

**Fearful Asymmetries: Herman Kahn's Nuclear Threat Models and
the DPRK's Nuclear Weapons Program**

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Abstract

This Research Project draws on Herman Kahn's classic work on nuclear strategic thinking to evaluate the Democratic People's Republic of Korea's nuclear weapons program. Kahn's re-evaluation by Bruce-Biggs, Ghamari-Tabrizi and Helsel suggests a more nuanced strategic thinker than popular stereotypes and received truths. In particular, Kahn's reflections on deterrence, scenario planning, escalation and perceptions offer insights into why the Clinton and Bush Administrations have misjudged the DPRK's motivations under leader Kim Jong-II. Further research possibilities include the development of a "genius modelling" tool for strategic thinkers, a new escalation framework for black market proliferation, and in-depth cross-comparison of Kahn with contemporaries such as Thomas Schelling and Robert McNamara.

Research Questions

- How have contemporary analysts used the post-positivist turn in Strategic Studies, and its critique of defence intellectuals, to re-evaluate the contemporary relevance of Herman Kahn's *On Thermonuclear War* (1960), *Thinking About The Unthinkable* (1962) and *On Escalation* (1965)?
- In what ways do the fears of neoconservative strategists about North Korea 'going nuclear' parallel Kahn's analysis of irrationality and 'unknown unknowns'? Does Kahn's body of work justify the Bush Administration's pre-emption calculus in North Korea's case, or is this threat inflation?

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Overview

This Research Project explores two key areas. Chapter 1 provides a critical reassessment of Herman Kahn's contribution to strategic thinking about civil defense infrastructure and nuclear weapons targeting. This reassessment excavates Kahn's insights, considers why his work was controversial, and how others in the Strategic Studies and Peace Studies have reacted to him. Chapter 2 then applies Kahn's distilled insights to the Democratic People's Republic of Korea's (DPRK) self-proclaimed status as a new nuclear power (or 'going nuclear'). This section includes an overview of DPRK's history and its relevant cross-cultural dynamics, and an analysis of the current policy debate by Bush Administration neoconservatives and other strategic thinkers.

Appendix 1 illustrates some initial ways that Kahn's cognitive style and strategic thinking can be modelled. Further research into modelling could enable the insights of past strategic thinkers to be applied to current geostrategic problems. Appendix 2 provides a brief timeline of the DPRK's nuclear program and its controversies. Appendix 3 provides a brief survey of DPRK literature as an in-depth analysis is beyond the Study Scope of this project. Appendix 4 lists 10 Counter-Moves and Solutions distilled from Appendix 3. Appendix 5 provides a draft Escalation Ladder for DPRK's nuclear weapons program.

Study Scope

This Study provides an overview of Herman Kahn's work on nuclear strategic thinking and then applies its distilled insights to the DPRK's nuclear program. To assess Kahn's legacy his four key works on nuclear strategic thinking are considered, along with contemporary re-evaluations of Kahn's legacy, and relevant studies on Cold War history and culture. The DPRK chapter also draws on recent popular studies and policymaking assessments of North Korea's capabilities and strategic rationale for its nuclear program.

Consequently, this study does not explore Kahn's later work on Futures Studies and economic forecasts for Europe, Japan and Australia. The current reassessment of Kahn's research—by B. Bruce-Biggs, Sharon Ghamari-Tabrizi, and Sharon Mindel Helsel—also deserves more in-depth analysis. For example, Kahn's collected papers at Fort McNair's National Defence University Library would enable a more thorough analysis of Kahn's memoranda and unpublished work by Strategic Studies scholars. Finally, this study is limited by the author's understanding of the issues and personalities involved.

Section One: Re-evaluating Herman Kahn

“To the extent that many people today talk about nuclear war in such a nonchalant, would-be scientific manner, their language is rooted in the work of Herman Kahn. And to the extent that people have an image of defense analysts as mad-scientist Dr. Strangeloves who almost glorify the challenge of nuclear war, that image, too, comes from Herman Kahn.”

— Fred Kaplan¹

“Yet, and this may only be a matter of temperament, there does tend to be *a dark side to the strategic imagination* [emphasis original] that picks up intimations of disorder at times of stability, that sense the fragility of human institutions even while striving to reinforce them, that cannot stop thinking of war while promoting peace.”

— Lawrence Freedman²

“Reports that say that something hasn't happened are always interesting to me, because as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns -- the ones we don't know we don't know. And if one looks throughout the history of our country and other free countries, it is the latter category that tend to be the difficult ones.”

— Donald Rumsfeld³

Background and Backlash

Herman Kahn (1922—1983) was one of the most controversial Cold War thinkers on nuclear strategy. Through his work at the RAND and Hudson think-tanks Kahn popularised the use of systems analysis to model complex geostrategic problems. Kahn is best known for *On Thermonuclear War* (1960), hereafter *OTW*, a dense transcript of lectures that he gave to Princeton University's Center of International Studies in March 1959.⁴ His willingness to contemplate the likelihood of nuclear conflict between the US and the Soviet Union created publicity that Kahn cultivated to achieve notoriety as an elite defence intellectual. Yet this same notoriety also sparked a backlash from civil society and nuclear disarmament proponents, and the stereotype of Kahn as the archetypal mad scientist has persisted since *OTW*'s publication.

There are many reasons why this backlash persists to the contemporary era. First, the negative reactions to *OTW* have created a superficial stereotype of Kahn as a bloodthirsty war-monger. This stereotype has been further complicated by Kahn's background in mathematics and physics which exemplified the advocacy of technical

rationality for problem-solving. The current re-evaluation of Kahn's work is partly driven by an awareness that past reactions were due to the over-reach of mathematics and physics models to Cold War problems. The renewed interest in Kahn's contribution echoes the re-evaluation of other early strategic thinkers, notably Robert J. Oppenheimer and Bernard Brodie.⁵

Second, this image was crystallised by two incidents which anchored the above stereotype in the public mind. James Newman's scathing *OTW* review for *Scientific American* pilloried Kahn as a defence intellectual who advocated "mass murder". In later years Newman's critique would be extended to the Strategic Studies community as a whole by civil society and peace movement activists. Alongside Edward Teller and Curtis LeMay, Kahn is widely believed to have been parodied by Stanley Kubrick's satire *Dr. Strangelove, Or How I Stopped Worrying and Learned to Love the Bomb* (1964).⁶ Yet although Kubrick drew on *OTW* for dialogue and plot inspiration he also altered key elements such as the Doomsday Machine which was presented differently to Kahn's original intention. A review of Kahn's annotated shooting script and production artefacts for *Dr. Strangelove* from the Kubrick Archive in January 2006 suggests Kubrick's satire was broader than Kahn's *OTW*.

A third reason is that *OTW* captured the *Zeitgeist* of the early 1960s and US fears of a Soviet nuclear attack. This is one major theme of Sharon Ghamari-Tabrizi's recent book *The Worlds of Herman Kahn: The Intuitive Science of Thermonuclear War* (2005) which prompted this study.⁷ Once the Soviet menace faded as a probable security threat, Kahn moved into Futures Studies and econometric models for innovative nation-states. This trajectory suggests that *OTW* had a cultural diffusion and 'stickiness' comparable to Francis Fukuyama's 'end of history' thesis in the early 1990s, or Samuel P. Huntington's 'clash of civilisations' thesis in the mid 1990s.⁸ Rather than disprove Kahn's influence this view highlights how Strategic Studies at the level of media debate and popular discussion has always had a short half-life.

Finally, Kahn's contribution to Strategic Studies is often compared with a quip by US Secretary of Defense Donald Rumsfeld about "unknown unknowns." Lee Clarke echoes this broad view that in the post-September 11 world, ". . . worst cases are almost always described as beyond imagination. They are *unthinkable*."⁹ Kahn knew

Rumsfeld and both had in-depth discussions during the mid-to-late 1970s so perhaps this link has some credibility. However, Brad Roberts observes that Kahn used “unthinkable” in a specific context: “the nexus of political will, decision-makers and risk events, and especially to strategies for ending global thermonuclear conflicts.”¹⁰ The section on Study Conclusions below explores the further implications of this definition for post-September 11 risk communication.

Herman Kahn and Strategic Studies

An initial literature search of Cold War histories on nuclear strategists found that Herman Kahn was missing from their indexes. Although part of the “Whiz Kids” cohort who dealt with the post-Hiroshima realities of nuclear weapons, Kahn’s contribution has been largely overshadowed by Bernard Brodie, Thomas Schelling and others who realised that the atomic bomb changed the nature of war. A deeper issue is that this obscuration of Kahn’s legacy may signify a wider fragmentation within the Strategic Studies community, as the meaning of ‘security’ and ‘strategy’ is reshaped by different epistemic communities.

Kahn’s early influences include the strategist Brodie, the hydrogen bomb creator Edward Teller, the mathematician Albert Wohlstetter and his wife historian Roberta Wohlstetter.¹¹ He echoed their view that the post-Hiroshima world was in a climate of “psychological denial” about nuclear weapons.¹² Kahn emerged in a period where the Strategic Air Command was under fire for its Strategic Integrated Operational Plan for strategic nuclear targeting, when counterforce targeting was emerging as a key issue, and whilst the RAND Institute was seceding from its predominantly Air Force focus. One of Kahn’s pragmatic achievements as a strategist was to tap these institutional and organisational forces to diffuse his vision as a defence intellectual.¹³

Kahn’s background in mathematics and physics mirrored the popularity of econometrics after World War II to solve large-scale problems. Kahn differentiated himself in this milieu through ‘big picture’ conceptual thinking, methodological innovation and ruthless self-promotion. As noted throughout this Study, Kahn’s

carefully cultivated image as a hyper-rational strategic thinker belied a more complex personality and a nuanced grasp of Strategic Studies doctrines in the early 1960s.

Interestingly, Kahn's background as a physicist mirrored many of the initial cohort who were hired by the Defense Advanced Research Projects Agency to form Jason, the group of scientific researchers who evaluated large-scale research proposals for the US Government. These researchers each faced moral dilemmas about what US military strategists and policymakers did with their research.¹⁴ Bernard Brodie later reflected that Strategic Studies models lacked historical knowledge and political insight in this 'Golden Age', due to the influence of econometrics and mathematics on theory generation.¹⁵ Kahn adjusted to Brodie's arguments in his later books.

Kahn's initial work paralleled the post-war dominance of 'big science' think-tanks such as the RAND Institute and the Lawrence Livermore National Laboratory for scientific research and development (R&D). This institutional base likely influenced Kahn's thinking on civil defence capabilities and nuclear deterrence. His US focus meant that Kahn had a technological optimist view which differed from Europeans like journalist Robert Jungk, who explored the institutional history of nuclear intellectuals in *Brighter Than A Thousand Suns* (1964). After *OTW* created public controversy Kahn left RAND to co-found the Hudson Institute in 1961. Ironically, when the United States adopted SIOP-5 in 1974, or version 5 of the Single Integrated Operational Plan, many of RAND and Kahn's insights on the nature of limited nuclear conflicts had been accepted and institutionalised.¹⁶ In-depth discussion of SIOP's evolution and nuclear targeting issues are not explored in this Study, however relevant sources are included in the Bibliography.

This combination of historical milieu and institutional structure is a key to understanding what broader forces have shaped Herman Kahn's strategic thinking. The institutional structure that sustained Kahn throughout his career has given way to more open and commercially-oriented models of R&D knowledge creation.¹⁷ Likewise, as this Study explores further, the applicability of Kahn's insights into nuclear conflict and deterrence has shifted in the post-Cold War environment. Yet there is another reason why Kahn's work deserves re-evaluation: his work represents the dark side of a liberal culture where Strategic Studies means the planning for future

conflicts and wars. English professor Marianna Torgovnick makes the social constructionist argument that World War II created a ‘bleed-through’ which has influenced historical collective memories and the way that new conflicts are perceived.¹⁸ If we accept Torgovnick’s thesis has merit, Kahn’s work represents both one reaction to this ‘bleed-through’ and a dark meditation on probable future crises.

Herman Kahn’s Key Books

This section offers a brief overview of Herman Kahn’s key books on nuclear strategic thinking. Salient issues are discussed at relevant points throughout this Study.

On Thermonuclear War (1960), hereafter *OTW*, established Kahn’s reputation as a strategic thinker and made him a cause celebre. *OTW* is basically a thinly edited collection of notes and transcripts from Kahn’s lectures to the Air Force and other defence personnel in the late 1950s. It includes extensive sections on nuclear strategic thinking that distinguished between three types of deterrence: Type I—a Second-Strike retaliatory capability against a direct attack; Type II—a Credible First Strike capability triggered by provocation; and Type III—the use of tit-for-tat bargaining in escalation conflicts to deter moderate provocations. Most strategic thinkers preferred Type I deterrence whereas Kahn argued for Type II, and furthermore advocated the US develop a civil defence infrastructure for post-war survival.¹⁹

Much of *OTW*’s reputation rested on Kahn’s use of RAND’s methodological innovations in game theory, systems analysis and scenario planning. To give his post-survival scenarios greater credibility Kahn constructed statistical tables which were closer to sophisticated guesswork.²⁰ Subsequent analysts such as Sharon Mindel Helsel and Fred Kaplan have shown that Kahn’s assumptions in the civil defence section were pseudo-scientific, based on the primacy of American market economics, and had “seven optimistic assumptions” about post-conflict survival that were questionable.²¹

The most controversial part of *OTW* concerns a hypothetical technology called the Doomsday Machine.²² Kahn used the Doomsday Machine to extend the assumptions

and logic of the Eisenhower Administration's Massive Retaliation strategy. As envisioned in *OTW* the Doomsday Machine would trigger a series of nuclear explosions from interlinked weapons on a catastrophic scale.²³ Kubrick satirised the Doomsday Machine in *Dr. Strangelove* as the ultimate weapon, although Kahn's original intention was to highlight the limits of Type I Deterrence. Aspects of Kahn's Type III Deterrence—which reflected a strategic consensus within the RAND Institute—were adopted by the Nixon Administration for its strategic nuclear targeting in the early 1970s.²⁴

Thinking About The Unthinkable (1962), hereafter *TATU*, is partly Kahn's defence of his role as a Strategic Studies intellectual, and a further distillation of his nuclear conflict scenarios. Kahn provides a lengthy overview of how his critics misinterpreted *OTW* that includes a hilarious appendix on James Newman's *Scientific American* review. *TATU* was also one of the first public explanations of the rationale for Strategic Studies as a legitimate academic discipline. It also introduced the "Chicken" game for superpower confrontations, in which one actor adopts a 'crazy' stance to spook the other into backing down.²⁵ The Nixon Administration adopted this irrational mask as a rational strategy to deal with Khrushchev's Soviet Union in the early 1970s.

On Escalation (1965), hereafter *OE*, offers a significant methodological contribution to Strategic Studies that is often overlooked in favour of *OTW*. For this author, it is a model of methodological clarity and praxis that likely reshaped how the superpowers viewed conflicts during the Cold War. Kahn's 44-rung Escalation Ladder distinguishes between seven key conflict groups from Sub-crisis Maneuvering and Intense Crisis to Bizarre Crisis and civilian/military variations of Central Wars.²⁶ This model reflected the post-Cuban Missile Crisis debate on risk communication and signalling in crisis environments. It makes the crucial distinction between thresholds of conflict types and violence effects, enabling strategists to maintain an awareness of taboos on nuclear use in these situations.²⁷ Therefore, *OE* foreshadowed later work by Robert Jervis and Graham Allison on social images and international relations conflicts.²⁸ Specific applications of *OE* are discussed below.

Thinking About The Unthinkable In The 1980s (1984), hereafter *TATU 1980s* was finished by Hudson Institute colleagues after Kahn's 1983 death from a heart attack, and published posthumously in 1984. It outlines what Kahn thought were faulty assumptions in the debate on nuclear strategic thinking, and considers his views on the then-current issues of arms control, civil defence and mobilisation. Kahn's key theoretical contributions were to clarify his "Gedanken" experiments in scenario planning, and to detail the assumptions used in the Hudson Institute's repertoire. These are discussed further below and in Appendix 1.

Herman Kahn's Critics

As noted above Herman Kahn faced criticism from several groups over his career. These critics fall into three main groups: defence intellectuals and strategic thinkers who perceived Kahn as a nuclear hawk and war-fighter, the nuclear disarmament and peace movement, and scholars from the constructivist and critical security studies sub-fields of International Relations theory. For futurist Joseph Coates, Kahn's brilliance in "genius modelling" was offset by his econometrics focus, technological optimism, sexism and unawareness of the dynamic social changes that the nuclear disarmament and peace movements represented, in particular.²⁹ Coates' assessment partly explains why Kahn's work generated such emotion and why it has faced diffusion difficulties since his death. Kahn was equally scathing of his critics: large sections of *TATU* and the opening section of *TATU 1980s* are devoted to a clarification of his stance and a plea for certain assumptions not to be considered in Strategic Studies debates.

Subsequent scholars have distinguished between the three positions in this debate: the hawk-like Maximalist, the more cautious Minimalist, and the peace-oriented Abolitionist. Whilst this typology has its uses, the historical reality was closer to a fluid continuum or spectrum. As the Cold War unfolded strategists re-evaluated their earlier work and changed their position on deterrence and nuclear issues. These contestation debates illustrate how strategic dilemmas about nuclear war become a lightning rod for moral sensitivities about conflict and peace, which in turn reflect the transcendent dimensions of foreign policy.

The first group viewed Kahn as part of the Maximalist camp, sometimes dubbed War-fighting.³⁰ This reputation is largely based on *OTW*'s advocacy of Type II deterrence for the multipolar world that Kahn believed was emerging. However this advocacy was in response to several historical circumstances. First, Kahn's distinction between Type I, II and III deterrence was designed to offer more flexibility than the Eisenhower Administration's First Look and its Massive Retaliation doctrine. Second, the belief that Kahn's language and stance would make superpower conflict more likely often reflects a misunderstanding about the rhetorical nature of Kahn's Domsday Machine and the exploratory nature of scenario planning. In *TATU* (1962) and *OE* (1965) Kahn had already shifted to a doctrinal position more in tune with the Kennedy and Johnson Administration's Flexible Response. By *TATU 1980s* (1984) Kahn had embraced a "no first strike" policy, and critiqued the hardline Maximalist stance.³¹ Robert McNamara's more Minimalist approach, which now largely defines the discussion about Cold War strategic thinking, is discussed further below.

The second group largely rejected Kahn's work altogether. Its spectrum ranged from the Campaign for Nuclear Disarmament to notable critics that included psychohistorian Robert Jay Lifton and Jonathan Schell, who is dubbed an Abolitionist. Although *OTW* received praise from Bertrand Russell for helping to build the case for disarmament, Kahn was often stereotyped as a megalomaniacal mad scientist in the *Dr Strangelove* mould. Other peace activists rejected Kahn due to moral perceptions about the barbarity of nuclear weapons to international conflicts, a perceived reliance on instrumental reasoning and technocratic elites, and views that establishment scientists were supporting militarism (a debate that Ronald Reagan's SDI 'Star Wars' speech revived in 1983).

There are several reasons beyond the obvious as to why Kahn and the peace movement did not see eye-to-eye. First, the debate highlighted the divergence of Strategic and Peace Studies as two disciplinary fields, despite often examining the same phenomenon through different lenses. The latter were more likely to ally themselves with Democratic Peace theorists and the Kantian vision of 'permanent peace', which Kahn rejected as utopian.³² Peace theorists were correct, however, that Kahn largely espoused a 'negative peace' view of conflict absence rather than a normative preferred future. Second, Hedley Bull noted in 1968 that this

interdisciplinary conflict was partly due to the Peace movement's discomfort with civilians like Kahn who cooperated with the so-called Military-Industrial Complex.³³ A vocal *OTW* critic, Anatol Rapoport represented a sub-field who believed that Strategic Studies was flawed to focus primarily on war-planning rather than on frameworks for collective and common security.

The third group is more difficult to assess as Kahn's death in 1983 came at the cusp of signs that he was re-evaluating his earlier work. Kahn was aware of the contestation debates within International Relations theory, as both *TATU* (1962) and *OE* (1965) appeared to acknowledge the then-emergent English School of Hedley Bull and Martin Wight. In the manuscript for *TATU 1980s* (1984) he raised the likelihood of multipolar deterrence as a probable outcome for security at a world system level.³⁴ Kahn's fear of unknown factors and destructiveness also foreshadows the mid-1990s debate on 'loose nukes' and Weapons of Mass Destruction.³⁵ Yet Kahn also had blind-spots because of his emphasis on the state-centric model of the realist paradigm in Strategic Studies. For example, Kahn's technical rationality meant that he had difficulty in modelling the environmental impacts of a nuclear holocaust. It is unclear how he would have responded to the 'nuclear winter' scenario proposed by Carl Sagan and colleagues in *The Cold and the Dark* (1984) and subsequent works.

Kahn and Scenario Modelling

Kahn is viewed alongside Royal Dutch/Shell's Pierre Wack as an early exponent of scenario planning. His "Gedanken" or "thought" experiments were used primarily as provocations in discussions with strategic planners and the general public.³⁶ As such, they were forerunners to the current interest in mental models and Edward de Bono's 'provocative operators'. Despite its flaws, *OTW* elevated systems analysis and scenario planning as new methodologies within Strategic Studies. Consequently, Kahn's work stands half-way between the de-facto standard of Peter Schwartz's Global Business Network and Michel Godet's mathematics-oriented *prospective*.

Kahn is best-known for a suite of econometric and technological scenarios co-written with Anthony J Wiener.³⁷ Kahn's emphasis on positivist science and his later

collaboration with Julian Simon has prompted Critical Futures Studies scholar Richard Slaughter to situate Kahn's work in an "empirical/analytical tradition" popular in North America.³⁸ Whilst there is some truth to this label, Kahn's scenario work had a richness that can only be appreciated in its historical and socio-political context. Appendix 1 distils some of Kahn's key strategies in scenario construction and public presentations. Kahn's repertoire ranged from counterfactuals and historical perspectives to alternative analysis and threat scenarios.

Kahn first combined scenarios with Monte Carlo risk modelling and systems analysis in a paper for mentor Albert Wohlstetter which highlighted the Strategic Air Command's "vulnerability" to Type II deterrence.³⁹ He included multiple dimensions—political systems, conflict counter-reactions, leader psychology and rationale—that were relevant to national security analysts. Kahn's public presentations integrated lessons from the group polling of audiences and narrative.⁴⁰ Although he did not have the post-positivist breadth of contemporary practitioners such as Schwartz and Jay Ogilvey, Kahn's later scenarios had tightly presented assumptions and critical rankings.⁴¹ Before his death, Kahn outlined the Hudson Institute's "canonical scenarios" for nuclear attack: a surprise nuclear attack; a crisis escalation to nuclear war; a first strike to defend Western Europe; escalation from a "protracted crisis"; and escalation from "mobilization war".⁴²

His status as an 'early adopter' meant that Kahn had to navigate diffusion challenges within the defence establishment. David Lilienthal, the former Atomic Energy Commission chairman, objected to *OTW's* Wars I to VIII as too speculative for strategists, a view that encapsulated a broader tension between combat specialists and "whiz kid" theorists.⁴³ The Cuban Missile Crisis tested this reality-gap between theory and action: Kahn feverishly monitored the radio broadcasts as the crisis developed.⁴⁴

OTW's notoriety had ripple effects on how security thinkers used scenario modelling. In the early 1980s a sub-genre of threat scenarios emerged, as the Reagan Administration adopted a more hardline stance toward the Soviet Union. These scenarios had three key themes: the prospect of a Military Central War in Europe between NATO and Warsaw Pact forces, escalation scenarios which crossed the 'no

nuclear use' and 'central war' thresholds, and explorations of new technologies that would shift the balance of terror in a conflict. However, although clearly influenced by *OTW's* World Wars III to VIII, these scenarios had a rigidity which did not assimilate *OE's* lessons on communication and language in crisis situations.⁴⁵

Rather, Kahn's legacy was more apparent in the national security bunkers and facilities built for the post-war survival of the US President and key Administration personnel.⁴⁶

Charles Perrow also updated Kahn's strategic vocabulary in the mid-1980s when he founded the sociology of accident research. Through a post-mortem on the 1979 Three Mile Island incident and petro-chemical plants Perrow developed a sophisticated model of complexity, systems coupling, catastrophic risk and organisational responses. Importantly, Perrow's category of "system accidents" which "involve the unanticipated interaction of multiple failures" provides both another way to consider Kahn's surprise attacks, and a factor to consider in escalation thresholds.⁴⁷ Subsequent researchers have applied Perrow's work to the *Challenger* and *Columbia* space shuttle disasters.

In his influential Interacting/Coupling chart, Perrow situated nuclear weapons accidents as examples of complex incidents in tightly coupled systems.⁴⁸ Although Kahn recognised errors and technological failures as possibilities, his communication strategies and de-escalation frameworks could not take Perrow's models into account. For accident researcher Lloyd Dumas, the B-52 crash in Greenland's Thule Bay on 21 January 1968, and the 1,1150 "serious false warnings of attack" which occurred between 1977 to 1984, point to the limitations of technological rationality in tightly coupled systems.⁴⁹ Consequently, although Kahn's scenarios were intriguing as a Strategic Studies tool, they need further refinement for current security problems.

Kahn Compared: McNamara, Schelling, Schell & Walzer

The following section briefly compares Kahn to four other strategic thinkers: his contemporaries Robert McNamara and Thomas Schelling; the peace movement advocate Jonathan Schell; and the ethicist Michael Walzer.

Robert McNamara

Robert McNamara's Minimalist position is frequently contrasted with Kahn's Maximalist position in *OTW*. McNamara's popular image neglects the historical record that is better known to Strategic Studies specialists. McNamara's Athens Speech in May 1962 echoed *OTW* in considering the spectre that a nuclear strike on the Soviet Union could lead to 25—100 million deaths.⁵⁰ These fears prompted McNamara to shift from an early Maximalist position to a Minimalist second-strike capability that better fitted with the Kennedy and Johnson Administration's 'Flexible Response' stance.⁵¹ As discussed above Kahn had already shifted from a hardline position to a stance somewhere between Maximalist and 'Flexible Response' depending on the conflict threshold and the deterrence capabilities.

Yet in recent works such as *Wilson's Ghost* (2001) McNamara has signalled his shift more to Jonathan Schell's Abolitionist stance, based on a belief that the combination of nuclear weapons and human irrationality will one day lead to a nuclear holocaust. McNamara's public image has also benefited from his DVD commentaries for Kubrick's *Dr. Strangelove* (1964) and his testimony in the Errol Morris documentary *The Fog of War* (2003). Kahn's 1983 death meant he did not have a similar opportunity to reposition his public image and legacy for the post-Cold War era.

Thomas Schelling

Although Kahn's *OTW* created the initial public impact Thomas Schelling has had the most enduring impact on policymakers and strategic thinkers. Both were contemporaries and drew on game theory to examine the tit-for-tat bargaining and power dynamics of confrontations. Kahn referred to Schelling throughout *OE* on bargaining, crisis brinkmanship and the "Chicken" stratagem.⁵² In turn, Schelling has defended Kahn's Doomsday Machine as a hypothetical, and has explained how his

review of Peter George's novel *Red Alert* prompted Stanley Kubrick into optioning it for *Dr. Strangelove*.⁵³

Schelling however has proved along with Robert Axelrod to be more influential, an outcome that probably reflects the greater flexibility of a Minimalist stance.⁵⁴ Further research may shed more light on the diffusion lessons that meant Schelling's greater impact.

Jonathan Schell

Schell's *The Fate of the Earth* (1982) is regarded as a landmark text by the Campaign for Nuclear Disarmament and the 'nuclear freeze' movement. In *Fate* Schell vividly describes the aftermath of a nuclear holocaust as a Gaian reply to Strategic Studies analysts. Kahn objected to this description: he dismissed *Fate* as "chimerical" because he believed it presented distorted and selected evidence.⁵⁵ Kahn specifically rejected as a "non-solution" Schell's belief that a future world government could solve nuclear proliferation.⁵⁶

Schell considered the impacts of nuclear war on the natural environment whereas Kahn did not. Schell notes Kahn's strategy of calculated irrationality and warns that the Doomsday Machine might be set off accidentally.⁵⁷ These disagreements highlight the limits of Kahn's technical rationality and the early 1980s shift from state-centric to human and biosphere-oriented security studies.

Ironically, Schell and Kahn also had agreements. Both agreed that "speculative" scenario work was difficult to be convincing.⁵⁸ Schell also agreed with Kahn that the "unthinkable" dimension of strategic nuclear thinking was in part due to the theoretical nature of this work.⁵⁹ In *The Abolition* (1984) Schell cite's Kahn's *OTW* plea to reach 1975 as an example of why deterrence theorists needed a long-term strategic horizon.⁶⁰ He also cites Kahn in noting that deterrence theorists and other strategic intellectuals reject full-scale abolition, because of the unlikelihood of a world government to emerge and the likelihood of future conflicts between nation-states.⁶¹

Schell and Kahn represent two different viewpoints on the nuclear problem, different motivations, and different levels of analysis. Schell points beyond Kahn's scenarios to the need for complexity models with psychological factors and post-conflict reconstruction.

Michael Walzer

Kahn is often critiqued by Strategic Studies outsiders as lacking a moral compass. This reflects the post-Hiroshima taboo about strategic nuclear targeting which can potentially kill millions.⁶² Yet Kahn's work faced at least three key moral dilemmas which proved insurmountable. First, notes historian Norman Moss, "Deterrence can create a sliding scale where statistics do not capture the reality of people killed in a nuclear attack."⁶³ This critique has underpinned the pseudo-scientific nature of Kahn's post-survival scenarios. Second, Michael Walzer contends that Deterrence creates geostrategic instabilities due to war-planning: "Nuclear weapons explode the theory of just war."⁶⁴ Although Kahn offered strategists more range with his Type I, II and III Deterrence they were conceived outside the Just War tradition. Finally, Walzer notes that nuclear "counter-population warfare" is worse than its threat, although the "implicit threat" can create new evils.⁶⁵ Kahn was aware of these problems but the pragmatic nature of his outlook meant that he left it to others to reach conclusions. Ultimately for Kahn morality had a role only in informing how long-range planning was linked to a doctrinal "vision of the future."⁶⁶

Section Conclusion: Modelling Kahn

This overview of Kahn's work hopefully opens the door to a more sober reassessment of his contribution to Strategic Studies. Pragmatic futurist Joseph Coates suggests that Kahn used genius modelling in his public workshops on nuclear strategic thinking. This approach is apparent in Kahn's use of humour, metaphor and rhetoric as gambits. The Study Conclusions section provides an extended overview of Kahn's relevance to the post-September 11 security environment. Appendix 1 draws on Robert Dilts' work in Neurolinguistic Programming and Jerrold M. Post's work in political profiling to model Kahn's tacit-to-explicit cognitive strategies as an example

of Coates' genius modelling.

Section Two: The DPRK's Nuclear Weapons Program

The DPRK Problematique

The Democratic People's Republic of Korea (DPRK) represents an appropriate geopolitical issue to apply Herman Kahn's insights to the contemporary environment. Its nuclear research program has focussed primarily on 30-megawatt and 5-megawatt reactors at Yongbyon and a new 200-megawatt reactor being built at Taechon.⁶⁷ The DPRK *problematique* has to-date been defined in terms of the Clinton Administration's 'rogue state' doctrine, which became a new doctrinal norm after the 1991 Gulf War.⁶⁸ It has also involved the International Atomic Energy Agency (IAEA) and the Non-Proliferation Treaty (NPT). Appendix 2 provides a brief timeline of key events spanning the first Bush, Clinton and second Bush Administrations which involved the DPRK's nuclear weapons program.

In his 2002 Presidential Address, US President George W. Bush condemned the DPRK as part of an "axis of evil" which included Iran and Iraq, and connected Kim Jong-Il's 'rogue state' government with nuclear smuggling and terrorist threats.⁶⁹ The Bush Administration's hardline stance reflected partisan frustration at the Clinton Administration, which was perceived to have appeased the DPRK after signing an Agreed Framework in 1994. The Bush Administration then escalated the tit-for-tat exchange when it ended the DPRK's annual delivery of "500,000 tonnes of heavy fuel oil".⁷⁰

In the meantime, the DPRK restarted its plutonium processing program and claimed on 10 February 2005 to have nuclear weapons capabilities. Despite this, the Bush Administration relegated the DPRK to a lesser priority than its 2003 Iraq 'regime change' or its 2006 coercive diplomacy on Iran's nuclear weapons research. This decision suggests that the Bush Administration has attempted to follow the "denial of recognition" strategy which the Clinton Administration used to deal with India and Pakistan's nuclear testing between 1996 and 1998.⁷¹

Applying Kahn to the DPRK

There are several reasons why Kahn's work has a 'best fit' with the DPRK situation. First, the historical circumstances which led to DPRK's foundation as a nation-state meant that it has maintained an isolationist Cold War outlook. These circumstances include the failure by US and Soviet military forces to reunite the Korean Peninsula at the end of World War II and the traumata of the 1950—53 Korean War.⁷²

Unsurprisingly, Kahn used the Korean War to model future crises which could destabilise Type I deterrence.⁷³ Second, the leadership psychology of DPRK society and its *Juche* political philosophy provide a strategic opponent with a different worldview to Western analysts, an issue discussed below.⁷⁴ Third, the nuclear diplomacy between the DPRK and the West outlined in Appendix 2 meet Kahn's criteria of "continual crisis" although he was thinking more of 1938 Munich and the 1948 Berlin blockade.⁷⁵ Fourth, the sub-field debate on nuclear 'tipping points' has appropriated Kahn's "unthinkable" metaphor into a new context.⁷⁶ Specific applications are discussed below.

The DPRK's Nuclear Proliferation and the Security Dilemma

In his review of Security Dilemma definitions Alan Collins notes a scholarly consensus that it occurs at a state-centric analytical level.⁷⁷ The DPRK's nuclear weapons program has emerged as a primary concern for Northeast Asian states, and is at the core of complex inter-state relations. The United States has attempted to gain NEA primacy through diplomacy, bilateral trade links and power projection. China and Russia are respectively in superpower ascendancy and decline, whilst Japan and South Korea (the Republic of Korea or ROK) maintain their economic influence. Bilateral conflicts include Sino-Soviet and Sino-US relations, DPRK and Sino-Japan disagreements over colonialist legacies, and the DPRK-ROK 'sunshine' negotiations.⁷⁸ The state-centric assumption also underpins the comparison the comparison of DPRK with Iran's drive for nuclear capabilities in the Middle East.⁷⁹

The DPRK's nuclear weapons program also meets Collins' second criteria that the Security Dilemma involves "unresolvable uncertainty" which destabilises the

region.⁸⁰ As detailed below, the DPRK has adopted similar strategies to Myanmar and Libya—money laundering, arms dealing and illegal technology transfer—to raise much-needed hard currency and to ensure the survival of Kim Jong-Il’s regime. DPRK was blocked from Asian Development Bank loans because it was listed by the US State Department as a terrorist state sponsor: the regime hosted Japanese Red Army survivors and had conducted hijackings and bomb threats against South Korea in the early 1980s.⁸¹ The DPRK’s decision to pursue covert funding means that its nuclear weapons program is tightly coupled with other security threats. This tight coupling feeds into the Security Dilemma: other countries must deal with second and third-order consequences, trans-national flows, and flow-on effects. Consequently, the DPRK’s Security Dilemma is more multi-dimensional than a state-centric analysis might suggest.

The interdisciplinary debate within Security Studies reflects this multi-dimensional nature. For traditional realists, the DPRK’s missile development program creates risks for Japan and South Korea reminiscent of Kahn’s early work on city and military targeting.⁸² Hoare and Pares anticipate Critical Security Studies theorists like Roy Godson when they note that the DPRK’s economy is structurally coupled with black markets and illegal trans-national flows. In particular, Hoare and Pares note the DPRK has survived via arms sales to Africa and the Middle East, and through providing contract labour to Russian Far East gulags.⁸³ The latter are of interest to Human Security theorists because gulag escapees have become a trans-border problem for China and Russia.⁸⁴ Environmental security would prioritise the 1994-99 natural disasters as underlying instabilities that challenge the DPRK’s sovereignty and political resilience. Peace Studies theorists like Johan Galtung have pointed to Japan’s refusal to make a “real apology” for its 1910 annexation of the Korean Peninsula and Confucian philosophy’s inter-generational transmission of collective memory as barriers to the DPRK’s post-conflict reconstruction.⁸⁵ Each of these perspectives illuminates a dimension of DRPK’s Security Dilemma. The second major factor is the leadership psychology of Kim Jong-Il’s regime.

Leadership Psychology

Western strategists have portrayed Kim Jong-II as a demagogue comparable to Nazi Germany's Adolf Hitler. Popular imagery in James Bond film *Die Another Day* (2002) and satirised in *Team America: World Police* (2004). Kim Jong-II's image as a movie director playboy who also presides over famine and natural disasters also function as counter-propaganda in the West. The Bush Administration illustrated this when it recommended Kang Chol-hwan and Pierre Rigoulo's *The Aquariums of Pyongyang* (2001), a reportedly harrowing memoir of survival in the DPRK's gulag system, to the US public as a pretext for Iraq-style regime change. Jerrold M. Post's view of Kim Jong-II as a political leader with "malignant narcissism" represents a more sophisticated psychological profile.⁸⁶ Whilst such depictions have truthful elements, they also illustrate the ease with which historical analogies can be used to influence strategists about contemporary situations.⁸⁷ More interesting is the analogy that the DPRK's "garrison state" embodies what Kahn's civil defence infrastructure would have resembled if it arose in an authoritarian society.

Kim Il-Sung's personality cult and the authoritarian structure of its society have long been used by Western strategists to explain the North Korean psyche.⁸⁸ This explanation reflects the coercive nature of DPRK society from its carefully scripted rituals to its historical revisionism about Kim Il-Sung's guerrilla activities in World War II. It enables strategists to make further comparisons between Stalin's Soviet Union and George Orwell's novel *Nineteen Eighty Four* (1948). At the level of popular culture Kim Jong-II's authoritarian system has featured in the James Bond film *Die Another Day* (2002) and was satirised in *Team America: World Police* (2004). An underlying assumption of this approach is that to consider the DPRK leadership as sane is unthinkable despite its resilience in the face of adversity.

Kahn's humour offers a different possibility which he may not have considered: the need for multiple ways of knowing. Comparative political theory offers an alternate explanation, one that encompasses the above with epistemological, ontological and phenomenological foundations. The DPRK philosophy of *Juche* or self-reliance provides a transcendent ideal that underpins the nation-state and Kim Jong-II's

charismatic leadership. *Juche* has multiple elements that include Maoist doctrines, Kim Il-Sung's guerrilla warfare experiences, Confucian ancestor worship, Soviet Union administrative structures and court protocols from the Choson dynasty which ruled Korea until 1910.⁸⁹ *Juche* is credited with defining the DPRK's self-concept as a nation-state, and it provides an animistic structure to integrate the family and socio-political institutions.

A deeper parallel between DPRK and Nazi Germany is the view that both Hitler and Kim Il-Sung tapped into paleo-political archetypes which shaped their nation's collective memory, and which the charismatic leaders and state bureaucracy deployed for persuasion and social control. The late conservative scholar Peter Viereck advanced this view in his meta-political analysis of Nazi Germany's ideological roots in European Romantic culture and anti-Semitism.⁹⁰ This approach opens up new possibilities to understand *Juche*'s ideological role in DPRK society.

Kahn's econometrics influence places him closer to the Rational Actor theorists who gained prominence in the early 1980s.⁹¹ Although he recognised the perceptual dimension of conflicts between two elites or leaders, he and other strategists of his ilk would have lacked the training in cross-cultural anthropology to grasp these nuances. Consequently, the importance of the DPRK as a case study on leadership dynamics in "crisis stability" situations may help to revive the earlier traditions of political psychology.

DPRK Games: Denial & Deception and Signalling

Since the 1994 crisis the DPRK has become a significant regional case in Strategic Studies literature. The DPRK's program has also undermined the IAEA inspections and the NPT framework. The predominantly Western viewpoint of the DPRK security dilemma has been enlarged by new perspectives from Chinese and Russian members of the Six Nations negotiation team.⁹² Appendix 3 provides an overview of this literature, its key themes and policy solutions.

Kahn would have recognised the DPRK's negotiation strategy as nuclear blackmail. DPRK's nuclear diplomacy has adopted a bargaining position that exploits Kahn's "Manipulation of the Residual Fear of War" and fears of a limited conventional war on the Korean Peninsula.⁹³ Jeffrey Richelson represents a counter-view that DPRK's strategy "might represent some combination of deception and signalling."⁹⁴ For Richelson, the DPRK's Denial and Deception strategies are necessary for its covert funding activities, and as a counter-intelligence measure against other agencies. Denial and Deception strategies have some similarity to Kahn's "Chicken" game in that they involve active misdirection and the manipulation of perceptions.

DPRK also may have introduced strange loops into negotiation situations which prevent more powerful actors in the Six Party negotiations from adopting the cooperative strategies which Robert Axelrod identified as non-zero solutions to the Prisoner's Dilemma in game theory. The *Taepodong* missile test in 1998 illustrates a pivotal incident where the DPRK manipulated fears about First Strike capabilities—despite the technical flaws involved in the launch—to threaten Japan and South Korea, and thereby gain diplomatic status, economic concessions and resources from the United States.⁹⁵ In a study which echoes Kahn and Schelling's games in the mid-1960s, Victor D. Cha concluded that the contemporary DPRK was more likely to be pursuing "existential deterrence" in a Security Dilemma framework, or bureaucratic battles due to its "military first" policy.⁹⁶ Each posited less risk than a hardline goal to gain nuclear weapons capabilities.

Consequently, this pattern of deception, game-playing and signalling may partially explain the complexity of the Six Nations negotiations since 1994. The DPRK's use of Schelling's "fear of inadvertent eruption" led the Clinton Administration to adopt a "Don't Rock the Boat" strategy of crisis diplomacy.⁹⁷ Clinton's 1993 vision of a "New Pacific Community" provided a deeper social image that shaped his Administration's negotiation stance.⁹⁸ The DPRK's escalation throughout 1993 and 1994 was also destabilising to its NEA neighbours who "had assumed the security dimension would stay in the background" after the Soviet Union's collapse ended its DPRK sponsorship.⁹⁹ Instead, the Cold War's end created a vacuum that the United States hoped to fill, and sparked inter-state rivalry for regional dominance.

Bush Administration neoconservatives escalated the situation to a “Hardening of Positions” in a game that replayed the Reagan Administration’s 1982-83 stance against the Soviet Union. However, the neoconservatives miscalculated the DPRK’s actual progress toward nuclear weapons capabilities because the Denial and Deception strategies short-circuited Signals and Technical intelligence from remote satellites. The US was also isolated by China, Russia and South Korea for different reasons in the Six Party negotiations. These factors led to an “asymmetry of expectations” that prevented closure.¹⁰⁰

Counter-Moves and Solutions to the DPRK *Problematique*

Appendix 3 provides an overview of the DPRK literature since the 1993-94 crisis. Appendix 4 lists 10 common Counter-Moves and Solutions to the DPRK’s Security Dilemma from this literature. Several intriguing commonalities and patterns are revealed.

First, the DPRK ‘threat’ subgenre reflects a hawkish stance by primarily neo-realist and neoconservative strategists. The authors rearticulate earlier themes from the Reagan Administration and the Committee on the Present Danger: the grand strategy tension between democratic and totalitarian societies, the ontological evil of the enemy leadership and the catastrophic threat scenarios if nuclear weapons capabilities are obtained. Consequently, these strategists argue for pre-emptive strikes and Iraq-style ‘regime change’.

Second, the literature on crisis diplomacy reflects liberal internationalist and democratic peace strategists. Rather than military force these authors adopt variations on regional consensus-building and applications of Joseph Nye’s ‘soft power’ to cultural exchange and bilateral trade. This approach has a greater role for coalitions whilst a subgenre places faith in the transformative power of neo-liberal globalisation. Constructivist perspectives on international organisations and trans-border issues reflect another sub-genre that has gained influence with risk globalisation and self-reflexive modernity.

Third, the literature on world systems, environmental and post-conflict approaches has cross-disciplinary links between Security and Peace Studies. These authors place the themes emphasised by the first two groups above in a broader historical timeframe and a deeper cross-cultural context. Whilst this surfaces complexities and dynamics, its insights are often rejected by traditional Security scholars as too abstract and conceptual to have operational use. In turn, this creates inter-paradigmatic tensions and norm contestations which have shaped Strategic Studies over the past decade.

Fourth, a new tension between tragic realist/neo-realist and world systems schools has emerged over the 'weak' and 'failed' states doctrine. This tension reflects different causal explanations of state failure and distinctive views on nation-state sovereignty and world society. This debate has the potential to re-evaluate Kahn and Schelling's explanations for regional arms races and 'war and peace' games.

To-date the 'threat' subgenre dominates policy discussions with the literature on crisis diplomacy and soft power being more influential in civil-military affairs. World systems and Peace perspectives remain on the fringes, and are more likely to be adopted by non-government organisations and civil society movements. This map is meant only as a snapshot of different policy positions, and further research may identify the continuities and change in DPRK-US strategic relations.

Section Conclusion: Towards A New Escalation Framework

This chapter has investigated three sub-problems that Kahn's work offers insights on: the DPRK's nuclear proliferation and the security dilemma, policy responses to the DPRK's activities, and the critical role of leadership psychology. Underlying each sub-problem is the delimit that although Kahn developed an Escalation Ladder for interstate conflict in *On Escalation* (1965), this was conceived largely in terms of Cold War deterrence between the US and Soviet Union. The Study Conclusions section contends that a new Escalation framework is needed to deal with the DPRK, and offers some preliminary thoughts. Appendix 5 provides a draft Escalation Ladder applicable to DPRK's nuclear weapons program.

How might Kahn's existing framework in *OE* (1965) help strategists to understand why the DPRK crisis has unfolded? The Clinton Administration's strategies largely centred on stages 2 and 3 (Political, Economic and Diplomatic Gestures, and Solemn and Formal Declarations) of Subcrisis Maneuvering to deal with the DPRK throughout its lifespan. The 1993—94 crisis edged toward stage 4 (Hardening of Positions—Confrontation of Wills) in Traditional Crises before the 1994 Agreed Framework was established. Leon V. Sigal and other security experts on DPRK have written entire studies around this threshold.¹⁰¹ The memoir by three Clinton Administration negotiators at the locus of the 1993-94 crisis also fit Kahn's Subcrisis Maneuvering category.¹⁰² The Bush Administration's stance toward both Iran and the DPRK also fits stage 4, although the same signals have been credited along with the Iraq 'regime change' of convincing Libya's Muammar Qaddafi to end his weapons program. Although Kahn considered the difficulties of misinterpreted signalling this applied more to crisis situations rather than the Denial and Deception strategies cited above.

Kahn's work may have suggested alternate policies if US strategists had applied it to the DPRK. As Kahn raised concerns about how metaphor and rhetoric shape debates, it could have been used to track DPRK tactics through an issues attention cycle. Along with similar contributions by Kenneth Boulding and Robert Jervis, this may have enabled strategists to deduce the DPRK's real intentions in an environment of denial-deception operations and disinformation. Consequently, the DPRK's self-proclaimed status as a nuclear power on 10 February 2005 may not have been such a shock to policymakers.

Study Conclusions

This closing section offers some preliminary Study Conclusions on the relevance of Herman Kahn's work to the contemporary security environment, and its applicability to the DPRK's nuclear weapons program.

1. Herman Kahn

Herman Kahn's dystopian vision has influenced the pre- and post-September 11 security environment in several ways. Yet because of Kahn's relative obscurity and the fragmentation of Strategic Studies this influence remains oblique. Kahn's work foreshadowed many of the Strategic Studies debates in the past decade, from the technological emphasis of the Revolution in Military Affairs (RMA) to early visions of National Missile Defence shields and tactical nuclear weapons.¹⁰³ The RMA framework and its cycles of post-conflict learning are a step to rescuing Kahn's distinction between the possible wars of 1961, 1965 and 1975. The US network of military bases and bunkers for the post-war survival of governments can also be traced to the civil defence climate that Kahn's *OTW* exemplified.¹⁰⁴

The Clinton Administration's fears about sub-nationalist groups and trans-national communications networks also converged around the spectre of 'loose nukes' and black market smuggling. Kahn's "catalytic war" scenario is relevant in these circumstances, in which "a minor nuclear power might be tempted to try to fool rival major nuclear powers into destroying each other."¹⁰⁵ Phil Robinson's film adaptation of Tom Clancy's *The Sum of All Fears* (2002) exemplifies this scenario, from the pan-Euro-Slavic alliance envisioned by far right philosopher Francis Yockey that detonates a nuclear weapon in the United States, to the climatic 'hot-line' negotiations to prevent a Soviet first-strike.¹⁰⁶ Kahn's critics overlook that he advocated the hot-line in *OTW* prior to the Cuban Missile Crisis.¹⁰⁷

Al Qaeda's terrorist attacks against the United States on 11 September 2001 have also given Kahn's writings a renewed relevance. His dystopian outlook is reflected in the Bush Administration's Global War on Terror grand strategy and David Frum's "axis

of evil” rhetoric. The significant shift here is that the “unthinkable” has become part of the Bush Administration’s risk communication strategies and consequently is subject to hostile and partisan debates. This shift also reflects that *OTW*’s threat modelling have become integral to the “calculus of catastrophe” now used by major governments to identify strategic threats.¹⁰⁸ Kahn’s use of historical analogies in *TATU* (1962) and *OE* (1965) on surprise attacks anticipates John Lewis Gaddis’s distillation of the Bush Administration’s grand strategy after the September 11 attacks.¹⁰⁹

Several current trends illustrate Kahn’s relevance to the post-September 11 security environment. Kahn would likely have approved of the Proliferation Security Initiative (PSI) launched by the Bush Administration in 2003 to counter the black market in nuclear weapons components. The PSI reflects an inter-state solution to a trans-national problem that does not require the liberal internationalist vision of a world society. He may have critiqued the neoconservative Office of Special Plans for failing to heed escalation scenarios in post-conflict Iraq that involved Sunni insurgents. Kahn would also have found that the Department of Homeland Security’s policies eerily echoed aspects of *OTW*’s civil defence infrastructure.

The ‘unthinkable’ has now been extended to disaster and emergency management for potential terrorist attacks. Kahn’s use of Monte Carlo and Game Theory modelling has shifted from the ‘high’ problem of non-proliferation regimes to the ‘low problem’ of neighbourhood crime patterns. Perhaps the most direct parallel to Kahn’s early work has been US threat modelling of the H5N avian flu pandemic. Kahn’s use of supercomputers to model Cold War nuclear conflicts has resurfaced at New Mexico’s Los Alamos National Laboratory, where scientists conduct simulations that revisit Kahn’s statistical warnings of megadeaths.¹¹⁰

The September 11 semiotics in Hollywood blockbusters such as *Batman Begins* (2005) and *War Of The Worlds* (2005) indicate that Kahn’s dark strategic imagination has been propagated into the contemporary culture. The film *Syriana* (2005), named after the fictional country used in scenario exercises by US think-tanks, highlights how these methodologies are now being applied to energy security and oil geopolitics,

and how they have migrated from government policymakers to investment consortia as risk management processes.

Finally, the post-September 11 growth of covert military bases and the renditions of terrorist suspects illustrates how this infrastructure can embody a self-perpetuating bureaucracy. Brad Roberts notes that Kahn believed the US would be held to far higher moral standards in a Cold War conflict with the Soviet Union.¹¹¹ This insight applies to the conduct of US military forces in the Abu Ghraib and Haditha incidents after Iraq's 'regime change' in 2003.

2. The DPRK's Nuclear Weapons Program

As noted above the DPRK represents one of the "best fit" cases of Kahn's theories to the post-Cold War environment. *Juche* and DPRK's leadership psychology point to the need to update Kahn's views on crisis perception with insights from anthropology, cross-cultural sociology and newer schools in political science. Disturbingly, Kahn's work has utmost relevance to the black market of smuggling in nuclear weapons components, an "uncontrolled proliferation" vision that he explicitly warned against.¹¹² This vision resurfaced in the late 1990s after security scholars notably Jessica Stern raised concerns about the Nunn-Lugar program and sub-national groups.¹¹³

The DPRK's political resilience against the US 'rogue state' doctrine means that its government risks becoming further embedded in this black market. Accident researcher Lloyd Dumas notes a 1996 incident in which Los Alamos scientists were able to build prototype nuclear weapons from off-the-shelf components.¹¹⁴ There are multiple signs that North Korean scientists have been pursuing several strategies to gain similar access to nuclear components. Gordon Chang notes the DPRK collaborated with A.Q. Khan's covert network from 1991 to 2002, and may have gained access to Pakistan centrifuge technology.¹¹⁵ The Daesong Yushin Trading Company also attempted to obtain gas centrifuge equipment from Japanese firms, notes intelligence historian Jeffrey Richelson.¹¹⁶ It may also have been the motivation for North Korea's involvement in Aum Shinkrikyo, in using the Japanese apocalyptic cult to gain access to the Russian military.¹¹⁷ In pursuing these avenues

the DPRK has turned away from China's role as donor sponsor and has undertaken pragmatic discussions with its diplomatic enemies.¹¹⁸ This dimension intersects closely with Kahn's dystopian vision although in a new security environment.

A new Escalation framework may help intelligence analysts and negotiators to deal with the DPRK. First, it would integrate the frameworks and analytical levels from the new theoretical schools in international relations, security and strategic discourses. This would provide multiple viewpoints on a crisis situation and ensure the breadth and depth of intelligence collections and analysis. The frameworks could be made explicit in circumstances where competitive analysis is used, such as the Central Intelligence Agency's National Intelligence Estimates or the Office of National Assessment's geostrategic profiles.

Second, it would augment the state-centric focus of Kahn's Escalation Ladder with other levels and phenomena: Arjun Appuradai's flowscapes, trans-border flows, sub-nationalist groups, and leadership dynamics. Furthermore, this framework should be integrated with the Boulding/Jervis tradition of social images in international relations discourse. To be operationally deployable, the new Escalation framework should also include processes to check and re-evaluate the explanations and thresholds, given DPRK's use of Denial and Deception Strategies. Integration of the patterns identified in Appendices 3 and 4 would enable analysts to have war game style run-throughs of the likely counter-moves by strategic actors. Appendix 5 provides a draft Escalation Ladder.

Appendix 1: Modelling Kahn

This appendix offers a preliminary model of Herman Kahn's influences and cognitive strategies. It draws primarily on Kahn's contributions to Strategic Studies, Robert Dilts' modelling of visionary geniuses,¹¹⁹ and Jerrold M. Post's psychoanalysis of operational leader codes.¹²⁰ Further research needs to be conducted in this area. Sharon Mindel Helsel has conducted an in-depth analysis of Kahn's exploratory strategies in public presentations on the "unthinkable."¹²¹ Archival audio recordings of Kahn's public presentations provide material for voice analysis.¹²²

Background

- Background in mathematics and physics shaped Kahn's worldview
- Augustinian ethics that reflected a belief in technical rationality¹²³

Schools of Thought

- Influenced by Albert Wohlstetter, Bernard Brodie and the research communities at Lawrence Livermore National Laboratory, the RAND Institute and others
- Parallel to Kenneth Boulding's work on social imaging, and a precursor to Robert Jervis's work on perception
- A precursor to Daniel Kahneman and Amos Tversky's prospect theory for risk environments

Key Research Questions and Concerns

- Developing a new strategic vocabulary for multipolar deterrence
- A strategic repertoire for deterrence
- Strategic options for what to do if deterrence fails
- Decision-maker assumptions and perceptions in crisis situations
- The deterrent role of a robust civil defence infrastructure

Key Assumptions

- If nuclear weapons exist they will be used; threats represent a kind of use¹²⁴
- Nuclear weapons create new types of war, which in turn create new doctrinal and strategic command challenges¹²⁵

Strategic Studies Contributions

- Type I, II and III Deterrence and scenario models in *OTW*
- Defence of Strategic Studies intellectuals in *TATU*
- Game models in *OE* and *TATU*
- Escalation frameworks in *TATU* and *OE*
- "Gedanken" experiments and specific scenarios in *TATU 1980s*

Methodological Contributions

- Idea generation capabilities
- Methodological tools included early computer simulations, game theory, systems analysis, scenario planning, technological forecasting and group polling of the general public
- Specific methodological innovations in scenario planning, systems analysis and civil defence infrastructure

Scenario Construction and Strategic Thinking

- Key historical analogies: Ten key historical analogies: Armageddon, Camian, 1871—1914 Europe, Pearl Harbour 1941 (surprise attack), Munich 1938 (appeasement), Czechoslovakia 1939 (President Hacha), Rotterdam, Berlin, 1950—53 Korean War, Reichstag Fire. Later analogies: 1967 Six Day War, Soviet interventions (Hungary 1956, Czechoslovakia 1968, Afghanistan 1979).¹²⁶
- Historical perspectives on leadership: Alexander The Great, Napoleon, Hitler, Frederick The Great, Wilhelm II, The Mule from Isaac Asimov's *Foundation* series¹²⁷
- Different timeline categories in *OTW* and later works: “the real past” (case studies and historical perspectives), “the hypothetical past” (counterfactual thinking), “the hypothetical present” (alternative analysis) and “future conflicts” (threat scenarios).

Risk Communication Strategies

- Key vocal trigger for public controversy: “*Only* two million deaths”¹²⁸
- Kahn carefully cultivated the public image of a rational defence/strategic studies intellectual (Dilts' Rationalist strategy)
- Kahn used existential dread and stand-up humour: a combination which created cognitive dissonance for many people (Dilts' Dreamer strategy)
- Kahn's chart labels reframed the Realist view of International Relations as grotesque
- The re-evaluations of Kahn's work by Helsel and Ghamari-Tabrizi have sought to recover Dilts' Dreamer strategy as an aspect of Kahn, whilst situating his Rationalist strategy in an appropriate historical context
- Shift from “static narrative specifics” to “categorical generalizations” in Kahn's public presentations¹²⁹
- Two-day format for presentations meant Kahn was possibly able to put his audience into receptive trance states

Appendix 2: Partial Timeline of DPRK Nuclear Weapons Program

This timeline draws on dates taken primarily from Wampler (2003), Hoare & Pares (2005) and Richelson (2006).¹³⁰

| | |
|--------------------------------|---|
| December 1991 | DPRK agrees to nuclear free Korean peninsula after diplomatic pressure from Russia, Japan, and South Korea |
| 30 January 1992 | DPRK signs IAEA agreement |
| February 1992 | US SIGINT satellites detect Yongbyon activity |
| May 1992 | DPRK reveals plutonium manufacture to IAEA |
| June 1992—February 1993 | IAEA conducts six investigations into DPRK sites |
| September 1992 | IAEA visits Building 500, a covert waste disposal site |
| 1993 | CIA and State Department INR and Defense Intelligence Agency reach different conclusions about DPRK |
| February 1993 | IAEA investigates two waste sites at Yongbyon under “special investigation” rules |
| 22 February 1993 | IAEA Board of Governors meets about DPRK and views US satellite photographs. DPRK refuses IAEA demand for inspections of reprocessing facilities. |
| March 1993 | DPRK threatens to withdraw from the Non-Proliferation Treaty |
| 8 March 1993 | DPRK shuts down 5-megawatt reactor |
| June 1993 | IAEA concludes it is unable to do proper testing |
| 1994 | 3-day visit to DPRK by former US President Jimmy Carter |
| 1994 | DPRK endures widespread hail storms |
| 16 June 1994 | Pyongyang starts to unload fuel rods |
| 8 July 1994 | Kim Il Sung dies from heart attack |
| 21 October 1994 | Agreed Framework signed |
| 1995-96 | DPRK endures floods and widespread famine |

| | |
|-------------------------|---|
| 21 April 1995 | Agreed Framework deadline: Pyongyang refuses to disclose source identity of reactors |
| 1997 | DPRK endures drought |
| 1997 | <i>Juche</i> architect Hwang Jang Yop defects to South Korea |
| 1998 | <i>Taepodong</i> 1 missile test |
| 1998 | Kim Dae-jung's 'sunshine policy' (ROK) |
| 1998 | DPRK endures hail, storms, and tidal waves |
| 1998-1999 | DPRK accelerates plutonium enrichment program |
| 1999 | DPRK endures drought |
| 2000 | June Kim Dae-jung & Kim Jong-Il 'sunshine policy' talks |
| 2002 | DPRK announce economic reforms and new Special Administration Regions |
| 4 May 1992 | DPRK gives IAEA's Hans Blix a declaration on nuclear material |
| May 2002 | National Intelligence Estimate (NIE) by National Intelligence Council on DPRK program |
| September 2002 | Kim Jong-Il meets Vladimir Putin in Russian Far East |
| 28 December 2002 | DPRK threatens to expel IAEA inspectors |
| January 2003 | DPRK resigns from Non-Proliferation Treaty |
| 26 February 2003 | US satellites reveal DPRK has restarted 5-megawatt reactor |
| March 2003 | DPRK claims in Beijing negotiations that it has nuclear weapons manufacturing capabilities |
| April 2003 | DPRK, US, China talks |
| May 2003 | US satellites detect more activity at Yongbyon reprocessing plant |
| July 2003 | US satellites and South Korean National Intelligence Service suspect DPRK has second processing plant |

| | |
|-------------------------|---|
| August 2003 | Six Nation talks (DPRK, ROK, China, Japan, Russia and United States) |
| September 2003 | DPRK halts Yongbyon site activity for “goodwill” gesture |
| Late 2003 | DPRK rescinds claims it has been reprocessing plutonium |
| Early 2004 | 5-person US team visits Yongbyon reactors |
| April 2004 | US intelligence estimates DPRK has 8 nuclear bombs, and that program can manufacture 6 bombs a year |
| October 2004 | US intelligence suspects Kilju site in DPRK may be possible nuclear test site |
| 10 February 2005 | DPRK claims it has nuclear weapons capabilities |
| 11 May 2005 | DPRK announces it has reprocessed 8000 fuel rods |
| April 2005 | US gathers satellite intelligence on Kilju site: possible tunnel activity |
| May 2005 | US media debate on Kilju site |
| September 2005 | DPRK offers to cease activities for deal |
| September 2005 | Joint Statement by Six Nations |
| 2007 | ROK national elections |

Appendix 3: Key Themes In Selected Literature on the DPRK

Introduction: Evaluation and Thematic Criteria

DPRK literature has become a lucrative publishing sub-genre of Security Studies since the mid-1990s. Common themes include DPRK nation-state histories and key political events, descriptions of everyday life in the DPRK, leadership analysis of the Kim Il-Sung and Kim Jong-II regimes, and forecasts on DPRK's nuclear weapons program and regime survival.

However, this literature also varies in critical insight about strategic and security issues, the quality and scope of each book, and therefore its value as an input to intelligence, media and policymaking cycles. This reflects several factors: the authors' different levels of analysis and worldviews, the complexity of DPRK society and *Juche* philosophy compared with other political systems, and the hot-button nature of the DPRK's nuclear weapons program.

Each entry below includes author and title information. Source Analysis lists the key information sources and types which the author has used in research, and which may have shaped their scope and conclusions. Key Themes summarise the narrative approach and issues discussed in each text. Solutions cover how each author handles the controversies over DPRK's nuclear weapons program, Kim Jong-II's leadership, and related security issues.

Causal Layered Analysis as an Evaluation Tool

The Key Themes section also uses Sohail Inayatullah's post-structuralist Causal Layered Analysis (CLA) method to situate the knowledge interests and scope of each text.¹³¹ This method was developed in the early 1990s and synthesises the insights of Fred Polak, Michel Foucault, P.R. Sarkar, William Irwin Thompson and others. CLA can be firmly situated within the communication/symbols tradition exemplified by Kenneth Boulding and Robert Jervis.

Inayatullah distinguishes between problem context, horizontal levels of problem analysis, and vertical levels of problem causes. The entry categories Source Analysis and Solutions often draw on the problem context and horizontal levels. The value of Inayatullah's vertical levels has been to highlight the unsurfaced assumptions and levels of analysis that act as cognitive filters for the analyst—especially important in comparative political and cross-cultural analysis.

Inayatullah distinguishes between four levels: a 'Litany' level of espoused policy positions and media sound-bites; a 'Social Causes' level that reflects elite views, frame wars and policy cycles; a 'Discourse Analysis/Worldview' level of critical scholarship, genealogies, normative politics and inter-paradigmatic debate; and a 'Myth-Metaphor' level of core myths, formative structures and collective memories. Each level has span and depth, and may have overlapping boundaries with the others. A text's centre of gravity will usually reflect a particular level, which in turn will shape its analytical scope, problem definition and policymaker solutions. The inter-paradigmatic debate within Strategic Studies reflects how different levels reflect issues attention cycles, methodologies, policy frameworks and schools of thought.

DPRK Literature: Selected Titles

Title: *Under The Loving Care of the Fatherly Leader* (2004)

Author: Bradley K. Martin

Source Analysis: Chinese and Russian archives, Defector interviews, Personal trips

Key Themes: Discourse Analysis/Worldview level: Historiography of Kim Il-Sung's career based on new archival material, DPRK life conditions, Kim Jong-II's regime, DPRK's future

Solutions: US should negotiate with DPRK over nuclear weapons program and to stabilise the Northeast Asian region. *Under The Loving Care's* final chapter explores the candidates for post-Jong Il leadership and the likely evolution of DPRK's political system.

Title: *Rogue Regime: Kim Jong Il and the Looming Threat of North Korea* (2005)

Author: Jesper Becker

Source Analysis: Personal trips, Defector anecdotes and rumours

Key Themes: Litany/Social Causes boundary: DPRK life conditions, Kim Jong-II's regime, political resilience

Solutions: US should conduct Iraq-style 'regime change' to end Kim Jong-II's control and install a government that more reflects US interests. *Rogue Regime* offers similar arguments to US neoconservatives on pre-emptive intervention in Iraq and Iran.

Title: *Pax Pacifica: Terrorism, The Pacific Hemisphere, Globalisation and Peace Studies* (2005)

Author: Johan Galtung

Source Analysis: DPRK high-level officials, Peace Studies frameworks

Key Themes: Critical and Myth/Metaphor: DPRK negotiations, DPRK-Japan and DPRK-ROK relations

Solutions: DPRK and ROK should develop a "confederation-federation-unitary North-South process" based on North-South cooperation in the Korean Peninsula.

Title: *Spying On The Bomb: American Nuclear Intelligence from Nazi Germany to Iran and North Korea* (2006)

Author: Jeffrey T. Richelson

Source Analysis: US intelligence community documents, Signals and Technical intelligence from US satellites

Key Themes: Social Causes: US intelligence analysis of DPRK weapons program

Solutions: Inter-agency rivalry between the Department of Energy, the Central Intelligence Agency, the National Security Agency and the State Department have affected intelligence collections, process and analysis.

Title: *Kim Jong-II: North Korea's Dear Leader* (2005)

Author: Michael Breen

Source Analysis: Defector testimony and South Korean critiques

Key Themes: Litany: anecdotes and rumours of Kim Jong-II's lifestyle

Solutions: International coalition led by US to pressure DPRK into economic reforms; security guarantees provided in exchange for rollback of nuclear weapons program and adherence to IAEA regulations.

Title: *The North Korean System in the Post-Cold War Era* (2001)

Author: Samuel L. Kim (Editor)

Source Analysis: Academic studies and systems models

Key Themes: Critical: leadership, regime survival, cultural factors, systems approaches to DPRK's future

Solutions: Various models of political reform based on South Korea, China or Russian Soviet models; systems models are very useful to understand DPRK as a doctrinal 'black box'.

Title: *Target North Korea* (2004)

Author: Gavan McCormack

Source Analysis: Academic studies, Personal visits, Peace Studies models

Key Themes: Critical and Myth/Metaphor: DPRK historiography, *Juche* as a comparative political system, regime survival, Sino-Japan relations, Six Nations negotiations

Solutions: Korean War is an unresolved historical traumata that keeps DPRK as a war-driven society; *Juche* provides a way to understand DPRK psyche; build cross-regional collaboration in an Asian Co-Prosperty Economic Sphere that deals with Sino-Japan legacies.

Title: *Another Country* (2004)

Author: Bruce Cumings

Source Analysis: Academic studies, Defector testimony

Key Themes: Critical: DPRK historiography, *Juche* as a comparative political system, regime survival

Solutions: North Korea could embrace economic reform and achieve comparative advantage with South Korea; DPRK analysis signifies American intelligence failure to understand a different political system and leadership psychology.

Title: *Korean Endgame* (2002)

Author: Selig S. Harrison

Source Analysis: Academic studies, Defector testimony, Policy cycle

Key Themes: Social Causes and Critical: DPRK historiography, regime survival, arms control

Solutions: Normalisation and reunification could lead to a neutral Korea that stabilises the region; US should disengage its security globalisation from Northeast Asian region.

Title: *North Korea: The Paranoid Peninsula* (2005)

Author: Paul French

Source Analysis: Academic studies, Defector testimony, Policy cycle

Key Themes: Social Causes and Critical: DPRK historiography, regime survival, arms control

Solutions: History of Korean reunification; scenarios include Predicted Collapse, Mass Exodus, Military Takeover and New Leader

Title: *Crisis On The Korean Peninsula* (2003)

Author: Michael O’Hanlon and Mike Mochizuki

Source Analysis: Academic studies, Brookings Institution think-tank, Policy cycle

Key Themes: Social Causes: military power projection, coercive diplomacy, economic reforms, regional alliance building

Solutions: US-ROK alliance with military force to leverage negotiations for Korean Peninsula détente or reunification.

Title: *North Korea South Korea: U.S. Policy at a Time of Crisis* (2003)

Author: John Feffer

Source Analysis: Academic studies, Policy cycle, Media analysis

Key Themes: Social Causes and Critical: DPRK historiography, US-DPRK worldview analysis, economic analysis, military power projection

Solutions: Reunification on German model; constructive engagement policies; regional stability for East Asia.

Title: *Separated At Birth: How North Korea Became The Evil Twin* (2004)

Author: Gordon Cucullu

Source Analysis: Personal visit, Media analysis

Key Themes: Social Causes and Myth/Metaphor: DPRK historiography, DPRK-ROK tension, comparative political analysis

Solutions: China leadership vital for negotiations; DPRK and ROK should pursue bilateral discussions as a first step to reunification

Title: *Going Critical: The First North Korean Nuclear Crisis* (2004)

Author: Joel S. Wit, Doaniel B. Poneman, and Robert L. Gallucci

Source Analysis: Personal visit, Academic studies, Brookings Institution think-tank, Policy cycle

Key Themes: Social Causes and Critical: Insider history of 1993-94 crisis on DPRK nuclear weapons program

Solutions: 8 key lessons on “crisis stability”, coercive diplomacy and DPRK negotiations; case study comparable to Kahn’s Escalation Ladder

Title: *Nuclear Showdown: North Korea Takes On The World* (2004)

Author: Gordon C. Chang

Source Analysis: Personal visit, Defector testimonies

Key Themes: Litany and Social Causes: DPRK weapons program, Sino-Japan relations, DPRK regime survival, economic transformation, intervention options

Solutions: US ‘regime change’ of DPRK to prevent escalation of nuclear weapons program

Appendix 4: DPRK Counter-Moves and Solutions

The following are 10 counter-moves and solutions proposed in the DPRK literature summarised in Appendix 3.

1. *'Exterminate The Brutes'*: Jonathan Schell argues that this is the deeper cultural script underlying the 'balance of terror' and nuclear weapons, with genocide intent.¹³² (Strategic/Grand Strategy and Inter-State).
2. *'Regime Change'*: DPRK leadership is either playing "Chicken" or irrational and so should be replaced by someone more amenable to US or regional strategic interests. (Tactical/Strategic and Inter-State).
3. *'Pre-emptive Strike'*: Tactical bombing of DPRK nuclear reactors, modelled on the Israeli bombing of Iraq's Osirak reactor on 7 June 1981. (Tactical and Inter-State)
4. *'Systemic Isolation'*: Further limit DPRK via control of economic and trade flows, coercive diplomacy, de-legitimate *Juche* self-reliance as a political philosophy. (Strategic and Inter-state).
5. *'Détente' DPRK*: Adopt a strategic diplomacy approach modelled on President Richard Nixon's 1972 China visit. (Strategic and Inter-State).
6. *'Emerging Issues'*: Targeted work on specific geostrategic issues and security problems, such as the arms trade, refugee flows and technology transfer. (Tactical/Strategic and World).
7. *'Peace Culture'*: Cultural transformation in a confederacy structure that deals with historical traumata and post-conflict reconstruction. (Grand Strategy and World).
8. *'World System'*: Regime intervention and government management by United Nations, International Atomic Energy Agency or other global institution. (Strategy and World).
9. *'Disengagement'*: US disengages its security globalisation from the Northeast Asian region, leaving DPRK problem to regional actors. (Strategy and Inter-State).
10. *'Failed State'*: Various scenarios include Mass Exodus, Military Takeover and Predicted Collapse (Strategy and State-centric).

International Relations, Security and Strategy Frameworks

- 1: Tragic Realist, Total War
- 2 & 3: Realist, Neo-Realist and Liberal Internationalist
- 5: Democratic Peace and Liberal Internationalist
- 6: Critical Security Studies, Constructivist and Environmental
- 7: Civilisational, Feminist, Peace Studies

- 8: Constructivist, English School, World Systems
- 9: Neo-Realist, Isolationist
- 10: Tragic Realist, Neo-Realist, World Systems

Appendix 5: DPRK Escalation Ladder (Draft)

The following is a draft Escalation Ladder for the DPRK's nuclear weapons program, adapted from Herman Kahn's model in *On Escalation* (1965).¹³³ A range of escalation sub-scales could be developed for covert operations, diplomacy and intelligence activities. This Escalation Ladder also includes a list of possible escalation triggers and force calculus for the major thresholds).

The evolution of the world system and security calculus means that Kahn's original Escalation Ladder would have to be updated for contemporary use. Kahn did not adequately consider the role of crisis diplomacy, global media, psychological operations or civil society actors in resolving traditional crises. This also encompasses the use of cross-comparative political systems and leadership profiling to understand what Victor D. Cha calls the "black box" of DPRK military doctrines. Although the Flexible Response era of the Kennedy and Johnson Administrations created Special Operations forces to intervene in Intense Conflicts, high-profile failures such as the Bay of Pigs (1961) and the *Black Hawk Down* incident (1993) continue to be operational risks.

Negotiation may evolve through several phases: preconditions for negotiation; metaphor and semantic battles over key definitions; pre-negotiation stances; debates over the applicability of past inter-state, regional and international accords; the search for common ground; and the appointment of third-party mediators. Declarative and propaganda statements versus actual positions must also be considered in "getting to yes".

Regional Nuclear War

- China-DPRK or Russia-DPRK coalition attack on US and US regional allies
- US 'tit-for-tat' limited nuclear conflict with DPRK

(Central War Threshold)

Local Nuclear War

(Force calculus: Tactical nuclear weapons; bunker busters and national missile defence).

(Escalation trigger: DPRK First-Strike attack on US and/or regional ally)

- US Second-Strike on Pyongyang
- US tactical nuclear targeting of DPRK key facilities
- DPRK First-Strike nuclear attack on Japan
- DPRK 'dirty bomb' on US and US allies
- DPRK nuclear blackmail of US and US allies

(No Nuclear Use Threshold)

Bizarre Crisis

(Force calculus: Covert Operations and Special Operations; paramilitary forces; off-the-shelf scenarios on DPRK force mobilisation and power projection; known commercial-military arms sales and technology transfers; targeting data for Pre-emptive attacks; Threat scenarios).

(Escalating triggers: DPRK Covert or Special Operations in ROK; DPRK internal conflict and regime destabilisation; DPRK state sponsorship of terrorist attack on US and/or regional ally; DPRK pre-emptive attack on Japan; DPRK nuclear test)

- Retaliatory attack on DPRK cities and major population centres
- DPRK instability or ‘wild card’ causes devolution to ‘weak’/‘failed’ nation-state
- DPRK population evacuation and/or major humanitarian disaster
- Hostile ‘regime’ change’ in DPRK initiated by US or international coalition
- Military coup d’etat installs hostile leader who initiates military offensive
- Covert Operations to target DPRK facilities is discovered
- Pre-emptive attack on DPRK nuclear facilities and/or military facilities
- ROK-US conventional military invasion of DPRK
- DPRK state sponsorship of terrorist attack/campaign
- DPRK Special Forces destabilisation of ROK military, civilian, communications and transportation facilities

(Military Force Threshold)

Traditional Crisis

(Force calculus: Crisis Diplomacy; Leadership Profiling; Cross-comparative Political Systems; Psychological Operations; Global Media; Systems Analysis of targeting; Civil Society mobilisation; “Chicken” game strategy; Security Dilemma dynamics; De-escalation options).

(Escalating triggers: DPRK major arms sale or evidence of nuclear proliferation; DPRK involvement in black market smuggling; DPRK mobilisation against Japan or other US regional ally; DPRK reprocessing of spent fuel rods)

- DPRK “First-Strike Uncertainty”
- DPRK options for Regime Survival/Political Resilience
- Peace blockade: mobilisation of civil society groups and ‘soft power’ movements
- Global media war-of-words and counter-propaganda against host populations
- Economic and trade targeting
- United Nations General Assembly and Security Council votes
- Six Nations meeting and declarations
- Six Nations country realignments and sub-negotiations
- Crisis Diplomacy
- Coercive Diplomacy by US and/or regional coalitions

(Don’t Rock The Boat Threshold)

Subcrisis Maneuvering

(Force calculus: Diplomacy spectrum; Security modelling of sub-state problems and flows; Counter-proliferation and nuclear trafficking initiatives; Assimilation-Contrast effect; Game strategies; Signals, Technical and Human Intelligence capabilities).

(Escalation triggers: DPRK conventional missile test; DPRK leadership statements; DPRK defector or refugee problems in region; DPRK evidence of illegal arms dealing, money laundering or smuggling).

- DPRK senior leadership and/or regime change
- Third nation pressure on resource and security flows
- Bilateral negotiations (ROK, China, Russia, Japan)
- US-DPRK negotiations
- SIGINT, TECHINT, MASINT and HUMINT capabilities
- Denial and Deception strategies
- Refugee flows
- Defector testimony

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