
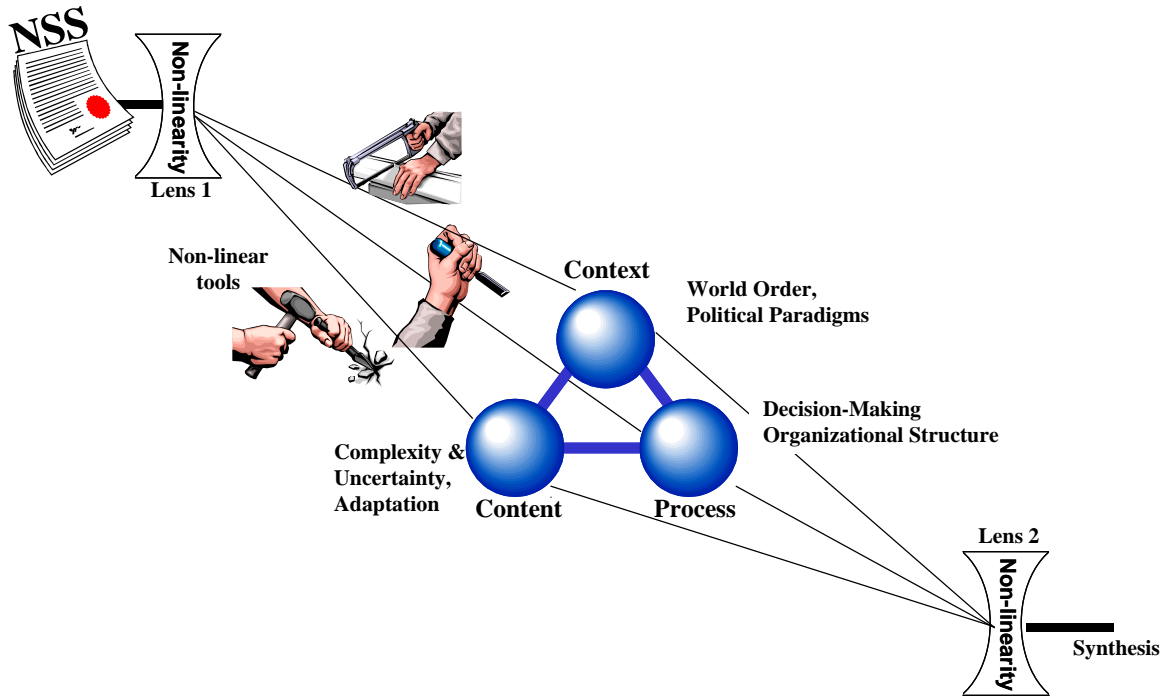
Figure 4. The Research Model

Rather than finding the optimal solution, Popper's theory calls for a continuous iterative reassess-readjust approach for finding an acceptable solution. This approach implies that all phases and drafts includes all chapters, and as the work progresses the product and the findings are continuously reassessed and readjusted. This approach recognizes the importance of continuous feedback and iterative progress.

Phases of Research

The phases of research are based on requirements to submit drafts, see figure 5. Initially focus will be on building a theoretical framework. Gradually the focus will shift to study historical vignettes and other empirical data.

Draft
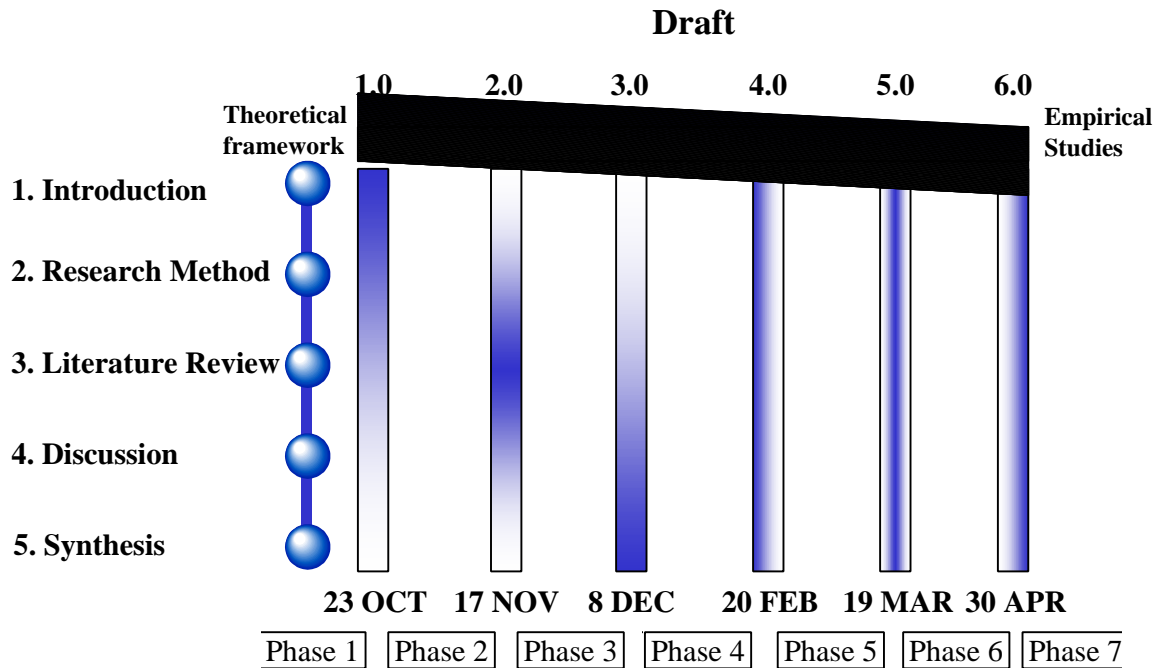
Figure 5. Phases of Research

Phase 1 focused on the first chapter and refined the method in the prospectus. The Literature Review was briefly covered. Chapter four included a discussion on the dimensions of strategy and outlined the identified variables. The final chapter was only outlined by headings and key sentences. The main effort during phase one was to summarize the tenets of nonlinear theory in the "Introduction" chapter. Examination of nonlinear theories provided a foundation for understanding potentials of nonlinear applications in NSS. In addition, relevant characteristics and tools were identified and discussed. The submission of draft 1 was the required revised prospectus, and completed phase 1.

Phase 2 focused on the Literature Review and the Discussion. Based on a sound understanding of the research topic, a categorization of key literature and a literature review were documented. Key issues from previous research and their relevance to the

thesis were also highlighted. In addition, the research method was refined. A description of nonlinear tools was included in chapter one. The submission of draft 2 completed phase 2.

Phase 3 focused on the chapters four and five, including discussions on all variables developed in chapter four. As the first substantial building block in chapter five, a section on post-internationalism was added. Phase 3 also included further developed discussions of all variables in chapter four. The contribution in this phase was to add historical vignettes to the theoretical frameworks. Changes in chapters four and five also generated a revision of the first three chapters. The submission of draft 3 completed phase 3.

When phase 4 started, all major parts of the thesis have had special attention at some point during the research. Due to time constraints and increased knowledge, a need for revising and complementing parts in all chapters was anticipated. Phase four focused on improving the internal structure of every chapter individually. Also, additional historical vignettes were added. Submitting draft 4 as the required draft to the committee completed phase 4.

Phase 5 focused on interconnecting chapters and section both logically and with a flow of text to make the thesis easy to read. In addition, minor refinements were made in all chapters. Submitting draft 5 as the required draft to the committee completed phase 5.

Phase 6 focused on synthesis and summaries in all chapters and their interconnection. The consistency of arguments for answering the research question gained special attention. In addition, minor refinements were made in all chapters. Submitting draft 6 as the required final draft to the committee completed phase 6.

Phase 7 included concluding adjustments before submitting the final version of the thesis.

Limitations

This paper is written from the U.S. perspective, focusing on U.S. NSSs and historical vignettes based on U.S. experiences. In addition, the preponderance of the literature used has U.S. authors.

National security matters involve instrumental use of diplomacy, military power, economic power, and informational power. Literature is biased toward the use of military power, also the author's background and knowledge reflects a focus upon high-intensity conflicts. However, the employment of military forces is to be used as a last resort, indicating that the vignettes have great significance for the national security.

Delimitations

Qualitative researchers commonly rely on multiple data collection to gain trustworthiness of the data. Often *triangulation,* for example, a combination of participant observation, interviewing, and document analysis is used.[13] Due to practical constraints, my research will rely solely on document analysis. I have also accepted the delimitations of not being able to draw any major statistical conclusions, instead the thesis will rely upon my ability to draw analytical conclusions.

The 1947 Security Act outlined the principles of authority and organization for national security is still in effect for NSSs. Historical vignettes will be examined from the period after 1947.

As Waltz's model in chapter one indicates, international relations intertwine foreign policy and domestic policy. The Level I analysis reflects foreign policy concerns, while domestic policy has great impact on the Level 2 analysis. Level 2 analysis focusing on processual challenges in domestic policy issues as such is beyond the scope of this paper. In addition, *internal* national security issues, such as force structure and appointment of key personnel, are not considered.

The international economic system is regarded as interwoven in the political system, not acting independently.

Assumptions

The degree of consistency between official U.S. NSSs and unofficial NSSs is assumed sufficient for the findings in the thesis.

Application of Theoretical Tools and Empirical Data

From a methodological point of view, the thesis is based on a theoretical pillar, introducing and applying nonlinear theories, and an empirical pillar, making the theories come alive and understanding how theories can be related to NSSs practices.

Theoretical Tools

The nonlinear tools described in chapter 1 with complementary discussions in chapter 4 will be utilized to explore the potential benefit of applying nonlinear theory. Tools will be applied according to table 1.

Table 1. Applying Nonlinear Tools to Variables	
Variable	*Nonlinear tools*
Political paradigms	Waltz's Three-Level Model, CAS with a Bifurcation Diagram, Perrow's Rules
World order	CAS with a Bifurcation Diagram, Perrow's Rules, SOC
Decision making	Van Creveld's Rule, Perrow's Rules, Waltz's Three-Level Model, Allison's Model, Recognition Primed Decision making
Organizational Structure	SOC, CAS with a Perturbation Diagram, Van Creveld's Rule, Perrow's Rules
Complexity and uncertainty	Allison's Model (introduced in chapter four) , Jervis' Rules.
Adaptation	Three Levels of adaptation (Glenn-Mann-planning), Fitness Landscape Planning, Jervis' Rules.

Application of Historical Vignettes

As a coequal to the theoretical pillar of the thesis, empirical data are examined.

An understanding of NSSs and nonlinear theories require extensive historical elaboration.

The broad scope of the thesis implies a general historical approach implying a variety of

historical episodes rather than a deep study in a few case studies (Table 2).

Table 2. Applying Historical Vignettes to Variables	
	Historical Vignettes
Introduction	Development of nonlinear theories, MAD and Nuclear strategy, Operation Desert One, Ballistic Missile Defense, The Berlin Blockade, 1948-1949, Intervention in Haiti
Introduction to Context	The development of the state
Variables	
Political Paradigm	Development of Realism and Idealism
World Order	The Cold War
Decision Making	The Cuban Missile Crisis Prelude to Operation Just Cause
Organizational Structure	Bosnia
Complexity and Uncertainty	Interventions in Somalia
Adaptation	The termination of the Gulf War, The Korean War, Operation Restore Hope

<u>Significance of Study</u>

The thesis elaborates on improving the performance of strategists dealing with national security challenges. Any improvement of exercising national instruments of power is of great importance. However, the thesis only provides a first step to the nonlinear realm. Application of nonlinear tools, if feasible, has to be developed further. Thus, being more constructive and allowing influence of processes to have impact. Consequently, the thesis will only have indirect value by influencing or initiating further research and implementation.

<u>Challenges in the Chosen Area of Research</u>

Nonlinear theory does not provide any clear-cut solutions, still the reader must experience some value added. The major challenge is to provide a broad scope by intertwining nonlinearity theory with other theoretical frameworks and to make the abstract theories come alive in historical vignettes.

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[1]Laurence F. Jones and Edward C. Olsen, *Political Science Research- A Handbook of Scope and Methods* (New York, NY: Harper Collins College Publishers, 1996), 8.

[2]Ibid., 7-8.

[3]The term was invented by quantitative researchers to describe nonnumeric research. Hence, the term qualitative refers to a range of research methods (indeed I will use a range of methods). See Catherine Kohler Reissman, *Qualitative Studies in Social Work Research* (Thousand Oaks CA: Sage Publications, 1994), xii-xiii.

[4]Hugh Coolican, *Research Methods and Statistics in Psychology*, 2d ed. (London, Great Britain: Hodder & Stoughton, 1994), 60.

[5]Corrine Glesne and Alan Peshkin, *Becoming Qualitative Researchers: An Introduction* (New York, NY: Longman Publishing Group, 1992), 4-6.

[6]Laurence F. Jones and Edward C. Olson, *Political Science Research: A Handbook of Scope and Methods* (New York, NY: Harper Collins College Publishers, 1995), 14.

[7]Michael Quinn Patton, *Qualitative Evaluation Methods* (Beverly Hills, CA: Sage Publications, 1990), 40.

[8]Michael Porter, Andrew Pettigrew, and Henry Mintzberg.

[9]Bob De Wit and Ron Meyer, *Strategy: Process, Content, Context* (St. Paul, MN: West Publishing Company, 1994), xi.

[10]Erasmus Universiteit Rotterdam, [website]; available from http://www.eur.nl /fw/claus/Pope /Popetekst.html; Internet.

[11]Ibid.

[12]Blupete, [website]: available from http://www.blupete.com/Literature/ Biographies/ Philosophy/Popper.htm; Internet.

[13]Glesne and Peshkin, 24.

CHAPTER THREE

LITERATURE REVIEW

Introduction

The study will cover nonlinear theory, political science, and strategic theory. No single paper can be found spanning all three topics. Furthermore, the research involved extensive research to construct the theoretical framework. The literature review only covers the most significant contributions to the thesis. The order of presentation of previous research reflects the way the author has approached the research question.

Nonlinear Theory

Regardless of approach, almost any discussion on nonlinear theory includes references to James Gleick's *Chaos: Making of a New Science*. Gleick was the first author making the new science available to novices. The book provides an overview of the basics in nonlinearity by introducing a smorgardsbord of new concepts, terms, and basic mathematical models.

Mitchell Waldrop's *Complexity: The Making of a New Science* is in the same genre, but he has another approach. Waldrop describes how the applied nonlinear research at the think tank The Santa Fe Institute breaks new barriers. The book overlaps some of the areas covered by Gleick but expands on the application of the new concepts, without using mathematical models.

Glenn E. James' *Chaos Theory: The Essentials for Military Applications* makes chaos theory accessible for the military community by introducing basic mathematical models and relating the science to military applications. An extensive overview of

applied research is provided. The sections including processes and decision making were valuable entry points for further research.

All three books have served as introducers to the understanding of nonlinear theory, both by introducing subjects to novices and providing extensive references.

There are a limited number of papers and books covering nonlinear theory applications in international relations. Valuable overviews are provided in *Coping With Bounds: Speculations on Nonlinearity in Military Affairs* edited by Thomas J. Czerwinski and *Complexity, Global Politics, and National Security* edited by David S. Alberts and Thomas J. Czerwinski. Their contribution to the thesis is substantial, most of the nonlinear tools used in the thesis are introduced and important applications discussed. The explanation of bifurcation and the interrelationship with Complex Adaptive System (CAS) are based on the Czerwinski's book.

Robert Jervis' book *System Effects: Complexity in Political and Social Life* underscores the significance of feedback and interaction in systems. Jervis' Three Rules of Interaction: (1) results cannot be predicted from separate actions, (2) strategies depend on the strategies of others, and (3) behavior changes the environment will be used as a tool.

Political Science

Many books deal with international relations theory. James E. Dougherty and Robert L. Pfaltzgraff Jr. provide a holistic framework to this diversified research area in *Contending Theories of International Relations*. Their model is adapted by encompassing complexity theory and applied as a general framework for structure in the study of

political science. The book also gives a valuable summary of the evolution of decision-making theories.

Martin Van Creveld's *The Rise and Decline of the State* gives an extensive overview of the development of sovereign states. The state's phases of development from the seventeenth century is adopted to describe the states different roles. Also, predictions of the future role of the state are of significant value for the thesis.

Samuel P. Huntington's *The Clash of Civilizations* summarizes four different scenarios for future world order before introducing the book's thesis: an emerging world order with seven to eight competing civilizations. All five models for future world order are discussed in chapter 4.

Barry Buzan's monumental work *People, States and Fear: The National Security Problem in International Relations* provides a widely recognized conceptual base for NSS problems. Buzan's definition of the state (physical base, idea, and institutional expression) and threat (political, military, economical, and ecological) are adopted.

Charles W. Kegley Jr. and Eugene R. Wittkopf provide an important theoretical introduction to world politics in *World Politics: Trend and Transformation.*

In *Thinking Theory Thoroughly*, James Roesenau and Mary Durfee discuss a new paradigm more consistent to nonlinear theory than realism and idealism; postinternationalism. Postinternationalism is discussed in the concluding chapter. In addition, the book provides a valuable comparison between idealism (liberalism) and realism.

<u>Strategy</u>

Applications of complexity theory in strategy are predominately found in the corporate management literature genre. Bob De Wit and Ron Meyer provide a holistic approach to strategy in *Strategy: Process, Content, Context*. Their approach is supported by arguments from leading strategists like Andrew Pettigrew and Henry Mintzberg. De Wit and Ron Meyer's approach is used as the underlying framework for the thesis.

Graham T. Allison's *Essence of Decision: Explaining the Cuban Missile* Crisis provides both an important analytical model congruent with Waltz's Three-Level Model and a wealth of examples on nonlinear approaches to decision making.

The theoretical framework on organizational structure is based on Henry Mintzberg's *Structures in Fives: Designing Effective Organizations,* providing three distinct approaches to organizational design: Professional Bureaucracy, Divisonalized Organization, and Ad hoc-racy.

Henry Mintzberg and James Waters' article "Of Strategies, Deliberate and Emergent," Strategic has provided important input to distinguish between deliberate and emerging strategies.

American National Strategy by Amos A. Jordan and others gives extensive information regarding strategic processes and strategic content. *American National Strategy* is the most comprehensive source describing U.S. NSS in a historical context. Donald M. Snow and Eugene Brown's *Puzzle Palaces and Foggy Bottom* has been consulted as an important complement to *American National Strategy*.

Historical Vignettes

       Numerous references have been consulted to develop historical vignettes. There are several volumes providing historical overviews on U.S. Armed Forces involvement in conflict management. However, the author has deliberately chosen to use different sources to mitigate the risk of reflecting a narrow view on historical episodes.

CHAPTER FOUR

DISCUSSION

> It would be an obvious fallacy to imagine war between civilized
> peoples as resulting merely from a rational act on the part of their
> governments.[1]

> Karl von Clausewitz, *On War*

Introduction

Defining Strategy

In chapter one national security strategy, was defined as:

> The art and science of developing, applying and coordinating the instruments of
> power (diplomatic, economic, military, and informational) to achieve objectives
> that contribute to national security.[2]

This chapter discusses strategy from an abstract perspective by exploring

theoretical frameworks and thus nourishing the understanding on how strategy relates to

nonlinear theory. The abstract perspective is balanced by empirical studies of historical

vignettes. The term *strategy* is used in various contexts. Mintzberg points out that:

> Human nature insists on *a* definition for every concept. But the word *strategy* has
> long been used implicitly in different ways even if it has traditionally been
> defined in only one.[3]

Clearly, strategy must be defined before used. In this thesis, strategy means plans

and actions that have enduring effects, are broad in scope, and are difficult to reverse.[4]

This definition does not contradict the more specific definition (of NSS) above.

Military strategy has a long history in both theory development and practice. It is

often perceived as the origin of strategy in other areas as business and foreign policy.

Consequently, we will start by examining the characteristics of military strategy.

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Practitioners like Alexander the Great (356 B.C.-323 B.C.), Napoleon I (1769-1821), and von Moltke the Elder (1800-1891) were inspired by the maxims of Sun Tzu, Clausewitz, Jomini, and other theoretical strategists. The distilled historic knowledge of military strategy has created a coherent perception of the subject. The characteristics of strategy are:

1. Distinctive goals, guidelines, sequenced planning of actions, and resource allocations are fundamental parts.

2. The focus of effort is on a few key concepts to enable coherent execution.

3. Contingency planning is conducted for management of uncertainties.

4. The strategy can be regarded as a plan communicating intent and will of the highest level of authority in the organization.

5. The essence is to build up a posture strong enough to achieve the objectives despite "the fog and friction of war."

The concept of strategy is straightforward and easily adopted. However, the underlying assumptions of the strategy concept are based on the linear paradigm. The characteristics clearly indicate causality from intent to performance. However, contemporary research by Mintzberg and Waters highlights lack of linkage between intent and performance since some intended strategies are not executed and some strategies emerges as the situation unfolds.[5] The nuclear deterrence strategy during the Cold War was a deliberate strategy successfully executed. Consequently, the strategy for nuclear warfare during the same period was not realized. The U.S. strategy to support Berlin by air in 1948 and 1949 was not planned, the strategy emerged after the Soviet Union's blockade of the city. Operation Uphold Democracy provides us with an example

of emerging strategies. After winning a fair election in Haiti, 1990, Jean-Bertrand

Aristide was overthrown by dissatisfied elements of the army.[6] After a UN-brokered

agreement by President Aristide and General Cedras in 1993, the military blocked the

process and the UN responded by imposing economic sanctions.[7] In 1994, the situation

deteriorated further and the UN adopted a resolution authorizing member states to use all

necessary means to facilitate the departure of Haiti's military leadership and restore

constitutional rule and Aristide's presidency.[8] With the U.S. as the lead nation, a

multinational force was organized to carry out the UN's mandate by means of a military

intervention.[9] The mission was to get in, dismantle the repressive institutions that were

preventing democratic government from taking root, and subsequently set conditions for

a democratic development. It turned out that the operation required unusual flexibility

during the initial stages of the execution. Former President Carter, accompanied by

Senator Nunn and former Chairman of the Joint Chiefs of Staff Powell, attempted a last

diplomatic effort.[10] As the forces were en route to Haiti, an agreement was signed calling

for Haitian military and police forces to cooperate with the Multinational Force and

Cedras to retire and leave the country peacefully.[11] The agreement required a rapid

shifting from the forced entry plan to a permissive-but-uncertain entry plan.[12]

Strategy is not just a plan, it also encompasses execution. In addition, the concept

of strategy indicates a rational planning where uncertainties can be managed by attaching

an appropriate probability.

The management of uncertainty and complexity, and adaptation are discussed in

the section *Strategic Content*. Great confidence is put on the ability of senior officers to

adopt appropriate strategies through long-term planning. Together with organizational

aspects, the role of the leaders is discussed in the section *Strategic Process.* To view

strategy as a sequence of actions and decisions to fulfill intentions is myopic because it

only views the strategy from an internal perspective. The context of the strategy must be

considered. Mintzberg argues that strategy can be viewed as a pattern or a posture. For

instance, Mitchell derives a pattern of strategic deception by examining the political

rhetoric at three stages in ballistic missile defense development: President Reagan's "Star

Wars speech" in March 1983 addressing Strategic Defense Initiative; President Bush's

speech at Raytheon (the Patriot manufacturer) in February 1991 addressing Patriot

Missile accuracy during the Gulf War; and Theater High-Altitude Air Defense footprint

controversy involving the Clinton administration.[13] He argues that institutionally codified

practices like unjustified secrecy and misguided efforts underpin ballistic missile defense

advocacy, not scientific proof.

Each decision and action perceived by the environment will be subject to some

interpretation. Hence, strategy can be viewed as a pattern. In some sense all strategies try

to convey a message to the environment. However, the same patterns of actions and

decisions can be interpreted differently and even contradictory, but still logically based

on cultural background and underlying values. The German existentialist Heidegger

(1889-1976) tells us that truth is not objective but subject to our values, perception and

how it is revealed, "When one interpretation is opened up, other interpretations are

necessarily closed off."[14] The major political paradigms and the world order are

discussed in the section *Strategic Context.*

The discussion above indicates a distinction of strategy in context, process, and

content. Both Pettigrew and Mintzberg argue for a nonreductionist approach viewing

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process, context, and content as dimensions, and not elements of strategy.[15] While elements can be taken apart and examined separately, dimensions are closely interrelated as the height, depth, and width of a box.[16] In addition, the strategy process defines *How* strategies are developed and the strategic content clarifies the *What* output to be expected.[17] Finally, the context of the strategy determines the circumstances, that is, *Where, When, Who, and Why*.[18]

This chapter discusses the dimensions of strategy and is structured along the dimensions. The discussion focuses on two important variables in each dimension. The context perspective captures the most fundamental aspects of the environment by examining the nature of world order. We may conclude that the understanding of the environment does not only rely on studies on external developments but on insights on how our values and ideas transform external information to knowledge. Consequently, underlying political paradigms is the second contextual variable. The climax of the strategic process is decision making. Decision making is also the transition from planning to execution. A discussion on NSSs without a study of decision making would be incomplete. As we will see later the organizational structure is much more than a wire diagram, it is an abstraction of a social system, the organization. The organizational structure impacts the distribution of power and thus the strategic process. By examining the organizational structure, we develop an understanding of how the activities come together and accomplish results. In a fluid strategic environment, the ability to adapt will become crucial. Adaptation is discussed in terms of changing strategies during execution and is therefore the same concept as emergent strategies, discussed earlier in this chapter. Complexity and uncertainty is the nucleus of the nonlinear paradigm, as a variable

complexity and uncertainty will be discussed in planning and execution of strategies. The

discussion aims neither to be exhaustive nor conclusive. Instead, it aims to be open ended

and show that strategies can be best understood by adopting a nonlinear mind-set.

<u>Strategic Dimension--Context</u>

We shape our environments, then our environments shape us.[19]

Winston Churchill

Introduction

Understanding and adapting to the changing environment is crucial. An

evolutionary approach to strategy suggests a relationship between the environment and

the performance of the strategy. Context involves not only the international system but

also the underlying political context in which the strategy operates. Any discussion on

world order or political paradigms has a natural origin in the state. Consequently, a

discussion on the history and the role of the state precedes the examination of the context

variables.

The Role of the State

<u>History of the State</u>

The modern state originates from the city-states, which can be traced to

Mesopotamia after its unification around 2300 B.C.[20] Martin Van Creveld defines the

city

> as a permanent settlement with houses constructed of a durable material such as
> stone or brick. It contains a temple, a market place . . . as well as a building or
> buildings devoted to government, and a considerable number of inhabitants who
> no longer depend on agriculture as their principal occupation.[21]

Self-governed cities with citizens appointed to govern them developed primarily in the Mediterranean littoral. There was no clear-cut distinction between the governmental and private ownership. In addition, the distribution of power into executive, legislative, and judicial branches was not developed. Based on the direct system of government the cities had to be relatively small.

In contrast to city-states, empires were often mighty organizations with all power vested in the emperor (often head of the religion too), still with no clear distinction between public and private ownership. Given the great area and the centralized power, the emperor assigned officials to administer regions of the empire, and the process of bureaucratization started. A feudal system followed the collapse of the Carolingian empire and set conditions for the governmental system to evolve in Europe during 1337-1648. Still the state as an abstract organization with its own persona separated from its ruler did not exist.

The Peace of Westphalia (1648) ended the Thirty Years´ War in Europe. Independent states assumed sovereign rights, including freedom to conduct secular foreign relations.[22] During the period 1648 to 1781, the ruler was generally separated from the state and the state itself became an abstract organization. The progress was achieved by the development of a bureaucratic structure that emancipated itself from royal control and civil society. The structure strengthened the administrative control over society by defining borders, enforcing tax payments, and collecting all sorts of information about the state. The bureaucracy, with the support of tax income, made it possible to establish armed forces for external and internal security and thereby creating a monopoly over the use of violence.

Since 1648, the state has been regarded as the principal political unit, first in Europe and later in the rest of the world.[23] Initially the first states (France, Spain, Portugal, Britain, The Netherlands, and others) occupied less than 3 percent of the earth's surface. The spread of the state throughout the world can be explained by a combination of imperialism with a following decolonization and imitation of the Western European development. When the Portuguese territories of Angola and Mozambique were liberated in 1975, the process of decolonization and spread of state was in broad terms completed.

With the end of World War II a bipolar world order emerged. Both the U.S. and Soviet Union had the capability to destroy the earth with nuclear weapons. Hence, the ability to wage war diminished, and states turned inwards and adopted socialist ideas to create a welfare state.

By 1975, many states found out that the welfare system was too expensive or even socially desirable, hence the decline of state started. Currently the trend is reduced governmental influence: privatizing state-owned enterprises, reducing the state-controlled social welfare, and outsourcing parts of the justice system. Other organizations are filling the gaps of reduced states.

The State as an Entity

The state has been the most central entity when discussing international relations. Long before the Peace of Westphalia and the end of the Thirty Years´ War, Jean Bodin (1530-1596) and Niccolò Machiavelli (1469-1527)[24] outlined the modern state and its principal sovereignty. Thomas Hobbes (1588-1697) was among the first to grasp the nature of institutionalizing public power.[25] The purpose of sovereignty was to provide safety to the citizens.[26] By giving up some parts of the personal freedom to the state,

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citizens gain individual security provided by a judicial system and collective security by exercising protection of the states vital interests.[27] The legal use of violence was monopolized to the state, and John Locke (1632-1704) regarded the state as an instrument for the defense of the citizens.[28] Max Weber (1864-1920) stressed that the capability to administer and control the territory was central.[29] The fundamentals of bureaucratic organizations can still be traced to his ideas.

In a descriptive model by Barry Buzan, the state as a class of objects is represented by three interrelated components: the idea of state (citizens' shared values), the physical base of the state (population, territory, natural resources, and man-made wealth contained within its borders), and the institutional expression of the state.[30] Hence, states must have territory and population (physical base) as well as governing institutions (institutional expression). In addition, there must be some collective ideas that establish the authority in the minds of the citizens.[31] Accordingly, the collective security of citizens should be related to the components of the state.

Insecurity reflects a combination of vulnerabilities and threats. Hence, states should seek to reduce their insecurity either by reducing their vulnerability or by lessening the threats.[32] The definition of the state indicates that the threat can come in a variety of types; military threat is often the main concern of national security. Military action (usually) based on political objectives often threatens all components of the state; political objectives can also be accomplished by political means affecting the idea of the state and its institutions; economic threats may be more difficult to relate to national security because the normal condition amongst economic actors is competition and uncertainty.[33] The state is often only one among many levels of economic actors, and

responsibilities and interests are not always clearly definable. Hence, economic threats tend to be neither swift nor precise. Secondary military and political threats may emerge from economic threats. The national economy can be regarded as a part of the physical base of the state. It is also strongly connected with the ideology and institutional elements. Ecological threats, like transnational pollution, can damage the physical base of the state. It is also of importance to recognize the intensity, origin, and historical context of the threat.[34]

Two major environments make up security environment: the international political system and the international economic system.[35] The international political system is discussed later in this chapter. The economic system can be viewed as a system independent of international politics, or as another extreme, the economic system can be regarded as interwoven in the political system.[36] In this thesis, the economic system is regarded as integrated in the political system.

Political Paradigms

<u>Framework</u>

The area of international relations is complex and diversified reflecting different, to some extent overlapping, approaches and perspectives. There is no unequivocal way to represent the relations between various aspects of international relations theory. Hence, no effort will be made to structure the area of research, instead, based on James Dougherty and Robert Pfaltzgraff[37] and influenced by open systems theory, a holistic framework will be used, see figure 6. International relations theory can be viewed as an open system where all subsystems interact with each other and the environment. This paper only covers some of the variables. The *Ideologies* subsystem focuses on realism

and idealism, while the most significant *Contributing Academic Discipline* are nonlinear theories. Various *Approaches* like Balance of Power are discussed in historical vignettes. The *Basic* Concept focuses on War and Peace. Waltz's Three-Level Model for international relations, introduced in chapter one, forms the base for *Levels of Analysis (Actors).*

Traditionalist
Behavioralist
Utopian
Realist-Idealist
History-Description
Art-Speculative
Balance of Power

Sociology
Psychlogy
Economics
History
Mathematics
Strategy
Nonlinear Theories
Anthropology
…

Approaches

Contributing Academic Disciplines

Nationalism
Internationalism
Liberalism
Conservatism
Imperialism
Communism
Realism

War and Peace
Deterrance
Arms Race and Control
Diplomacy and Negotiation
Revolution-Insurgency

Basic Concepts

Rulers
Citizens
The Global System
Nation-State
Media
Transnationals Org.
Regional Organization

Ideologies

Levels of Analysis (Actors)

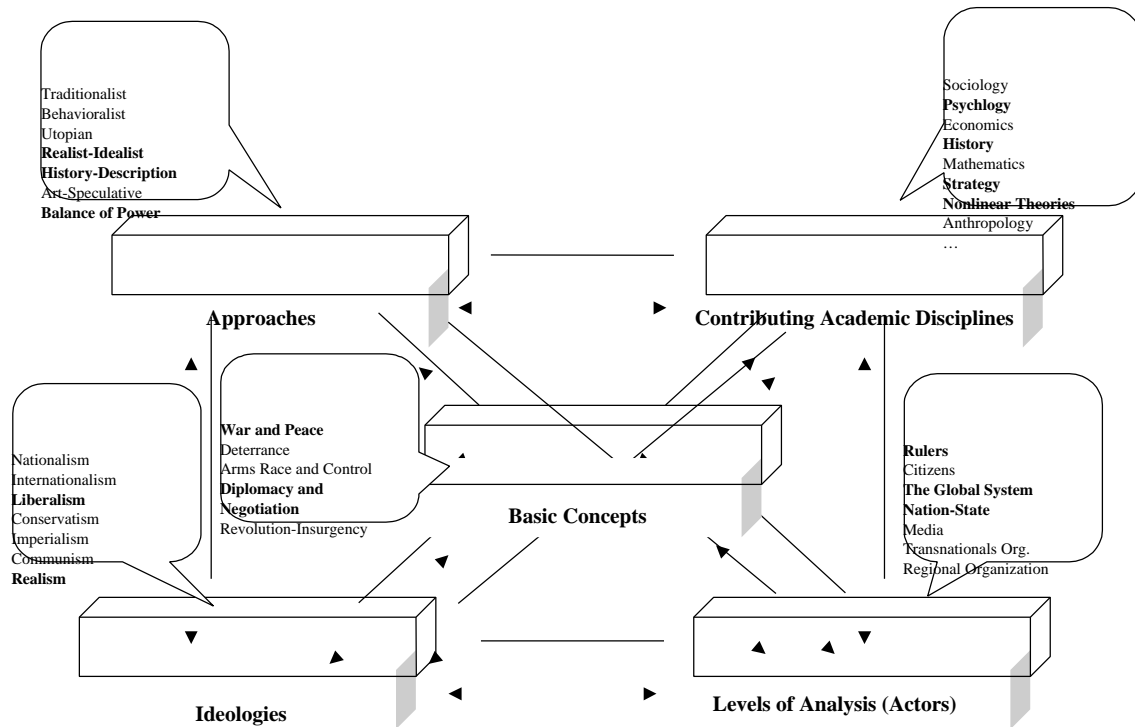Figure 6. Framework for Studies of Political Paradigms

<u>Development</u>

The two perspectives power and peace have dominated national security studies and international relations theory.[38] Those in favor of power base their arguments on the realist school, pioneered by E. H. Carr (1892-1982) and Henry Morgenthau (1904-1980). However, the Realist paradigm can be traced back to Machiavelli and even to Thucydides

(around 400 B.C.) in the period of the Peloponnesian War: "The strong do what they have the power to do, the weak accept what they have to accept."[39]

Idealism, or utopism, capitalizes on the ideals from the age of Enlightenment period: freedom, reason, progress, peace, and harmony between interests. Idealists base their arguments on the pioneers like Hugo Grotius (1583-1645) and Immanuel Kant (1724-1804). The Idealist school based their philosophy on liberalism and was influenced by David Hume (1711-1776) and Adam Smith (1723-1790). They advocated organizing international institutions to replace the anarchical and war-prone balance-of -power system.[40]

In time both schools have evolved to adjust to realities and replaced each other as the dominating school. The study of international relations began early in the twentieth century. World peace and optimism characterized the initial period, inspired by the progress in the Hague Peace Conferences in 1899 and 1907.[41] World War I was followed by an enthusiasm for collective security and dominated by the idealist school. Different Idealist groupings evolved, some characteristics were shared. War was viewed as an international concern requiring multinational efforts.[42] In addition, war was not inevitable and its frequency could be reduced by institutional arrangements such as The League of Nations. The fundamental concern for others welfare was believed to make progress possible.[43] World War II and the emerging Cold War had a significant impact on the policy rhetoric and academic discussion promoting realism as a reaction against the Idealist school. Realism, *Realpolitik*, influenced by Hobbes, views the sovereign state as the central actor.[44] No higher political authority was recognized; therefore, the anarchical nature of international politics was emphasized and conflicts to be considered

inevitable.[45] Power and self-help were regarded the most important means to the states survival.[46] The state's overarching objective was to promote the national interest by acquisition of power.[47] Stability was believed to result from maintaining a balance of power.[48]

The U.S. lack of success during the intervention in Vietnam and the creation of multinational institutions in Western Europe contributed to an increased dissatisfaction with realism during 1960s.[49] As a counterreaction, the behavioralism approach (sometimes regarded as a branch of idealism) emerged and dominated the debate during the 1960s and early 1970s.[50] Behaviorists shifted focus from studying constitutions and prescribing how states ought to be ruled to the study of the behavior of political actors and how states actually were ruled.[51] In the late 1970s a revival of the realist paradigm started.[52] Waltz merged different realist schools and formalized them into a formal theory--neorealism. Neorealism recognizes the need for small states to adjust their policies to influential and more powerful states. Influenced by the Cold War peak in 1979 neorealism dominated the 1980s. Neorealism, more than traditional realism, rejects explanations in international politics derived from analysis using Waltz's Three-Level Model on the national level (level II) or the individual level (level III).[53] Although power remains important to neorealism it is regarded a mean and not and end itself.[54]

With the end of the Cold War, arguments against realism and neorealism grew. In the dawn of the post-Cold War era the neoliberalism evolved emphasizing peace, progress, and prosperity.[55] Below the meta-theories for international relations, realism and idealism are discussed based on the characteristics nonlinearity.

Realism

       Realism is based on three assumptions: (1) states (or city-states) are the primary actors; (2) actors strive for power, either as an end or as a means for other ends; (3) actors behave, in general terms, rational and therefore comprehensible to outsiders.[56] Modern realists would agree that the use of war and diplomacy by states and that the search for power motivated state behavior are as important to the international system today as it was in the Greek city-state some 2,500 years ago.[57]

       In difference to neorealism, traditional realism may recognize choice and moral foundations as sources of state's behavior. Realism does not consider internal structures, histories, and cultures of states as important in explaining state's behavior. Given the same external stimuli, all states will behave in a similar way, if attacked they will defend themselves. Since realism assumes that all actors behave similarly, their internal characteristics are not significant.[58] Furthermore, realism tells us that only one single policy will be communicated by each state and any internal controversies will be resolved authoritatively.[59]

       From a realist standpoint, sovereignty deals with: (1) states occupying a territory and controling the course of events in that territory; (2) no *superstate* or *world government* can dictate the actions of a sovereign state; (3) all states manage their own faith; and (4) without security sovereignty cannot be maintained.[60] The lack of a superior authority, a global government, is positively valued and implies an anarchic system. However, anarchy is not synonym to chaos and disorder, instead it is regarded as positive.[61]

The anarchical international system strives to achieve four goals: (1) preserve the system and the society of states itself; (2) maintaining the independence or external sovereignty of individual states; (3) there is a goal of peace; and (4) limitation of violence.[62] The state's power can be defined in terms of population, territorial size, resource endowment, economic capability, military strength, political stability, and diplomatic competence.[63]

According to neorealism, if cooperation emerges at all, it is because a powerful state sets the rules and supports the implementation. If leadership declines, so will cooperation. In the realist paradigm change is not a significant issue, with the exception of increases and decreases in the states' capabilities. States raise and decline, but the behavior of the remaining states will stay constant. Critics have been raised that neorealism does not provide means to account for or describe fundamental contextual changes, as the transition from medieval to the modern system. By focusing on states and disregarding other global entities, the paradigm provides a significant simplification of the international system. However, realism helps us to understand how a lack of hierarchy in authority shapes the rules of the international system and confines the choices available to states.[64]

Realism and Nonlinear Theory

Based on realism only states are considered actors in the international system. Consequently, the system will consist of some 180 Complex Adaptive Systems (CASs). Each CAS is loosely coupled to all other CAS since the world order is anarchic. The focus on power and self-help indicates that realism is near the edge of equilibrium, with two major attractors: do nothing or influence competitors with primarily military power.

All actors behave in the same way, striving for power. *Aggregation* is accomplished by a state conquering another state. However, the expanded state (meta-agent) has the same properties as the agent; therefore the system does not apply to the rule of aggregation. As an exception alliances can be formed, but only after long-lasting and formalized negotiations. Although states behave equally, they differ in means of power. *Tagging* is accomplished by the state identity and means of power. If a state has recognized a negative trend in the balance of power, she might respond with decisive military power to "offset" the unbalance of a minor territorial violation. The response thereby will be a *Nonlinear* output. Realism does not recognize any *Diversity* amongst CAS except resources for projecting power. However, neorealists may argue a different behavior between small states and influential large states. All states behave unified as a rational actor. Realists therefore disregard the *Internal Model*. The *Building Blocks* are the same for all CAS since only states are regarded to be actors.

Realism originates from the belief that only the strong will survive, accordingly the Self Organization Criticality (SOC) for the international system will depend on power. States raise and fall but the system remains. The concept of sovereign states as the only actor can be traced to the linear *Majestic Clockwork* paradigm. Recent history bears witness on the difficulties to deal with disintegrating states. When Yugoslavia started to come apart, Slovenia and Croatia declared themselves sovereign states. Many European states did not know how to respond. However, Germany's proactive recognition of Slovenia and Croatia started a chain reaction. Based on National Security Council (NSC) 68 (discussed later) the U.S. security strategy foundation was containment of the Soviet Union during the Cold War, yet when the end state was accomplished and the Soviet

Union disintegrated the strategic community was confused and taken by surprise.[65] Albert Saperstein argues that the U.S. failure to successfully deal with the sovereign actor Iraq has been the fear of the breakup of the state and the policy towards suffers from the same dilemma.[66]

Idealism

Liberalism in general has the aim to preserve individual rights and maximize freedom of choice.[67] Liberalism has had a significant impact on democratic governments the last 250 years; however, liberalism has operated mainly domestically within countries. As, a consequence, liberalism regards the internal (domestic) characteristics to be crucial in international relations. Industrialization and commerce find war wasteful and injurious to markets, implying a reinforcing desire to solve crisis peacefully. Idealism evolved after World War I as a branch by liberals who sought to bring an end to the concept of war as a conflict-solving mechanism.[68] Idealism assumptions about world politics can be summarized in: (1) international anarchy does not imply a general state of war, (2) states are inherently different "entities," differentiated by how they relate to key issues, such as human rights, and (3) the aims of the state, as do the aims of the individual, go beyond the security to the protection and promotion of individual rights. [69]

States respect other nation's sovereignty by their existence, in the same way as citizens do in a country. However, states have a moral obligation to prevent human rights violations. The NATO bombing of Serbia and Kosovo can be regarded as a war based on liberal values. Milosevic's repeated and brutal violence of human rights was unacceptable to the NATO countries.

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If sovereignty is violated, force may be used in self-defense or collective defense. States are perceived to behave differently in the international community, depending on their values and internal actions. Increased trade, participation in international organizations, and democratic values reduce risks for war and violent conflicts. States are regarded as dominant and rational actors, however, with complex interests. Importantly, states are not regarded as the only actors. Keohane and Nye defined the complex interdependence based on three characteristics: (1) multiple channels of communication, such as regional security organization, UN, and international corporations; (2) multiple issues are of interest and there is no hierarchy of issues; and (3) military force is not used to solve conflicting interests.

After the Cold War, the term Structural Liberalism was used to describe the deep security arrangements in Western Europe where states do not balance each other but "cobind." Cobinding is believed to soften but not eliminate the anarchic relationship. Also, the U.S. leadership is not perceived as a hierarchic level or a threat to the sovereignty of the states. Consequently, the fading importance of the state as an actor is regarded as logical.

Idealism and Nonlinearity

The importance of cooperation and interdependence, while there may be situations where other state's have to actively defend the sovereignty, put idealism close to the second bifurcation in the bifurcation diagram, with a torus attractor (see figure 1): do nothing or defend the state or establish cooperation or avoid cooperation. Based on idealism sovereign states and significant stakeholders, such as international human rights organizations, are considered actors in the international system. Consequently, the system

will consist of more than "state-CAS." The coupling between CAS will vary from loose to tight depending on cobinding or interdependence between some nations. An actor's behavior is to some extent based on the states preconditions. *Aggregation* is accomplished by alliances. *Tagging* is accomplished by the state identity and the unique behavior of all actors. If an actor has recognized a negative trend in the interdependence, she will probably respond with diplomatic power to increase understanding and defuse the situation. Consequently, there will be limited possibilities for *Nonlinear* output. Idealism recognizes *Diversity* amongst CAS and all actors behave with different voices in different forum and therefore disregarding the *Internal Model* can be used to understand how the internal dynamics affect external behavior. The *Building Blocks* are different for "state CAS" and "nonstate CAS." Also amongst the nonstate-CAS' the difference can be great spanning from multinational corporations to transnational terrorist organizations.

Idealism originates from the belief that cooperation, accordingly the SOC for the international system, will originate in a structure based on interdependence.

<u>Realism and Idealism Compared</u>

The perception of international relations depends on the paradigm applied. Accordingly, NSS plans and decisions based on different paradigms will yield different products and outcomes. Some characteristics are in support of nonlinear theory, idealism more than realism. However, it is obvious that both realism and idealism stems from the underlying linear paradigm. [70]

Both realism and idealism are low complexity concepts, defined by a set a straightforward rules. Realists focus on discrete events when analyzing whereas liberalists tend to focus on issues. While a state's sovereignty and role as an actor in the

international system is fading, the importance of realism reduces. Realists view military assets as the primary source of power; idealists on the other hand regard knowledge and access as crucial. By limiting actors to states with rational behavior and a united voice toward other actors, much of the complexity is reduced. In addition realists do not consider domestic politics as a factor. Idealism has a broader perspective accepting peripheral actors and plurality of voices domestically. By accepting domestic politics, the impact on foreign policy increases the complexity in foreign affairs. Realists view alliances, formal pacts established after lengthy negotiations, as the primary means of cooperating with other states.

Idealists view cooperation as less formal and even emerging. Cooperation can be established for different issues, creating an overlapping structure of coalitions. Realists recognize the change in world order along bipolar and multipolar lines based on wars. Other changes are not easily recognized; however, neorealist concede that international organizations have an increased importance. The rule of law and opened markets allows moderate degrees of change in the international system. Both approaches have a limited scope dealing with complexity and uncertainty. Realism seems to be applicable in a bipolar world order with limited influence of nonstate actors. Liberalism goes one step further in accepting complexity.

Applying Perrow's Rules to the bifurcation diagram in figure 7 confirms the validity of centralized leadership for realist states, and to a lesser extent, for idealist states. More importantly, Perrow's Rules suggest a decentralized leadership for states going beyond traditional paradigms and adopt a nonlinear paradigm. The examination of realism and liberalism confirm the relationship with the linear paradigm and the necessity

of a new base for policy accepting complexity and uncertainty as natural elements of the international system (see figure 7).
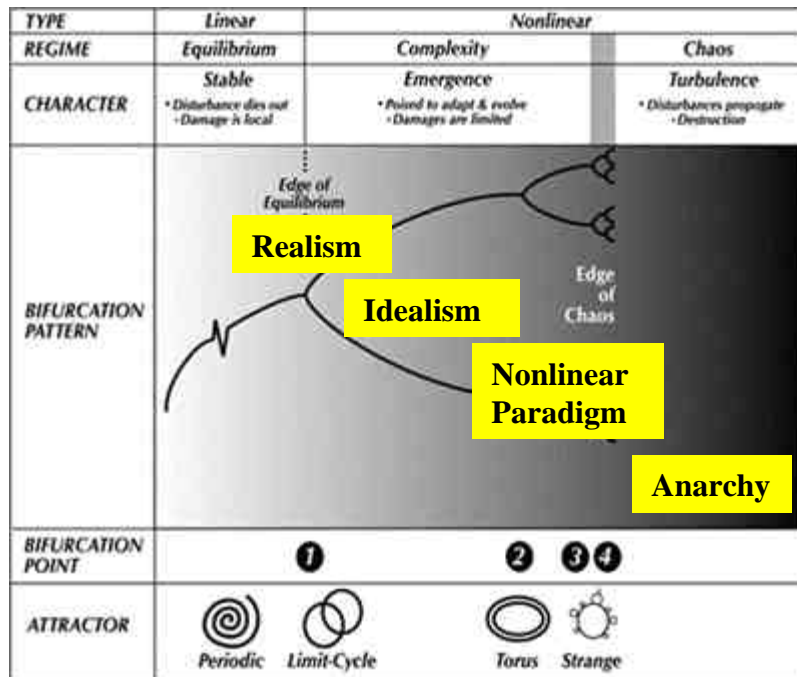
Figure 7. Political Paradigms Superimposed on the Bifurcation Diagram (Bifurcation Diagram © Tom Czerwinski, Coping with the Bounds: Speculations on Nonlinearity in Military Affairs, 1998)

World Order

Since the development of the modern secular state in the seventeenth century, the number of great powers has varied between two and five. Some argue that the world became unipolar after the end of the Cold War, with the U.S. as the first among equals.[71]

By 1975, many states found out that the welfare system was too expensive or even socially desirable, hence the decline of state started. Currently the trend is reduced governmental influence; examples of this reduction are privatizing state-owned

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enterprises, reducing the state-controlled social welfare, and outsourcing parts of the justice system. Other organizations are filling the gaps of reduced states. The future will be more fragmented and more interconnected, implying an increased interaction.[72]

At the end of the Cold War five different outlines of the world order were identified, representing different degrees of complexity and uncertainty:[73]

1. One World--Euphoria and Harmony. Francis Fukuyama's *End of History*[74] has influenced a prediction of a world order in harmony. Fukuyama argued that global conflicts may be over, that we might be at the end on the ideological evolution, and that liberal democracy may be the final form of human government.[75] Still conflicts in the third world may emerge. This worldview forecasts a stable and predictable future environment. Some ten years after the German unification, the euphoria has faded and the harmony is far from global. However, the Western values continue to expand in new colonies, like Bosnia and East-Timor.

2. Two Worlds--Us and Them. At the first bifurcation (see figure 7), people are divided into two groups, as has been the case many times in history (e.g., rich vs. poor, north vs. south). The West as the most powerful entity is probable, but which classification is the non-Western entity? Will other the non-Western entities unify in order to balance the power of the Western society?

3. One Hundred and Eighty-four States. Anarchical World Order. Sliding further on the complexity scale a realist would probably argue that the world order would consist of some 184 sovereign states. All states are equal, but some states are more equal than others. Regardless of the development, states will be important actors for a long time. Aspects of the realist paradigm were previously covered.

4. Sheer Chaos. In *Out of Control* Brzezinski predicted that intensified tribal, ethnic, and religious conflicts and international crime in combination with a severely reduced power exercised by states may shift the world order beyond complexity into chaos. Even though the chaos region is entered, there may be some order; however, the ability to forecast significant actions in the international system would be nearly impossible.

5. Seven to Eight Competing Civilizations. Hunnington argues that after the Cold War people are not separated by ideology, politics, or economy. Instead culture is the divider. Hence, the world can be viewed in seven to eight major civilizations. Hunnington argues that all four world-order concepts described above have significant limitations, for instance no one concept accounts for the prevailing trends, fragmentation, and integration.[76] Viewing the world as seven or eight civilization provides an easy framework that distinguishes important aspects and understands the driving forces.

World Order and Nonlinear Theory

Since we do not anticipate any external influence on world order, it is inherently a self-organizing concept. Thus, the different world orders discussed become attractors in the bifurcation diagram (see figure 8), reflecting different degrees of complexity and stability. In addition we have seen that the international political system itself can be regarded a nonlinear system since it has many components, many feedback loops, and multiple interconnections between actors.

TYPE	Linear	Nonlinear	
REGIME	Equilibrium	Complexity	Chaos
CHARACTER	**Stable** • Disturbance dies out • Damage is local	**Emergence** • Poised to adapt & evolve • Damages are limited	**Turbulence** • Disturbances propagate • Destruction
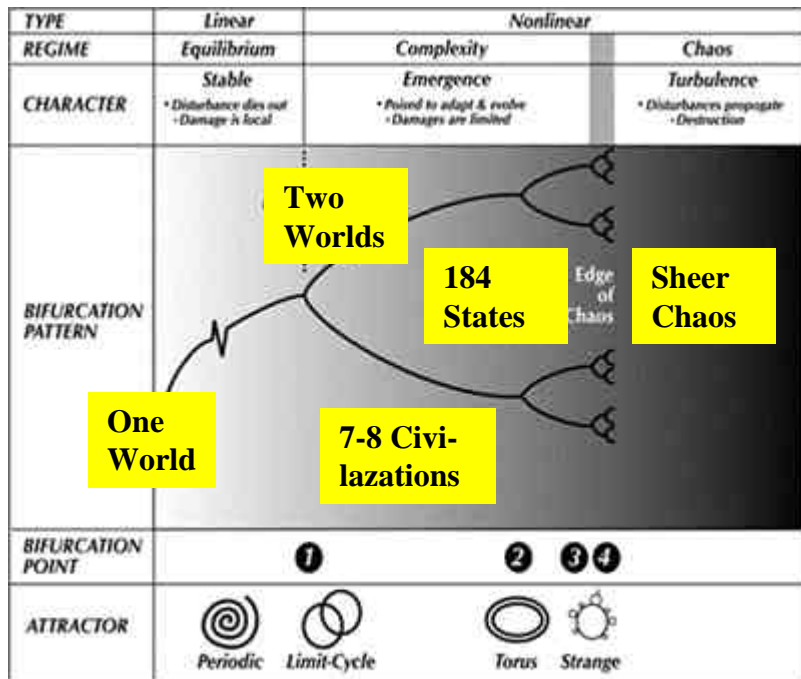
Figure 8. Different World Orders Superimposed on the Bifurcation Diagram (Bifurcation Diagram © Tom Czerwinski, *Coping with the Bounds: Speculations on Nonlinearity in Military Affairs,* 1998.)

The Schlieffen plan created a tight coupling. World War I was initiated by a quarrel on the Balkans.[77] In systems with tight couplings, changes in one part of the system will initiate changes throughout the system, better known as Domino Theory.[78] Experts view tightly coupled systems as more dangerous than loosely coupled systems.[79] Based on Perrow's rules we can argue for an authoritative UN (or an other global security organization) if the SOC converges toward One World or Two Worlds. On the other hand, if the SOC is more complex supranational organization, like the UN, should have less influence.

Saperstein argues that strategic planners benefit from a nonlinear theory since they are helpful in identifying trends and transitions where stability is prevalent. If an incomplete model of an international crisis indicates instability, then it is likely that a complete model will be more instable in that region. It is important to bear in mind that the opposite relationship does not exist.[80]

Strategic Dimension Process

Plans are nothing. Planning is everything.[81]

Dwight D. Eisenhower

Introduction

When Frederick the Great and Napoleon I issued strategies, staffs were seldom involved in the preparations and the process was very simple. Projection of power often involved employment of military (land) forces, and the head of state was the same person as the field commander. Today some 30,000 employees in the NSC, DOS, and DOD are to some extent involved in the process of developing NSSs.

This section discusses *how* intended and emergent strategies are formulated focusing on organizational structure and decision making. Formulation of strategies involves many processes: formal, informal, rational, as well as, irrational. A process-oriented approach suggests a relationship between the processes and the performance of the strategy. In large and complex organizations, it is a great challenge to get all employees focused on the same goal.

Dennis Drew and Donald Snow capture the linear paradigm by describing the strategy process in five steps: (1) determining national security objectives, (2) formulating grand strategy, (3) developing military strategy, (4) designing operational

strategy, and (5) formulating battlefield strategy (tactics).[82] In a typical linear approach

they argue that *fog*, *friction* and *chance* create challenges for the commander, but the

issue is not dealt with in the analysis.

<div align="center">Decision Making</div>

<u>Theories</u>

The research in decision making has followed two paths: in the business

administration path, decision making was viewed as an optimization problem finding the

best option in terms of economic gain on effectiveness; and the psychological path tried

to clarify individual's motives for decisions.[83] Snyder studied the motivational analysis of

decision making and concluded that motives of the state are not separable from the

motives of individual decision makers who act on behalf of the state.[84] This view of

decision making focuses on motives and was occupied with the personality of the

decision makers.[85] Hence, no generalizations could be made, and therefore, this path has

gained relatively limited interest. The psychological path of decision making is often

narrowed to the study of the official decision maker(s).[86]

The mathematicians John von Neumann (1903-1957) and Oskar Morgenstern

(1902-) published *The Theory of Games and Economic Behavior* in 1947.[87] Many

regard this work as the starting point for the business administration path, often regarded

as the classical decision theory.[88] The model generalized decision makers to behave

strictly rational in order to achieve optimal output of decisions. This approach stands as a

hallmark of the classical linear decision making:

1. Identify problem

2. Generate alternative solutions

<div align="center">69</div>

3. Evaluate and choose between alternatives

4. Implement the chosen solution

5. Maintain the solution via monitoring, review, and appraisal[89]

The model appears to be robust, especially if feedback loops are added. However, the model is underpinned by an assumption of perfect knowledge and perfect rationality.[90] The decision maker is assumed to possess all the required information when needed, and decisions will be conducted without human characteristics, like values, prejudice, or emotion.[91] Consequently, it has been repeatedly demonstrated that decision makers seldom "comply" with the model.[92] Judith Orasanu and Terry Connolly argue that the classical decision theory does not reflect the conditions in real-life situations. Problems tend to be ill structured, sometimes with ill-defined and competing goals; they take place in a dynamic environment without complete or accurate information. Often decision making is not occupied with a single event at which a single action is chosen, rather the decision maker has to deal with feedback loops, time stress, and high stakes that are often characteristics of this environment. Many problems do not involve only a single-decision maker but several individuals making decisions in different functions and levels. Also, the values and norms in the organization will impact the decision making.[93] Realism and idealism, discussed earlier, are examples of political paradigms with different value sets.

There have been several responses to explain *irrational* behavior.[94] The most successful way has been to more accurately describe decision processes for individuals and groups. Richard Cyert and James March recognized that human's intentions of making a rational decision rarely succeeded. They combined the economic aspect,

maximizing profit, with the bureaucratic aspect, trying to achieve satisfactory and sufficient outcomes.[95] The combination was *Satisficing* decision making, that is, focusing on an option that meets the objectives rather than finding the optimal solution maximizing all variables. General George S. Patton Jr. argued, "A good plan executed now is better than a perfect plan next week."[96] In contrast to classical linear decision theories, focus is not on alternatives but finding an acceptable solution. In 1959, Charles Lindblom introduced *The Science of Muddling Through* arguing that that complex problem cannot be solved by traditional analytical methods as outlined above.[97] The traditional method is absolute in building a complete plan from the beginning by identifying and managing all variables that can affect the performance.[98] When crafting strategies, there are too many variables and not enough money or time to allow a full examination of all variables and their interrelationships. Instead, a *satisficing* method should be used for a course of action. The method allows many small incremental changes during a short time frame. "The most common and intuitively reasonable thing is to make an incremental decision based on what has happened up to that point."[99]

Recognition-Primed Decisions (RPD), pioneered by Herbert Simon[100] and now dominated by Gary Klein, represents one of a family of methods more accurately describing the decision process for individuals and groups based on the satisficing concept. The decision process consists of three steps: at the *Situational Recognition phase* the decision maker recognizes and classifies the situation based on previous experiences. In the *Serial Option Evaluation phase* alternative actions are evaluated until a satisfactory action is identified. Alternative actions are queued according to typicality. The first action evaluated is the most typical in this type of problem. In the final *Mental*

Simulation phase the decision maker mentally simulates actions to be taken and potential

outcomes and potential problems. As a result, the actions are implemented or modified.[101]

The RPD is not universal, it is most suitable for time-constrained decision making with a

high level of expertise.[102]

A cognitive description of decision making in dynamic and time-constrained

environments starts with a perception of the new information elements. Decision makers

are constantly bombarded with an enormous amount of information.[103] Based on the

leader's focus, cognitive capacity, and experience, specific sets of information will catch

his or her attention. Information elements are encoded by one of the sensory memories,

transferred, and processed by the short-term (or working) memory.[104] By communicating

with the long-term memory, the new information element can interact with the leader's

knowledge, that is, strategic understanding and situational awareness. The levels of

uncertainty correspond with the three cognitive levels of situation awareness: perception

of information elements, comprehension of the current situation, and projection of future

status. Knowledge is stored in the long-term memory as schemata (e.g., objects, events,

and situations) [105] and combined in scripts to represent sequences of events or actions.[106]

The more experienced the decision maker, the more scripts will be applicable to the

situation. When processed, the new information chunk incrementally develops the

leader's situational awareness. The working memory is then used to project the perceived

situation based on a set of scripts (possible solutions). This process is accomplished in

sequence, and once a satisfying script is found, the problem is solved. Based on this

description we conclude that cognitive decision making is incremental, intuitive,

satisficing, and congruent with RPD.

The linkage to nonlinear theory can be made through pattern recognition as a character of CAS.[107] Based on Cyert and March's findings Allison's study of the Cuban Missile Crisis argues that most analyses think of governmental behavior as a Rational Actor Model, that is, the classical linear model. Although this model may be useful in some cases, two additional models must complement it.

Allison's model clearly has similarities with the Waltz's Three-Level Model. The first model explains governmental behavior with the Rational Actor Model which implies logic and unified actions based on calculations to make decisions optimizing the outcome. The second model, the Organizational Process Model, explains governmental behavior as semi-independent outputs from different parts of different organizations. Procedures and routines have significant impact on the output, thus limiting the influence of the leader. Problems are divided into subproblems and solved in various parts of the organization based on the *satisficing* model, thus not striving for an optimal solution.[108] The third model, the Bureaucratic Politics Model, explains governmental behavior by competition among key players guided by personal goals of power attainment. Relative power and bargaining skills amongst the key players have significant impact on the outcome (decision making).

In chapter one, Perrow's Rules and Van Creveld's Rule were discussed. In this section, the toolbox has been expanded with RPD and Allison's Three-Perspective Model. Both Waltz's and Allison's models have linkage to nonlinear theory via the CAS concept. Based on Martin Heidegger, truth is not objective but subject to how it is revealed. Using three perspectives will unfold situations differently and yield different explanations. Accordingly, CAS theory tells us that the system's history is irreversible.

<u>Distribution of Power</u>

Baron de Montesquieu (1689-1755) formulated a theory of power distribution in states. Success for states, he argued, depends on maintaining a proper balance of power between three branches: legislative, executive, and judicial. As in most democratic societies, the U.S. system of power distribution is based on Montesquieu's principles. The Congress' influence in the NSS process is primarily through the budget process, legislation with impact on both planning and execution,[109] and organizational issues.[110] In addition, according to the War Powers Act the President has a sixty-day limit to wage war without approval by the Congress.[111] However, this act has not been recognized by most of the presidents. For instance, Congress has still not authorized the Kosovo Campaign, initiated by President Clinton in 1999. The legal authority of the President to continue hostilities against Serbia was subject to a court ruling in 1999. The Federal District Court for the District of Columbia granted the President's motion to dismiss.[112]

> [T]he Judge . . . focused the lack of an "impasse" between the two political branches as the primary justification for dismissing the challenge. As a result, this decision provides further confirmation . . . that while the Constitution does mandate a congressional role in war making decisions, the "implied consent" of Congress in support of the President's war making initiatives satisfies this constitutional requirement.[113]

Further discussions on the distribution of power between the legislative, judicial and executive branch and external influences are beyond the scope of the thesis, instead focus is on the power within the executive branch, focusing on the president and the NSC.

The focal point of the NSS process is the President and the NSC with its subordinate working groups.[114] The President as the "executive power" has substantial authority for foreign affairs and responsibility before the Congress to comply with their legislation. The NSC was created by the National Security Act of 1947 to replace the State-War-Navy Coordinating Committee.[115] The act provided sufficient latitude for the President to design the NSS process based on own preferences.

President Truman focused the NSC to promote his decision making rather than providing options.[116] Based on his military experience President Eisenhower attempted to formalize procedures and make the decision making proactive. More importantly, his administration organized subcommittees as the National Security Planning Board and the Operations Coordinating Board to oversee and coordinate policy formulation and implementation.[117]

The Kennedy administration perceived the system to be too bureaucratic and lack the flexibility needed to cope with the dynamic international environment.[118] Consequently, President Kennedy organized a strong staff in the White House for assistance in national security affairs and moved to a more ad hoc system. The NSC met frequently discussing issues prepared by interagency task forces.[119] Also, Kennedy more than the previous president involved himself in details. President Johnson restricted the process of deliberation and decision making to involve a limited number of people.[120] In some instances, the NSC was informed only after a decision was made.

The Johnson administration established a permanent interdepartmental committee Senior Interdepartmental Group with subordinate regional groups (Interdepartmental

Region Groups). However, the most dominant issue, the Vietnam War, was not administered through those channels, thus making Interdepartmental Region Group dealing with peripheral issues.

The Nixon administration moved from the ad hoc system to an Eisenhower-influenced centralized system organized in the White House Office under the President's security assistant, Kissinger. Unlike the Eisenhower administration, the NSC was not focused to produce recommendations but to provide options. The Senior Interdepartmental Group-Interdepartmental Region Group concept was adapted from the previous administration by utilizing Interdepartmental Groups (IGs) for studying problems, providing policy options, and assessing alternatives. A Senior Review Group was organized to assess IG recommendations. Kissinger controlled most influential work conducted by IGs.

President Ford was more formalistic than his predecessor, President Nixon, and his management system had resemblance with Truman's and Eisenhower's.[121] President Carter downsized the NSC organization but kept their mission. NSC committees were organized in three basic committees: the Policy Review Committee, the Special Coordination Committee, and IGs on the assistant secretary level.

President Reagan reduced the importance of the Assistant to the President for National Security Affairs. Accordingly, the secretaries of state and defense could operate more freely. The Iran-Contra affair indicates insufficient centralized control. President Bush restored the power and influence earlier vested in the NSC and the President's National Security Advisor. Few formal NSC meetings were conducted, instead relying on the Principals Committee (NSC/PC) and Deputies Committee (NSC/DC) to develop and

implement long-range strategies. Bush consulted an ad hoc group and conducted one-on-one meetings to manage crises. The Clinton administration kept the structure and functions of the previous administration. President Clinton put more emphasis on economic issues in national security policies and accordingly included the Chairman of the White House National Economic Council in the NSC.

This brief overview supports Allison's Three-Level Model. Based on the Rational Policy Model organizational design reflects changes in the international environment. Eisenhower set up an administration designed for a static Cold War while Kennedy recognized the dynamics and created an ad hoc organization. Based on the Organizational Process Model, organizational changes can be explained by the complexity of national security issues and the need for more than one agency to be involved. Furthermore, IGs were introduced to manage complexity and uncertainty. The increased centralized control became a reaction to continue management with the same level of detail in an expanding organization. According to the Bureaucratic Model changes in organization can best be understood by the power play between key actors and the personal interrelationships. Personal relationship with the president, more than one's position, has defined authority for key actors in the process. Adviser Kissinger soon became the power hub in Nixon's administration. Secretary of Defense McNamara was most influential in Johnson's administration. Secretary of State Baker had a long relationship with President Bush and was entrusted with a great deal of confidence during the Gulf War.

In the following sections, decision making during the Cuban Missile Crisis and the prelude to Operation Just Cause will be examined.

Cuban Missile Crisis 1962

In October 1962, the Cold War peaked when the Soviet Union deployed strategic nuclear missiles on Cuba, less than 100 miles off the shores of Florida. President Kennedy was faced with the ultimate challenge to avoid a nuclear war without backing-off a Soviet aggression. Beginning late in 1960, the National Security Agency intercepted messages concerning Soviet ships bound for Cuba. The cargo manifests did not indicate what they were carrying. Additional intelligence collection revealed that the unloading operation was to be carried out with extra ordinary measures to prevent observations. Soon it became apparent the Soviet Union in concert with Czechoslovakia was supporting a military buildup in Cuba. The potential introduction of offensive missiles on Cuban territory became the concern for intelligence analysts and policy makers. The number of deliveries and the efforts to conceal the missiles increased in 1962. Soviet representatives, including the foreign minister, assured the U.S. that the military equipment sent to Cuba was for defensive purposes only. Deliveries escalated further in August and September 1962, and construction of SA-2 surface-to-air missiles were detected. The SA-2s had the capability to strike U.S. military aircraft, including the Central Intelligence Agency's U-2 photographic reconnaissance planes. On 10 October, the Cuban air defense system seemed to be complete. Four days after, a U-2 reconnaissance mission discovered that the Soviet Union was preparing sites to install SS-4s, medium-range ballistic missiles with the capability to be armed with nuclear warheads.[122]

Based on the Rational Actor Model, the Soviet move could be explained as a strategic choice. The decision was not primarily a bargaining play for withdrawal of U.S.

missiles in Turkey, nor a diverting trap to induce a U.S. attack on Cuba and thereby set conditions for a Soviet attack on Berlin, nor to enhance Cuban defense against U.S. attacks, nor to test U.S. resolve, but rather to quickly alter the nuclear balance in the Soviets' favor.[123] Allison argues that this explanation "incorporates more of the critical details about the characteristics of the Soviet action."[124]

The timing of the Cuban Missile Crisis was a function of procedures and routines in the U.S. intelligence community, thus explained by the Organizational Process Model.[125] Many reports and indicators had to be processed and analyzed before the U-2 mission over Cuba was initiated.[126] The decision to conduct a U-2 reconnaissance mission was conducted on 4 October, but not until 14 October was the mission executed.[127] Among other things there were opinions on who should carry out the mission, the Air Force or the Central Intelligence Agency.[128] On 16 October, two days after the U-2 mission, the processed information was passed to the President. His immediate response was to set up a group with whom he wanted to take council.[129] The group (Executive Committee of the National Security Council) included Secretary of the Treasury C. Douglas Dillon, Secretary of State Dean Rusk, Secretary of Defense Robert S. McNamara, Attorney General Robert F. Kennedy, Kennedy's aide McGeorge Bundy, and the President's Chief Domestic Advisor Theodore Sorensen.[130] Others participated on a case-by-case nature. Analyses of Executive Committee meetings suggest that the discussions did not follow a rigid structure and that they largely dealt with scrutinizing of historical analogies.[131] Thus, the decision making was intuitive rather than analytical. However, options ranging from "do nothing" to invasion were considered.[132]

After nearly six days of consultations the President went public on 22 October. He announced the Soviet move in Cuba and the decision to enforce a naval quarantine (i.e., blockade), preventing any additional Soviet missiles entering Cuba.[133] Based on the Rational Actor Model, the decision can be explained as a strategic value-maximizing escalation.[134] The U.S. nuclear superiority would prevent Soviet nuclear responses and together with the local conventional superiority would exploit the threat of subsequent nonnuclear steps and make a naval quarantine sufficient to prove U.S. determination to see the missiles removed.[135]

Based on the Organizational Process Model the Executive Committee of the National Security Council's meetings produced broad alternatives, their implementation had to be specified by the executing agencies.[136] Soon the discussion focused on two options, an air strike or a blockade. Since the Air Force would be the executing agency for an air strike, an Air Force *expert* was consulted to discuss the risks associated with the *surgical* air strikes outlined.[137] Allison reveals that the Air Force planners modified an existing contingency plan by adding the Soviet missile sites. The planned called for 500 sorties involving extensive collateral damage. Thus, surgical air strike had a different meaning in the Air Force than the Executive Committee of the National Security Council's intentions. The Joint Chiefs stated that all targets were vital to the U.S. and limitations on the plan attack would pose an unacceptable risk.[138] General Sweeney, Commander of the Tactical Air Command, stated that the Air Force could not guarantee a higher success rate than 90 percent in a surprise air strike.[139] This conclusion was not grounded in an estimate but derived from standard operating procedures. The risk and

collateral damage associated with the air strike alternative was a major factor for the President to reject this option and adopt the blockade option.

Based on the Bureaucratic Politics Model, the decision making can be viewed as a series of overlapping bargaining games.[140] Since the failed Bay of Pigs invasion by Central Intelligence Agency-backed Cuban exiles in 1961, Cuba was a political Achilles heel for the Kennedy administration, and the Cuban Missile Crisis occurred only weeks before Congressional elections, making the political pressure heavy on the President.[141] Avoidance of firm action would be signs of weakness.[142] Attorney General Kennedy worked out a compromise based on the options discussed and Allison argues that the decision was "part choice and part result, a melange of misperception, miscommunication, misinformation, bargaining, . . . as well as a mixture of national security interests, objectives, and governmental calculations recounted in more conventional accounts."[143]

The decision making during the Cuban Missile Crisis is unique. The decision dealt with a potential nuclear war with the Soviet Union. Also, the deliberations in the Executive Committee were recorded and available for analysis.

U.S. Foreign Policy Toward Panama, 1977-1990

U.S. policy toward Panama has been dominated by the Panama Canal and associated treaties.[144] After the Treaty of 1977 signed by President Carter, outlining a transfer of control to Panama in 2000, Panama's significance for policy maker was reduced.[145] Noriega rose to power without the concern of the U.S. despite his known involvement in drug dealing.[146] When Spadafora, an influential domestic critic of Noriega, was killed the U.S. policy started to change.[147] However, the Reagan

administration was giving mixed signals, and there were different opinions whether

Noriega's power was a threat to Panama's stability.[148]

> These conflicting positions were not just rivalries among bureaucrats: separate policies and objectives were being pursued. Policy toward Panama was determined by other interests among policymakers: the Justice Department's enthusiasm for indictments and the NSC's concentration on the Contras, to name two. The drawbacks of the decentralized system of policy formulation and evaluation under the Reagan administration became apparent. The system did not reconcile the conflicting positions among key government actors. Therefore, Noriega was effectively able to maneuver between State Department disapproval and less harsh attitudes elsewhere.[149]

The increased media coverage on Noriega's corruption and the failed election in

Panama made President Bush feel that Noriega had gone too far. Accordingly, Bush

changed the posture in December 1989 and decided on the U.S. to intervene and enforce

the removal of Noriega from the presidency. This was a result of a gradual shift in U.S.

policy and a result of years of unsuccessful policy allowing Noriega to act without

interference for years. Operation Just Cause was conducted to change the American

policy toward Panama and reestablish U.S. influence in the country. Based on his long

experience in the NSC, director of Central Intelligence Agency, and as vice president,

Bush understood the importance of consulting experts. Central Intelligence Agency, Drug

Enforcement Agency, Federal Bureau of Investigation, National Reconnaissance Office,

and State Department including the Ambassador were consulted. Several agencies were

also involved to validate the information from the Medellin cartel regarding planned

bombings of U.S. installations. As early as 20 May after the failed election, Bush

determined that an escalation of harassment to physical attack on U.S. servicemen would

be unacceptable. When Lieutenant Paz was shot on 17 December, that criteria triggered

the recommendation to the president to launch of the attack. Despite the short notice, all

key players but Vice President Quayle and White House Chief of Staff Sunnunu were present when the president was briefed and made the decision to conduct the offensive operation. The Chairman of the Joint Chiefs of Staff only provided the President with one option, to conduct the operation. The president concurred with his advisors and made the decision. President Bush clearly communicated his decision. He did not make any attempts to wait for more information. Consequently, the military organization received immediate response on suggested actions.[150]

Decision Making and Nonlinear Theories

As the administration has grown, an increasing number of IGs have been organized. Thus, the administrations have gradually increased the information processing by utilizing multiple channels. Conversely to Van Creveld's Rule, an increased centralization has occurred. The overview of the relationship between the president and the NSC indicates a flexibility to adjust the organization based on the president's decision-making philosophy. Viewing the distribution of power with Allison's Bureaucratic Politics Model indicates that not only has the personal relationship more significance than the formal position but also indicates that the President may not be the most influential actor in the process. In 1979, President Carter favored a diplomatic solution to the Iranian hostage situation, because of the upcoming elections.[151] However, his national security advisor, Brzezinski, instructed the Pentagon to "begin planning for a rescue mission or retaliatory strikes in case the hostages were harmed."[152] A subsequent presidential decision initiated Operation Desert One. Secretary of Defense McNamara was soon elevated to the most indispensable position in the Johnson administration.[153] During the Vietnam War, he dominated the policy-making process because of the

ineffective military advisory group, President Johnson's insecurity, and the president's reluctance to be exposed to different views.[154] His influence reached to a point where the war was referred to as *McNamara's War*.[155]

Although the situations were very different in nature, decision making during the Cuban Missile Crisis and the prelude to Operation Just Cause clearly indicate a nonanalytical approach. Firstly, using Allison's model suggests different explanations or causalities to what happened. Secondly, the resemblance to RPD is evident. President Kennedy's decision making used pattern recognition to gain guidance from previous experiences. Rather than choosing among options the decision making seemed to be occupied with eliminating nonfeasible options. President Bush early made a principal intuitive decision foregoing any deliberations. When the conditions were met, the Chairman of the Joint Chiefs of Staff exposed him to a single option, to conduct the operation.

<div align="center">Organizational Structure</div>

<u>Theories</u>

The organizational structure strives to reconstruct patterns of influence, communication, and workflow within the organization.[156] Since structure is a social system, it is intangible.[157] Hence, a traditional organizational chart does not reflect the structure. Several different perspectives can be applied to capture different aspects of the organizations. The *Structural perspective*[158] is based on four fundamental hypotheses: (1) Organizations exist to achieve objectives; (2) Organizations work most effective when turbulence and personal preferences are limited; (3) Coordination and control are important for efficiency and effectiveness; and (4) Restructuring and development of new

systems can solve organizational problems. The *System-oriented perspective[159]* does not

view the organization as a unit, but rather like components communicating with the

environment and other components. The situation and the environment are in focus. All-

round units are highly valued because they have better ability to solve complex and

unexpected missions. Hence, all-roundness and autonomy are important characteristics. A

complex national security issue often has a long-time range and the conditions will

change continuously. In the *Time perspective* the emphasis for effectiveness is in the

opening-phase and continuity and perseverance in the command and control function. In

the *Practical-empirical perspective,* organizational performance is related to experience

from previous crises. In the *Individual perspective,[160]* the individual is the most important

component of the organization. The human needs to be satisfied for maximum

organizational performance. Ultimately, decisions made by individuals make up the

state's policy. The thesis focuses on the structural perspective but covers the other

perspectives briefly. Like Allison's and Waltz's models these perspectives reflect the

causality in different ways thus providing a nonlinear approach.

       There exist several definitions of organizational structure, in this study

differentiation, integration, and centralization make up the structure.

<u>Differentiation</u>

Levels of Command (Vertical Differentiation)

       The number of command levels constitutes the structural depth of the

organization. A high degree of vertical differentiation implies an organizational depth,

that is, many levels of command. Hence, a flat organization has a low degree of vertical

differentiation. An increased number of command-levels requires an increased number of

staffs or agencies involved, at the same time the possibilities to control will increase.[161] A

classical example on how the depth of the organization can cause undesired effects is the

Cuban Missile Crisis. President Kennedy's decision to withdraw nuclear weapons in

Turkey was distorted due to a vast number of decision levels. Despite Kennedy's orders,

Turkish officials saw such action as having harmful effects on Turkish public opinion, so

they did not comply with the decision.[162] The organizational depth creates longer

decision cycles while the prospect of refining the information increases.[163] Several

authors point out the possibility to limit the impact of the friction of war by reducing the

organizational depth.[164]

Specialization--Horizontal Differentiation

The horizontal differentiation recognizes that personnel and agencies have

different backgrounds, values, tools, or objectives. [165] An increased specialization implies

difficulties for staffers to understand their own activities' significance in a greater

context. Peter Senge identifies five disciplines of a learning organization: Personal

Mastery, Mental Models, Building Shared Vision, Team Learning, and Systems

Thinking.[166] Systems Thinking tells us that every decision has effects in other parts of the

organization, often in an unintended way.[167] In other words, we must recognize the

complexity in the organization.

<u>Integration</u>

Formalization

The formalization indicates to what extent activities are defined and designed by

standard operating procedures. Terminology, methods, and models for communication

are other forms of formalization. Standardization is the objective in time-critical action sequences while adaptability is promoted by a low degree of standardization. Military organizations are not the only organizations relying on a well-developed apparatus of doctrine. For instance, the United States Agency for International Development has an established formal doctrinal system.[168] However, the procedures of private volunteer organizations and nongovernmental organizations seldom formalize activities in doctrines or standard operating procedures.

Span of Control (Horizontal Integration)

The number of subordinates is a key area in organizational design. The horizontal integration (span of control) constitutes the number of units reporting to en functional-unit in the staff.[169] Flat organizations have a large span of control. These organizations have simple communication paths but reduced abilities for control. The span of control and the number of decision levels are mutually dependent.[170] An increased span of control implies possibilities to reduce the levels of command.[171]

The more subordinates in the organization, the less time can be allocated to each subordinate.[172] Generally an increased span of control empowers subordinate decision makers.[173] Two theories for span of control exist. Decreased span of control may be desirable since crises require instant decisions and increased capabilities amongst subordinates to comprehend superior decisions.[174] On the other hand, shortening of decisions cycles and a high degree of autonomy amongst subordinates will become critical success factors in the future environment.[175]
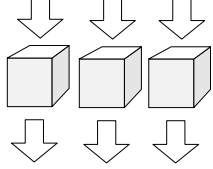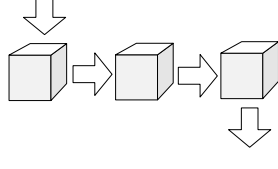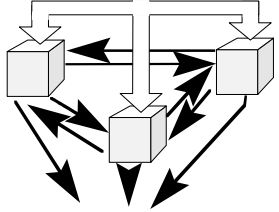
Dependence

The degree of dependence indicates to which extent different staff subunits interact. Three levels of dependence can be discerned. The levels are presented in increasing order in table 3 that compares and contrasts the three levels of dependence:

Pooled Interdependence: The subordinate agencies are indirectly dependent of each other. For example, diplomatic efforts in a foreign country are pursued by DOS through the Ambassador and by DOD through the Commander in Chief. Their activities require coordination.

Sequential Interdependence: Agency X must complete a specific task before agency Y can conduct its mission. Hence, the staff or agencies must be coordinated. For example, Central Intelligence Agency was suppose to locate Noriega before Operation Just Cause was initiated. The Dayton Peace Accords Annex 1A outlined IFOR responsibilities to separate the entities and thus create favorable conditions for humanitarian organizations, like United Nations High Commission for Refugees (UNHCR) and United National International Police Task Force (UNIPTF)` to operate and reconstruct the country.

Reciprocal Interdependence: This form of dependence emerges when several organizations effects are projected at either or both the same time and to the same geographic area. Currently, KFOR is operating to maintain security in Kosovo while civilian organizations, like the United States Agency for International Development focuses on other aspects of the peace agreement.[176]

Increased dependence will increase complexity and require more interagency communication.

Table 3. Organizational Dependence			
	Pooled	Sequential	Reciprocal
Communication	Low	Medium	High
Complexity	Low	Moderate	High
Type of coordination required	Standardization, rules and procedures	Planes, schedules and feedback	Mutual adjustment, interagency teamwork

Centralization

 Centralization is the degree of formal concentration of power and decisions. The concentration can focus on a leader, level of decision, or a function. A situational-adjusted leadership style makes the degree of centralization vary over time. Hence, the influence will vary over time. Information technology enables decision makers to closely monitor decentralized decisions (i.e., centralized control and decentralized command). In those cases, one can argue that there is only an imaginary decentralization.[177]

 However, based on their intelligence collection, subordinates are exercising a balancing power, information power. Informational power is the influence in compilation, filtering, and presentation of intelligence and estimates. If this power is great, subordinates can deliberately, or nondeliberately provide information that creates favorable conditions for options that are advantageous to their part of the organization. The leadership philosophy, that is, the degree of centralization, affects the number of

command-levels and the number of subordinates. An increased centralization requires a limited span of control, implying increased decision levels.

Organizational Forms

Five different generic forms of organizations exist; each of them has distinctive characteristics. Two of these forms of organizations are not applicable in this thesis.[178] The *Simple Structure* is not believed to be applicable in large organizations, hence the structure is not considered. The *Machine-Bureaucracy* is used in organizations with routine tasks, for example, process manufacturing. The author does not view this structure applicable either. The *professional bureaucracy* is based on Weber's bureaucracy model where hierarchic authority, detailed job descriptions, and division of work by function are prominent characteristics. If a task is too complex it is divided into subtasks or functions and thereby creating a hierarchic organization accomplished. During the last thirty years, this organizational form has been adjusted to combine standardization of work tasks with decentralization. The organization is often subdivided by functions and requires specialist competence in these parts of the organization. To gain high effectiveness of the organization it requires the highest decision level to delegate decisions in a large extent. The form is suitable for large organizations in a complex but stable environment. The hierarchy complicates the communication between different subparts of the organization.

The *divisonalised organization* differs from the hierarchical form on the middle-management levels.[179] The subordinate organizations are autonomous and only directed by long-term objectives. This form enables minimized staff organization for command and control of subordinate decision makers. The specialist competencies are organized

internal to the divisions. Their autonomous acting creates good conditions for lateral communication between divisions. The form does not enable a maximum utilization of the resources since the divisions are acting autonomous. Hence, all divisions require all necessary resources to be at their disposal.

Ad hoc-racy is a term representing several different forms of organization. The organizational form is characterized by its flexibility to replace and complement organizational parts with new parts. The ad hoc-racy organization is organic since the different parts interact and to a large extent are controlled by mutual adjustment. For large organizations, this form is embodied in the matrix organization. This organizational form is not created to solve routine problems but rather to facilitate a fast adjustment to rapid changes in the environment. In the hierarchical organization, problems are immediately classified to one of the standard procedures so that the entire organization approaches the problem in a similar way. The ad hoc-racy, however, requires a new solution to every problem, which makes standardization and formalization redundant. The organization utilizes specialist competence to a large extent. Lack of a distinct chain of command can reduce the effect of the organization but is at the same time one of the forms strengths. An organization based on a network topology potentially requires decentralization and empowerment to a great extent.

The characteristics presented above can be viewed as extremes. In practice, the differences between the forms are less distinct. The professional bureaucracy is most suited for complex but stable environments, and the ad hoc-racy is most suited for managing complex and dynamic environments, see figure 9.
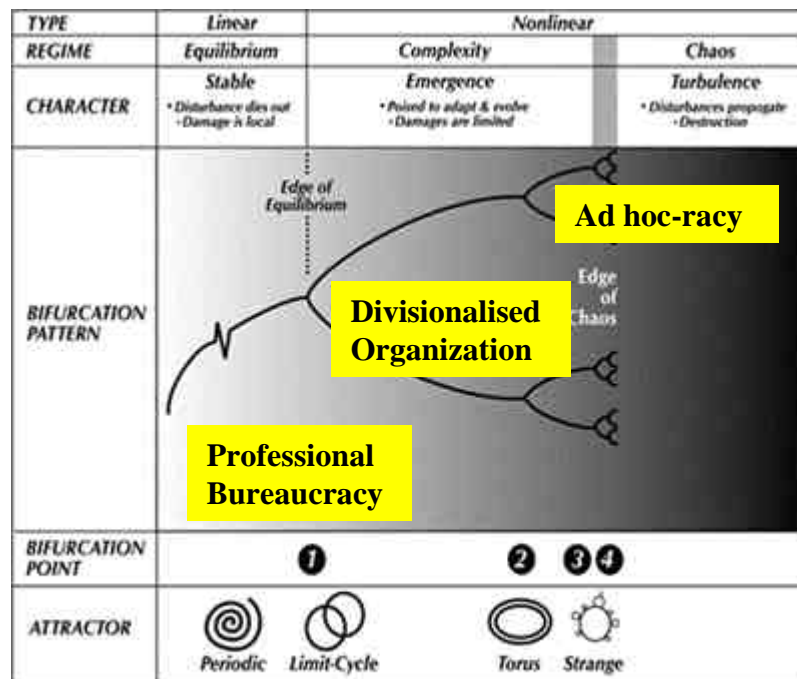
Figure 9. Organizational Structures Superimposed on the Bifurcation Diagram (Bifurcation Diagram © Tom Czerwinski, *Coping with the Bounds: Speculations on Nonlinearity in Military Affairs,* 1998).

Organization of Some National Security Actors

The governance of states is closely related to the hierarchical approach. Thus, the fundamental principle for organizing actors in national security affairs is through the professional bureaucracy. A closer examination reveals some different patterns amongst key players. Presidents influence organization and tasks for the NSC and the White

House Staff based on leadership style and personal relationships. These organizational entities are in comparison small, and the staffers highly skilled with a broad area of operation. Although the NSC and the White House Staff are hierarchical organizations, elements of ad hoc-racy can be found based on the organizational dynamics and the high personnel turnover.

The policy process is designed with an reciprocal dependence creating a highly complex environment. Interagency working groups (NSC/IWG) and other low-level interagency work conducted reflect mutual adjustments of agency positions. IWGs are organized based on the need for coordination and thus driven by the foreign policy and the development in the international security environment. IWGs are based on ad hoc-racy. However, the NSC and its Principals Committee (NSC/PC) and Deputies Committee (NSC/DC) represent traditional centralizing functions. The extensive interagency coordination makes DOS, DOD, NSC, the White House Staff, Central Intelligence Agency, and other agencies interconnected on several levels. However, agencies have different agendas, procedures, and standpoints and can therefore be regarded as divisionalised organizations.

The military organization below the Pentagon's professional bureaucracy is divisionalised in regional and functional unified commands. Substantial resources are allocated to Commander in Chiefs, and they operate with broad guidance. In contrast, the President assigns ambassadors to foreign countries, if necessary reporting directly to him. In 1990, President Bush strengthened the role of the ambassadors making them in charge of all executive branch personnel and offices (except military) in that country.[180] The Department of State (DOS) also has a regional substructure, but with limited influence.

DOS representatives in the Commander in Chief's staff provide coordination to any agencies at this level. If Bob Woodward's book *The Commanders*, describing the U.S. invasion of Panama 1989-1990, is reasonably accurate, presidents rely heavily on the military organization to assess the political development in a country. In fact, several presidents have declared dissatisfaction with DOS performance.[181] Clearly, there is a disconnect between the traditional diplomatic bilateral focus and the pragmatic military regional emphasis. The military instrument of power focuses on problem solving based on a regional perspective whereas the diplomatic instrument of power emphasizes bilateral focus. In comparison, DOS has few resources to exercise diplomacy; its budget is only 6 percent of DOD's.[182]

Another organizational flaw is the absence of strong entities coordinating informational and economic instruments of power. DOS is responsible for public diplomacy and foreign economic policy.[183] At a glance, the NSS reveals an overall lack of integration of these instruments of power.

In general, there is a high degree of formalization within the bureaucracy; however, the size, the close relation to the President, and a relative high personnel turnover at the NSC make it less formalized. In addition, there is a significant cultural difference among agencies, thus implying different ways of formalization.

Another aspect of interagency coordination is the efforts conducted abroad within the framework of peacekeeping operations. "America's National Security Strategy requires civil and military agencies to work together to accomplish cross-agency tasks of unprecedented complexity."[184] In 1993, President Clinton initiated a policy review reforming multilateral peace operations.[185] The reform is encapsulated in Presidential

Decision Directive 25, addressing six major areas of improvement and Presidential

Decision Directive 56 that goes further in coordination practices among U.S. government

agencies and international organizations engaged in complex contingency operations.[186]

DOS normally takes the lead in coordinating operations other than war by working

through an established country team under the leadership of an Ambassador or special

Presidential Envoy.[187]

Interagency Work and Bosnia-Herzegovina

Developments in Bosnia and UN-NATO Involvement

The disintegration of Yugoslavia started in 1991 when Croatia and Slovenia

declared independence from Yugoslavia. The separation was opposed by Milosevic and

the Yugoslav People's Army (JNA). After failed diplomatic attempts to restore stability in

Croatia and a UN resolution, the UN deployed a peacekeeping force (UNPROFOR),

initially observers, in 1992 as an interim solution to provide peace and security required

for the negotiations. The mandate changed several times, and as the conflict spread to

Bosnia-Herzegovina, focus gradually shifted from Croatia to that state. The conflict

escalated and involved three major actors: Bosnian Serbs, Bosnian Muslims, and Bosnian

Croats. In late 1992 the UNPROFOR mission significantly increased in strength,

including battalion-sized units, focused on securing UN protected areas, and protection of

humanitarian convoys. Human rights violations continued and several UN resolutions

were passed to mitigate the suffering, but resolutions were often unmatched with

resources on the ground. As the human suffering continued and no progress in the

situation was realized, critique started. UNPROFOR, predominantly a European effort,

lacked resources, command structure, and political will to enforce resolutions. As the

failure continued, the media pressure for the U.S. to take an active stance increased. In April 1993, NATO and the UN agreed that NATO would ensure compliance with a ban on military flights. The air operations included U.S. aircraft. Later in 1993, the air support was extended to include support of UNPROFOR's ground forces. In January 1994, a NATO summit declared determined to "eliminate obstacles to the accomplishment of the UNPROFOR mandate" and reaffirmed their readiness under the UN "to carry out air strikes in order to prevent the strangulation of Sarajevo, the safe areas and other threatened areas in Bosnia and Herzegovina." The UN confirmed the need for airpower under specific conditions. In February 1994, a mortar round fired at a Sarajevo market killed at least 58 civilians and wounded 142 others in the worst single incident of the twenty-two-month war. This initiated the active NATO air strike policy to support UN safe areas that finally brought the warring factions together in Dayton, in November 1995, to negotiate the peace agreement. [188]

The Clinton Administration Policy Changes

President Clinton issued a series of Presidential Review Directives (PRDs) soon after inauguration, one of the PRDs tasked an interagency group to develop options for a new Bosnia policy. Subsequently NSC/DP and NSC/PC reviewed their assessment and Secretary of State Christopher officially announced the policy in February 1993. The policy was based not on deploying troops to Bosnia under any other circumstances than to enforce an agreed peace accord.[189] The policy was not well received, especially in Europe.[190] The interagency process focused more on day-to-day problems than developing options. Consequently, NSC/DP and NSC/PC began to micromanage the policy process.[191] Behind the scenes, several opinions prevailed: Chairman of the Joint

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Chiefs of Staff Powell insisted on using force decisively for well-defined objectives; the intelligence community argued that a multiethnic Bosnia could not survive and limited military intervention would do more harm than facilitate a peaceful development; and National Security Advisor Lake advocated a more-active U.S. engagement.[192] In early 1995, he wrote a memo to President Clinton arguing that the U.S. muddle-through strategy affected the nation's credibility.[193] After getting Clinton's support Lake initiated the review process to equip the president with a full spectrum of options.[194] Four options were outlined; (1) *Status Quo*, (2) *Active Containment,* adopting a neutral stance on the terms of any settlement, (3) *A Quarantine of the Bosnian Serbs*, cutting of all supplies to the Bosnian Serbs, and (4) *Lift, Arm, Train, and Strike*, active support to Bosnian Muslims should be provided to rebuild their armed forces following UNPROFOR's withdrawal.[195] DOS supported option 1, while DOD supported option 2. The chairman of the interagency sanctions task force Mr. Fuerth supported option 3, and option 4 was supported by Lake and Albright. By the time the NSC/PC discussed the policy paper, fighting in Bosnia-Herzegovina had resumed. The principals argued for the importance of keeping the European troops on the ground. If UNPROFOR withdrew, the principals suggested that the U.S. would go for option 4, but not unilaterally.[196] President Clinton was frustrated because the proposed policy was still a reactive, muddle-through policy. Albright was pushing for a sustained NATO air campaign and that the U.S. take a lead role in the peace process. The president wanted to rethink and liked Albright's ideas. After Lake's and Albright's ideas were combined and refined, the diplomatic effort began focusing on convincing the Europeans to concur. Later Hoolbroke took over negotiating the peace agreement with the Bosnia-Herzegovina entities.

<u>Organizational Structure and Nonlinear Theory</u>

By defining organizational structure in terms of differentiation, integration, and centralization, we have moved beyond the study of wire diagrams. Cultural differences are important factors for cooperation. Cultural is embedded in organizational formalization and values. To understand the challenges for U.S. government agencies to work together from an organizational perspective, Allison's model can be applied. Agencies may sometimes appear to resist pooling efforts and assets in support of U.S. policy. Based on an Organizational Process Model perspective, it is not rational for an agency to be altruistic at the expense of power.[197]

> Organizations tend to protect themselves by distributing power and responsibility for making decisions among various internal mini-bureaucracies. When standard procedures are not followed and routines break down, bureaucracies are susceptible to paralysis. Therefore, bureaucracies routinely avoid change and uncertainty.[198]

Based on the Bureaucratic Politics Model, adaptability to new and changing circumstances depends on the personnel within the organization. They may enable workarounds to meet goals, not necessary organizational goals but to enhance their own power.

The great increase of personnel in the administration since 1947, when the systems for national security strategies were introduced, has been managed through traditional approaches by increasing centralization. Clearly, neither Perrow's Rules nor Van Creveld's Rule have been applied in the organizational design. At a glance President Reagan's misfortunes in Panamanian policy and with the Iran-Contra affair supports arguments for centralization. However, based on the reciprocal organizational dependence (i.e., Perrow's Rules) decentralization is likely to be more successful, when it

is matched with a new organizational structure transitioning from the professional bureaucracy to a divisionalised organization or an ad hoc-racy. Consequently, we understand that any attempt to significantly decentralize the administration without changing the organizational structure, like Reagan's, is likely to fail because professional bureaucracy will work best with centralization.

In the Bosnia scenario examined, the organizational resistance to change policy in institutions like DOD and DOS was significant, while the National Security Advisor and the Ambassador to the U.N. proved to have more pragmatic views. Since the president wanted to rethink his policy options, the National Security Advisor and the Ambassador to the U.N. became very influential during the process.

Strategic Dimension--Content

> Between two peoples and two states there can be . . . tensions, such a mass of inflammable material, that the slightest quarrel can produce a wholly disproportionate effect--a real explosion. [199]

Carl von Clausewitz

Introduction

In the previous section, strategic processes were discussed. The products of the process are plans and actions that constitute the content. Content is the most concrete dimension of strategy. Accordingly, this section will only briefly discuss additional theoretical frameworks.

Deliberate and Emergent Strategies

Examination of strategic content can easily be narrowed down to a linear approach linking intentions via strategic plans and implementation to success. Both

Alfred Chandler and Igor Ansoff argued for this classical linear approach.[200] The intent, that is, the idea, emanates from national interests. Although plans may contain some contingency planning they still return to the original intent. However, contemporary research by Mintzberg and Waters highlights lack of linkage between intent and performance since some intended strategies are not executed and some strategies emerges as the situation unfolds.[201] When deliberate strategies are implemented, the mind-sets are focused on managing uncertainties so that the initial intent will be implemented. The mind is preset and it tends to block signals from the environment. For instance, during MacArthur's advance north of the 38th parallel during the Korean War, indications of Chinese involvement were disregarded because these information elements did not fit in the preset minds of the senior leadership. The emergent strategies try to adjust to changes in the environment incrementally, rather than taking long leaps. The underlying benefit with emerged strategies is the open-mindedness that arises when the focus is not on a specific direction. It also facilitates feedback and organizational learning. Although some deliberate strategies will always be necessary, current NSS may overvalue the planning elements. Historical vignettes presented earlier strongly indicate that strategies evolve, and seldom are the objectives fixed.

National Security

In anarchy, security is the highest end for the state.[202] Helga Haftendorn states that there are different concepts of security:

> [N]ational security, international security, and global security refer to different sets of issues and have their origins in different historical and philosophical contexts . . .[the three concepts] correspond to specific values, threat and capabilities to meet perceived challenges.[203]

The national strategy concept originates from the sovereignty of states as basic elements in international relations and their independent protection of national values. Hence, national security is solved on a national basis. This concept of security rests on the realism paradigm.[204] The concept of international security originates from the idea that the international system lacks a superior power and is anarchical. However, the concept envisions limited cooperation among states.[205] John Herz introduced the idea of security dilemma:[206] an increase in one state's security will reduce other states security. The concept proposes that the states security could be linked to other states' security.[207] The concept of globally security takes the interdependence a step further to establish a system of world order.[208] The concept is based on the assumption that a common set of principles and practices will guarantee security for all nations. The three concepts represent different degrees of complexity, thus three competing attractors.

Evolution of U.S. National Security Policy

After World War II, the U.S. found itself in a new role as the most powerful nation in the world, with an unparalleled industrial apparatus and a dominant political position. In addition, the U.S. was the only nation with nuclear capabilities. However, the conventional military forces where to be reduced dramatically as the war terminated. Communism embodied by the Soviet Union became the overshadowing threat and focus for national security strategies. A policy of containment was developed to prevent and deter further spread of communism. The strategic challenge became to counter overwhelming Soviet conventional land forces in Europe and Asia with dominant American sea power, nuclear power, and economic power. The Marshall Plan provided

substantial economic aid to Europe to rebuild after World War II. The rationale was a

rapid economic development to increase resistance against Soviet aggressions.

Politically President Truman abandoned the traditional isolationist policy and proclaimed

that U.S. national security depended on world security. The Truman Doctrine implied

substantial foreign involvement. Militarily the North Atlantic Treaty in 1949 hammered

out a strategic alliance for collective defense of Europe against the Soviet Union. A joint

effort by DOS and DOD to reconcile strategy with resources advocated a substantial

military buildup. The report, NSC 68, issued months before the outbreak of the Korean

War became the strategic common denominator throughout the Cold War for

containment by deterrence. [209]

President Eisenhower's New Look reflected the increasing public intolerance for

military spending based on the stalemate in the Korean War. The New Look reoriented

resources toward domestic priorities (i.e., economic growth) and containment became

more dependent on deterrence than mobilization. Consequently, NSC 162 called for a

greater reliance on nuclear weapons and strategic airpower. The U.S. policy was

leveraged by NATO's adoption of a massive retaliation strategy. As the Soviets

developed credible nuclear retaliatory capability, the underlying rationale of massive

retaliation became undermined. Clearly, greater flexibility was needed to counter the

Soviet threat. The resulting New Look emphasized tactical nuclear weapons as a credible

instrument to limited war. In early 1960s, the Soviet technological development of

strategic intercontinental ballistic missiles (ICBMs) and satellites raised new doubts. The

heavy reliance on tactical nuclear weapons, which reduced the number of credible

options to respond with conventional forces, was missing. In addition, communist nations

started to support *liberation wars* economically and military, in other regions of the world, hence massive retaliation could not deal with these complexities.

The Kennedy administration developed a strategy of flexible response to provide both nuclear and conventional force options to the president. The policy change required substantial improvements to conventional capabilities. NATO also implemented the flexible response strategy. In the late 1960s, the containment policy was subject to public critique based on the unsuccessful intervention in Vietnam. In addition, it was believed the Soviet Union had roughly the same nuclear capability as the U.S. The Nixon administration declared nuclear superiority impossible to maintain, and era of arms limitation had started. The Nixon Doctrine called for more focused efforts and was summarized in three principles: self-help, regional responsibility, and residual U.S. responsibility. A recession in the mid-1970s coincided with renewed skepticism of the utility of military forces. The legacy of the Carter administration was the focused efforts in arms limitation. The Reagan administration reoriented the U.S. posture by significantly enhancing military capabilities and adopting a more proactive interventionist strategy supporting non-communist insurgencies against communist regimes.

When the Soviet Union disintegrated and the communist threat was defeated, the containment strategy outlined in NSC 68 had achieved its desired end state. This accomplishment took the Bush administration, and subsequently the Clinton administration, by surprise. President Bush's response to a new role and posture as the only superpower was the New World Order. Initial euphoria augmented by the successful conduct and wide support of the Gulf War was soon to be replaced by new challenges. Only minor policy changes were outlined. The complexity and uncertainty instilled by

the post-Cold War security environment still pose a great challenge in the design of credible strategies.

Uncertainty and Complexity

By introducing stochastic variables like "fog, friction, and chance," Karl von Clausewitz (1780-1831) integrated complexity and uncertainty in the equation of war.[210] Clausewitz is regarded to be a pioneer in applying nonlinear theory to strategy. However, Beycheren argues that Clausewitz was not a nonlinearity theorist but had an intuitive understanding of uncertainty and complexity.[211]

Uncertainty can be divided in three cognitive levels.[212] The first level includes measurable data or information, for example, location of military forces and a national economic situation. The second level deals with inferences drawn about the data, for example, conclusions regarding adversary's intentions based on facts. The third level focuses on projecting inferences into the future, for example, will country X use military force to attack Y if we implement economic sanctions? Consequently, arguments of reducing uncertainty with technology focus only on the first level and are based on a too simplified treatment of uncertainty.[213] A later examination of the U.S. NSS reveals a concept of eliminating rather than managing uncertainty. By employing all the sophisticated intelligence assets available, is it possible to *know* how Saddam Hussein will react to a planned U.S. action in the Middle East? Regardless of means employed, uncertainty will only be reduced not eliminated. The inherent irrational behavior of actors makes it impossible to know how adversaries perceive and process information. In addition, information is fuzzy (information can be partly right and partly wrong) and fractal. No matter how high the system's resolution provides the decision maker, there is

always some greater level of detail to explore.[214] Furthermore, as discussed earlier,

decision making is not a rational act. In a historical perspective, a clear and accurate

understanding of the situation has seldom been the case in crises. Due to the possibility of

rapidly emerging crisis in the modern society, uncertainty stands out more than ever as an

important factor.

       Society is getting increasingly complex. Complexity implies challenges without

even considering actions of adversaries. Internal institutions and coalition partners bring

different agendas to the decision-making process. The variety of means and possible

courses of action multiplies the complexity. Increased information access increases the

complexity since "information is dramatically nonlinear, which is to say that all pieces of

information do not have nearly the same value or influence."[215] Increased information

increases the complexity since "information is dramatically nonlinear, which is to say

that all pieces of information do not have nearly the same value or influence."[216]

Clausewitz points out: "Many intelligence reports in war are contradictory; even more are

false and most are uncertain."[217] Van Creveld argues that certainty is a product of

information available for decision making and the nature of the task, implying an eternal

race between demand for information and the command systems ability to meet it.[218]

Despite developments in information technology (and command systems) there is no

evidence that the modern armies today are more capable to deal with information needs

than predecessors a century ago.[219] Furthermore, Van Creveld argues that future

command systems with higher technological density will be more successful is sheer

delusion. In real and complex situations, causality is seldom the case. Rather an irregular

pattern of behavior is generated (i.e., nonlinear). On a high level, patterns can be

recognized but on lower levels, the details will always differ. If the details are important for the overall performance of the command then the situation is very uncertain. However, over a short period it could be possible to predict environmental behavior.

Current U.S. National Security Strategy

Almost 200 years have passed since Clausewitz' first use of *friction* to "describe the effect of reality on ideas and intentions of war."[220] To what extent has the strategic community capitalized on Clausewitz insights and the subsequent mathematical understanding of nonlinearity?

Wilhelm argues "U.S. military thinkers have drifted toward an analytical separation between the linear and nonlinear aspects of war."[221] An examination of the current U.S. National Security Strategy[222] indicates similar flaws at the political level. The U.S. National Security Strategy focuses on describing the current situation and challenges, dividing the complex and highly interconnected global development into regional and manageable pieces. In addition, the national interests are divided into three distinct categories, in which only the highest affect the national survival. This strictly causal concept does not reflect the dynamics in development of strategies. For instance, great undertakings, like IFOR in Bosnia or Operation Restore Hope in Somalia, cannot easily be derived from this division of interests. Instead, a nonlinear approach would recognize humanitarian efforts in remote regions as a vital interest under specific circumstances.

The current U.S. National Security Strategy reveals an obvious footprint of linear modeling, separating the linear aspects from the nonlinear, and an overwhelming influence of technology.[223] Uncertainties and complexities that do not fit in the linear

model are covered in the *nonlinear part.* Preparing for an uncertain future, less than two

of the sixty-five pages are devoted to this section. Adapting national security institutions

to meet new challenges is the outlined way to ensure future effectiveness of the NSS.

However, the main discussion describes the transformation of military forces to more

flexible units with greater capabilities. Embedded in the NSS is a concept of not

managing uncertainty, but eliminating it by leveraging technological innovations. The

development from Clausewitz' introduction of uncertainty and complexity in strategic

theory to current U.S. National Security Strategy indicates no significant progress.

In the following section four consecutive operations in Somalia will be examined

to further explore complexity and uncertainty.

Operations in Somalia

Operation Eastern Exit (January 1991)

Somalia became an independent state in 1960. The seven-million-strong

population is divided into six major clan groups, that dominate the Somali political

system.[224] Civil war has been intermittent in Somalia since 1977.[225] In 1990, the security

situation in Somalia deteriorated, and government troops were in continuous fights with

the United Somali Congress insurgents in Mogadishu. In chapter one, Operation Eastern

Exit in January 1991 was briefly studied. As Somalia disintegrated in internal fights in

late 1990, a successful operation was conducted to extract civilians from the U.S.

Embassy. Weeks after the U.S. evacuation, President Siad Barre flew to exile, and the

fragile Somali state collapsed.[226]

Initial Humanitarian Involvement (February 1991--April 1992)

After the extraction of Embassy personnel DOS and United States Agency for International Development started a year and one-half-long project involving emergency response measures in coordination with private volunteer organizations and nongovernmental organizations.[227] The United Somali Congress soon named Ali Mahdi Mohammed as interim President. However, General Mohammed Farah Aideed's subclan Somali Democratic Movement (SDM) and two other factions Somali Patriotic Movement (SPM) and Somali National Movement (SNM) rejected the decision, initiating civil strife in Mogadishu.[228] Several international efforts to broker peace fail. As Aideed became the United Somali Congress chairman, in July 1991, he continued to fight Ali Mahdi's presidential position. The fighting brought Mogadishu to chaos. By March 1992 the estimated casualties were 14,000 deaths and 27,000 wounded.[229] The UN Secretary General tried to adopt a proactive policy but experienced resistance in the Security Council, the U.S. and Russia were the least enthusiastic of UN involvement.[230] In April 1992, the UN Security Council adopts a resolution calling for fifty UN observers to monitor the cease-fire in Mogadishu.

Operation Provide Relief, UNOSOM I (April 1992--December 1992)

The crisis was steadily increased and thus added pressure for a proactive U.S. stance. Consequently, the interest of President Bush, NSC, DOS, DOD, and the intelligence community evolved from United States Agency for International Development and DOC efforts to use of military means.[231] In July, the UN requested increased airlift capabilities for food delivery.[232] At this point extensive interagency discussions were conducted resulting in a presidential decision ordering U.S. forces to

support the operation.[233] The U.S. forces initiated the support in August 1992 by

providing "military assistance in support of emergency humanitarian relief to Kenya and

Somalia."[234] President Bush assigned Andrew Natsios as his special coordinator for

Somali relief, and the U.S. involvement was moving to a lead position.[235] An average of

twenty sorties per day were successfully conducted.[236] However, the overall situation

continued to deteriorate and the Pakistani-UN battalion was unable to deal with Aideed

and never managed to leave Mogadishu Airport. Extensive analysis was conducted in

various agencies. An OFDA report estimated 1.5 million Somali's at risk of starvation.[237]

Although NSC meetings were rare, Secretary of Defense, Secretary of State, Chairman,

Joint Chief of Staff, and the national security advisor met frequently to discuss the

situation in Somalia and possible courses of action.[238] After months of interagency

deliberations, there were still disagreements but a shared opinion that the UN emergency

intervention and the expanded humanitarian effort were failing because of warlords in

Mogadishu.[239] Also, the interagency actors agreed that an effective short-term solution

could be mounted by the U.S. alone or as a lead nation. They selected a U.S. intervention

would be conducted with a heavy force, possible two divisions.[240] Alternative plans,

using less military force by avoiding Mogadishu, were discarded by military planners

because of the lack of overwhelming force.[241] NSC/DC presented three options for

President Bush: (1) proceed with an augmentation of UNOSOM to 5,500 as approved by

the UN Security Council in August, (2) sponsor a substantial UN force augmentation

with a peace-enforcement mandate and a U.S. Quick Reaction Force in support, and (3)

conduct a large-scale, U.S.-led intervention "to aggressively fix the problem."[242] Based

on recommendations from Chairman of the Joint Chiefs of Staff General Powell, the

NSC/DC favored a U.S.-led intervention for two reasons; the scale of the humanitarian disaster, and the fact that the U.S. was the only power having abilities to do something about it.[243] In late November the full-time Somalia Working Group was formally established at DOS and on 4 December, just after failing to be reelected, President Bush announced the decision to commit U.S. forces.[244] After a presidential decision, and subsequent UN authorization U.S. forces started to deploy.

Operation Restore Hope, United Task Form (December 1992--May 1993)

The UN mandate (referring to Chapter VII of the UN Charter) implied two missions for the multinational United Task Force (UNITAF): to provide humanitarian assistance to the Somali people and restore order in southern Somalia.[245] When the secure environment was successfully established, the plan called for a relief and transition to UN peacekeeping forces.[246] UNITAF included more than 38,000 troops from 21 countries, with some 28,000 U.S. troops.[247] The UNITAF mission was quickly achieved with minimal casualties.[248] Also, the interagency efforts in Washington proved to be effective.

> A half-dozen specialized working groups and task forces were active, and their work continued to come together at the NSC Deputies Committee. Throughout the planning and conduct of the Somalia intervention, the Deputies Committee would be the single most important mechanism for the fashioning and fine-tuning of U.S. policy and tactics in all aspects to include- selectively- some military matters as well.[249]

After some ninety days, UNITAF declared the mission accomplished and was ready to withdraw.[250] However, the follow-on UN-led operation was not ready to assume responsibilities creating two problems; UNITAF's refusal (based on NCA guidance) to take on expanded tasks setting conditions for the incoming UN force and the slow response by the UN force.[251]

Operation Continue Hope, UNFORSOM, UNSOM II (May 1993--March 1994)

In March the UN Security Council mandated UNFORSOM (28,000 troops) as a peace-enforcement mission to disarm Somali clans.[252] The resolution also called for extensive nation building. The UN force, led by a Turkish general, had 3,000 U.S. logistics troops and a U.S. Quick Reaction Force with armed helicopters and C-130 gunships.[253] On 5 June twenty-four Pakistani soldiers were killed in an ambush set up by Aideed supporters.[254] The UN responded by passing a resolution calling for an apprehension of those responsible.[255] This initiated a manhunt of Aideed. The new focus nullified the on-going international efforts to find a political solution.[256] In addition, the development was followed with great concern by the new Clinton administration. Within the administration, two partly contradictory standpoints evolved: one supported and encouraged the UN to continue the mission based on the broad nation-building mandate, and the other one deeply engaged in the hunt for Aideed.[257] Initially, there was resistance in Washington, especially in the Joint Staff, to deploy Ranger units for the hunt of Aideed. A turning point occurred when Admiral Howe (U.S. Navy Retired), the UN Secretary General's Special Representative in Somalia, issued an arrest warrant for Aideed and a $25,000 reward for capturing him.[258] All efforts to continue nation building stopped on 3 October when 18 U.S. Rangers were killed and 75 wounded in a fight with Aideed's units in Mogadishu. The critique in both the media and in Congress made President Clinton immediately abandon the policy and U.S. forces were confined to force protection until withdrawal on 31 March 1994.[259]

Operation United Shield (January 1995--March 1995)

Following the U.S. withdrawal the UN mission gradually reduced their efforts and based on a UN request, President Clinton announced a decision to deploy 2,600 U.S. Marines to assist in the final withdrawal of peacekeeping troops in January 1995.[260] The main phase of the operation was successfully completed in 73 hours.[261]

Complexity and Uncertainty and Nonlinear Theory

Examining the development of strategies, the reciprocal dependence of content and process becomes clear. For example, the paper earlier examined the formalized and bureaucratic design of the Eisenhower administration and Kennedy's transition to a flexible organizational structure. The author assumed that the organizational design reflected different views of the dynamics in the international environment. In this section, the strategic content undergoes corresponding changes, transitioning from massive retaliation to flexible response.

U.S. interests in Somalia cannot be defined as vital, still her commitment involved substantial resources. When the first operation was launched in January 1991, nobody could envision the forthcoming challenges by the warlords or the U.S. policy in response thereof. The level of commitment and the objective during the intervention evolved as the situation unfolded. According to Jervis' Rules, strategies depend on the strategies of others. In this case, UN strategies and commitment also played a major role in designing U.S. involvement. Operation Restore Hope was motivated by the fact that the U.S. was the only power having the capability to revert the negative developments. This approach can be understood by applying Allison's Model, but does hardly fit in a linear and rational strategy like the current NSS. The abrupt termination of U.S. participation in

Operation Continue Hope is a truly nonlinear event. A primitive warlord in Africa

influences the world's only superpower to withdraw and dramatically change its strategy.

The dynamics in the failed state of Somalia, with multiple factions without formally

established authorities or behavior, make the environment highly complex and uncertain.

In addition numerous international organizations were involved.

The examination of the current U.S. NSS reveals its underpinning by linear

assumptions. Based on Jervis Rules, the NSS should recognize how different strategies

by the main actors in the international system may change U.S. priorities. Also, U.S.

strategies change the environment and initiate actions by other actors. According to the

SIC, these actions must be recognized since they alter the initial conditions for

subsequent U.S. actions. According to Saperstein it becomes more important to find a

satisficing strategy than trying to optimize the output:

> In mathematical terms, the usual way of seeking the "best" solution to a problem
> is to look for some maximum value of a function-surface over the space of values
> pertinent to the problem. . . . The highest maximum (or the lowest minimum) is
> the best solution--the desired policy--and if the surface is known, that best
> solution can eventually be found. However, in a "Self-Organizing Criticality"
> world, the act of moving over the surface in search of its maximum can radically
> change the surface. It will thus act more as an elastic membrane than as a fixed-
> function surface. Thus we may not be able to look for the "good strategy" in
> opposition to the "bad strategy" but may have to settle for the "contextually
> appropriate strategy."[262]

Adaptation

In chapter one, Glenn-Mann's Levels of Adaptation Model and the Fitness

Landscape Model were introduced. Senge's learning organization builds on the same

concept. Successful leaders in learning organizations evoke initiatives from the

subordinate level and use all the intellectual horsepower that the organization can

allocate. Instead of trying to control all situations, Stacey suggests that the best form of

controlling subordinates is not to be controlling and thereby supporting self-organization

and organizational learning.[263] When conditions change, the management must adapt.

The shift to another loop of operation is difficult for humans; people in groups develop

norms and roles relative to each other, thus the roles and norms become fixed. This

adaptive behavior is desirable in turbulent environments. To support self-organization

subordinates have to discover their own challenges and maybe formulate their own tasks.

David argues that lack of adaptation finally led to the defeat of Napoleon;

> When Napoleon won it was because his opponents were committed to the
> strategy, tactics and organization of earlier wars. When he lost--against
> Wellington, the Russians, and the Spaniards--it was because he, in turn, used
> tried-and-true strategies against enemies who thought afresh, who were
> developing the strategies not of the last war, but of the next.[264]

In the following sections, the Korean War and the termination of Operation

Desert Storm are examined to explore adaptation further.

The Korean War, 1950-1953

UN Defensive (27 June 1950--15 September 1950)

The Korean War provides a good example on how strategies change during

execution. At the outbreak of the war, U.S. focus was in Europe and containing the

Soviet Union. The President, the Congress, and the military had all officially declared

that the U.S. would not fight for South Korea (Republic of Korea).[265] On 25 June 1950,

North Korean forces crossed the 38th parallel into South Korea, seized Seoul, and

continued southwards. President Truman met with his advisors the same evening, but had

already decided for an intervention.[266] His intuitive decision was not so much based on

concerns for the South Koreans but for having to fight the Soviet Union if this conflict

could not be managed.[267] The policy was containment but the objective was unclear or, as

Secretary of State Acheson put it on 26 June, "It was important for us to do something

even if the effort were not successful."[268] The first UN resolution was passed the same

day as the attack started, and in a following resolution the UN recommended "that the

Members of the UN furnish such assistance to the Republic of Korea as may be necessary

to repel the armed attack and restore the international peace and security in the area."[269]

President Truman's initial decision was to send military supplies, when that proved to be

insufficient air and naval forces were allocated to support the ROK (Republic of Korea)

troops.[270] On the sixth day, Truman decided that ground forces would be deployed.[271]

The commander of military forces in the Far East, General MacArthur, was given

authority for U.S. military involvement, and in July MacArthur also became Commander

in Chief for the UN Forces, United Nations Command (Commander in Chief UNC).[272]

The initial strategy dictated by the limited recourses was to delay further enemy

advancements. MacArthur exercised a fait accompli strategy by acting without

authorization.[273] Truman's administration encouraged this behavior when they concurred

to actions already taken or by the fact that they did not outline political guidelines but let

MacArthur act based on his experience and intuition. The guidance given by the president

on August 7 indicates the tremendous power MacArthur had:

> Tell him [MacArthur] two things. One, I'm going to do everything I can to give
> him what he wants in the way of support; and second . . . I don't want him to get
> us in war with the Chinese communists.[274]

The North Koreans successfully pressed on and the UN forces were falling back

toward the Pusan perimeter. MacArthur's solution was a bold amphibious landing at

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Inchon, twenty-five miles west of Seoul, to cut of the enemy lines of communications. He used all the power he had to convince Washington to approve the risky operation.

UN Offensive (16 September 1950--2 November 1950)

Washington has no plans to continue attacking north of the 38th parallel if the Inchon landing was successful when the operation commenced.[275] The Inchon operation was not decisive, but a great success since it reversed the military situation completely. Seoul was recaptured and Syngman Rhee was installed as head of state. MacArthur started advancing north toward the 38th parallel with continued success. The success resulted in splitting the administration opinion on the objective: to unite Korea or not. By moving north of the 38th parallel, a desirable complete victory within grasp of the UN. However, this could trigger involvement by the Soviet Union or China. Both viewpoints were presented in the NSC and the president concurred with the compromised recommendation to occupy North Korea if there was no intervention by the Soviet Union or China.[276] If they intervened after occupation of North Korean territory, U.S. forces were not authorized to escalate the conflict. Furthermore, only ROK forces were allowed to seize the northern sector, vicinity of the Yalu River in North Korea.[277] As the new forces continued to flow in, the strategic objective had changed from containment and restoring borders to establishing a free unified Korea. MacArthur's response to the guidance based on the NSC meeting was that it was a policy (i.e., not an order), and he replied, "I regard all of Korea open for our military operations unless and until the enemy capitulates."[278] Messages like Secretary of Defense Marshall's, "We want you to feel unhampered tactically and strategically," bolstered MacArthur as the grand strategist.[279] In early October, the UN forces crossed the 38th parallel and continued north. West

Germany's role in NATO and the U.S. elections now turned Washington's attention away from Korea, as it was believed that MacArthur was soon to deliver a complete North Korean victory. However, in late October a ROK division was attacked by Chinese formations. Despite the policy outlined, MacArthur convinced Washington to wait with any major conclusions, and when the Chinese formation withdrew, it was classified as a reconnaissance force and the Chinese threat was disregarded.[280]

Chinese Intervention and Offensive (3 November 1950--8 July 1951)

The situation changed rapidly in the beginning of November when twelve divisions of the Chinese Communist Forces were identified in sector and their attacks grew in strength. MacArthur finally realized 28 November, "We face an entirely new war."[281] The two Chinese armies entrance into the conflict again reversed the military situation forcing the UN forces to the defense. The NSC and the president hesitated in responding to the new situation and the ambiguous instructions to MacArthur called for inflicting maximum damage without fighting a major war.[282] He was also reminded that primary responsibility was the safety of his troops. The strategy was again adjusted to containment and a defensive posture south of the 38th parallel. This limited warfare scope was not adopted by consensus; MacArthur openly rejected the policy, which finally led to his relief of command. During the Spring Offensive the UN forces successfully regained South Korean territory.

Stalemate (9 July 1951--27 July 1953)

By the summer of 1951 a series of fruitless negotiations with the Chinese and

North Koreans started, and two years of stalemate preceded the Korean Armistice

Agreement 27 July 1953.

Termination of the Gulf War, 1991

The Bush administration's initial focus on domestic concerns shifted abruptly

following the Iraqi invasion of Kuwait on 2 August 1990. The NSC met the day after and

identified the Saudi Arabian King Fahd's support as crucial to further action.[283] After

Secretary of Defense Cheney's successful consultations in Saudi Arabia, President Bush

addressed the nation on 8 August and declared to be prepared for waging war with Iraq if

necessary.

> First, we seek the immediate, unconditional, and complete withdrawal of all Iraqi
> forces from Kuwait. Second, Kuwait's legitimate government must be restored to
> replace the puppet regime. Third, my administration . . . is committed to the
> security and stability of the Persian Gulf. Fourth, I am determined to protect the
> lives of American citizens abroad.[284]

Shortly after the Secretary of Defense, based on presidential authorization, issued

directives for deployment of troops for Operation Desert Shield.[285] The UN responded

quickly in a series of resolutions, and the initial focus was to restore the order with

sanctions. In November, President Bush announced deployment of additional armed

forces to the theater to provide the coalition with a ground offensive option.[286] After

failed attempts to find a political solution, the UN passed a resolution allowing the use of

force to defeat Iraq. Congress approved the offensive phase of the conflict. Desert Storm

started in January 1991 with an air campaign. After more than 116,000 sorties were

flown, the ground offensive was initiated on 24 February.[287] The president-stated

objectives were: (1) unconditional withdrawal of Iraqi forces from Kuwait, (2) restoration

of Kuwait's sovereignty, (3) destruction of Iraqi capability to produce and employ

weapons of mass destruction, and (4) destruction of Iraq's offensive capabilities.[288]

Accordingly, 3rd U.S. Army's mission was to destroy the Republican Guard.[289]

Concerned of being accused of butchering the Iraqi forces, President Bush on 27

February asked his closet advisors if the objectives where not to be met soon.[290] Secretary

of Defense Cheney argued that "we are basically there" while Chairman of Joint Chief of

Staff Powell was more hesitant explaining the ground forces still were engaged with

enemy forces but it is only a matter of hours.[291] Secretary of State Baker also argued for a

war termination but also reminded the audience that there still was some unfinished

business concerning Saddam Hussein's government.[292] Powell consulted Schwarzkopf,

who after consulting his subordinates, agreed on a cease-fire decision. Before making the

decision President Bush argued,

> Why do I not feel elated? But we need to have an end. People want that. They are
> going to want to know we won and the kids can come home. We do not want to
> screw this up with a sloppy, muddled ending.[293]

After some final discussions Bush decided to end the war at 100 hours, the timing

being a matter of public relations issue more than anything else.[294]

In theater Lieutenant General Franks, VII Corps commander, the same evening

(local time) reported to his superior Lieutenant General Yeosock, 3rd U.S. Army

commander, that he needed another twenty-four hours or so to complete the mission.[295]

When later that evening he received the message on cease-fire he described the reaction

as, "Total surprise. . . . No warning order, no questions, no real evidence from the

battlefield."[296]

This vignette illustrates that even the well-scripted Gulf War had substantial elements of emerging strategies. When the first units deployed in Desert Shield there were no plans of offensive operations. More importantly, the well-defined objectives that permeated planning and execution of the offensive phase changed to something undefined as the cease-fire decision was made. Schwarzkopf's news brief on 27 February reflects the confusion in the military organization:

> Question: You said that the gate was closed. Have you got any ground forces blocking the roads to Basra?
> Answer [Schwarzkopf]: No.
> Question: Is there any way they can get out that way?
> Answer [Schwarzkopf]: No. (laughter) That's why the gate's closed.[297]

Yet, the senior military leadership supported the decision. Ten years after the cease-fire, air combat missions are conducted over Iraq almost on daily basis.

Adaptation and Nonlinear Theory

In the Somalia case the intervention evolved to a major high-risk military commitment and the manhunt of a clan leader. In retrospect the commitment was far from consistent with the NSS in terms of vital interests, yet a deliberate interagency planning process drove the policy change. The sense that the U.S. was the only power that could make a difference, combined with media pressure, seemed to have caused the deviation from the NSS. Others have suggested that the presidential election and the president's legacy of "the New World Order" impacted on the changed strategy.

Beckerman provides an illustrating example of repeated bifurcation with the Somali people as the system during Operation Restore Hope:

> The state of Somali citizens going about their normal daily living bifurcated upon the perturbation by our forces into those still going to their normal daily living and those erecting barricades and lighting summoning fires. As the mission

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progressed, Somali citizens increasingly abandoned daily living and thronged to the scenes of action. Those with arms fired at our forces from rooftops, windows and from locations within crowds. As our forces fired back at massed crowds, comprised of both armed and unarmed citizens, the mobs responded to that perturbation with yet another bifurcation. Now they stormed towards the Americans and more switched from "bearing witness" to actively helping Somali gunman take the Americans out in the increasingly intensive fire fight (e.g. using children to point out the American positions to hidden gunmen). During the various firefights, Somalis massed and dispersed, massed and dispersed (they oscillated back and forth between these two states, with scenes of action being one attractor and places of cover being another).[298]

The strategic objective changed dramatically during the Korean War. When the attack started the strategy changed from *noninvolvement* to *do-something*. As resources where allocated ambition changed from delaying the enemy to MacArthur's Inchon operation which opened up avenues for a unified non-communist Korea. However, Chinese involvement again limited the scope to restore the borders. The dynamics can be better understood by applying the Fitness Landscape Model. The fundamental objective was to prevent the Communists, the Soviet Union and China, to gain any advantage of the situation. Thus, the objective was, based on the Fitness Landscape Model, neither to push North Korea in a *ditch* nor to optimize the UN position but to prevent the Communists to move up to a hill. The hilly fitness landscape changed dramatically when the Inchon operation was successfully completed and again with Chinese involvement. Consequently, the strategy itself had to change to prevent the Communists reaching the hill.

The SIC concept helps us understand why U.S., with almost unlimited military capability, did not repeat it success from World War II. Two nuclear bombs successfully forced the Japanese surrender. When the Korean War emerged, the U.S. was still the only nuclear power. An early nuclear strike could have saved American lives. The two cases

are significantly different in dynamics. In 1945 the U.S. had defeated all enemies but Japan. In 1950 the Soviet Union was regarded as the major threat, and nuclear strikes against North Korea were believed to escalate not terminate the war.[299]

MacArthur's power stands out as a significant factor shaping the strategy during the Korean War. Clearly, his influence was not proportional to his position, and Allison's Bureaucratic Model helps us understand how his reputation, image, leadership style, and excellent persuasive abilities made him more powerful than the president during periods of the war.

During Operation Desert Storm President Bush communicated clear and well-defined objectives early on. General Schwarzkopf and his subordinates implemented these strategic objectives in military plans prior to the ground offensive. President Bush indicated that the military leadership would make the call when the ground offensive should be terminated. When the destruction of Saddam Hussein's Republican Guards was in reach, suddenly the objective changed and a cease-fire was announced, leaving three of the strategic objectives not attained. To understand why the strategy suddenly changed we may consult Gell-Mann's Levels of Adaptation and apply it to the Vietnam War. The key issue is the approach to friendly casualties. Direct adaptation (level 1 adaptation) occurred during the Vietnam War by comparing casualty figures and showing more enemy losses than U.S. losses. Statistics served to justify friendly casualties. At the end of and after the Vietnam War the next level of adaptation occurred due to public and internal critique. As the Armed Forces transformed during the 1970s and the 1980s, force protection increased in importance. Also, on the political level values shifted understanding the importance of public support and the relationship between public

support and casualties became important. When planning Operation Desert Storm, the

Vietnam War was the most recent war experience and consequently used as a reference to

provide casualty estimates. The high-casualty estimates were of great concern for the

senior military leadership, all with combat experience from the Vietnam War. The third

level of adaptation occurred when the ground offensive was proceeding well, and in

terms of U.S. versus Iraqi casualties, extremely well. Rather than complete the mission to

attain all of the strategic objectives, it became more important to keep the level of

casualties low in conjunction with the emphasis of force protection prevailing in the

Armed Forces.

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CHAPTER FIVE

SYNTHESIS AND RECOMMENDATIONS

> The edge of chaos is where information gets its foot in the door of the physical world, where it gets the upper hand over energy.[1]

> Chris Langton, Santa Fe Institute

The Utility of Nonlinear Tools

In chapter four, six variables of strategy were examined: political paradigms, world order, decision making, organizational structure, complexity and uncertainty, and adaptation. Several of historical vignettes were examined by using nonlinear tools. Although these variables are believed to be important variables, they represent only six of an indefinite set of variables. The SIC concept also tells us that, given the right circumstances, a peripheral variable can have significant impact on NSS, like the unrest in Somalia had in the early 1990s. The examination of the six variables was limited in scope and thus only exposed us to fractions of the complexity and uncertainty embedded in every variable.

Jervis' Rules points out the importance of recognizing the dependence of previous actions as well as actions by others. The bifurcation metaphor is not only fundamental for understanding nonlinear characteristics, it has also been applied frequently to visualize how the variables operate. Every time the system transitions to a new state in the bifurcation diagram the systems characteristics change. Consequently, every state has its unique SIC configuration, implying distinctively different intelligence requirements and causality in every situation. As the UN forces were counterattacking north of the 38 parallel, MacArthur and his staff failed to recognize that the Korean War had transitioned

to another state, and that state was extremely sensitive to Chinese involvement. Accordingly, despite all indicators the Chinese involvement was not predicted. Clearly, there is a human element of lacking to understand how the system evolves. In addition the organizational structure based on hierarchical control has an embedded resistance to change. In the Bosnia scenario, the organizational resistance to change policy in DOD and DOS was significant, while the National Security Advisor and the Ambassador to the U.N. proved to have more pragmatic views. In addition, Senge's organizational learning concept tells us that every decision has effects in other parts of the organization, often in an unintended way.

It is time to recognize the nondeterministic nature of strategy making and accept lack of strict causality. Consequently, successful strategy making must change underlying paradigms and move beyond Newton's *Majestic Clockwork* metaphor. This thesis has shown the validity and utility of applying nonlinear tools for enhanced understanding of NSSs, implying a rationale for embedding nonlinear tools in crafting strategies.

In the following section, a broad nonlinear concept for national security strategies is outlined. Finally, recommendations for further studies are presented.

<u>A Nonlinear Perspective on National Security Strategies</u>

In corporate management, economics, and ecology, and other disciplines nonlinearity has been adopted by an increasing number of practitioners. Mann argues that the resistance to change to the nonlinear paradigm in international affairs is due to power of the linear paradigm.[2] Kuhn argued that intellectual and scientific advances consist of the displacement of one paradigm, which has become incapable of providing a framework for new findings. However, to be accepted as a new paradigm must also be

perceived better than its competitors.[3] The following section outlines a nonlinear

perspective to national security strategies in an attempt to make it easier to adopt.

World Society Model--Going beyond the Anarchy Model

The future strategic environment will be a highly complex, dynamic, and

uncertain. Complexity and uncertainty will be accepted as natural ingredients in strategy

necessary to understand and cope with the international system.

The mechanisms of foreign policy in the two-body confrontation during the Cold

War were successfully based on the linear paradigm. Linearity models appear to be

successful in stable and predictable environments with few interacting agents. After the

Cold War and the twentieth century, a new world order emerged involving more actors

and a broader political scope. Environmental, terrorist, and commercial organizations

with a multinational base are becoming increasingly important as actors in the

international system. If the international economic system is recognized as a system

independent of international politics, then the model of world order has to add another

dimension, thus increasing complexity and uncertainty. Consequently, world trade,

environmental issues, and terrorism are broadening the national security agenda, and

reinforcing the trend of declining importance of the state. The accelerating technological

development facilitating interaction, underscores the general trend of speed, change, and

increased complexity.

By using the sovereign state as the starting point for the discussion in chapter

four, the study was indirectly limited to one model of world system, the Anarchy Model.

Although, prevailing, the Anarchy Model has significant limitations. The world is viewed

as a pool table with the states represented by billiard balls. In the future mesh of states

and nonstate actors Burton's World Society Model is more relevant. It uses the flows or transactions as the starting point to constitute a global *spider net* of relations implying a reduced importance of the states than the Anarchy Model.[4] Burton argues for an interdisciplinary approach because

> individual, group or other behaviour cannot be analysed and explained adequately by attention only to one aspect of it. . . . It requires all disciplines to explain behaviour in such a way to enable prediction.[5]

Postinternationalism--Going Beyond Realism and Liberalism

Unlike the liberal and realist paradigms discussed in chapter four, Postinternationalism originates from the assumption that accelerating changes and complexity are major factors to consider.[6] Daily developments in every region of the world continue to add contradictions and ambiguities. The new paradigm is still in the process of taking shape and is based on three prime parameters of world politics, all three undergoing extensive changes.

1. *Skill Revolution*. Citizen's skills are changing due to developments in information technology. In addition, people today are more skilled to assess how they fit in the international context and how their behavior can be aggregated into significant collective outcomes. The current scrutiny of ballistic missile defense clearly indicates a better-informed public.

2. *Relocation of Authority*. The authority structures that link world politics to citizens is changing. Historically people have been habitually compliant to authority organizations; however, this is changing due to the skill revolution. Consequently, the readiness to comply with government directives during crises is based on their assessment on the performance of the authorities, implying that states will become less

effective in confronting challenges and implementing policies and an increasing

importance is put on nonstate actors. The skill to know how and when to participate in

collective actions is one of the most important. The collective actions pursued by special

interest groups and utilizing media can have a significant impact in the policy process. In

addition, many groups are trying to redefine their relationship to the central government.

For instance in Yugoslavia it led to armed conflicts, the citizens of Quebec have chosen

another path.

3. *A Bifurcation of Global Structures.* The overall structure of global politics has

been based on an anarchic system of sovereign states. The state-centric world evolved its

own hierarchy based on political, economic, and military power. Due to the skill

revolution, the global tendency of authority crises, and other sources of turbulence, the

state-centric perspective must be replaced with a multicentric perspective recognizing the

importance of nonstate actors in the international system The sovereignty-free actors

includes but is not limited to multinational corporations, ethnic minorities, subnational

governments, transnational organizations, and political parties. The sovereignty-free

actors may compete, cooperate, or otherwise interact with states. In the state-centric

world, most interactions are based on diplomatic practices and involve events that unfold

bilaterally between states. In the multicentric world actions unfold in sequences of events

in form of cascades or fast-moving flows of actions that includes both reactions and

counteractions.

Postinternationalism shifts the focus from the state-centric security dilemma to the

achievement of autonomy. The main sources for global turbulence are the proliferation of

actors, impact of technology, globalization of national economy, the advent of

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interdependence, the weakening of states and the restructuring of loyalties.

Postinternationalism recognizes the need for maintaining a war-fighting capability, but

also understand the reduced relevance of military instruments of power. Citizens become

less tolerant of battle casualties, especially if the homeland is not in an immediate threat.

Satisfying Decisions--Going Beyond Analytical Decision Making

With a Newtonian mind-set, complexity is attacked by linear reductionist analysis

whereas problems are broken down into manageable pieces. The change of paradigm,

moving beyond Newton's *Majestic Clockwork* metaphor, guides us to a new way of

approaching decision making. Post-Newtonism recognizes uncertainty and complexity as

natural elements in time-constrained environments and moves away from methods that

aim for perfect knowledge.

According to Heisenberg's *Uncertainty Principle*, the more precisely the position

is determined, the less precisely the momentum is known in this instant, and vice versa.

This tells us that timeliness and precision of information must be balanced to cope with

the highly fluid international environment. The struggle for perfect knowledge will

always be lost, instead decision making must be fostered to accept lack of information

and ambiguous information.

> Decision-makers with fragmental information regarding the opponent's intentions
> and capabilities tend to use induction rather than deduction to fill the gaps by
> drawing conclusions from past experience, formulating hypothesis, making
> analogies or using heuristic rules of thumb. Hence, induction can not be based on
> precise and deductive knowledge.[7]

By accepting complexity, uncertainty as natural ingredients in the decision

making, post-Newton paradigms tells us that we must act incremental and use intuition to

develop *satisficing* decisions.

Ad Hoc-racy--Going Beyond Bureaucracies

Coping with future challenges in the international security environment puts a premium on decentralization and adaptive organizations. The state-centric society emphasizes hierarchies and bureaucratic control. As broadened definitions of threat and interests are accepted, the number of agencies involved will increase and the need for interagency interaction and coordination increases exponentially. This will make interagency work based on hierarchical control highly ineffective. The solution is not to increase the number of staffers and IWGs. Nature tells us that a small and simple organizations will adapt better to environment than a large complex one (cp. dinosaurs and one-cell organisms in nature). Also, in a nonstate-centric world order Sovereignty-free actors will utilize other more flexible organizational structures to manage complexity and uncertainty. Consequently, state actors need to interact more with nonhierarchal organizations. The future policy process must be based on ad hoc-ray organizations, thus much more decentralized and involve sovereignty-free actors. Coordination will be conducted not by centralized control but through reciprocal dependence.

Incrementalism--Going Beyond Deliberate Planning

The uncertainty, complexity, and dynamics involved in developing strategies do not allow strategists to consider all variables and their mutual relationship. Consequently, it is not possible to make a "grand design" when planning or executing strategies. In chapter four, several vignettes described how strategies evolved as the situation unfolded. Rather than finding the optimal solution, incrementalism focuses on a continuous iterative reassess-readjust approach for finding an acceptable solution. The process-focused approach, discussed in chapter four, recognizes the impact of domestic politics in

the national security process. Since each individual has his or her own personal

objectives, it stresses the difficulties to unite around and the carry out a perfectly

calculated plan. Hence, strategies can be viewed as a product of political compromise and

not the perfect way of doing things. The political process makes the strategy "crafted," as

Mintzberg calls it, with a personal touch of the participating actors.

<u>Suggestions for Further Research</u>

The greatest challenge for adopting a nonlinear approach is to change the mind-

sets of strategists. According to Kuhn, new paradigms are not easily adopted. Further

research must be conducted to clarify how changing a paradigm successfully can be

accomplished. This research and subsequent implementation should be focused on a

small nation, since change more easily is accomplished in small organizations.

Several of nonlinear tools have been discussed in chapter four. The focus has been

to show their utility in understanding historical vignettes. The next step in implementing

nonlinear tools for strategists would be a constructive approach to how nonlinear tools

can be implemented in the policy process. To make this study valuable for subsequent

implementation it should be conducted with a bottom-up perspective, allowing

procedures and activities on the lowest level gain maximum attention.

For practical purposes, outlined in chapter two, this paper has focused on U.S.

national security strategies. However, most of the theoretical groundwork is applicable on

other sovereign states. Further research is needed to expand the findings in this thesis to

apply to states in general.

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[4]John W. Burton, *World Society* (London, United Kingdom: Cambridge University Press, 1972), 35-49.

[5]Ibid., 15.

[6]James N. Rosenau and Mary Durfee, *Thinking Theory Thoroughly*: *Coherent Approaches to an Incoherent World*, 2d ed. (Boulder, Colorado: Westview Press, 2000), 47-75.

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